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Workholding Technologies

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CMM Inspection Fixturing
Sets • Plates • Clamps • Supports

One-Touch Fasteners & Sliding Locks
Quarter Turn • Ball Locking • Magnetic

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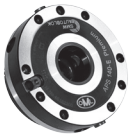

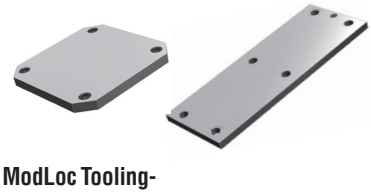

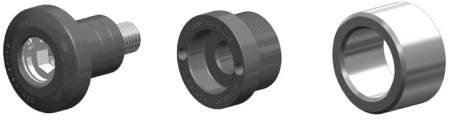

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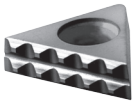

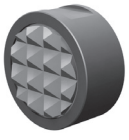

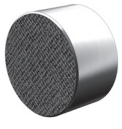

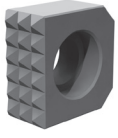

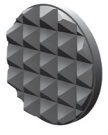

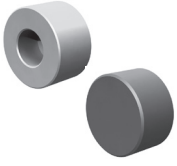

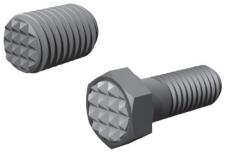

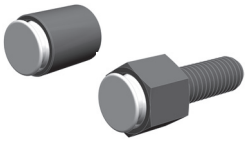

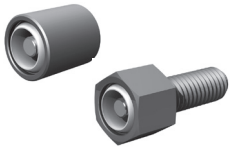

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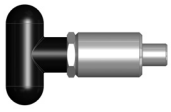

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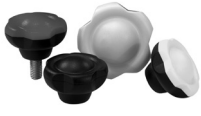

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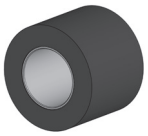

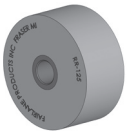




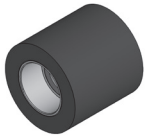

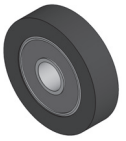




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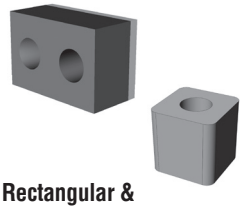


MANUAL CLAMPS

SWING & HOOK

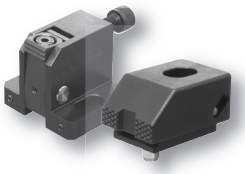
TOGGLE & RETRACTABLE

SNAP

THRUST

PUSH & PULL

SIDE & TOE



CAM

OK-VISE WEDGE

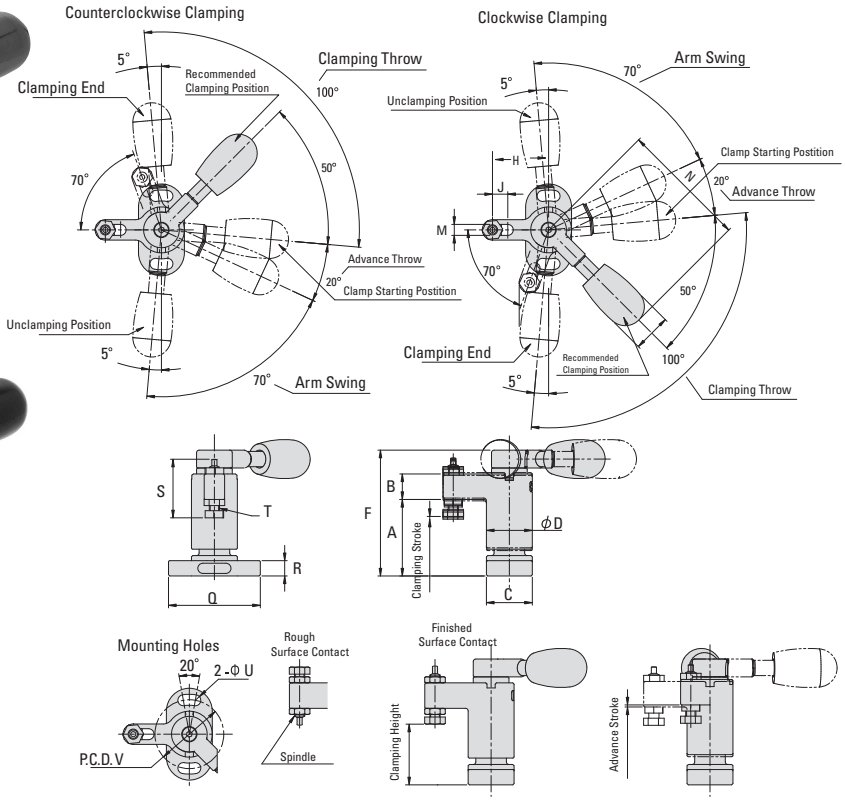
ID / OD

SWING CLAMPS – SWC SERIES – W/ HANDLE

ONE-TOUCH Clamps

Black Oxide Finish

Electroless Nickel Plated



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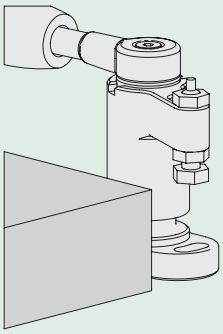
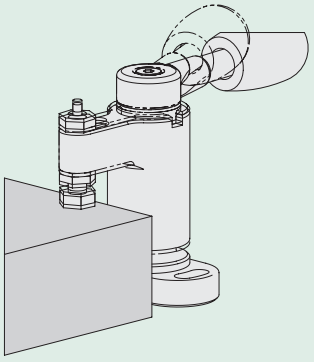


Load the work piece with the clamp arm out of the way.



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. Contact bolt can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. Part numbers ending with R have a clockwise clamping direction, part numbers ending in L have a counter clockwise clamping direction. The body, handle and spindle are made from SAE-1045 alloy steel. The clamp arm and cam shaft are made from SAE-4140 alloy steel. Parts are heat treated. Available with black oxide finish or with electroless nickel plating. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. Handle is black plastic. See pages 122-125 for pneumatic style.

Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Clamping Stroke mm	Advance Stroke mm	Clamping Force Lbs.	Handle Load Lbs.*
QLSWC100	22.3 - 25.3	21.9-24.9	1.0	0.8	247	22
QLSWC150	30.6 - 34.0	31.5-34.9	1.4	1.1	405	34
QLSWC200	31.7 - 39.7	32.7-40.7	1.5	1.4	495	45
QLSWC300	35.5 - 46.9	38.0-49.4	1.9	1.7	787	67

*Allowable load to operate handle.

Black Oxide Part #	Nickel Plated Part #	A mm	B mm	C mm	D mm	F mm	H mm	J mm	M mm	N mm	Q mm	R mm	S mm	T mm	U mm	P.C.D.* V mm
QLSWC100R	QLSWC100R-NP	30	10	18	18	49	22	6	4.3	50	36	6	22.8	M4X0.7	4.3	27
QLSWC100L	QLSWC100L-NP	30	10	18	18	49	22	6	4.3	50	36	6	22.8	M4X0.7	4.3	27
QLSWC150R	QLSWC150R-NP	40	14	23	23	66	30	8	5.3	63	45	8	28.5	M5X0.8	5.3	34
QLSWC150L	QLSWC150L-NP	40	14	23	23	66	30	8	5.3	63	45	8	28.5	M5X0.8	5.3	34
QLSWC200R	QLSWC200R-NP	50	18	30	30	82	37	8	8.4	80	65	12	45.5	M8X1.25	8.4	48
QLSWC200L	QLSWC200L-NP	50	18	30	30	82	37	8	8.4	80	65	12	45.5	M8X1.25	8.4	48
QLSWC300R	QLSWC300R-NP	60	22	40	40	100	45	8	10.4	100	85	15	57	M10X1.5	10.5	64
QLSWC300L	QLSWC300L-NP	60	22	40	40	100	45	8	10.4	100	85	15	57	M10X1.5	10.5	64

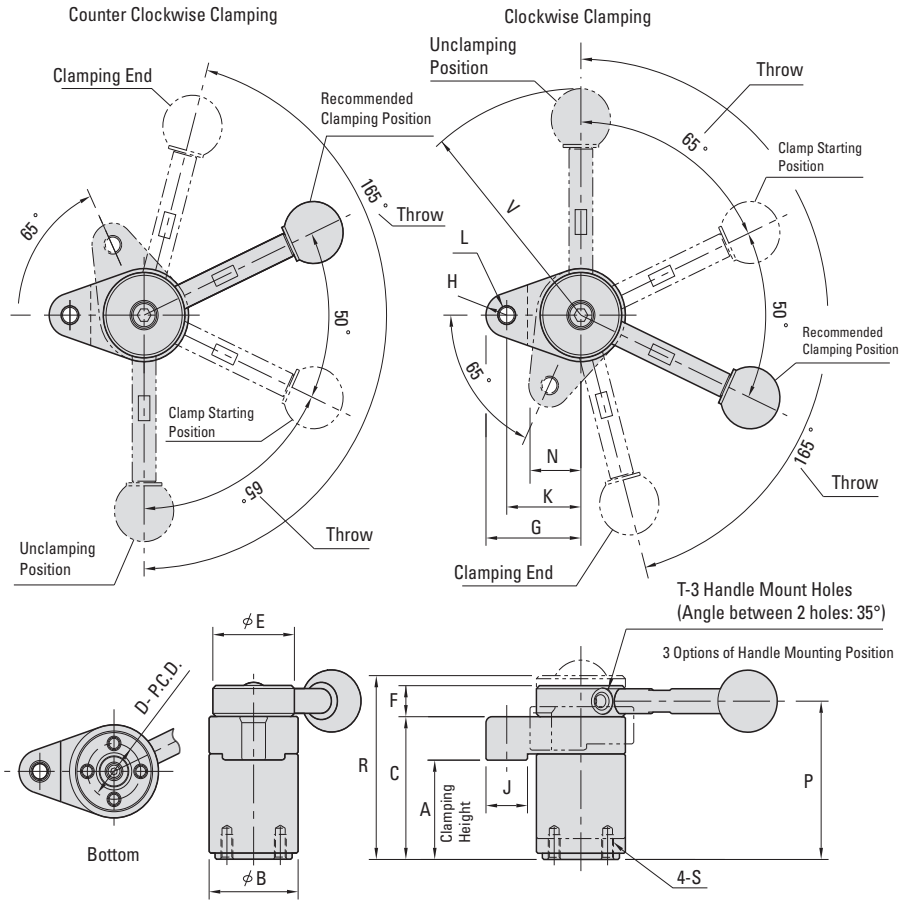
*Pitch Circle Diameter

SWING CLAMPS – SW SERIES – W/ OR W/O HANDLE

ONE-TOUCH Clamps

with handle

without handle



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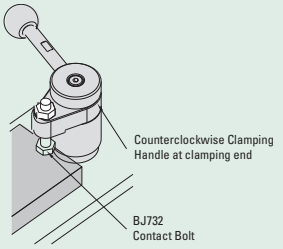
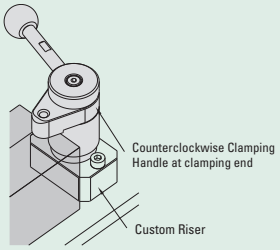
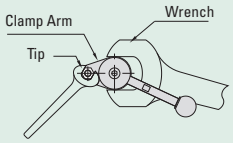




Tip Installation

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 Force Lbs.	Handle Load Lbs.*
QLSW150	1.2	170	33
QLSW200	1.8	260	45

*Allowable load to operate handle

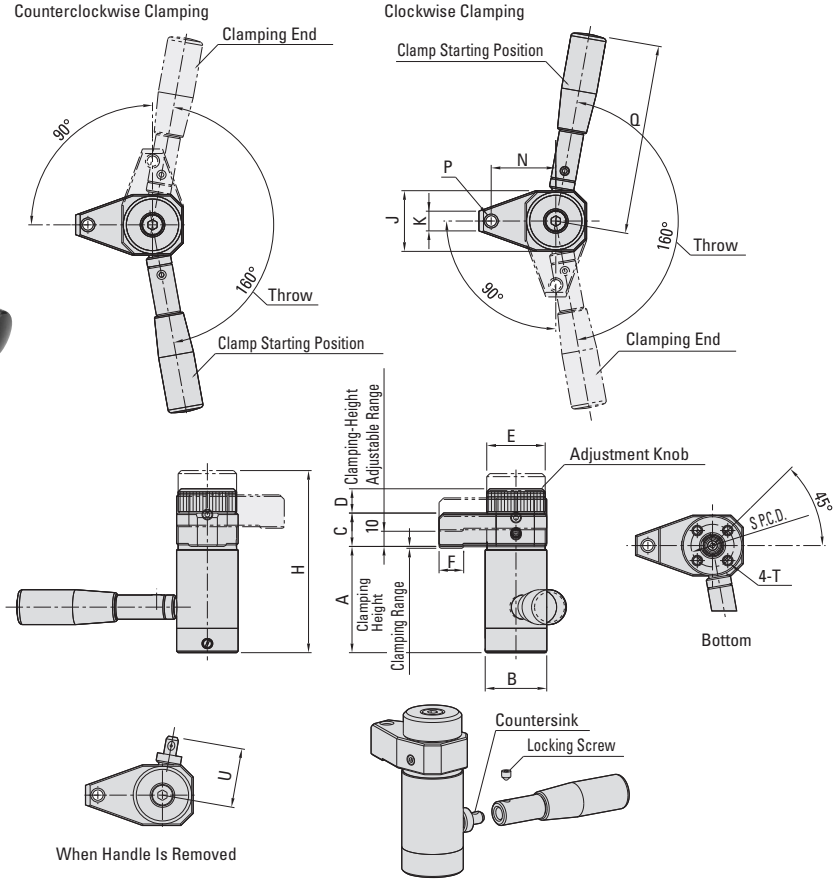
These swing clamps swing into position, then clamp straight down onto the work piece for direct downward pressure. When releasing the clamp, the clamp swings out 65 degrees for easy removal and placement of the work piece. Excellent for repetitive clamping operations. The tapped end of the clamp arm 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. 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 adapter head are made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. Handle is black plastic. See pages 48 and 49 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
QLSW150R	QLSW150NR	31.4-32.6	30	46	18	30	10	32	7	14	25	M6X1	17.5	51.0	57.5	M4X0.7	M5X0.8	73
QLSW150L	QLSW150NL	31.4-32.6	30	46	18	30	10	32	7	14	25	M6X1	17.5	51.0	57.5	M4X0.7	M5X0.8	73
QLSW200R	QLSW200NR	44.1-45.9	40	63	25	38	13	40	8	16	32	M8X1.25	21.5	69.5	78.1	M6X1	M6X1	107
QLSW200L	QLSW200NL	44.1-45.9	40	63	25	38	13	40	8	16	32	M8X1.25	21.5	69.5	78.1	M6X1	M6X1	107

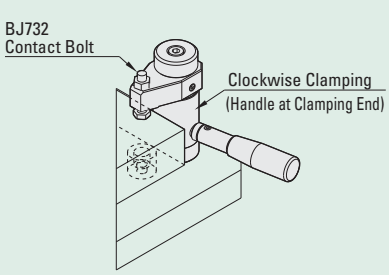
*Pitch Circle Diameter

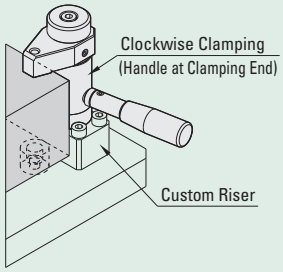
SWING CLAMPS – SWH SERIES – HEAVY DUTY

ONE-TOUCH Clamps



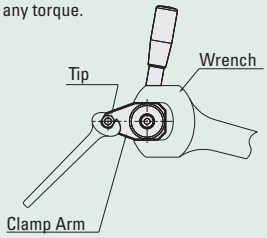
How To Use





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 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.

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

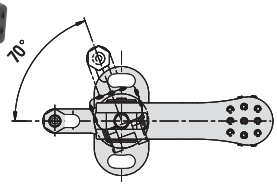
Note: Maximum load on the handle cannot exceed 134 lbs. *Pitch Circle Diameter

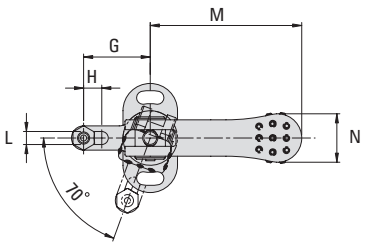
SWING CLAMPS – SWCV SERIES – W/ CAM HANDLE

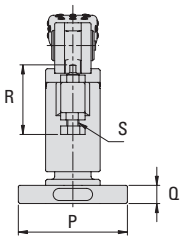
ONE-TOUCH Clamps

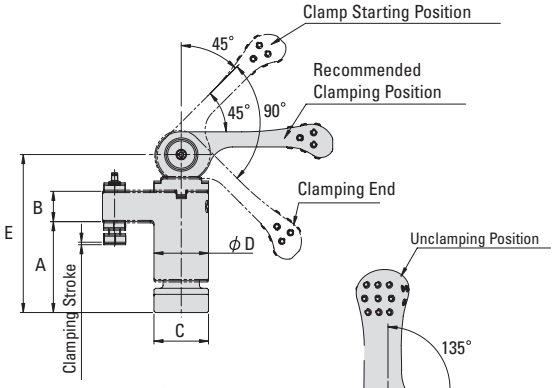
Black Oxide Finish

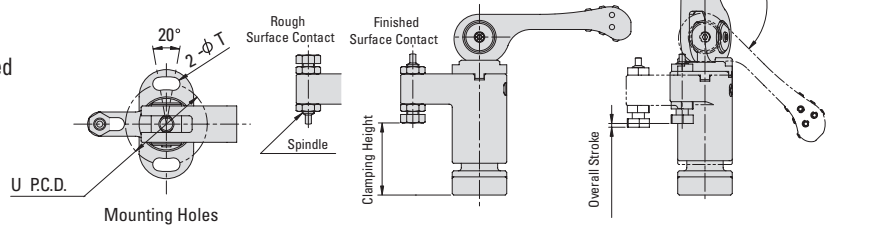
Electroless Nickel Plated





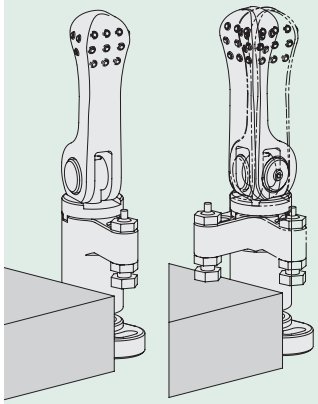






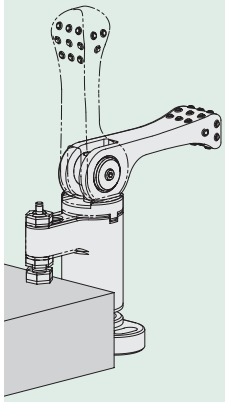
Mounting Holes

How To Use



1. Unclamped
Load a workpiece.

2. Arm Swing
Turn the handleto set the arm in position.



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

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. Contact bolt can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. Part numbers ending with R have a clockwise clamping direction, part numbers ending in L have a counter clockwise clamping direction. The body, handle and spindle are made from SAE-1045 alloy steel. The clamp arm and cam shaft are made from SAE-4140 alloy steel. Parts are heat treated. Available with black oxide finish or with electroless nickel plating. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments.

Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Clamping Stroke mm	Overall Stroke mm	Clamping Force Lbs.	Handle Load Lbs.*
QLSWC100V	22.4 - 25.2	22.0 - 24.8	0.8	1.2	180	22
QLSWC150V	30.8 - 33.8	31.7 - 34.7	1.0	1.5	337	34
QLSWC200V	31.9 - 39.6	32.9 - 40.6	1.2	1.8	472	45
QLSWC300V	35.7 - 46.7	38.2 - 49.2	1.5	2.3	629	67

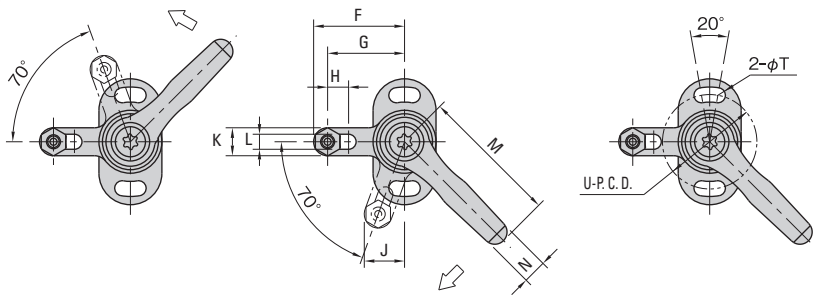
*Allowable load to operate handle.

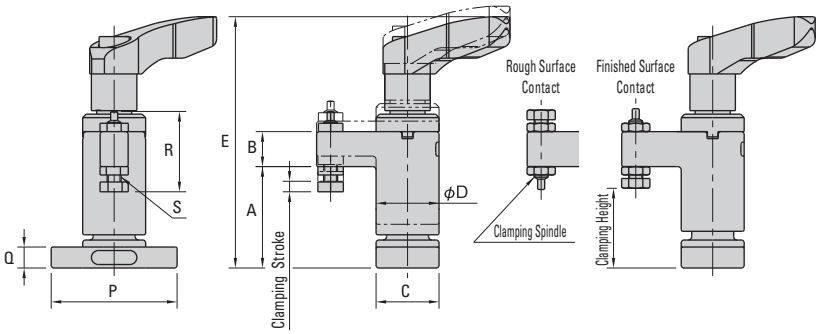
Black Oxide Part #	Nickel Plated Part #	A mm	B mm	C mm	D mm	E mm	G mm	H mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	P.C.D.* U mm
QLSWC100VR	QLSWC100VR-NP	30	10	18	18	52	22	6	4.3	50	16	36	6	22.8	M4X0.7	4.3	27
QLSWC100VL	QLSWC100VL-NP	30	10	18	18	52	22	6	4.3	50	16	36	6	22.8	M4X0.7	4.3	27
QLSWC150VR	QLSWC150VR-NP	40	14	23	23	68	30	8	5.3	63	19	45	8	28.5	M5X0.8	5.3	34
QLSWC150VL	QLSWC150VL-NP	40	14	23	23	68	30	8	5.3	63	19	45	8	28.5	M5X0.8	5.3	34
QLSWC200VR	QLSWC200VR-NP	50	18	30	30	87	37	8	8.4	80	24	65	12	45.5	M8X1.25	8.4	48
QLSWC200VL	QLSWC200VL-NP	50	18	30	30	87	37	8	8.4	80	24	65	12	45.5	M8X1.25	8.4	48
QLSWC300VR	QLSWC300VR-NP	60	22	40	40	107	45	8	10.4	100	30	85	15	57	M10X1.5	10.5	64
QLSWC300VL	QLSWC300VL-NP	60	22	40	40	107	45	8	10.4	100	30	85	15	57	M10X1.5	10.5	64

*Pitch Circle Diameter

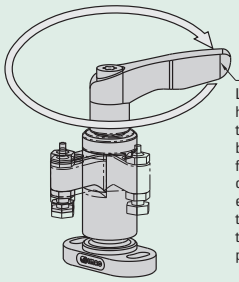
SWING CLAMPS – SWCK SERIES – W/ ADJUSTABLE HANDLE

ONE-TOUCH Clamps





How To Use



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

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

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. The adjustable handle allows for greater clamping stroke and clamping forces. The adjustable handle allows for tightening in limited space and can be moved out of the way to avoid interference. Contact bolt can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. Part numbers ending with R have a clockwise clamping direction and part numbers ending in L have a counter clockwise clamping direction. The body is made from SAE-4140 alloy steel. The base and clamping spindle is made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. The adjustable handle is made from zinc die cast.

Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Clamping Stroke mm	Operating Load Lbs.*	Clamping Force Lbs.
QLSWC-0618KR	21.8-26.8	21.4-26.4	3	38	449
QLSWC-0618KL	21.8-26.8	21.4-26.4	3	38	449
QLSWC-0823KR	30.3-36.3	31.2-37.2	4	38	719
QLSWC-0823KL	30.3-36.3	31.2-37.2	4	38	719
QLSWC-1030KR	30.5-41.0	31.5-42.0	4	78	1,011
QLSWC-1030KL	30.5-41.0	31.5-42.0	4	78	1,011
QLSWC-1240KR	34.5-49.0	37.0-51.5	5	92	1,348
QLSWC-1240KL	34.5-49.0	37.0-51.5	5	92	1,348

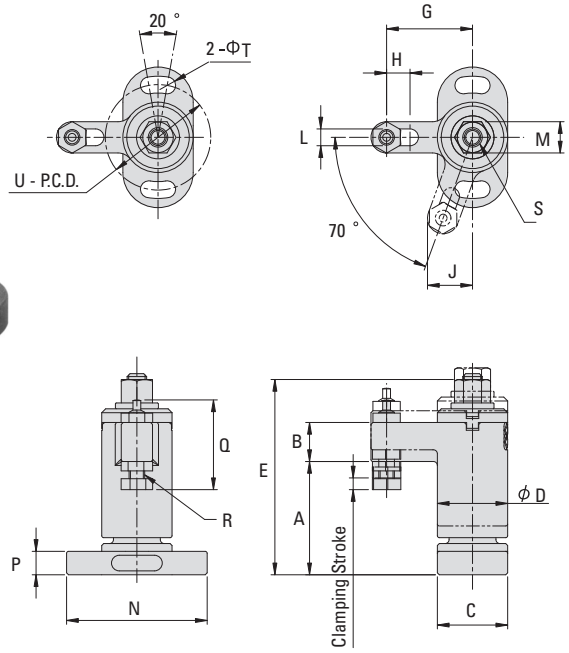
*Allowable load to operate handle

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	N mm	P mm	Q mm	R mm	S mm	T mm	P.C.D.* U mm
QLSWC-0618KR	29	10	18	18	71.9	26	22	6	11.5	8	4.3	40	7	36	6	22.8	M4X0.7	4.3	27
QLSWC-0618KL	29	10	18	18	71.9	26	22	6	11.5	8	4.3	40	7	36	6	22.8	M4X0.7	4.3	27
QLSWC-0823KR	39	14	23	23	97.3	35	30	8	15.3	10	5.3	65	9.5	45	8	28.5	M5X0.8	5.3	34
QLSWC-0823KL	39	14	23	23	97.3	35	30	8	15.3	10	5.3	65	9.5	45	8	28.5	M5X0.8	5.3	34
QLSWC-1030KR	48	18	30	30	122.3	45	37	8	20.7	16	8.4	80	11	65	12	45.5	M8X1.25	8.4	48
QLSWC-1030KL	48	18	30	30	122.3	45	37	8	20.7	16	8.4	80	11	65	12	45.5	M8X1.25	8.4	48
QLSWC-1240KR	58	22	40	40	145.7	55	45	8	25.4	20	10.4	95	13	85	15	57	M10X1.5	10.5	64
QLSWC-1240KL	58	22	40	40	145.7	55	45	8	25.4	20	10.4	95	13	85	15	57	M10X1.5	10.5	64

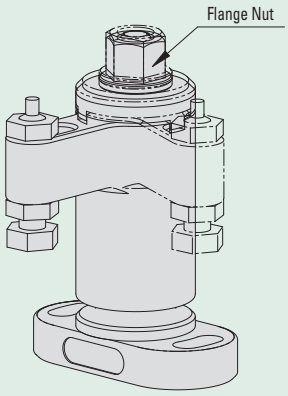
*Pitch Circle Diameter

SWING CLAMPS – SWC SERIES – W/ NUT DRIVER

ONE-TOUCH Clamps



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 were 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 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.

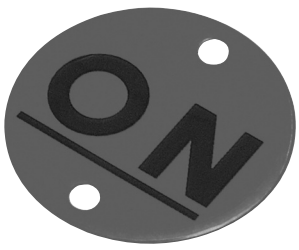
Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Clamping Stroke mm	Allowable Screw Torque (in/lbs.)	Clamping Force Lbs.
QLSWC-0618	21.8 - 26.8	21.4 - 26.4	3	53	517
QLSWC-0823	30.3 - 36.3	31.2 - 37.2	4	92	809
QLSWC-1030	30.5 - 41.0	31.5 - 42.0	4	265	1,348
QLSWC-1240	34.5 - 49.0	37.0 - 51.5	5	398	1,686

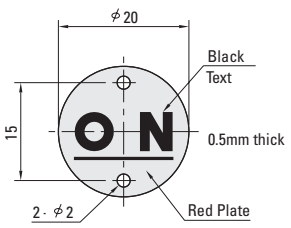
*Allowable load to operate handle

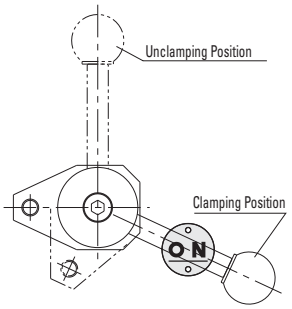
Part #	A mm	B mm	C mm	D mm	E mm	G mm	H mm	J mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	P.C.D.* U mm
QLSWC-0618	29	10	18	18	56.5	22	6	11.5	4.3	10	36	6	22.8	M4X0.7	M6X1	4.3	27
QLSWC-0823	39	14	23	23	73.5	30	8	15.3	5.3	13	45	8	28.5	M5X0.8	M8X1.25	5.3	34
QLSWC-1030	48	18	30	30	91	37	8	20.7	8.4	17	65	12	45.5	M8X1.25	M10X1.5	8.4	48
QLSWC-1240	58	22	40	40	114	45	8	25.4	10.4	19	85	15	57	M10X1.5	M12X1.75	10.5	64

*Pitch Circle Diameter

MARKER PLATES





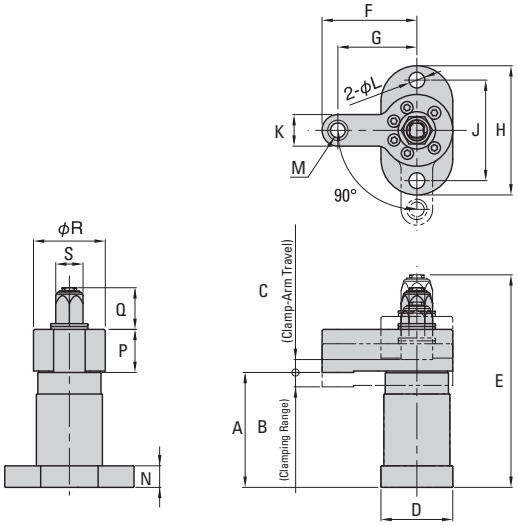


These aluminum marker plates are used to mark the handle position in the clamping mode. Pressure sensitive adhesive on the backside. 2mm holes allow for riveting. Color is red.

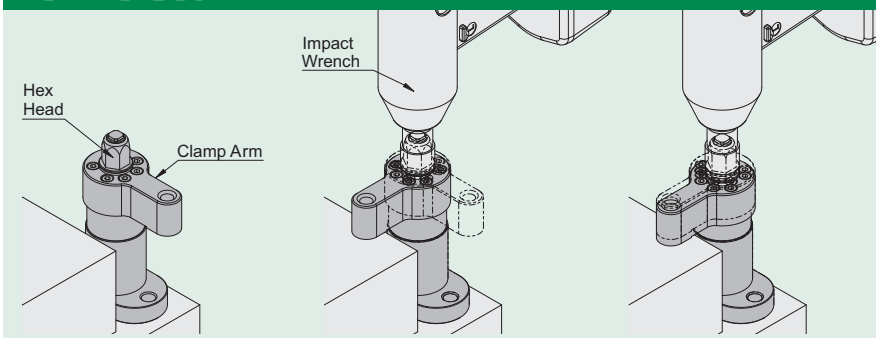
Part #
QLST-ON

SWING CLAMPS – SW1 SERIES – QUICK ACTING

ONE-TOUCH Clamps



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

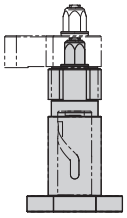
Part #	A mm	Clamping Range B mm	Clamp Arm Travel C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm
PTSW1-12R	80	10	11	50	150	66	55	90	70	22	11	M12X1.75	15	30	29	50	19
PTSW1-16R	95	10	14	60	179	79	65	100	80	28	13	M16X2	20	35	35	60	24

Swing Clamp without Arm

Part #	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
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

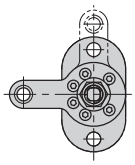
SWING CLAMPS – SW2 SERIES – SPIRAL ACTING

ONE-TOUCH Clamps

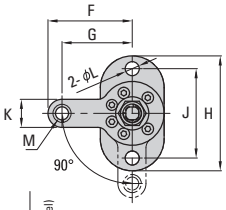


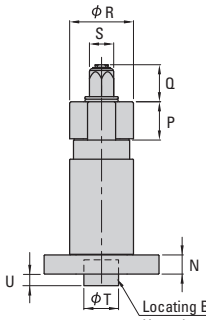
The internal spiral groove allows the clamp arm to swing positively.

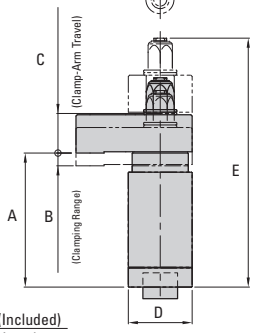
Counterclockwise Clamping



Clockwise Clamping

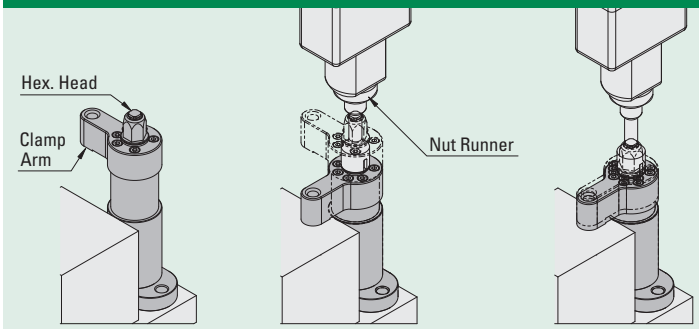






Locating Boss (Included)
Use when locating clamps are required in an automated production line.

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 quickl y.

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

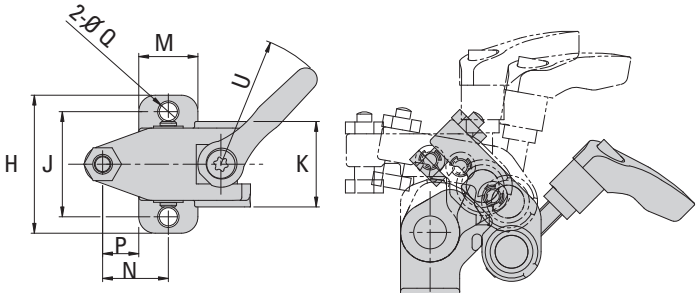
Swing Clamp without Arm

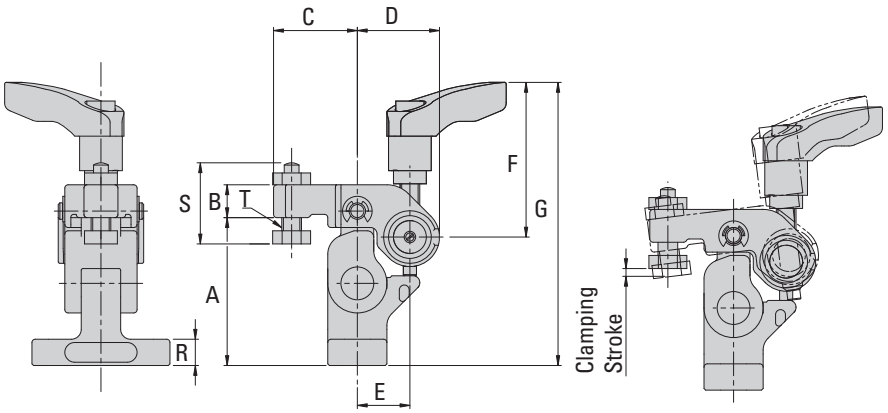
Part #	A mm	Clamping Range B mm	Clamp Arm Travel C mm	D mm	E mm	H mm	J mm	L mm	N mm	P mm	Q mm	R mm	S mm	+0/-0.2 T mm	U mm
PTSW2-12NR	105	10	31	50	195	90	70	11	15	30	29	50	19	26	10
PTSW2-12NL	105	10	31	50	195	90	70	11	15	30	29	50	19	26	10
PTSW2-16NR	120	10	36	60	226	100	80	13	20	35	35	60	24	30	12
PTSW2-16NL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

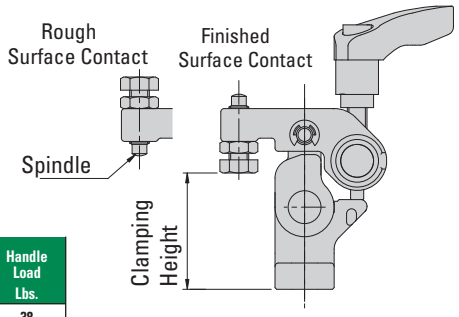
IMAO

RETRACTABLE CLAMPS – RE SERIES – W/ ADJUSTABLE HANDLE

ONE-TOUCH Clamps



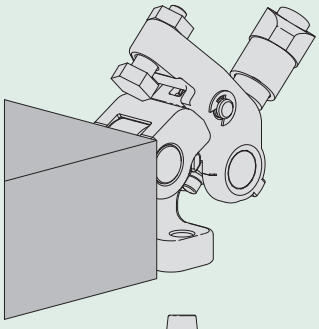




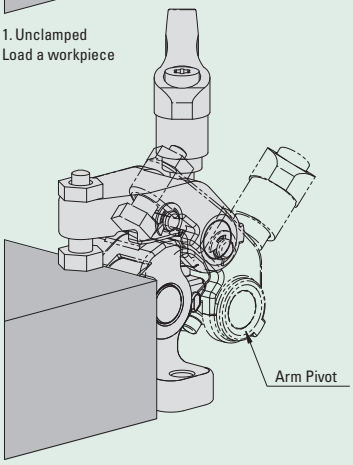
Part #	CLAMPING HEIGHT Finished Surface mm	Rough Surface mm	Stroke mm	Clamping Force Lbs.	Handle Load Lbs.
QLRE-06	29.5 - 40.0	32.5 - 43.0	2.5	539	38
QLRE-08	33.5 - 48.0	38.5 - 53.0	3.5	944	47

These miniature retractable 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.

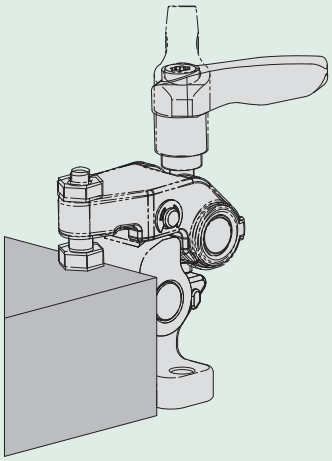
How To Use



1. Unclamped
Load a workpiece



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



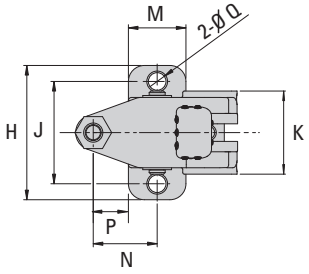
3. Clamping
Set the handle down to clamp the workpiece.

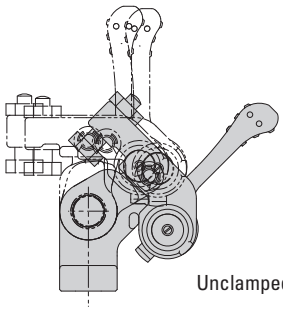
For unclamping, reverse the above steps.

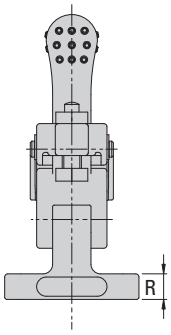
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	U mm
QLRE-06	45	10	25.5	25	16	47	86	42	32	26	18	20	11	5.5	8	24.0	M6X1	40
QLRE-08	55	12	32.0	31	20	63	109	52	40	32	22	25	14	6.6	10	30.5	M8X1.25	65

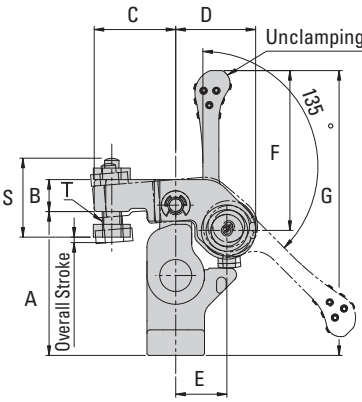
RETRACTABLE CLAMPS – RE SERIES – W/ CAM HANDLE

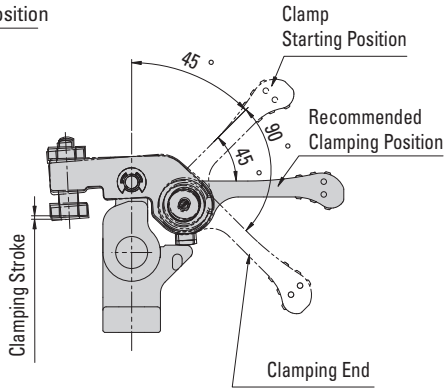
ONE-TOUCH Clamps

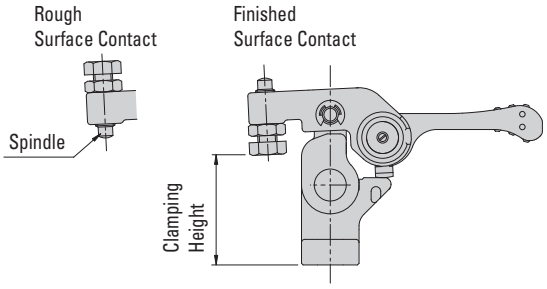








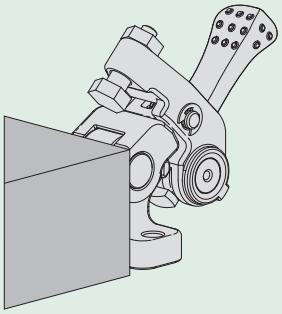




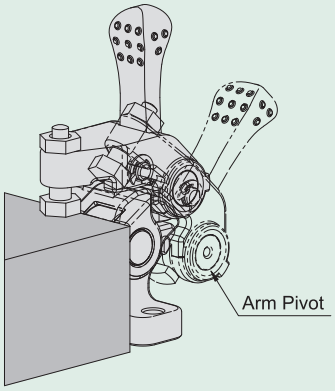
Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Clamping Stroke mm	Overall Stroke mm	Clamping Force Lbs.	Handle Load Lbs.
QLRE100	31.5 - 40.5	34.5 - 43.5	1.0	1.5	150	22
QLRE150	36.4 - 48.6	41.4 - 53.6	1.2	1.8	247	33

These miniature retractable 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.

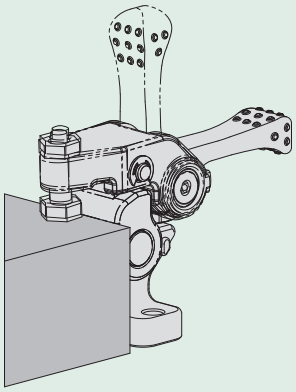
How To Use



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.

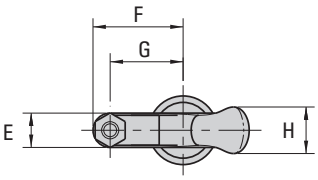
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm
QLRE100	45	10	25.5	25	16	50	89	42	32	26	18	20	11	5.5	8	24.0	M6X1
QLRE150	55	12	32.0	31	20	63	109	52	40	32	22	25	14	6.6	10	30.5	M8X1.25

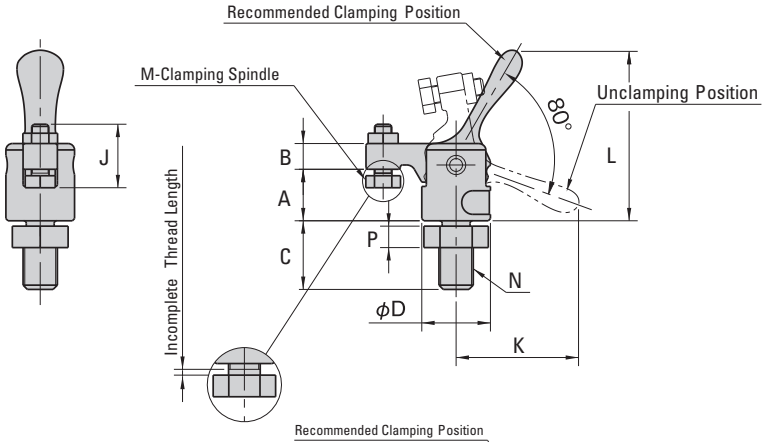
SNAP CLAMPS – SNDM SERIES – MINI HOLD DOWN

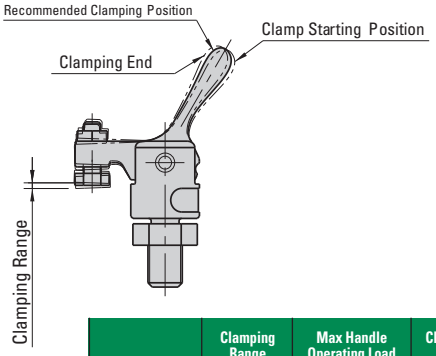
ONE-TOUCH Clamps

Clamped Position

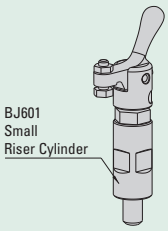
Unclamped Position







How To Use



Use a BJ601 Small Riser Cylinder (page 164) to raise these clamps.

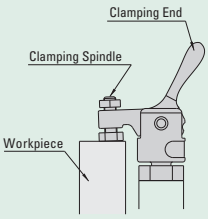


Fig . 1

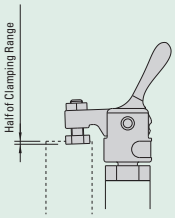
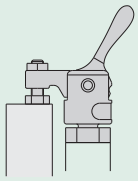


Fig . 2



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)

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

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. Urethane tip style spindles are available. The steel style body is made from SAE-1045 alloy steel with the clamping arm and handle made from SAE-4140 alloy steel with a black oxide finish. The nickel plated style is made from the same material as the steel style but features an electroless nickel plating finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. The stainless style has the body and clamping arm made from SCS13. The stainless provides corrosion resistance in hostile environments. 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.

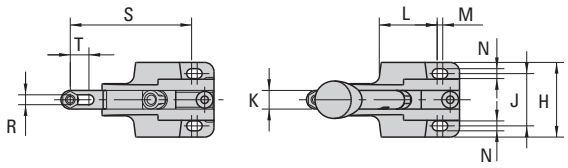
Steel Part #	Nickel Plated Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm
QLSNDM08-01	QLSNDM08-01-NP	QLSNDM08-01-SUS	12	6	16	16	8	21	17	11	15	28.5	39.5	M4X35L	M8X1.25	5
QLSNDM12-01	QLSNDM12-01-NP	QLSNDM12-01-SUS	17	8	24	22	10	27	22	13	18.5	38	53.5	M5X15L	M12X1.75	7
QLSNDM12-03	QLSNDM12-03-NP	QLSNDM12-03-SUS	17	8	24	22	10	27	22	13	18.5	38	53.5	M5X15L	M12X1.75	7

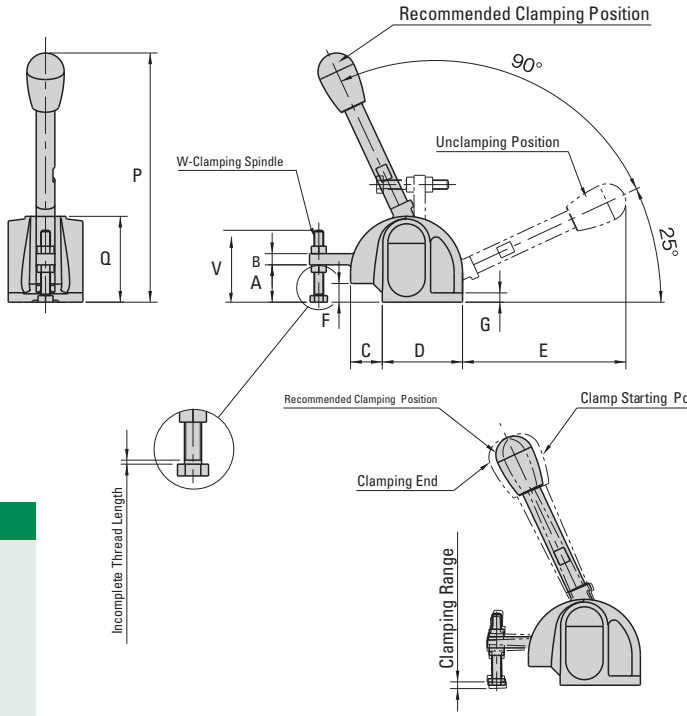
SNAP CLAMPS – SND SERIES – HOLD DOWN

ONE-TOUCH Clamps

Clamped Position

Unclamped Position





How To Use

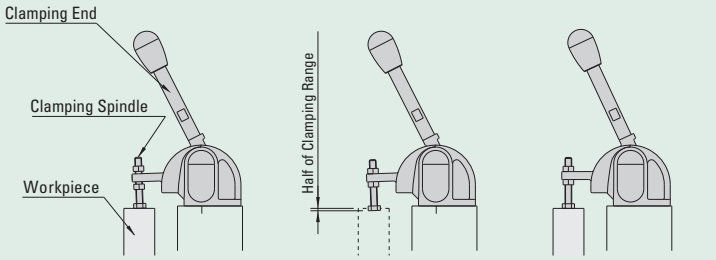


Fig . 1 Fig . 2 Setting Completed

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)

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

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 adapters 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.

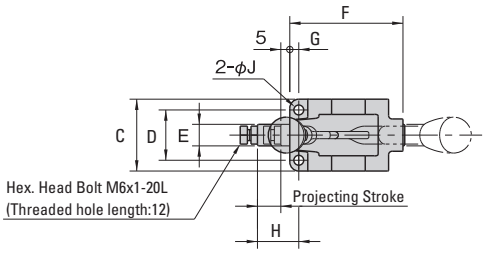
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Max P mm	Q mm	R mm	S mm	T mm	V mm
QLSND28-02	20	6	17	43	88	10	5	40	28	10	31	3	5.3	140	46	5.3	65	10	38.5
QLSND28-05	20	6	17	43	88	10	5	40	28	10	31	3	5.3	140	46	5.3	65	10	38.5
QLSND30-03	20	8	22.5	48.5	98	12	6	42	30	10	32.5	6	6.4	158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

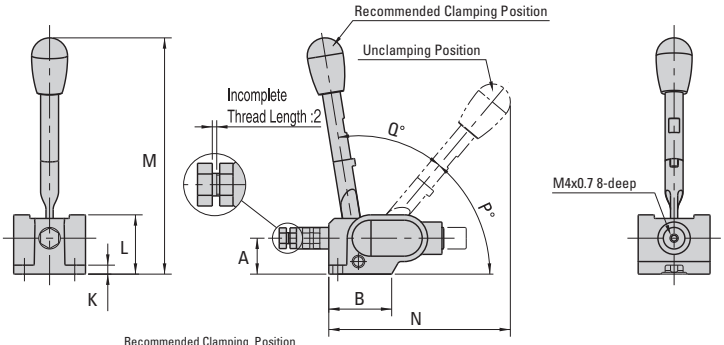
SNAP CLAMPS – SNS SERIES – PUSH

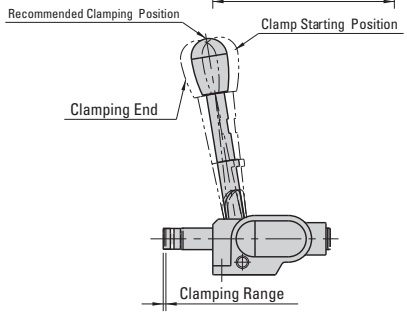
ONE-TOUCH Clamps

Clamped Position

Unclamped Position







How To Use

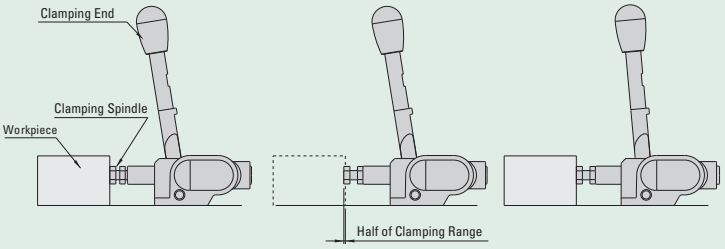


Fig . 1 Fig . 2 Setting Completed

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)

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

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.

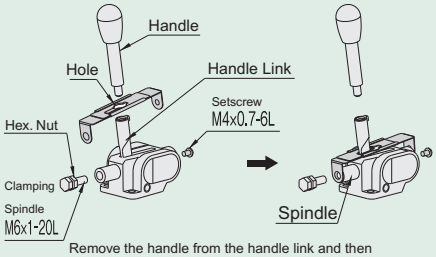
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	Max M mm	N mm	P Degree	Q Degree
QLSNS28-05	20	35	40	28	12	63	5	22	5.5	5	33	133	101	50	50
QLSNS28-12	20	35	40	28	12	63	5	22	5.5	5	33	133	101	50	50
QLSNS30-07	25	42	42	30	12	80	6	33	6.5	6	38	157	131	45	60
QLSNS30-14	25	42	42	30	12	80	6	33	6.5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

IMAO

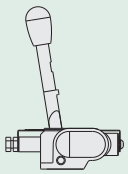
SNAP CLAMP SLIDING COVER PLATES

ONE-TOUCH Clamps

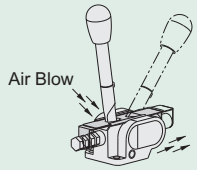
How To Use



Remove the handle from the handle link and then mount a Sliding Cover Plate with its two holes aligned onto the handle link.



Lock the Sliding Cover Plate at both ends with the setscrews and the hex. nuts.



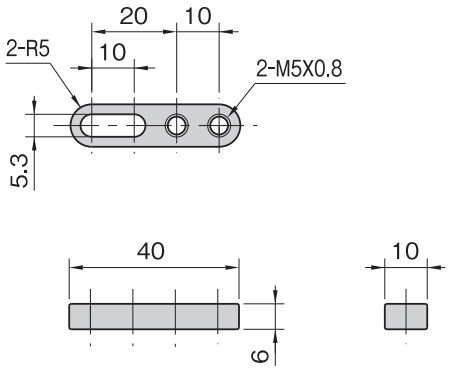
As the handle is turned, the lower counterpart of the Sliding Cover Plate moves to block dust from penetrating into the mechanism. To remove powder dust built up in the mechanism, blow air from above.

These sliding plate covers work with the push snap clamps shown on page 22. 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.

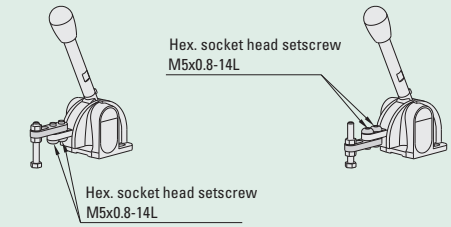
Part #	Use With Clamps
QLSNS28-SL	QLSNS28-05 & QLSNS28-12
QLSNS30-SL	QLSNS30-07 & QLSNS30-14

SNAP CLAMP EXTENSION ARM

ONE-TOUCH Clamps



How To Use



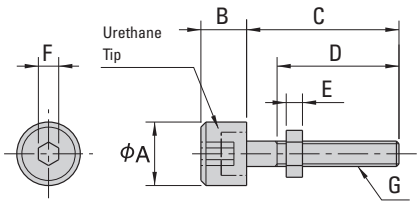
Use to extend the clamping arm for clamping at a more distant point.

This clamping extension arm is used with the standard hold down snap clamps shown on page 21. 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 SND Series Snap Clamps

CLAMPING SPINDLES

ONE-TOUCH Clamps



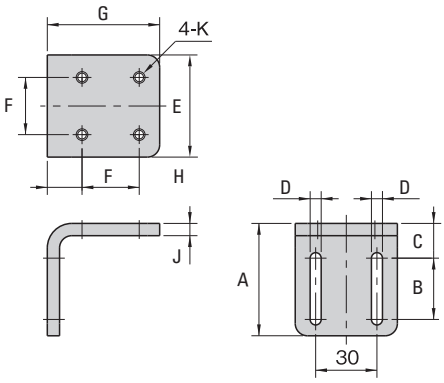
These clamping spindles are designed to be used with the snap clamps shown on pages 20-22. The tip is made from black urethane - 90 durometer. The bolt and hex nut are made from steel.

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	SNDM Series
UB5X15	12.5	9	15	13.5	3.2	4	M5X0.8	SNDM Series
UB5X30	12.5	9	30	24	3.2	4	M5X0.8	SND Series
UB6X20	15	10	20	18	3.6	5	M6X1	SNS Series

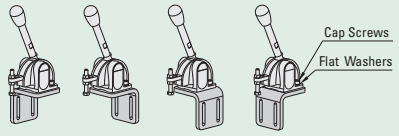
IMAO

SNAP CLAMP MOUNTING BRACKETS

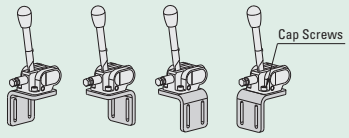
ONE-TOUCH Clamps



How To Use



Examples of Mounting Standard Hold-Down Snap Clamps



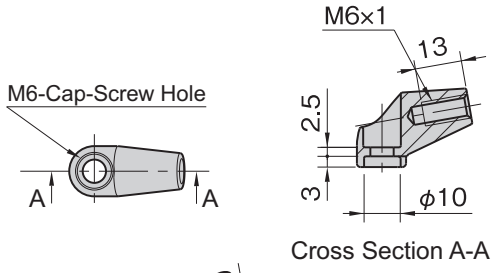
Examples of Mounting Push-Pull Snap Clamps

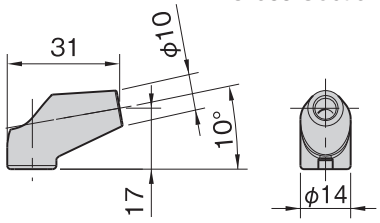
These mounting brackets are designed to be used with either the standard hold down style or push style snap clamps shown on pages 21 and 22. They allow greater mounting flexibility in a wide range of applications. These brackets also work well when mounting the clamps to aluminum profiles. Made from 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

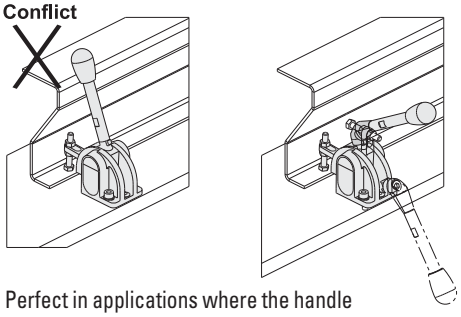
SNAP CLAMP HANDLE ADAPTER

ONE-TOUCH Clamps

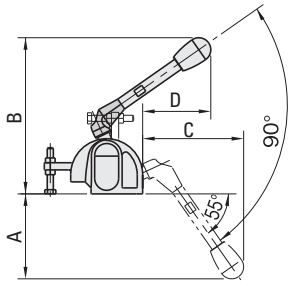




Conflict



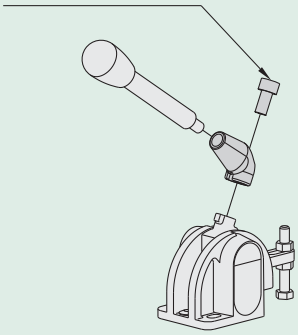
Perfect in applications where the handle can not be turned to the clamping position.



How To Use

Hex. Socket Head Cap Screw

M6×1-12L



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

Dimensions of Snap Clamps with Adapter Mounted

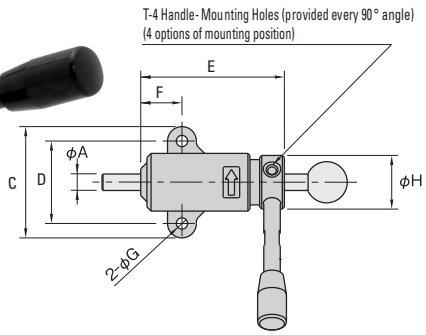
Series	A	B	C	D
QLSND28	71	130	84	57
QLSND30	79	145	92	61

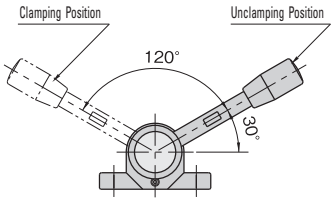
These angular adapters are designed for use with the standard hold down snap clamps shown on page 21. The adapters allow the user to change the angle of the handle in situations where the standard handle mounting cannot be used because of interference from the work piece or other obstacles. Easily installs by removing the standard handle, installing the adapter and then installing the handle into the adapter. Hex socket cap screw is included. The adapter is made from SAE-1045 alloy steel with black oxide finish.

Part #	Description
QLSND-AN10	Angular Adapter For SND Series Snap Clamps

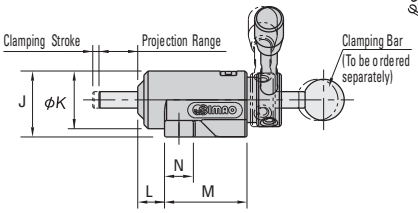
THRUST CLAMPS – RC SERIES – SIDE MOUNT

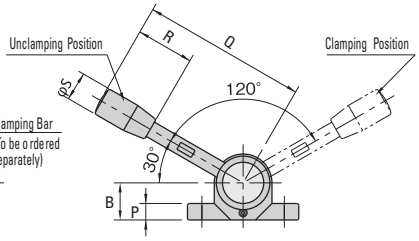
ONE-TOUCH Clamps





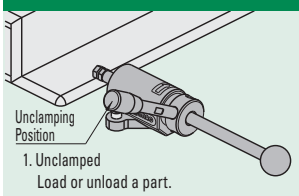
Counterclockwise Clamping



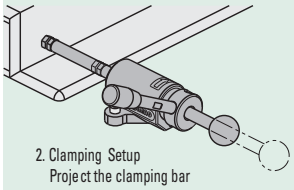


Clockwise Clamping

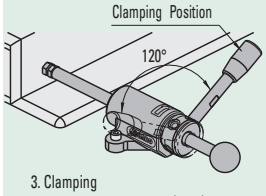
How To Use



1. Unclamped
Load or unload a part.



2. Clamping Setup
Project the clamping bar until it contacts the part.



3. Clamping
Turn the lever handle (120°) to the clamping position.

These thrust clamps feature a clamping body and a clamping bar used together for a wide range of workholding solutions. To clamp, simply push the bar through the center of the clamping body until contact is made with the work piece. Final clamping is achieved by turning the handle which extends and clamps the bar for secure workholding. Releasing the handle allows the clamping bar to be retracted for work piece removal. The long clamping bar projection range allows for clamping recessed or hard to access parts. The clamping bar has a tapped end so it can fit with a custom tip. The clamping bar can be cut shorter to the desired lengths. (If the user is making a custom clamping bar, it is recommended the outside diameter is finished to an h9 or better tolerance to insure proper fit.) Mounts from the top with two mounting holes. Part numbers ending with R have a clockwise clamping direction and part numbers ending in L have a counter clockwise clamping direction. The clamping body and lever arm are made from SAE-1045 alloy steel. The internal cam is made from hardened SCM415 alloy steel. Black oxide finish. The handle is black plastic. When the reaction force exceeds the stated clamping force, the clamp will release. The clamp body and clamp bar are sold separately. For the QLRC-08 clamps, use the 8mm clamping bar, for the QLRC-12 clamps, use the 12mm clamping bar.

Part#	Clamping Stroke mm	Operating Load Lbs.*	Clamping Force Lbs.**	CLAMPING BAR PROJECTION RANGE 100mm Bar mm	125mm Bar mm	150mm Bar mm	200mm Bar mm
QLRC-08R	1.5	18	112	0-30	0-55	0-80	-
QLRC-08L	1.5	18	112	0-30	0-55	0-80	-
QLRC-12R	2.3	33	314	-	0-29	0-54	0-104
QLRC-12L	2.3	33	314	-	0-29	0-54	0-104

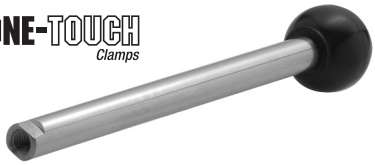
*Allowable load to operate handle

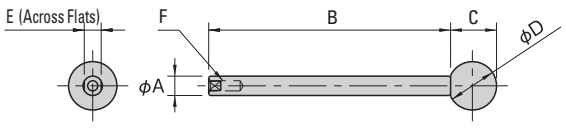
** When the reaction force exceeds the stated clamping force, the clamp will release

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	Q mm	R mm	S mm	T mm
QLRC-08R	8	18	54	40	70	20	5.5	26	32	28	13	40	14	8	80	28	14	M5X0.8
QLRC-08L	8	18	54	40	70	20	5.5	26	32	28	13	40	14	8	80	28	14	M5X0.8
QLRC-12R	12	25	80	60	96	30	9	36	45	40	20	55	20	12	132	40	21	M6X1
QLRC-12L	12	25	80	60	96	30	9	36	45	40	20	55	20	12	132	40	21	M6X1

THRUST CLAMP CLAMPING BAR

ONE-TOUCH Clamps



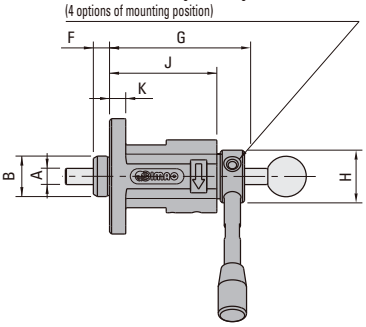


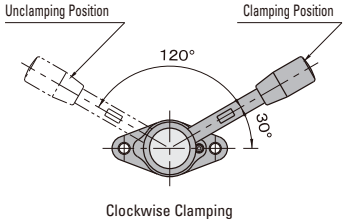
These clamping bars are used with the thrust clamps shown above and on page 26. The clamping bar has a tapped end so it can be fit with a custom tip. The clamping bar can be cut shorter to meet the users need. If the user is making a custom clamping bar, it is recommended the outside diameter is finished to an h9 or better tolerance to insure proper fit. The bar is made from SAE-1045 alloy steel with chrome plating. The handle is black plastic.

Part#	A mm	B mm	C mm	D mm	E mm	F mm
QLRCS-08100	8	100	19	20	7	M4X0.7 - 8 Deep
QLRCS-08125	8	125	19	20	7	M4X0.7 - 8 Deep
QLRCS-08150	8	150	19	20	7	M4X0.7 - 8 Deep
QLRCS-12125	12	125	24	25	10	M6X1 - 12 Deep
QLRCS-12150	12	150	24	25	10	M6X1 - 12 Deep
QLRCS-12200	12	200	24	25	10	M6X1 - 12 Deep

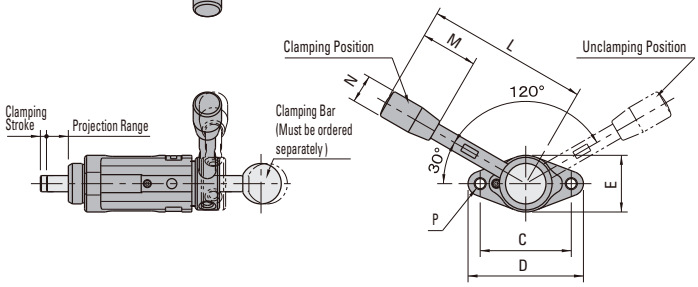
THRUST CLAMPS – RCF SERIES – TOP MOUNT

ONE-TOUCH Clamps



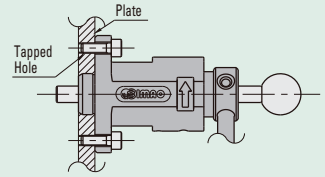


Clockwise Clamping

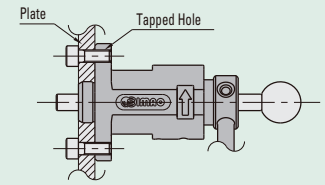


Counterclockwise Clamping

How To Mount

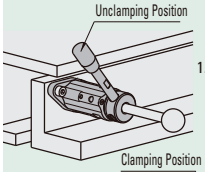


Face Mounting
(Use cap screws with one-size smaller threads than mounting-hole threads.)

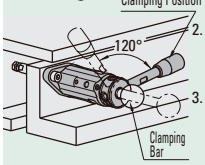


Back Mounting
(Use cap screws with threads of the same size as mounting-hole threads.)

How To Use



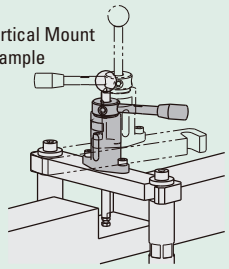
1. Unclamped
Load or unload a part.



2. Clamping Setup
Project the clamping bar until it contacts the part.

3. Clamping
Turn the lever handle 120 degrees to the clamping position.

Vertical Mount Example



Part #	Clamping Stroke mm	Operating Load Lbs.*	Clamping Force Lbs.**	CLAMPING BAR PROJECTION RANGE 100mm Bar mm	125mm Bar mm	150mm Bar mm	200mm Bar mm
QLRCF-08x-L	1.5	9	45	0-22	0-47	0-72	-
QLRCF-12x-L	2.3	22	157	-	0-20	0-45	0-95
QLRCF-08x	1.5	18	112	0-22	0-47	0-72	-
QLRCF-12x	2.3	34	315	-	0-20	0-45	0-95

*Allowable load to operate handle

** When the reaction force exceeds the stated clamping force, the clamp will release.

These thrust clamps feature a clamping body and a clamping bar used together for a wide range of workholding solutions. To clamp, simply push the bar through the center of the clamping body until contact is made with the work piece. Final clamping is achieved by turning the handle which extends and clamps the bar for secure workholding. Releasing the handle allows the clamping bar to be retracted for work piece removal. The long clamping bar projection range allows for clamping recessed or hard to access parts. The clamping bar has a tapped end so a custom tip can be used. The clamping bar can be cut shorter to the desired lengths. (If the user is making a custom clamping bar, it is recommended the outside diameter is finished to an h9 or better tolerance to insure proper fit.) The clamping body and lever arm are made from SAE-1045 alloy steel. The internal cam is made from hardened SCM415 alloy steel. Black oxide finish. The handle is black plastic. When the reaction force exceeds the stated clamping force, the clamp will release. The clamp body and clamp bar are sold separately. For the QLRCF-08 clamps, use the 8mm clamping bar, for the QLRCF-12 clamps, use the 12mm clamping bar. See page 25 for clamping bars.

Light Duty

Part #	A mm	B -0.04/-0.08 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	Q mm	Clamping Direction
QLRCF-08R-L	8	20	45	57	28	8	68.5	26	53	8	80	28	14	M6X1	M5X0.8	Right
QLRCF-08L-L	8	20	45	57	28	8	68.5	26	53	8	80	28	14	M6X1	M5X0.8	Left
QLRCF-12R-L	12	30	65	85	40	12	90.7	36	72	12	132	50	21	M10X1.5	M6X1	Right
QLRCF-12L-L	12	30	65	85	40	12	90.7	36	72	12	132	50	21	M10X1.5	M6X1	Left

Heavy Duty

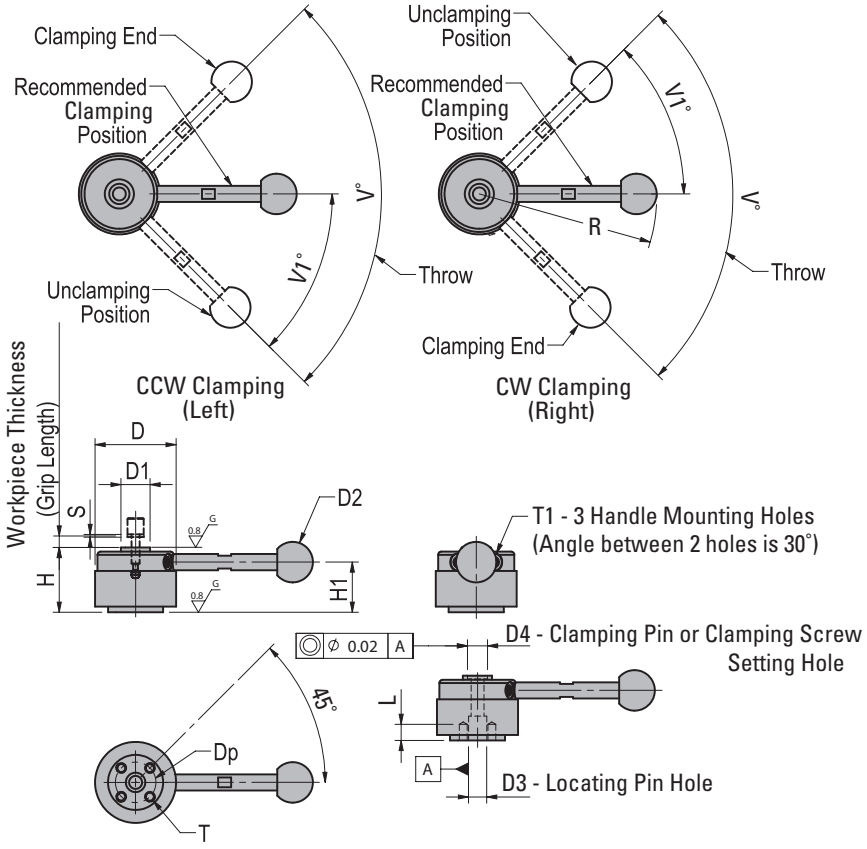
Part #	A mm	B -0.04/-0.08 mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	Clamping Direction
QLRCF-08R	8	20	45	57	28	8	68.5	26	53	8	80	28	14	M6X1	M5X0.8	Right
QLRCF-08L	8	20	45	57	28	8	68.5	26	53	8	80	28	14	M6X1	M5X0.8	Left
QLRCF-12R	12	30	65	85	40	12	90.7	36	72	12	132	50	21	M10X1.5	M6X1	Right
QLRCF-12L	12	30	65	85	40	12	90.7	36	72	12	132	50	21	M10X1.5	M6X1	Left

PULL CLAMPS – PD SERIES

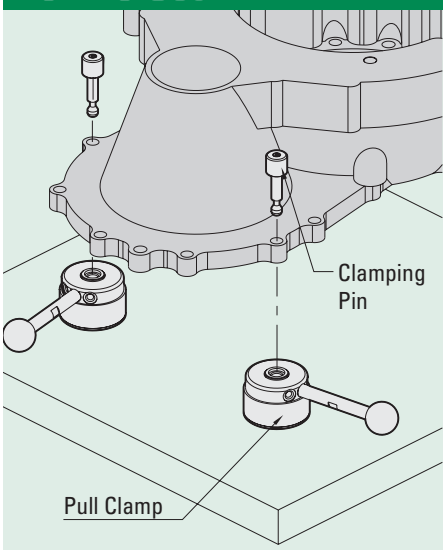
ONE-TOUCH Clamps

with handle

without handle

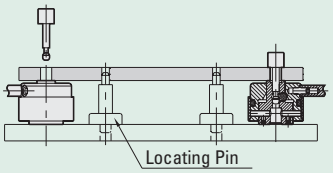


How To Use

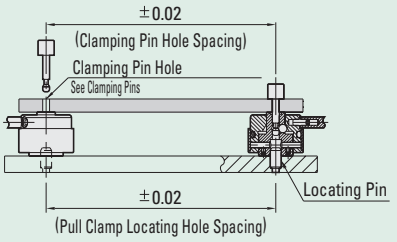


How To Locate Workpiece

1. Basic Method



2. Method for clamping and locating a workpiece. Hole spacing accuracy shown below generates a locating accuracy of +/- 0.08



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 to the underside of the workpiece is 449 pounds for the 150 series and 1,236 pounds 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 48 and 49 for other handle options.

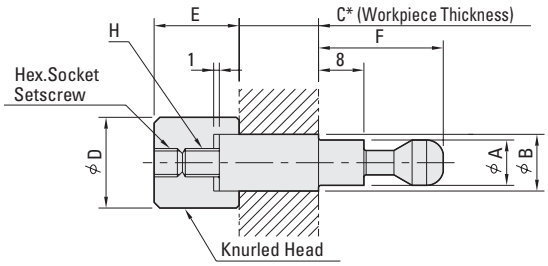
With Handle Part #	w/o Handle Part #	Clamping Direction	T mm	T1 mm	D mm	D1 mm	D2 mm	(G6) D3 mm	(F7) D4 mm	Dp mm	L mm	±0 .01 H mm	H1 mm	R mm	V	V1	Stroke S mm	Clamping Force Lbs.
QLPD150R	QLPD150NR	CW	M4X0.7 (8MM Depth)	M5X0.8	40	13.5	20	8	5	18	10	32	24.5	76.5	90°	45°	1.5	200
QLPD200R	QLPD200NR	CW	M6X1.0 (9MM Depth)	M6X1.0	50	18	25	12	8	25	13	40	30.7	111.5	110°	55°	2	550
QLPD150L	QLPD150NL	CCW	M4X0.7 (8MM Depth)	M5X0.8	40	13.5	20	8	5	18	10	32	24.5	76.5	90°	45°	1.5	200
QLPD200L	QLPD200NL	CCW	M6X1.0 (9MM Depth)	M6X1.0	50	18	25	12	8	25	13	40	30.7	111.5	110°	55°	2	550

See page 561 for F7 and G6 tolerance specifications.

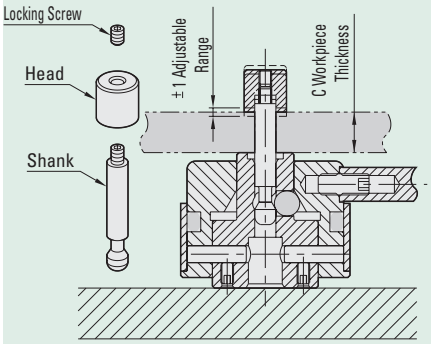
IMAO

PULL CLAMP PINS FOR PD SERIES

ONE-TOUCH Clamps



How To Use



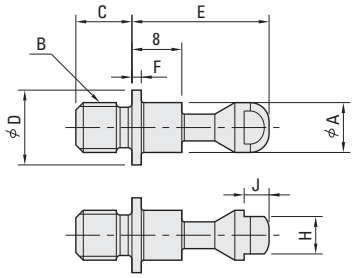
For use with the standard pull clamps shown on the previous page. The pins are designed to be modified by the user to fit the actual work piece thickness. The shank is made from SAE-4135 alloy steel, precision ground and the shank end is heat treated. The head is made from SAE-1045 alloy steel, heat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

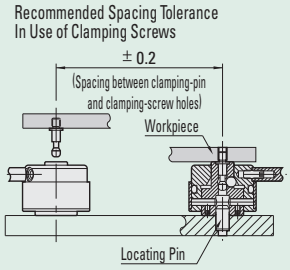
* Minimum 3mm for the 150, 4mm for the 200. See page 561 for f7 tolerance specifications.

PULL CLAMP SCREWS FOR PD SERIES

ONE-TOUCH Clamps



How To Use

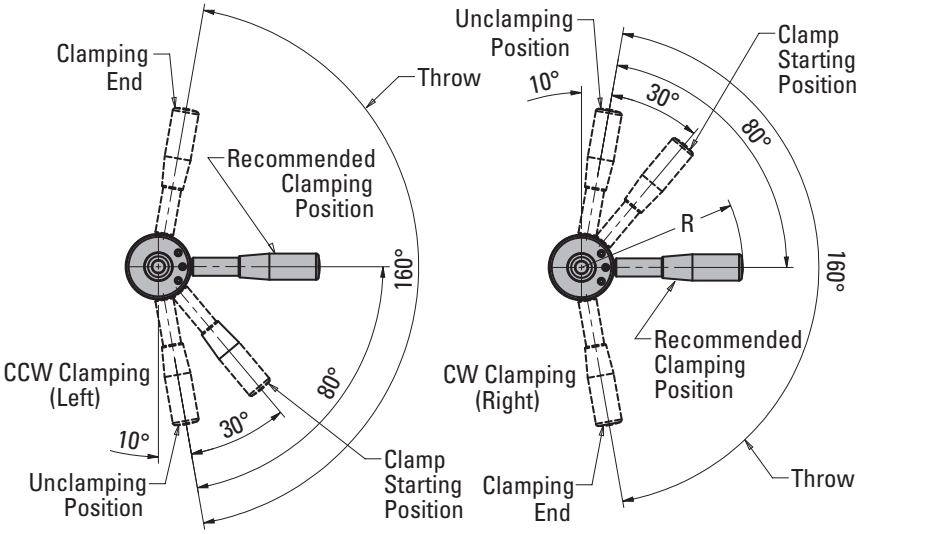


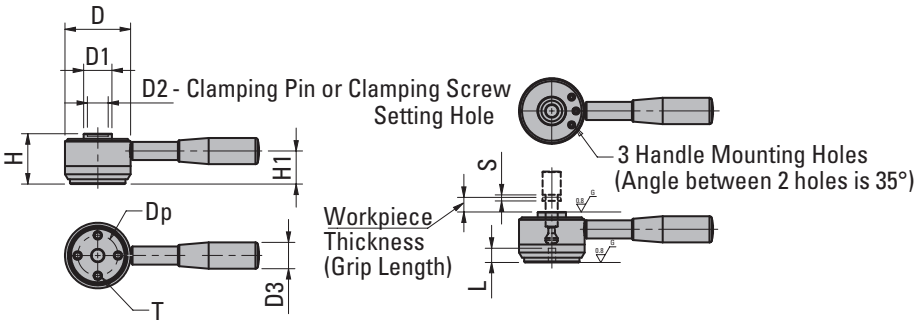
For use with the standard pull clamps shown on the previous page. These clamping screws attached directly to the bottom of the work piece or fixture completely eliminating any protrusion on the surface. Precision ground. Made from SAE-4135 alloy steel, heat treated with black oxide finish.

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

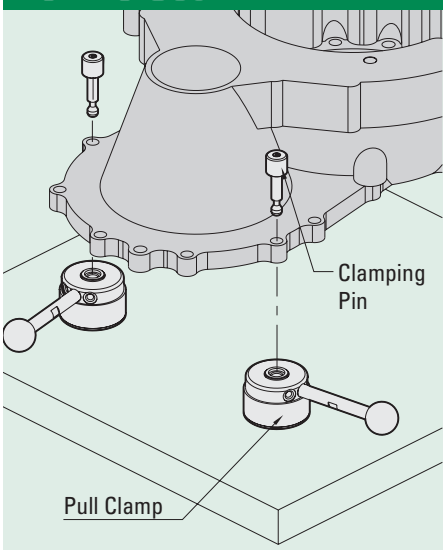
PULL CLAMPS – PDH SERIES – HEAVY DUTY

ONE-TOUCH Clamps



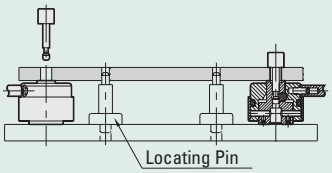


How To Use

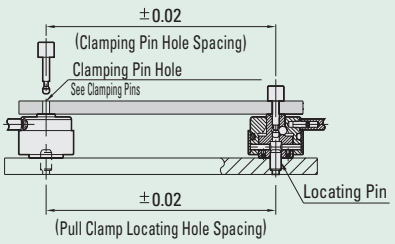


How To Locate Workpiece

1. Basic Method



2. Method for clamping and locating a workpiece. Hole spacing accuracy shown below generates a locating accuracy of +/- 0.08



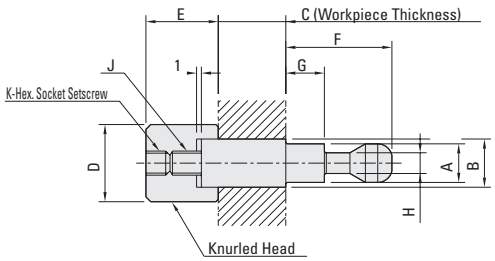
These clamps are similar to the pull clamps shown on page 27, however, they are designed for heavier work pieces and machining loads. They consist of a clamp used with a user-modified pin or standard clamping screw. By rotating the handle, the clamp pulls the pin or screw downward and secures it in position. 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 to the underside of the workpiece is 1,798 pounds for the 400 series and 3,147 pounds 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 #	Clamping Direction	T mm	D mm	D1 mm	D2 (F7) mm	D3 mm	Dp mm	L mm	H ±0.01 mm	H1 mm	R mm	Stroke S mm	Clamping Force Lbs.
QLPDH400R	CW	M8X1.25 (14mm Depth)	65	28	12	26	40	10	50	32.8	160	2	1348
QLPDH400L	CCW	M8X1.25 (14mm Depth)	65	28	12	26	40	10	50	32.8	160	2	1348
QLPDH500R	CW	M10x1.5 (18mm Depth)	80	34	16	28	50	12	63	41.1	180	2.5	1798

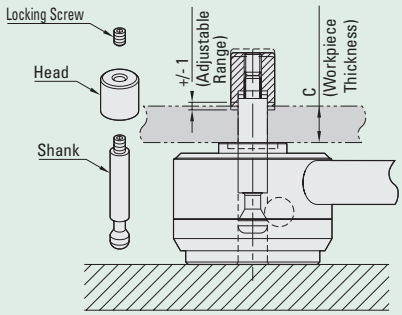
See page 561 for F7 tolerance specifications.

PULL CLAMP PINS FOR PDH SERIES

ONE-TOUCH Clamps



How To Use



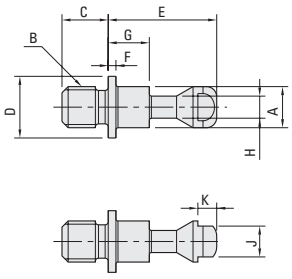
For use with the heavy duty pull clamps shown on previous page. The pins are designed to be modified by the user to fit the actual work piece thickness. The shank is made from SAE-4135 alloy steel, precision ground and the shank end is heat treated. The head is made from SAE-1045, heat treated with black 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
QLPDH400-12-100	12	12	100	18	23	38	21.5	6.5	M8X1.25	M8X1.25-8L	QLPDH400R
QLPDH400-16-100	12	16	100	24	23	38	21.5	6.5	M8X1.25	M8X1.25-8L	QLPDH400R
QLPDH500-16-120	16	16	120	24	29	48	28	9.5	M10X1.5	M10X1.5-10L	QLPDH500R
QLPDH500-20-120	16	20	120	30	29	48	28	9.5	M10X1.5	M10X1.5-10L	QLPDH500R

See page 561 for f7 tolerance specifications.

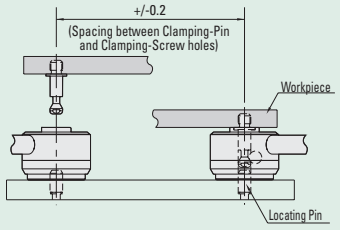
PULL CLAMP SCREWS FOR PDH SERIES

ONE-TOUCH Clamps



How To Use

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.

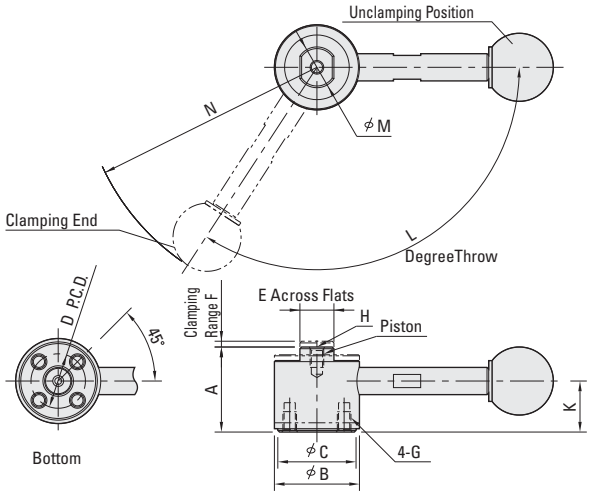
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Use with Clamp
QLPDH400-M12	12	M12X1.75	13	20	38	2	21.5	6.5	10	4	QLPDH400R
QLPDH400-M16	12	M16X2	17	20	38	2	21.5	6.5	10	4	QLPDH400R
QLPDH500-M16	16	M16X2	17	25	48	2.5	28	9.5	13	5	QLPDH500R
QLPDH500-M20	16	M20X2.5	21	25	48	2.5	28	9.5	13	5	QLPDH500R

PUSH CLAMPS – PU SERIES

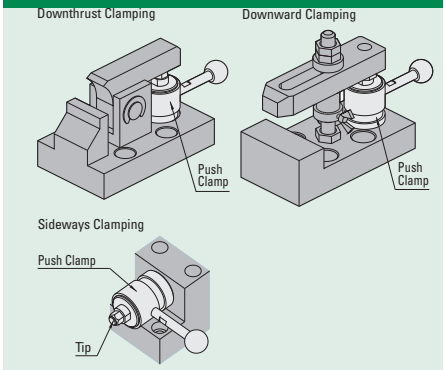
ONE-TOUCH Clamps

with handle

without handle



How To Use



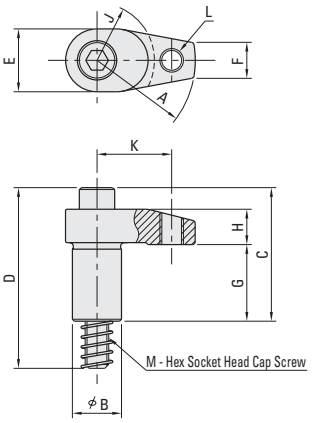
When installing a tip on the piston, lock the shaft using a wrench to prevent the clamp from recieving any torque.

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.

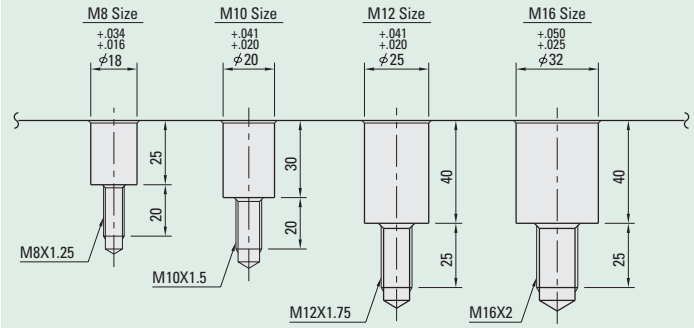
With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	P.C.D.* D mm	E mm	F mm	G mm	H mm	K mm	L Degree	M mm	N mm	Clamping Force Lbs.
QLPU150R	QLPU150NR	25	25	23	16	10	1.7	M4X0.7	M4X0.7	15.0	123	12	69.5	650
QLPU200R	QLPU200NR	32	32	30	20	13	2.5	M6X1	M6X1	19.5	135	15	103.0	900

*Pitch Circle Diameter

HOOK CLAMPS – RECESSED MOUNT



How To Install

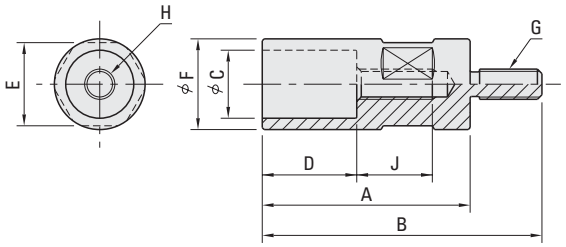


The clamps hold work pieces securely and can be swiveled out of the way for part insertion and removal. The spring lifts the clamp arm up as the clamp is released. They can be used with hook clamp holders shown below or installed in blocks using the above references. Made from SAE-4135 alloy steel, heat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

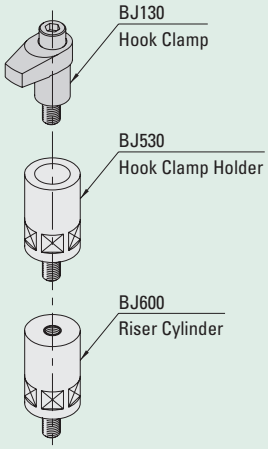
Part #	A mm	B (h7) mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft Lbs.
BJ130-08020	20	18	37	58	22	10	23	12	15	–	–	M8X1.25X50	3,372	28
BJ130-08025	25	18	37	58	22	10	23	12	15	–	–	M8X1.25X50	2,697	24
BJ130-08030	30	18	37	58	22	10	23	12	20	–	–	M8X1.25X50	2,248	22
BJ130-10030	30	20	54	75	24	12	30	15	20	–	–	M10X1.5X65	2,922	28
BJ130-10040	40	20	54	75	24	12	30	15	25	–	–	M10X1.5X65	2,248	23
BJ130-12040	40	25	66	92	32	18	39	16	25	–	–	M12X1.75X80	4,046	44
BJ130-12050	50	25	68	92	32	18	39	18	25	–	–	M12X1.75X80	3,147	36
BJ130-12060	60	25	68	92	32	18	39	18	25	–	–	M12X1.75X80	2,697	33
BJ130-12140	40	25	66	92	32	18	39	16	25	31	M12X1.75	M12X1.75X80	4,046	44
BJ130-12150	50	25	68	92	32	18	39	18	25	38	M12X1.75	M12X1.75X80	3,147	36
BJ130-12160	60	25	68	92	32	18	39	18	25	46	M12X1.75	M12X1.75X80	2,697	33
BJ130-16040	40	32	75	101	36	22	39	21	25	–	–	M16X2X85	8,542	125
BJ130-16050	50	32	75	101	36	22	39	21	25	–	–	M16X2X85	6,968	110
BJ130-16060	60	32	75	101	36	22	39	21	25	–	–	M16X2X85	5,849	95
BJ130-16150	50	32	75	101	36	22	39	21	25	38	M12X1.75	M16X2X85	6,968	110
BJ130-16160	60	32	75	101	36	22	39	21	25	46	M12X1.75	M16X2X85	5,849	95

See page 561 for h7 tolerance specifications.

HOOK CLAMP HOLDERS



How To Use

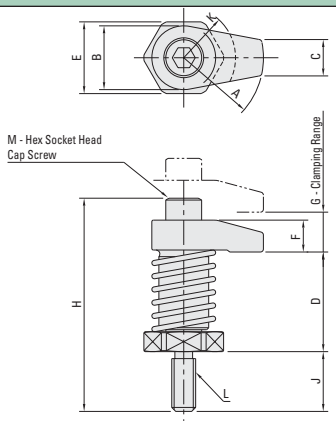


For use with hook clamps shown above. Can also be used with riser cylinders on next page for additional height. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C (F7) 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 561 for F7 tolerance specifications.

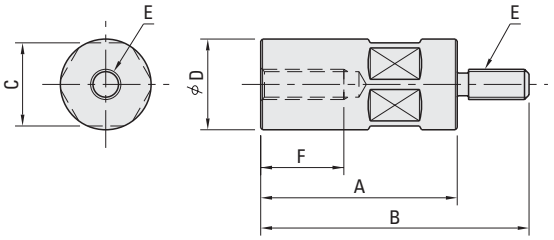
HOOK CLAMPS – TOP MOUNT



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

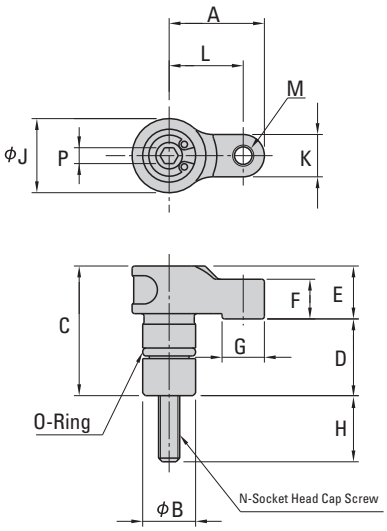


Can be used with hook clamp holders shown on previous page for additional height. Made from SAE-1045 alloy steel with black oxide finish.

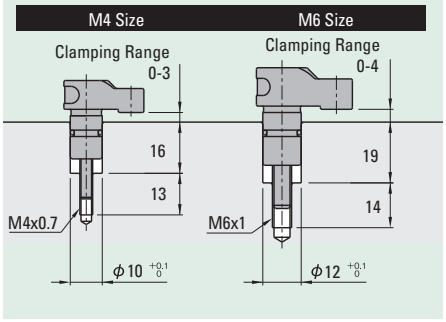
Part #	A mm	B mm	C mm	D mm	E mm	F mm
BJ600-08032	32	51	22	24	M8X1.25	20
BJ600-08040	40	59	22	24	M8X1.25	20
BJ600-08050	50	69	22	24	M8X1.25	20
BJ600-08065	65	84	22	24	M8X1.25	20
BJ600-12050	50	80	36	40	M12X1.75	35
BJ600-12065	65	95	36	40	M12X1.75	35
BJ600-12080	80	110	36	40	M12X1.75	35

Part #	A mm	B mm	C mm	D mm	E mm	F mm
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

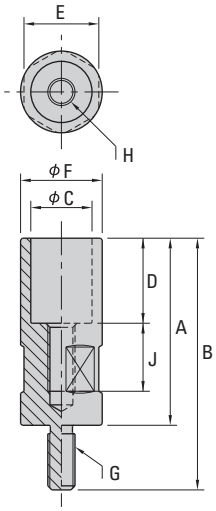


Part #	Clamping Force lbs.	Max Torque Ft/lbs.
BJ132-04018	450	2
BJ132-06022	787	5

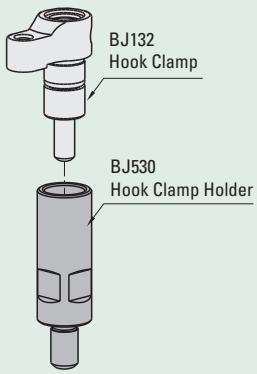
These hook clamps combine high clamping forces and compact design. They are ideal for applications where space is limited. Hook clamps are commonly used to hold down fixture and work pieces on a wide variety of machines. The clamp is actuated in both directions with the hex screw on top of the clamp 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 #	A mm	B -0.02/-0.10 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

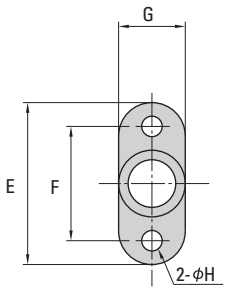


These cylindrical holders are designed for use with the compact hook clamps shown above. They provide additional clamping height as well as easy installation and operation of the hook clamps. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

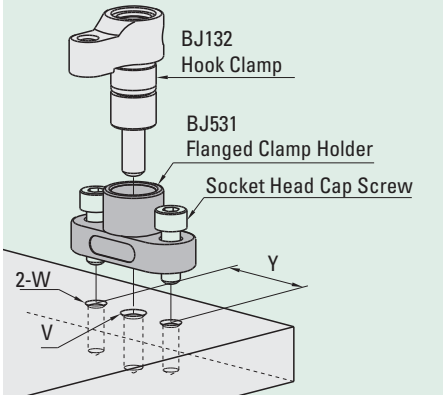
Part #	A mm	B mm	C (F7) mm	D mm	E mm	F mm	G mm	H mm	J mm
BJ530-04035	35	46	10	16	12	14	M6X1	M4X0.7	13
BJ530-06040	40	54	12	19	13	16	M8X1.25	M6X1	14

See page 561 for F7 tolerance specifications.

FLANGED HOOK CLAMP HOLDERS FOR COMPACT STYLE



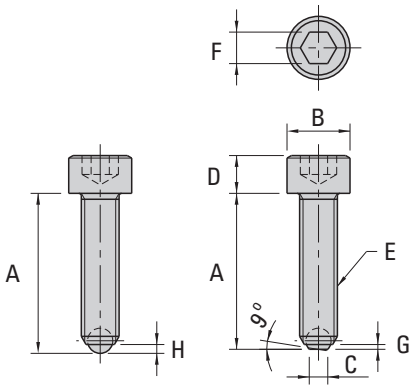
How To Use



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 +0.1/-0.0 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 - 13D	M4X0.7	24
BJ531-06019	19	8	12	16	40	28	16	5.3	M6X1 - 14D	M5X0.8	28

SOCKET HEAD BALL SCREWS



Round Ball Flat Ball

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 36, 37 and 146.

Round Ball Style

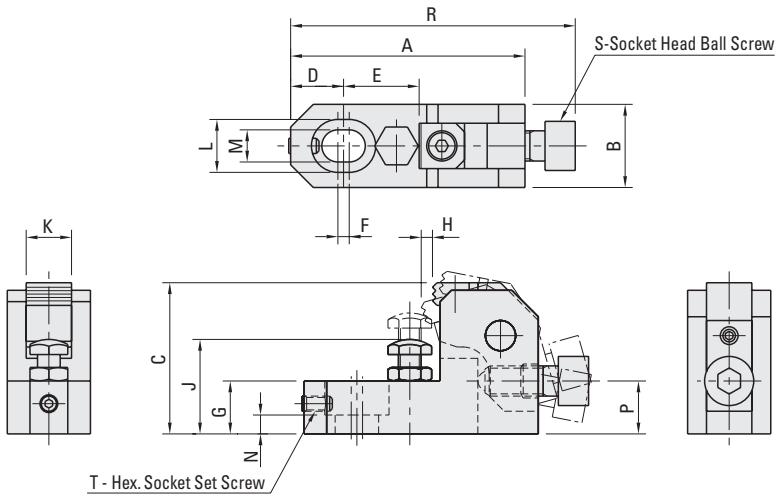
Part#	A mm	B mm	C mm	D mm	E mm	F mm	Ball Dia. mm	Fits Clamp #
BCR-8X20	21.3	13	8	M8X1.25	6	1.9	5.5	CP100-08040
BCR-8X35	36.3	13	8	M8X1.25	6	1.9	5.5	CP101-08040 & CP102-08040
BCR-10X25	26.7	16	10	M10X1.5	8	2.4	7	CP100-10050
BCR-10X40	41.7	16	10	M10X1.5	8	2.4	7	CP101-10050 & CP102-10050
BCR-12X30	32	18	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

IMAO

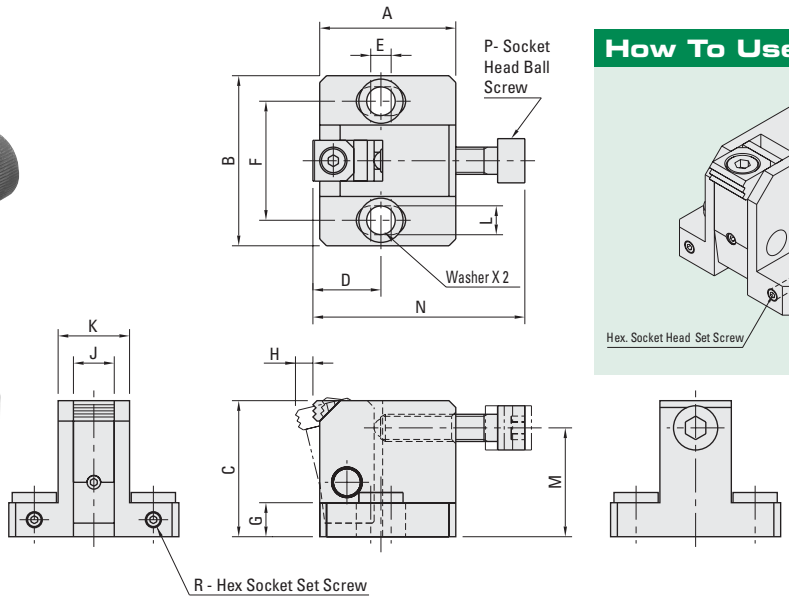
SIDE CLAMPS – CENTER MOUNT – CP100 SERIES



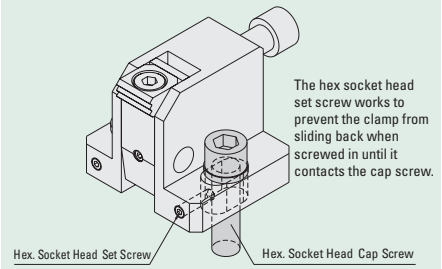
These side clamps utilize smaller clamping space which allows for greater machine clearance. Mounting screw and work support are under the work piece minimizing clamping space. Tightening the ball screw forces the clamp forward and downward against the work piece supports and stops. The hex socket set 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	1,348	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	2,248	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	3,821	47
CP100-16080	124	38	80	28	40	6	27	6.0	50-65	25	26	17.0	10	28.0	151.0	M16X2	M8X1.25	5,620	95

SIDE CLAMPS – SINGLE JAW – CP101 SERIES



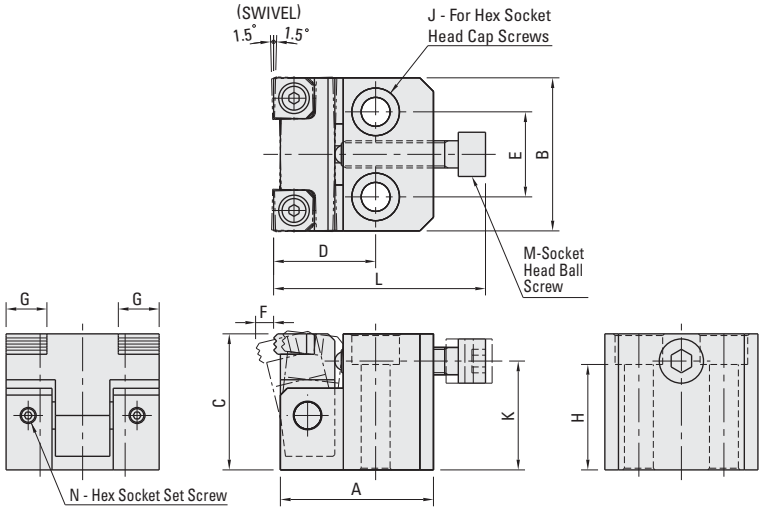
How To Use and Install



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 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	2,742	18
CP101-10050	50	65	50	25	8	45	12	7.1	16	27	11.0	40	74.0	M10X1.5	M4X0.7	4,046	36
CP101-12060	60	70	60	30	10	50	15	8.0	20	31	13.0	48	91.0	M12X1.75	M5X0.8	5,620	66
CP101-16080	80	90	80	40	15	65	20	10.2	25	39	17.0	64	115.0	M16X2	M6X1	10,340	147

SIDE CLAMPS – WIDE JAW – CP102 SERIES



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.

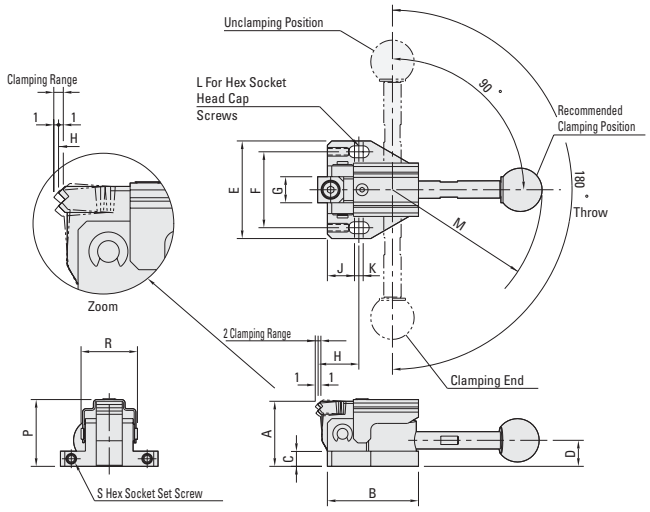
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP102-08040	45	45	40	30	25	5.3	12	31	M8	32	62.5	M8X1.25	M4X0.7	2,470	18
CP102-10050	55	55	50	40	30	7.1	16	39	M10	40	74.0	M10X1.5	M4X0.7	4,046	36
CP102-12060	65	65	60	45	35	8.0	20	47	M12	48	91.0	M12X1.75	M5X0.8	5,620	66

SIDE CLAMPS – W/ AND W/O HANDLE – CS SERIES

ONE-TOUCH Clamps

with handle

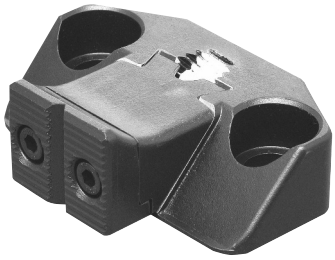
without handle

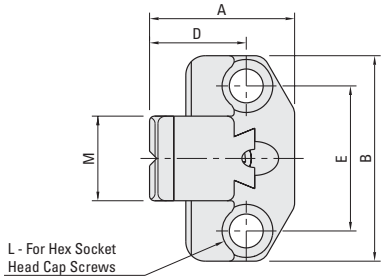


These side clamps have a moving jaw which moves forward and slightly downward for secure workholding. Moving the handle 45 degrees pushes the clamping jaw forward 2mm. When releasing the clamp, the jaws move back for easy insertion and removal of the work piece. The 150 series provides up to 670 lbs 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.

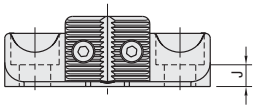
With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	P mm	R mm	S mm	Clamping Force Lbs.
QLSC150R	QLSC150NR	30	42	7	12	45	35	12	19	12.5	4	M5	69	31	36	M4X0.7	650
QLSC200R	QLSC200NR	40	62	10	16	65	50	16	28	18.5	5	M8	104	31	38	M4X0.7	900

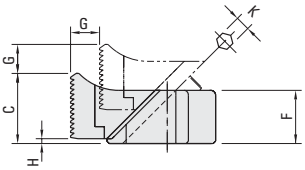
COMPACT SIDE CLAMPS – CP105 SERIES





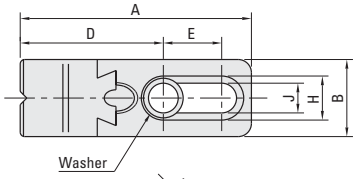
These side clamps have a low profile to keep the clamp out of the way from machining operations. Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. Clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap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



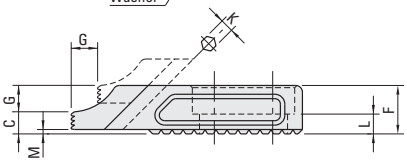


Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP105-08016	39.5	65	19.5	25	45	16	7	1.5	7	4	M8	25	890	5.9
CP105-12022	60.0	85	29.0	40	60	22	12	2.0	9	6	M12	35	2,020	19.0
CP105-16030	77.0	100	38.0	50	70	30	14	2.0	13	8	M16	40	3,800	44.0

ADJUSTABLE TOE CLAMPS – LOW PROFILE – J101 SERIES

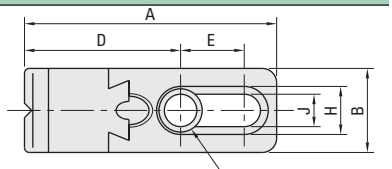


These adjustable toe clamps have a low profile to keep the clamp out of the way from machining operation. The clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. Clamping surface is serrated for greater gripping strength. The body and jaws are made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

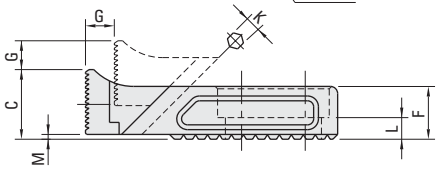


Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
BJ101-08016	72.0	25	7.5	45.5	16.5	16	7	14	8.5	4	7	1.5	800	4.7
BJ101-12022	105.0	35	10.0	65.0	26.5	22	12	20	13.0	6	9	2.0	1,663	14.0
BJ101-16030	137.0	40	14.0	89.5	30.0	30	14	26	17.0	8	13	2.0	2,630	23.0

ADJUSTABLE SIDE CLAMPS – J102 SERIES

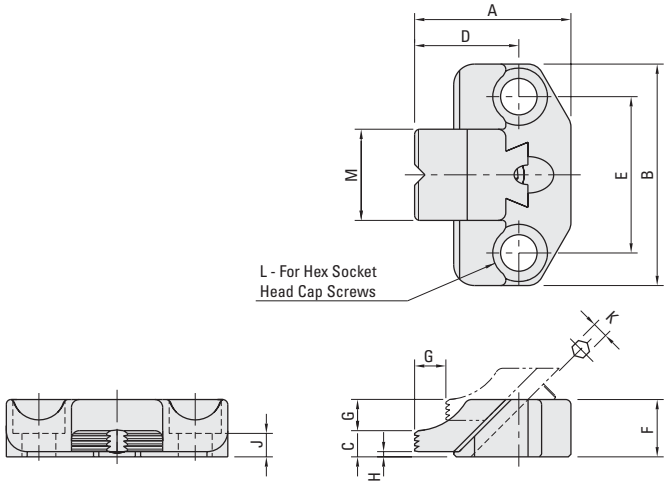


The tall jaws offer larger clamping surface. The clamping surface is serrated for greater clamping strength. The jaws move downward and forward as it is engaged, forcing the work piece against the supports and stops. Allows for quick removal and insertion of parts. The body and jaws are made from SAE-4140 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	1,663	14.0
BJ102-16030	137	40	38.0	89.5	30.0	30	14	26	17.0	8	13	2.0	2,630	23.0

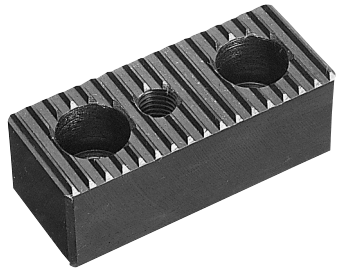
COMPACT TOE CLAMPS – LOW PROFILE – CP104 SERIES

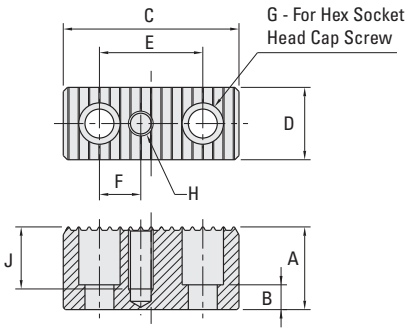


These adjustable toe clamps have a low profile to keep clamp out of the way from machining operation. The serrated clamp jaws move downward and forward as it is engaged, forcing the work piece against the supports and stops. Allows for quick removal and insertion of parts. The body and jaw are made from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

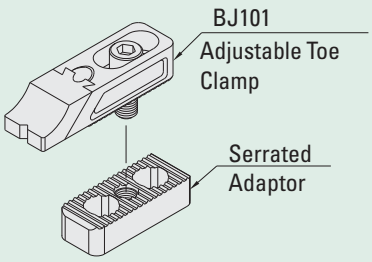
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP104-08016	39.5	65	7.5	25	45	16	7	1.5	7	4	M8	25	890	5.9
CP104-12022	60.0	85	10.0	40	60	22	12	2.0	9	6	M12	35	2,020	19.0
CP104-16030	77.0	100	14.0	50	70	30	14	2.0	13	8	M16	40	3,800	44.0

SERRATED ADAPTERS





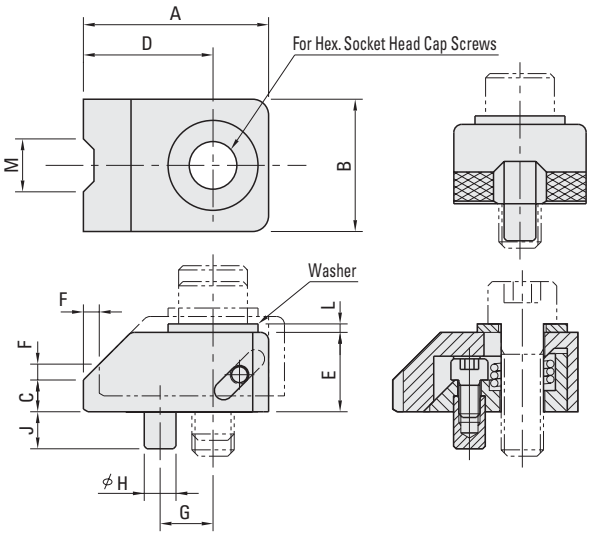
How To Use



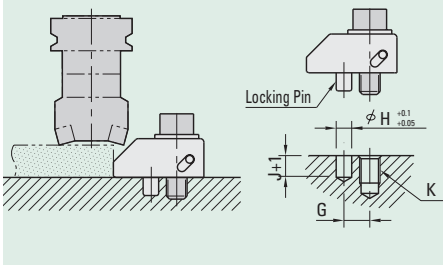
These serrated adapters are used with the adjustable clamps shown on previous page. They are serrated on the top to match the serrations on the bottom of the clamps. These serrated adapters are ideal for raising the height and firmly positioning these clamps. They have a tapped hole to mount the clamps. The adapters mount with socket head cap 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 – LOW PROFILE – CP106 SERIES



How To Use and Install

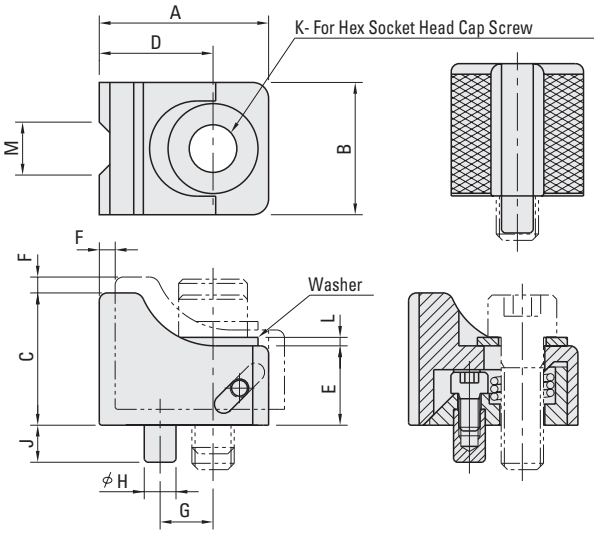


These toe clamps offer high holding power and low profile. Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. The low profile clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap screw hole and locking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

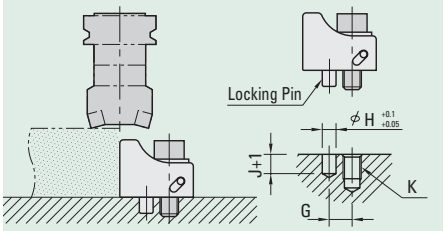
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H (h7) mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP106-08015	35	25	6	24.5	15	3	10	6	7	M8	1.6	10	1,570	18
CP106-10019	43	30	8	29.0	19	4	12	6	7	M10	2.0	11	1,910	36
CP106-12023	54	35	9	37.0	23	5	16	8	10	M12	2.3	12	4,490	66
CP106-16025	65	40	10	45.0	25	6	20	10	10	M16	3.2	14	8,990	147

See page 561 for h7 tolerance specifications.

SIDE CLAMPS – CP107 SERIES



How To Use and Install

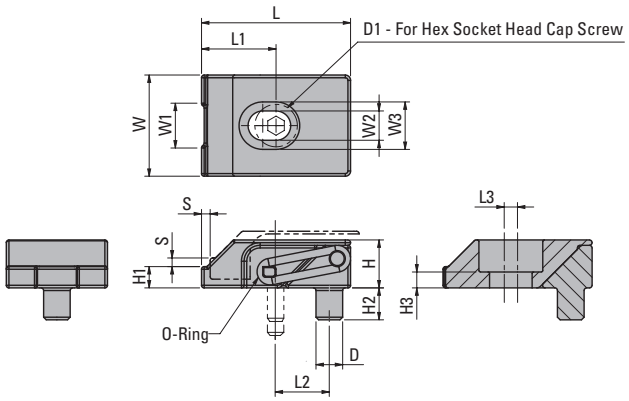


Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. The large clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap screw hole and locking pin hole. Flat washer included. Made from SAE-1045 alloy steel,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

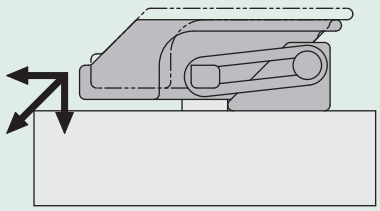
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H (h7) mm	J mm	K mm	L mm	M mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP107-08015	32	25	25	21.5	15	3	10	6	7	M8	1.6	10	1,570	18
CP107-10019	40	30	32	26.0	19	4	12	6	7	M10	2.0	11	1,910	36
CP107-12023	50	35	38	33.0	23	5	16	8	10	M12	2.3	12	4,490	66
CP107-16025	60	40	45	40.0	25	6	20	10	10	M16	3.2	14	8,990	147

See page 561 for h7 tolerance specifications.

TOE CLAMP – COMPACT – CP133 SERIES

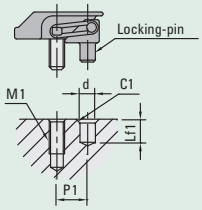


How To Use



Clamp moves downward and forward as it is engaged, forcing the workpiece against the supports and stops.

How To Install



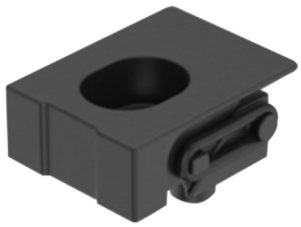
Drill a tapped hole and a locking-pin hole as specified below.

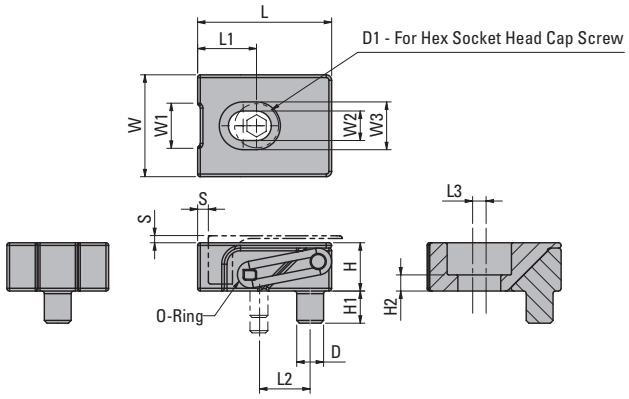
Part Number	M1	d (+0.3/0)	Lf1	P1
CP133-04007	M4	4	6	8
CP133-05009	M5	5	7	10

These compact toe 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. Allows for quick removal and insertion of parts. Install by drilling and tapping a cap screw hole and locking pin hole. Body made from SCM440 steel, Rc 33/39, with a black oxide finish. O-ring made from fluoro rubber.

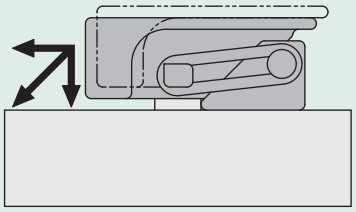
Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	S mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP133-04007	4	M4	23	12	8	2	15	5	4.5	8	7	3	5	2	2	449	1.9
CP133-05009	5	M5	28	14	10	2.5	19	7	5.5	9.5	9	4	6	3	2.5	674	3.9

SIDE CLAMP – COMPACT – CP134 SERIES



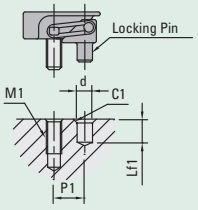


How To Use



Clamp moves downward and forward as it is engaged, forcing the workpiece against the supports and stops.

How To Install



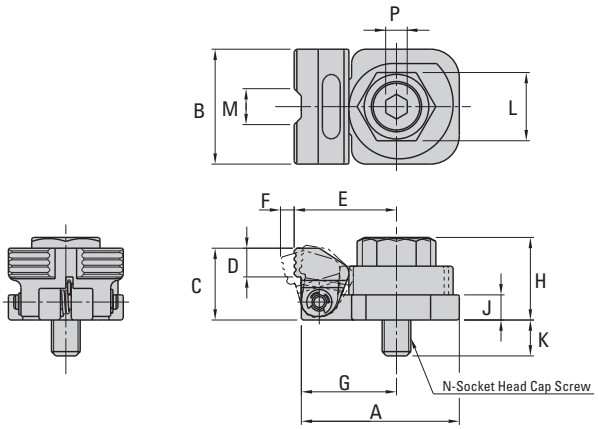
Drill a tapped hole and a locking-pin hole as specified below.

Part Number	M1	d (+0.3/0)	Lf 1	P1
CP134-04007	M4	4	6	8
CP134-05009	M5	5	7	10

These compact 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. Allows for quick removal and insertion of parts. Install by drilling and tapping a cap screw hole and locking pin hole. Body made from SCM440 steel, Rc 33/39, with a black oxide finish. O-ring made from fluoro rubber.

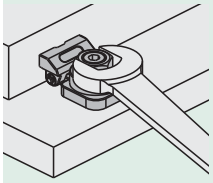
Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	S mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP134-04007	4	M4	20	9	8	2	15	5	4.5	8	7	5	2	2	562	1.9
CP134-05009	5	M5	25	11	10	2.5	19	7	5.5	9.5	9	6	3	2.5	786	3.9

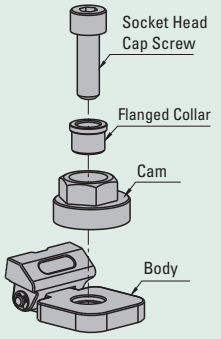
SPIRAL CAM EDGE CLAMPS – J162 SERIES



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.



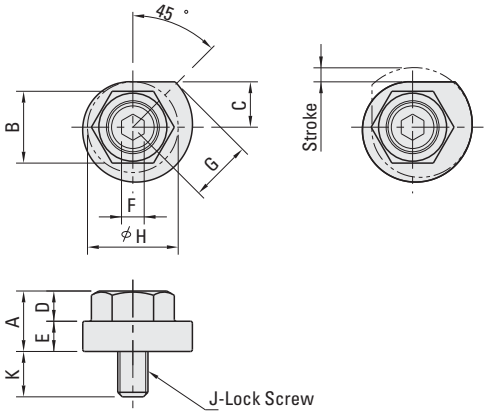


These cam edge clamps offer a low profile design, high holding forces and easy to use operations. The low profile and small size allow for faster set up and more parts per load. Turning the cam nut on the top of the clamp forces the serrated jaw forward and downward against the work piece. Easily installs 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.

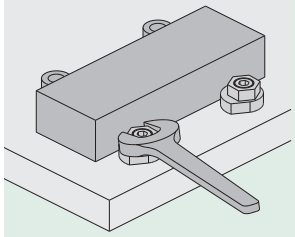
Part #	Clamping Force lbs.	Max Torque Ft/lbs.
BJ162-08001	788	33
BJ162-10001	1,238	41
BJ162-12001	1,575	52

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

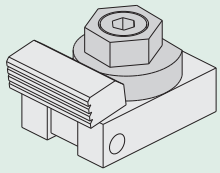
SPIRAL CAM CLAMPS – J161 SERIES



How To Use



Provides Positive Clamping

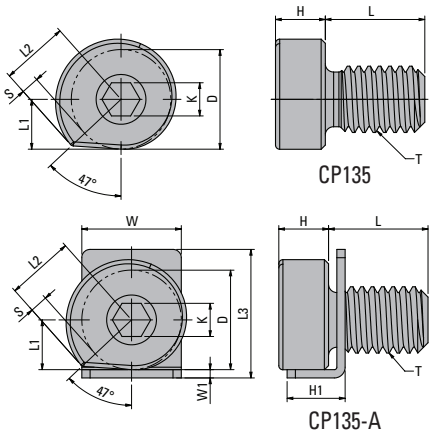


Can also be used as clamping mechanism for custom clamps.

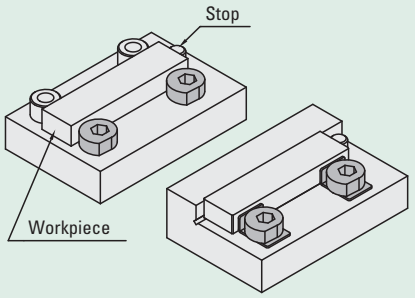
Compact design for low profile positive clamping. These clamps permit faster loading and unloading of work piece. To install, lock the flange collar into the cam using the locking screw and then tighten up the cam with a wrench. The cam and locking screw are made from SAE-4135 alloy steel. The flanged 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	1,168	36
BJ161-10001	20	24	15	10	10	8	20.47	30	M10X1.50	15	5	1,798	55
BJ161-12001	24	27	17	12	12	10	23.20	34	M12X1.75	18	6	2,090	66

SPIRAL CAM CLAMP – COMPACT – CP135 SERIES



How To Use

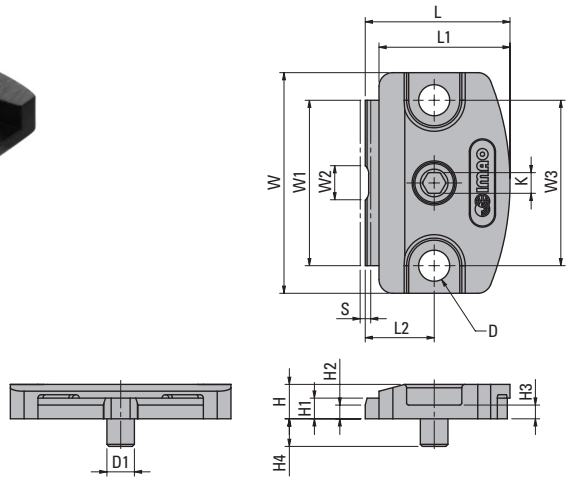


Mount a stop on the right side of the workpiece. Tighten clockwise to clamp the workpiece.

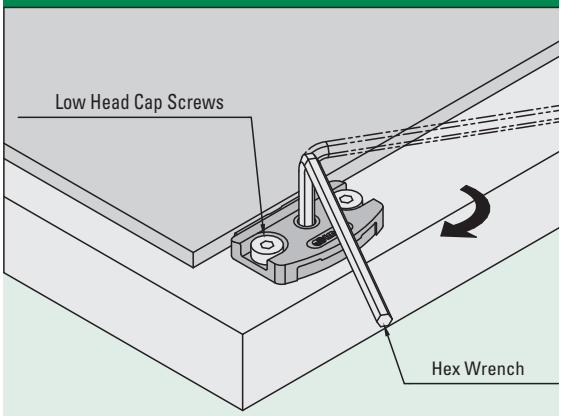
These spiral cam clamps offer a low-profile design and high holding forces. The low profile and small size allow for faster set up and more parts per load. Turning the cam clockwise forces the cam forward against the work piece. CP135A includes a bracket plate to prevent marring. Clamp made from SCM440 steel, Rc 33/39, with a black oxide finish. Clamping plate made from SUS304CSP. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	H mm	H1 mm	K mm	S mm	Clamping Force Lbs.
CP135-06001	M6X1	10	9	5	6.8	–	–	–	5	–	4	1.8	494
CP135-08001	M8X1.25	12	12	6	8.2	–	–	–	6	–	5	2.2	1,056
CP135-10001	M10X1.5	14	15	7	9.5	–	–	–	7	–	6	2.5	1,775
CP135-12001	M12X1.75	16	18	8	10.9	–	–	–	8	–	8	2.9	3,147
CP135-06001A	M6X1	10	9	5	6.8	13	10	1	5	6	4	1.8	494
CP135-08001A	M8X1.25	12	12	6	8.2	15.5	12	1	6	7	5	2.2	1,056
CP135-10001A	M10X1.5	14	15	7	9.5	18	14	1	7	8	6	2.5	1,775
CP135-12001A	M12X1.75	16	18	8	10.9	20	16	1	8	9	8	2.9	3,147

SIDE CLAMP – LOW PROFILE CAM EDGE – MINI – QLSCL SERIES



How To Use



These low profile cam edge clamps feature a cam that forces the jaws forward for fast and secure workholding. Releasing the cam allows the spring loaded jaws to move back for loading and unloading of the workpiece. The cam is activated with a hex wrench and eliminates workpiece interference. Mounts from the top with two low head cap screws. The jaws and cam are made from hardened SAE-4140 alloy steel. The body is made from SAE-1045 alloy steel. Black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	K mm	Stroke S mm	Screw Torque Ft Lbs.	Clamping Force Lbs.
QLSCL05NR	4.5	4	21	19	10	32	24	5	24	5	3	2	2	4	3	0.8	1.5	292

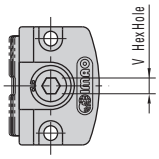
IMAO

LOW PROFILE CAM EDGE CLAMPS – SCL SERIES

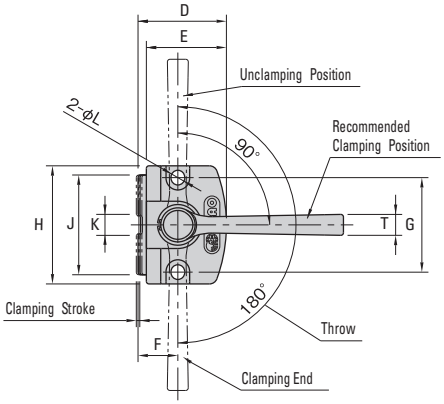
ONE-TOUCH Clamps

with handle

without handle

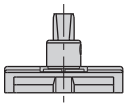


Without Handle

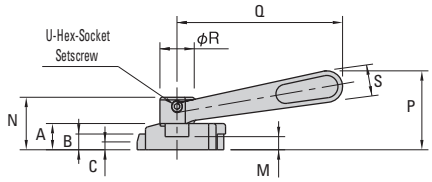


Part #	Clamping Stroke mm	Clamping Force Lbs.	Operating Load* Lbs.	Screw Torque Ft/Lbs.
QLSCL10R	1	900	38	-
QLSCL15R	2	1,348	62	-
QLSCL10NR	1	900	-	7
QLSCL15NR	2	1,348	-	19

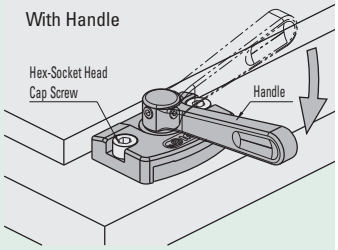
*Allowable load to operate handle



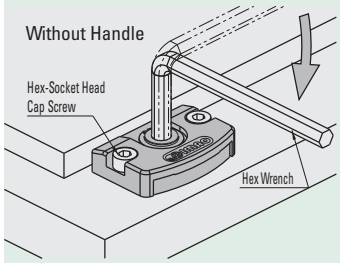
With Handle



How To Use



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



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

These low profile cam edge clamps feature a cam that forces the jaws forward for fast and secure workholding. Releasing the cam allows the spring loaded jaws to move back for loading and unloading of the work piece. They are available with a handle or without a handle. The style with a handle allows the user to activate the clamp without the use of tools. The handle can be positioned so it does not interfere with the work piece. The style without a handle is activated with a hex wrench and eliminates work piece interference. Mounts from the top with two mounting holes. The jaws and cam are made from hardened SAE-4140 alloy steel. The body and handle are made from SAE-1045 alloy steel with a black oxide finish.

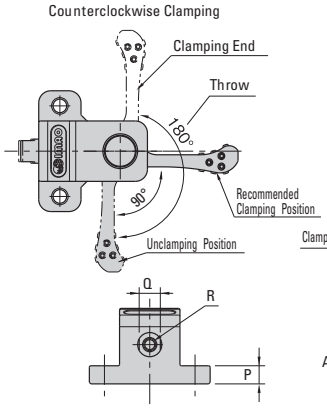
With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	U mm	V mm
QLSCL10R	QLSCL10NR	10	6	3	33.5	30.5	15	36	45	38	8	5.2	5	20	30	63	13	12	8	M4X0.7 - 4L	6
QLSCL15R	QLSCL15NR	15	9	5	50	46	22	55	70	60	12	8.2	7	30	46	100	19	18	12	M5X0.8 - 5L	10

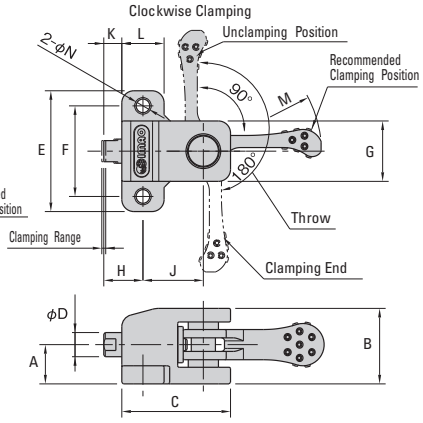
CAM PUSH CLAMPS – CP SERIES

ONE-TOUCH Clamps

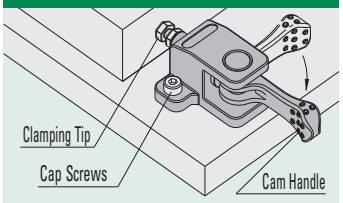
Part #	Clamping Range mm	Operating Load Lbs.*	Clamping Force Lbs.
QLCP080R / L	1.2	18	202
QLCP150R / L	1.6	33	539

*Allowable load to operate handle





How To Use



Turning the handle in the clamping direction lets the cam work to project the piston for clamping. Turning the handle back lets the spring work to retract the piston for unclamping.

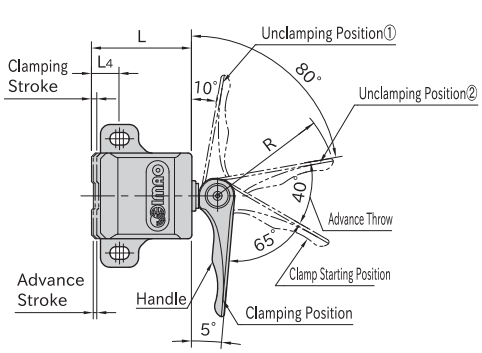
These low profile cam push clamps are activated by turning the cam handle which extends the piston for fast accurate clamping. The spring loaded piston retracts when the cam handle is released for loading and unloading parts. The piston is tapped for installing a clamping tip. Mounts from the top with two mounting holes. Part numbers ending with R have a clockwise clamping direction and part numbers ending in L have a counter clockwise clamping direction. The body and piston are made from SAE-1045 alloy steel. The handle is made from SAE-4140 alloy steel with a black oxide finish.

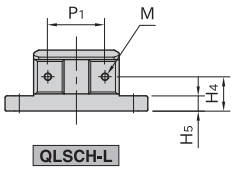
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm
QLCP080R	13	25	36	8	40	30	20	13	20	6	14	40	4.5	6	7	M4X0.7 X 8 Deep
QLCP080L	13	25	36	8	40	30	20	13	20	6	14	40	4.5	6	7	M4X0.7 X 8 Deep
QLCP150R	18	33	50	12	55	40	26	19	28	9	20	63	6.6	10	10	M6X1 X 12 Deep
QLCP150L	18	33	50	12	55	40	26	19	28	9	20	63	6.6	10	10	M6X1 X 12 Deep

IMAO

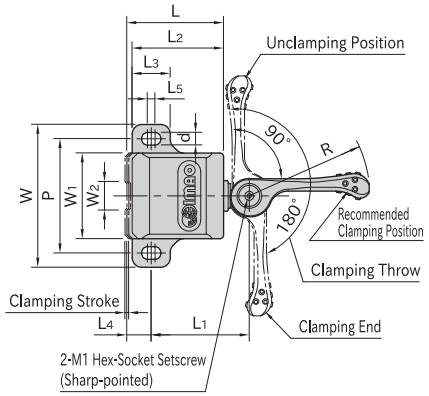
CAM EDGE CLAMPS – QLSCH SERIES

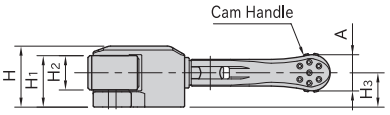
ONE-TOUCH Clamps





QLSCH-L
(Light-Duty)

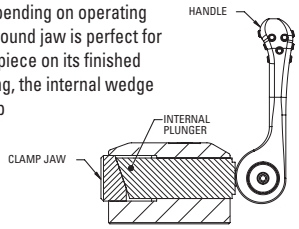




QLSCH
(Standard)

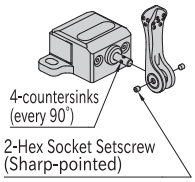
Features

Spring-loaded light-duty style allows distributing constant clamping force. Standard style allows adjusting clamping force depending on operating loads. Precision-ground jaw is perfect for clamping the workpiece on its finished surface. In clamping, the internal wedge design of the clamp jaw and plunger prevent the workpiece from lifting.

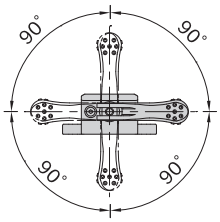


Changing Handle Position

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



Note:The setscrews must be tightened into 2 countersinks.



Light-Duty Style

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

*) Dimensional variations between workpieces should be 0.1mm or less.
**) Load needed to turn the handle to clamping position

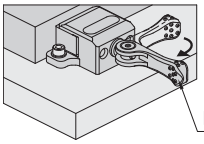
Standard Style

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

***) Allowable load to operate the handle

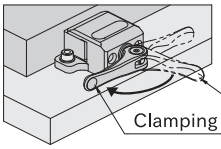
How To Use

Standard



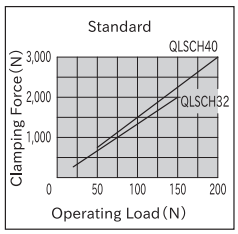
Turning the cam handle allows the jaw to advance to the workpiece for clamping. For clamping forces, see the performance curve.

Light-Duty Style



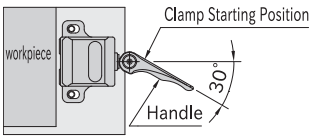
Turning the handle to the clamping position allows clamping the workpiece with constant clamping force.

Performance Curve

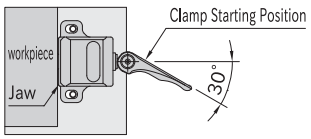


Installation Instructions for Light-Duty Style

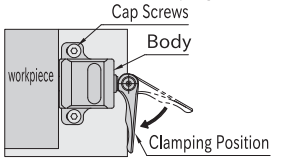
The steps below must be followed so that constant clamping force can be distributed within the clamping stroke.



Set the handle to the clamp starting position.



Contact the jaw to the workpiece.



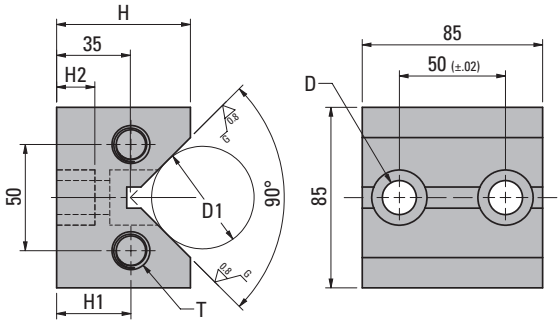
Fasten the clamp with hex socket-head cap screws, and then turn the handle to the clamping position for clamping.

These cam edge clamps feature a cam that forces the jaws forward and downward for fast and secure workholding. Releasing the cam on the light duty style allows the spring loaded jaws to retract for loading and unloading of the work piece. Releasing the cam on the standard style draws the jaws back for loading and unloading. The handle position can be changed to avoid interference. The precision ground jaw allows for clamping on finished surfaces. Mounts from the top with two mounting holes. The body is made from SAE-1045 alloy steel with black oxide finish. The jaws are made from SAE-1045 steel, hardened and precision ground. The handles are made from steel. The light duty handles are electroless plated and the standard styles have a black oxide finish.

Part #	d mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	M mm	M1 mm	P mm	P1 mm	R mm	W mm	W1 mm	W2 mm
QLSCH32L	6.6	32	27	18	18	18	8	51	51.5	48	20	13	3	M4X0.7X6	M4X0.7-5L	60	30	63	75	45	15
QLSCH40L	8.6	40	33	22	22	22	10	67	67	63	26	17	4	M5X0.8X8	M5X0.8-6L	80	40	80	100	60	20
QLSCH32	6.6	32	27	18	18	18	8	51	51.5	48	20	13	3	M4X0.7X6	M4X0.7-5L	60	30	63	75	45	15
QLSCH40	8.6	40	33	22	22	22	10	67	67	63	26	17	4	M5X0.8X8	M5X0.8-6L	80	40	80	100	60	20

HORIZONTAL V-BLOCK – BJ440 SERIES

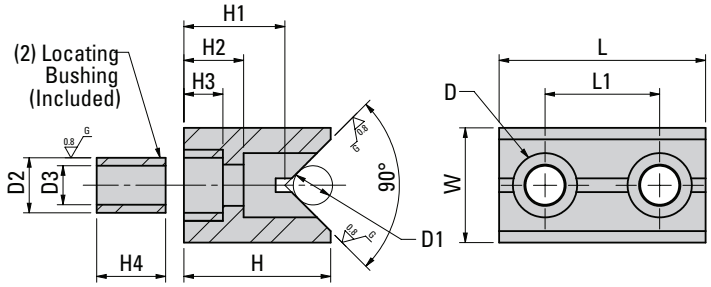
Standard



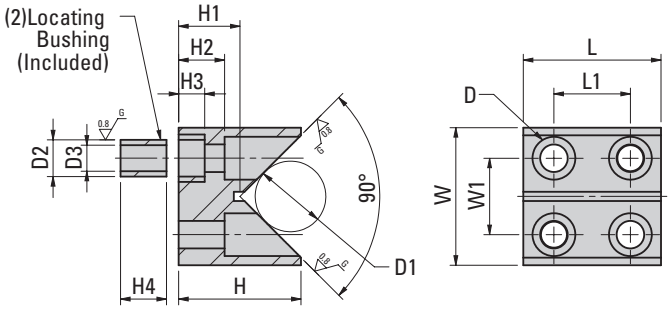
Made from S45C steel, precision ground, quenched and tempered Rc 45/55, with a black oxide finish.

Part #	T mm	F7 D mm	D1 Min mm	D1 Max mm	H mm	H1 mm	H2 mm	Use with Locating Screws
BJ440-12063	M12X1.75X30	12	15	80	63	34.72	22	BJ700-12055
BJ440-12075	M12X1.75X30	12	15	100	75	39.65	22	BJ700-12055
BJ440-16063	M16X2X35	16	35	80	63	34.72	25	BJ700-16065
BJ440-16075	M16X2X35	16	15	100	75	39.65	25	BJ700-16065

Mini



BJ440-08032

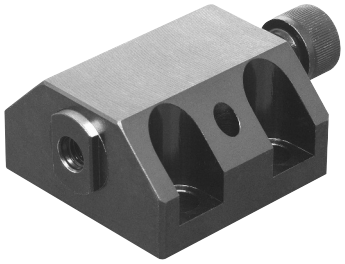


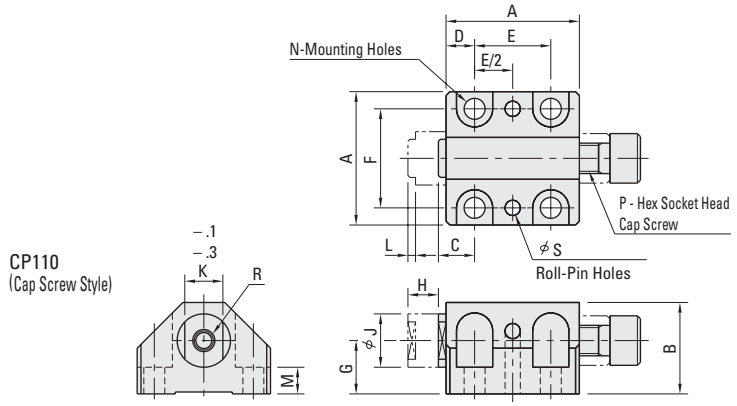
BJ440-08040

For accurately and securely holding round stock. Includes two locating bushings. Made from induction hardened S45C steel, precision ground, with a black oxide finish.

Part #	D for SHCS	D1 min mm	D1 max mm	h6 D2 mm	D3 mm	L mm	±.01 L1 mm	W mm	±.01 W1 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
BJ440-08032	M8	10	25	12	8.5	45	25	25	–	32	22	13	8.5	15
BJ440-08040	M8	15	50	12	8.5	45	25	45	25	40	20	15	8.5	15

BLOCK PUSH CLAMPS

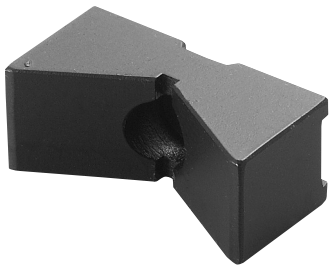


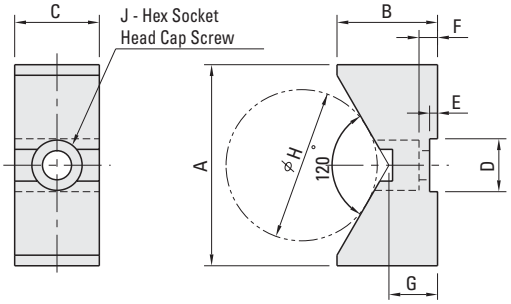


Designed to be used with the V-pads shown below for clamping round pieces. Custom pads can be made to fit your application. The body, piston and knob are made from SAE-1045 alloy steel. The piston is heat treated. Black oxide finish.

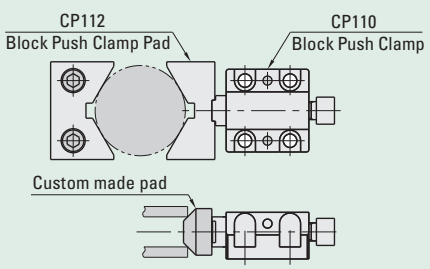
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	-0.1/-0.3 K mm	L mm	M mm	N mm	P mm	R mm	S mm	Clamping Force Lbs.	Screw Torque Ft. Lbs.
CP110-08024	35	24	9.5	7.5	20	26	14	8	14	10	2.0	7	M5	M8X1.25	M5X0.8X8	4	1,393	7.3
CP110-10029	45	29	12.0	10.0	25	35	16	10	18	12	2.0	8	M6	M10X1.5	M6X1X10	4	2,472	16.2
CP110-12031	55	31	15.0	12.5	30	40	18	12	20	14	2.5	8	M8	M12X1.75	M8X1.25X12	6	4,496	35.4
CP110-16037	70	37	18.0	15.0	40	50	20	16	25	19	3.0	8	M10	M16X2	M10X1.5X15	8	8,317	81.

BLOCK PUSH CLAMP V-PADS





How To Use and Install

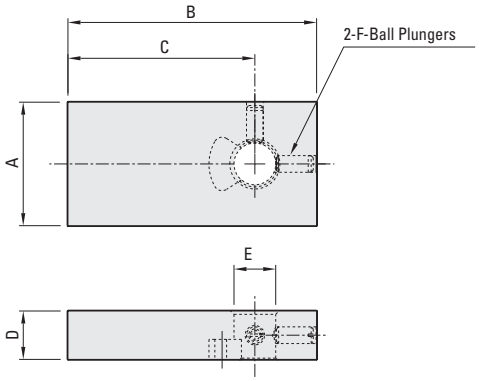


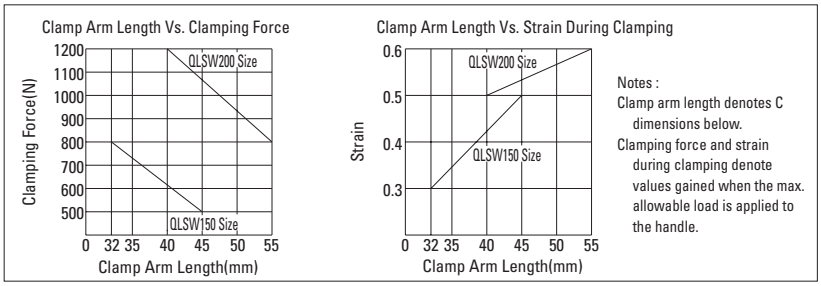
Custom pads can be mounted on the Block Push Clamps

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	M5	CP110-08024
CP112-10001	50	24	19	12	1.5	4.5	11.0	20	80	M6	CP110-10029
CP112-12001	65	32	22	14	2.0	5.5	15.0	25	100	M8	CP110-12031
CP112-16001	75	38	25	19	2.5	7.5	18.7	30	120	M10	CP110-16037

MACHINABLE CLAMP ARMS – FOR SW SERIES





Notes :
Clamp arm length denotes C dimensions below.
Clamping force and strain during clamping denote values gained when the max. allowable load is applied to the handle.

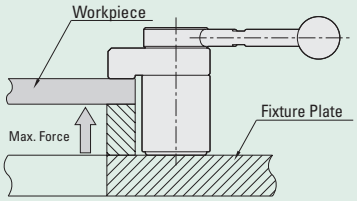
These machinable clamp arms are used with the standard swing clamps on page 11. They allow the user to machine a custom arm to meet custom clamping specifications. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E (F8) 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 561 for F8 tolerance specifications.

Technical Information

Allowable Loads in Machining of Workpiece Bottom

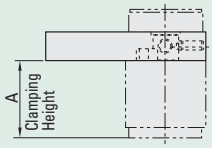


Series	Allowable Force To Workpiece Bottom(Per Clamp)
QLSW150	Max. 472 lbs.
QLSW200	Max. 606 lbs.

How To Use

Use for clamp arm customization
Machine to your clamping requirements

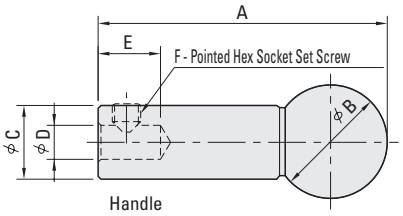
(Clamping Height in Use of Machinable Clamp Arms)

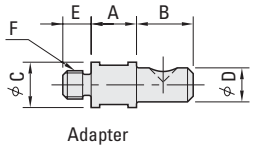


Part Number	A
QLSW150-SH	34**
QLSW200-SH	47***

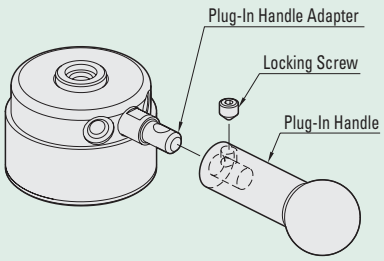
** Actual clamping height : 33.4 to 34.6 (clamping range : 1.2)
*** Actual clamping height : 46.1 to 47.9 (clamping range : 1.8)

PLUG IN – TWO PIECE HANDLES





How To Use



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

These handles can be used with any of the standard 150/200 series clamps listed on pages 11, 27, 31 and 37. 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 adapter is made from SAE-4135 alloy steel. Parts have black oxide finish. Ball knob is plastic.

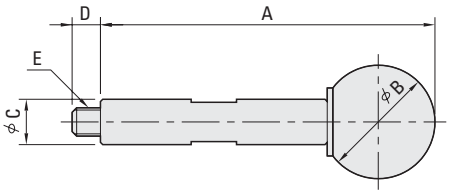
Handles Only

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

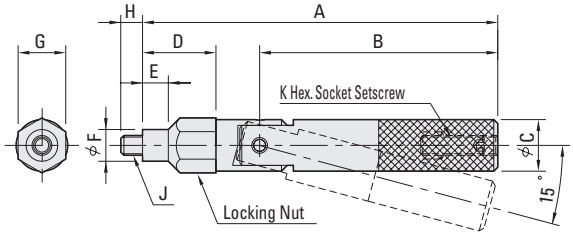
ONE PIECE HANDLE



These handles can be used with any of the standard 150/200 series clamps listed on pages 11, 27, 31 and 37. 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



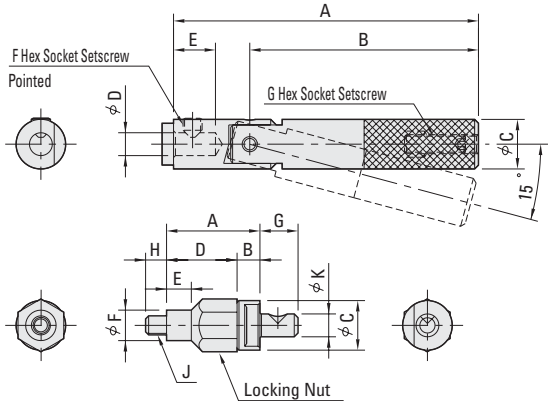
These handles can be used with any of the standard 150/200 series clamps listed on pages 11, 27, 31 and 37. Simply screw them into the clamp. These adjustable torque handles "release" when the desired clamping force is reached to prevent the operator from over clamping the work piece. The torque can 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	Handle Operating Load Lbs.
QLTL120	89.5	60	13	18.5	6.5	8	12	5.5	M5X0.8	M5X0.8X16	7-27
QLTL160	119.0	84	15	23.0	8.0	10	14	6.5	M6X1	M6X1X20	11-36

PLUG IN – TWO PIECE ADJUSTABLE HANDLES

handle only

adapter only



These adjustable torque handles can be used with any of the standard 150/200 series clamps listed on pages 11, 27, 31 and 37. 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. Handle operating load is 7-27 lbs. for the 120 series and 11-36 lbs. for the 160 series. The handle is made from SAE-1045 alloy steel and the adapter is made from SAE-4135 alloy steel. Parts are heat treated with black oxide finish.

Handles Only

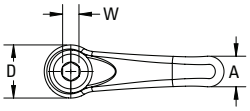
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm
QLTL120-RL	80	60	13	6	11	M5X0.8X5	M5X0.8
QLTL160-RL	107	84	15	8	13	M6X1X6	M6X1

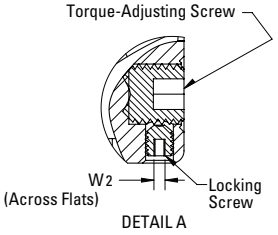
Adapters Only

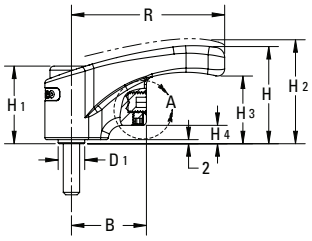
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm
QLTL120-RA	24.5	6	13	18.5	6.5	8	12	5.5	M5X0.8	6
QLTL160-RA	30.0	7	15	23.0	8	10	14	6.5	M6X1	8

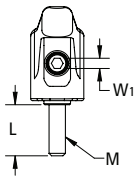
IMAO

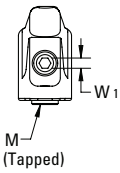
ADJUSTABLE TORQUE HANDLES – ATCL SERIES



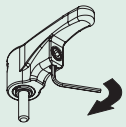




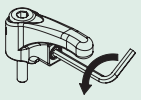




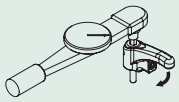
How To Set Torque



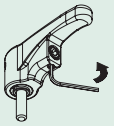
Loosen the locking screw by inserting a hex wrench into the underside of the handle.



Adjust the torque by turning the torque-adjusting screw in the side of the handle. To reach the minimum torque, loosen the torque-adjusting screw until the screw is flush with the body. (Ensure that the torque adjusting screw does not protrude from the body when loosening it.) To achieve maximum torque, rotate the torque-adjusting screw three-quarters of a rotation for ATCL6 and ATCL10 handles or one full rotation for ATCL8 handles.

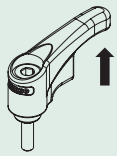


Measure the torque with a torque wrench. Connect a torque wrench to the adjustable torque handle. Apply a load in the tightening direction, and fine adjust the depth of torque-adjusting screw to reach the desired torque when the handle clicks.

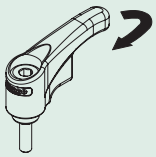


When the desired torque is reached, tighten the locking screw.

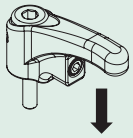
How To Clamp



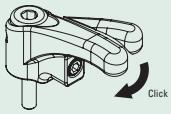
Lift the handle to disengage.



Rotate the handle to the desired position.



Release the handle. The return spring automatically engages the teeth again for further tightening. The handle can be positioned every 30 degrees.

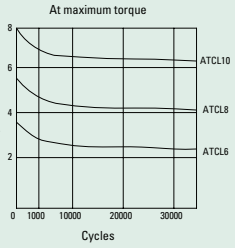


Rotate the handle to apply clamping force. The handle clicks to indicate completed tightening at desired tightening torque.

These adjustable torque handles allow the user to set a specified torque to prevent over-tightening by the operator. They are ideal for applications where a consistent force is required or where over-tightening can damage or distort a workpiece. The handle clicks when the specified torque is reached. The amount of torque is set by adjusting the screw in the handle. On the tapped style handles, a bolt can be passed through the top to secure the handle. The handle is made from SAE-4140 quenched and tempered steel with a black or orange finish. The ratchet is made from SCM415 carburized steel with black oxide finish.

Torque Performance

For the initial several thousand cycles, the tightening torque decreases. Measure the torque regularly and adjust as needed. The tightening torque will vary (max. +/- 15%). Not recommended for applications where precise tightening torque is required.



Stud Style

Black Part #	Orange Part #	L mm	R mm	H mm	D mm	H1 mm	H2 mm	M mm	D1 mm	H3 mm	H4 mm	A mm	B mm	W mm	W1 mm	W2 mm	Teeth	Torque Range Nm	Tightening Force N
ATCL6X15-BK	ATCL6X15-OG	15	60	40	22	32	44	M6X1	10	27.5	8	13	30	6	5	2	12	1 - 3.5	800 - 2,900
ATCL6X20-BK	ATCL6X20-OG	20	60	40	22	32	44	M6X1	10	27.5	8	13	30	6	5	2	12	1 - 3.5	800 - 2,900
ATCL6X25-BK	ATCL6X25-OG	25	60	40	22	32	44	M6X1	10	27.5	8	13	30	6	5	2	12	1 - 3.5	800 - 2,900
ATCL6X30-BK	ATCL6X30-OG	30	60	40	22	32	44	M6X1	10	27.5	8	13	30	6	5	2	12	1 - 3.5	800 - 2,900
ATCL8X20-BK	ATCL8X20-OG	20	75	48	26	38	52.5	M8X1.25	13	33	9	15	37	8	6	2.5	12	2 - 5.4	1,300 - 3,400
ATCL8X25-BK	ATCL8X25-OG	25	75	48	26	38	52.5	M8X1.25	13	33	9	15	37	8	6	2.5	12	2 - 5.4	1,300 - 3,400
ATCL8X30-BK	ATCL8X30-OG	30	75	48	26	38	52.5	M8X1.25	13	33	9	15	37	8	6	2.5	12	2 - 5.4	1,300 - 3,400
ATCL8X40-BK	ATCL8X40-OG	40	75	48	26	38	52.5	M8X1.25	13	33	9	15	37	8	6	2.5	12	2 - 5.4	1,300 - 3,400
ATCL10X20-BK	ATCL10X20-OG	20	90	57	32	45	62.5	M10X1.5	16	39.5	10.5	18	39	10	6	2.5	12	3 - 8	1,500 - 4,000
ATCL10X25-BK	ATCL10X25-OG	25	90	57	32	45	62.5	M10X1.5	16	39.5	10.5	18	39	10	6	2.5	12	3 - 8	1,500 - 4,000
ATCL10X30-BK	ATCL10X30-OG	30	90	57	32	45	62.5	M10X1.5	16	39.5	10.5	18	39	10	6	2.5	12	3 - 8	1,500 - 4,000
ATCL10X40-BK	ATCL10X40-OG	40	90	57	32	45	62.5	M10X1.5	16	39.5	10.5	18	39	10	6	2.5	12	3 - 8	1,500 - 4,000

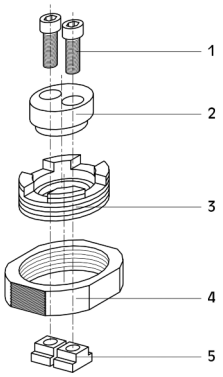
Tapped Style

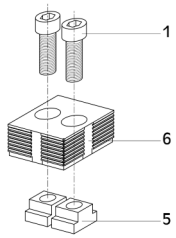
Black Part #	Orange Part #	Lf mm	R mm	H mm	D mm	H1 mm	H2 mm	M mm	D1 mm	H3 mm	H4 mm	A mm	B mm	W mm	W1 mm	W2 mm	Teeth	Torque Range Nm	Tightening Force N
ATCL6-BK	ATCL6-OG	18	60	40	22	32	44	M6X1	10	27.5	8	13	30	6	5	2	12	1 - 3.5	800 - 2,900
ATCL8-BK	ATCL8-OG	22	75	48	26	38	52.5	M8X1.25	13	33	9	15	37	8	6	2.5	12	2 - 5.4	1,300 - 3,400
ATCL10-BK	ATCL10-OG	25	90	57	32	45	62.5	M10X1.5	16	39.5	10.5	18	39	10	6	2.5	12	3 - 8	1,500 - 4,000

CAM CLAMPING SYSTEMS

The Cam Clamping System line has been designed and patented to make it easy to clamp varied forms of workpieces. This compact product enables double locking (axial and radial) using the eccentric cam and propeller principle. With a rotation of approximately 15 degrees, contact is made with the workpiece and complete clamping face of the system cam. The clamp moves forward and downward on the workpiece. T-Type and S-Type clamping systems are sold as complete sets including the proper T-nuts and screws for specific machine tool cross slots. A custom fixed block and cam clamp are also available that are built to meet customers' size specifications.

Cam Clamping Set | T-Type





Item	Description
1	Screw
2	Central element
3	Eccentric element
4	Clamping element
5	T-nuts
6	Fixed block

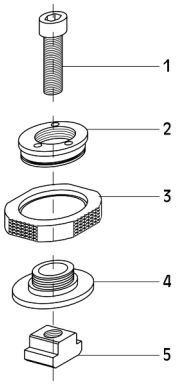
The T-Type cam system clamps workpieces with a clamping force of 8,800 lbs. This complete set includes four cam clamps, four fixed blocks and eight pairs of T-nuts with screws (T-nuts also sold separately). One T-Type clamping key and a wood packing case are also included. See the individual clamps on the following page for dimensions.

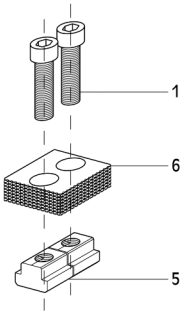
Part #	T-Nut Size in Set mm	*T-Nut Part #
F677-584414	14	F658-442593
F677-584416	16	F658-442594
F677-584418	18	F658-442595

Part #	T-Nut Size in Set mm	*T-Nut Part #
F677-584420	20	F658-442596
F677-584422	22	F658-442597

*T-Nuts with screws included in set, and offered separately.

Cam Clamping Set | S-Type





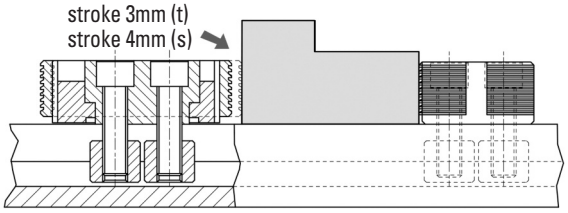
Item	Description
1	Screw
2	Eccentric element
3	Clamping element
4	Central element
5	T-nuts
6	Fixed block

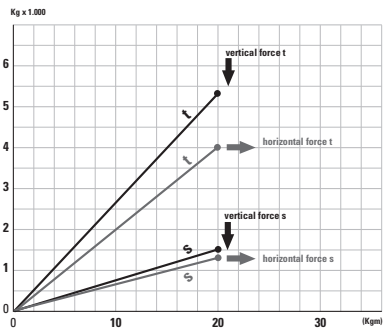
This S-Type cam system clamps workpieces with a clamping force of 4,400 lbs. This complete set includes four cam clamps, four fixed blocks and six pairs of T-nuts with screws (T-nuts also sold separately). One S-Type clamping key and a wood packing case are also included. See the individual clamps on the following pages.

Part #	T-Nut Size in Set mm	*T-Nut Part #
F677-584314	14	F658-432593
F677-584316	16	F658-432594
F677-584318	18	F658-432595

Part #	T-Nut Size in Set mm	*T-Nut Part #
F677-584320	20	F658-432596
F677-584322	22	F658-432597

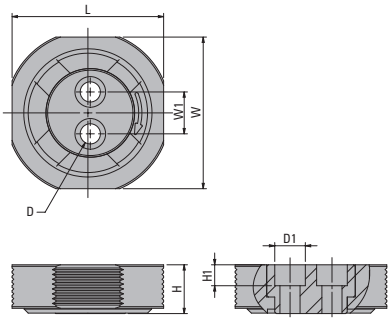
*T-Nuts with screws included in set, and offered separately.



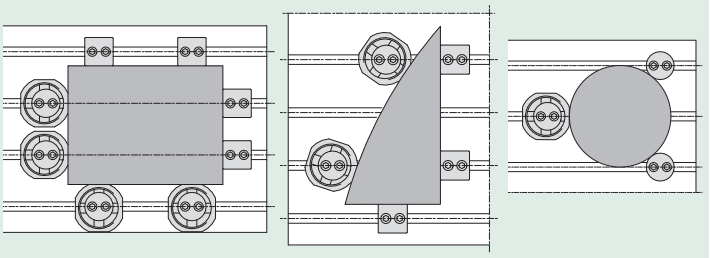


CAM CLAMPING SYSTEMS

Cam Clamp | T-Type



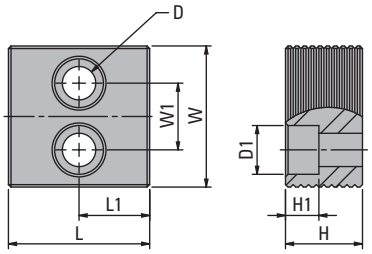
How To Use



This cam clamp is used for the Type-T cam system. The clamping element has both a smooth surface and a grooved clamping surface to meet particular clamping needs.

Part #	D mm	D1 mm	L mm	W mm	W1 mm	H mm	H1 mm
F658-445010	12.5	9	94	94	26	27	13

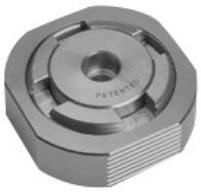
Fixed Block | T-Type



This fixed block is used for the T-Type cam system. The block features a serrated surface.

Part #	D mm	D1 mm	L mm	L1 mm	W mm	W1 mm	H mm	H1 mm
F658-440400	17	10.5	50	25	50	26	18	11

Cam Clamp | Custom

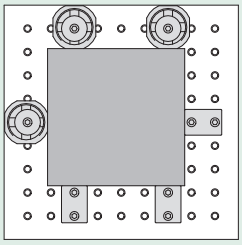


This cam clamp is used with the custom fixed block when the customer is specifying block dimensions. The cam clamp has both a smooth surface and a grooved clamping surface to meet particular clamping needs.

Part #
F658-445020

Fixed Block | Custom

How To Use

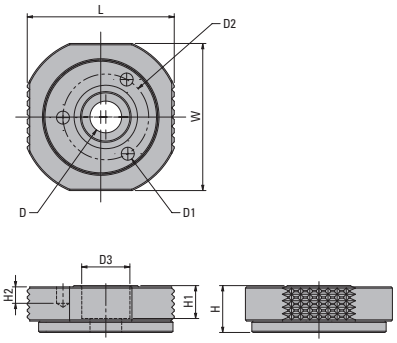


This block is fixed and built to match the length, width, and height specifications supplied by customer. The block features a serrated surface. Contact Fixtureworks with specifications or for more information.

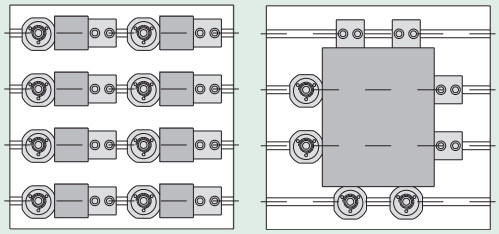
Part #
F658-441400

CAM CLAMPING SYSTEMS

Cam Clamp | S-Type



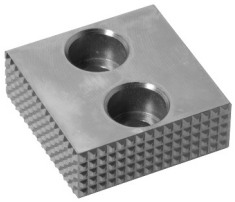
How To Use

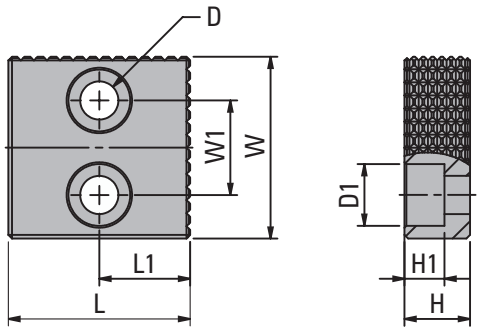


This cam clamp is used for the Type-S cam clamping system. The clamping element has both a smooth surface and a grooved clamping surface to meet particular clamping needs.

Part #	D mm	D1 mm	D1 mm	D2 mm	D3 mm	W mm	H mm	H1 mm	H2 mm
F658-435000	19	5.1	33.8	13	58	58	19	13	6.5

Fixed Block | S-Type

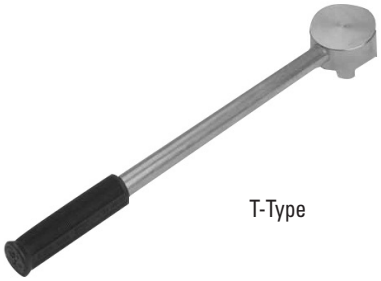




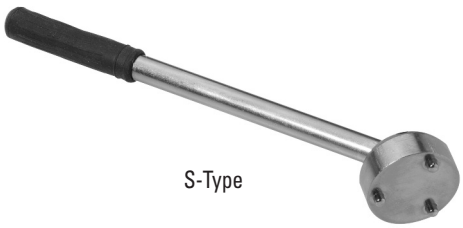
This fixed block is used for the S-Type cam clamping system. The block features a serrated surface.

Part #	D mm	D1 mm	L mm	L1 mm	W mm	W1 mm	H mm	H1 mm
F658-430400	10.5	17	50	25	50	26	18	11

Clamping Keys



T-Type



S-Type

A clamping key is available for both the T and S-Type clamping systems.

Part #	Cam Type
F658-440800	T

Part #	Cam Type
F658-430800	S

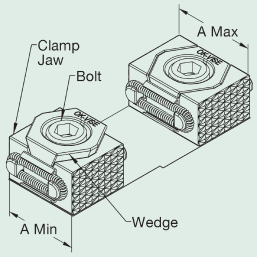
OK-VISE®

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.

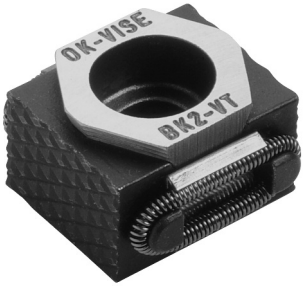
How To Use

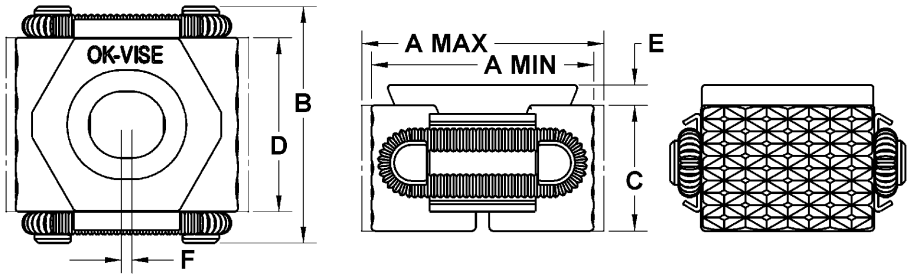
Single Wedge OK-Vise Clamp



As the bolt is tightened the wedge is pulled down between the clamp jaws making the clamp expand.

Single Wedge | Serrated Jaws

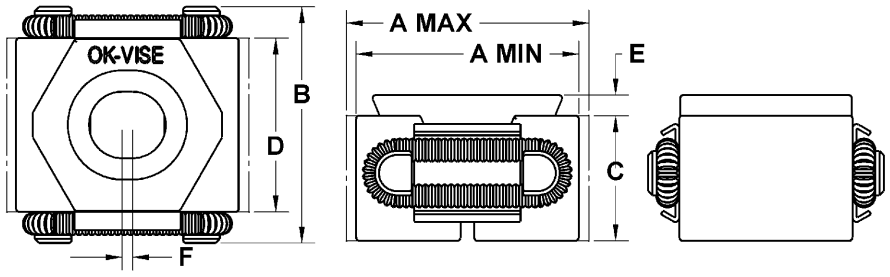




Part #	Min A	Optimum A	Max A	B	C	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs.	Jaw Hardness RC
OKBK2-VT-O*	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	3,370	18	48-52
OKBK2-VT	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	5,620	32	48-52
OKDK2-VT	1.65	1.77	1.93	1.61	.87	1.18	.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.

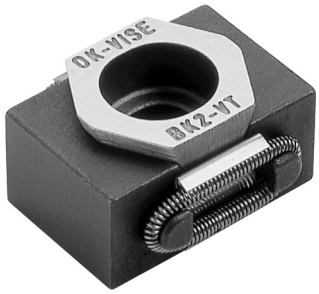
Part #	Min A	Optimum A	Max A	B	C	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs.	Jaw Hardness RC
OKAK2-VT-SO*	.79	.91	.98	.87	.43	.59	.17	—	3/16 OR M5	2,248	7	48-52
OKBK2-VT-SO*	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	3,370	18	48-52
OKBK2-VT-S	1.06	1.14	1.22	1.14	.59	.83	.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

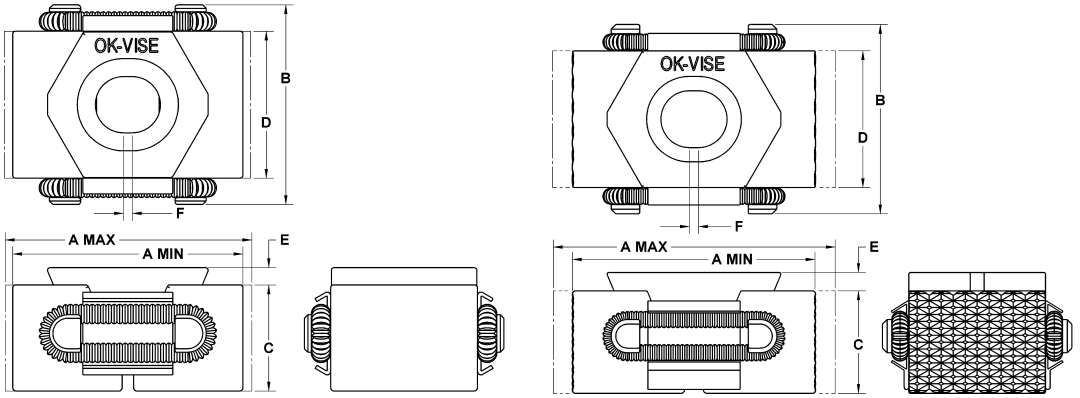
*The economy styles are supplied with Viton O-Rings instead of metal retaining springs and the internal wear surfaces are not ground.
** The jaws, wedge and all components are made from stainless steel.

OK-VISE®

WEDGE CLAMPS

Single Wedge | Machinable Jaws

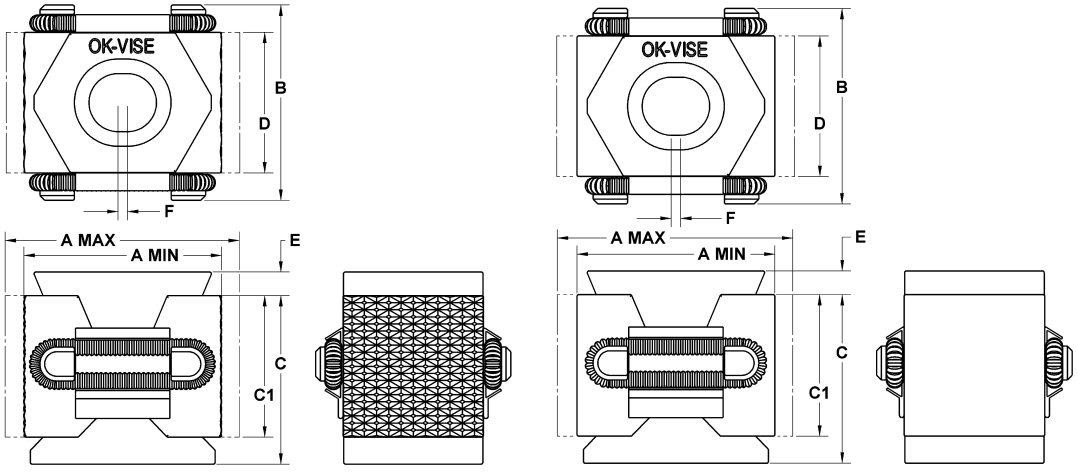




The jaws of the clamps are left soft and are oversized for custom machining to adapt the jaws to your application.

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 RC	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-VTI+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



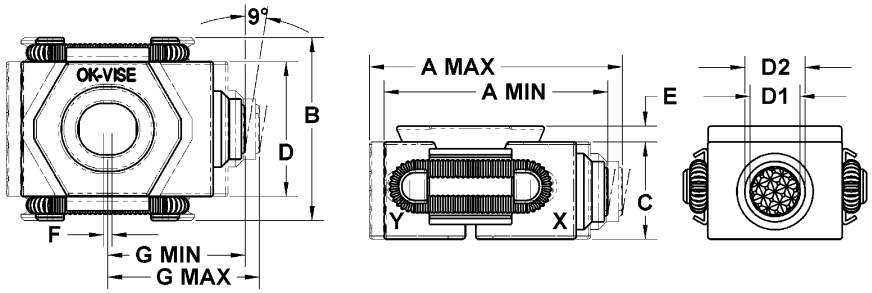
These double wedge clamps generate a double wedge action for additional jaw force pressing the work piece toward the fixture base.

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 RC	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

OK-VISE®

WEDGE CLAMPS

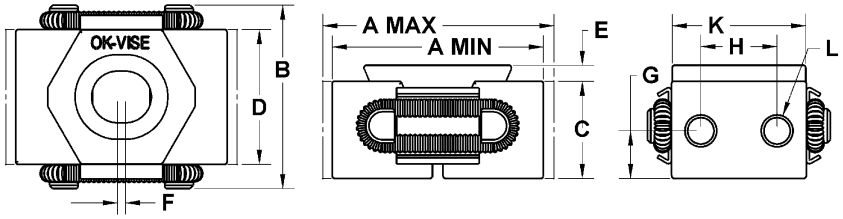
Single Wedge | Self-Adjusting Jaws



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 RC X	Jaw Hardness RC Y
OKBK2-VT-B	1.30	1.38	1.46	1.14	.59	.28	.33	.10	.04	.77	.80	.86	5/16 OR M8	4,946	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



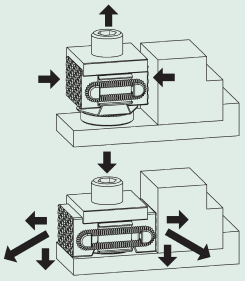
The jaws have a female thread on the end of the jaw to allow for quick and easy special attachments to the jaw. It is designed for short run jobs when the shape of the workpiece changes and does not justify making custom or dedicated fixtures.

Part #	Min A	Optimum A	Max A	B	C	D	E	F	G	H	K	L	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs.	Jaw Hardness RC
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 fastening bolt and OK Vise clamp are not included with the pull down kit. (The part numbers below only include the plate and bushing)

How To Use

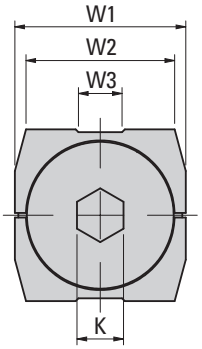


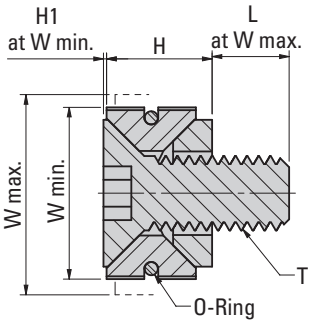
Pull down kits position single wedge clamps so downward clamping force is applied to the work piece as the jaws expand.

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

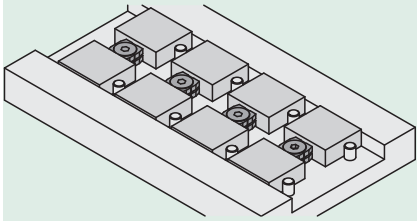
WEDGE CLAMP – COMPACT — CP132 SERIES

CP132-A



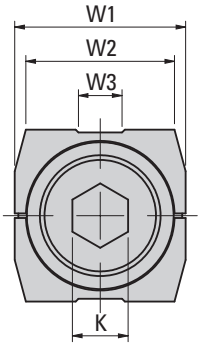


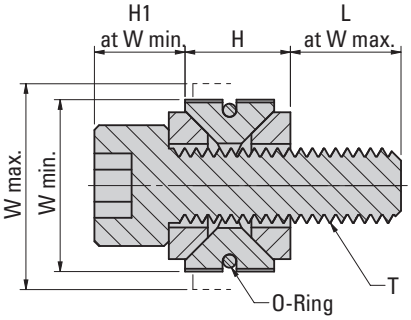
How To Use



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

CP132-B



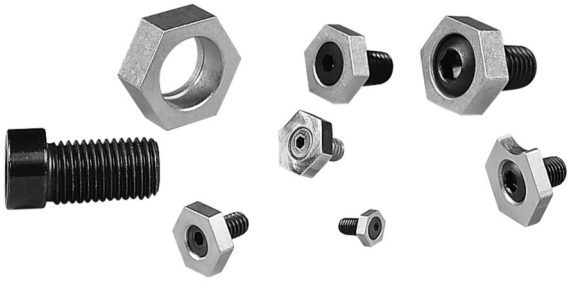


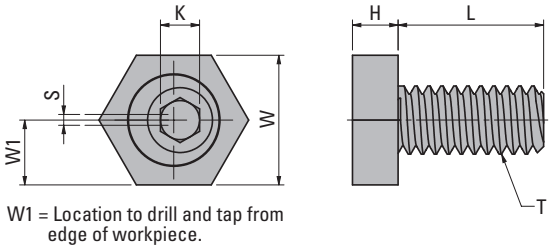
Tightening the hex screw expands the jaws outward and downward, preventing workpiece lift. Clamp two workpieces against fixed stops. The low profile and small size allow for faster set up and more parts per load. CP132-A uses a countersunk head screw. CP132-B uses a socket head cap screw. Jaws made from SNCM439 steel, Rc 33/39, with a black oxide finish. Washer made from SCM435 steel with a black oxide finish. O-ring made from fluoro rubber.

Part #	T mm	L mm	W min mm	W max mm	W1 mm	W2 mm	W3 mm	H at W min mm	H at W max mm	H1 at L min mm	K mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP132-05001A	M5X0.8X15	9.5	12	14	12	10	3.3	7.2	6.2	.3	3	449	3.2
CP132-06001A	M6X1X16	9.3	15	17	14.8	12	4.0	8.5	7.5	.3	4	786	5.4
CP132-08001A	M8X1.25X20	11.3	18.5	21.5	18.4	16	5.3	11.4	9.9	.4	5	1124	13.3
CP132-05001B	M5X0.8X16	9.6	12	14	12	10	3.3	7.2	6.2	6.2	4	674	4.0
CP132-06001B	M6X1X18	10.2	15	17	14.8	12	4.0	8.5	7.5	7.3	5	1011	6.7
CP132-08001B	M8X1.25X25	14.9	18.5	21.5	18.4	16	5.3	11.4	9.9	9.8	6	2023	16.2

MI-TEE-BITE PRODUCTS INC.

FIXTURE CLAMPS





W1 = Location to drill and tap from edge of workpiece.

These fixture clamps are made up of a hardened steel socket cap screw with an offset head and a brass or stainless 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

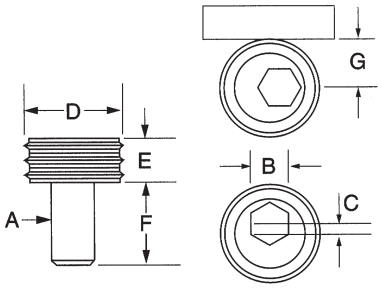
Brass Part #	Thread T	L	W	W1*	H	Total Travel S	K	Torque Ft Lbs.	Max Holding Force Lbs.	Cam Screw Only	Hex Washer Only
MB-10202	8-32	.350	.312	.150	.110	.030	5/64	1.5	205	MB-10363	MB-10580
MB-10207	10-32	.340	.500	.250	.160	.040	3/32	2.5	350	MB-10366	MB-10587
MB-10204	1/4-20	.470	.625	.308	.190	.040	1/8	6.2	800	MB-10365	MB-10582
MB-10205	5/16-24	.460	.812	.400	.180	.040	3/16	8.3	800	MB-10369	MB-10584
MB-10201	5/16-18	.460	.812	.400	.180	.040	3/16	8.3	800	MB-10367	MB-10584
MB-10206	3/8-16	.710	.812	.400	.250	.050	3/16	20.8	2,000	MB-10371	MB-10586
MB-10208	1/2-13	.900	1.000	.500	.375	.100	5/16	65.0	4,000	MB-10373	MB-10588
MB-10210	5/8-11	1.125	1.187	.590	.500	.100	3/8	100.0	6,000	MB-10375	MB-10592
Stainless											
MB-10214	8-32	.350	.312	.150	.110	.030	5/64	1.5	205	MB-10362	MB-10581
MB-10203	1/4-20	.470	.625	.308	.190	.040	1/8	6.2	800	MB-10364	MB-10583
MB-10213	5/16-18	.460	.812	.400	.250	.040	3/16	8.3	800	MB-10368	MB-10585

METRIC

Brass Part #	Thread T mm	L mm	W mm	W1* mm	H mm	Total Travel S mm	K mm	Torque Ft Lbs.	Max Holding Force Lbs.	Cam Screw Only	Hex Washer Only
MB-50204	M4	9.60	7.93	3.80	2.80	.76	3	1.4	204	MB-50363	MB-10580
MB-50206	M6	11.20	15.86	7.80	4.75	1.01	4	6.2	799	MB-50365	MB-10582
MB-50208	M8	15.00	20.61	10.15	4.55	1.01	5	8.3	799	MB-50367	MB-10584
MB-50210	M10	19.00	20.61	10.15	6.35	1.27	7	20.6	1999	MB-50369	MB-10586
MB-50212	M12	22.80	25.38	12.70	9.52	2.03	8	64.9	3999	MB-50371	MB-10590
MB-50216	M16	28.50	30.13	15.00	12.70	2.54	12	92.1	5997	MB-50373	MB-10592
Stainless											
MB-50214	M4	9.60	7.93	3.80	2.80	.76	3	1.4	204	MB-50361	MB-10580
MB-50205	M6	11.20	15.86	7.80	4.75	1.01	4	6.2	799	MB-50364	MB-10583
MB-50207	M8	15.00	20.60	10.15	6.35	1.01	5	8.3	799	MB-50366	MB-10585

*Location to drill and tap from the edge of the work place.

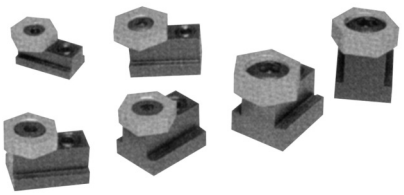
KNIFE EDGE CLAMPS

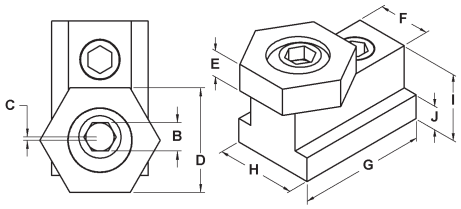


These clamps are similar to the clamps above, however, the edges are grooved for clamping rough cut stock, castings and other material that requires a hardened clamping element. Made from brass.

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.

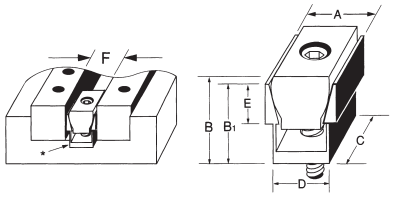
INCH

Part #	Cam Screw	T-Slot Size	B	Total Travel C	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 C 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.

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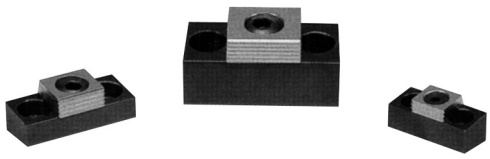
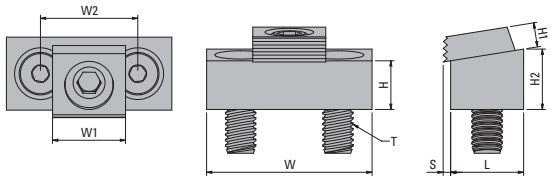
COMPACT TOE CLAMPS





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 my milling the slot deeper in the fixture plate. Mounting screws included.

INCH

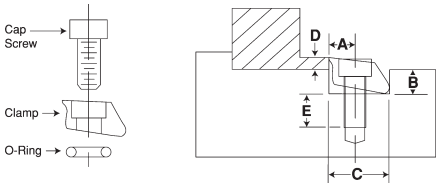
Part #	W	L	H	W2	Stroke S*	W1	H1	H2	Total Movement Distance	Mounting Screw	Torque Ft Lbs.	Max Holding Force Lbs.
MB-24106	1.70	.75	.50	1.00	.09	.75	.25	.62	.050	5/16-18	20.8	2,000
MB-24108	2.12	1.00	.45	1.32	.11	1.00	.38	.62	.100	3/8-16	65.0	4,000
MB-24110	2.95	1.50	.99	2.00	.13	1.50	.50	1.25	.100	1/2-13	100.0	6,000

METRIC

Part #	W mm	L mm	H mm	W2 mm	Stroke S* mm	W1 mm	H1 mm	H2 mm	Total Movement Distance mm	Mounting Screw	Torque Ft Lbs.	Max Holding Force Lbs.
MB-54110	43.2	19.0	12.7	25.4	2.3	19.0	6.4	15.75	1.6	M8X16	20.8	2,000
MB-54112	54.0	25.4	11.4	33.5	2.8	25.4	9.7	15.75	2.0	M10X20	65.0	4,000
MB-54116	75.0	38.1	25.2	50.8	3.3	38.1	12.7	31.75	2.5	M12X30	100.0	6,000

* S is the distance between the front of the clamp base and the workpiece.

PITBULL 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

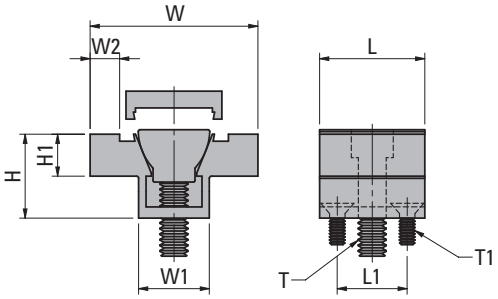
Part #	Edge Type	A	B	C	D*	E	Clamp Width	Screw Size	Torque (in/Lbs.)	Max Holding Force (Lbs.)	Total Throw
MB-26000	Steel - Knife	.150	.140	.375	.075	.26	.375	4-40	16	650	.0075
MB-26010	Steel - Blunt	.150	.140	.375	.075	.26	.375	4-40	16	650	.0075
MB-26015	Brass - Blunt	.150	.140	.375	.075	.22	.375	4-40	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

WEDGE CLAMPS – MACHINABLE



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 aluminum channel. The extra material on the clamping jaws can be machined to conform to the shape of the workpiece, allowing you to fixture unusual applications. These clamps allow you to hold two parts with equilateral clamping action. They work on both flat and round stock. The locking plate allows you to expand the clamp for machining. When the clamp is used to hold flat stock, use the locking plate to machine the faces parallel. A mounting screw is included. The channel is made from 7075-T6 aluminum. The wedge is made from steel.

INCH

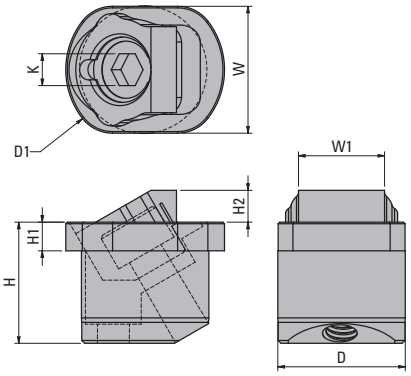
with locking plate Part #	w/o locking plate Part #	T	T1	L	L1	W	W1	W2	H	H1	Max Torque Ft Lbs.	Holding Force Lbs.	Wedge Only	Channel only
MB-60050	MB-60055	8-32	2-56	.62	.400	1.125	.420	.18	.50	.25	2.5	500	MB-60310	MB-60140
MB-60075	MB-60080	1/4-20	6-32	.94	.625	1.500	.632	.26	.75	.37	10.8	1,500	MB-60320	MB-60125
MB-60100	MB-60105	5/16-18	6-32	1.25	.812	2.000	.820	.39	1.00	.50	10.4	2,000	MB-60330	MB-60135
MB-60150	MB-60153	1/2-13	10-32	1.87	1.200	3.000	1.215	.62	1.50	.75	28.3	3,500	MB-60340	MB-60160
MB-60200	MB-60203	5/8-11	1/4-20	2.50	1.625	4.000	1.625	.80	2.00	1.00	55.0	6,000	MB-60350	MB-60180

METRIC

with locking plate Part #	w/o locking plate Part #	T mm	T1 mm	L mm	L1 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	Max Torque Ft Lbs.	Holding Force Lbs.	Wedge Only	Channel only
MB-80050	MB-80055	M4	M2	15.7	10.16	28.6	10.67	4.6	12.7	6.3	2.5	500	MB-60310	MB-60140
MB-80075	MB-80080	M6	M4	23.9	15.87	38.1	16.05	6.6	19.1	9.4	10.8	1,500	MB-60320	MB-60125
MB-80100	MB-80105	M	M4	31.8	20.62	50.8	20.83	9.9	25.4	12.7	10.4	2,000	MB-60330	MB-60135
MB-80150	MB-80155	M12	M5	47.5	30.48	76.2	30.86	15.7	38.1	19.1	28.3	3,500	MB-60340	MB-60160
MB-80200	MB-80205	M16	M6	63.5	41.28	101.6	41.28	20.3	50.8	25.4	55.0	6,000	MB-60350	MB-60180

W - The distance needed btween workpieces for clamp clearance. Drill and tap the mounting holes on the center of the W dimension.
W2 - The amount of machinable stock in the jaws.

DYNA FORCE CLAMPS

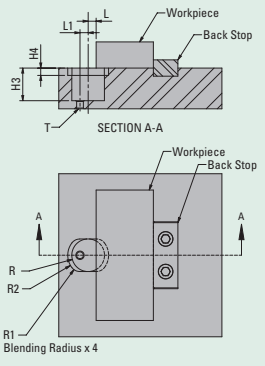


Part #	Description	T mm	+0.1/-0 R mm	R1 mm	+0.1/-0 R2 mm	L mm	L1 mm	±0.1 H3 mm	±0.1 H4 mm
MB-28314	Smooth 34RC	M5 or 10-24	20.00	6.00	25.00	4.90	5.00	20.00	4.50
MB-28318	Serrated 44RC	M5 or 10-24	20.00	6.00	25.00	4.90	5.00	20.00	4.50
MB-28320	Smooth 34RC	M6 or 1/4-20	25.00	6.50	30.00	5.65	6.00	25.00	5.00
MB-28322	Serrated 44RC	M6 or 1/4-20	25.00	6.50	30.00	5.65	6.00	25.00	5.00
MB-28324	Smooth 34RC	M8 or 5/16-18	30.00	8.00	38.00	7.05	7.50	30.00	7.00
MB-28328	Serrated 44RC	M8 or 5/16-18	30.00	8.00	38.00	7.05	7.50	30.00	7.00

These clamps feature jaws that advance on an angle for positive down-force. Most of the clamp is below the surface of the fixture to maintain a low profile. Made from 17-4 PH stainless steel. Screw made from alloy steel. Stainless steel screw and retaining rings are available for EDM applications. For complete technical information, search for the part number at www.fixtureworks.net.

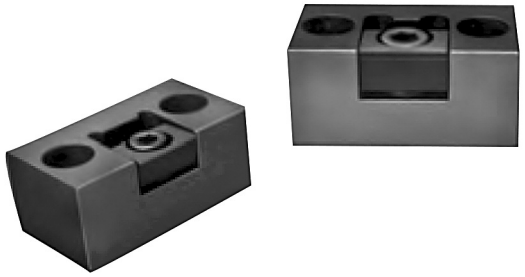
Part #	Description	D mm	D1 mm	W mm	W1 mm	H mm	H1 mm	H2 Min mm	H2 Optimum mm	H2 Max mm	K mm	Clamp Travel mm	Drive Screw mm	Max Torque Ft Lbs.	Holding Force Lbs.	Insert Only
MB-28314	Smooth 34RC	20.00	24.90	19.90	13.50	19.00	4.50	3.25	5.00	6.75	5	2.0	6	7.3	2,000	MB-28480
MB-28318	Serrated 44RC	20.00	24.90	19.90	13.50	19.00	4.50	3.25	5.00	6.75	5	2.0	6	7.3	2,000	MB-28482
MB-28320	Smooth 34RC	25.00	29.90	24.90	15.00	24.00	5.00	4.50	6.50	8.25	6	2.2	8	17.6	2,600	MB-28320
MB-28322	Serrated 44RC	25.00	29.90	24.90	15.00	24.00	5.00	4.50	6.50	8.25	6	2.2	8	17.6	2,600	MB-28486
MB-28324	Smooth 34RC	30.00	37.90	29.90	20.00	29.00	7.00	4.50	7.50	10.75	8	3.8	10	35.3	3,200	MB-28488
MB-28328	Serrated 44RC	30.00	37.90	29.90	20.00	29.00	7.00	4.50	7.50	10.75	8	3.8	10	35.3	3,200	MB-28490

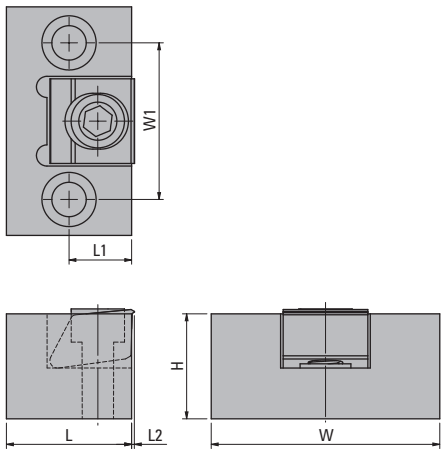
How To Install



MI-TEE-BITE PRODUCTS INC.

PIT BULL CLAMPS – MODULAR – COMPACT





These clamps are ideal for clamping workpieces in series by using the back surface of the clamp to locate the next workpiece. The back of the clamp is ground square for precise location of parts. The height of the clamp can be adjusted by the depth of the milled slot used to locate the clamp. Made from steel.

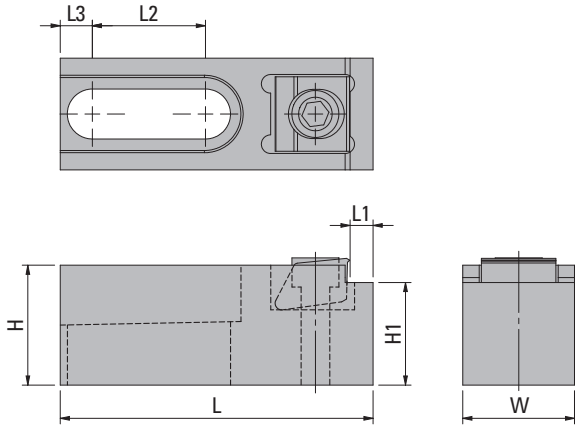
INCH

Knife Edge Part #	Blunt Edge Part #	Mounting Screw	L	L1	Clamp Travel L2	W	W1	H	Max Torque Ft. Lbs.	Holding Force Lbs.
MB-26220	MB-26225	5/16	1.23	.62	.24	2.25	1.50	.98	14.5	3,600
MB-26230	MB-26235	3/8	1.48	.74	.050	2.70	1.86	1.24	30.0	6,000

METRIC

Knife Edge Part #	Blunt Edge Part #	Mounting Screw	L mm	L1 mm	Clamp Travel L2 mm	W mm	W1 mm	H mm	Max Torque Ft. Lbs.	Holding Force Lbs.
MB-56220	MB-56225	M8	32.242	15.7	.61	57.1	38.1	25.1	16.5	3,596
MB-56230	MB-56235	M10	37.592	18.8	1.27	68.6	47.0	31.5	29.9	5,845

PIT BULL CLAMPS – MODULAR – SLOTTED



These clamps support workpieces off the machining table with a unique riser step design. Ideal for use on work cubes and machine tables for tapped holes or T-slot configurations. Made from steel.

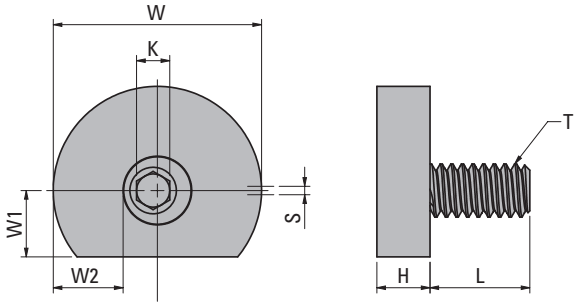
INCH

Knife Edge Part #	Blunt Edge Part #	Mounting Screw	L	L1	L2	L3	W	H	+.0000 -.0005 H1	Clamp Travel	Max Torque Ft. Lbs.	Holding Force Lbs.
MB-26240	MB-26245	1/2	4.08	.36	1.70	.50	1.25	.99	.7300	.024	14.5	3,600
MB-26250	MB-26255	5/8	4.20	.36	1.52	.43	1.50	1.61	1.3780	.050	30.0	6,000

METRIC

Knife Edge Part #	Blunt Edge Part #	Mounting Screw mm	L mm	L1 mm	L2 mm	L3 mm	W mm	H mm	+.0000 -.013 H1 mm	Clamp Travel mm	Max Torque Ft. Lbs.	Holding Force Lbs.
MB-56240	MB-56245	M12	103.6	9.1	43.2	12.7	31.700	25.1	18.542	.61	16.5	3,596
MB-56250	MB-56255	M16	107.0	9.1	38.6	10.9	38.100	40.9	35.000	1.27	29.9	5,845

FIXTURE CLAMPS – MACHINABLE



These low profile clamps hold round or irregularly shaped workpieces directly to a fixture plate or stop. The flat edge is used where higher clamping forces are required. Mounting screw included. Made from mild steel.

INCH

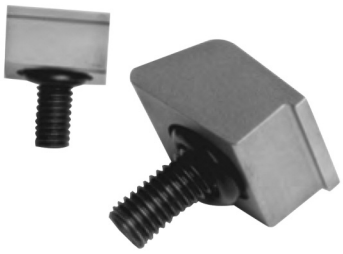
Part #	T	L	W	W1	W2	H	K	S	Max Torque Ft Lbs.	Holding Force Lbs.	Cam Screw Only	Washer Only
MB-10504	1/4-20	.470	.980	.308	.250	.250	1/8	.040	6.2	800	MB-10365	MB-10604
MB-10506	3/8-16	.710	1.230	.400	.275	.350	3/16	.050	20.8	2,000	MB-10371	MB-10606
MB-10508	1/2-13	.900	1.480	.500	.300	.450	5/16	.100	65.0	4,000	MB-10373	MB-10608
MB-10510	5/8-11	1.125	1.730	.590	.350	.550	3/8	.100	100.0	6,000	MB-10375	MB-10610

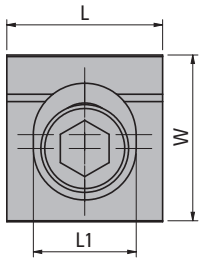
METRIC

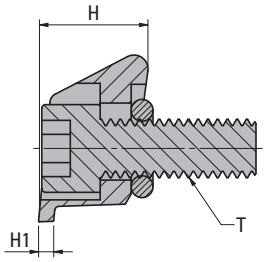
Part#	T mm	L mm	W mm	W1 mm	W2 mm	H mm	K mm	S mm	Max Torque Ft Lbs.	Holding Force Lbs.	Cam Screw Only	Washer Only
MB-50506	M6	11.9	24.9	7.8	6.4	6.4	4	1.01	6.2	800	MB-50365	MB-10604
MB-50510	M10	18.0	31.2	10.2	7.0	8.89	7	1.52	20.8	2,000	MB-50369	MB-10606
MB-50512	M12	22.9	37.6	12.7	7.6	11.4	8	2.03	65.0	4,000	MB-50371	MB-10612
MB-50516	M16	28.6	43.9	15.0	8.9	14.0	12	2.54	100.0	6,000	MB-50373	MB-10610

W1=Center of drill/tapped hole to edge of workpiece to use the flat face.
W2=Machinable stock

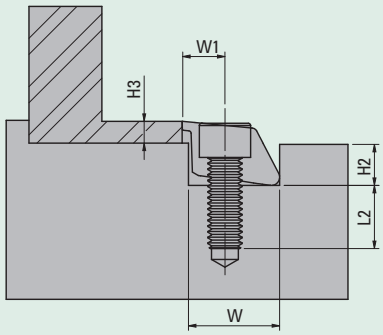
PIT BULL CLAMPS – MACHINABLE







How To Use



These clamps provide positive down-force and a very low gripping profile. Ideal for machining pieces complete in one set-up. The additional material on the clamping face is intended for machining a radius to conform to the workpiece. Made from tool steel and heat treated to approx. 43RC. Includes a dowel pin to locate the clamp while machining the radius.

INCH

Part #	Screw Size T	L	L1	L2	W	W1	H	H1	H2	H3	Dowel Throw	Pin	Max Torque Ft Lbs.	Total Holding Force Lbs.
MB-26077	3/8-16	1.00	.66	.710	1.07	.400	.70	.10	.450	.250	.050	1/8	30.0	6,000
MB-26088	1/2-13	1.50	.83	.770	1.71	.600	1.04	.22	.640	.375	.075	1/4	108.3	12,000

METRIC

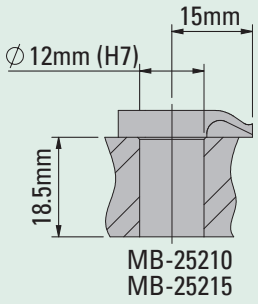
Part #	Screw Size T mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H Mm	H1 Mm	H2 mm	H1 mm	Dowel Throw mm	Pin mm	Max Torque Ft Lbs.	Total Holding Force Lbs.
MB-56077	M10	25.4	16.7	18.0	27.2	10.16	17.8	2.5	11.43	6.35	1.27	3.18	30.0	6,000
MB-56088	M12	38.3	21.2	19.6	43.4	15.24	26.6	5.6	16.26	9.52	1.90	6.35	108.3	12,000

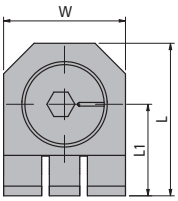
H1 = Minimum clamping height

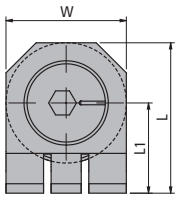
MI-TEE-BITE PRODUCTS INC.

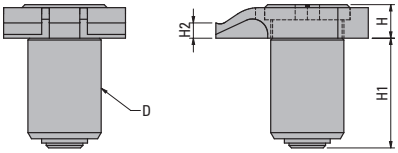
KOPAL CLAMPS – MINI

How To Install

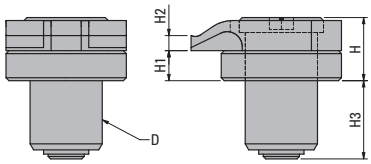








MB-25210

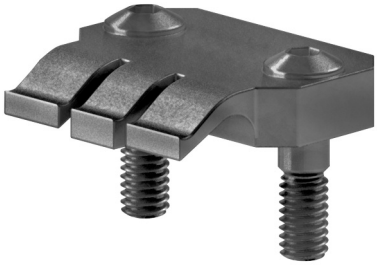


MB-25215

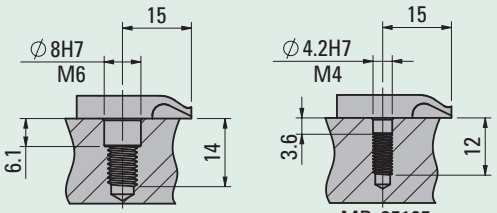
These low profile cam clamps have a holding force of 880 lbs. The clamping element rotates 360 degrees around the eccentric insert for clamping in all directions. The clamping range is .047". The fingers provide downward force when clamping. Made from spring steel.

Part #	D mm	L	L1	W	H	H1	H2	H3
MB-25210	12	1.00	.59	.79	.22	.71	.100	–
MB-25215	12	1.00	.59	.79	.41	.20	.100	.51

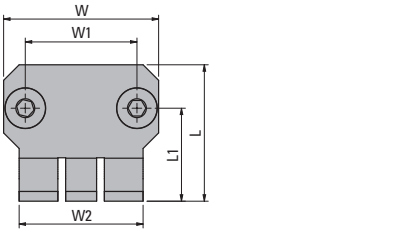
KOPAL STOPS – MINI



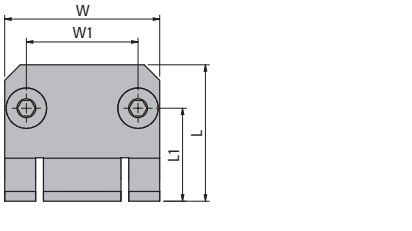
How To Install



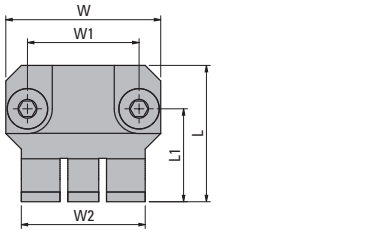
Requires metric tapped & reamed holes.

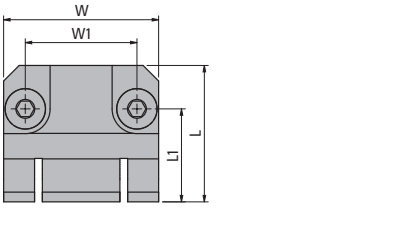


MB-25105

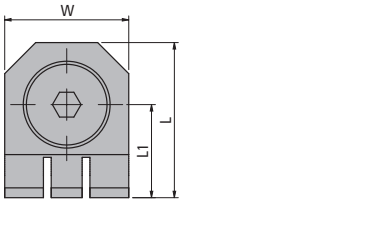


MB-25110

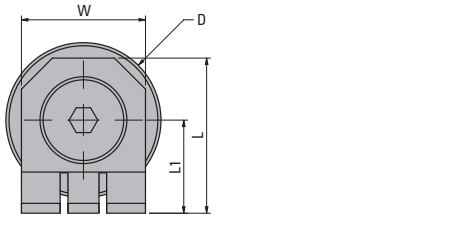




MB-25120



MB-25125

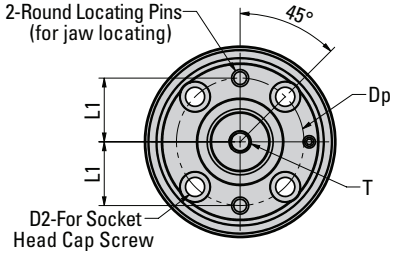


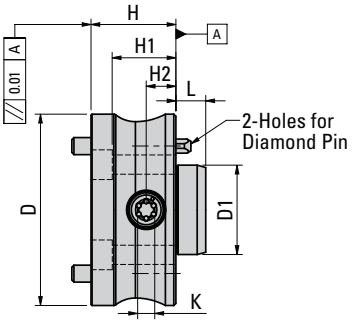
MB-25130

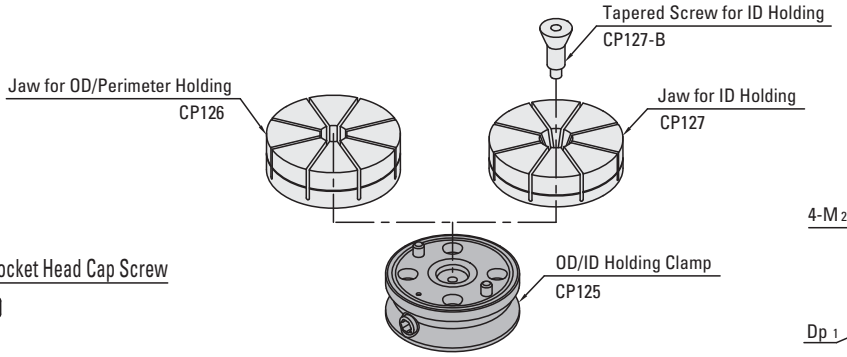
These low profile cam stops have a holding force of 880 lbs. The fingers provide downward force when clamping. The stops are mounted with special screws for precise locating. Use MB-25105 and MB-25115 for workpieces over 1.75" in length. Use MB-2110 and MB-25120 for smaller workpieces. Metric tapped and reamed holes are required for mounting. Mounting screws included. Made from spring steel.

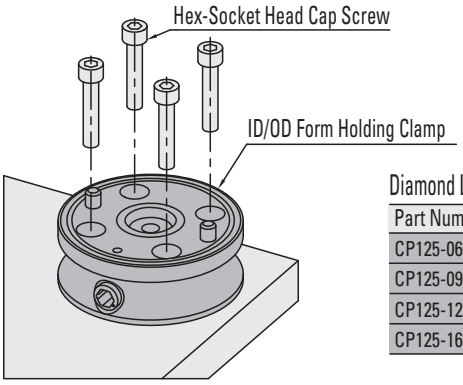
Part #	Thread T	D	L	L1	W	W1	W2	H	H1	H2
MB-25105	M4	–	.87	.59	1.00	.708	.79	.25	.20	.100
MB-25110	M4	–	.87	.59	1.00	.708	–	.25	.20	.100
MB-25125	M6	–	1.00	.59	.79	–	–	.22	-	.100
MB-25115	M4	–	.87	.59	1.00	.708	.79	.39	.20	.100
MB-25120	M4	–	.87	.59	1.00	.708	–	.39	.20	.100
MB-25130	M6	1.10	1.00	.59	.79	–	–	.41	.20	.100

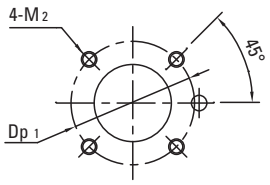
ID/OD FORM HOLDING CLAMP BASE— CP125 SERIES

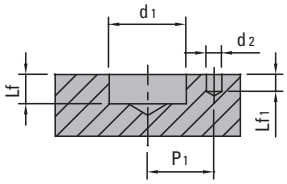








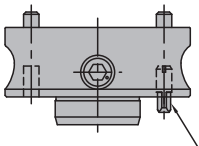




Diamond Locating Pin

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

Part Number	d1 (H7)	Lf	d2 (G7)	Lf1	P1 (±0.02)	M2	Dp1
CP125-06501	28	13	6	6	22	M6x1	42
CP125-09001	42	15	8	8	30	M8x1.25	60
CP125-12001	55	19	10	11	43	M10 x1.50	80
CP125-16001	63	25	12	13	60	M12 x1.75	110



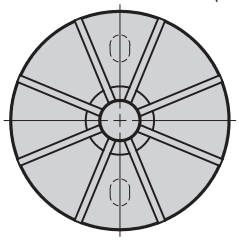
Insert an included diamond pin into the body for locating and secure the body to the fixture plate with four socket-head cap screws.
Note: Use either of the holes for diamond locating pin for your application.

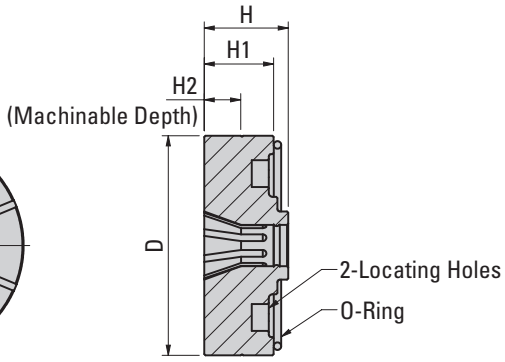
These clamps hold workpieces on the ID or OD using machinable jaws (available separately). For OD clamping, the aluminum jaws can be machined to custom fit the workpiece. For ID clamping, the workpiece is placed over ID jaws, which expand outward using a tapered pin (available separately). The part repeatability is +/- 0.03 mm, and the jaw locating repeatability of +/-0.02 mm. The clamping stroke of each jaw is .3 mm for both OD and ID clamping. The body is made from S45C steel with an electroless nickel plated finish. The pull cylinder is made from SCM415 steel, carburized-hardened with a black oxide finish. The cam cylinder is made from SCM435 steel, quenched and tempered, with a black oxide finish. Jaws and tapered pins must be purchased separately. Note: Do NOT actuate the clamp without a workpiece to avoid damaging the clamp and jaws. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	g6 D1 mm	D2 mm	Dp mm	L mm	±0.02 L1 mm	±0.01 H mm	H1 mm	H2 mm	K mm	Clamping Stoke mm	Allowable Screw Torque Ft Lbs.	Clamping Force - OD Holding Lbs.	Clamping Force - ID Holding Lbs.
CP125-06501	M8X1.25	65	28	M6	42	12	22	35	27	12	8	0.3	11	1,011	1,011
CP125-09001	M10X1.5	90	42	M8	60	14	30	40	30	14	8	0.3	18	1,573	1,573
CP125-12001	M10X1.5	120	55	M10	80	18	43	45	33	16	10	0.3	29	2,248	2,248
CP125-16001	M12X1.75	160	63	M12	110	24	60	50	36	18	10	0.3	29	2,697	2,248

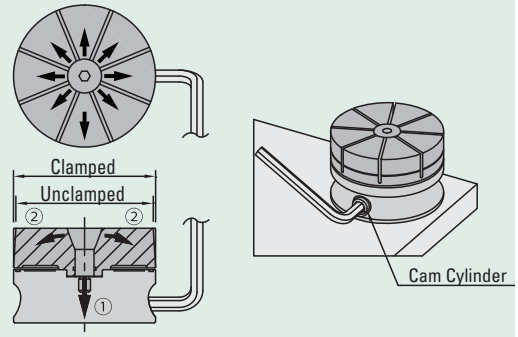
See page 561 for g6 tolerance specifications.

JAWS FOR ID HOLDING — CP127 SERIES





How To Use



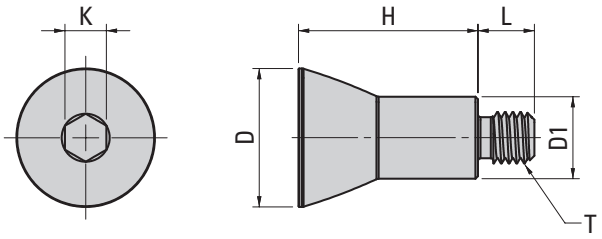
①When the cam cylinder is tightened, the tapered screw is pulled down.

②At the same time, the eight jaw sections expand to clamp the internal form of a part.

For ID clamping with ID/OD Form Holding Clamps (CP125) using a Tapered Screw (127-B). When the tapered screw is pulled down by the cam cylinder, jaws are expanded outward to clamp the workpiece on the OD. The clamping stroke of each jaw is 0.15 mm. Furnished with an O-ring. The jaws are made from A7075 aluminum with a natural finish. Tapered screw is not included and must be purchased separately. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	H mm	H1 mm	Machinable Depth H2 mm	For Holding Clamp	Use with Screw
CP127-06501	65	28.5	25	10	CP125-06501	CP127-06501B
CP127-09001	90	34.5	30	15	CP125-09001	CP127-09001B
CP127-12001	120	40.5	35	20	CP125-12001	CP127-12001B
CP127-16001	160	46.5	40	25	CP125-16001	CP127-16001B

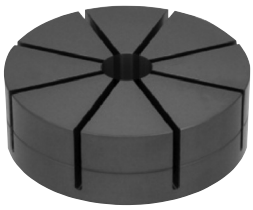
TAPERED SCREWS FOR ID HOLDING — CP127-B SERIES

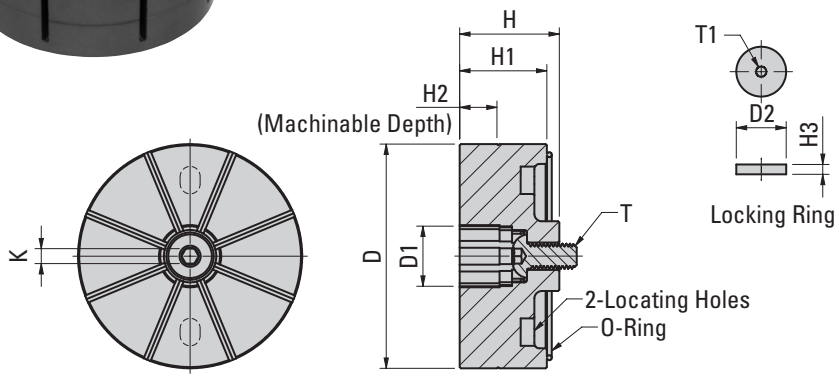


For use with ID Holding Jaws (CP127) on Form Holding Clamps (CP125). Made from SCM435 steel, quenched and tempered, with an electroless nickel plated finish.

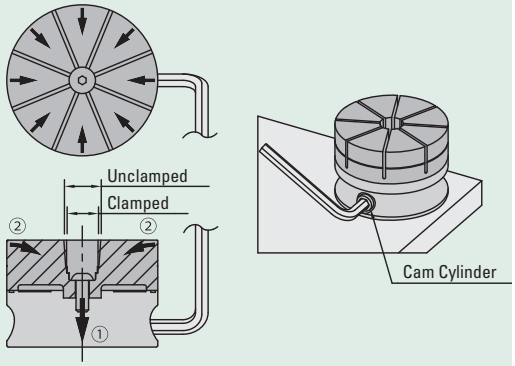
Part #	T mm	D mm	D1 mm	L mm	H mm	K mm	For Jaw
CP127-06501B	M8X1.25	22.5	13.2	10	29	6	CP127-06501
CP127-09001B	M10X1.5	27	16	11	35	8	CP127-09001
CP127-12001B	M10X1.5	29	16	13	41	8	CP127-12001
CP127-16001B	M12X1.75	33	18	14	47	10	CP127-16001

JAWS FOR OD HOLDING — CP126 SERIES





How To Use



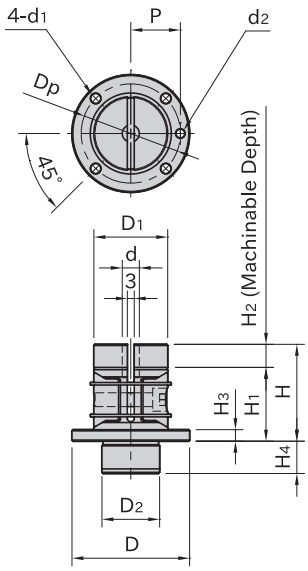
①When the cam cylinder is tightened, the central part of the jaw is pulled down.

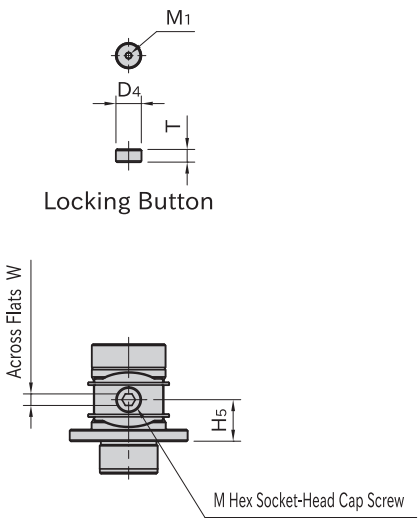
②At the same time, the eight jaw sections tilt toward the center to clamp the perimeter of a part.

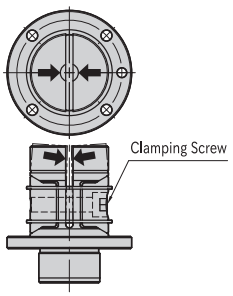
For OD clamping with ID/OD Form Holding Clamps (CP125). The jaws are machined to receive a workpiece. When the clamp is tightened, the center of the jaws is pulled down, tilting the jaw sections toward the center. The clamping stroke of each jaw section is 0.15 mm. Furnished parts include: O-ring (1), locking ring (1), BHCS (1). The jaws are made from A7075 aluminum with a blue finish. The body is made from SCM415 steel. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	T1 mm	D mm	D1 mm	D2 mm	H mm	H1 mm	Machinable Depth H2 mm	H3 mm	K mm	For Holding Clamp
CP126-06501	M8X1.25X20	M5X0.8	65	21	20	29	25	10	4	5	CP125-06501
CP126-09001	M10X1.50X20	M6X1	90	25	24	40	35	15	5	6	CP125-09001
CP126-12001	M10X1.50X25	M6X1	120	25	24	46	40	20	5	6	CP125-12001
CP126-16001	M12X1.75X25	M8X1.25	160	29	28	52	45	25	6	8	CP125-16001

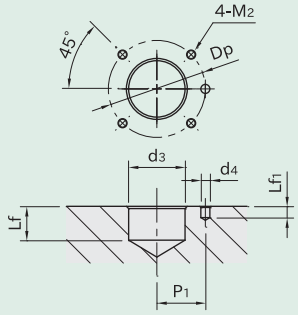
OD HOLDING CLAMPS – ROUND WEDGE STYLE – CP123 SERIES







Mounting Hole Dimensions

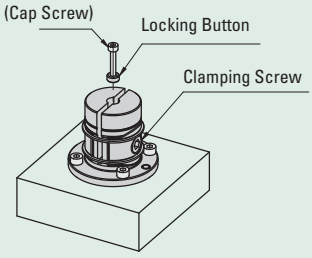


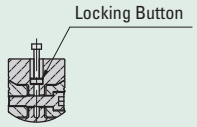
Part Number	d_3 (H7)	Lf	d_4 ($^{+0.12}_{-0}$)	Lf_1	P_1 (±0.05)	M_2	Dp
CP123-03201	25	15	5	5	21.5	M4×0.7	43
CP123-05001	40	20	6	7	32.5	M5×0.8	65

Part #	Clamping Force Lbs.	Max Screw Torque Ft./Lbs.
CP123-03201	674	6.5
CP123-05001	1,574	31

How To Machine Jaws

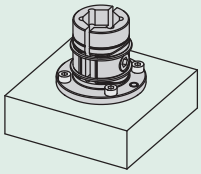
1. Setting the Locking Button
Insert the locking button into the jaw and then tighten the clamp screw to fasten the locking button.
(Using a cap screw facilitates setting the locking button)





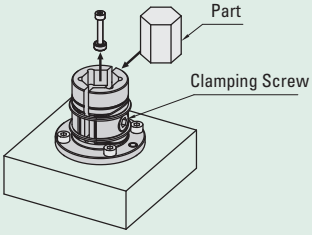
Note: The locking button must be inserted onto the bottom.

2. Machining the Jaw
Cut the jaw to the contours of the part.



Note: Do not cut beyond the machineable depth.

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

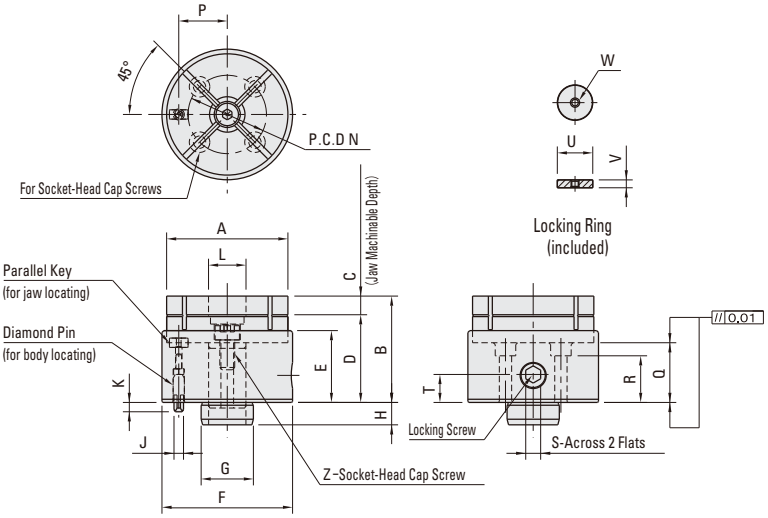


These O.D. clamps allow for holding on the circumference of a work piece. The aluminum jaws are designed to be machined to custom fit contoured or odd shaped parts. When the clamp is tightened, both jaws move towards the center clamping the circumference of the work piece. These clamps allow for part locating repeatability of +/- 0.08mm. The clamping stroke is .5mm. The body is made from SAE-4140 alloy steel, hardened with black oxide finish. Supplied with locking nut and spring pin. The jaws are made from aluminum with natural anodized finish.

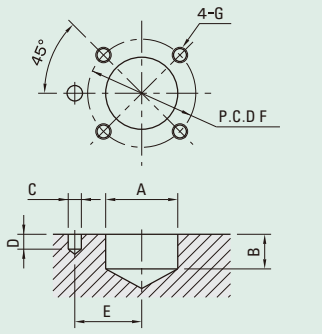
Part #	D mm	d mm	D1 mm	d1 mm	D2 (g7) mm	d2 mm	D4 mm	Dp mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	M mm	M1 mm	P mm	T mm	W mm
CP123-03201	51	7.4	32	4.5	25	5	7	43	42	32	10	5	14	18	M6X1X25	M3X0.5	21.5	3.5	5
CP123-05001	75	11.4	50	5.5	40	6	11	65	63	48	15	7	19	27	M10X1.5X35	M3X0.5	32.5	5.5	8

See page 561 for g7 tolerance specifications.

OD HOLDING CLAMPS – CP120 SERIES

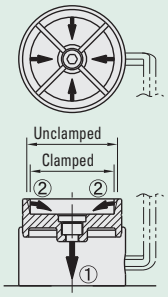


Hole Preparation



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

Features



①When the locking screw is tightened, the central bottom part of the jaw is pulled down.

②At the same time the 4 jaw sections tilt toward the center to clamp the circumference of a part.

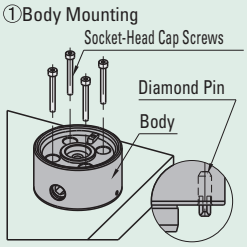
- The diaphragm clamping mechanism allows secure clamping with 4 jaw sections.
- Irregularly-shaped parts can be clamped.
- 0.15mm clamping stroke of each jaw section is ideal for clamping die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

Part #	Clamping Force Lbs.	Max Screw Torque Ft/Lbs.
CP120-06501	900	44
CP120-09001	1,350	73

These O.D. clamps allow for holding on the circumference of the work piece. The four part aluminum jaws can be machined to custom fit the part. These clamps allow for part repeatability of +/- 0.03mm and jaw locating repeatability of +/-0.02. The clamping stroke of each jaw is .15mm. The body is made from SAE-1045 alloy steel. The shaft and locking screw are made from SAE-4135 alloy steel – hardened with black oxide finish. The part numbers include the clamps, jaws, locking ring, diamond pin and socket head cap screw. Additional sets of jaws can be purchased separately.

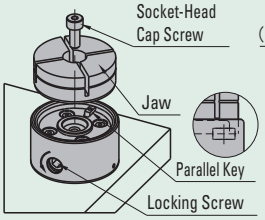
How To Use

①Body Mounting



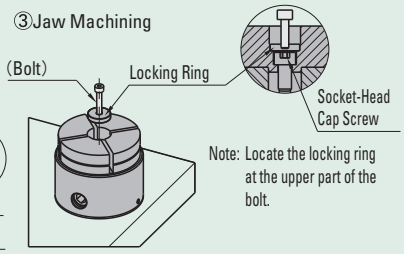
Insert the diamond pin (included) into the body for locating and then secure the body to the fixture with four socket-head cap screws.

②Jaw Setting



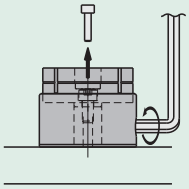
Engage the keyway on the bottom of the jaw with the parallel key on the top of the body, and then secure the jaw with the included cap screw.
Note : Jaw setting must be done with the locking screw fully loosened.

③Jaw Machining

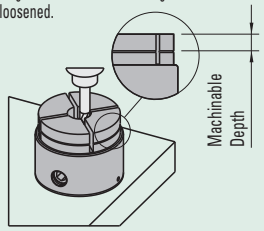


Note: Locate the locking ring at the upper part of the bolt.

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

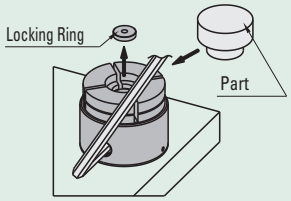


(2) Tighten the locking screw to clamp the locking ring.

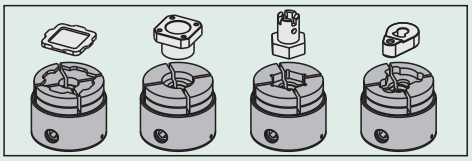


(3) Machine the jaw to the contours of a part.

④Part Setting



- After machining loosen the locking screw to take out the locking ring.
- Mount a part and then tighten the locking screw for clamping.



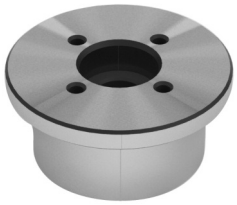
- Tightening the locking screw on the side of the body allows holding a part on its circumference.
- Machinable jaws allow clamping parts of various shapes.
- Ideal way to hold parts for machining on small-size machining centers, tapping centers, small-size 5-axis machines, CNC rotary tables, etc.

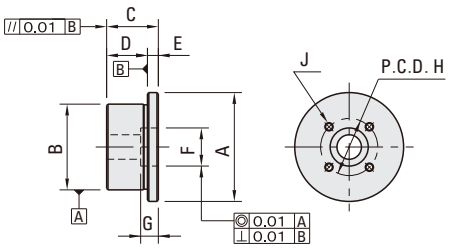
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G (g6) mm	H mm	J (h6) mm	K mm	L mm	M mm	N P.C.D.* mm	P +/-0.02 mm	Q +/-0.01 mm	R mm	S mm	T mm	U mm	V mm	W mm	Z mm
CP120-06501	65	57	10	47	39	70	28	12	6	5	19	M6	42	26	32	25	8	15	18	4	M4X0.7	M8X1.25-15L
CP120-09001	90	72	15	57	46	95	42	14	8	7	23	M8	60	36	38	28	10	17	22	6	M5X0.8	M10X1.5-20L

*Pitch Circle Diameter

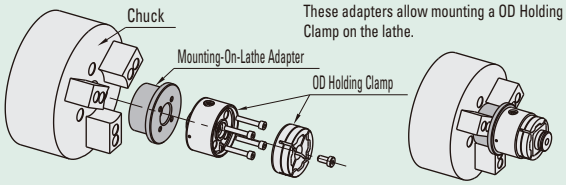
See page 561 for g6 and h6 tolerance specifications.

OD HOLDING CLAMP – LATHE ADAPTERS – CP122 SERIES





How To Use



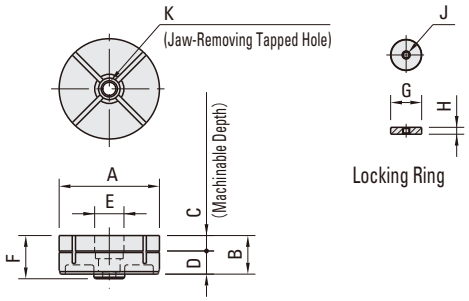
Note : The diamond pin included with an OD Holding Clamp is not required in this combination use.

These adapters are designed to be used with the O.D. Holding Clamps shown on page 70. They allow the OD Holding Clamps to be mounted on a lathe. Made from alloy steel, hardened with black oxide finish.

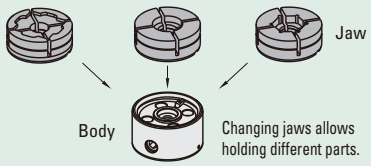
Part #	A mm +/-0.01	B mm	C mm	D mm	E mm +/-0.01	F mm (H7)	G mm	H mm	J mm	Use with Clamp
CP122-06501	80	63	38	30	8	28	13	42	M6X1 - 12 Deep	CP120-06501
CP122-09001	100	80	43	35	8	42	15	60	M8X1.25 - 16 Deep	CP120-09001

See page 561 for H7 tolerance specifications.

JAWS FOR OD HOLDING CLAMP– CP121 SERIES

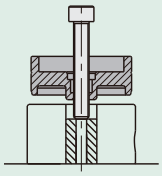


How To Use



How To Remove Jaw

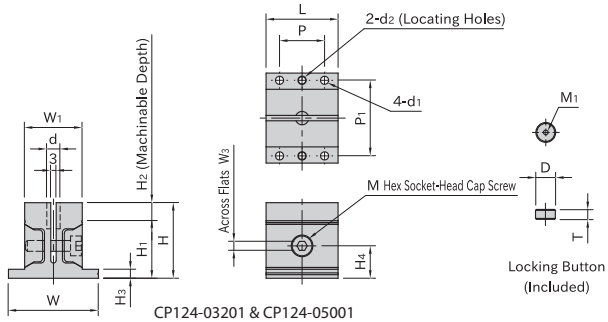
When it is hard to remove the jaw by hand, screw a bolt into the jaw-removing tapped hole to push against the body, for easier removal.



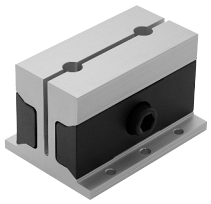
These clamp jaws are used with the O.D. Holding Clamps shown on page 70. They are designed to be modified to hold a wide variety of parts. The jaws are made from aluminum. Locking ring is made from steel.

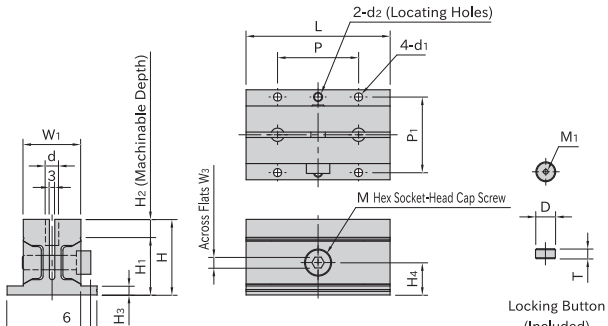
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Use with Clamp
CP121-06501	65	25	10	15	19	28	18	4	M4X0.7	M10X1.5 (Prepared Hole 8.5 Dia.)	CP120-06501
CP121-09001	90	34	15	19	23	39	22	6	M5X0.8	M12X1.75 (Prepared Hole 10.2 Dia.)	CP120-09001

OD HOLDING CLAMPS – WEDGE STYLE – CP124 SERIES



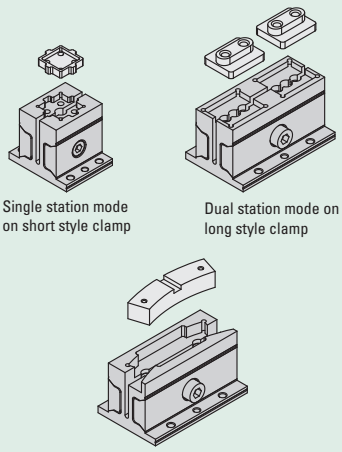
CP124-03201 & CP124-05001



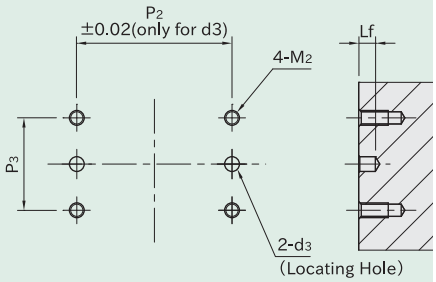


CP124-03202 & CP124-05002

How To Use



Mounting Hole Preparation



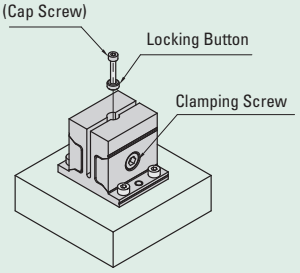
Use the included parallel pin for locating.

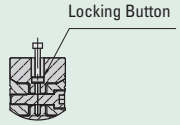
Part Number	d3 (H7)	Lf	M2	P2	P3
CP124-03201	5	5	M4×0.7	42	25
CP124-03202					45
CP124-05001	6	8	M5×0.8	62	30
CP124-05002					58

Body	Jaw
Aluminum (A6N01)	Steel (SAE-4140)
Anodized	Black oxide finished
Natural color	Quenched & tempered

How To Machine Jaws

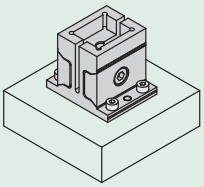
1. Setting the Locking Button
Insert the locking button into the jaw and then tighten the clamp screw to fasten the locking button. (Using a cap screw facilitates setting the locking button)





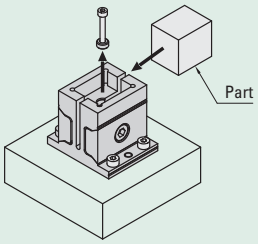
Note: The locking button must be insterted onto the bottom.

2. Machining the Jaw
Cut the jaw to the contours of the part.



Note: Do not cut beyond the machineable depth.

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

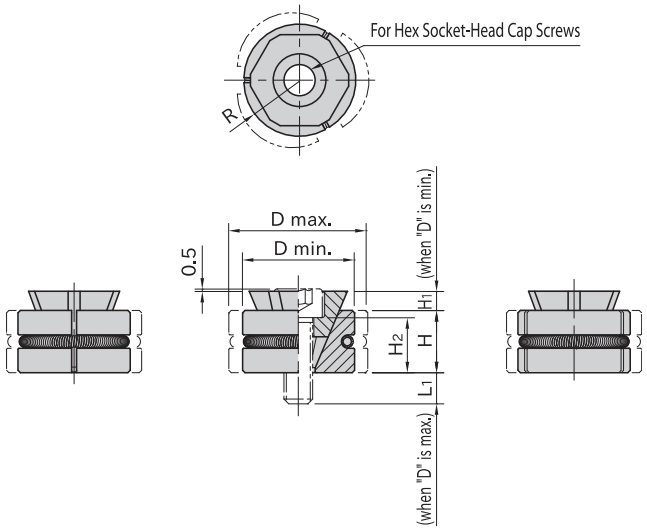


These O.D. clamps allow for holding on the circumference of slender work pieces. The aluminum jaws are designed to be machined to custom fit contoured or odd shaped parts. When the clamp is tightened, both jaws move towards the center clamping the circumference of the work piece. These clamps allow for part repeatability of +/- 0.08mm. The clamping stroke is .5mm. The body is made from SAE-4140 alloy steel, hardened with black oxide finish. The jaws are made from aluminum with natural anodized finish. Clamps are supplied with locking button and locating pins.

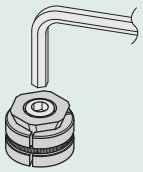
Part #	D mm	d mm	d1 mm	(H7) d2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	L mm	M mm	M1 mm	P mm	P1 mm	W mm	W1 mm	W3 mm	T mm	Clamping Force Lbs.	Max Screw Torque Ft/Lbs.
CP124-03201	7	7.4	4.5	5	42	32	10	5	18	40	M6X1X25	M3X0.5	25	42	50	32	5	3.5	562	5
CP124-03202	7	7.4	4.5	5	42	32	10	5	18	80	M8X1.25X30	M3X0.5	45	42	50	32	6	3.5	562	10
CP124-05001	11	11.4	5.5	6	63	48	15	7	27	50	M10X1.5X40	M3X0.5	30	62	72	50	8	5.5	1,236	19
CP124-05002	11	11.4	5.5	6	63	48	15	7	27	100	M12X1.75X45	M3X0.5	58	62	72	50	10	5.5	1,236	34

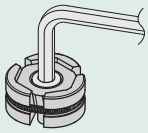
See page 561 for H7 tolerance specifications.

ID HOLDING CLAMPS – CP130 SERIES



How To Use

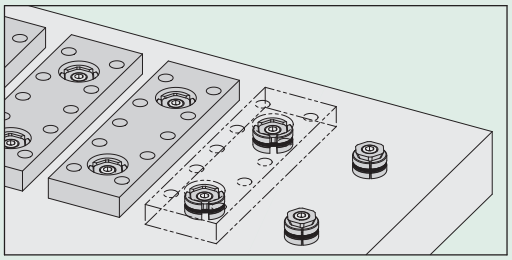




Note: The clamp makes a line at contact with the workpiece in the clamping mode. The contact can mar the surface of the workpiece depending on the material. Using these clamps for accurately finished holes is not recommended.

Unclamping Mode

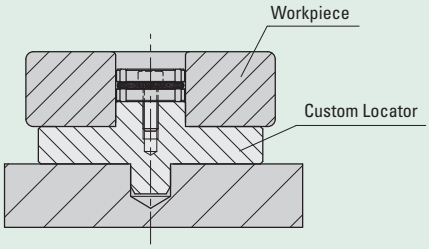
Clamping Mode



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

Note

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

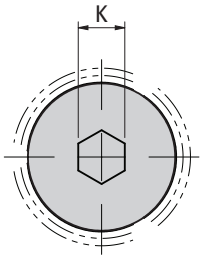


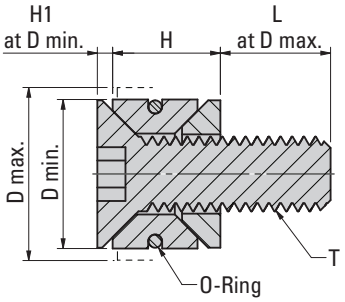
These I.D. clamps allow for holding the inside of work pieces. The steel jaws are forced outward as the cap screw is tightened. Because the clamp expands and wedges against the I.D. of the work piece, they are ideal for parts were there may be variations in the inside diameter of the part such as cast iron or rough finish holes. The body is made from alloy steel, hardened with black oxide finish. The springs are made from stainless steel.

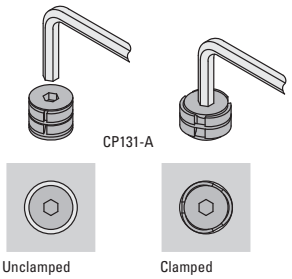
Part #	D Min mm	D Max mm	H mm	H1 mm	H2 Min mm	H2 Max mm	L1 mm	R mm	Cap Screw mm	Clamping Force Lbs.	Max Screw Torque Ft/Lbs.
CP130-04001	19.5	24	9	2.5	8	2.6	9.4	9.5	M4X12L	450	2.3
CP130-06001	23.5	29	13	4	11.5	5	13	11.5	M6X18L	1,124	7.7
CP130-08001	28.5	36	17	5.5	15	6	19	14	M8X25L	2,023	18.4

ID HOLDING CLAMP – COMPACT — CP131 SERIES

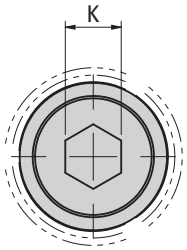
CP131-A

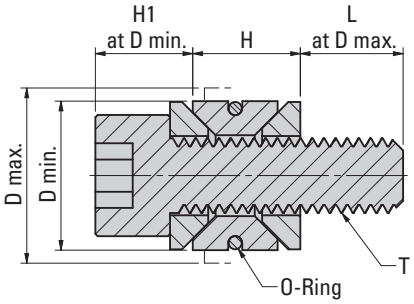


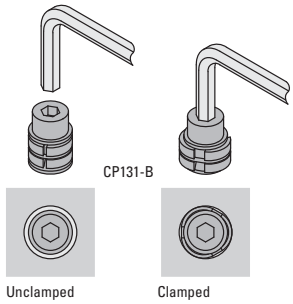




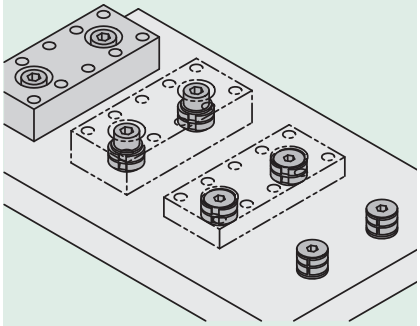
CP131-B







How To Use

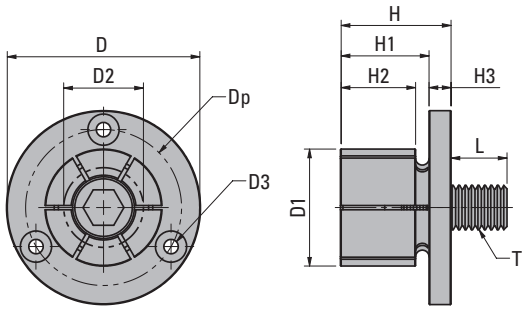


Example of application where two Compact ID Holding Clamps are used.

Holds workpieces on the ID. Tightening the hex screw expands the jaws outward and downward, preventing workpiece lift. Because the clamp expands and wedges against the ID of the work piece, they are ideal for parts where there may be variations in the inside diameter of the part such as cast iron or rough finish holes. The contact can mar the surface of the workpiece, depending on the material. Using these clamps for accurately finished holes is not recommended. CP131-A uses a countersunk head screw. CP131-B uses a socket head cap screw. Jaw made from SNCM439 steel, HRC33-39, with a black oxide finish. Washer made from SCM435 steel with a black oxide finish. O-ring made from fluoro rubber.

Part #	T mm	D min mm	D max mm	L mm	H at D Min mm	H at D Max mm	H1 mm	K mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP131-04001A	M4X0.7 X12	8	10.3	7.3	5.5	4.6	.9	2.5	202	1.6
CP131-05001A	M5X0.8X15	10	12.3	9.1	6.4	5.6	1.1	3	337	3.2
CP131-06001A	M6X1X18	12	16.3	11.2	8.6	7	1.3	4	472	5.4
CP131-08001A	M8X1.25X25	16	22	16.2	11.5	9.4	1.6	5	899	13.3
CP131-04001B	M4X0.7X12	8	10.3	7.1	5.5	4.6	5.1	3	337	2.0
CP131-05001B	M5X0.8X15	10	12.3	9	6.4	5.6	6.2	4	562	4.0
CP131-06001B	M6X1X18	12	16.3	10.6	8.6	7	7.9	5	1,124	6.7
CP131-08001B	M8X1.25X25	16	22	15.4	11.5	9.4	10.4	6	2,023	18.4

ID EXPANSION CLAMPS



The ID expansion clamps are an ideal way to hold parts on an inside diameter for multiple machining on a vertical or horizontal machining center. Can hold internal diameters from .29" to 9.85" (7.4 mm to 250.2 mm). 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. Mounting screws are included. MB-31550 and MB-38550 made from 7075-T6 aluminum.

INCH

Part #	T	+.000/-.002 D	D1	D2*	D3	Dp	L	H	H1	H2	H3	Torque Ft. Lbs.	Holding Force Lbs	Tapered Screw Only
MB-31000	2-56	.787	.29	.16	2-56	.540	.16	.42	.30	.24	.12	0.5	250	MB-31001
MB-31050	8-32	1.170	.49	.28	6-32	.825	.30	.86	.63	.59	.23	3.6	950	MB-31002
MB-31100	1/4-20	1.240	.56	.48	6-32	.910	.5	.98	.75	.59	.23	13.3	1,900	MB-31010
MB-31150	5/16-18	1.476	.79	.53	6-32	1.140	.56	.98	.75	.59	.23	27.6	2,500	MB-31020
MB-31200	3/8-16	1.968	1.06	.71	8-32	1.550	.71	1.13	.88	.69	.25	49.3	4,500	MB-31032
MB-31250	1/2-13	2.205	1.39	.90	8-32	1.790	.71	1.25	1.00	.81	.25	120.0	5,900	MB-31042
MB-31300	5/8-11	2.736	1.65	1.15	10-32	2.200	.79	1.56	1.25	1.06	.31	224.0	10,000	MB-31052
MB-31350	5/8-11	2.972	2.03	1.15	10-32	2.515	.79	1.56	1.25	1.06	.31	224.0	10,000	MB-31052
MB-31400	5/8-11	4.232	3.06	1.15	1/4-20	3.646	.79	1.79	1.48	1.27	.31	2214.0	10,000	MB-31072
MB-31450	5/8-11	5.232	4.06	1.15	1/4-20	4.648	.79	1.79	1.48	1.27	.31	224.0	10,000	MB-31072
MB-31500	5/8-11	5.232	6.89	1.15	1/4-20	4.648	.79	1.79	1.48	1.27	.31	224.0	10,000	MB-31072
MB-31550	5/8-11	6.000	9.85	1.15	1/4-20	5.250	.79	1.79	1.48	1.27	.31	125.0	6,000	MB-31072

METRIC

Part #	T mm	+.000/-.005 D mm	D1 mm	D2* mm	D3 mm	Dp mm	L mm	H mm	H1 mm	H2 mm	H3 mm	Torque Ft. Lbs.	Holding Force Lbs	Tapered Screw Only
MB-38000	M2	20.00	7.40	4.1	M2	13.7	4.1	10.7	7.6	6.1	3.0	0.5	250	MB-38001
MB-38050	M4	29.72	12.40	7.1	M3	20.95	7.2	21.8	16.0	15.0	5.9	3.6	950	MB-38002
MB-38100	M6	31.50	14.20	12.2	M3	23.1	11.2	24.9	19.0	15.0	5.9	12.5	1,900	MB-38010
MB-38150	M8	37.50	20.00	13.5	M3	29.0	13.2	24.9	19.0	15.0	5.9	25.0	2,500	MB-38020
MB-38200	M10	50.00	27.00	18.0	M4	39.4	16.3	28.6	22.2	17.5	6.4	44.2	4,500	MB-38032
MB-38250	M12	56.00	35.30	23.0	M4	45.5	20.3	31.8	25.4	20.6	6.4	110.6	5,900	MB-38042
MB-38300	M16	69.50	42.00	29.3	M5	55.9	21.4	39.6	31.8	27.0	7.9	206.5	10,000	MB-38052
MB-38350	M16	75.50	51.50	29.3	M5	63.9	21.4	39.6	31.8	27.0	7.9	206.5	10,000	MB-38052
MB-38400	M16	107.50	77.70	29.3	M6	92.6	19.3	45.5	37.6	32.3	7.9	206.5	10,000	MB-38072
MB-38450	M16	132.90	103.0	29.3	M6	118.06	19.3	45.5	37.6	32.3	7.9	206.5	10,000	MB-38072
MB-38500	M16	132.90	175.0	29.3	M6	118.06	19.3	45.5	37.6	32.3	7.9	206.5	10,000	MB-38072
MB-38550	M16	152.40	250.2	29.3	M6	133.35	19.3	45.5	37.6	32.3	7.9	125.0	6,000	MB-38072

* D2 is the minimum diameter the D1 dimension can be machined or turned down to.

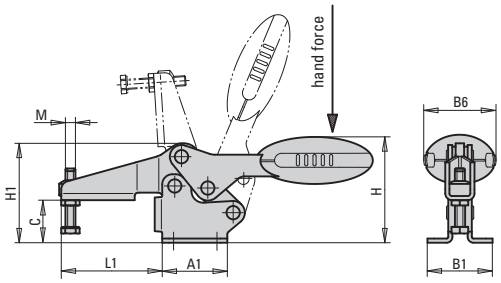
ERGONOMIC TOGGLE CLAMPS

Horizontal | Flat Base | Steel & Stainless Steel

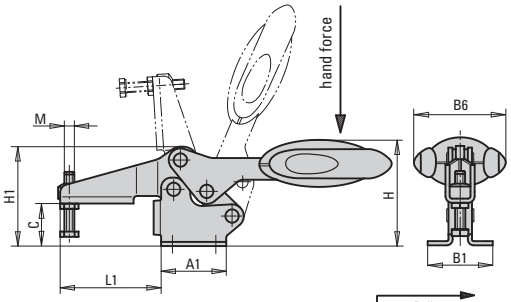
Standard

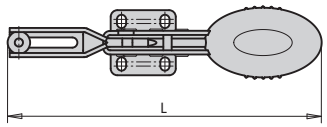
With Safety Interlock

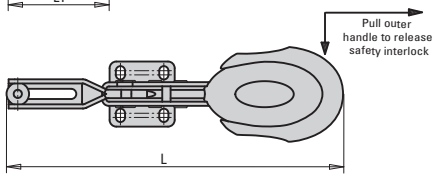
Standard

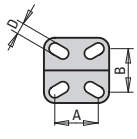


Safety Interlock

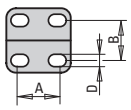




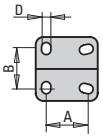




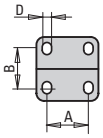
Base A



Base B



Base C



Base D

Standard Part #	Interlock Part #	Mounting Hole Pattern	Material	Operating Angle Clamp Arm	Operating Angle Handle	Clamping Force Lbs.
05900-004001	—	Base A	Steel	87°	69°	56
05900-005001	—	Base B	Steel	86°	67°	120
05900-006001	05900-006101	Base D	Steel	86°	67°	160
05900-008001	05900-008101	Base D	Steel	86°	67°	185
05900-010001	05900-010101	Base D	Steel	90°	71°	265
05900-012001	05900-012101	Base C	Steel	88°	68°	225
05900-104001	—	Base A	SS	87°	69°	56
05900-105001	—	Base B	SS	86°	67°	120
05900-106001	05900-106101	Base D	SS	86°	67°	160
05900-108001	05900-108101	Base D	SS	86°	67°	185

Kipp toggle clamps offer a high quality, durable alternative to standard toggle clamps. The non-slip ergonomic handle allows for easy and comfortable use with smooth edges to prevent snagging. These clamps feature high quality bushings that won't score and are designed to withstand over 300,000 cycles. They operate very smoothly without slop or play during clamping and unclamping while providing constant operating forces. Their attractive appearance provides a high quality look to finished products. The handle is made from high quality polyamide. The steel clamps are nitro-carburized with a non-reflective black oxide finish. The stainless steel clamps have a natural finish. The safety interlock protects against accidental release. To unlock the clamp, the user must pull on the outer edge of the grip handle before releasing the clamp. See page 80 for accessories.

Standard

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	D mm	H mm	H1 mm	L mm	L1 mm
05900-004001	05900-104001	M4X16	16	24	16	24	20	11.7	4.2	29.3	26.3	91.8	23.7
05900-005001	05900-105001	M5X25	18	27	16.8	27	22.5	17.2	5.5	43.4	38.9	125.7	41.8
05900-006001	05900-106001	M6X35	26	39	28	39	43.5	25.5	5.5	63.7	59.5	186.6	60.5
05900-008001	05900-108001	M8X45	26	44	31	45	41.5	32.2	6.2	73.9	70	223.2	74.9
05900-010001	—	M10X55	41.5	59	43	59	47	40	8.8	94.8	87.9	279.4	103.9
05900-012001	—	M12X70	44	65	42	67	47	52.3	8.5	104.8	101.6	314.7	122

With Safety Interlock

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	D mm	H mm	H1 mm	L mm	L1 mm
05900-006101	05900-106101	M6X35	26	39	28	39	53.4	25.4	5.5	63.7	59.5	193.3	60.5
05900-008101	05900-108101	M8X45	26	44	31	45	51.1	32.2	6.2	73.9	70	230.3	74.9
05900-010101	—	M10X55	41.5	59	43	59	56.5	40	8.8	94.8	87.9	286	103.9
05900-012101	—	M12X70	44	65	42	67	56.5	52.3	8.5	104.8	101.6	321.3	122

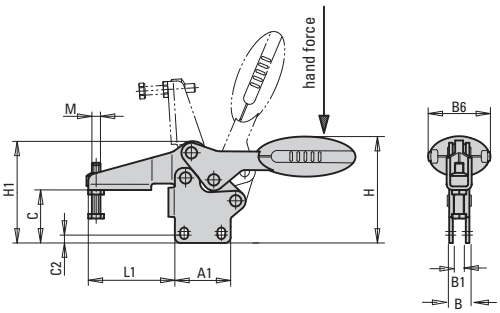
ERGONOMIC TOGGLE CLAMPS

Horizontal | Straight Base | Steel & Stainless Steel

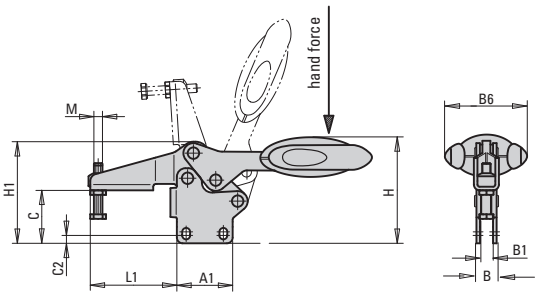
Standard

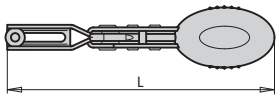
With Safety Interlock

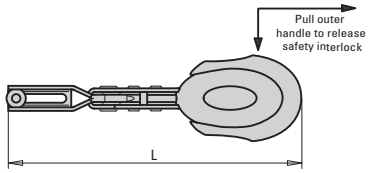
Standard

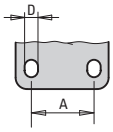


Safety Interlock

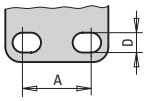




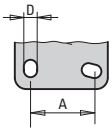




Base A



Base B



Base C

Standard Part #	Interlock Part #	Mounting Hole Pattern	Material	Operating Angle Clamp Arm	Operating Angle Handle	Clamping Force Lbs.
05904-005001	—	Base B	Steel	86°	67°	120
05904-006001	05904-006101	Base A	Steel	86°	67°	160
05904-008001	05904-008101	Base A	Steel	86°	67°	185
05904-010001	05904-010101	Base A	Steel	90°	71°	265
05904-012001	05904-012101	Base C	Steel	88°	68°	225
05904-105001	—	Base B	SS	86°	67°	120
05904-106001	05904-106101	Base A	SS	86°	67°	160
05904-108001	05904-108101	Base A	SS	86°	67°	185

Kipp toggle clamps offer a high quality, durable alternative to standard toggle clamps. The non-slip ergonomic handle allows for easy and comfortable use with smooth edges to prevent snagging. These clamps feature high quality bushings that won't score and are designed to withstand over 300,000 cycles. They operate very smoothly without slop or play during clamping and unclamping while providing constant operating forces. Their attractive appearance provides a high quality look to finished products. The handle is made from high quality polyamide. The steel clamps are nitro-carburized with a non-reflective black oxide finish. The stainless steel clamps have a natural finish. The safety interlock protects against accidental release. To unlock the clamp, the user must pull on the outer edge of the grip handle before releasing the clamp. See page 80 for accessories.

Standard

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	C2 mm	D mm	H mm	H1 mm	L mm	L1 mm
05904-005001	05904-105001	M5X25	18	27	8.1	4.1	22.5	26.2	5.1	5.5	52.2	47.9	125.7	41.8
05904-006001	05904-106001	M6X35	26	39	14.1	9.1	43.5	36.9	5.5	5.5	75.2	71	186.6	60.5
05904-008001	05904-108001	M8X45	26	44	14.1	9.1	41.5	46.5	7	6.2	88.2	84.3	223.1	74.9
05904-010001	—	M10X55	41.5	59	16.2	9.2	47	59.6	8	8.8	114.4	107.5	279.3	103.9
05904-012001	—	M12X70	44	65	16.2	9.2	47	75.9	13.5	8.5	128.4	125.2	314.7	122

With Safety Interlock

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	C2 mm	D mm	H mm	H1 mm	L mm	L1 mm
05904-006101	05904-106101	M6X35	26	39	14.1	9.1	53.4	36.9	5.5	5.5	75.2	71	193.7	60.5
05904-008101	05904-108101	M8X45	26	44	14.1	9.1	51.1	46.5	7	6.2	88.2	84.3	230.3	74.9
05904-010101	—	M10X55	41.5	59	16.2	9.2	56.5	59.6	8	8.8	114.3	107.5	286.4	103.9
05904-012101	—	M12X70	44	65	16.2	9.2	56.5	75.9	13.5	8.5	128.4	125.2	321.3	122

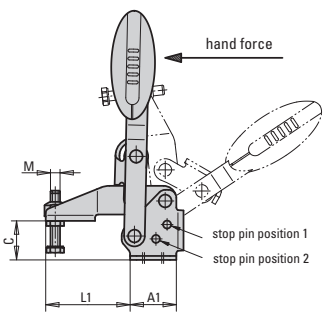
ERGONOMIC TOGGLE CLAMPS

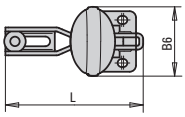
Vertical | Flat Base | Steel & Stainless Steel

Standard

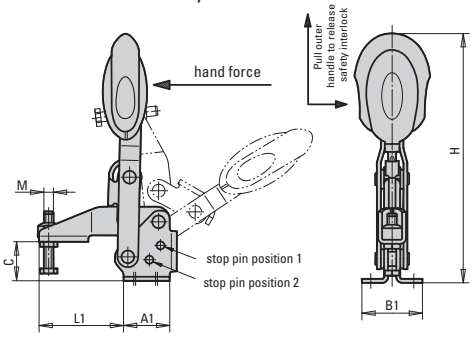
With Safety Interlock

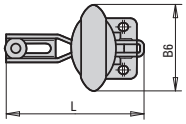
Standard

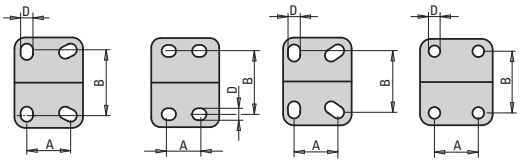




Safety Interlock







Base B | Base C | Base D | Base E

Standard Part #	Interlock Part #	Mounting Hole Pattern	Material	Stop Pin Position 1 Operating Angle Clamp Arm	Stop Pin Position 2 Operating Angle Clamp Arm	Stop Pin Removed Operating Angle Clamp Arm	Stop Pin Position 1 Operating Angle Handle	Stop Pin Position 2 Operating Angle Handle	Stop Pin Removed Operating Angle Handle	Clamping Force Lbs.
05908-005001	—	Base B	Steel	100°	—	147°	64°	—	83°	135
05908-006001	05908-006101	Base C	Steel	56°	83°	152°	46°	56°	83°	200
05908-008001	05908-008101	Base C	Steel	13°	93°	158°	26°	61°	86°	210
05908-010001	05908-010101	Base D	Steel	6°	97°	176°	19°	59°	91°	335
05908-012001	05908-012101	Base E	Steel	11°	88°	164°	24°	60°	91°	310
05908-105001	—	Base B	SS	100°	—	147°	64°	—	83°	135
05908-106001	05908-106101	Base C	SS	56°	83°	152°	46°	56°	83°	200
05908-108001	05908-108101	Base C	SS	13°	93°	158°	26°	61°	86°	210

Kipp toggle clamps offer a high quality, durable alternative to standard toggle clamps. The non-slip ergonomic handle allows for easy and comfortable use with smooth edges to prevent snagging. These clamps feature high quality bushings that won't score and are designed to withstand over 300,000 cycles. They also offer a stop pin that can be moved to vary the handle and clamping opening to best meet your application needs. They operate very smoothly without slop or play during clamping and unclamping while providing constant operating forces. Their attractive appearance provides a high quality look to finished products. The handle is made from high quality polyamide. The steel clamps are nitro-carburized with a non-reflective black oxide finish. The stainless steel clamps have a natural finish. The safety interlock protects against accidental release. To unlock the clamp, the user must pull on the outer edge of the grip handle before releasing the clamp. See page 80 for accessories.

Standard

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	D mm	H mm	L mm	L1 mm
05908-005001	05908-105001	M5X25	16	25	24	33	22.5	19.1	4.5	108.5	66.5	35
05908-006001	05908-106001	M6X35	14	29	27	38	43.5	24.7	5.5	156.1	87.5	53
05908-008001	05908-108001	M8X45	21	39	32	45	41.5	32.7	6.8	184.2	107	62
05908-010001	—	M10X55	32	50	45	64	47	38.7	9	222.9	153	95
05908-012001	—	M12X70	32	53	45	63	47	46.7	8.8	242.4	173.5	113.5

With Safety Interlock

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	D mm	H mm	L mm	L1 mm
05908-006101	05908-106101	M6X35	14	29	27	38	53.4	24.7	5.5	162.8	87.5	53
05908-008101	05908-108101	M8X45	21	39	32	45	51.1	32.7	6.8	191.4	107.5	62
05908-010101	—	M10X55	32	50	45	64	56.5	38.7	9	230.5	153	95
05908-012101	—	M12X70	32	53	45	63	56.5	46.7	8.8	249.1	173.5	113.5

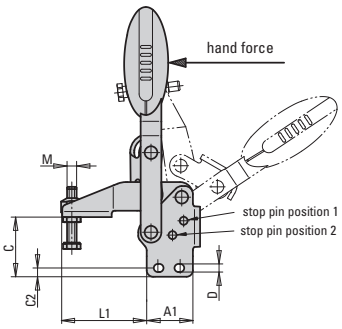
ERGONOMIC TOGGLE CLAMPS

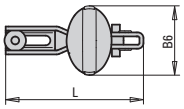
Vertical | Straight Base | Steel & Stainless Steel

Standard

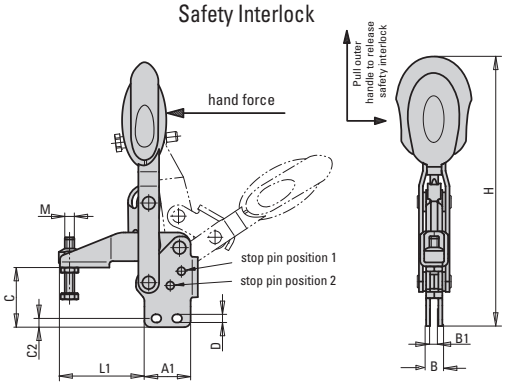
With Safety Interlock

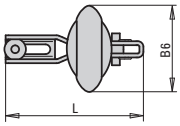
Standard

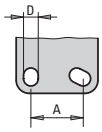




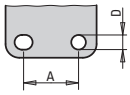
Safety Interlock



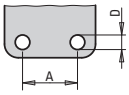




Base B



Base C



Base E

Standard Part #	Interlock Part #	Mounting Hole Pattern	Material	Stop Pin Position 1 Operating Angle Clamp Arm	Stop Pin Position 2 Operating Angle Clamp Arm	Stop Pin Removed Operating Angle Clamp Arm	Stop Pin Position 1 Operating Angle Handle	Stop Pin Position 2 Operating Angle Handle	Clamping Force Lbs.
05912-005001	—	B	Steel	100°	—	129°	64°	—	135
05912-006001	05912-006101	C	Steel	56°	83°	141°	46°	56°	200
05912-008001	05912-008101	C	Steel	13°	93°	158°	26°	61°	210
05912-010001	05912-010101	B	Steel	6°	97°	176°	19°	59°	335
05912-012001	05912-012101	E	Steel	11°	88°	164°	24°	60°	310
05912-105001	—	B	SS	100°	-	129°	64°	—	135
05912-106001	05912-106101	C	SS	56°	83°	141°	46°	56°	200
05912-108001	05912-108101	C	SS	13°	93°	158°	26°	61°	210

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Standard

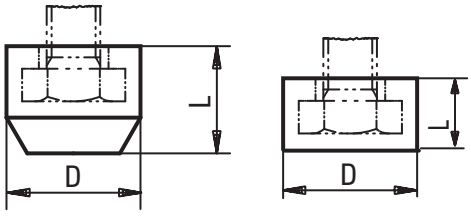
Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	C2 mm	D mm	H mm	L mm	L1 mm
05912-005001	05912-105001	M5X25	16	25	8.1	4.1	22.5	30.9	5.5	4.5	120.3	63.5	35
05912-006001	05912-106001	M6X35	14	29	10.2	5.2	43.5	37.6	5.5	5.5	169	86.5	53
05912-008001	05912-108001	M8X45	21	39	10.2	5.2	41.5	49	6.5	6.8	200.3	107	62
05912-010001	—	M10X55	32	50	14.1	7.1	47	62.3	13	9	247.4	153	95
05912-012001	—	M12X70	32	53	14.1	7.1	47	69.8	9	8.8	265.5	173.5	113.5

With Safety Interlock

Steel Part #	Stainless Steel Part #	M mm	A mm	A1 mm	B mm	B1 mm	B6 mm	C mm	C2 mm	D mm	H mm	L mm	L1 mm
05912-006101	05912-106101	M6X35	14	29	10.2	5.2	53.4	37.6	5.5	5.5	175.7	86.5	53
05912-008101	05912-108101	M8X45	21	39	10.2	5.2	51.1	49	6.5	6.8	207.6	107	62
05912-010101	—	M10X55	32	50	14.1	7.1	56.5	62.3	13	9	254	153	95
05912-012101	—	M12X70	32	53	14.1	7.1	56.5	69.8	9	8.8	271.1	173.5	113.5

TOGGLE CLAMP ACCESSORIES

Protective Caps

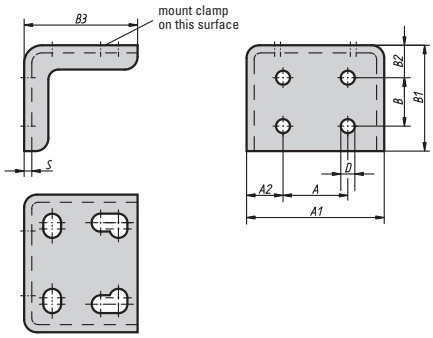


05280-06

The protective caps fit over the spindles of the toggle clamps shown on the previous pages to provide non-marring contact. They are made from rubber except the 05280-06 which is made from white nylon.

Part #	D mm	L mm	For Screws
05280-06	9	4	M3
05280-01	11	8.5	M4
05280-02	12.5	10	M5
05280-03	15	12	M6
05280-04	19	15	M8
05280-07	23	18	M10
05280-05	26	20	M12

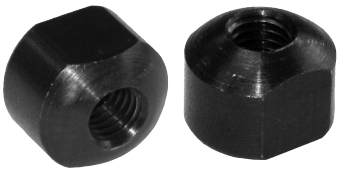
Angle Mounting Brackets

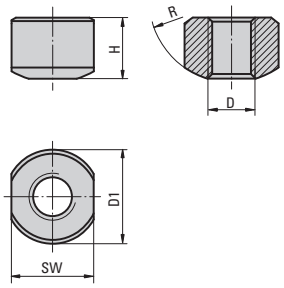


These steel mounting brackets offer the user different mounting options for the toggle clamps listed below.

Part #	A mm	A1 mm	A2 mm	B mm	B1 mm	B2 mm	B3 mm	D mm	S mm	Use with Toggle Clamp
05880-02	18	43	12.5	15	36.5	13.5	29.5	5	2	05900-004001, 05900-005001, 05908-005001, 05908-006001, 05908-006101
05880-04	25.4	54	14.2	19	41.5	12.7	44.5	5.5	3	05900-006001, 05900-006101, 05900-008001, 05900-008101, 059908-008001, 05908-008101
05880-06	44	76	16	32	62	21	66	8.6	4	05900-010001, 05900-010101, 05908-012001, 05908-012101

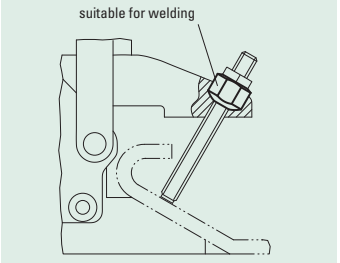
Mounting Nuts





Made from steel with black oxide finish.

How To Use

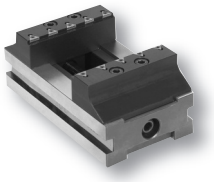


Part #	D mm	H mm	D1 mm	SW mm	R mm
05990-04	M4	5.2	8	7	7
05990-05	M5	6.7	10	9	9
05990-06	M6	9.5	13.5	12.2	10
05990-08	M8	12.8	18	15.3	12
05990-10	M10	12.1	20	18.2	14
05990-12	M12	14.8	23	20	16

TRIMAX VISES

G SERIES 5-AXIS

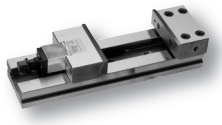
S SERIES SELF-CENTERING



C SERIES PRODUCTION

T SERIES PRODUCTION

M SERIES MACHINIST

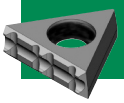


TRIMAX G SERIES

TriMax G Vise - Superior Performance & Reliability for 5-Axis Machining

With an innovative and proven design, the TriMax G vise is the ideal choice for high-precision 5-axis machining operations.

EQUIPPED WITH TRIGRIP INSERTS FOR LOW-PROFILE CLAMPING

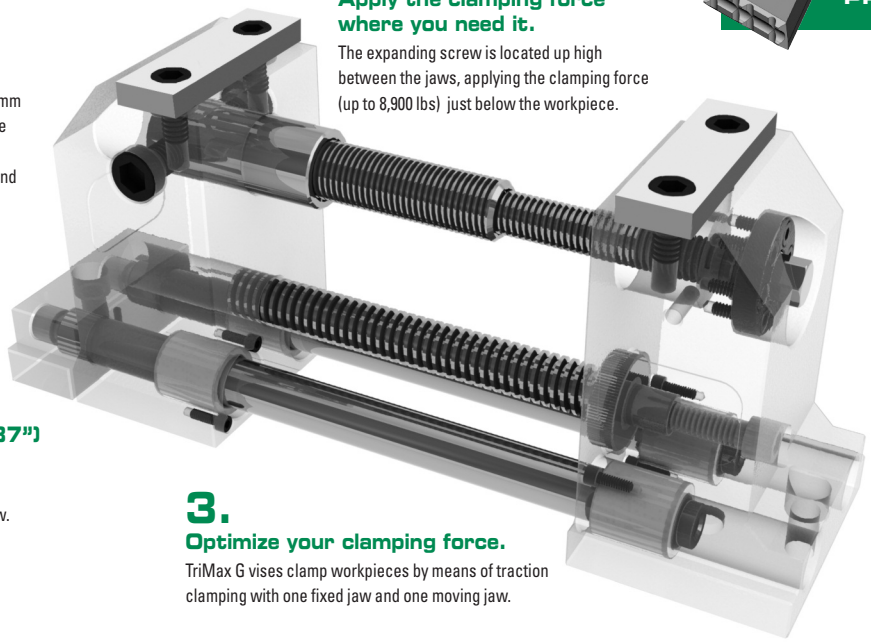


1.
Achieve higher cutting speeds & feed rates.

The TriGrip inserts have an ultra low 3.5 mm clamping surface for the removal of more material without special workpiece preparation. The geometry of the teeth and the insert create a pull down effect for maximum gripping power.

2.
Clamp workpieces up to 200mm (7.87") in a single setup.

Clamp and unclamp easily by adjusting the expanding screw.



3.
Optimize your clamping force.

TriMax G vises clamp workpieces by means of traction clamping with one fixed jaw and one moving jaw.

4.
Position quickly & accurately.

Jaw moves on two hardened and ground shafts rather than on a traditional base for greater precision.

5.
Load and go.

Machine large or small workpieces with one simple clamping operation. Specifically designed for high precision 5-axis machining.

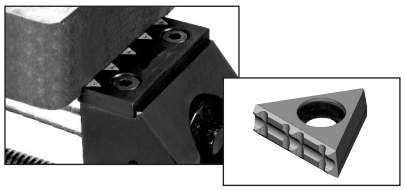
6.
Apply the clamping force where you need it.

The expanding screw is located up high between the jaws, applying the clamping force (up to 8,900 lbs) just below the workpiece.

Your Choice of Jaws

Different workpiece materials demand different styles of clamping. Choose from the following jaw types to hold a wide variety of workpiece shapes, sizes and materials. Easy to install, easy to replace.

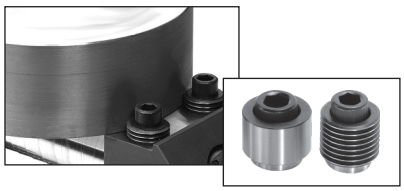
Low-Profile Clamping



TriGrip Jaws - Pair
- Only 3.5mm (.14") clamping surface, ideal for 5-axis machining operations.
- Designed to hold carbide TriGrip Inserts.
- For more information on TriGrips, see page 236.

TriGrip Jaws - Pair:	F658-451519
TriGrip Inserts	TG-STD (Steel, 10-pack)
	TG-HRC (Hardened Steel, 10-pack)
	TG-ALU (Aluminum, 10-pack)

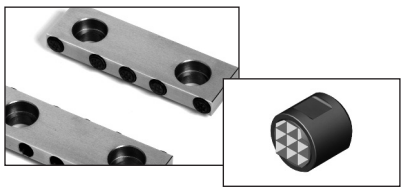
Round or Contoured Workpieces



Screw-In Grippers - 4-Pack
- Smooth and Serrated gripper surfaces available.
- Hold a wide variety of workpiece shapes including curved.
- Three gripper heights available for both smooth and serrated types.

Smooth:	F658-906114, F658-906214, F658-906314
Serrated:	F658-906124, F658-906224, F658-906324

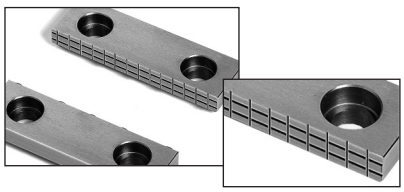
Replaceable Gripper Inserts



Round Gripper Jaws - Pair
- For aggressive clamping of tough, uneven workpieces.
- Carbide-tipped grippers installed in each jaw.

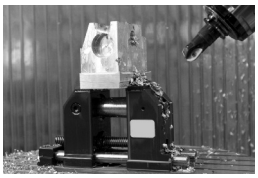
Gripper Jaws:	F658-504219
Round Gripper:	MCT-100 (single)

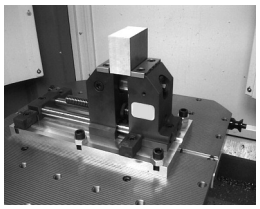
Steel Jaws

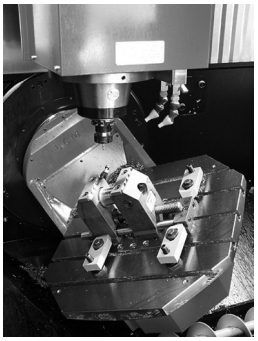


Smooth / Serrated Jaws - Pair
- A smooth and a serrated face on each jaw.

F658-504119

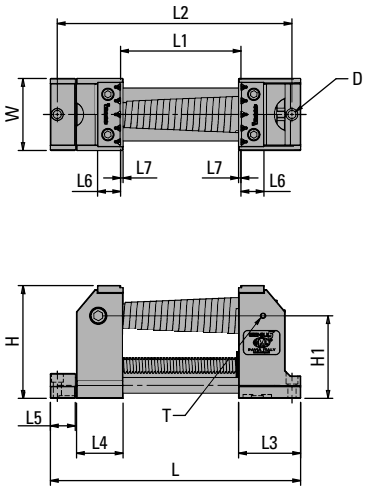






TRIMAX G SERIES

TriMax G Vise



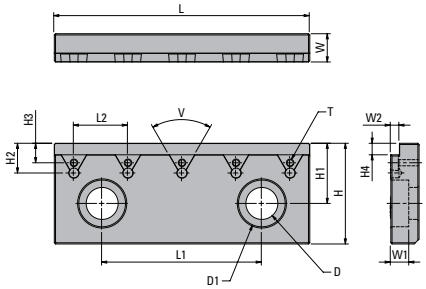
The TriMax G vise allows the user to machine on five sides with just one clamping operation, and its compact design allows the machine tool the necessary access for 5-axis machines. The TriMax G vise can hold blank, machined, round and irregularly shaped workpieces. It provides excellent dimensional stability, rigidity and durability for maximum cutting force and long life. With its expanding screw feature, users can clamp workpieces up to 200mm (7.87") with one set-up and delivers up to 8,900 lbs. of clamping force.

Unlike traditional vises, the TriMax G vise clamps workpieces by means of traction clamping. The vise has one fixed jaw and one moving jaw that moves on hardened and ground shafts, allowing for quicker and more accurate positioning. Multiple vises can be used together to hold larger workpieces. TriMax G vises can be mounted on a T-slot or grid machine table as well as customer fixtures. Included with the vise are TriGrip grippers (TG-STD) for the jaws, a wrench and pair of positioning keys. See www.fixtureworks.net for additional information on TriGrip jaws and inserts.

Part #	T Thread mm	D mm	L mm	Max. L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 mm	L7 mm	W mm	W1 mm	(H7) W2 mm	H mm	H1 mm	SW mm	Vise Type
F677-585011	M8X1.25	13	312	100	260	100	75	40	37	4	116	100	12	181.5	133	18	G100
F677-585012	M8X1.25	13	412	200	378	100	75	40	37	4	116	100	12	181.5	133	18	G200

See page 561 for H7 tolerance specifications.

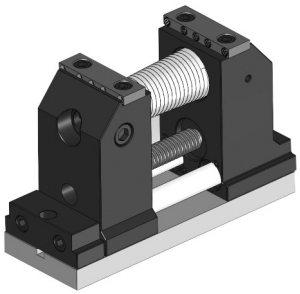
Jaws | TriGrip | Pair

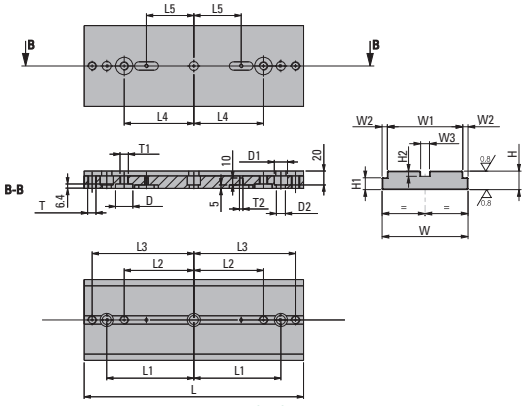


These jaws are used on TriMax G vises to hold the TriGrip workholding grippers. Made from steel with nitride coating. Sold in pairs. For TriGrip inserts (sold separately), see page 236.

Part #	T Thread mm	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	V Degrees
F658-451519	M3X0.5	13	19	104	65	22	11.5	7.5	3.5	41	24.5	12	8	4.7	60

Interface Plate





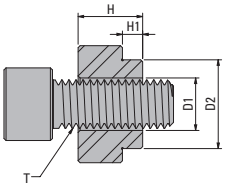
This interface plate offers greater mounting flexibility when setting up TriMax G vises.

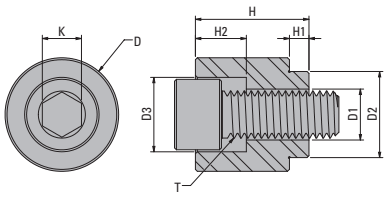
Part #	T Thread	T1 Thread	T2 Thread	(H7) D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	W mm	W1 mm	W2 mm	(H7) W3 mm	± 0.02 H mm	H1 mm	H2 mm	Use with Vise Type
F658-502010	M12	M12	M5	25	19	13	315	125	100	145	100	68	116	102	7	12	25	16	7	G100
F658-502020	M12	M12	M5	25	19	13	410	170	123.5	188.5	100	68	116	102	7	12	25	16	7	G200

TRIMAX G SERIES

Grippers | Smooth

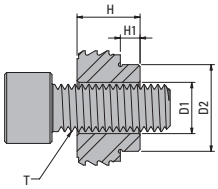
Smooth

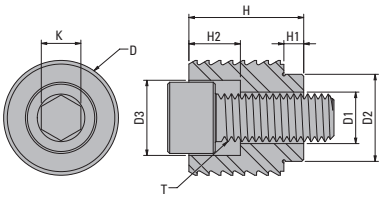




Grippers | Serrated

Serrated

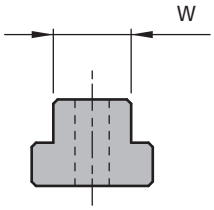




These grippers attach to the vise to hold a wide variety of workpiece shapes and sizes for varied machine operations. Smooth or serrated. Sold in packs of four.

Part #	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	K mm	Type
F658-906114	M12X1.75	29	13	22	–	16	5	–	10	Smooth
F658-906214	M12X1.75	29	13	22	19	24	5	13	10	Smooth
F658-906314	M12X1.75	29	13	22	19	29	5	13	10	Smooth
F658-906124	M12X1.75	29	13	22	19	16	5	–	10	Serrated
F658-906224	M12X1.75	29	13	22	19	24	5	13	10	Serrated
F658-906324	M12X1.75	29	13	22	19	29	5	13	10	Serrated

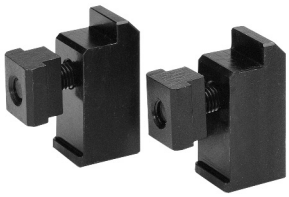
T-Nuts with Screws



These T-nuts allow you to attach the TriMax G vise to a slotted plate using the holes in the vise. Includes T-nut and M12 screw. Sold in pairs.

Part #	W mm
F658-502593	14
F658-502594	16
F658-502595	18
F658-502596	20
F658-502597	22

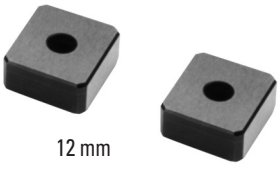
Hold Down Clamps



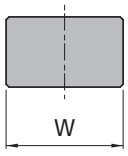
These clamps allow the user to quickly and securely attach a TriMax G vise to a slotted plate. Allows for greater positioning flexibility and vise placement. Includes clamp, T-Nut and screw. Sold in pairs.

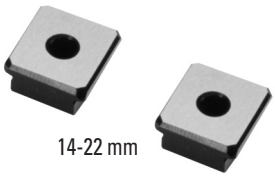
Part #	Table Slot mm
F658-022792	12
F658-022793	14
F658-022794	16
F658-022795	18
F658-022796	20
F658-022797	22

Positioning Keys

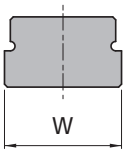


12 mm





14-22 mm



These positioning keys allow precise locating of the TriMax G vise. Sold in pairs.

Part #	W (h6) mm
F658-011592	12
F658-011593	14
F658-011594	16
F658-011595	18
F658-011596	20
F658-011597	22

TRIMAX G SERIES

Jaws With Grippers

These jaws are used on TriMax G series vises. Jaws include carbide-tipped grippers and mounting screws. Sold in pairs. For complete technical information, search for the part number at www.fixtureworks.net.

Part #
F658-504219

Jaws | Smooth/Grooved

Each jaw has one smooth side and one grooved side to hold a wide variety of parts. Sold in pairs. For complete technical information, search for the part number at www.fixtureworks.net.

Part #
F658-504119

Gripper

This round carbide-tipped gripper is used on TriMax G series gripper-style jaws. For complete technical information, search part number at www.fixtureworks.net.

Part #
MCT-100

Torque Wrench

This high-quality 18mm torque wrench allows the user to control the clamping force of the jaws on a TriMax G vise.

Part #
F651-501006

Work Stop

This workstop attaches to the TriMax G vise for quick and accurate positioning while loading parts. Includes work stop, washers and screw. For complete technical information, search for the part number at www.fixtureworks.net.

Part #
F658-505000

Spindle Group

This replacement spindle group is used with TriMax G series vises.

Part #
F677-585010

Telescopic Guard

This replacement telescopic guard is used with TriMax G series vises. Made from stainless steel. For complete techinical information, search for the part number at www.fixtureworks.net.

Part #
F671-290218

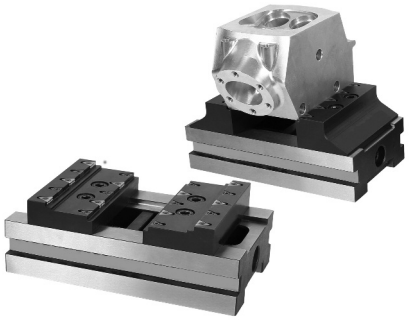
Clamping Key

Use this high-quality clamping key to control the clamping jaws on TriMax G vises.

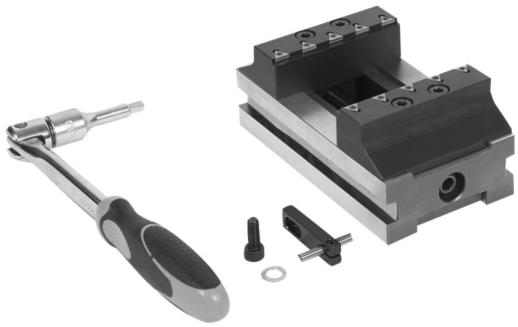
Part #
F651-502910

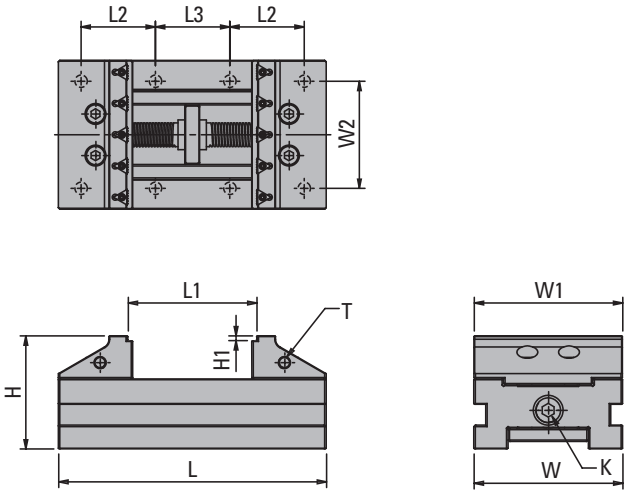
TRIMAX S SERIES

TriMax S self-centering precision vises feature high clamping forces and accuracy while using just 3.5mm (.14") of workpiece surface utilizing patented TriGrip workholding inserts. These vises allow for first and secondary operations with one jaw set, eliminating the need for multiple set ups. Their low profile provides machining tool access required for 5-axis machining. TriMax S vises also allow for workpiece repeatability of just +/-.01. Built on the same vise type, a Basic and a Premium set are both available. The Premium set features stepped jaws to offer greater flexibility in machining operations and workpiece holding. A wide range of accessories allows for great flexibility in the material and shapes of parts the vise can hold in a variety of machining operations. Both vise sets can be mounted on a T-slot or grid machine table as well as custom fixtures. See page 236 for complete information on TriGrip grippers inserts. See www.fixtureworks.net for additional information on the TriMax S vise and for any 5-axis vise offerings to be announced.



TriMax S Basic Vise Set

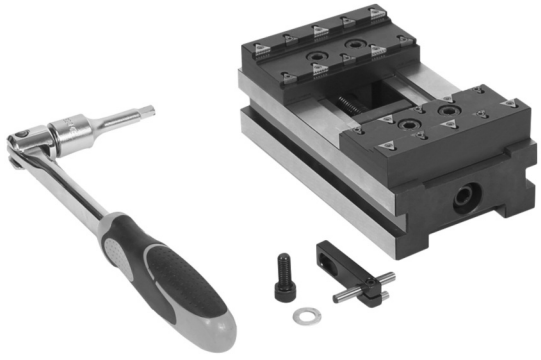


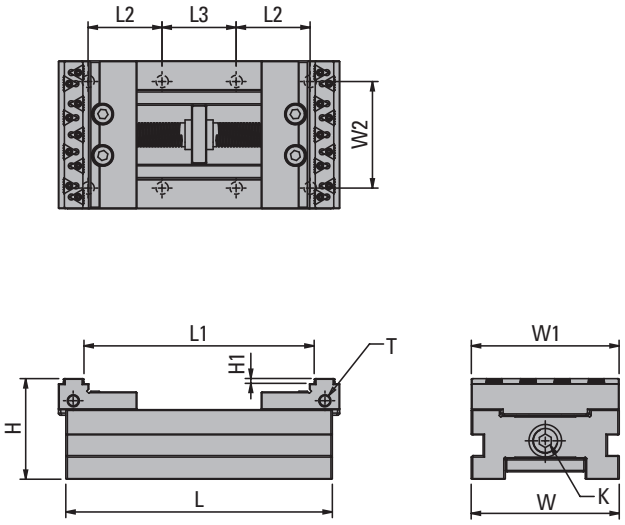


This basic vise set allows a clamping range from 7-85mm. Comes complete with ten TriGrip STD inserts (HRC or ALU-type inserts available on request), wrench and work stop.

Part #	T Thread mm	L mm	Max. L1 mm	L2 mm	L3 mm	W mm	W1 mm	+/- .02 W2 mm	H mm	H1 mm	K mm
F677-584901	M8x1.25	180	85	60	30	100	100	70	76	3.5	8

TriMax S Premium Vise Set



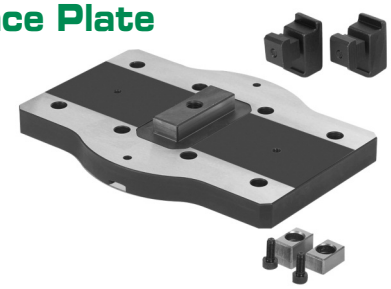


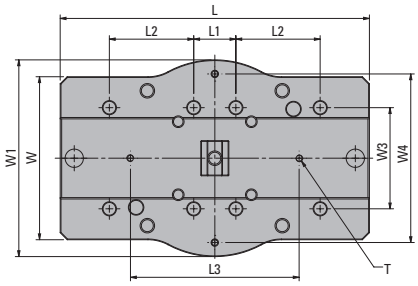
This Premium vise features stepped jaws that can hold up to ten TriGrip workholding inserts on each jaw. It allows a clamping range from 7-150mm. Set includes ten TriGrip STD inserts (HRC or ALU-type inserts available on request), ten protective inserts, wrench and work stop.

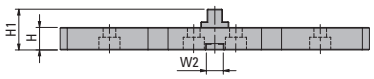
Part #	T Thread mm	L mm	Max. L1 mm	L2 mm	L3 mm	W mm	W1 mm	+/- .02 W2 mm	H mm	H1 mm	K mm
F677-584902	M8x1.25	180	150	60	30	100	100	70	74.5	3.5	8
F677-584951	M8x1.25	280	252	90	60	125	125	80	74.5	3.5	8

TRIMAX S SERIES

Interface Plate



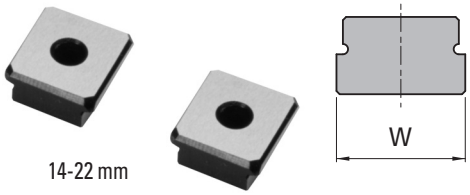




This interface plate offers greater mounting flexibility when setting up TriMax S vises. It also allows TriMax S vises to be used with Zero Point Systems. Includes one pair of positioning keys (h7) and one pair of clamps.

Part #	T mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 (H7) mm	W3 mm	W4 mm	H mm	H1 mm
F658-492010	M5	220	30	60	120	116	140	12	72	120	16	29

Positioning Keys | Pair | Metric

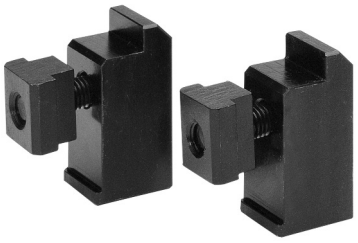


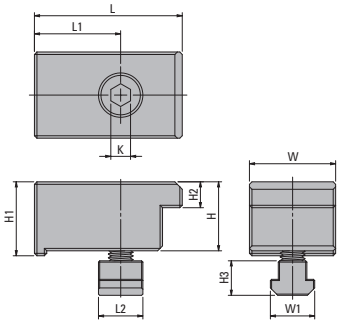
These positioning keys allow precise locating of the vise. Sold in pairs.

Part #	(h6) W mm
F658-011592	12
F658-011593	14
F658-011594	16
F658-011595	18
F658-011596	20
F658-011597	22

See page 561 for h6 tolerance specifications.

Hold Down Clamps | Pair | Metric



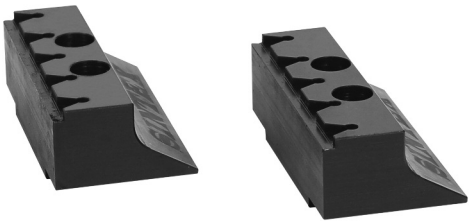


These hold down clamps allow the user to quickly and securely attach the vise to a slotted plate. Allows for greater positioning flexibility and vise placement. Each clamp is complete with T-Nut and screw. Sold as a pair.

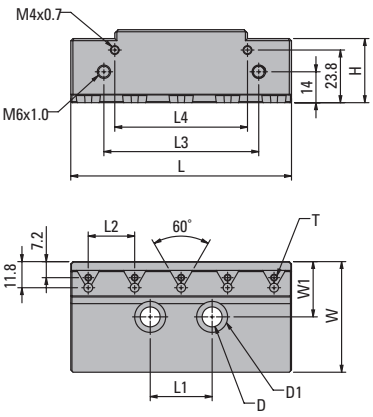
Part #	T Thread	W mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	H3 mm	K mm	Use with Vise Type	Table Slot mm
F658-012792	M8X1.25X30	50	30	18	30	18	11.6	23	25	9	14	6	T60	12
F658-012793	M8X1.25X35	50	30	22	30	22	13.6	23	25	9	16	6	T60	14
F658-012794	M8X1.25X35	50	30	24	16	25	15.4	23	25	9	18	6	T60	16
F658-012795	M8X1.25X40	50	30	25	18	28	17.6	23	25	9	20	6	T60	18
F658-012796	M8X1.25X40	50	30	25	20	32	19.6	23	25	9	24	6	T60	20
F658-012797	M8X1.25X40	50	30	25	22	35	21.6	23	25	9	28	6	T60	22

TRIMAX S SERIES

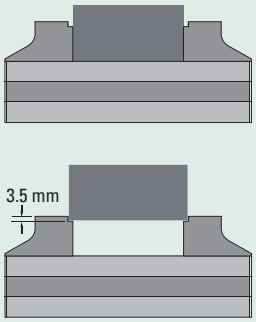
Jaws | Pair

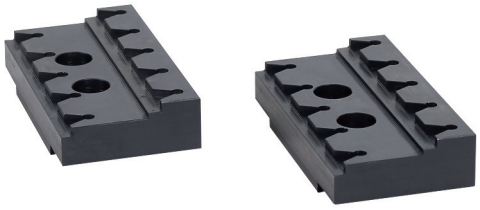


Basic

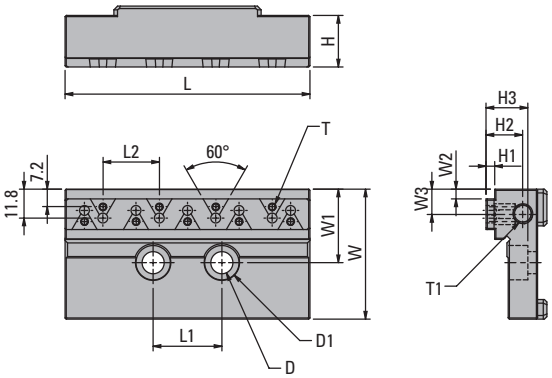


How To Use





Premium



These jaws fit TriMax S vises and are designed to be used with TriGrip inserts (insert sold separately, see page 236). The low profile of the jaw provides machine tool access required for 5-axis machining. The Basic version of jaws can hold up to five TriGrip inserts on each jaw and allows a clamping capacity from 7-85mm. The premium version of jaws has two TriGrip clamping tiers and can hold up to ten TriGrip inserts on each jaw. The premium jaw pair also extends the TriMax S vise clamping capacity to a maximum of 150mm. Sold in pairs.

Part #	T mm	T1 mm	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm
F568-491119	M3X0.05	M8X1.25	9	14	99.8	28	21	70	60	50	25	4	22	29	3.5	18	22.5
F568-491219	M3X0.05	M8X1.25	9	14	99.8	28	23	–	–	53	30	4	10.3	21	3.5	14.9	17

Work Stop

This work stop attaches to the vise for quick and accurate positioning while loading parts. Includes the work stop, washer and screw.

Part #
F658-315020

Clamping Key

Use this clamping key to control the clamping jaws on TriMax S vises.

Part #
F658-491910

TRIMAX C SERIES

TriMax C Vise – Ultimate Versatility for Multi-Clamping

Reduce downtime and maximize machine tool capacity with the TriMax C series vise. This highly configurable vise can clamp up to four pieces at one time. TriMax C vises are available in widths of 38mm, 60mm or 90mm. Four base lengths are available (250mm, 400mm, 500mm and 630mm) to fit a wide variety of mounting options and machining configurations. Choose from a variety of jaws to suit your application, including jaws equipped with low-profile TriGrip inserts. Combine multiple bases to accommodate extra wide work pieces.

1.
Achieve higher cutting speeds & feed rates.

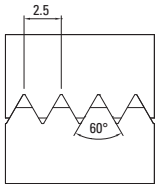
The TriGrip inserts have an ultra low 3.5 mm clamping surface for the removal of more material without special workpiece preparation. The geometry of the teeth and the insert create a pull down effect for maximum gripping power.

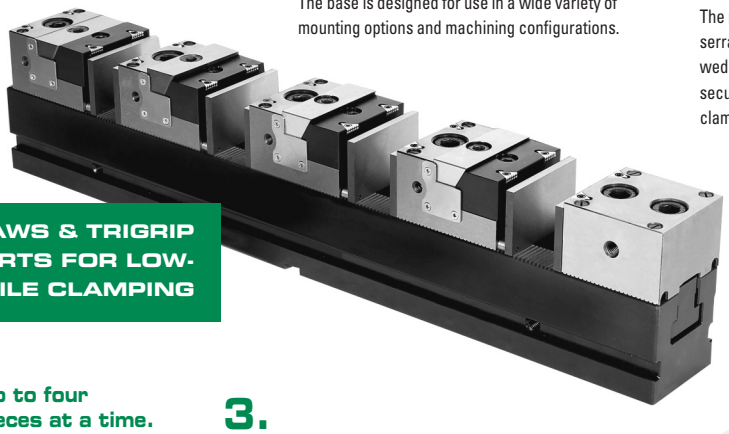
6.
Ideal for both vertical and horizontal machine centers.

The base is designed for use in a wide variety of mounting options and machining configurations.

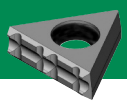
5.
Superior design.

The rows of 60-degree serrations with a 2.5mm pitch wedge the jaws onto the base securely to optimize the clamping forces.





ADD JAWS & TRIGRIP INSERTS FOR LOW-PROFILE CLAMPING



4.
Reduce downtime & increase machine productivity.

Load multiple workpieces to keep your machines running. Configure and reposition the jaws for quick changeover.

2.
Load up to four workpieces at a time.

Configure the movable jaws on the base for multi-position clamping.

3.
Adjust workpiece height without any tools using Snap-In parallels.

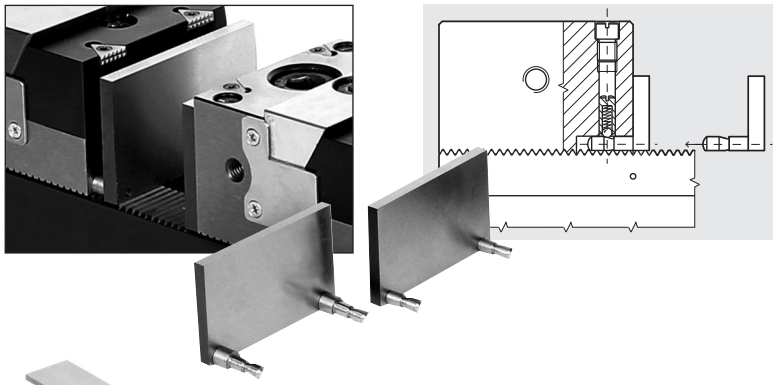
Quick and easy change of parallels, soft jaws and V-jaws to machine any workpiece.

Multi-vise Columns & Trunnions also available!

Easy to Install Accessories

Use these accessories on any TriMax C jaw set.

Snap-In Parallels



Standard Parallels

- These Snap-in parallel pairs are quick and easy to install and replace without any additional tools.
- Four different parallel pair heights.

C38 pack of 4 pairs:	F658-409204
C60 pack of 4 pairs:	F658-419204
C90 pack of 4 pairs:	F658-429204

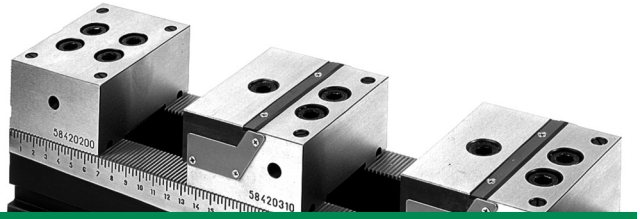
Snap-In V-Jaw

V-Jaw

- Snap-in design — Install and replace without any additional tools
- For clamping cylindrical or irregular workpieces.

C38:	F658-409400
C60:	F658-419400
C90:	F658-429400

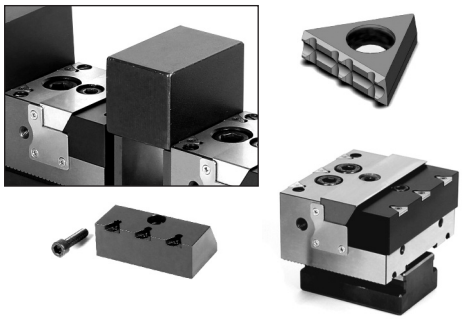
TRIMAX C SERIES



Jaw Options

Different workpiece materials demand different styles of gripping. These jaw types hold a wide variety of workpiece shapes, sizes and materials.

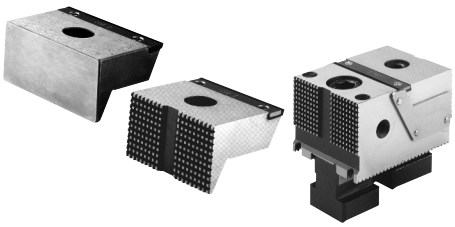
Low-Profile Clamping



TriGrip Jaws

- Designed to hold carbide TriGrip Inserts.
- 3.5mm clamping surface using full TriGrip, or optional 2mm clamping surface using a single row of TriGrip surface.
- Low profile clamping surace for minimum scrap material.
- Available for C60 and C90 vise types only.
- Jaw sets include TriGrips grippers made for holding steel. (TG-STD). TriGrips made for holding hardened steel (TG-HRC) or aluminum (TG-ALU) are also available upon request in sets or for separate-sale.
- For more information on TriGrip Inserts, see page 236.

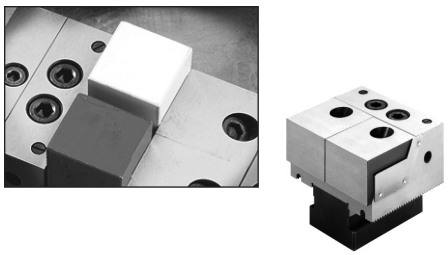
Full Face Clamping



Smooth or Serrated Jaws

- Available in complete movable jaw sets or as as separate jaw parts.
- Available for C38, C60 and C90 vise types.

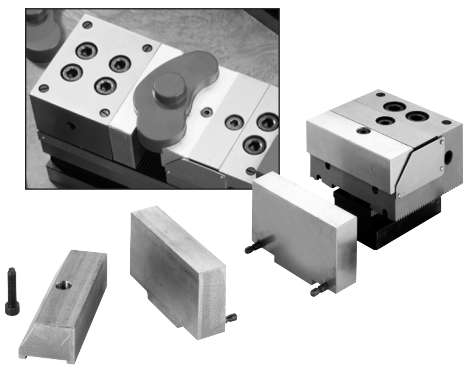
Dual Clamping



Dual Clamping Jaws

- Two clamping jaws on one jaw set
- Each jaw independently adjustable to clamp two workpieces.
- Available as a complete jaw set for C60 and C90 vise types.
  For C60: (F677-584124)
  For C90: (F677-584224)

For Round or Contoured Workpieces



Contour Aluminum and Soft Steel Jaw Sets

- These jaw pairs can be machined to custom fit and securely hold round or irregularly shaped parts.
- Snap-In jaw design for quick and easy replacement without tools.
- Available in a complete movable jaw set or as as separate jaw parts.
- Available for C60 and C90 vise types.

TRIMAX C SERIES

Complete Vise Sets

Configure your TriMax C Complete Vise Set to meet your specific workholding needs by choosing the base, jaw type and the quantity of jaws you want. Sets also include a pair of positioning keys, a wrench, and one workstop for each fixed and movable jaw you include in your complete vise set. A 37mm pair of parallels and TriGrip inserts are also included with any set that's configured to include a TriGrip fixed or movable jaw.

Configuration Number
Configure a unique vise set number that matches the TriMax C base and jaw options you choose.

Sample Configuration Number
TMAX-C60x630-FTG1-MTG4

TMAX- [C60] x [630] - [FTG1] - [MTG4]

Base / Jaw Width

Part # Descr.	Long Descr.	Image Ref.
C38	38 mm	A.
C60	60 mm	
C90	90 mm	

Base Length

Part # Descr.	Long Descr.	Image Ref.
250	250 mm	B.
400	400 mm	
500	500 mm	
630	630 mm	

Fixed Jaw Type

Part # Descr.	Long Descr.	Image Ref.
FTG	TriGrip *	C.
FSM	Smooth	D.
FSE	Serrated	E.

Fixed Jaw Quantity

Part # Descr.	Long Descr.	
1	1 qty	-
2	2 qty	-

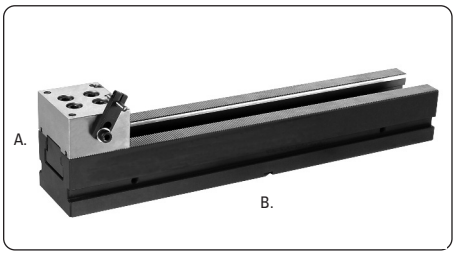
Movable Jaw Type

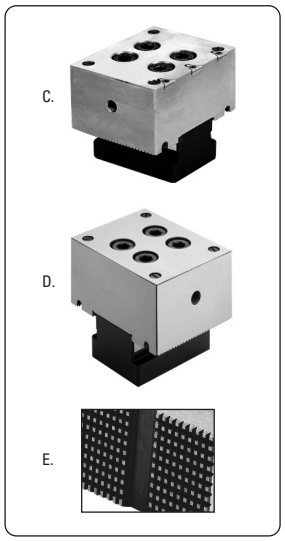
Part # Descr.	Long Descr.	Image Ref.
MTG	TriGrip	F.
MSM	Smooth Steel	G.
MSE	Serrated Steel	H.
MSO	Soft Steel *	I.
MAL	Aluminum *	J.
MDSM	Dual Smooth Steel *	K.

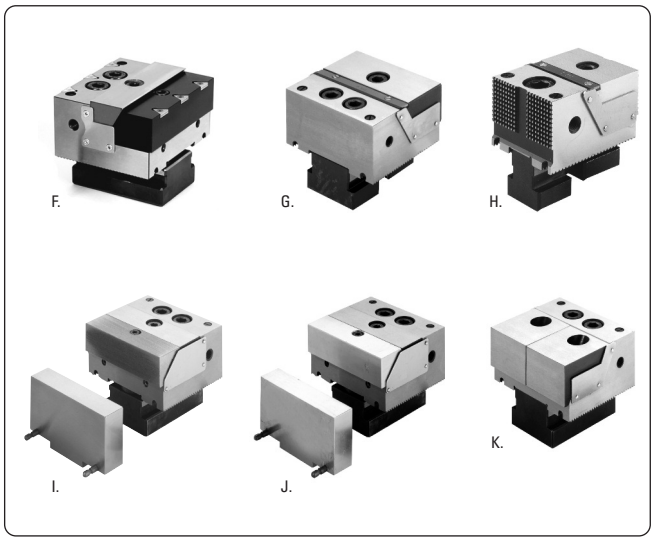
Movable Jaw Quantity

Part # Descr.	Long Descr.	
1	1 qty	-
2	2 qty	-
3	3 qty	-
4	4 qty	-

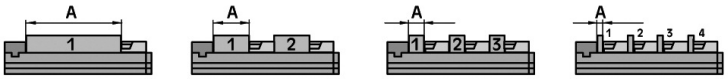
*Available with 60mm or 90mm jaws only.







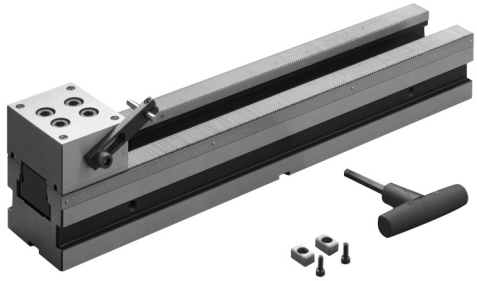
Clamping Capacity & Clamping Positions

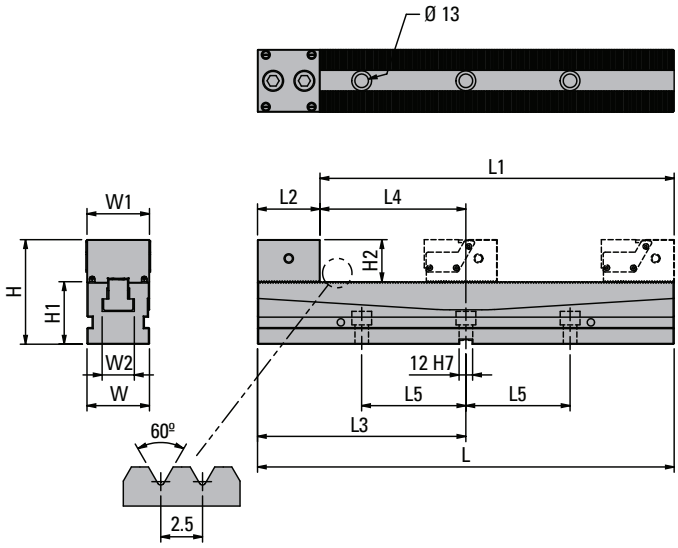


C VISE TYPE	JAW WIDTH (mm)	BASE LENGTH (mm)		MAXIMUM CLAMPING CAPACITIES (A) 1-Position (mm)	2-Position (mm)	3-Position (mm)	4-Position (mm)
C38, C60	38, 60	250		120	25	—	—
C38, C60	38, 60	400		270	100	43	15
C38, C60	38, 60	500		370	150	76	40
C38, C60	38, 60	630		500	215	120	73
C90	90	250		99	—	—	—
C90	90	400		249	84	29	—
C90	90	500		349	134	62	26
C90	90	630		479	199	106	59

TRIMAX C SERIES

TriMax C Vise | Base Sets



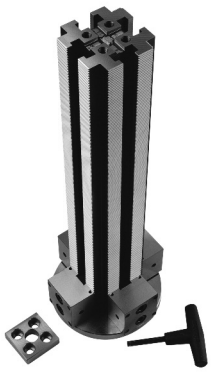


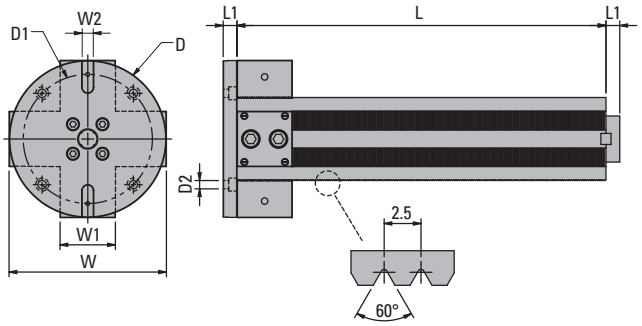
The TriMax C vise base set includes base (length optional), fixed jaw, positioning keys pair and T-wrench. Four base lengths are available (250mm, 400mm, 500mm and 630mm) to fit a wide variety of mounting options and machining configurations. Two fixed jaw types are available (TriGrip equipped or standard). Complete the base set with your choice of separate-sale TriMax C jaws and accessories.

Standard Vise Part #	TriGrip Vise Part #	L mm	+/-0.02 L1 mm	L2 mm	L3 mm	+/-0.02 L4 mm	L5 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	Vise Type
F677-584004	–	250	190	60	125	65	100	60	38	31	100	60	40	C38
F677-584001	–	400	340	60	200	140	100	60	38	31	100	60	40	C38
F677-584002	–	500	440	60	250	190	150	60	38	31	100	60	40	C38
F677-584003	–	630	570	60	315	255	200	60	38	31	100	60	40	C38
F677-584104	F677-584664	250	190	60	125	65	100	60	60	31	100	60	40	C60
F677-584101	F677-584661	400	340	60	200	140	100	60	60	31	100	60	40	C60
F677-584102	F677-584662	500	440	60	250	190	150	60	60	31	100	60	40	C60
F677-584103	F677-584663	630	570	60	315	255	200	60	60	31	100	60	40	C60
F677-584204	F677-584694	250	180	70	125	55	100	90	90	51	115	70	45	C90
F677-584201	F677-584691	400	330	70	200	130	100	90	90	51	115	70	45	C90
F677-584202	F677-584692	500	430	70	250	180	150	90	90	51	115	70	45	C90
F677-584203	F677-584693	630	560	70	315	245	200	90	90	51	115	70	45	C90

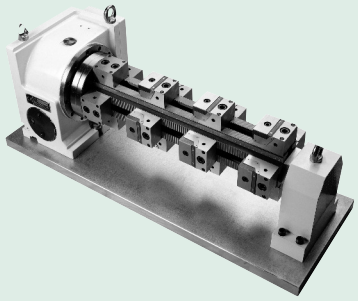
See page 236 for information on TriGrip inserts.

4-Sided Column | C Series Integrated





How To Use



Application Example

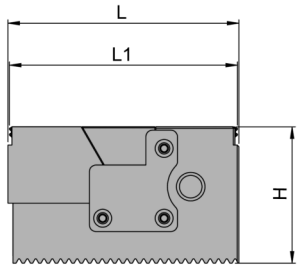
Attach multiple jaw sets to the four sides of the trunnion base. Available in 400, 500 and 630 mm base lengths. Refer to the table on page 91 for clamp capacities of various jaw / base combinations. Includes column, base, subplate, wrench.

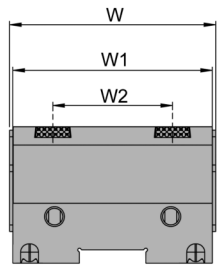
Part #	D mm	D1 mm	(h7) D2 mm	L mm	L1 mm	W mm	W1 mm	(h7) W2 mm	Use with Vise Type
F677-584111	170	140	20	400	15	170	60	12	C60
F677-584112	170	140	20	500	15	170	60	12	C60
F677-584113	170	140	20	630	15	170	60	12	C60
F677-584211	210	180	20	400	15	205	90	12	C90
F677-584212	210	180	20	500	15	205	90	12	C90
F677-584213	210	180	20	630	15	205	90	12	C90

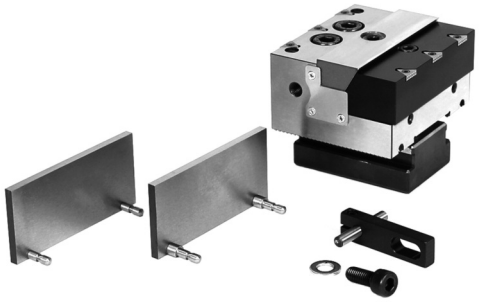
TRIMAX C SERIES

Jaws | Sets | TriGrip | Movable

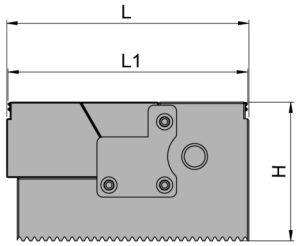
C60

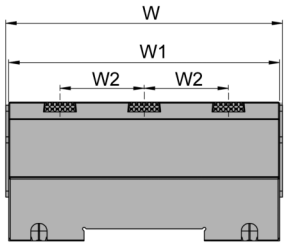






C90

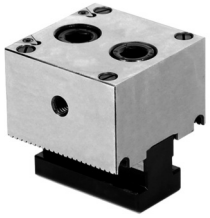




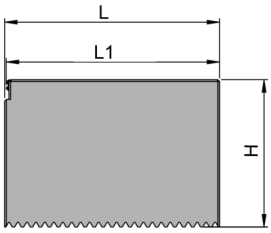
These complete jaw sets attach to TriMax C vise base sets to create multiple clamping stations. They can be quickly interchanged and moved to different positions on the vise for other set ups. Jaws are equipped with STD TriGrip Inserts for secure low-profile clamping. Each jaw set comes with movable slideway, 37mm parallel pair, work stop with washer and screw, and STD-type TriGrip Inserts (HRC or ALU-type inserts are available on request). For more information on TriGrip Inserts, see page 236.

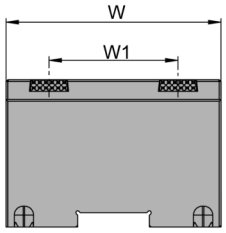
Part #	L mm	L1 mm	W mm	W1 mm	W2 mm	H mm	Parallel Height	Use with Vise Type
F677-584660	70	69	62	60	36	40	37	C60
F677-584690	80	79	92	90	28	45	42	C90

Jaws | Sets | TriGrip | Fixed

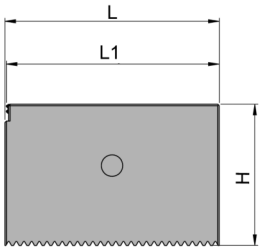


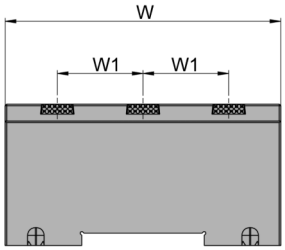
C60





C90



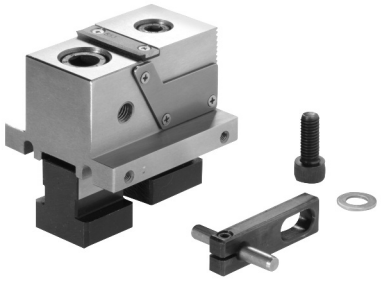


These fixed jaw sets attach to TriMax C vise base sets to create multiple clamping stations. They can be quickly interchanged and moved to different positions on the vise for other set ups. The fixed jaw provides an accurate stop for the jaws to clamp on a workpiece. Jaws are equipped with STD TriGrip Inserts for secure low-profile clamping. Each jaw set is complete with a fixed slideway and STD-type TriGrip Inserts (HRC or ALU-type inserts are available on request). For more information on TriGrip Inserts, see page 236.

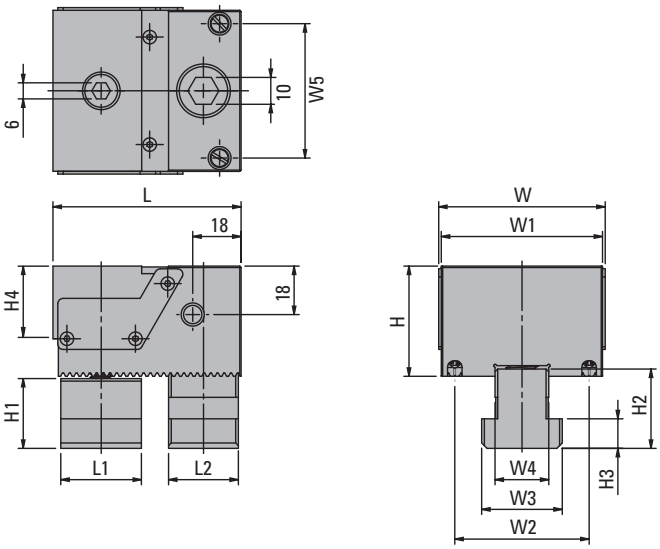
Part #	L mm	L1 mm	W mm	W1 mm	H mm	Use with Vise Type
F658-467260	60	59.55	60	36	40	C60
F658-467290	70	69.55	90	25	45	C90

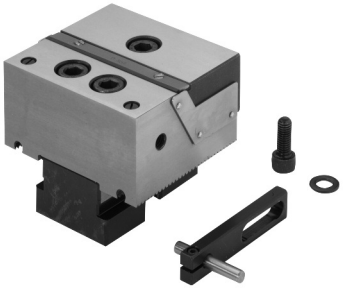
TRIMAX C SERIES

Jaws | Sets | Movable | Smooth

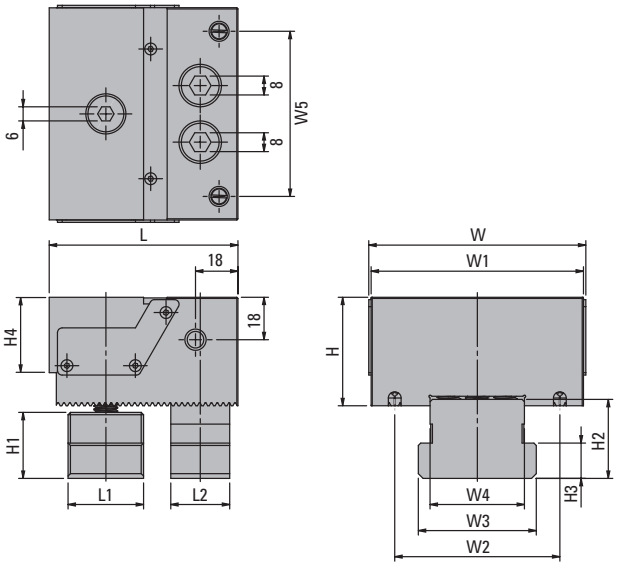


C38 / C60-Type





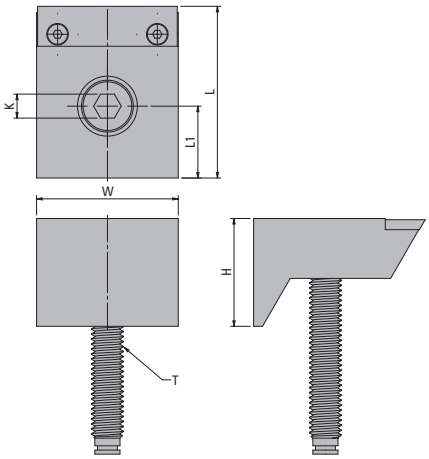
C90-Type



These complete jaws attach to TriMax C vise base sets to create single or multiple position clamping stations. They can be quickly interchanged and moved to different positions on the vise for other set ups. The smooth jaws prevent damage to the workpiece. Each jaw set comes with movable slideway and a work stop with washer and screw.

Part #	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	W4 mm	W5 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Use with Vise Type
F677-584023	70	30	26	60	38	29	30	20	29	41	26	29.5	11	27	C38
F677-584123	70	30	26	62	60	50	30	20	50	41	26	29.5	11	27	C60
F677-584223	80	32	25	92	90	70	50	40	70	46	28	33.5	15	32	C90

Jaws | Replacement | Smooth



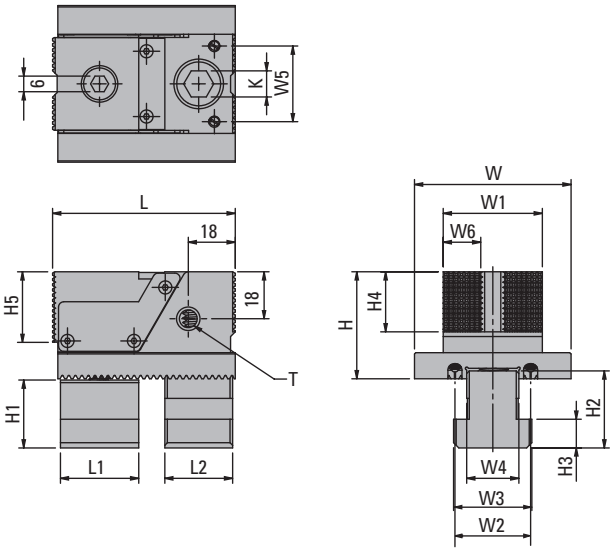
Attach this single jaw spare part to a TriMax C movable jaw support. The smooth jaw prevents damage to the workpiece. Includes a jaw, guard and screw.

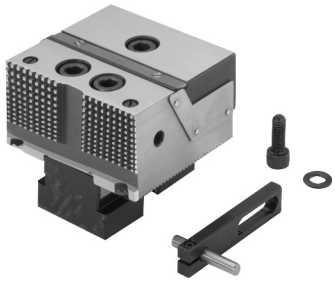
Part #	T Thread	L mm	L1 mm	W mm	H mm	K mm	Use with Vise Type
F658-400409	M8X1.25	43	18	35.5	27	6	C38
F658-410409	M8X1.25	43	18	60	27	6	C60
F658-420409	M8X1.25	50	24	90	32	6	C90

TRIMAX C SERIES

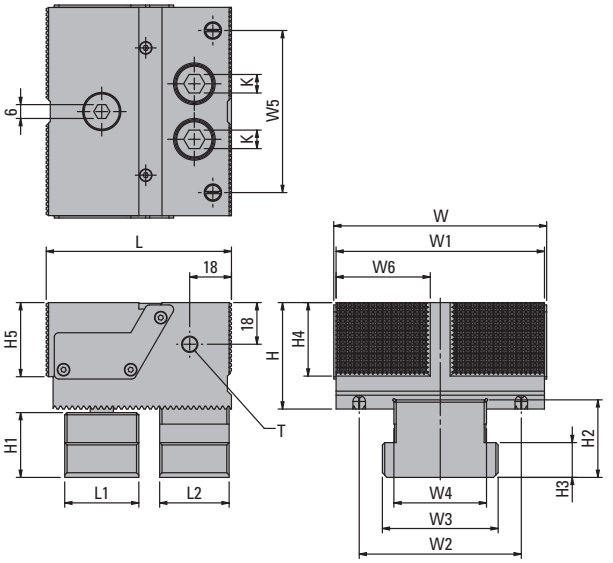
Jaws | Sets | Movable | Serrated

C38 / C60-Type





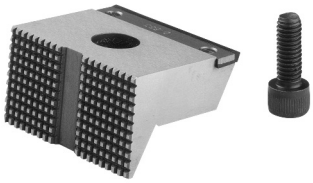
C90-Type

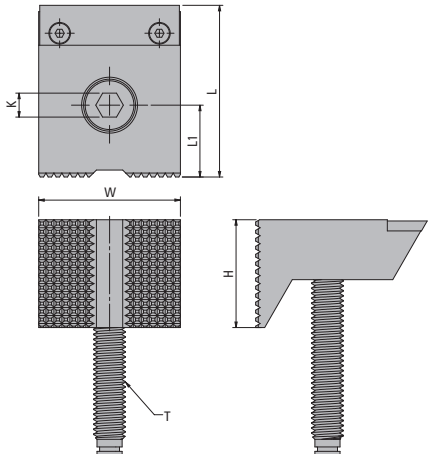


These complete jaws attach to TriMax C vise base sets to create single or multiple position clamping stations . They can be quickly interchanged and move to different positions on the vise for other set ups. The grooved serrations make the jaws ideal for gripping raw or unfinished castings and workpieces. Each jaw set comes with movable slideway and a work stop with washer and screw.

Part #	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	W4 mm	W5 mm	W6 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	K mm	Use with Vise Type
F677-584028	70	30	26	60	38	29	30	20	29	14.5	40	26	29.5	11	23	27	10	C38
F677-584128	70	30	26	62	60	50	30	20	50	24.9	40	26	29.5	11	25.4	27	10	C60
F677-584228	80	32	25	92	90	70	50	40	70	40.6	45	28	33.5	15	32	32	8	C90

Jaws | Replacement | Serrated





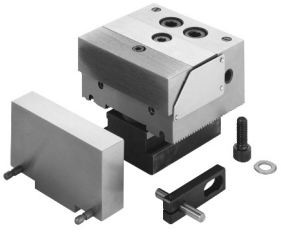
This single jaw spare part attaches to a TriMax C movable jaw support. The serrations make the jaws ideal for gripping raw or unfinished castings and workpieces. Includes a jaw, guard and screw.

Part #	T Thread	L mm	L1 mm	W mm	H mm	K mm	Use with Vise Type
F658-404419	M8X1.25	43	18	35.5	27	6	C38
F658-414419	M8X1.25	43	18	60	27	6	C60
F658-424419	M8X1.25	50	24	90	32	6	C90

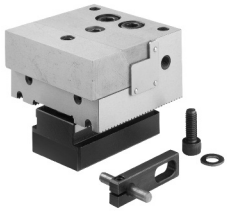
TRIMAX C SERIES

Jaws | Sets | Movable | Special Jaws

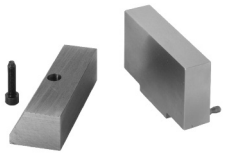
With Aluminum Jaws



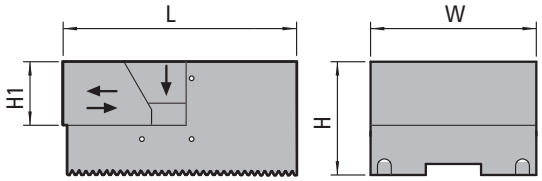
With Soft Steel Jaws



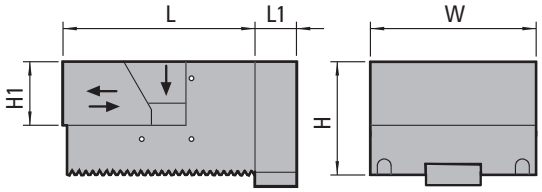
With Hardened Steel Jaw



Spare Jaws Pair Only



Hardened Steel

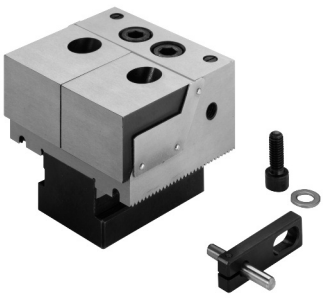


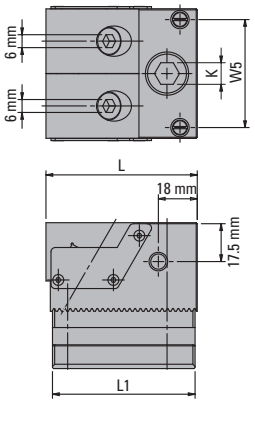
Aluminum / Soft Steel

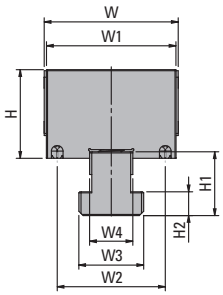
These complete jaw sets attach to a TriMax C vise base set to create single or multi-position clamping stations on a single vise unit. Jaw parts in set are available in aluminum, soft steel and hardened steel. For the aluminum and soft steel jaws, two jaws are included that can be shaped to fit a customer's needs for holding different workpieces. Sets are complete with jaw, jaw support, movable slideway and workstop with washer and screw. Aluminum and soft steel jaws (available in sets and as separate-sale parts) include one additional jaw that can be attached to a separate fixed or movable jaw set on vise base. For use on C60 and C90 type base sets.

Jaw Set Part #	Spare Jaws Part #	L mm	L1 mm	W mm	H mm	H1 mm	Jaw Material	Jaw Qty Included	Use with Vise Type
F677-584126	F658-419609	69.5	15	60	40	23	Soft Steel	2	C60
F677-584226	F658-419609	80	20	90	45	25	Soft Steel	2	C90
F677-584125	F658-419509	69.5	15	60	40	23	Aluminum	2	C60
F677-584225	F658-419509	80	20	90	45	25	Aluminum	2	C90
F677-584127	–	69.5	–	60	40	23	Hardened Steel	1	C60
F677-584227	–	80	–	90	45	25	Hardened Steel	1	C90

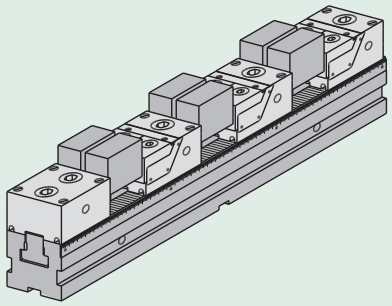
Jaws | Sets | Movable | Dual Jaw







How To Use



Application Example

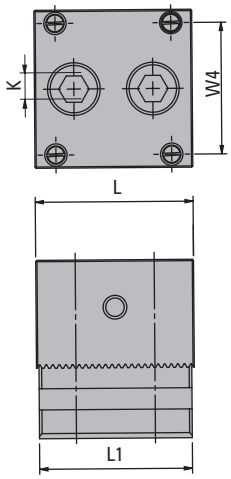
This jaw attaches to TriMax C vise base sets to create single and multi-position clamping stations. Features two clamping jaws on one jaw set, each independently adjustable to clamp two workpieces separately. They can be quickly interchanged and moved to different positions on the vise for other set ups. Each jaw set comes with a work stop with washer and screw.

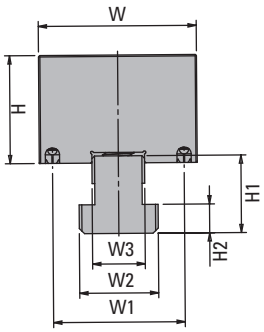
Part #	L mm	L1 mm	W mm	W1 mm	W2 mm	W3 mm	W4 mm	W5 mm	H mm	H1 mm	H2 mm	K mm	Use with Vise Type
F677-584124	70	56	62	60	50	30	20	50	40	29.5	11	10	C60
F677-584224	80	76	92	90	70	50	40	70	45	33.5	15	8	C90

TRIMAX C SERIES

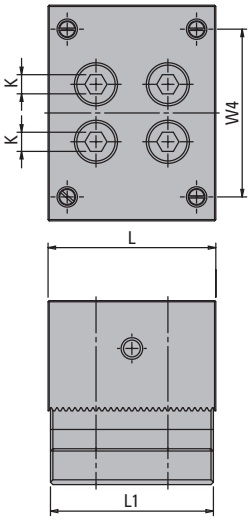
Jaws | Sets | Fixed

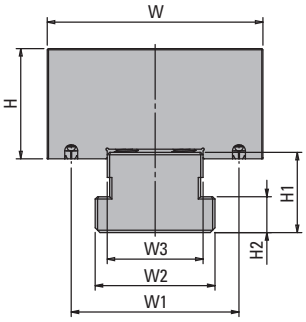
C38 / C60-Type





C90-Type





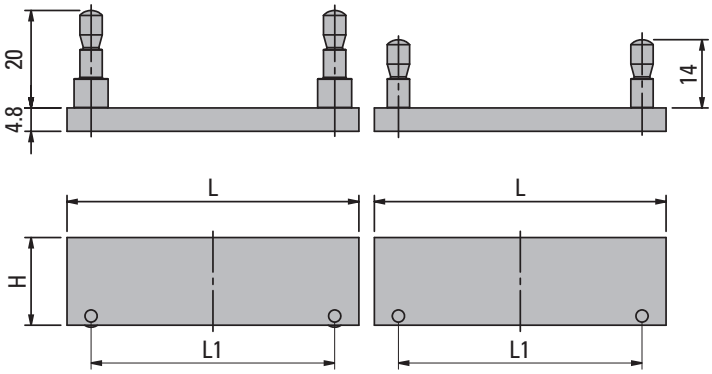
Complete fixed jaw set for the TriMax M vise. Attaches to base sets to create multiple clamping stations on one vise. They can be quickly interchanged and moved to different positions on the vise for other setups. The supports provide an accurate stop for the jaws to clamp on a workpiece. This set includes a fixed slideway that secures jaw into base channel on vise.

Part #	L mm	L1 mm	W mm	W1 mm	W2 mm	W3 mm	W4 mm	H mm	H1 mm	H2 mm	K mm	Use With Vise Type
F658-407200	60	58	38	29	30	20	29	40	29.5	11	10	C38
F658-417200	60	58	60	50	30	20	50	40	29.5	11	10	C60
F658-427200	70	68	90	70	50	40	70	45	33.5	15	8	C90

TRIMAX C SERIES

Snap-In Parallels

Four Pairs

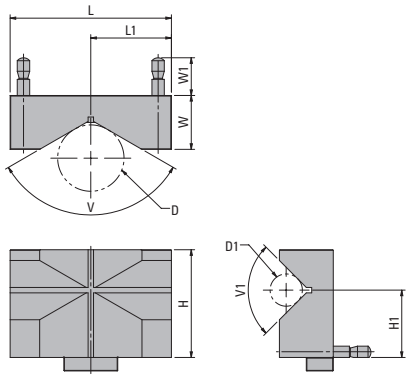


The self-locking design of snap-in parallels are allows for quick and easy installation on vise jaws with no additional tools. This allows for reduced down time, the elimination of clamps and locks, and increased accuracy of the finished parts. Simply snap into place without bolts or clamps. All components are heat treated and precision ground for accuracy. Four parallel heights ranging from 18-42mm are available in complete 4-pair sets, or purchase one of the height in parallel pairs.

Part # (4-Pair Set)	L mm	L1 mm	H (4 Pairs) mm	Use with Vise Type
F658-409204	38	29	18 / 23 / 28 / 37	C38
F658-419204	60	50	18 / 23 / 28 / 37	C60
F658-429204	90	70	18 / 23 / 33 / 42	C90

Part # (Single Pair)	L mm	L1 mm	H mm	Use with Vise Type
F658-403518	38	29	18	C38
F658-403523	38	29	23	C38
F658-403528	38	29	28	C38
F658-403537	38	29	37	C38
F658-413518	60	50	18	C60
F658-413523	60	50	23	C60
F658-413528	60	50	28	C60
F658-413537	60	50	37	C60
F658-423518	90	70	18	C90
F658-423523	90	70	23	C90
F658-423533	90	70	33	C90
F658-423542	90	70	42	C90

Snap-In Single V-Jaw

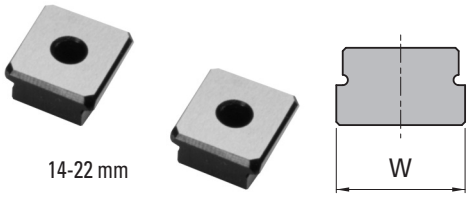


This jaw attaches to TriMax C Series vise to create multiple clamping stations. The 90° and 120° angles of this V-shape jaw make it ideal for gripping cylindrical workpieces. Snap-in design allows quick change and reduced downtime.

Part #	D Min mm	D Max mm	D1 Min mm	D1 Max mm	L mm	L1 mm	W mm	W1 mm	H mm	H1 mm	V Degrees	V1 Degrees	Use with Vise Type
F658-409400	9	45	10	24	38	19	20	13	40	25	120	90	C38
F658-419400	11	70	10	28	60	30	20	9.6	40	25	120	90	C60
F658-429400	11	70	10	28	90	45	20	9.6	40	30	120	90	C90

TRIMAX C SERIES

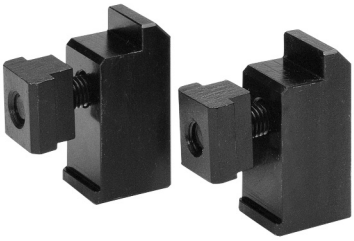
Positioning Keys | Pair

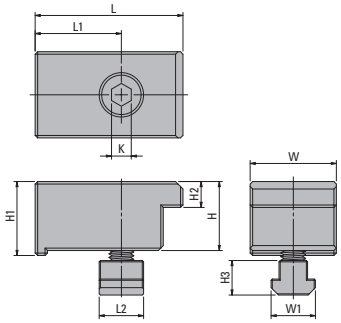


These positioning keys allow precise locating of the vise. Sold in pairs.

Part #	(h6) W mm
F658-011592	12
F658-011593	14
F658-011594	16
F658-011595	18
F658-011596	20
F658-011597	22

Hold Down Clamps | Pair





These hold down clamps allow the user to quickly and securely attach the vise to a slotted plate. Allows for greater positioning flexibility and vise placement. Each clamp is complete with T-Nut and screw. Sold as a pair.

Part #	T Thread	Table Slot mm	W mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	H3 mm	K mm	Use with Vise Type
F658-012792	M8X1.25X30	12	50	30	18	30	18	11.6	23	25	9	14	6	C38 / C60
F658-012793	M8X1.25X35	14	50	30	22	30	22	13.6	23	25	9	16	6	C38 / C60
F658-012794	M8X1.25X35	16	50	30	24	16	25	15.4	23	25	9	18	6	C38 / C60
F658-012795	M8X1.25X40	18	50	30	25	18	28	17.6	23	25	9	20	6	C38 / C60
F658-012796	M8X1.25X40	20	50	30	25	20	32	19.6	23	25	9	24	6	C38 / C60
F658-012797	M8X1.25X40	22	50	30	25	22	35	21.6	23	25	9	28	6	C38 / C60
F658-022792	M8X1.25X30	12	60	35	18	12	18	11.6	28	30	10.5	14	8	C90
F658-022793	M8X1.25X35	14	60	35	22	14	22	13.6	28	30	10.5	16	10	C90
F658-022794	M8X1.25X40	16	60	35	25	16	25	15.4	28	30	10.5	18	10	C90
F658-022795	M8X1.25X40	18	60	35	25	18	28	17.6	28	30	10.5	20	10	C90
F658-022796	M8X1.25X45	20	60	35	25	20	32	19.6	28	30	10.5	24	10	C90
F658-022797	M8X1.25X45	22	60	35	25	22	35	21.6	28	30	10.5	28	10	C90

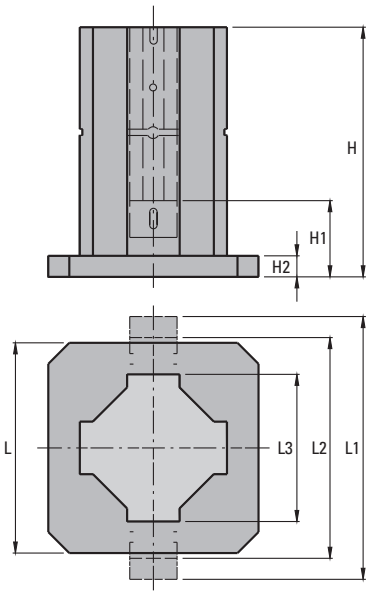
Work Stop

This work stop attaches to TriMax C vises for quick and accurate positioning while loading parts. Includes work stop, washer and screw. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	Support Type	Use with Vise Type
F658-315010	Fixed	C38, C60
F658-325010	Fixed	C90
F658-315020	Movable	C38, C60, C90

TRIMAX C SERIES

4-Sided Vertical Column | C Series

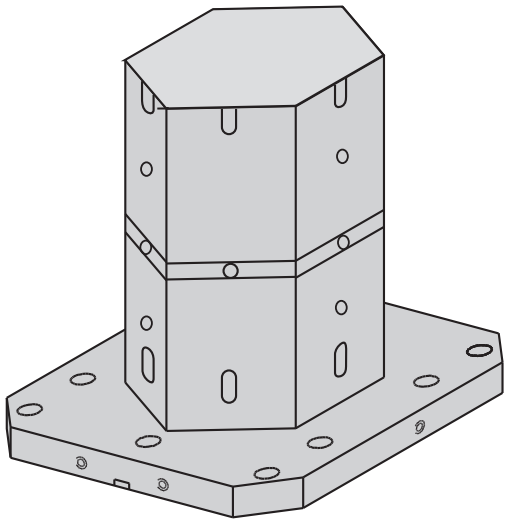


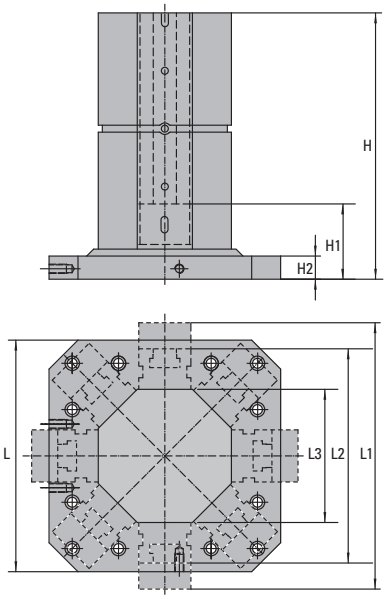
This column features four clamping surfaces for multi-vise TriMax C series operations. Made from steel or aluminum.

Part #	Material	L mm	L1 mm	L2 mm	L3 mm	H mm	H1 mm	H2 mm	Use with Vise Type
F658-418011	Steel	400	450	370	250	460	120	40	C38/C60 (400)
F658-418021	Steel	400	450	370	250	560	120	40	C38/C60 (500)
F658-418022	Steel	500	500	420	300	560	120	40	C38/C60 (500)
F658-418031	Steel	400	450	370	250	690	120	40	C38/C60 (630)
F658-418032	Steel	500	500	420	300	690	120	40	C38/C60 (630)
F658-418033	Steel	630	580	500	380	690	120	40	C38/C60 (630)
F658-428011	Steel	400	480	390	250	460	130	40	C90 (400)
F658-428021	Steel	400	480	390	250	560	130	40	C90 (500)
F658-428022	Steel	500	530	440	300	560	130	40	C90 (500)
F658-428031	Steel	400	480	390	250	690	130	40	C90 (630)
F658-428032	Steel	500	530	440	300	690	130	40	C90 (630)
F658-428033	Steel	630	610	520	380	690	130	40	C90 (630)
F658-427931A	Aluminum	400	450	370	250	690	120	40	C38/C60 (630)
F658-427932A	Aluminum	400	450	370	250	690	120	40	C38/C60 (630)
F658-427933A	Aluminum	630	580	500	250	690	120	40	C38/C60 (630)
F658-427931B	Aluminum	400	480	390	250	690	130	40	C90 (630)
F658-427932B	Aluminum	500	480	390	250	690	130	40	C90 (630)
F658-427933B	Aluminum	630	610	520	250	690	130	40	C90 (630)

TRIMAX C SERIES

6-Sided Vertical Column | C Series



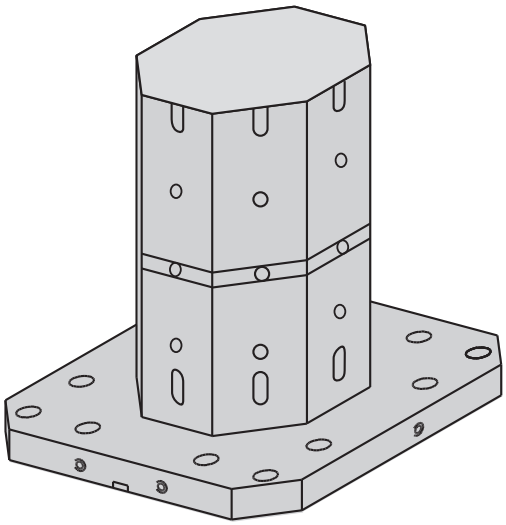


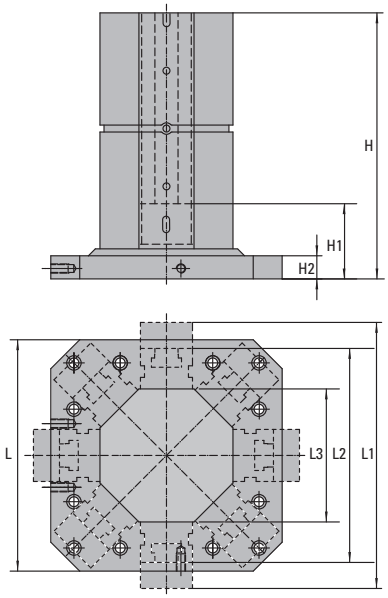
This column features six clamping surfaces for multi-vise TriMax C series operations. Both steel and aluminum materials are available.

Part #	Material	L mm	L1 mm	L2 mm	L3 mm	H mm	H1 mm	H2 mm	Use with Vise Type
F658-428511A	Steel	400	450	370	250	460	120	40	C38/C60 (400)
F658-428521A	Steel	400	450	370	250	560	120	40	C38/C60 (500)
F658-428522A	Steel	500	450	370	250	560	120	40	C38/C60 (500)
F658-428531A	Steel	400	450	370	250	690	120	40	C38/C60 (630)
F658-428532A	Steel	500	450	370	250	690	120	40	C38/C60 (630)
F658-428533A	Steel	630	580	500	380	690	120	40	C38/C60 (630)
F658-428511B	Steel	400	480	390	250	460	130	40	C90 (400)
F658-428521B	Steel	400	480	390	250	560	130	40	C90 (500)
F658-428522B	Steel	500	480	390	250	560	130	40	C90 (500)
F658-428531B	Steel	400	480	390	250	690	130	40	C90 (630)
F658-428532B	Steel	500	480	390	250	690	130	40	C90 (630)
F658-428533B	Steel	630	610	520	380	690	130	40	C90 (630)
F658-427531A	Aluminum	400	450	370	250	690	120	40	C38/C60 (630)
F658-427532A	Aluminum	500	450	370	250	690	120	40	C38/C60 (630)
F658-427533A	Aluminum	630	580	500	380	690	120	40	C38/C60 (630)
F658-427531B	Aluminum	400	480	390	250	690	130	40	C90 (630)
F658-427532B	Aluminum	500	480	390	250	690	130	40	C90 (630)
F658-427533B	Aluminum	630	610	520	380	690	130	40	C90 (630)

TRIMAX C SERIES

8-Sided Vertical Column | C Series





This column features four clamping surfaces for multi-vise TriMax C series operations. Both steel and aluminum materials are available.

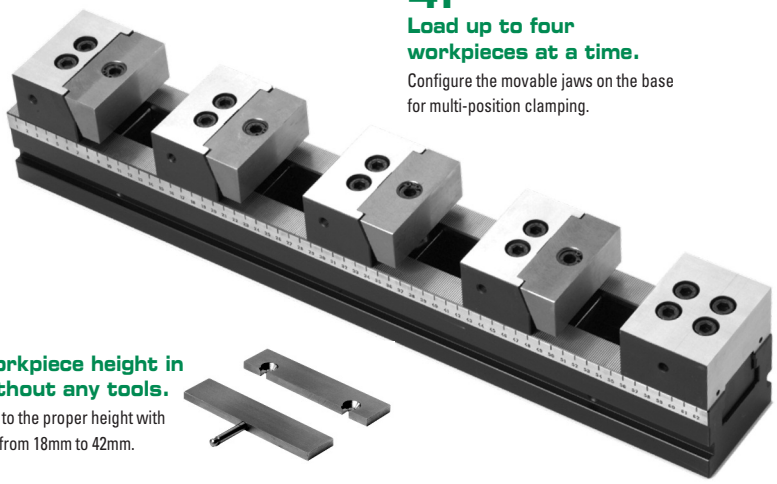
Part #	Material	L mm	L1 mm	L2 mm	L3 mm	H mm	H1 mm	H2 mm	Use with Vise Type
F658-428611A	Steel	400	450	370	250	460	120	40	C38/C60 (400)
F658-428621A	Steel	400	450	370	250	560	120	40	C38/C60 (500)
F658-428622A	Steel	500	450	370	250	560	120	40	C38/C60 (500)
F658-428631A	Steel	400	450	370	250	690	120	40	C38/C60 (630)
F658-428632A	Steel	500	450	370	250	690	120	40	C38/C60 (630)
F658-428633A	Steel	630	580	500	380	690	120	40	C38/C60 (630)
F658-428611B	Steel	400	480	390	250	460	130	40	C90 (400)
F658-428621B	Steel	400	480	390	250	560	130	40	C90 (500)
F658-428622B	Steel	500	480	390	250	560	130	40	C90 (500)
F658-428631B	Steel	400	480	390	250	690	130	40	C90 (630)
F658-428632B	Steel	500	480	390	250	690	130	40	C90 (630)
F658-428633B	Steel	630	610	500	380	690	130	40	C90 (630)
F658-427631A	Aluminum	400	450	370	250	690	120	40	C38/C60 (630)
F658-427632A	Aluminum	500	450	370	250	690	120	40	C38/C60 (630)
F658-427633A	Aluminum	630	580	500	380	690	120	40	C38/C60 (630)
F658-427631B	Aluminum	400	480	390	250	690	130	40	C90 (630)
F658-427632B	Aluminum	500	480	390	250	690	130	40	C90 (630)
F658-427633B	Aluminum	630	610	520	380	690	130	40	C90 (630)

TRIMAX T SERIES

TriMax T Vise – Economical Multi-Part Clamping

Full package of vise base and jaws for multi-position clamping along with workstops, wrench, and positioning keys.

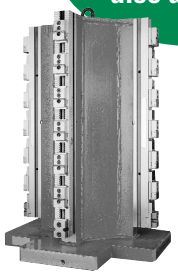
1.
Three base length options.
Extend the space available for clamping with a longer base length. 400mm, 500mm, and 630mm available.



2.
Adjust the workpiece height in seconds — without any tools.
Raise your workpiece to the proper height with parallel pairs ranging from 18mm to 42mm.

4.
Load up to four workpieces at a time.
Configure the movable jaws on the base for multi-position clamping.

Multi-vise Columns also available!



3.
Durable construction.
Designed to withstand the demands of the production environment.

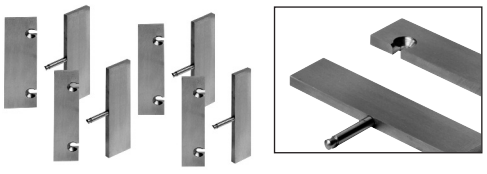
Choose Your Vise Set

What clamping capacity and jaw width is ideal for your workpieces? Choose the right vise size to match your workholding needs. Each TriMax T vise is a complete vise set including four moving jaw blocks, a fixed jaw block and base as shown above. See table on page 104 for more information on clamping capacities.

Parts and Accessories

Different workpiece materials demand different styles of gripping. Choose from the following jaw and gripper types to hold a wide variety of workpiece shapes, sizes and materials. Easy to install, easy to replace.

Easy-Mount Parallels

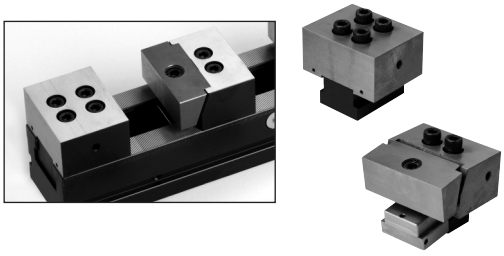


Easy Mount Parallel System

- Parallel with post installs easily into movable jaw set.
- Second parallel in pair screws directly into fixed jaw set.
- Four parallel heights ranging from 18-42mm.

Single Pairs -T60: F658-813518, F658-813523, F658-813528, F658-813537
4-Pair Pack -T60: F658-819204
Single Pairs -T90: F658-823518, F658-823523, F658-823528, F658-823537
4-Pair Pack -T90: F658-829204

Extra Jaw Sets



JAW SETS:

Fixed Jaw Set

- Attaches to the TriMax T vise to provide an accurate stop for the jaws to clamp on a workpiece.
- Includes jaw set screws and T-nut slideway that attaches to this vise base channel.

T60: F658-817220 T90: F658-827220

Movable Jaw Set

- Loosen screw on jaw support to shift position of jaw set on the vise base.
- Separate screw on jaw provides final clampdown of part.
- Includes jaw set screws and two T-nut slideways.

T60: F677-588123 T90: F677-588223

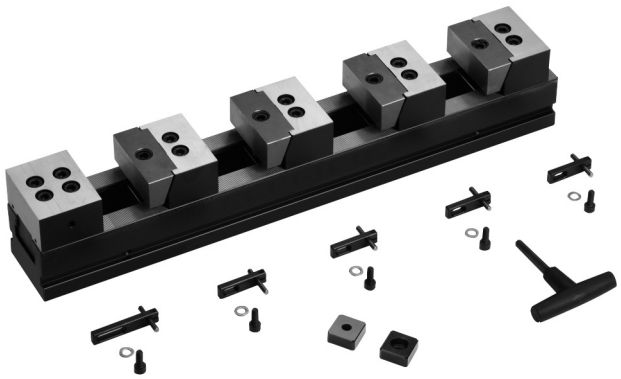
Spare Parts

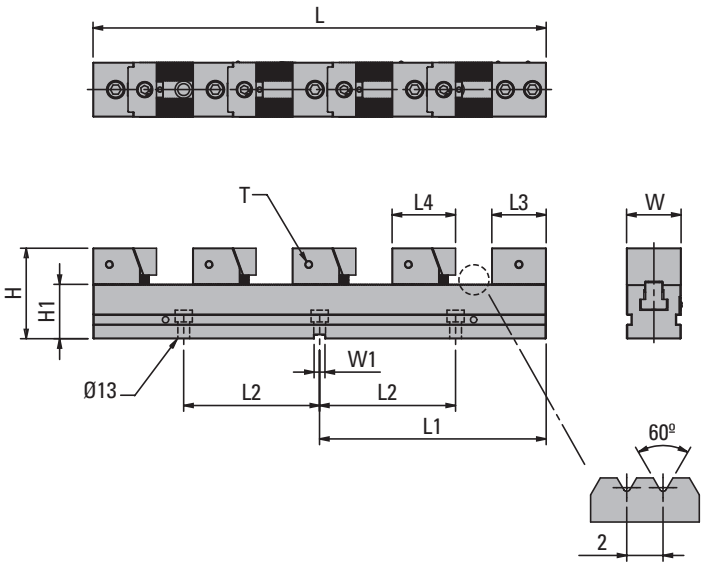
Spare Parts: These and other spare parts are available for TriMax T vises.

- Movable jaw–Replace your existing jaw, or shape this jaw for round and or contoured workpieces
- Work Stop–Attaches to jaw set for quick and accurate positioning while loading parts.
- T-nuts with Screws–Use to securely attach vise to a slotted plate.

TRIMAX T SERIES

TriMax T Vises





	1	1 2	1 2 3	1 2 3 4
	Max Capacity			
T60 x 400	270	100	43	15
T60 x 500	370	150	76	40
T60 x 630	500	215	120	73
T90 x 400	249	84	29	–
T90 x 500	349	134	62	26
T90 x 630	479	199	106	59

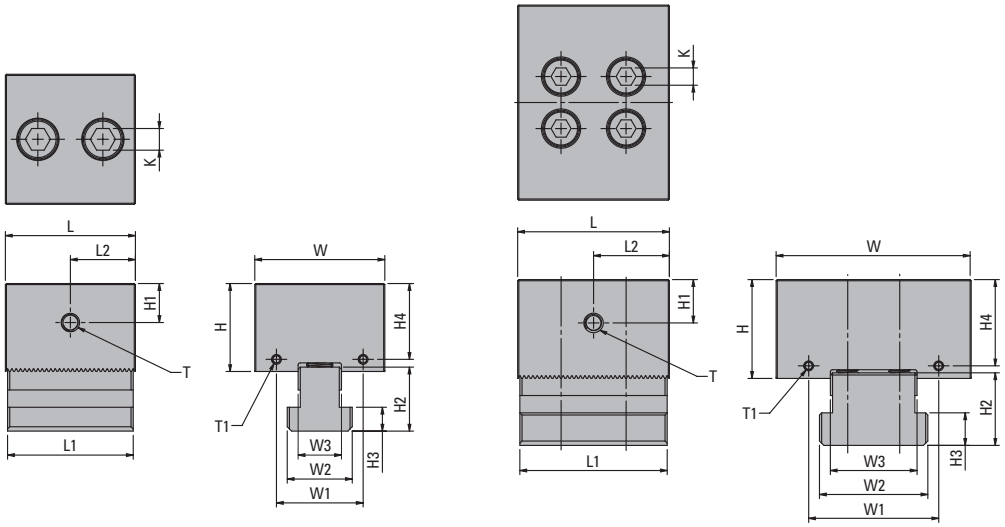
The TriMax T series of vises offers a complete modular multi-part clamping system that reduces downtime and maximizes machine tool capacity. Made to clamp up to four workpieces at a time, the movable jaws can be positioned along the vise body to handle a wide range of work pieces. Once the vise is set up, the jaws are activated by turning the screws on the jaws, holding the parts securely without distortion. These vises can clamp square, round and irregular shaped work pieces and are precision ground for accuracy and durability. Designed for horizontal, vertical and 4-axis machining centers and grinders and other machines.

TriMax T vises are available in widths of either 60mm (T60-type) or 90mm (T90-type). Each of these complete vise sets includes a base, a fixed jaw set, four sets of movable jaws, five work stops and a T-wrench. Three base lengths are available (400mm, 500mm and 630mm) to fit a wide variety of mounting options and machining configurations. The TriMax T series shares tombstone compatibility with TriMax C series clamping equipment.

Part #	T Thread mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	(H7) W1 mm	H mm	+/-0.01 H1 mm	Vise Type
F677-588101	M8X1.25	400	200	100	60	70	60	12	100	60	T60
F677-588102	M8X1.25	500	250	150	60	70	60	12	100	60	T60
F677-588103	M8X1.25	630	315	200	60	70	60	12	100	60	T60
F677-588201	M8X1.25	400	200	100	70	80	90	12	115	70	T90
F677-588202	M8X1.25	500	250	150	70	80	90	12	115	70	T90
F677-588203	M8X1.25	630	315	200	70	80	90	12	115	70	T90

TRIMAX T SERIES

Jaws | Set | Fixed

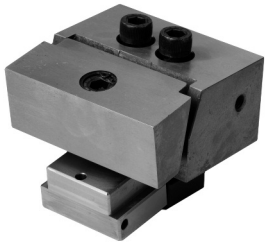


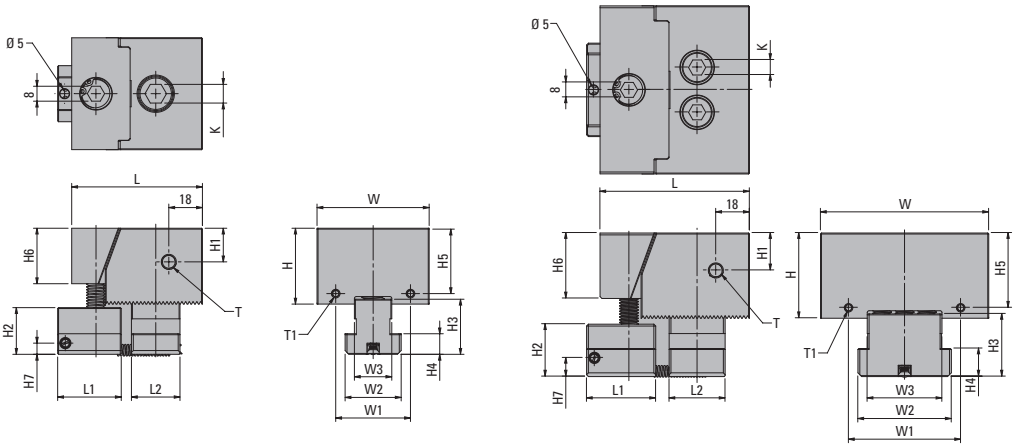
T60-Type T90-Type

This fixed jaw set attaches to the TriMax T vise to provide an accurate stop for the movable jaws to clamp on a workpiece.

Part #	T mm	T1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	K mm	Use with Vise
F658-817220	M8X1.25	M8X0.7	60	58	30	60	40	30	20	40	18	29.5	11	35	10	T60
F658-827220	M8X1.25	M8X0.7	70	68	35	90	60	50	40	45	20	33.5	15	40	8	T90

Jaws | Set | Movable





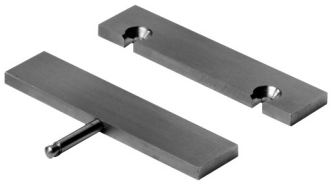
T60-Type T90-Type

This movable jaw set attaches to the TriMax T vise to create multiple clamping stations. It can be quickly interchanged and moved to different positions on the vise for other setups.

Part #	T mm	T1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	H6 mm	H7 mm	K mm	Use with Vise
F677-588123	M8X-1.25	M4X-0.7	70	34	26	60	40	30	40	40	18	25	29.5	11	34.5	35	6	10	T60
F677-588223	M8X-1.25	M4X-0.7	80	37	30	90	60	50	45	40	20	28	33.5	15	40	35	10	8	T90

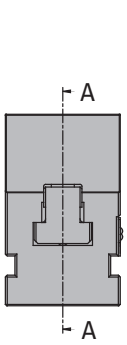
TRIMAX T SERIES

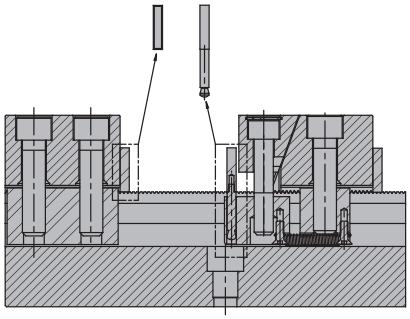
Parallels



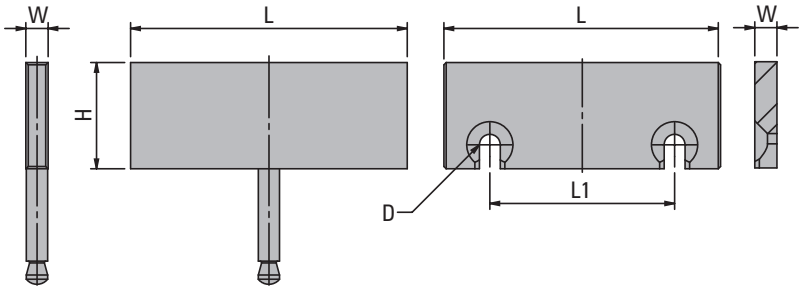
One Pair

Four Pairs





SECTION A-A

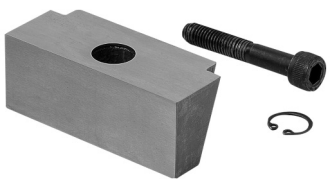


These parallels are made for use with TriMax T Vises to keep work raised to the proper height. Four sizes of parallels are available for each vise type (T60 and T90), each size sold in a pair. Additionally a 4-pair set (containing one pair of each of the parallel sizes) is available for each vise type. Parallels are heat-treated and precision ground.

Four Pairs Part #	L mm	W mm	H mm	Use with Vise Type
F658-819204	59.9	4.8	18/23/28/37	T60
F658-829204	59.9	4.8	18/23/33/42	T90

Single Pair Part #	D mm	L mm	L1 mm	W mm	H mm	Use with Vise Type
F658-813518	4.5	59.9	40	4.8	18	T60
F658-813523	4.5	59.9	40	4.8	23	T60
F658-813528	4.5	59.9	40	4.8	28	T60
F658-813537	4.5	59.9	40	4.8	37	T60
F658-823518	4.5	59.9	40	4.8	18	T90
F658-823523	4.5	59.9	40	4.8	23	T90
F658-823533	4.5	59.9	40	4.8	33	T90
F658-823542	4.5	59.9	40	4.8	42	T90

Smooth Jaw



This replacement jaw attaches to a TriMax T movable support. Includes screw and lock ring.

Part #	Use with Vise Type
F658-810409	T60
F658-820409	T90

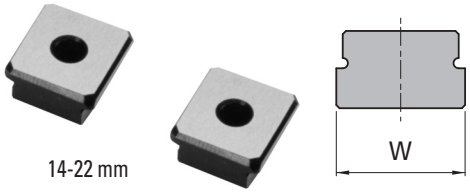
Work Stop

This work stop attaches to TriMax T vises for quick and accurate positioning while loading parts. Includes work stop, washer and screw. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	Support Type	Use with Vise Type
F658-315010	Fixed	T60
F658-325010	Fixed	T90
F658-315020	Movable	T60, T90

TRIMAX T SERIES

Positioning Keys | Pair | Metric

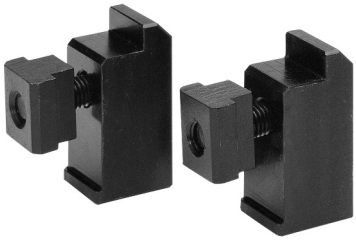


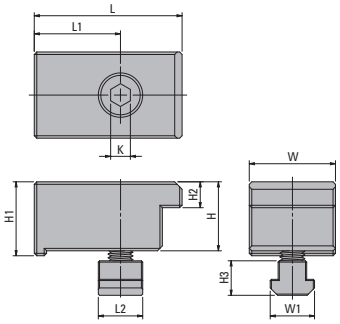
These positioning keys allow precise locating of the vise. Sold in pairs.

Part #	(h6) W mm
F658-011592	12
F658-011593	14
F658-011594	16
F658-011595	18
F658-011596	20
F658-011597	22

See page 561 for h6 tolerance specifications.

Hold Down Clamps | Pair | Metric





These hold down clamps allow the user to quickly and securely attach the vise to a slotted plate. Allows for greater positioning flexibility and vise placement. Each clamp is complete with T-Nut and screw. Sold as a pair.

Part #	T Thread	W mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	H3 mm	K mm	Use with Vise Type	Table Slot mm
F658-012792	M8X1.25X30	50	30	18	30	18	11.6	23	25	9	14	6	T60	12
F658-012793	M8X1.25X35	50	30	22	30	22	13.6	23	25	9	16	6	T60	14
F658-012794	M8X1.25X35	50	30	24	16	25	15.4	23	25	9	18	6	T60	16
F658-012795	M8X1.25X40	50	30	25	18	28	17.6	23	25	9	20	6	T60	18
F658-012796	M8X1.25X40	50	30	25	20	32	19.6	23	25	9	24	6	T60	20
F658-012797	M8X1.25X40	50	30	25	22	35	21.6	23	25	9	28	6	T60	22
F658-022792	M8X1.25X30	60	35	18	12	18	11.6	28	30	10.5	14	8	T90	12
F658-022793	M8X1.25X35	60	35	22	14	22	13.6	28	30	10.5	16	10	T90	14
F658-022794	M8X1.25X40	60	35	25	16	25	15.4	28	30	10.5	18	10	T90	16
F658-022795	M8X1.25X40	60	35	25	18	28	17.6	28	30	10.5	20	10	T90	18
F658-022796	M8X1.25X45	60	35	25	20	32	19.6	28	30	10.5	24	10	T90	20
F658-022797	M8X1.25X45	60	35	25	22	35	21.6	28	30	10.5	28	10	T90	22

TRIMAX M SERIES

TriMax M Vise – The Modern Machinist Vise

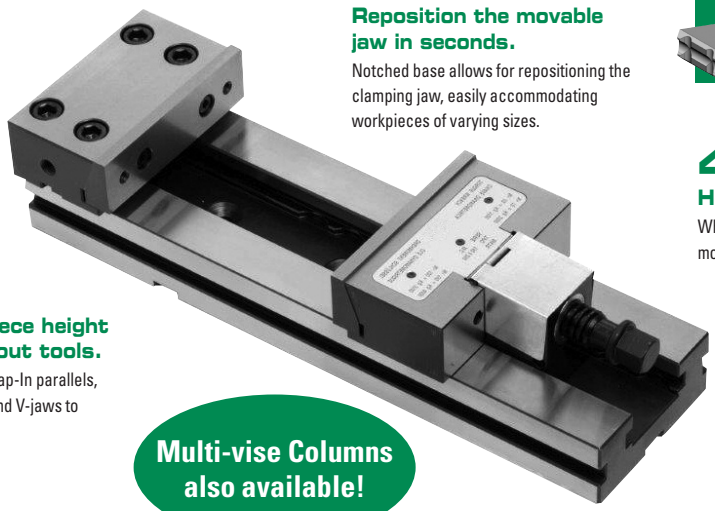
Beyond your grandfather's shop vise, this versatile vise system offers the maximum number of workholding combinations needed for today's production environment.

1.
Configure for virtually any workpiece.

Choose from two different jaw widths and a variety of clamping capacities, jaw types and accessories to build the ideal vise to meet your clamping needs.

2.
Adjust the workpiece height in seconds — without tools.

Quick and easy change of Snap-In parallels, angular parallels, soft jaws and V-jaws to machine any workpiece.

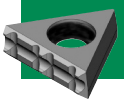


Multi-vise Columns also available!

5.
Reposition the movable jaw in seconds.

Notched base allows for repositioning the clamping jaw, easily accommodating workpieces of varying sizes.

ADD JAWS & TRIGRIP INSERTS FOR LOW-PROFILE CLAMPING

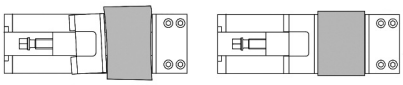


4.
Hold down the workpiece as you clamp.

When jaw is tightened for clamping, it pulls down while also moving forward, securing your workpiece fully.

3.
Accommodate both raw and finished workpieces.

Floating slideway under jaw for irregular raw workpieces. Rigid slideway for finished workpieces.



Choose Your Vise Set

What clamping capacity and jaw width is ideal for your workpieces? Choose the right vise size to match your workholding needs.

M VISE TYPE	JAW WIDTH (mm)	CLAMPING CAPACITIES AVAILABLE					
		200mm	250mm	300mm	400mm	545mm	655mm
M150	150	•	•	•		•	•
M200	200			•	•		

Extend Your Vise Set

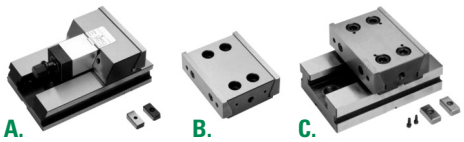
Add one or more Base Extensions to your vise to increase the overall base length. This increases your clamping capacity and allows you to add additional jaw sets to your vise for multi-workpiece clamping.

M VISE TYPE	EXTENDED BASE LENGTH
M150	228mm
M200	280mm

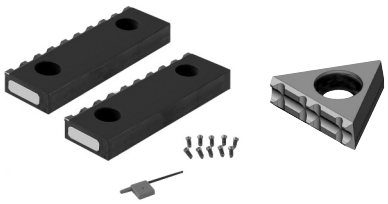
Expand your Clamping Options - Additional Accessories

Choose from the following vise accessories to hold a wide variety of workpiece shapes, sizes and materials. Easy to install and easy to replace for reduced downtime.

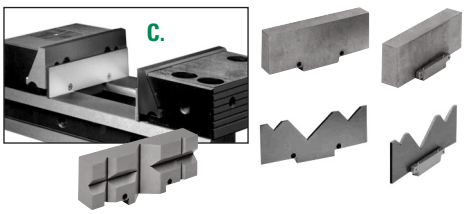
Jaw Sets for Double Clamping



Premium Low-Profile Grippers



Snap-In Accessories for Round or Contoured Workpieces



JAW SETS:

Add additional jaw sets to your vise for multi-workpiece clamping on a single vise.

A. Movable Jaw Set
- Innovative design allows for quick repositioning of jaw on vise.
- "Pull-down" jaw plate applies clamping force down as well as forward when clamping.

B. Double Fixed Jaw Set
- Place between two movable jaws on vise and clamp workpieces on both sides.

C. Fixed Jaw Set
- Partnered with a movable jaw, this fixed jaw stops and secures the workpiece.

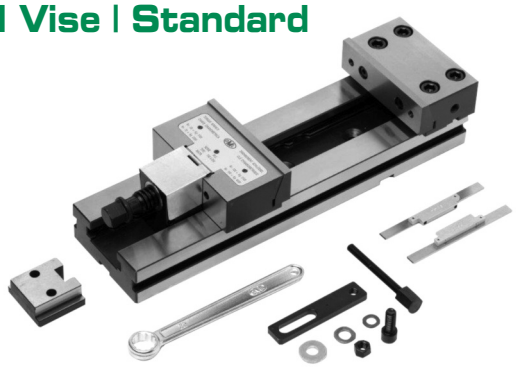
TriGrip Jaws
- 3.5mm clamping using full TriGrip, or optional 2mm clamping surface using a single row of TriGrip surface.
- Low profile clamping surface for minimal scrap material.
- Designed to hold carbide TriGrip Gripper Inserts.
- Includes four mounting screws.
- TriGrips for aluminum, steel and hardened steel are available for separate sale.
  M150: F658-451229 M200: F658-451419

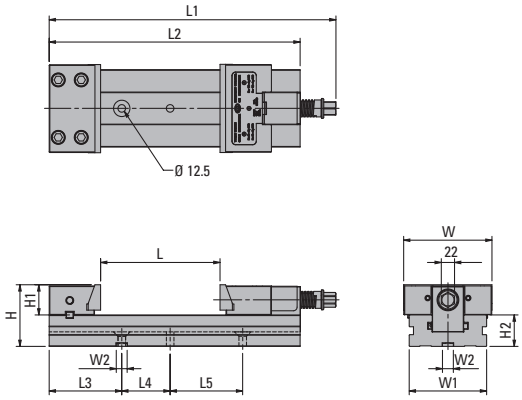
Snap-In Jaws and Parallels

These accessories are quick and easy to install and replace without any additional tools.
- Aluminum and Soft Steel Jaws Shape as needed to hold your parts. Sold in pairs.
- Standard Parallels. 10 different heights. Sold in pairs or as a complete set.
- Angular Parallels. Clamp workpieces at different angles. 6 different angles. Sold in pairs.
- V-Jaw. For clamping cylindrical or irregular workpieces.

TRIMAX M SERIES

TriMax M Vise | Standard

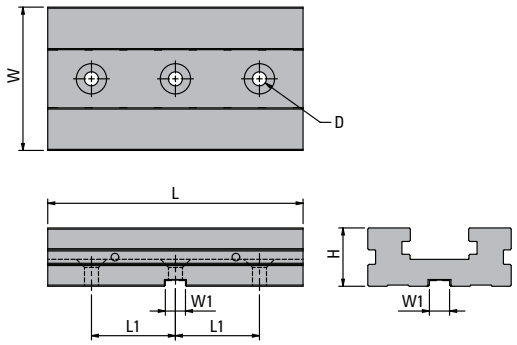




TriMax M is a modular clamping system that provides a maximum number of workholding combinations and solutions with minimum investment in equipment. Its design allows for quick and easy repositioning, adjustments and "Snap-in" equipment changes. Clamping capacity of this modular vise varies depending on the length of the base you choose. TriMax M vises be used in conjunction with vertical column and cross cube clamping columns for multiple vertical clamping. Vise components are made from steel profiles for optimal performance. Wear surfaces are treated to achieve a surface hardness of HRc 50/60. All non-ground surfaces are burnished for protection against corrosion. Vise sets include fixed jaw set, movable jaw set, base, slideways as listed , wrench, workstop with screw and washers, pair of 18mm positioning keys pair and pair of 12 mm parallels.

Part #	(Max.) L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	W mm	W1 mm	(H7) W2 mm	H mm	H1 mm	H2 mm	Included Slideways	Vise Type
F633-580631	200	482	415	120	200	–	150	128	18	102	50	52	Floating, Rigid	M150 X 200
F633-580632	250	532	465	120	100	100	150	128	18	102	50	52	Floating, Rigid	M150 X 250
F633-580633	300	587	520	120	100	100	150	128	18	102	50	52	Floating, Rigid	M150 X 300
F633-580731	300	656	570	150	150	150	200	168	18	136	70	66	Floating, Rigid	M200 X 300
F633-580732	400	756	670	150	200	200	200	168	18	136	70	66	Floating, Rigid	M200 X 400

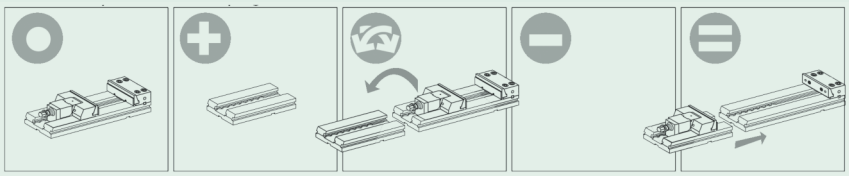
Base Extension



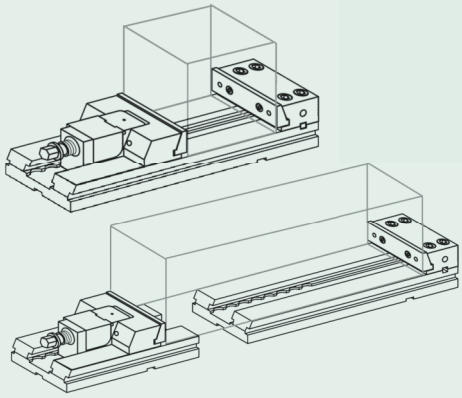
This base extension is used to extend the clamping capacity of the TriMax M series vises. Made from steel profiles hardened to HRc 50/60. Includes one pair of positioning keys with screws.

Part #	D mm	L mm	L1 mm	W mm	(H7) W1 mm	H mm	Use with Vise Type
F658-061700	12.5	228	75	128	18	52	M150
F658-071700	12.5	280	100	168	18	66	M200

How To Use

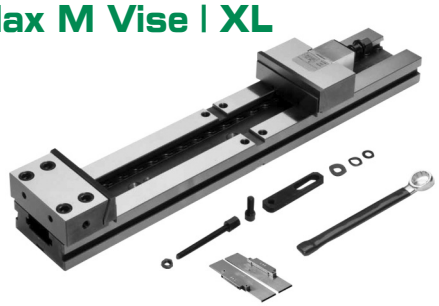


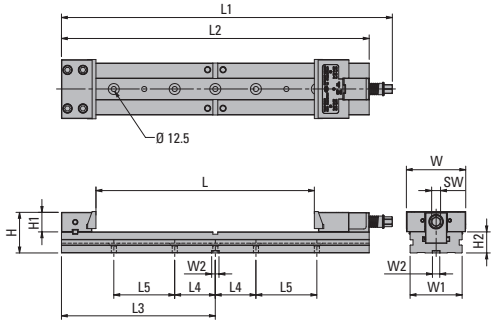
Working Examples



TRIMAX M SERIES

TriMax M Vise | XL



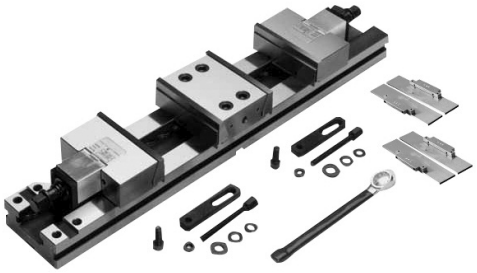


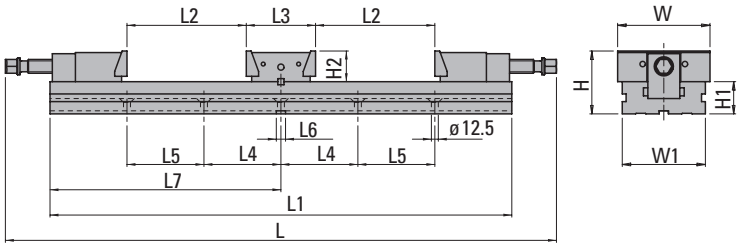
XL vises in the TriMax M line feature extended base lengths for increased clamping capacity. Its design allows for quick and easy repositioning, adjustments and equipment changes. Components are made from steel profiles for optimal performance. Wear surfaces are treated to achieve a surface hardness of HRc 50/60. All non-ground surfaces are burnished for protection against corrosion. Includes fixed jaw set, movable jaw set, base, a rigid slideway, wrench, workstop with screw and washers, 18mm positioning keys pair and a 12mm parallels pair.

Part #	L (Max.) mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	W mm	W1 mm	W2 (H7) mm	H mm	H1 mm	H2 mm	SW mm	Included Slideways	Vise Type
F677-580604	545	828	758	379	100	150	150	128	18	102	50	52	22	Rigid	M150 X 545
F677-580605	655	938	878	439	100	200	150	128	18	102	50	52	22	Rigid	M150 X 645

See page 561 for H7 tolerance specifications.

TriMax M Vise | Double Clamping



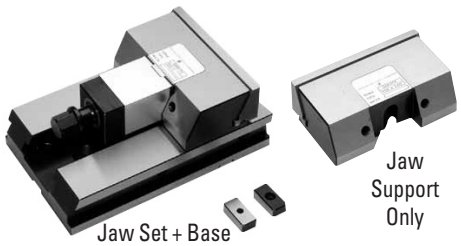


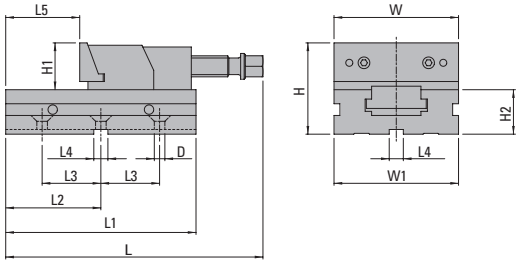
This TriMax M clamping set provides double clamping capability. Includes a fixed jaw set with two jaw faces, two movable jaw sets, base, two rigid slideways, two pairs of 12mm parallels, two workstops, 18mm positioning keys pair, and a wrench. Can be used in conjunction with the double clamping column for multiple vertical clamping.

Part #	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 (H7) mm	L7 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	Included Slideways	Vise Type
F677-581601	897	758	200	103	100	150	18	379	150	128	102	52	50	Floating, Rigid	M150 X 200
F677-581602	997	878	250	103	100	200	18	439	150	128	102	52	50	Floating, Rigid	M150 X 250

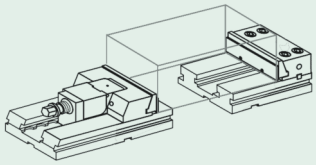
See page 561 for H7 tolerance specifications.

Jaws | Movable





Working Example



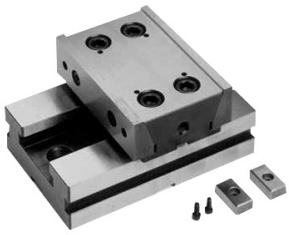
The complete jaw set with base includes a movable support jaw set, a pair of positioning keys with screws and an extension base. Base extension is made from steel profiles hardened to HRc 50/60. A jaw support is also available separately (without base, clamping block, positioning keys, screws).

Part #	D mm	L mm	L1 mm	L2 mm	L3 mm	L4 (H7) mm	L5 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	Includes	Use with Vise Type
F658-067110	12.5	295	228	114	75	18	100	150	128	102	50	52	Jaw Set + Base	M150
F658-077110	12.5	370	280	140	100	18	120	200	168	136	70	66	Jaw Set + Base	M200
F658-067310	–	–	–	–	–	–	–	150	–	–	50	–	Support Only	M150
F658-077310	–	–	–	–	–	–	–	200	–	–	70	–	Support Only	M200

See page 561 for H7 tolerance specifications.

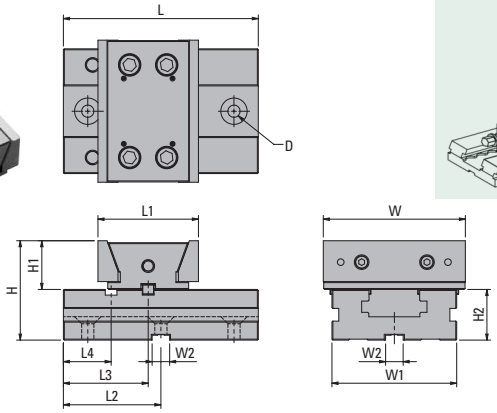
TRIMAX M SERIES

Jaws | Fixed | Double

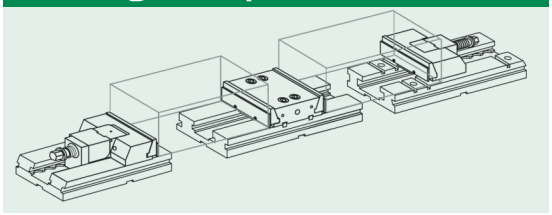


Jaw Set + Base

Jaw Set Only



Working Example



Double your clamping capability with this double fixed jaw set. The base/jaw set is complete with a fixed jaw set, extension base, and a 2-pack of positioning keys with screws. A jaw set is also available separately (without base, keys, screws). Jaw set includes a jaw face on both ends of jaw support.

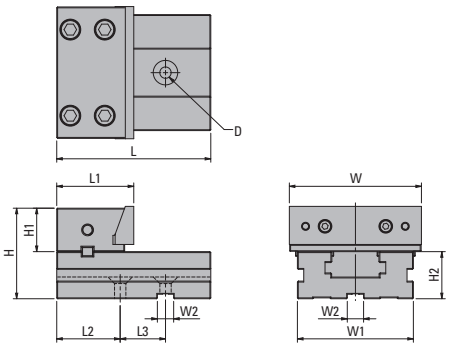
Part #	D mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	W1 mm	(H7) W2 mm	H mm	H1 mm	H2 mm	Includes	Use with Vise Type
F658-167010	12.5	200	103	100	87	49	150	128	18	102	50	52	Jaw Set + Base	M150
F658-177010	13	250	140	125	115	69	200	168	18	136	70	66	Jaw Set + Base	M200
F658-167210	–	–	103	–	–	–	150	–	18	–	50	–	Jaw Set Only	M150
F658-177210	–	–	140	–	–	–	200	–	18	–	70	–	Jaw Set Only	M200

See page 561 for H7 tolerance specifications.

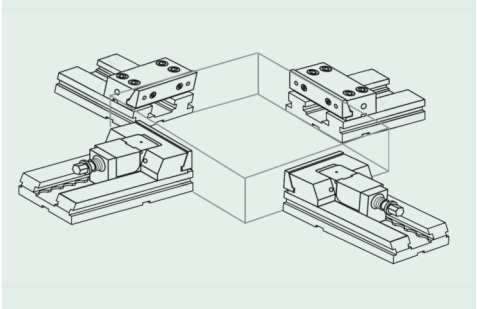
Jaws | Fixed

Jaw Set + Base

Jaw Set Only



Working Example

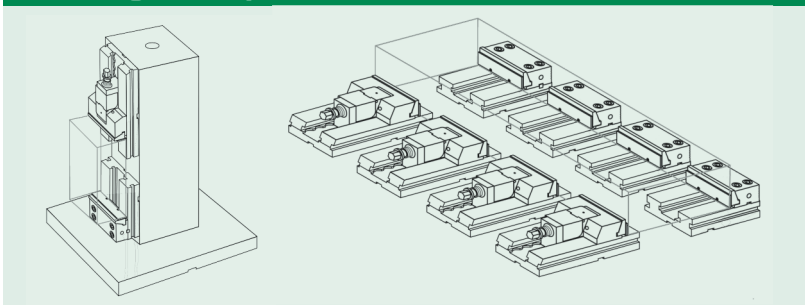


The jaw set with base includes a fixed jaw set, extension base, and a 2-pack of positioning keys with screws. Jaw set is also available separately (without base, keys, screws).

Part #	D mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	(H7) W2 mm	H mm	H1 mm	H2 mm	Includes	Use with Vise Type
F658-067010	12.5	170	85	70	75	150	128	18	102	50	52	Jaw Set + Base	M150
F658-077010	12.5	205	109	50	100	200	168	18	136	70	66	Jaw Set + Base	M200
F658-067210	–	–	85	–	–	150	–	–	–	50	–	Jaw Set Only	M150
F658-077210	–	–	109	–	–	200	–	–	–	50	–	Jaw Set Only	M200

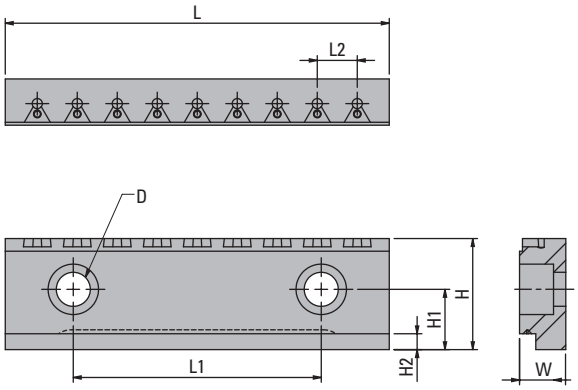
See page 561 for H7 tolerance specifications.

Working Examples



TRIMAX M SERIES

TriGrip Jaws



This jaw pair is designed to hold TriGrip Inserts (sold separately) on TriMax M vises. Includes one pair of jaws, pair of quick-change parallels, Torx T9 wrench and 10-pack of screws. See page 236 for more information on TriGrip Inserts.

Part #	D mm	L mm	L1 mm	L2 mm	W mm	H mm	H1 mm	Parallel Height mm	Use with Vise Type
F658-451219	9	148	110	15	12	50	28	47	M150
F658-451419	9	196	130	15	18	70	49	67	M200

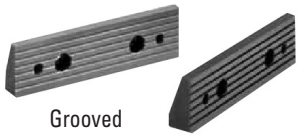
Aluminum / Soft Steel Jaws

These quick-changing snap-in jaws are designed for the TriMax M series. Available in either aluminum or soft steel. Sold as a pair.

Part #	Type	Use with Vise Type
F658-029509	Aluminum	M150
F658-039509	Aluminum	M200
F658-029609	Soft Steel	M150
F658-039609	Soft Steel	M200

Smooth / Grooved Jaws

Smooth

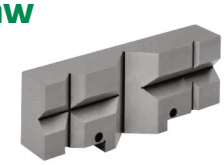


Grooved

Use these jaws on the fixed or movable supports in the TriMax M series. Available in either a smooth or grooved surface. Case hardened and precision ground. Sold as a pair.

Part #	Type	Use with Vise Type
F658-060409	Smooth	M150
F658-070409	Smooth	M200
F658-064409	Grooved	M150
F658-074409	Grooved	M200

V-Jaw



This quick-changing snap-in jaw is designed for the TriMax M series. Vertical channels of the V-jaw allow for multiple clamping positions on the jaw to hold various diameter workpieces. Case hardened and precision ground. Sold singly.

Part #	Use with Vise Type
F658-029409	M150
F658-039409	M200

Slideways

Floating

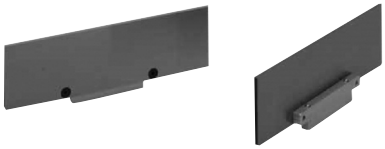
Rigid

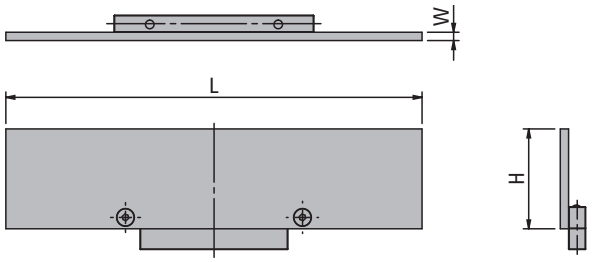
These slideways secure jaw sets into TriMax M vise base channels. Use the floating slideway for a more movable, "floating" jaw that adjusts jaw position on irregular surfaces.

Part #	Type	Use with Vise Type
F658-020500	Floating	M150
F658-070500	Floating	M200
F658-020600	Rigid	M150
F658-070600	Rigid	M200

TRIMAX M SERIES

Parallels - One Pair





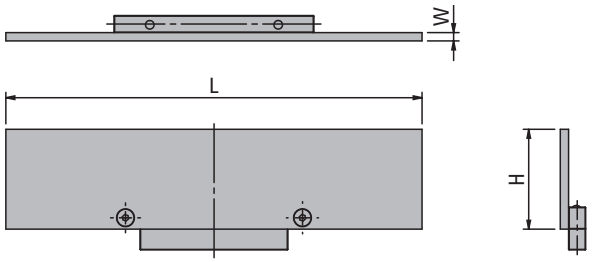
Patented snap-in, self-locking design allows quick change of parallels for reduced downtime, elimination of clamps and locks, and increased accuracy of finished parts. Case hardened steel and precision ground. Ten different parallel heights are available for each TriMax M vise type listed below. Sold in single pairs or in sets as shown below.

How To Use

Single Pair Part #	L mm	W mm	+0/-.015 H mm	Use with Vise Type
F658-023512	146	3	12	M150
F658-023515	146	3	15	M150
F658-023520	146	3	20	M150
F658-023525	146	3	25	M150
F658-023530	146	3	30	M150
F658-023535	146	3	35	M150
F658-023540	146	3	40	M150
F658-023543	146	3	43	M150
F658-023545	146	3	45	M150
F658-023547	146	3	47	M150

Single Pair Part #	L mm	W mm	+0/-.015 H mm	Use with Vise Type
F658-033520	196	4	20	M200
F658-033525	196	4	25	M200
F658-033530	196	4	30	M200
F658-033535	196	4	35	M200
F658-033540	196	4	40	M200
F658-033545	196	4	45	M200
F658-033550	196	4	50	M200
F658-033555	196	4	55	M200
F658-033560	196	4	60	M200
F658-033565	196	4	65	M200

Parallel Sets



Patented snap-in, self-locking design allows quick change of parallels for reduced downtime, elimination of clamps and locks, and increased accuracy of finished parts. Case hardened steel and precision ground. Ten different parallel heights are available for each TriMax M vise type listed below. Available in sets as shown below.

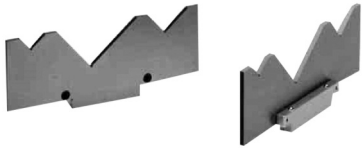
Part #	L mm	W mm	Pair 1 H mm	Pair 2 H mm	Pair 3 H mm	Pair 4 H mm	Pair 5 H mm	Pair 6 H mm	Pair 7 H mm	Pair 8 H mm	Pair 9 H mm	Pair 10 H mm	# of Pairs	Use with Vise Type
F658-029206	146	3	20	25	30	35	40	45*	–	–	–	–	6	M150
F658-039206	196	4	20	30	40	50	60	65*	–	–	–	–	6	M200
F658-459216	146	3	20	25	30	35	45*	48**	–	–	–	–	6	M150
F658-459416	196	3	25	35	45	55	65*	68**	–	–	–	–	6	M200
F658-029210	146	3	12	15	20	25	30	35	40	43	45*	47	10	M150
F658-039210	196	4	20	25	30	35	40	45*	50	55	60	65*	10	M200

*5mm clamping surface compatible with TriGrip low profile grippers (full)

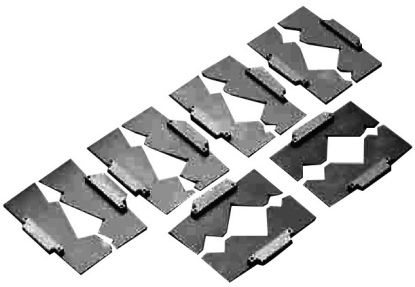
**2mm clamping surface compatible with TriGrip low profile grippers (single row)

TRIMAX M SERIES

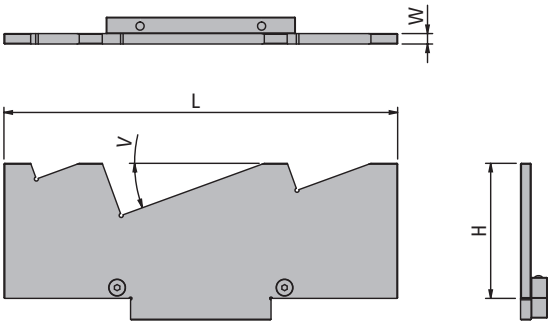
Angular Parallels



One Pair



Six Pair Set

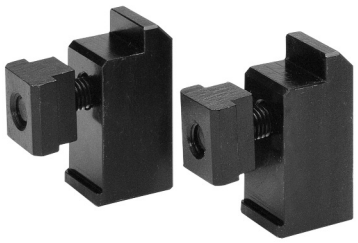


Patented snap-in, self-locking design allows quick change of parallels for reduced downtime, elimination of clamps and locks, and increased accuracy of finished parts. Their angular design allows for clamping workpieces at multiple angles ranging from 20 to 45 degrees to match your specific workpiece needs. Six different parallel angles are available for both M150 and M200-type TriMax M vises. Case hardened steel and precision ground. Available in single pairs or a complete pack of six pairs.

Part #	V Degrees	L mm	W mm	H +0/-0.015 mm	# of Pairs	Use with Vise Type
F658-023620	20	146	4	50	1	M150
F658-023625	25	146	4	50	1	M150
F658-023630	30	146	4	50	1	M150
F658-023635	35	146	4	50	1	M150
F658-023640	40	146	4	50	1	M150
F658-023645	45	146	4	50	1	M150
F658-029306	all above	146	4	50	6	M150

Part #	V Degrees	L mm	W mm	H +0/-0.015 mm	# of Pairs	Use with Vise Type
F658-033620	20	196	4	50	1	M200
F658-033625	25	196	4	50	1	M200
F658-033630	30	196	4	50	1	M200
F658-033635	35	196	4	50	1	M200
F658-033640	40	196	4	50	1	M200
F658-033645	45	196	4	50	1	M200
F658-039306	all above	196	4	50	6	M200

Hold Down Clamps - Pair



These hold down clamps allow the user to quickly and securely attach the vise to a slotted plate. Allows for greater positioning flexibility and vise placement. Each clamp is complete with T-Nut and screw. Sold as a pair.

Clamp Set Part #	Slot Width mm	Use with Vise Type
F658-022792	12	M150
F658-022793	14	M150
F658-022794	16	M150
F658-022795	18	M150
F658-022796	20	M150
F658-022797	22	M150
F658-032792	12	M200
F658-032793	14	M200
F658-032794	16	M200
F658-032795	18	M200
F658-032796	20	M200
F658-032797	22	M200

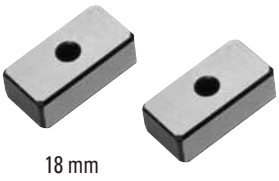
T-Nuts with Screws - Pair

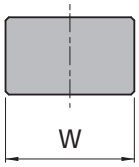
These T-nuts with screws are used with clamps to attach TriMax M vises to slotted plates.

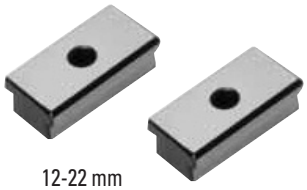
T-Nut/ Screw Part #	Slot Width mm	Use with Vise Type
F658-022592	12	M150
F658-022593	14	M150
F658-022594	16	M150
F658-022595	18	M150
F658-022596	20	M150
F658-022597	22	M150
F658-032592	12	M200
F658-032593	14	M200
F658-032594	16	M200
F658-032595	18	M200
F658-032596	20	M200
F658-032597	22	M200

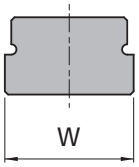
TRIMAX M SERIES

Positioning Keys









These positioning keys allow precise locating of TriMax M vises. Sold in pairs.

Part #	W (h6) mm	Use with Vise Type
F658-021392	12	M150, M200
F658-021393	14	M150, M200
F658-021394	16	M150, M200
F658-021395	18	M150, M200
F658-021396	20	M150, M200
F658-021397	22	M150, M200

Positioning Keys For Fixed Jaw Set

These keys are designed for use with TriMax M fixed jaw sets. Sold in pairs.

Part #	Use with Vise Type
F658-021409	M150
F658-031409	M200

Work Stop

This work stop attaches to TriMax M vises for quick and accurate positioning while loading parts. Includes work stop, washers, screw and nut.

Part #	Use with Vise Type
F658-025000	M150
F658-035000	M200

Clamping Block

This "new type" clamping block is used for TriMax M clamping equipment. A complete set including block and clamping screw is available. Block and screw also sold separately as listed below.

Part #	Includes	Use with Vise Type
F658-027411	Block and Screw Set	M150
F658-037411	Block and Screw Set	M200
F658-021212	Block only	M150
F658-031212	Block only	M200
F658-020812	Screw only	M150
F658-030812	Screw only	M200

Contrast Pin

This contrast pin (new type) is designed to be used with TriMax M clamping blocks.

Part #	Use with Vise Type
F658-021001	M150
F658-031001	M200

Screw Protection Cover

This cover protects the screws on TriMax M vise clamping blocks.

Part #	Use with Vise Type
F658-022810	M150
F658-032810	M200

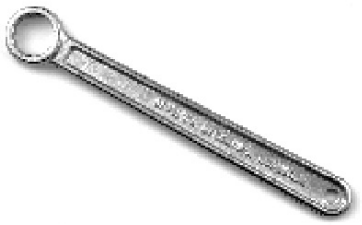
Positioning Plate

This plate locks the moving jaw on a TriMax M vise into position on the base. New type. Includes plate and two screws.

Part #	Use with Vise Type
F658-021111	M150
F658-031111	M200

TRIMAX M SERIES

Wrench



This high quality 22mm wrench allows the use to control the basic clamping pressure of the TriMax M vise.

Part #	Use with Vise Type
F658-021900	M150
F658-031900	M200

Ratchet Wrench

This high quality 22mm torque wrench allows the user to control the clamping force of the TriMax M vise.

Part #	Use with Vise Type
F651-501002	M150
F651-501003	M200

Air/Oil Foot Pump

This foot pump includes a 71" joining pipe and complete block for air/oil application.

Part #	Use with Vise Type
F677-580251	M150
F677-580351	M200

Air/Oil Block

Use this complete block for air-oil application. Includes cylinder, tang and block.

Part #	Use with Vise Type
F658-027500	M150
F658-037500	M200

Cylinder Tang

This tang is used on TriMax M cylinders.

Part #	Use with Vise Type
F658-021600	M150
F658-031600	M200

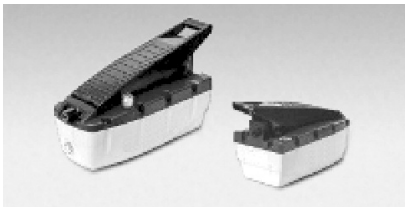
Cylinder Block

This block is used for TriMax M cylinders.

Part #	Use with Vise Type
F658-021220	M150
F658-031220	M200

TRIMAX M SERIES

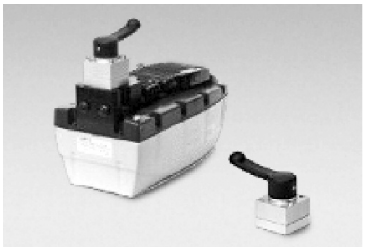
Air/Oil Foot Pump



Use this foot pump for air/oil application on TriMax M vises.

Part #	Use with Vise Type
F671-660305	M150, M200

Air/Oil Manual Pump



Use this pump for air/oil application on TriMax M vises.

Part #	Use with Vise Type
F671-660315	M150, M200

Pressure Gauge

Pressure gauge for use with air/oil applications.

Part #
F651-431251

Hydraulic Oil

This hydraulic oil is specially formulated for use with TriMax M clamping equipment.

Part #	Volume (L)
F610-729940	1

Joining Pipes

71"

118" / 236"

Joining pipes connect to air/oil foot pumps and air/oil cylider blocks for TriMax M series vises. Available in 71", 118" and 236" lengths.

Part #	L cm	L in.	Use with Vise Type
F671-708713	180	71	M150, M200
F671-708714	300	118	M150, M200
F671-708715	600	236	M150, M200

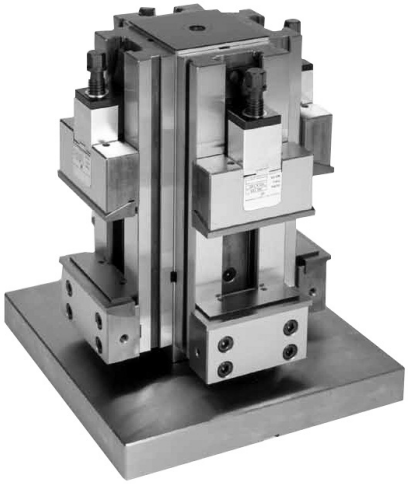
Column Insert

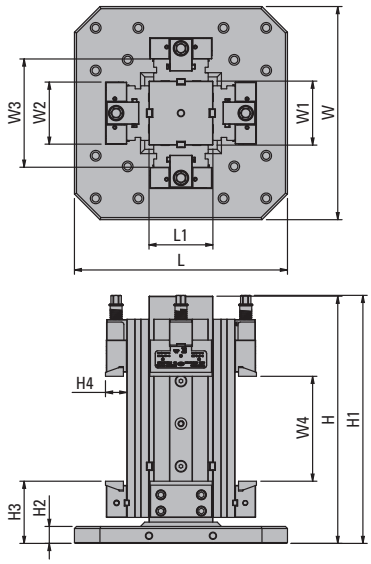
This insert is used for vertical use with the TriMax M cross cube systems. Sold singly.

Part #	Use with Vise Type
F658-223300	M150 (on Cross Cubes)
F658-233300	M200 (on Cross Cubes)

TRIMAX M SERIES

Vertical Column Set - For M Series Vises

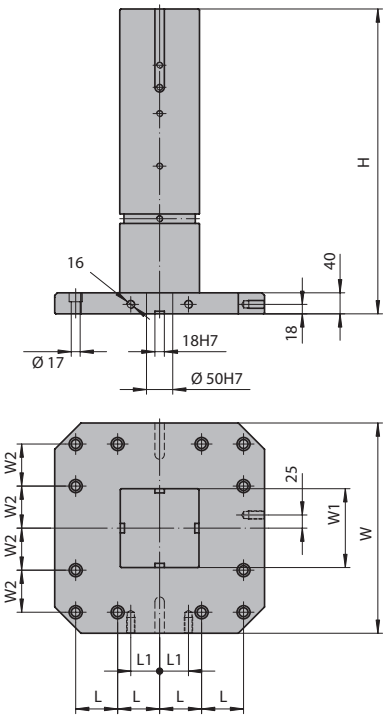




This complete set includes four clamping TriMax M vises, one column and base. Also includes four pairs of quick change parallels, four rigid slide-ways, four movable slideways, four workstops, and four wrenches. Screws are protected with four screw covers. Includes eyebolts to aid in lifting.

Part #	L mm	L1 mm	W mm	W1 mm	W2 mm	W3 mm	W4 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Includes Vise Part #
F677-582621	400	150	400	150	150	254	200	580	545	40	146	50	F633-580631
F677-582622	400	150	400	150	150	254	250	580	595	40	146	50	F633-580632
F677-582623	400	150	400	150	150	254	300	580	650	40	146	50	F633-580633
F677-582631	500	150	500	150	150	254	200	580	545	40	146	50	F633-580631
F677-582632	500	150	500	150	150	254	250	580	595	40	146	50	F633-580632
F677-582633	500	150	500	150	150	254	300	580	650	40	146	50	F633-580633
F677-582731	500	200	500	200	200	332	300	661	711	40	159	70	F633-580731

Vertical Column - For M Series Vises

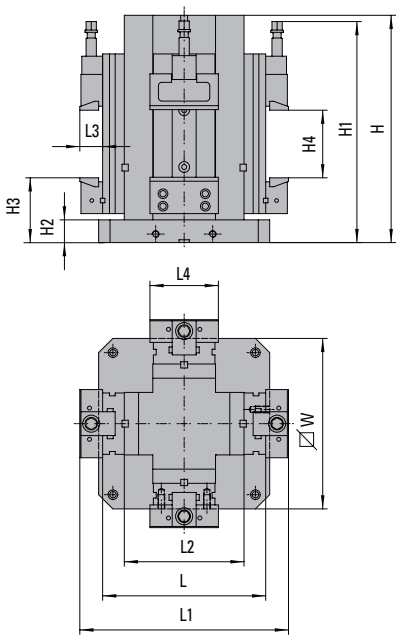


This column is used to support the TriMax M vise types listed below.

Part #	L mm	L1 mm	W mm	W1 mm	W2 mm	H mm	Use with Vise Type
F658-228020	80	55	400	150	80	580	M150
F658-228030	100	75	500	150	100	580	M150
F658-238030	100	75	500	200	100	661	M200

TRIMAX M SERIES

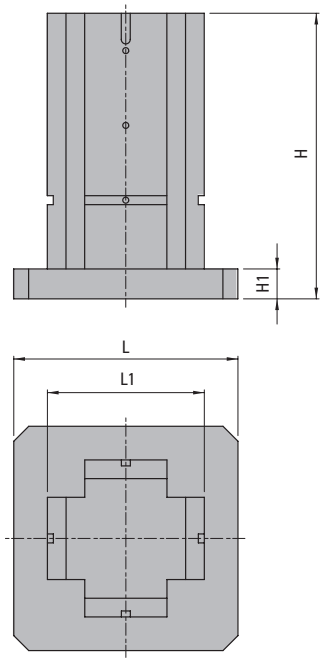
Cross Cube Set - For M Series Vises



This complete set includes four TriMax M clamping vises, one vertical cross cube, four pairs of quick-change parallels and four rigid slideways and four movable slideways. Also includes four work stops, four wrenches and four screw covers to protect the screws. Includes eyebolts to aid in lifting.

Part #	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Includes Vise Part #
F677-585621	404	504	300	50	150	400	580	540	40	140	200	F633-580631
F677-585622	404	504	300	50	150	400	580	590	40	140	250	F633-580632
F677-585623	404	504	300	50	150	400	580	647	40	140	300	F633-580633
F677-585631	404	504	300	50	150	500	580	540	40	140	200	F633-580631
F677-585632	404	504	300	50	150	500	580	590	40	140	250	F633-580632
F677-585633	404	504	300	50	150	500	580	547	40	140	300	F633-580633
F677-585741	482	622	350	70	200	630	670	720	45	168	300	F633-580731

Cross Cube - For M Series Vises

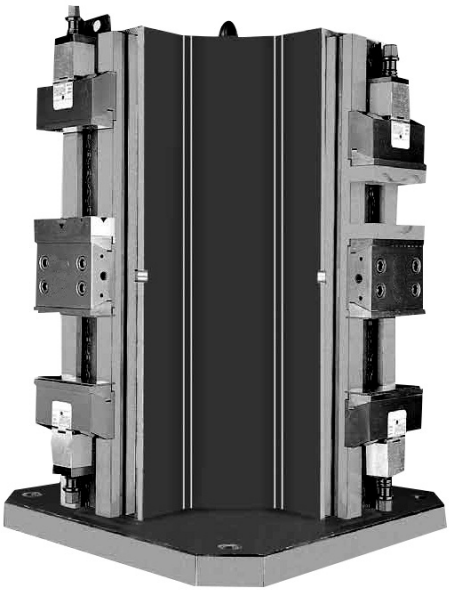


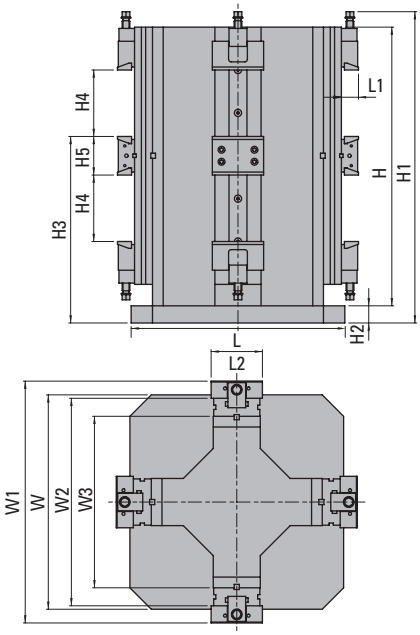
This cross cube is used to support TriMax M vise types listed below.

Part #	L mm	L1 mm	H mm	H1 mm	Use with Vise Type
F658-528020	400	300	580	40	M150
F658-528030	500	300	580	40	M150
F658-538040	630	350	670	45	M200

TRIMAX M SERIES

Cross Cube Set - For Double Clamping Vises

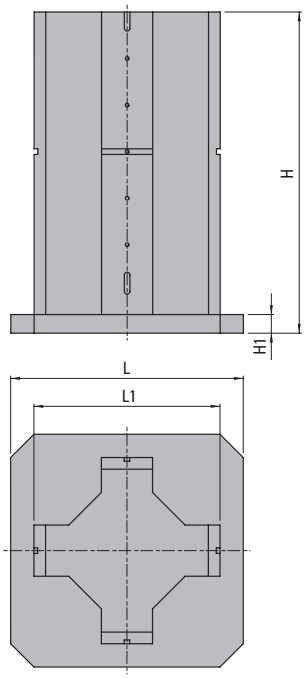




This complete cross cube set holds TriMax M double clamping vises. Includes four double clamping vises, one cross cube, eight parallels. eight rigid slideways and eight work stops. This set also includes eight screw covers, eight wrenches, and eye bolt for lifting.

Part #	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	Includes Vise Part #	# of Vises Included
F677-586601	630	50	150	630	754	654	550	795	890	45	515	200	103	F677-581601	4

Cross Cube - For Double Clamping Vises



This cross cube is used to support multiple M150x200 or M150x250 double clamping vises.

Part #	L mm	L1 mm	H mm	H1 mm	Use with Vise
F658-628000	630	550	840	45	M150

PNEUMATIC WORKHOLDING

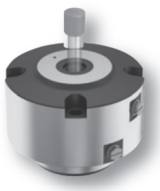
SWING CLAMPS

HOLD DOWN & SIDE CLAMPS

OD HOLDING CLAMPS

HOOK CLAMPS

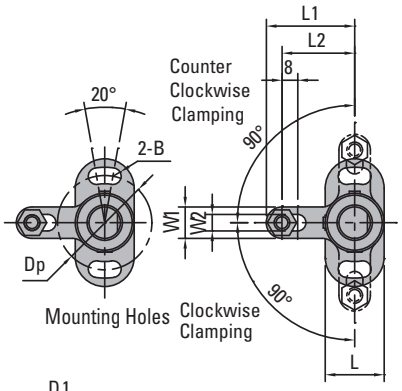
PULL CLAMPS

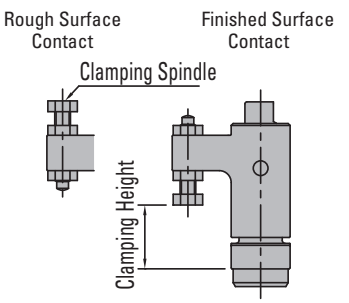


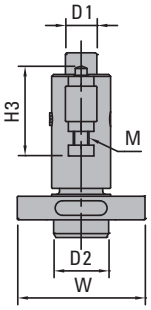
WORK SUPPORTS

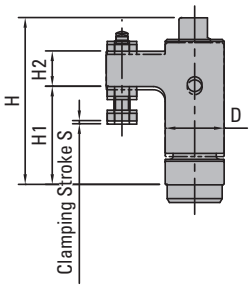
fixtureworks Workholding Technologies

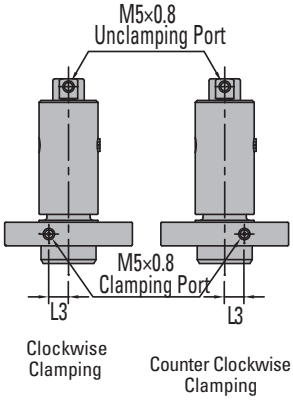
PNEUMATIC SWING CLAMP – COMPACT (AMWSW-W)





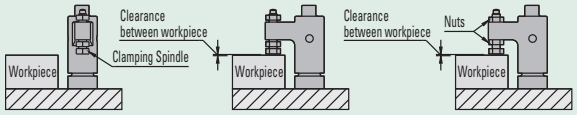






How To Use

The clearance between clamping spindle and workpiece should be roughly half of the clamping stroke.The clamp arm swings horizontally. Follow the steps below to adjust the clamping spindle to create the proper clearance.



① Apply air to the unclamping port to move the clamp to unclamping position.

② Rotate the arm manually over the workpiece and create adjust the spindle to the appropriate clearance. Putting a feeler gauge between the workpiece and the clamping spindle facilitates this setting.

③ Secure the clamping spindle with nuts.

Part #	CLAMPING HEIGHT* Finished Surface Contact Min mm	Finished Surface Contact Max mm	Rough Surface Contact Min mm	Rough Surface Contact Max mm	Operating Air Pressure psi	Clamping Force Lbs.**	Holding Capacity Lbs.**
AMWSW16R-W	32.5	39	33.5	40	43.5 - 101.5	89	179
AMWSW16L-W	32.5	39	33.5	40	43.5 - 101.5	89	179
AMWSW20R-W	41.5	51	44	53.5	43.5 - 101.5	146	233
AMWSW20L-W	41.5	51	44	53.5	43.5 - 101.5	146	233

* Clamping height can be adjusted within this range.

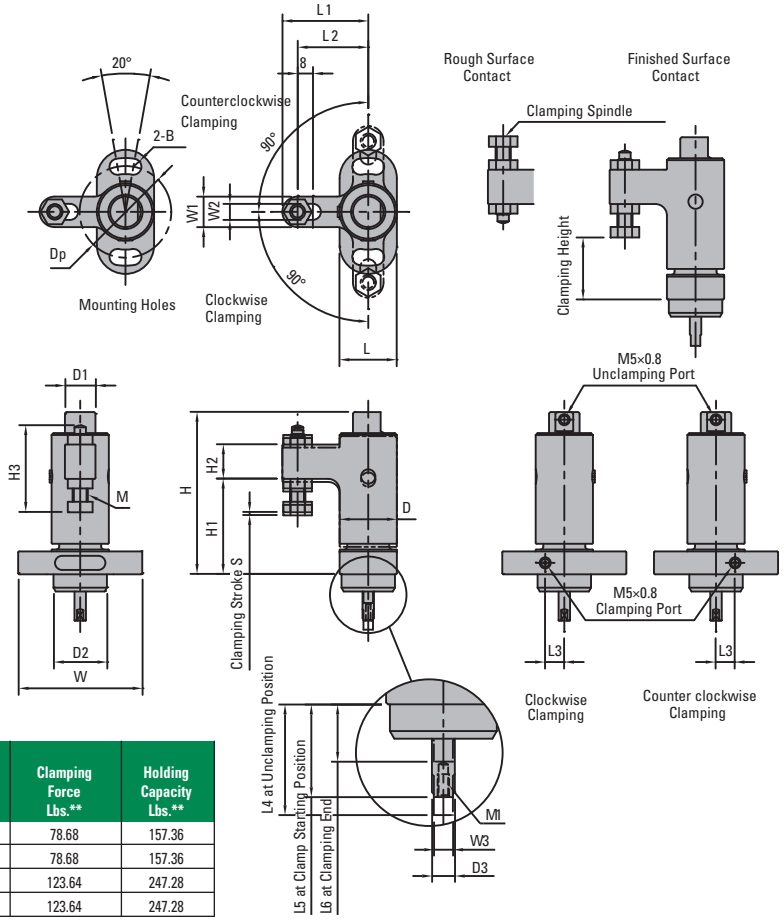
** Clamping force and holding capacity at 72.5 psi.

These compact pneumatic 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. Clearance between clamping spindle and workpiece should be roughly half of the clamping stroke. The clamp arm swings horizontally. 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. Part numbers with R have a clockwise clamping direction, part numbers with L have a counter clockwise clamping direction. The body, clamp arm and piston are made from SCM440 steel with an electroless nickel plated finish. The clamping spindle is made from S45C steel, quenched and tempered, with an electroless nickel plated finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net. Manual swing clamps also available.

Part #	Clamping Direction	M mm	D mm	D1 mm	D2 mm	Dp mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	H3 mm	S mm	B mm
AMWSW16R-W	CW	M8X1.25	30	16	28	48	30	45	37	10	65	16	8.4	85	50	18	45.5	1.2	8.4
AMWSW16L-W	CCW	M8X1.25	30	16	28	48	30	45	37	10	65	16	8.4	85	50	18	45.5	1.2	8.4
AMWSW20R-W	CW	M10X1.75	40	22	35	64	40	55	45	13	85	20	10.4	106	65	22	57.0	1.6	10.5
AMWSW20L-W	CCW	M10X1.75	40	22	35	64	40	55	45	13	85	20	10.4	106	65	22	57.0	1.6	10.5

PNEUMATIC SWING CLAMP – COMPACT (AMWSW-W-D)

With Rod



Part #	CLAMPING HEIGHT* Finished Surface Contact Min mm	Finished Surface Contact Max mm	Rough Surface Contact Min mm	Rough Surface Contact Max mm	Operating Air Pressure psi	Clamping Force Lbs.**	Holding Capacity Lbs.**
AMWSW16R-W-D	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW16L-W-D	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW20R-W-D	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28
AMWSW20L-W-D	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28

* Clamping height can be adjusted within this range.

** Clamping force and holding capacity at 72.5 psi.

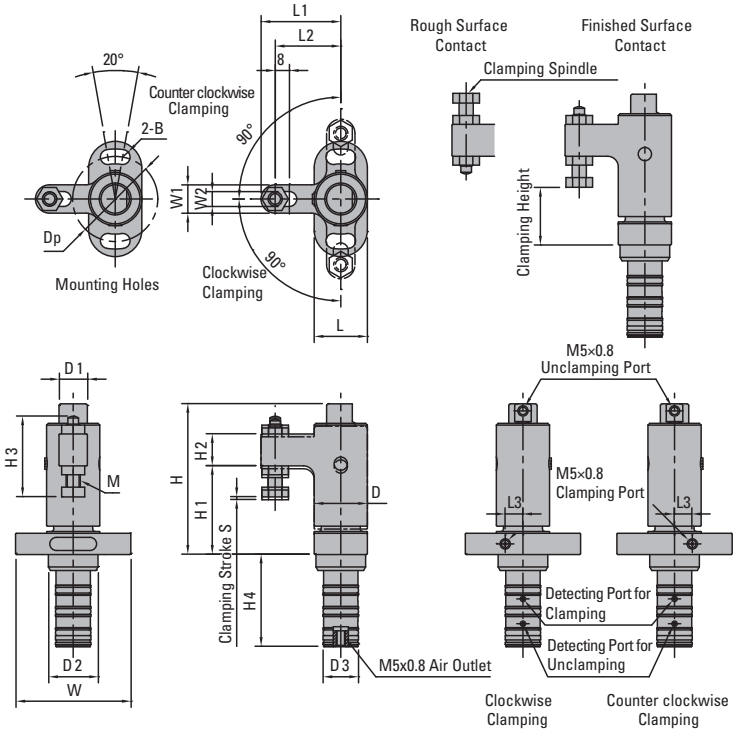
These compact pneumatic swing clamps swing into position and clamp straight down onto the work piece for direct downward pressure. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Clearance between clamping spindle and workpiece should be roughly half of the clamping stroke. The clamp arm swings horizontally. 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. Part numbers with R have a clockwise clamping direction, part numbers with L have a counter clockwise clamping direction. The body, clamp arm and piston are made from SCM440 steel with an electroless nickel plated finish. The clamping spindle is made from S45C steel, quenched and tempered, with an electroless nickel plated finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net. Manual swing clamps also available.

Part #	Clamping Direction	M mm	M1 mm	D mm	D1 mm	D2 mm	D3 mm	Dp mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	S mm	B mm
AMWSW16R-W-D	CW	M8X1.25	M3X0.5, depth 6	30	16	28	6	48	30	45	37	10	29	24	17	65	16	8.4	5	85	50	18	45.5	1.2	8.4
AMWSW16L-W-D	CCW	M8X1.25	M3X0.5, depth 6	30	16	28	6	48	30	45	37	10	29	24	17	65	16	8.4	5	85	50	18	45.5	1.2	8.4
AMWSW20R-W-D	CW	M10X1.75	M4X0.7, depth 8	40	22	35	8	64	40	55	45	13	35	29	19.5	85	20	10.4	7	106	65	22	57.0	1.6	10.5
AMWSW20L-W-D	CCW	M10X1.75	M4X0.7, depth 8	40	22	35	8	64	40	55	45	13	35	29	19.5	85	20	10.4	7	106	65	22	57.0	1.6	10.5

fixtureworks Workholding Technologies

PNEUMATIC SWING CLAMP – COMPACT (AMWSW-W-AG)

With Detecting Ports



Part #	CLAMPING HEIGHT* Finished Surface Contact Min mm	Finished Surface Contact Max mm	Rough Surface Contact Min mm	Rough Surface Contact Max mm	Operating Air Pressure psi	Clamping Force Lbs.**	Holding Capacity Lbs.**
AMWSW16R-W-AG	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW16L-W-AG	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW20R-W-AG	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28
AMWSW20L-W-AG	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28

* Clamping height can be adjusted within this range.

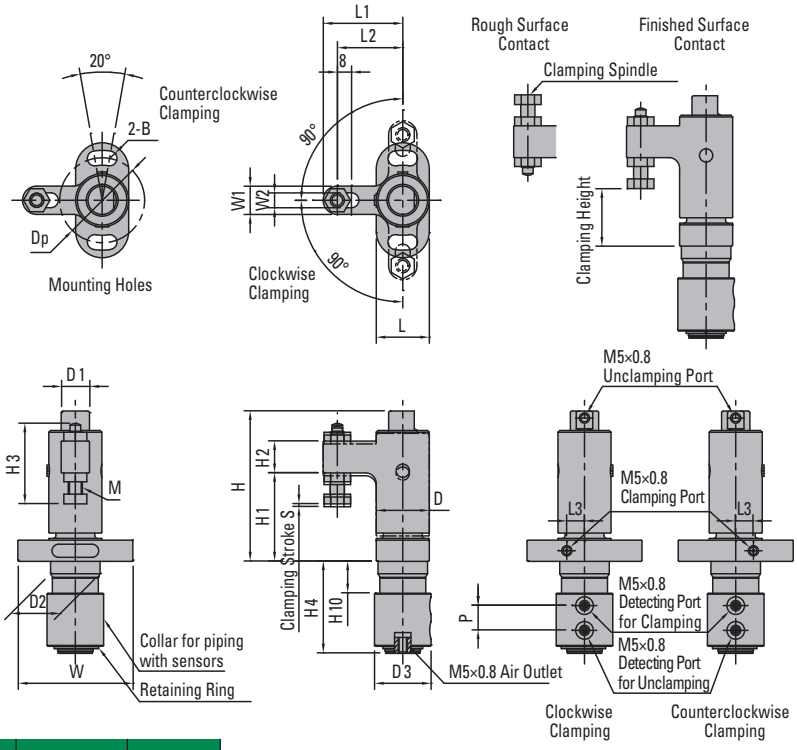
** Clamping force and holding capacity at 72.5 psi.

These compact pneumatic swing clamps swing into position and clamp straight down onto the work piece for direct downward pressure. These clamps are designed for use with pressure sensors to detect clamped and unclamped conditions. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Clearance between clamping spindle and workpiece should be roughly half of the clamping stroke. The clamp arm swings horizontally. 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. Part numbers with R have a clockwise clamping direction, part numbers with L have a counter clockwise clamping direction. The body, clamp arm and piston are made from SCM440 steel with an electroless nickel plated finish. The clamping spindle is made from S45C steel, quenched and tempered, with an electroless nickel plated finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net. Manual swing clamps also available.

Part #	Clamping Direction	M mm	D mm	D1 mm	D2 mm	D3 mm	Dp mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	S mm	B mm
AMWSW16R-W-AG	CW	M8X1.25	30	16	28	20	48	30	45	37	10	65	16	8.4	85	50	18	45.5	52	1.2	8.4
AMWSW16L-W-AG	CCW	M8X1.25	30	16	28	20	48	30	45	37	10	65	16	8.4	85	50	18	45.5	52	1.2	8.4
AMWSW20R-W-AG	CW	M10X1.75	40	22	35	25	64	40	55	45	13	85	20	10.4	106	65	22	57.0	62	1.6	10.5
AMWSW20L-W-AG	CCW	M10X1.75	40	22	35	25	64	40	55	45	13	85	20	10.4	106	65	22	57.0	62	1.6	10.5

PNEUMATIC SWING CLAMP – COMPACT (AMWSW-W-AC)

With Detecting Ports | Thread Piping



Part #	CLAMPING HEIGHT*				Operating Air Pressure psi	Clamping Force Lbs.**	Holding Capacity Lbs.**
	Finished Surface Contact		Rough Surface Contact				
	Min mm	Max mm	Min mm	Max mm			
AMWSW16R-W-AC	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW16L-W-AC	32.5	39	33.5	40	43.5 - 101.5	78.68	157.36
AMWSW20R-W-AC	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28
AMWSW20L-W-AC	41.5	51	44	53.5	43.5 - 101.5	123.64	247.28

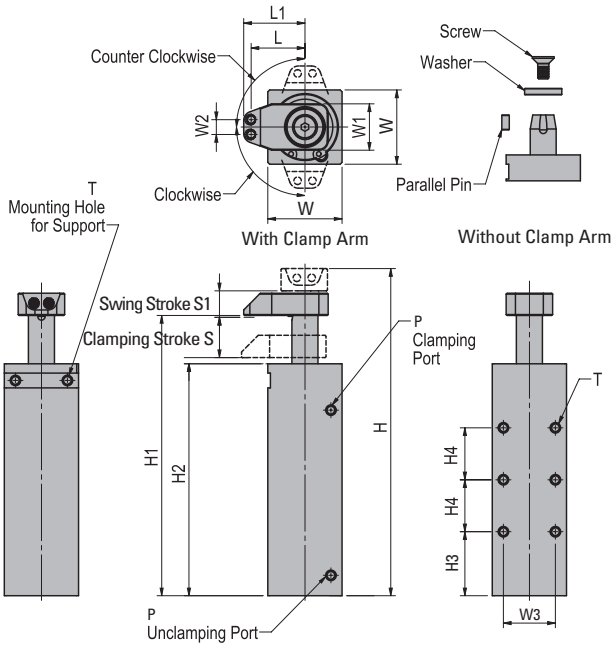
* Clamping height can be adjusted within this range.

** Clamping force and holding capacity at 72.5 psi.

These compact pneumatic swing clamps swing into position and clamp straight down onto the work piece for direct downward pressure. These clamps are designed for use with pressure sensors to detect clamped and unclamped conditions. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Clearance between clamping spindle and workpiece should be roughly half of the clamping stroke. The clamp arm swings horizontally. 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. Part numbers with R have a clockwise clamping direction, part numbers with L have a counter clockwise clamping direction. The body, clamp arm and piston are made from SCM440 steel with an electroless nickel plated finish. The clamping spindle is made from S45C steel, quenched and tempered, with an electroless nickel plated finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the clamp in harsh environments. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Clamping Direction	M mm	D mm	D1 mm	D2 mm	D3 mm	Dp mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	P mm	S mm	B mm
AMWSW16R-W-AC	CW	M8X1.25	30	16	28	32	48	30	45	37	10	65	16	8.4	85	50	18	45.5	52	14	1.2	8.4
AMWSW16L-W-AC	CCW	M8X1.25	30	16	28	32	48	30	45	37	10	65	16	8.4	85	50	18	45.5	52	14	1.2	8.4
AMWSW20R-W-AC	CW	M10X1.75	40	22	35	38	64	40	55	45	13	85	20	10.4	106	65	22	57.0	62	18	1.6	10.5
AMWSW20L-W-AC	CCW	M10X1.75	40	22	35	38	64	40	55	45	13	85	20	10.4	106	65	22	57.0	62	18	1.6	10.5

PNEUMATIC SWING CLAMP – DOUBLE-ACTING (AMSW-W)



Part #	Clamping Force* Lbs.	Output Force* Lbs.	Piston Surface Area mm²	Swing Stroke** mm	Max Clamping Stroke mm	Allowable Operating Air Pressure psi
AMSW32-W	65	73	25.6	12.5	20	14.5 - 145
AMSW44-W	123	141	49.8	15.5	30	14.5 - 145

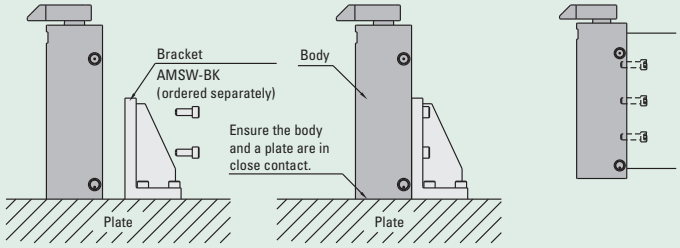
* With air pressure at 72.5 psi. Clamping forces vary with operating air pressure.

** Swing angle 90 degrees

How To Mount

1. Contact the bottom surface of the body to the plate surface to mount it with the bracket (ordered separately).

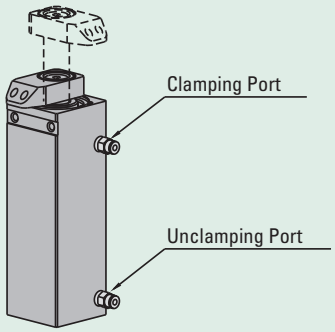
2. To mount this product without the bracket (ordered separately), use tapped holes prepared on backside of the body.



① Fix the bracket on a plate.

② Fix the Swing Clamp Body to the Bracket on a plate. Bottom surface of the Body and the Bracket should contact on a plate.

How To Use

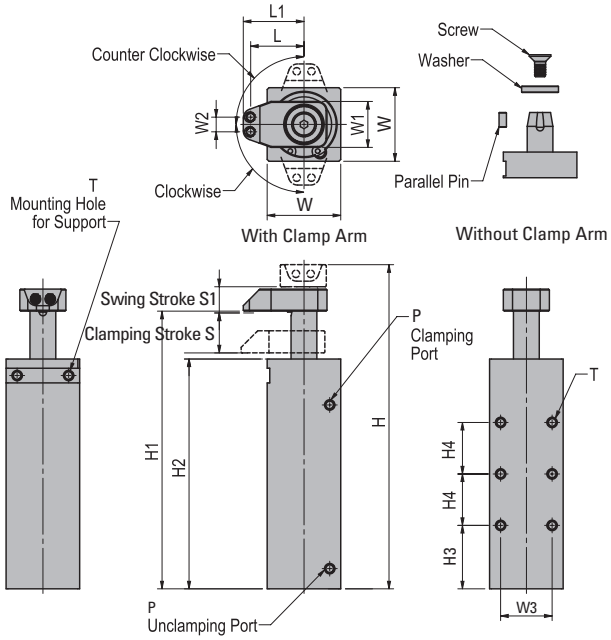


Prepare a joint on each port.

These clamps are designed to clamp and unclamp using an air supply. With the application of air pressure to the clamping port, the clamp arm rotates into position over the workpiece and is drawn downward to apply clamping force. Clamping force ranges from 65 to 123 lbs., depending on air pressure and arm length. The clamping stroke is 20 mm or 30 mm. With the application of air pressure to the unclamping port, the clamp arm is raised and rotated 90 degrees to clear the workpiece. The body is made from A6063 aluminum with an anodized finish. The rod, clamp arm and holder are made from S45C steel with an electroless nickel plated finish. The spring is made from SWOSC-V steel or equivalent. For complete technical information, search for the part number at www.fixtureworks.net.

With Arm Part #	w/o Arm Part #	Rotation	P Port mm	T mm	L mm	L1 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Clamping Stroke S mm	Swing Stroke S1 mm
AMSW32R-W	AMSW32NR-W	Right	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	34.5	28	20	12.5
AMSW32L-W	AMSW32NL-W	Left	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	34.5	28	20	12.5
AMSW44R-W	AMSW44NR-W	Right	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5
AMSW44L-W	AMSW44NL-W	Left	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5

PNEUMATIC SWING CLAMP – SPRING CLAMPING (AMSW-S)

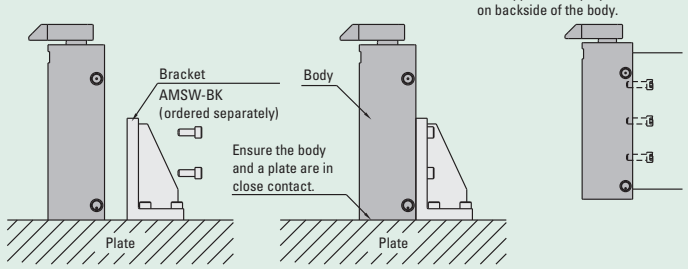


Part #	CLAMPING FORCE		Min Operating Air Pressure psi	OUTPUT FORCE				Piston Surface Area mm²	Swing Stroke mm	Max Clamping Stroke mm	CYLINDER CAPACITY	
				Spring Clamping		Spring + Air Clamping						
	Spring Lbs.	Spring + Air Lbs.		Min Stroke Position N	Max Stroke Position N	Min Stroke Position N	Max Stroke Position N				Clamping cm³	Unclamping cm³
AMSW32-3S	11 - 22	49 - 61	43.5	27.0	13.5	70.8	57.3	650	12.5	20	21.1	26.1
AMSW32-5S	13 - 39	76 - 103	72.5	45.0	14.6	118.0	87.7	650	12.5	20	21.1	26.1
AMSW44-3S	25 - 50	99 - 124	43.5	57.3	28.1	141.6	112.4	1,265	15.5	30	57.6	69.2
AMSW44-5S	50 - 88	173 - 211	72.5	101.2	57.3	243	199.0	1,265	15.5	30	57.6	69.2

* Maximum allowable operating air pressure: 145 psi

How To Mount

1. Contact the bottom surface of the body to the plate surface to mount it with the bracket (ordered separately).
2. To mount this product without the bracket (ordered separately), use tapped holes prepared on backside of the body.



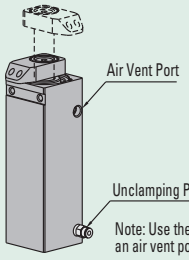
① Fix the bracket on a plate.

② Fix the Swing Clamp Body to the Bracket on a plate. Bottom surface of the Body and the Bracket should contact on a plate.

How To Use

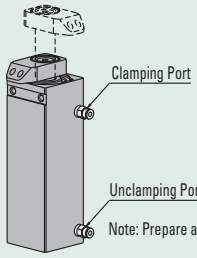
Can be clamped with spring or spring + air.

①Spring Clamping
- Ideal for using in conveyor line without air supply.
- Perfect for preventing accidents caused by decreasing of air pressure.



Note: Use the clamping port as an air vent port.

②Spring + Air Clamping
- Spring + Air Clamping increases clamping force by 150% compared to double-acting type of the same size.
- Ideal for the application which requires higher clamping force.

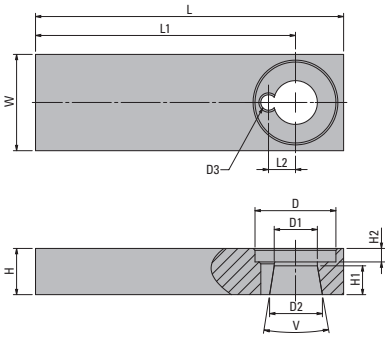


Note: Prepare a joint on each port.

With the application of air pressure, the clamp arm rotates into position over the workpiece and is drawn downward to apply clamping force. Clamping force varies, depending on air pressure and arm length. The clamping stroke is 20 or 30 mm. The body is made from A6063 aluminum with an anodized finish. The rod, clamp arm and holder are made from S45C steel with an electroless nickel plated finish. The spring is made from SWOSC-V steel or equivalent. For complete technical information, search for the part number at www.fixtureworks.net.

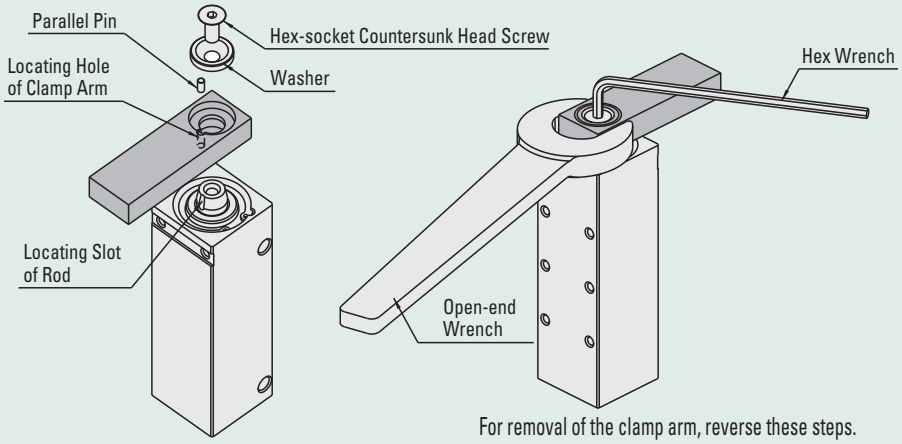
With Arm Part #	w/o Arm Part #	Rotation	P Port mm	T mm	L mm	L1 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Clamping Stroke S mm	Swing Stroke S1 mm
AMSW32R-3S	AMSW32NR-3S	Right	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	34.5	28	20	12.5
AMSW32L-3S	AMSW32NL-3S	Left	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	34.5	28	20	12.5
AMSW32R-5S	AMSW32NR-5S	Right	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	34.5	28	20	12.5
AMSW32L-5S	AMSW32NL-5S	Left	M5X0.8	M5X0.8X6	29	33	40	25	8	28	173.5	149	125	41.5	28	20	12.5
AMSW44R-3S	AMSW44NR-3S	Right	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5
AMSW44L-3S	AMSW44NL-3S	Left	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5
AMSW44R-5S	AMSW44NR-5S	Right	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5
AMSW44L-5S	AMSW44NL-5S	Left	RC 1/8	M6X1X6	37	42	50	30	10	36	218.5	189	155	41.5	36	30	15.5

CLAMP ARM FOR PNEUMATIC SWING CLAMP - MACHINABLE - AMSW-SH SERIES



How To Use

1. Align the locating hole of the clamp arm with the locating slot in the rod, and insert the parallel pin into the aligned hole and slot.
2. Place the washer onto the counterbore of the clamp arm and tighten the hex-socket countersunk head screw with a hex wrench. When tightening, lock the clamp arm using a wrench to prevent the clamp arm from receiving any torque.

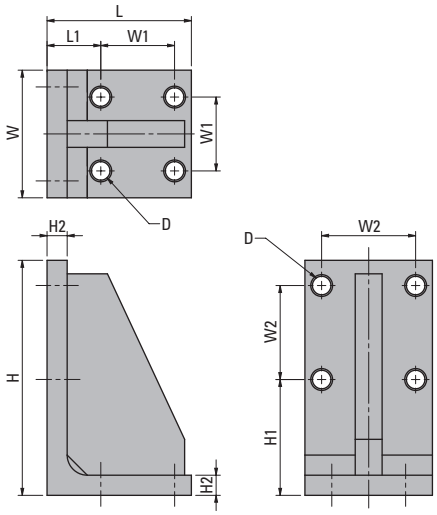


For removal of the clamp arm, reverse these steps.

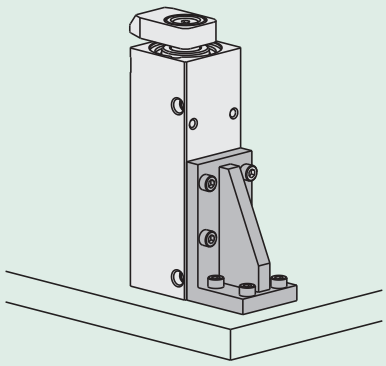
These machinable clamp arms are used with the Pneumatic Swing Clamps (AMSW series). Machine the arms to suit your application. To install, align the locating hole of the clamp arm with the locating slot in the rod, and insert the parallel pin into the aligned hole and slot. Place the washer into the counterbore of the clamp arm and tighten the hex-socket countersunk head screw with a hex wrench. When tightening, lock the clamp arm using a wrench to prevent the clamp arm from receiving any torque. Made from S45C steel with an electroless nickel-plated finish.

Part #	D mm	D1 mm	±0.1 D2 mm	D3 mm	L mm	L1 mm	±0.05 L2 mm	W mm	H mm	H1 mm	H2 mm	Use with swing clamp
AMSW32-SH	21	11.4	14	4	80	67.5	7	25	12	7.5	3.5	AMSW32-S, AMSW32-W
AMSW44-SH	26	15.2	18	4	100	84	9	32	16	8	5	AMSW44-S, AMSW44-W

MOUNTING BRACKET FOR PNEUMATIC SWING CLAMPS - AMSW-BK SERIES



How To Use

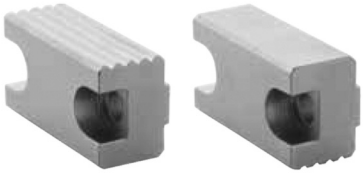


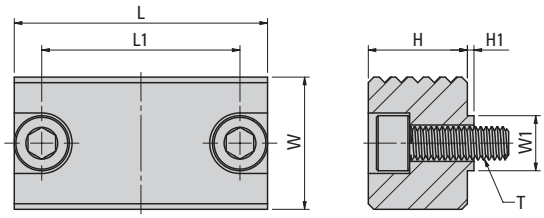
Used as a bracket for mounting of pneumatic swing clamps

These brackets are used to mount the Pneumatic Swing Clamps (AMSW series). The brackets are made from A6063 aluminum with an anodized finish. Includes eight socket head cap screws for mounting.

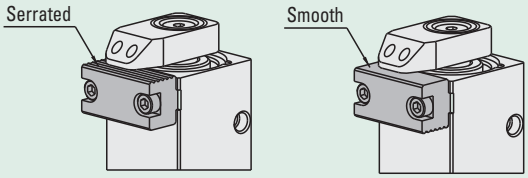
Part #	D mm	L mm	L1 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	SHCS size	Use with swing clamp
AMSW32-BK	5.5	43	16	38	22	28	70	34.5	6	M5X12	AMSW32-S, AMSW32-W
AMSW44-BK	6.6	50	16	48	28	36	90	41.5	10	M6X16	AMSW44-S, AMSW44-W

SUPPORT FOR PNEUMATIC SWING CLAMP – AMSW-ST SERIES



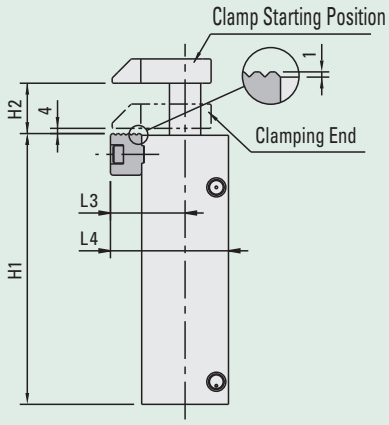


How To Use



Use as a support for Pneumatic Swing Clamps. Both the serrated and smooth sides are available for support.

How To Install

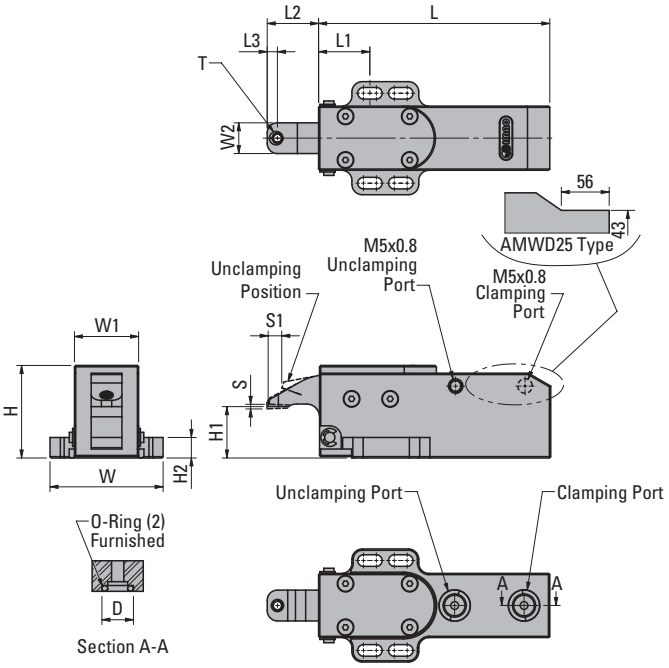


Part Number	H1	H2	L3	L4
AMSW32-ST	126	23	34	54
AMSW44-ST	156	33	43	68

These supports are used with the Pneumatic Swing Clamps (AMSW series). The support has both smooth and serrated sides to suit the needs of your application. Includes two socket head cap screws for mounting. Made from quenched and tempered S45C steel with an electroless nickel plated finish.

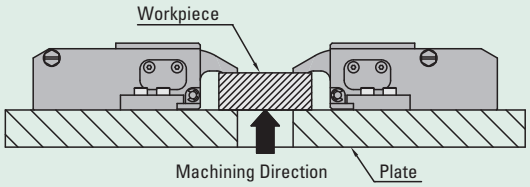
Part #	T mm	L mm	L1 mm	W mm	W1 mm	H mm	H1 mm	Use with swing clamp
AMSW32-ST	M5X0.8X15	37	28	20	8	14	1.2	AMSW32-S, AMSW32-W
AMSW44-ST	M6X1X18	46	36	24	10	18	1.2	AMSW44-S, AMSW44-W

PNEUMATIC HOLD DOWN CLAMP – AMWD-W SERIES



How To Use

Wedge mechanism prevents the clamp arm from being pushed back by counterforce. Perfect for machining a workpiece from the backside.

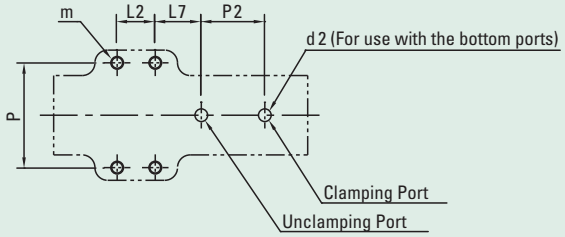


Allowable Counterforce (Per Clamp)

Part Number	Allowable Force (lbs)
AMWD16-W	224
AMWD25-W	494

Note: At lower air pressures, the clamping force may be lowered by excessive vibration.

How To Mount



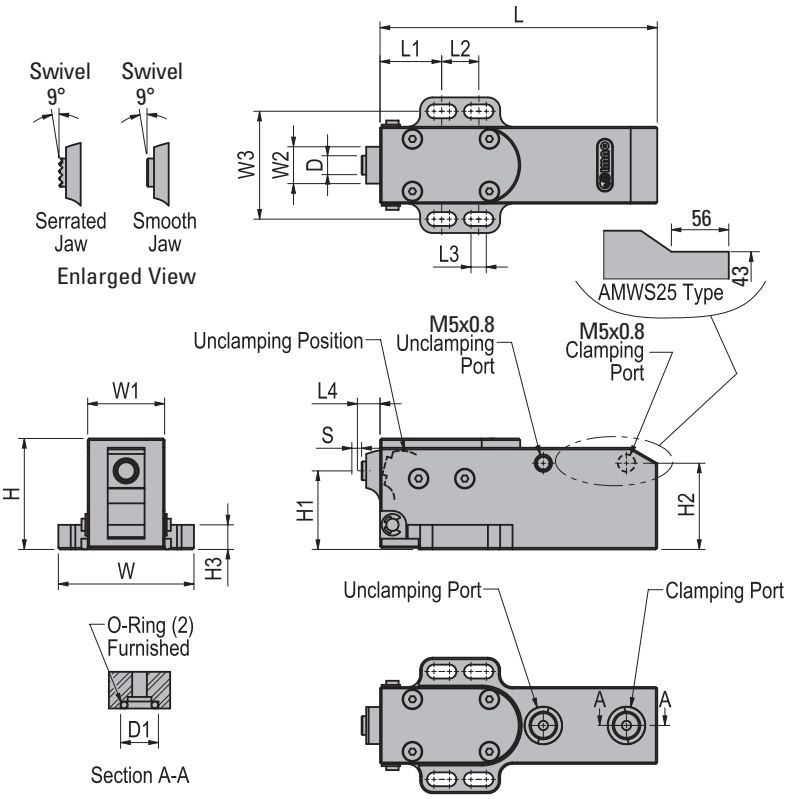
Part Number	P	L2	L7	P2	m	d 2
AMWD16-W	35	12	21	27	M4×0.7	Ø 2 - Ø 4
AMWD25-W	53	20	34	38	M6×1.0	Ø 2 - Ø 6

These pneumatic clamps are ideal for use when machining a workpiece from the backside. Air pressure drives a wedge that locks the clamping arm in place and applies the clamping force. The wedge mechanism increases the clamping force by 150% compared to an air cylinder of the same size. Includes two P9 or P14 O-rings. The body is made from A5052 anodized aluminum. The clamp arm is made from SCM415 carburized hardened steel. For complete technical information, search for the part number at www.fixtureworks.net.

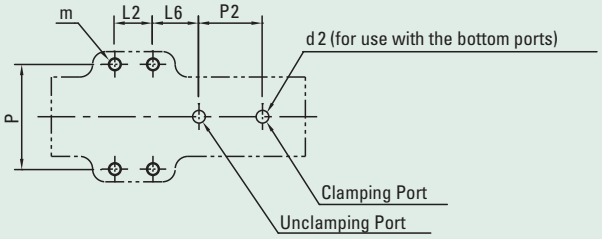
Part #	T Thread	D mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	S mm	S1 mm	Operating Air Pressure psi	Clamping Force* Lbs.
AMWD16-W	M4X0.7	12.2	90	20	20	4	44	25	12	36	20	8	2	9	43-145	31
AMWD25-W	M6X1.0	18	135	30	32	6	65	40	18	54	30	12	3	15	43-145	71

*Clamping forces at 72.5 psi air pressure.

PNEUMATIC SIDE CLAMP – AMWS-W SERIES

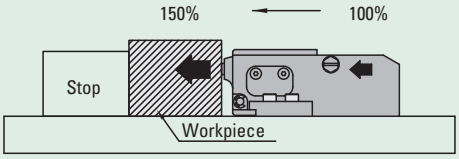


How To Install

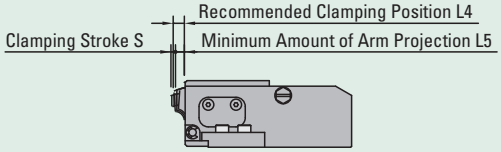


Type	P	L2	L6	P2	m	d 2
AMWS16-W	35	12	21	27	M4× 0.7	2 - 4
AMWS25-W	53	20	34	38	M6× 1	2 - 6

How To Use



Wedge mechanism increases clamping force by 150% compared to the air cylinder of the same size. The mechanism also prevents the clamp arm from being pushed back by counterforce and slows the reduction in clamping forces in the event of air leakage. With lower air pressure, clamping forces may be reduced by excessive vibration. Use within the limits described below.



Type	S	L4	L5
AMWS16-W	2	6	5
AMWS25-W	3	12	10.5

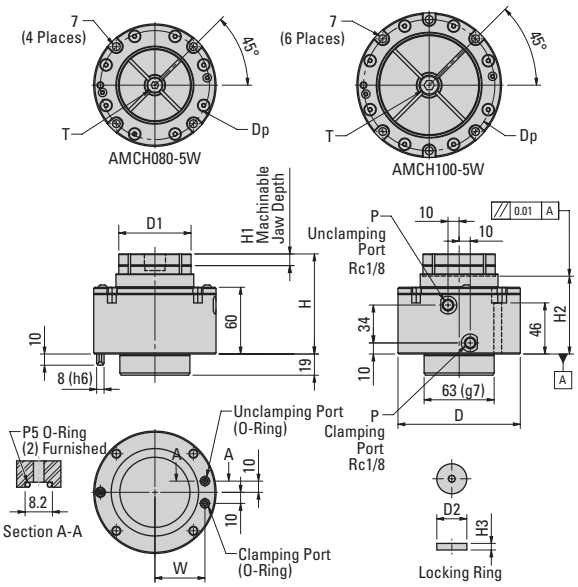
These pneumatic clamps are ideal for clamping a workpiece on the side. Air pressure drives a wedge that locks the clamping arm in place and applies the clamping force. The wedge mechanism increases the clamping force by 150% compared to an air cylinder of the same size. Includes two P9 or P14 O-rings to supply air through the plate. The body is made from A5052 anodized aluminum. The clamp arm is made from SCM415 carburized hardened steel, and the jaw is made from quenched and tempered SKH51 steel. For complete technical information, search for the part number at www.fixtureworks.net.

Smooth Jaw Part #	Serrated Jaw Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	L4* mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	H3 mm	Stroke S mm	Operating Air Pressure psi	Clamping Force** Lbs.
AMWS16F-W	AMWS16S-W	6	12.2	90	20	12	5	6	44	25	12	35	36	25.5	28	8	2	43-145	35
AMWS25F-W	AMWS25S-W	8.5	18	135	30	20	8	12	65	40	18	53	54	39.5	33	12	3	43-145	87

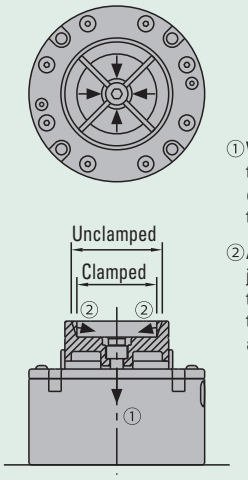
*L4 at recommended clamping position.

**Clamping forces at 72.5 psi air pressure.

OD HOLDING CLAMP - PNEUMATIC – AMCH-W SERIES

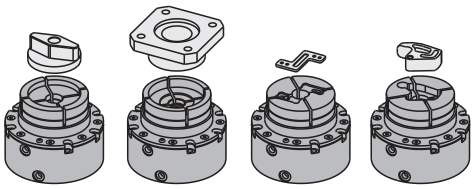


How To Use



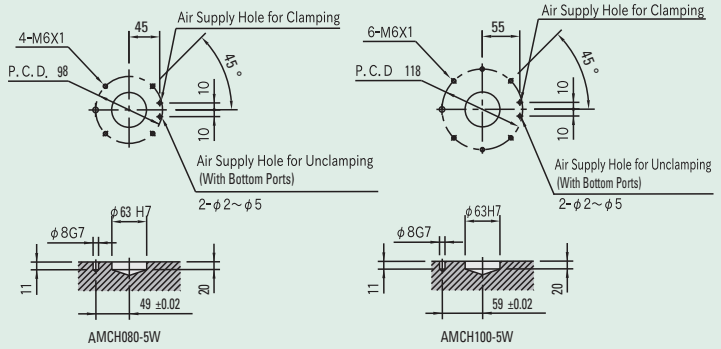
① When air is applied to the clamping port, the central bottom part of the jaw is pulled down.

② At the same time the four jaw sections tilt toward the center to clamp the circumference of a workpiece.



Replacement jaws (CP121) are available separately.

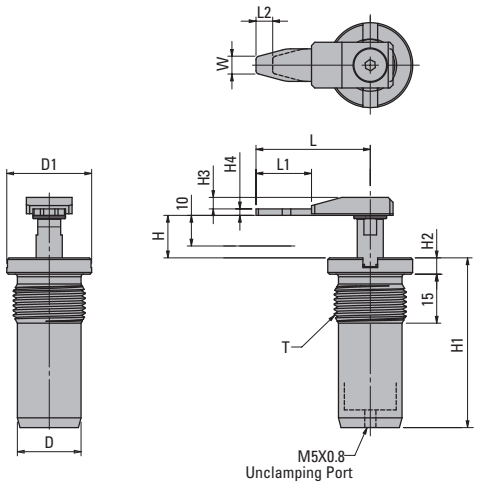
How To Install



These pneumatic OD clamps allow for holding on the circumference of irregularly shaped workpieces. The four part aluminum jaws can be machined to custom fit the part. When air is applied, the center of the jaw is pulled downward, causing the jaw sections to tilt toward the center to clamp the workpiece. These clamps allow for part repeatability of +/- 0.03 mm and jaw locating repeatability of ±0.02 mm. The clamping stroke of each jaw is .15 mm. The body is made from S45C steel with an electroless nickel plated finish. The jaw is made from A7075 aluminum, anodized blue. The part numbers include the clamps, jaws, locking ring, diamond pin and socket head cap screw. Additional sets of jaws can be purchased separately. For complete technical information, visit www.fixtureworks.net.

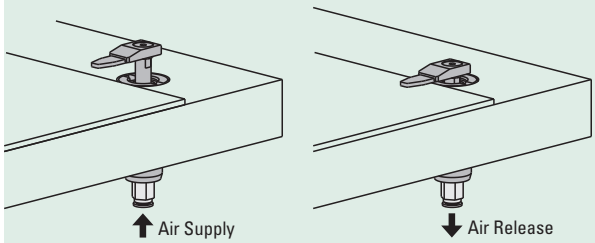
Part #	P Port mm	T mm	D mm	D1 mm	D2 mm	Dp mm	W mm	H mm	H1 mm	±0.02 H2 mm	H3 mm	Operating Air Pressure psi	Clamping Force Lbs.
AMCH080-5W	Rc1/8	M8X1.25X15	110	65	18	98	45	90	10	65	4	72.5	899
AMCH100-5W	Rc1/8	M10X1.5X20	130	90	22	118	55	100	15	66	6	72.5	1,348

HOOK CLAMP – PNEUMATIC – AMHK-S SERIES



Part #	Min Operating Air Pressure psi	Clamp Output Force Lbs. Starting Position	Clamp Output Force Lbs. Ending Position	Max Clamping Stroke mm
AMHK14-3S	43.5	6.7	3.3	10
AMHK14-5S	72.5	13.5	5.6	10
AMHK20-3S	43.5	15.7	10.1	10
AMHK20-5S	72.5	129	16.8	10

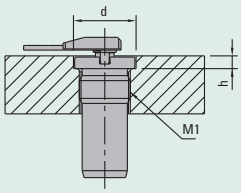
How To Use



Unclamp
Supply air for unclamping.

Clamp
Release air for clamping by inner spring.

Mounting Hole Dimensions



Part Number	M1	d	h (+0.5/0)
AMHK14-3S	M22 X 1.5	27	5
AMHK14-5S			
AMHK20-3S	M28 X 1.5	33	8
AMHK20-5S			

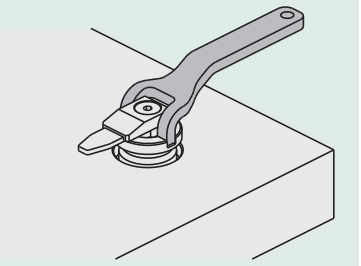
These pneumatic hook clamps are ideal for clamping thin workpieces or where light clamping forces are needed. The inner spring maintains clamping force with or without the air supply. Clamping forces are up to 19 lbs. The stroke is 10 mm. The body made from aluminum, anodized with a natural finish, and clamp tip holder is made from aluminum and anodized blue. The rod and rod guide are made from S45C steel with an electroless nickel plated finish. The clamp tip is made from SUS304 stainless steel. The spring is made from SWPA wire. RoHS compliant. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Clamping Force Lbs.
AMHK14-3S	M22X1.5	19.5	26	35	17	6	5	13	52	5	5.5	2	2.2 - 5.2
AMHK14-5S	M22X1.5	19.5	26	35	17	6	5	13	52	5	5.5	2	4.5 - 10.1
AMHK20-3S	M28X1.5	25.5	32	45	23	8	8	14	67	8	8	3	7.9 - 12.4
AMHK20-5S	M28X1.5	25.5	32	45	23	8	8	14	67	8	8	3	12.4 - 19.1

Maximum allowable operating air pressure: 101 psi.

INSTALLATION TOOL

How To Install



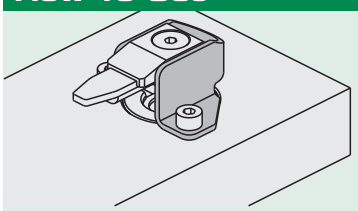
Installing a Pneumatic Hook Clamp.

Used to install Imao Pneumatic Hook Clamps. See the table to determine the corresponding clamp part numbers. Made from SPHC steel with a chrome-plated finish.

Part #	Use with Clamp
AMHK14-HW	AMHK14-3S, AMHK14-5S
AMHK20-HW	AMHK20-3S, AMHK20-5S

GUIDE BRACKET

How To Use



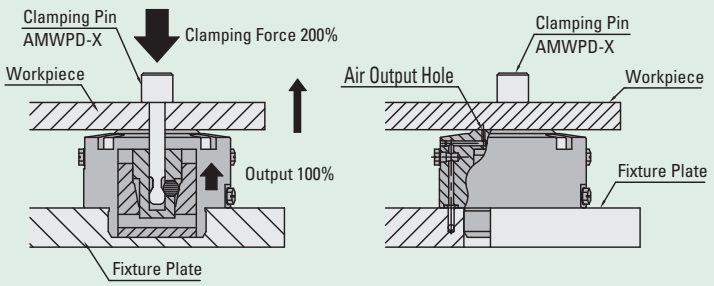
Bracket installed to guide a Pneumatic Hook Clamp.

Guide for pneumatic hook clamps. Locks the clamp arm so it does not swing freely. Made from SPBC steel with a chrome plated finish.

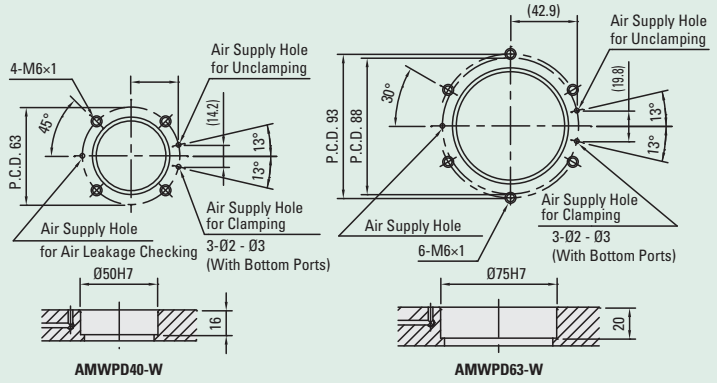
Part #	Use with Clamp
AMHK14-BK	AMHK14-3S, AMHK14-5S
AMHK20-BK	AMHK20-3S, AMHK20-5S

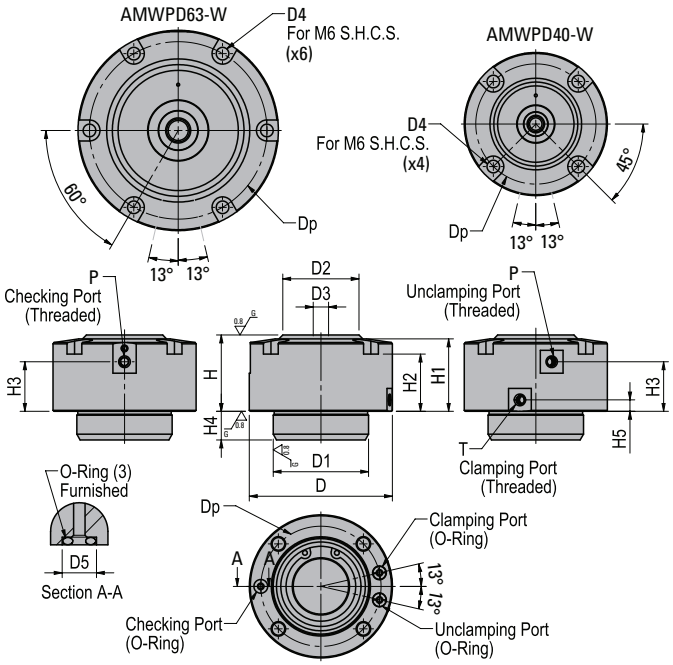
PNEUMATIC PULL CLAMP – AMWPD-W SERIES

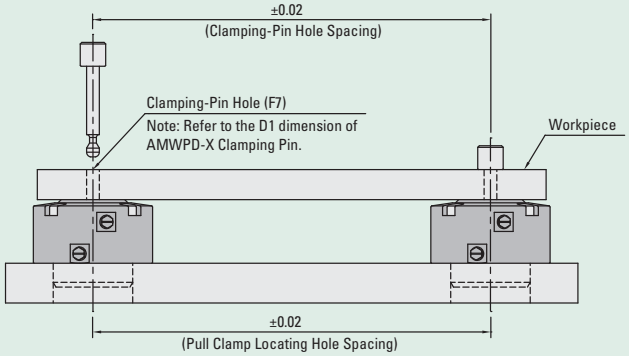
How To Use



How To Install





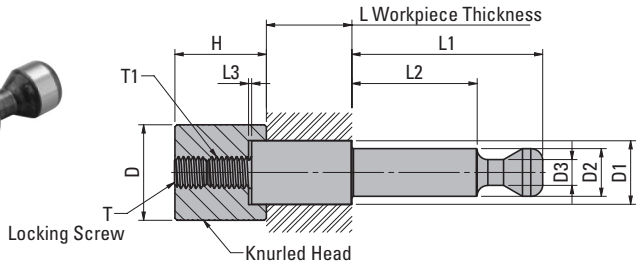


These pneumatic pull clamps provide very quick and secure fastening for repetitive machining operations. The clamp base receives a customized pin based on the thickness of the part you are clamping. When air pressure is applied, the pin is pulled downward and secured into position by a wedge mechanism, which provides a high clamping force. The body is made from S45C induction hardened steel with a black oxide finish. The cylinder is made from SCM440 steel, treated with Isonite®. For complete technical information, search for the part number at www.fixtureworks.net.

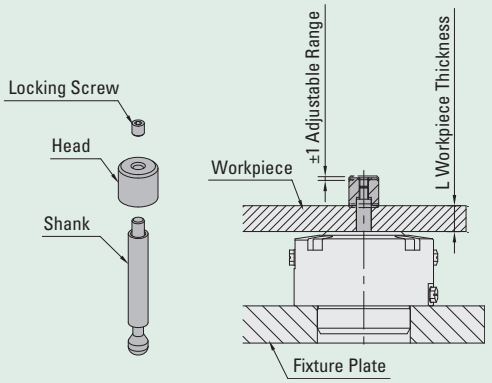
Part #	P Port	D mm	g6 D1 mm	D2 mm	F7 D3 mm	D4 mm	D5 mm	Dp mm	H mm	±0.01 H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	Usage Pressure psi	Clamping Force Lbs.**
AMWPD40-W	M5X0.8	75	50	40	8	M6	7.2	63	40	38	30	26	15	6	43-145	224
AMWPD63-W	Rc1/8	105	75	63	12	M6	7.2	88	50	47	35	31	19	10	43-145	562

**The clamping forces above are at 73 psi.

CLAMPING PINS FOR USE WITH PNEUMATIC PULL CLAMPS (AMWPD-M)



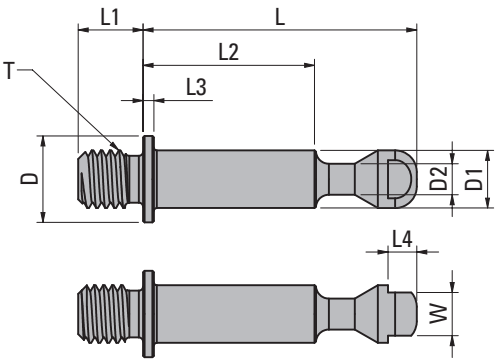
How To Use



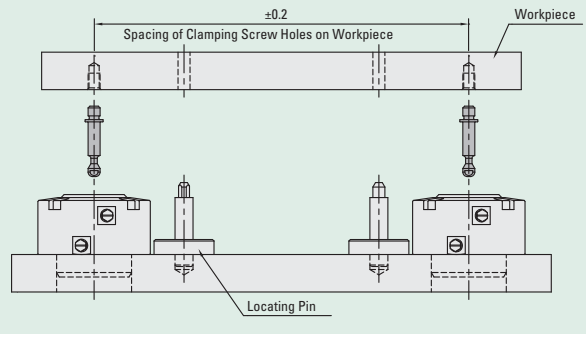
These clamping pins are designed for use with the pneumatic pull clamps (AMWPD). The pins are designed to be modified by the user to fit the actual workpiece thickness. Please note the maximum workpiece thickness (see L Max on the table). Custom length pins available as special order to meet your specific application needs. The body is made from precision group induction hardened SCM435 steel. The head is made from quenched and tempered S45C steel with a black oxide finish.

Part #	T mm	T1 mm	D mm	f7 D1 mm	f7 D2 mm	D3 mm	L Max mm	L1 mm	L2 mm	L3 mm	H mm	Use with Pull Clamp
AMWPD40-8-64	M5X0.8X5	M5X0.8	16	8	8	4.3	64	38	24	1	15	AMWPD40-W
AMWPD40-10-64	M5X0.8X5	M5X0.8	16	10	8	4.3	64	38	24	1	15	AMWPD40-W
AMWPD63-12-90	M8X1.25X8	M8X1.25	18	12	12	6.5	90	48	31.5	1	23	AMWPD63-W
AMWPD63-16-90	M8X1.25X8	M8X1.25	24	16	12	6.5	90	48	31.5	1	23	AMWPD63-W

CLAMPING SCREWS FOR USE WITH PNEUMATIC PULL CLAMPS (AMWPD-M)



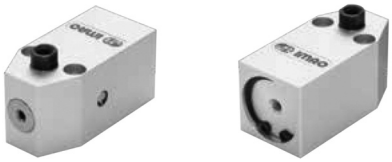
How To Use

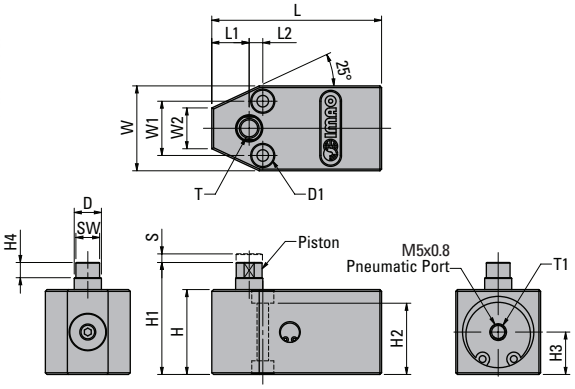


These clamping screws are designed for use with the Pneumatic Pull Clamps (AMWPD). These clamping screws attached directly to the bottom of the work piece or fixture completely eliminating any protrusion on the surface. For precise positioning of the workpiece, use with locating pins. The body is made from quenched and tempered SCM435 steel with a black oxide finish.

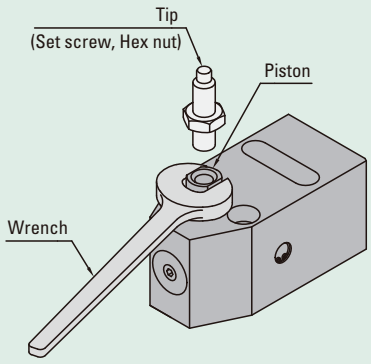
Part #	T mm	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	Use with Pull Clamp
AMWPD40-M8	M8X1.25	12	8	4.3	38	9	24	1.5	4	6	AMWPD40-W
AMWPD40-M10	M10X1.5	12	8	4.3	38	11	24	1.5	4	6	AMWPD40-W
AMWPD63-M12	M12X1.75	20	12	6.5	48	13	31.5	2	4	10	AMWPD63-W
AMWPD63-M16	M16X2	20	12	6.5	48	17	31.5	2	4	10	AMWPD63-W

PNEUMATIC WORK SUPPORT — BJ370 SERIES





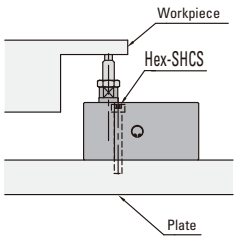
How To Use



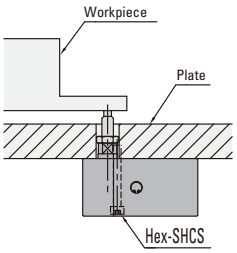
When installing a tip on the piston, lock the piston using a wrench to prevent it from receiving any torque.

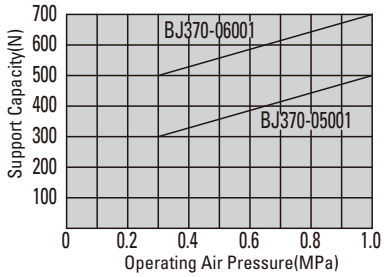
The spring-loaded piston is compressed under the workpiece. After the workpiece is clamped, air is applied to lock into position. Release the air to unlock the piston. The piston is tapped to accommodate a work support tip. The body is made from anodized aluminum A5052. The piston is made from SK95 steel, quenched and tempered, with a black oxide finish. The locking shaft is made from S45C steel, electroless nickel plated. For complete technical information, search for the part number at www.fixtureworks.net.

Mount on Top Surface of Plate



Mount on Bottom Surface of Plate

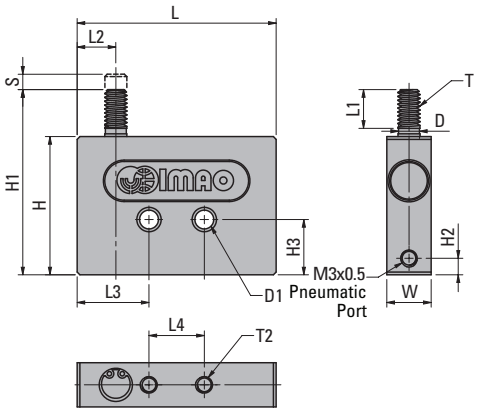




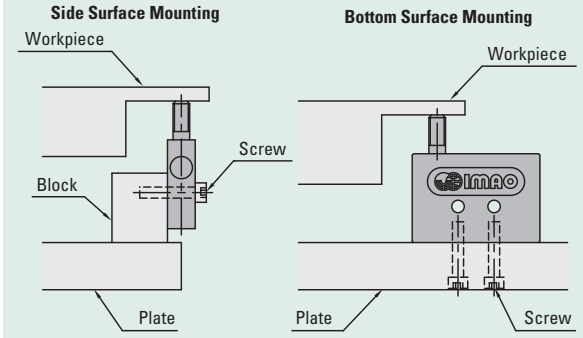
Can be mounted on both top surface and bottom surface of plate with hex-socket head cap screws.

Part #	T	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	W2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	SW mm	S mm	Operating Air Pressure psi	Support Capacity Lbs.	Piston Spring Force Lbs.
BJ370-05001	M5X0.8X10	8	M3	50	11	4	25	16	12	25	30	21	12.5	4.5	7	3	43-145	67 - 112	.22 - .42
BJ370-06001	M6X1.0X12	10	M4	60	13	5	30	20	15	30	36	25	15	5.5	8	4	43-145	112 - 157	.42 - .49

PNEUMATIC WORK SUPPORT – COMPACT – AMNS-S SERIES



How To Install



The spring-loaded piston is compressed under the workpiece. After the workpiece is clamped, air is applied to lock into position. Release the air to unlock the piston. The piston is tapped to accommodate a work support tip. The support capacity is up to 16 lbs. The body is made from A5052 aluminum with an anodized finish. The piston and locking shaft are made from S45C steel with an electroless nickel plated finish. The cylinder is made from A5056 aluminum with an anodized finish. For complete technical information, search for the part number www.fixtureworks.net.

Part #	T	T2	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	H mm	H1 mm	H2 mm	H3 mm	Stroke S mm	Operating Air Pressure psi	Support Capacity Lbs.	Piston Spring Force Lbs.
AMNS06-S	M4X0.7	M3X0.5X6	4	3.4	36	7	7	13	10	8	25	33	3	10	4	44 - 102	3 - 9	.05 - .07
AMNS08-S	M6X1	M4X0.7X8	6	4.5	46	10.5	9	16.5	13	10	32	44	5	13	4	44 - 102	6.5 - 16	.07 - .09

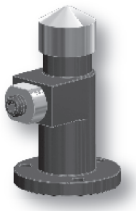
SUPPORTS, STOPS & SET UP ACCESSORIES

LATERAL SPRING PLUNGERS

LOCATING PINS

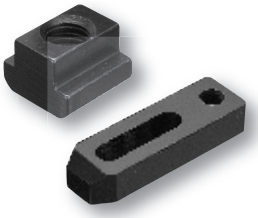
WORK LOCATORS

ADJUSTABLE WORK SUPPORTS



CLAMP MODULES

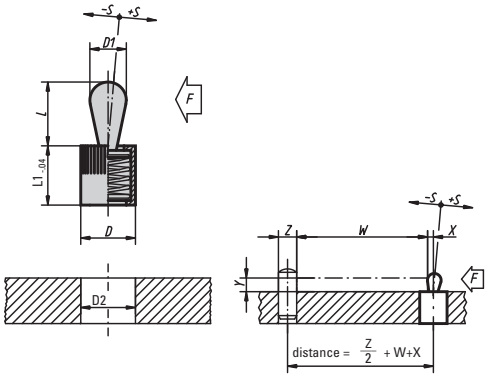
T-SLOT NUTS & STRAP CLAMPS



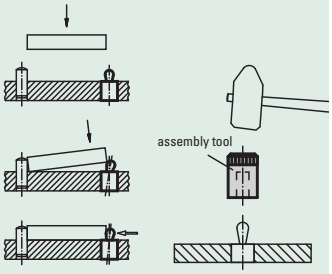
LOCATING SCREWS

NUTS, WASHERS & BOLTS

LATERAL SPRING PLUNGERS



How To Use & Install

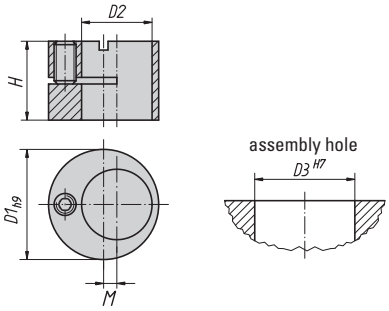


Lateral spring plungers are designed to position and hold flat, round or irregular shaped work pieces in tight spaces. They provide constant pressure on the work piece and are ideal for a wide range of machining, assembly, inspection and welding operations. The parts listed below have an aluminum body with a steel spring and are sealed to keep out dirt and contaminants. The pressure pin is available in either surface hardened steel or plastic. Plungers without seals are available. The eccentric bushings shown below allow for easy mounting and adjustments of the lateral plungers. The assembly tool is designed to make installation easy without damaging the plunger.

INCH

Steel Pin Part #	Plastic Pin Part #	D	D1	L	L1	+.004 D2	+/- S	Spring Force Lbs.	X if Y Equals .039	.079	.118	.177	.236	.315	Assembly Tool
03330-22034CM	03330-72034CM	1/4	.118	.157	.276	1/4	.020	2.2	.031	.039	.039	.039	.039	.039	03330-03CM
03330-22036CM	—	1/4	.118	.157	.276	1/4	.020	4.5	.031	.039	.039	.039	.039	.039	03330-03CM
03330-22038CM	—	1/4	.118	.157	.276	1/4	.020	9.0	.031	.039	.039	.039	.039	.039	03330-03CM
03330-22054CU	03330-72054CU	7/16	.197	.236	.472	7/16	.031	4.5	-	.059	.067	.067	.067	.067	03330-05CU
03330-22056CU	—	7/16	.197	.236	.472	7/16	.031	11.2	-	.059	.067	.067	.067	.067	03330-05CU
03330-22058CU	—	7/16	.197	.236	.472	7/16	.031	22.5	-	.059	.067	.067	.067	.067	03330-05CU
03330-22064CU	03330-72064CU	7/16	.236	.394	.472	7/16	.039	9.0	-	-	-	.067	.075	.075	03330-05CU
03330-22066CU	—	7/16	.236	.394	.472	7/16	.039	16.9	-	-	-	.067	.075	.075	03330-05CU
03330-22068CU	—	7/16	.236	.394	.472	7/16	.039	33.7	-	-	-	.067	.075	.075	03330-05CU
03330-22084CP	03330-72084CP	1/2	.315	.512	.551	1/2	.051	11.2	-	-	-	-	.098	.106	03330-08CP
03330-22086CP	—	1/2	.315	.512	.551	1/2	.051	22.5	-	-	-	-	.098	.106	03330-08CP
03330-22088CP	—	1/2	.315	.512	.551	1/2	.051	45.0	-	-	-	-	.098	.106	03330-08CP
03330-22104CQ	03330-72104CQ	5/8	.394	.630	.709	5/8	.063	22.5	-	-	-	-	-	.122	03330-10CQ
03330-22106CQ	—	5/8	.394	.630	.709	5/8	.063	45.0	-	-	-	-	-	.122	03330-10CQ
03330-22108CQ	—	5/8	.394	.630	.709	5/8	.063	67.4	-	-	-	-	-	.122	03330-10CQ

ECCENTRIC BUSHINGS



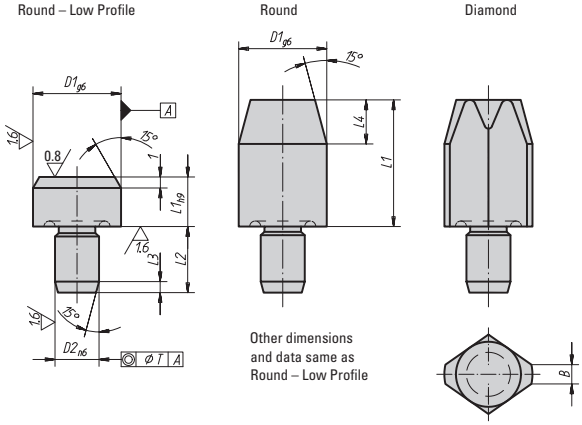
The eccentric bushings are designed to be used with the lateral spring plungers above. They allow for easy adjustments of the plunger. They are made from alloy steel with black oxide finish.

INCH

Part #	D1	D2	D3	H	M	Use with Plunger Dia.
03330-120CM	1/2	1/4	1/2	.390	.079	1/4
03330-160CU	11/16	7/16	11/16	.469	.079	7/16
03330-180CP	3/4	1/2	3/4	.547	.079	1/2
03330-250CQ	1	5/8	1	.705	.079	5/8

LOCATING PINS - STANDARD

Round & Diamond



These locating pins are used to accurately position and align fixtures and work pieces. The round and diamond style pins are often used together in mounting applications. The round style pins locate on two axes while the diamond style pins are relieved and locate only on one axis to reduce binding and sticking during loading and unloading. Both round styles can also be used as a hardened stop and as feet for fixtures. Made from tool steel and is hardened and ground.

Round - Low Profile

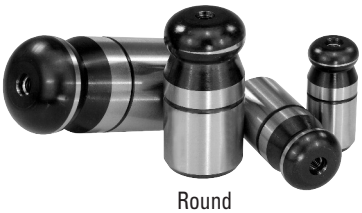
Part #	D1 mm	L1 mm	D2 mm	L2 mm	L3 mm	T mm
02020-106	6	5	4	6	1.2	.02
02020-110	10	6	6	9	1.6	.02
02020-116	16	8	8	12	2	.04
02020-125	25	10	12	18	2.5	.04

Round & Diamond

Round Part #	Diamond Part #	D1 mm	L1 mm	D2 mm	L2 mm	L3 mm	L4 mm	B mm	T mm
02020-206	02020-406	6	7	4	6	1.2	4	1	.02
02020-306	02020-506	6	12	4	6	1.2	4	1	.02
02020-208	02020-408	8	10	6	9	1.6	6	1.6	.02
02020-308	02020-508	8	16	6	9	1.6	6	1.6	.02
02020-210	02020-410	10	10	6	9	1.6	6	2.5	.02
02020-310	02020-510	10	18	6	9	1.6	6	2.5	.02
02020-212	02020-412	12	10	6	9	1.6	6	2.5	.02
02020-312	02020-512	12	18	6	9	1.6	6	2.5	.02
02020-216	02020-416	16	13	8	12	2	8	3.5	.04
02020-316	02020-516	16	22	8	12	2	8	3.5	.04
02020-220	02020-420	20	15	12	18	2.5	9	5	.04
02020-320	02020-520	20	25	12	18	2.5	9	5	.04
02020-225	02020-425	25	15	12	18	2.5	9	5	.04
02020-325	02020-525	25	25	12	18	2.5	9	5	.04

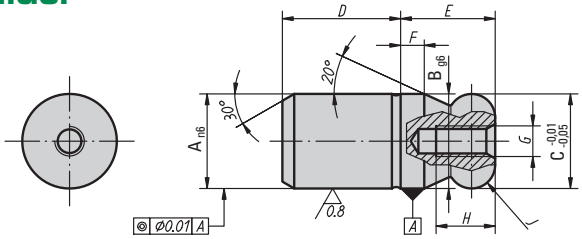
LOCATING PINS - BALL END

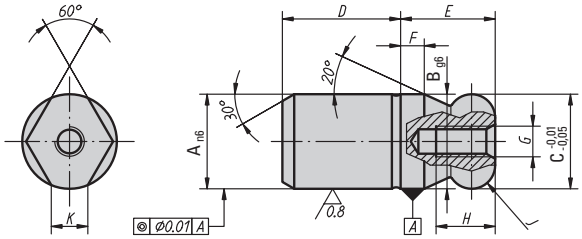
Round & Diamond | Without Shoulder



Round

Diamond





These locating pins are used to accurately position and align fixtures and work pieces. The round and diamond style pins are often used together in mounting applications. The round style pins locate on two axes while the diamond style pins are relieved and locate only on one axis to reduce binding and sticking during loading and unloading. The steel style is made from tool steel and is hardened and ground. The stainless style is made from 300 series stainless steel and is ground and surface hardened.

Round

Part # Steel	Part # Stainless	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm
03107-08	03107-508	8	8	8	10	8	2	M3	6	R2
03107-10	03107-510	10	10	10	13	10	2.5	M3	6	R2.5
03107-12	03107-512	12	12	12	15	12	3	M4	8	R3
03107-16	03107-516	16	16	16	20	16	4	M5	10	R4
03107-20	03107-520	20	20	20	25	20	5	M5	10	R5
03107-25	—	25	25	25	25	25	6	M5	10	R6
03107-30	—	30	30	30	30	30	8	M6	12	R8
03107-40	—	40	40	40	40	40	10	M6	12	R10
03107-50	—	50	50	50	50	50	12	M6	12	R12

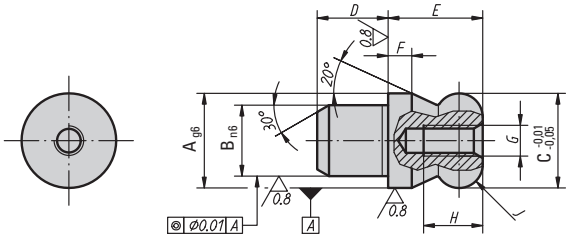
Diamond

Part # Steel	Part # Stainless	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm
03107-082	03107-5082	8	8	8	10	8	2	M3	6	R2	1.9
03107-102	03107-5102	10	10	10	13	10	2.5	M3	6	R2.5	2.5
03107-122	03107-5122	12	12	12	15	12	3	M4	8	R3	2.5
03107-162	03107-5162	16	16	16	20	16	4	M5	10	R4	4.3
03107-202	03107-5202	20	20	20	25	20	5	M5	10	R5	5
03107-252	—	25	25	25	25	25	6	M5	10	R6	5.6
03107-302	—	30	30	30	30	30	8	M6	12	R8	8.8
03107-402	—	40	40	40	40	40	10	M6	12	R10	12.8
03107-502	—	50	50	50	50	50	12	M6	12	R12	16.7

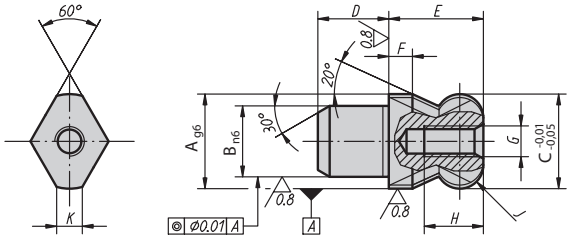
LOCATING PINS - BALL END

Round & Diamond | With Shoulder

Round



Diamond



These locating pins are used to accurately position and align fixtures and work pieces. The round and diamond style pins are often used together in mounting applications. The round style pins locate on two axes while the diamond style pins are relieved and locate only on one axis to reduce binding and sticking during loading and unloading. The steel style is made from tool steel and is hardened and ground. The stainless style is made from 300 series stainless steel and is ground and surface hardened.

Round

Part # Steel	Part # Stainless	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm
03108-10	03108-510	10	7	10	7	10	2.5	M3	6	R2.5
03108-12	03108-512	12	8	12	8	12	3	M4	8	R3
03108-16	03108-516	16	12	16	12	16	4	M5	10	R4
03108-20	03108-520	20	14	20	14	20	5	M5	10	R5
03108-22	—	22	16	22	16	22	5.5	M5	10	R5.5
03108-25	—	25	18	25	18	25	6	M5	10	R6

Diamond

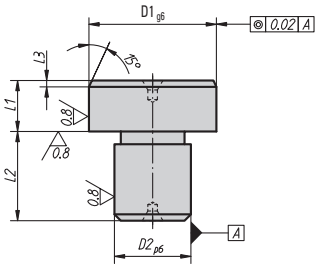
Part # Steel	Part # Stainless	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm
03108-102	03108-5102	10	7	10	7	10	2.5	M3	6	R2.5	2.5
03108-122	03108-5122	12	8	12	8	12	3	M4	8	R3	2.5
03108-162	03108-5162	16	12	16	12	16	4	M5	10	R4	4.3
03108-202	03108-5202	20	14	20	14	20	5	M5	10	R5	5
03108-222	—	22	16	22	16	22	5.5	M5	10	R5.5	5
03108-252	—	25	18	25	18	25	6	M5	10	R6	5.6

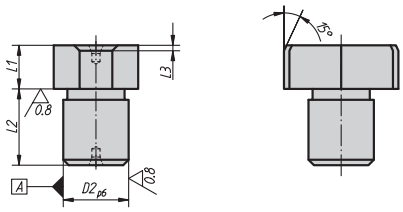
LOCATING PINS - LOW PROFILE

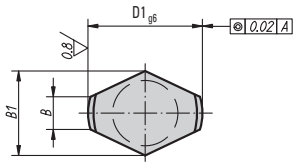
Round & Diamond

Round

Diamond







These locating pins are used to accurately position and align fixtures and work pieces. The round and diamond style pins are often used together in mounting applications. The round style pins locate on two axes while the diamond style pins are relieved and locate only on one axis to reduce binding and sticking during loading and unloading. Made from tool steel and is hardened and ground.

Round

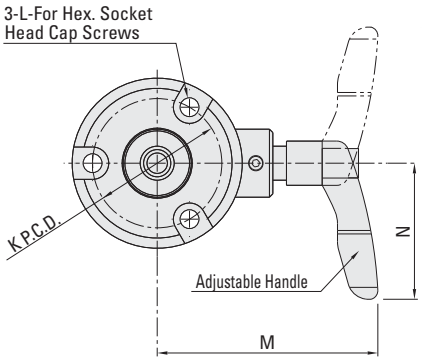
Part #	D1 (g6) mm	D2 mm	L1 mm	L2 mm	L3 mm
03120-05	8	5	8	8	2
03120-07	10	7	8	8	2
03120-08	12	8	8	10	2
03120-081	14	8	8	10	3
03120-09	16	9	8	12	3
03120-12	18	12	8	12	3
03120-121	20	12	8	14	3
03120-14	22	14	8	14	3
03120-16	25	16	8	16	3

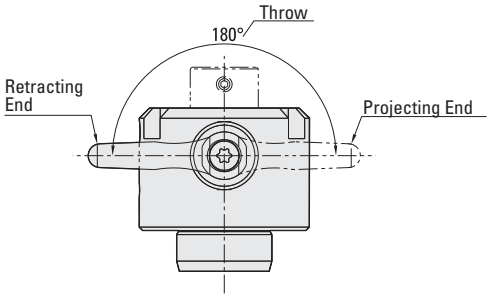
Diamond

Part #	D1 (g6) mm	D2 mm	L1 mm	L2 mm	L3 mm	B mm	B1 mm
03140-05	8	5	8	8	2	2	6.6
03140-07	10	7	8	8	2	3	8.6
03140-08	12	8	8	10	2	3	9.8
03140-081	14	8	8	10	3	3.5	11.2
03140-09	16	9	8	12	3	4	13.2
03140-12	18	12	8	12	3	4.5	14.7
03140-121	20	12	8	14	3	5	16.6
03140-14	22	14	8	14	3	5.6	18
03140-16	25	16	8	16	3	6	19.8

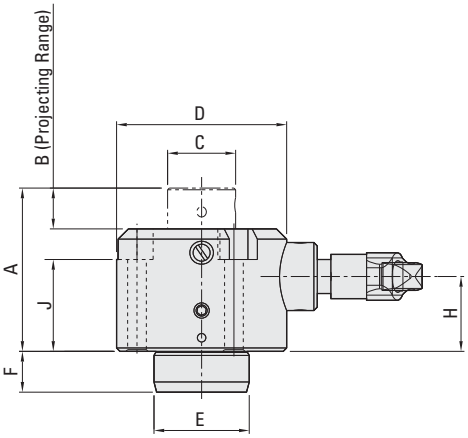
See page 561 for g6 tolerance specifications.

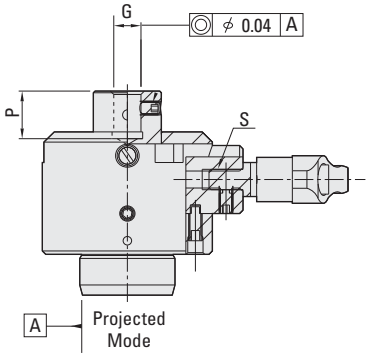
EXTENDABLE WORK LOCATORS





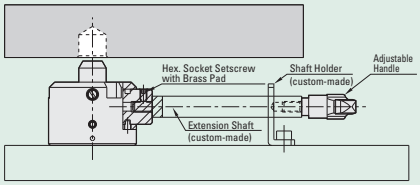
The handle position can be changed clockwise or counterclockwise.





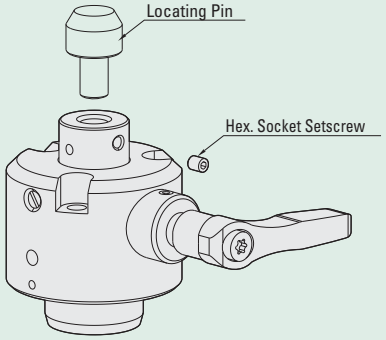
How To Use

Extended Application



With an extension shaft and a shaft holder prepared separately, the handle control can be easily done even when small space is available under the workpiece.

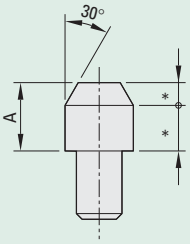
Locating-Pin Mounting



Projected Mode

A locating pin can easily be mounted by using a hex. socket setscrew when the piston is fully projected (locating pins must be prepared separately).

Locating Pin Head Dimensions



Series	A
20050	12 or less
30063	15 or less

Determine the dimensions marked with an asterisk considering a clearance set between the workpiece and the locating guides. When the taper angle is determined to be smaller than 30 degrees (recommended), set the clearance smaller.

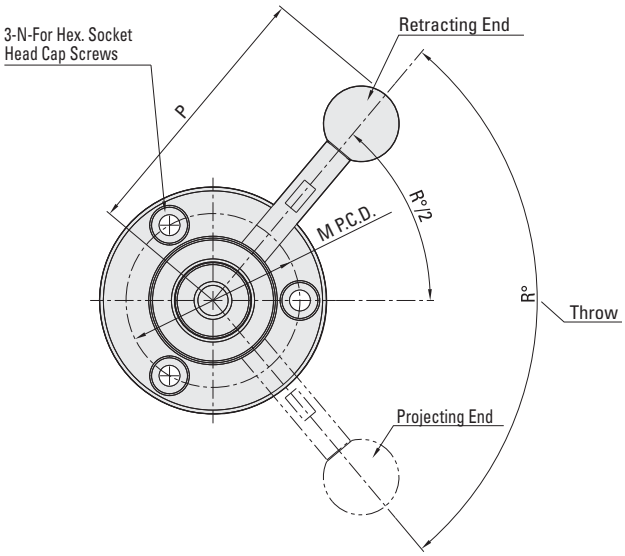
The piston stays locked when it is fully projected or retracted until the handle is turned. Different locating pins can be mounted depending on the work pieces locating holes. The adjustable handle allows for use in confined spaces. The CP701-20050 has maximum of 38 lbs. load to operate the handle and maximum work piece load of 551 lbs. The CP701-30063 has maximum of 47 lbs. load to operate the handle and maximum work piece load of 661 lbs. The body and piston are made from SAE-1045 alloy steel, heat treated with black oxide finish. The adjustable handle is zinc die cast.

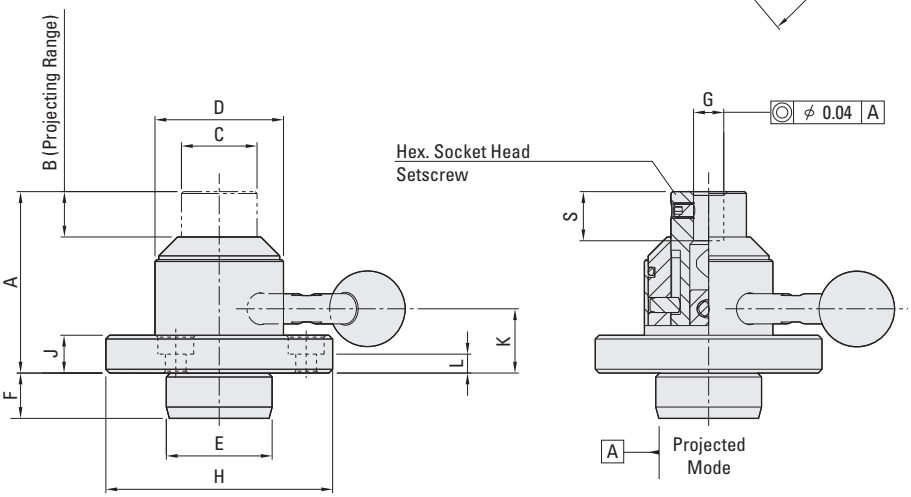
Part #	A mm	B mm	C mm	D mm	(g6) E mm	F mm	(G7) G mm	H mm	J mm	P.C.D.* K mm	L mm	M mm	N mm	P mm	S mm
CP701-20050	48	12	20	50	28	12	8	22	27	38	M5	65	40	14	M6X1X12D
CP701-30063	61	15	30	65	42	14	12	26	31	52	M6	87.5	65	16	M8X1.25X17D

*Pitch Circle Diameter

See page 561 for g6 and G7 tolerance specifications.

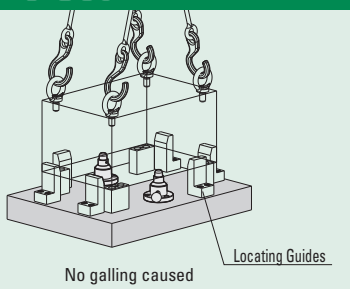
WORK LOCATORS





Rotating the handle projects the locating pin after the work piece is set on supports. This allows loading and unloading of the work piece smoothly without projecting locating pins. The CP700-20050R has maximum of 33 Lbs. load to operate the handle and maximum work piece load of 551 Lbs. The CP700-30063R has maximum of 44 Lbs. load to operate the handle and maximum work piece load of 661 Lbs. The body is made from SAE-1045 alloy steel and the piston is made from SAE-4140 alloy steel. Parts are heat treated with black oxide finish. Knob is black plastic.

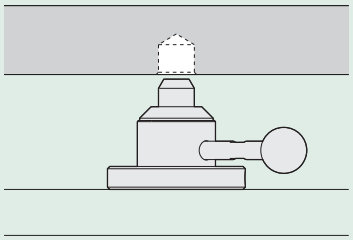
How To Use



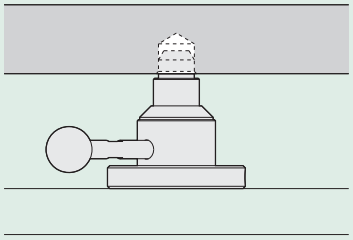
No galling caused

The locating pin gets projected only after the workpiece is set on supports. This allows loading and unloading the workpiece smoothly, with no galling.

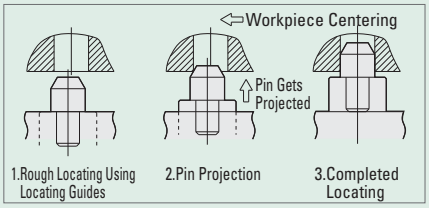
Get the locating pin projected to locate the workpiece after it is roughly positioned with the help of locating guides.



Retracted Mode



Projected Mode

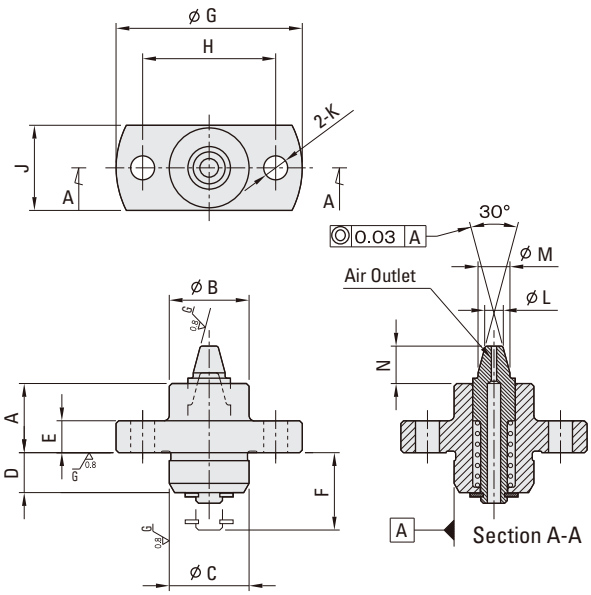


Part #	A mm	B mm	C mm	D mm	(g6) E mm	F mm	(G7) G mm	H mm	J mm	K mm	L mm	P.C.D.* M mm	N mm	P mm	R Degree	S mm
CP700-20050R	48	12	20	34	28	12	8	60	10	17	5	46	M5	71	100	13
CP700-30063R	61	15	30	48	42	14	12	80	13	23	7	63	M6	94	90	15

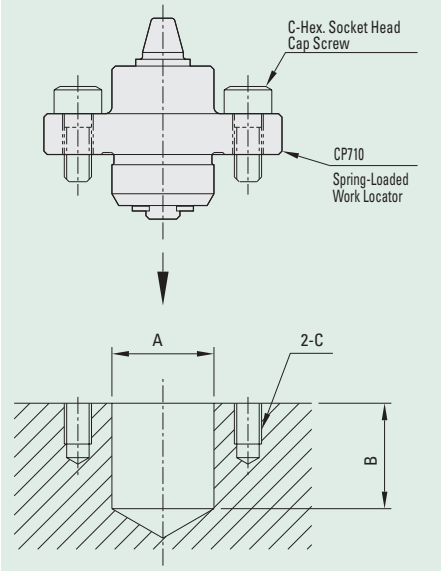
*Pitch Circle Diameter

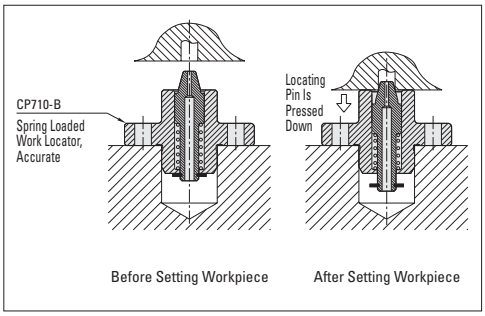
See page 561 for g6 and G7 tolerance specifications.

SPRING LOADED WORK LOCATORS

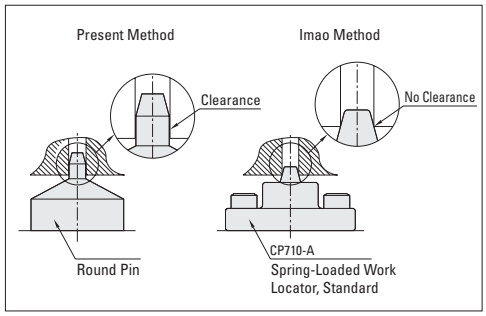


Mounting Dimensions





When the workpiece is set, the tapered pin is pressed down to locate it. The accurate style allows vertically as well as horizontally positioning the workpiece with accuracy.



Use of tapered pin provides secure locating with no clearance between the locating hole and the tapered pin.

Series	(H7) A mm	Effective Depth* mm	B mm	C mm
CP710-04015	15	8	16	M4X0.7
CP710-05015	15	8	16	M4X0.7
CP710-06020	20	10	21	M4X0.7
CP710-08020	20	10	21	M4X0.7
CP710-10025	25	13	26	M4X0.7
CP710-12025	25	13	26	M4X0.7

*H7 Effective depth.

These spring loaded work locators provide accurate positioning. The body is made from SAE-1045 alloy steel, heat treated with black oxide finish. The locating pin is made from SAE-1095 alloy steel and heat treated.

Standard

Part #	A mm	B mm	(g6) C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Locating Hole Dia* mm	Support Capacity Lbs.
CP710-04015A	13	15	15	7.5	6	15	35	25	16	4.5	3.5	6	7.4	3.8 - 5.2	1.43 - 4.33
CP710-05015A	13	15	15	7.5	6	15	35	25	16	4.5	4.5	7	7.4	4.8 - 6.2	1.43 - 4.33
CP710-06020A	18	20	20	10	8	20	40	30	22	4.5	5.5	9	9.3	5.8 - 8.2	1.23 - 4.60
CP710-08020A	18	20	20	10	8	20	40	30	22	4.5	7.5	11	9.3	7.8 - 10.2	1.23 - 4.60
CP710-10025A	23	25	25	12.5	10	25	45	35	26	4.5	9	13.5	11.6	9.3 - 12.7	1.91 - 4.45
CP710-12025A	23	25	25	12.5	10	25	45	35	26	4.5	12	16.5	11.6	12.3 - 15.7	1.91 - 4.45

* Within these diameter limits, locating holes can be chamfered up to 1mm x 1mm

Accurate

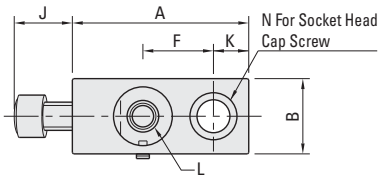
Part #	+/-0.01 A mm	B mm	(g6) C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Locating Hole Dia* mm	Support Capacity Lbs.
CP710-04015B	15	15	15	7.5	6	15	35	25	16	4.5	3.5	6	5.4	3.8 - 5.2	1.43 - 4.33
CP710-05015B	15	15	15	7.5	6	15	35	25	16	4.5	4.5	7	5.4	4.8 - 6.2	1.43 - 4.33
CP710-06020B	20	20	20	10	8	20	40	30	22	4.5	5.5	9	7.3	5.8 - 8.2	1.23 - 4.60
CP710-08020B	20	20	20	10	8	20	40	30	22	4.5	7.5	11	7.3	7.8 - 10.2	1.23 - 4.60
CP710-10025B	25	25	25	12.5	10	25	45	35	26	4.5	9	13.5	9.6	9.3 - 12.7	1.91 - 4.45
CP710-12025B	25	25	25	12.5	10	25	45	35	26	4.5	12	16.5	9.6	12 - 16	1.91 - 4.45

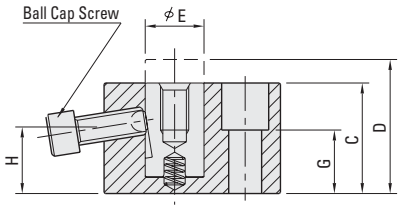
* Within these diameter limits, locating holes can be chamfered up to 1mm x 1mm

See page 561 for g6 and H7 tolerance specifications.

IMAO

RECTANGULAR WORK SUPPORTS

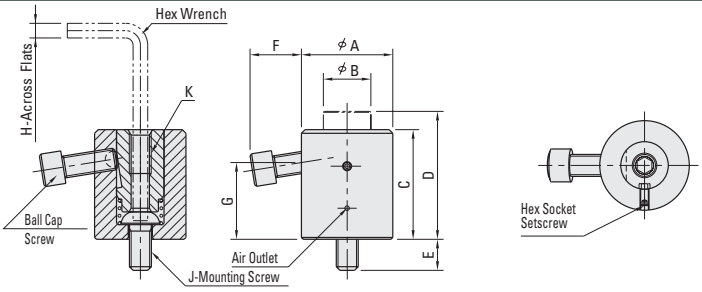




These rectangular work supports provide high capacity work piece support and positioning to prevent chattering and deflection. The support plunger can be raised and lowered by turning the cap screw. Mounts with socket head cap screw. Low profile allows for flexible application use. The internal thread in the cylinder allows for contact bolt to be fitted to the work support. The body is made from SAE-1045 alloy steel with black oxide finish. The piston is made from SAE-1095 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	N mm	Support Capacity Lbs.
BJ350-06001	38	19	29	35	12	15	15	17.6	13	8	M6X1	M6	895
BJ350-08001	50	22	37	47	16	20	20	21.1	16	10	M8X1.25	M8	1,345
BJ350-10001	65	25	42	52	19	25	20	24.6	18.5	15	M10X1.50	M10	1,686
BJ350-12001	75	32	47	57	25	30	27	28.3	25	15	M12X1.75	M12	2,020

CYLINDRICAL WORK SUPPORTS

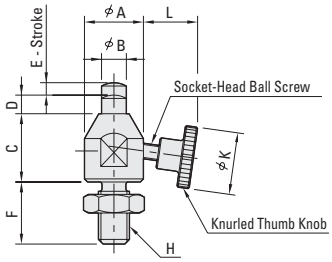


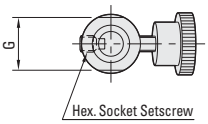
To install, insert hex wrench through the piston into the mounting screw.

These cylindrical work supports provide high capacity work piece support and positioning to prevent chattering and deflection. They fasten with a mounting screw through the bottom for easy, low profile installation. The internal thread in the cylinder allows for a contact bolt to be fitted to the work support. Support cylinder is locked in to place with the cap screw on the side of the clamp. The body is made from SAE-1045 alloy steel with black oxide finish. The piston is made from SAE-1095 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	Support Capacity Lbs.
BJ351-06001	28	14	33	39	10	13.1	22.2	4	M6X1	M6X1	895
BJ351-08001	35	19	42	52	14	17.2	27.5	5	M8X1.25	M8X1.25	1,345
BJ351-10001	42	22	50	60	14	24.0	34.0	6	M10X1.50	M10X1.50	1,686
BJ351-12001	50	26	60	70	16	28.1	42.1	8	M12X1.75	M12X1.75	2,020
BJ351-16001	60	33	70	80	22	26.6	47.4	10	M16X2	M16X2	2,020

MINI WORK SUPPORTS





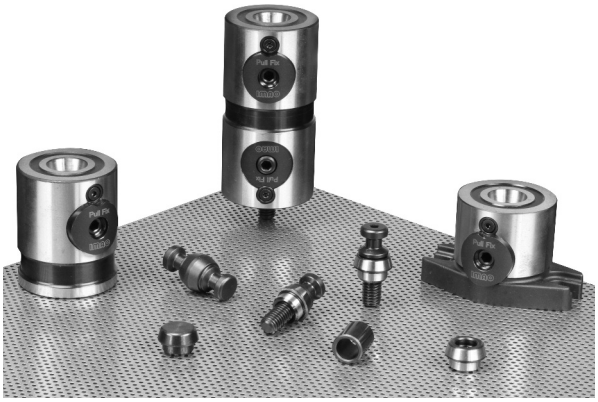
These mini work supports allow you to provide proper work piece support and positioning to prevent chattering and deflection. The spring loaded plunger retracts into the body of the support when the work piece is put in place. The plunger can then be locked into place by tightening the knob. The low profile makes it ideal for many support applications and are ideal if there are slight variations in the size of the work piece. The body is made from SAE-1045 alloy steel with black oxide finish. The piston is made from SAE-1095 alloy steel, heat treated with black oxide finish.

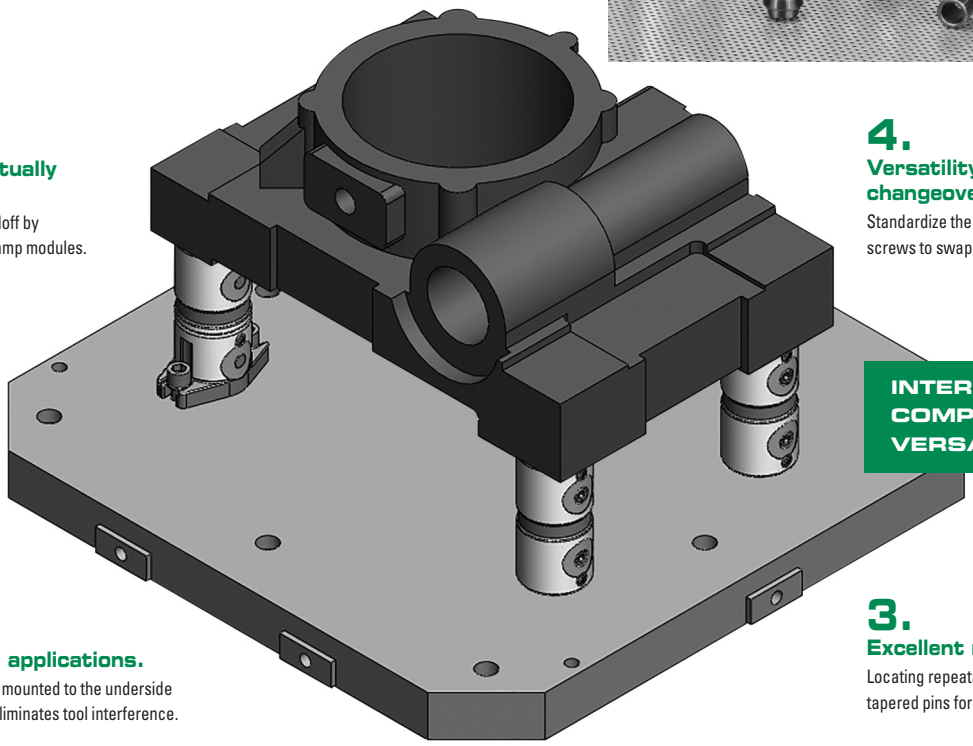
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	Support Capacity Lbs.
BJ360-08001	15	6	18	5	3	16	13	M8X1.25	20	13.2	44
BJ360-10001	19	8	22	6	4	20	17	M10X1.5	25	16.3	67
BJ360-12001	22	10	25	6	4	24	19	M12X1.75	28	22.3	89

5-AXIS MODULAR CLAMP SYSTEM

The modular clamping system is designed to eliminate tool interference as the workpiece is machined from five sides. Compact in size and completely modular, this versatile clamping system allows easy height adjustment by coupling the modules. The pins or screws can be attached to the underside of a plate or a workpiece for standardized locating based on the position of the clamps. Locating repeatability is 5 microns.

Clamp styles consist of flanged type, double type and single type. Together with the special bushings, pins and clamping screws, this system is designed to save space and increase efficiency in a variety of clamping applications.





1.
Configure for virtually any workpiece.
Vary the height of the standoff by combining and stacking clamp modules.

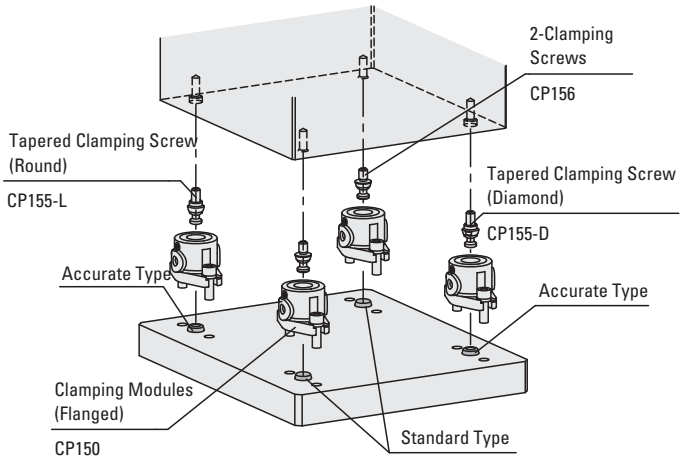
2.
Ideal for five-axis applications.
Cylindrical bodies and pins mounted to the underside of plates and workpieces eliminates tool interference.

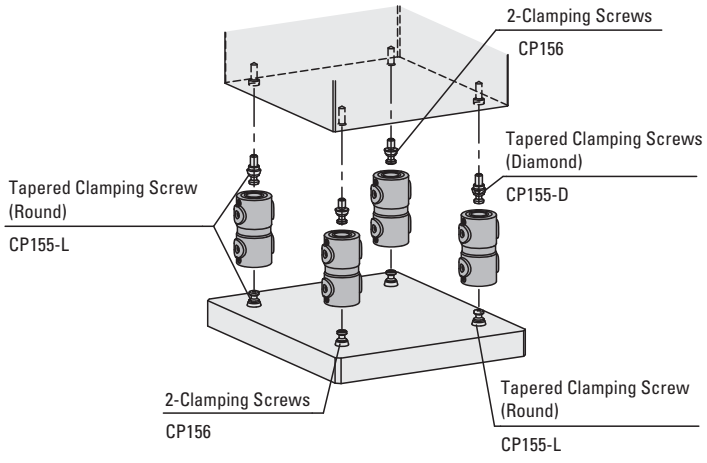
3.
Excellent repeatability.
Locating repeatability is 5 microns due to tapered pins for precise locating.

4.
Versatility & quick changeover.
Standardize the position of the clamping screws to swap out workpieces and plates.

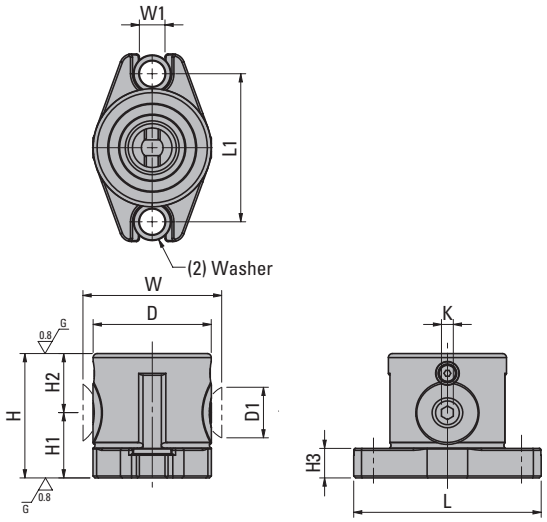
INTERCHANGEABLE COMPONENTS FOR VERSATILITY

Application Examples

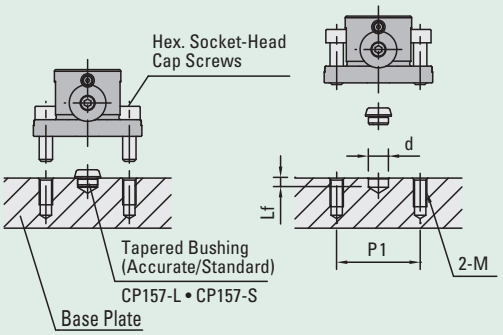




CLAMP MODULES – FLANGED – CP150 SERIES

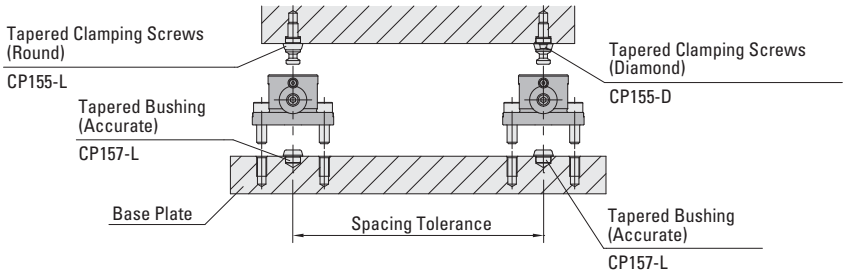


How To Install

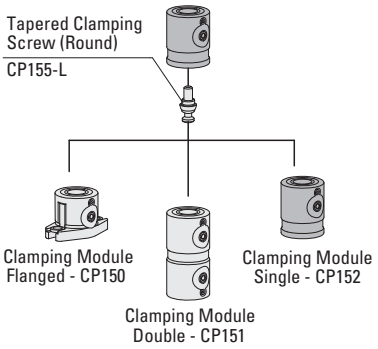


Part Number	d (H7)	Lf	M	P1
CP150-08040	12	5.5	M 8 × 1.25	50
CP150-12063	18	6.5	M12 × 1.75	75
CP150-16080	22	8	M16 × 2	100

Note: The tolerance of dimension "d" for Tapered Bushing (Standard) should be +0.1/0.



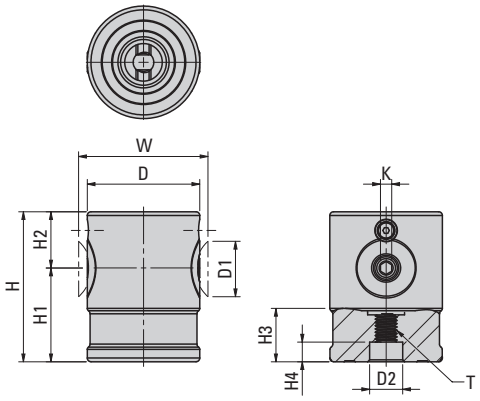
*Spacing tolerance for CP157-L Tapered Bushings (Accurate) should be ±0.02 mm.
*Spacing tolerance for CP157-S Tapered Bushings (Standard) should be ±0.1 mm.



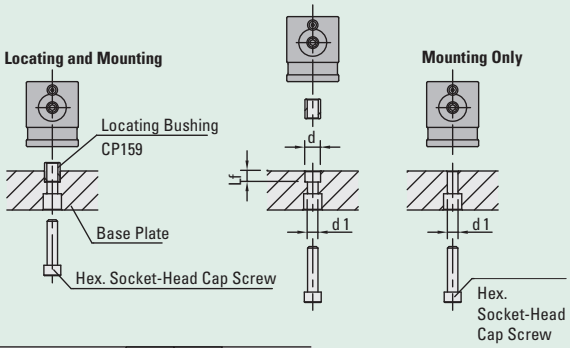
These clamp modules are used to locate and clamp a workpiece in conjunction with clamping screws (CP155-L, CP155-D). Activating the clamp pulls the clamping screw downward and secures it in position. Mount with Tapered Bushing CP157-L for precise locating or with CP157-S for standard locating. Includes two flat washers. The body is made from SCM440 induction hardened steel, precision ground, with a black oxide finish. The clamping nut is made from SCM440 steel, quenched and tempered, with a black oxide finish. The locking screw is made from SCM435 steel, quenched and tempered, with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	D1 mm	L mm	L1 mm	W mm	W1 mm	±0.01 H mm	H1 mm	H2 mm	H3 mm	K Hex mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP150-08040	40	22	65	50	46	9	40	20	20	10	4	1,798	5.9
CP150-12063	60	32	95	75	69	13	63	33	30	15	6	3,372	16.2
CP150-16080	80	44	130	100	91	17	80	40	40	20	8	5,620	36.8

CLAMP MODULES – SINGLE – CP152 SERIES

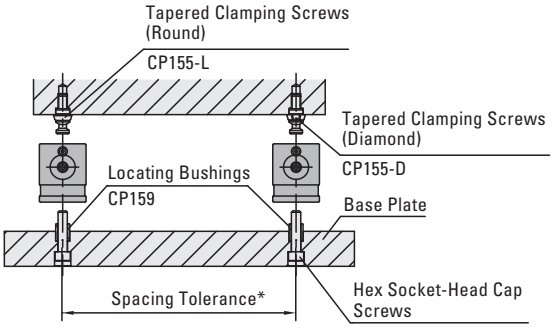


How To Install

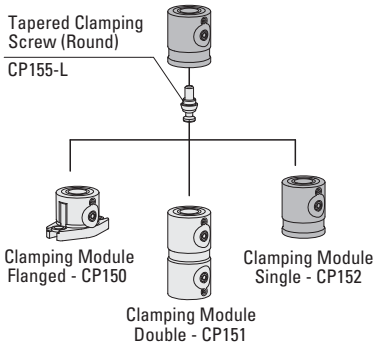


Part Number	d (H7)	Lf	d 1 (+0.2/0)
CP152-08050	12	8.5	8
CP152-12080	18	12.5	12
CP152-16100	22	16.5	16

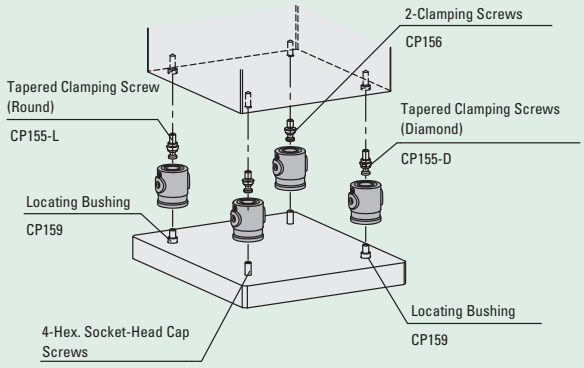
Note: C'bored hole is required for mounting only.



*Spacing tolerance for CP159 Locating Bushings should be ±0.02mm.
*Spacing tolerance for hex socket-head cap screw should be ±0.1mm.



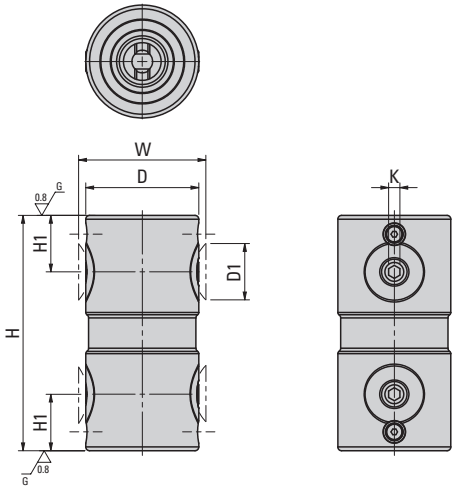
How To Use

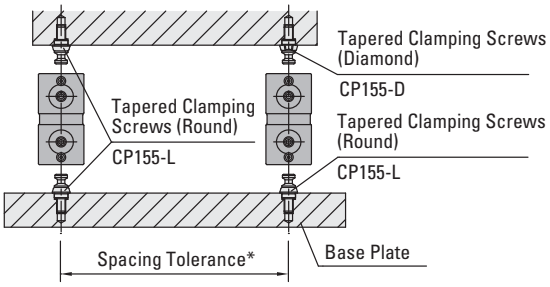


These clamp modules are used to locate and clamp a workpiece in conjunction with clamping screws (CP155-L, CP155-D). Activating the clamp pulls the clamping screw downward and secures it in position. Secure to the base plate using hex socket head cap screws; use with locating bushings (CP159) for precise locating. The body is made from SCM440 induction hardened steel, precision ground, with a black oxide finish. The clamping nut is made from SCM440 steel, quenched and tempered, with a black oxide finish. The locking screw is made from SCM435 steel, quenched and tempered, with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

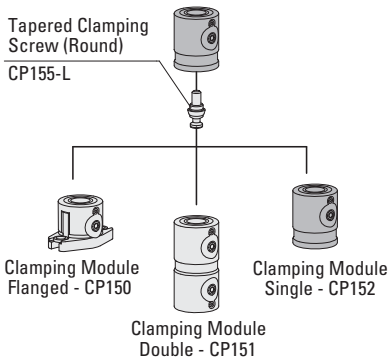
Part No.	T mm	D mm	D1 mm	H7 D2 mm	W mm	±0.01 H mm	H1 mm	H2 mm	H3 mm	H4 mm	K Hex mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP152-08050	M8X1.25	40	22	12	46	50	30	20	18	7.5	4	1,798	5.9
CP152-12080	M12X1.75	60	32	18	69	80	50	30	25	10.5	6	3,372	16.2
CP152-16100	M16X2	80	44	22	91	100	60	40	31	12.5	8	5,620	36.8

CLAMP MODULES – DOUBLE – CP151 SERIES

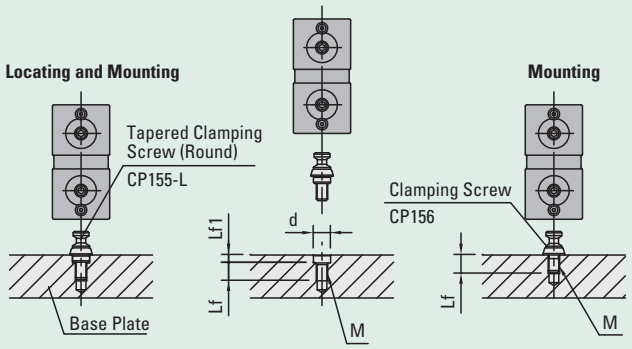




*Spacing tolerance for CP155-L Tapered Clamping Screws (Accurate) should be ±0.02 mm.
*Spacing tolerance for CP156 Clamping Screws should be ±0.2 mm.



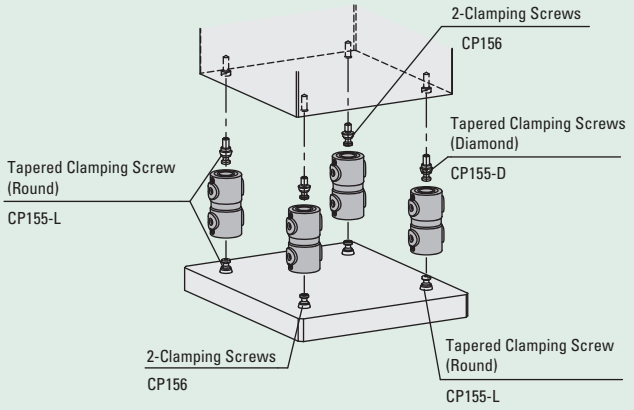
How To Install



Part Number	d (H7)	Lf	Lf1	M
CP151-08080	12	13	5.5	M8 × 1.25
CP151-12125	18	19	6.5	M12 × 1.75
CP151-16160	22	23	8	M16 × 2

Note: The tapped hole is required for the CP156 Clamping Screw.

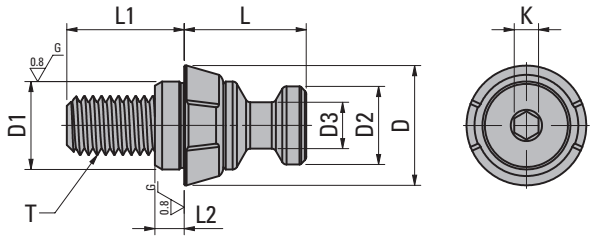
How To Use



These clamp modules are used to locate and clamp a workpiece in conjunction with clamping screws (CP155-L, CP155-D). Activating the clamp pulls the clamping screw downward and secures it in position. Secure to the base plate using Clamping Screws (CP156); use with Tapered Clamping Screws (CP155-L) for precise locating. The body is made from SCM440 induction hardened steel, precision ground, with a black oxide finish. The clamping nut is made from SCM440 steel, quenched and tempered, with a black oxide finish. The locking screw is made from SCM435 steel, quenched and tempered, with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	D1 mm	W mm	±0.01 H mm	H1 mm	K Hex mm	Clamping Force Lbs.	Allowable Screw Torque Ft Lbs.
CP151-08080	40	22	46	80	20	4	1,798	5.9
CP151-12125	60	32	69	125	30	6	3,372	16.2
CP151-16160	80	44	91	160	40	8	5,620	36.8

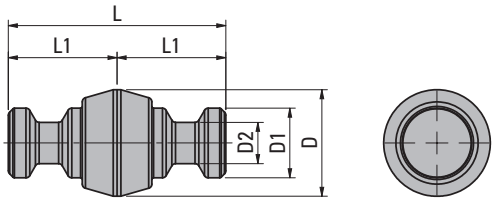
CLAMPING SCREWS – TAPERED – DIAMOND – CP155-D SERIES



The tapered diamond clamp screws are used to locate a workpiece or clamping module in conjunction with a round-type screws (CP155-L). Secure the tapered bushing after the mounting direction is determined. The bushing is made from S45C steel, precision ground, with a black oxide finish. The clamping screw is made from SCM435 steel, quenched and tempered, with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	g6 D1 mm	D2 mm	L mm	L1 mm	L2 mm	K mm	Use with Modules
CP156-08061D	M6X1	15.5	10	11	16.5	17	5	3	CP150-08040, CP151-08080, CP152-08050
CP156-08001D	M8X1.25	15.5	12	11	16.5	17	5	3	CP150-08040, CP151-08080, CP152-08050
CP156-12081D	M8X1.25	24.5	12	16	25	17	5	5	CP150-12063, CP151-12125, CP152-12080
CP156-12001D	M12X1.75	24.5	18	16	25	24	6	5	CP150-12063, CP151-12125, CP152-12080
CP156-16121D	M12X1.75	31.5	18	21	33	24	6	6	CP150-16080, CP151-16160, CP152-16100
CP156-16001D	M16X2	31.5	22	21	33	30	7.5	6	CP150-16080, CP151-16160, CP152-16100

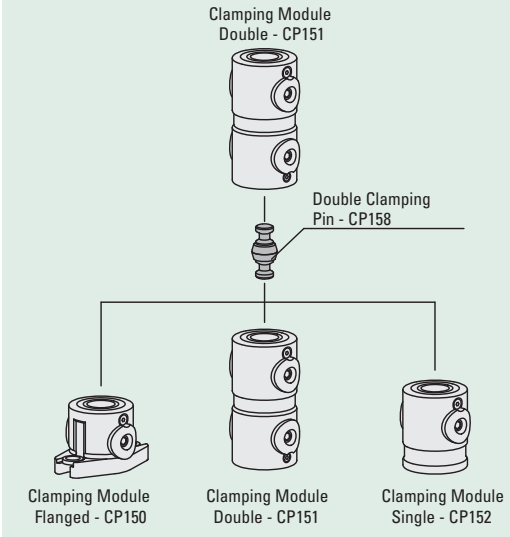
CLAMPING PINS – DOUBLE – CP158 SERIES



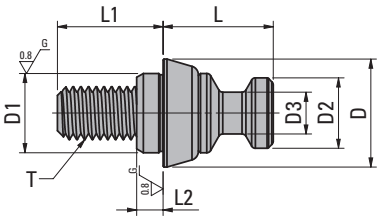
The double clamping pins are used to couple Clamping Modules (CP150, CP151, CP152). Locating repeatability is ±0.2 mm. Made from SCM435 quenched and tempered steel with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	D1 mm	D2 mm	L mm	L1 mm
CP158-08001	15.5	11	6.5	33	16.5
CP158-12001	24.5	16	9.5	50	25
CP158-16001	31.5	21	13	66	33

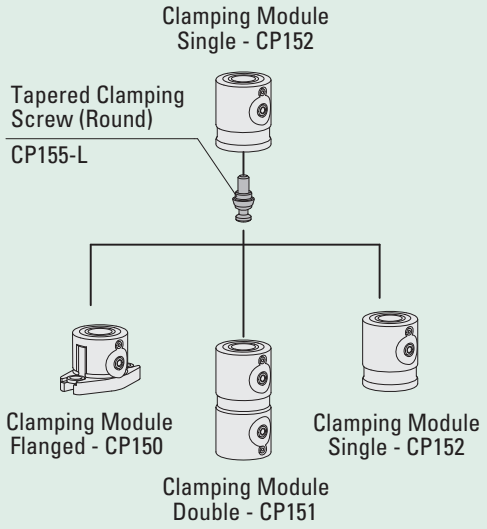
How To Use



CLAMPING SCREWS – TAPERED – ROUND – CP155-L SERIES



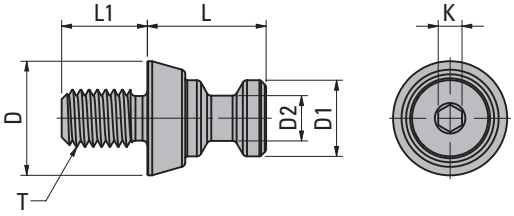
How To Use



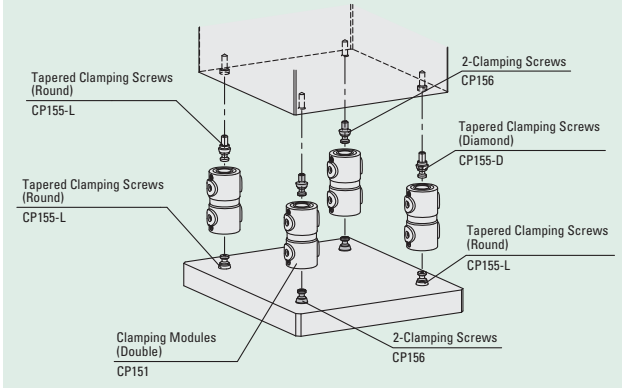
The tapered round clamp screws are used to couple and locate Double Clamping Modules (CP151) or to locate a workpiece in conjunction with a diamond-type screw (CP155-D). The bushing is made from S45C steel, precision ground, with a black oxide finish. The clamping screw is made from SCM435 steel, quenched and tempered, with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	K mm	Use with Modules
CP156-08061L	M6X1	15.5	10	11	16.5	17	5	3	CP150-08040, CP151-08080, CP152-08050
CP156-08001L	M8X1.25	15.5	12	11	16.5	17	5	3	CP150-08040, CP151-08080, CP152-08050
CP156-12081L	M8X1.25	24.5	12	16	25	17	5	5	CP150-12063, CP151-12125, CP152-12080
CP156-12001L	M12X1.75	24.5	18	16	25	24	6	5	CP150-12063, CP151-12125, CP152-12080
CP156-16121L	M12X1.75	31.5	18	21	33	24	6	6	CP150-16080, CP151-16160, CP152-16100
CP156-16001L	M16X2	31.5	22	21	33	30	7.5	6	CP150-16080, CP151-16160, CP152-16100

CLAMPING SCREWS – CP156 SERIES



How To Use

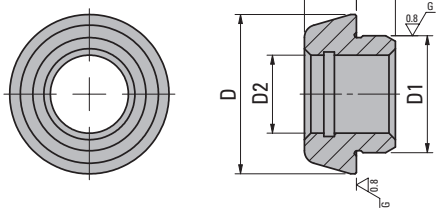


These clamping screws are used to mount Double Clamping Modules (CP151 series) to the base plate or can be installed on a workpiece for clamping. Use with locating pins for precise locating. The spacing tolerance is ±0.2 mm. The body is made the quenched and tempered SCM435 steel with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

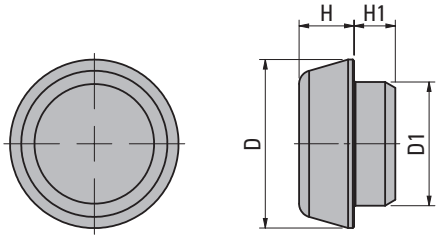
Part #	T mm	D mm	D1 mm	D2 mm	L mm	L1 mm	K mm	Use with Modules
CP156-08061	M6X1	15	11	6.5	16.5	9	3	CP150-08040, CP151-08080, CP152-08050
CP156-08001	M8X1.25	15	11	6.5	16.5	12	3	CP150-08040, CP151-08080, CP152-08050
CP156-12081	M8X1.25	24	16	9.5	25	12	5	CP150-12063, CP151-12125, CP152-12080
CP156-12001	M12X1.75	24	16	9.5	25	18	5	CP150-12063, CP151-12125, CP152-12080
CP156-16121	M12X1.75	31	21	13	33	18	6	CP150-16080, CP151-16160, CP152-16100
CP156-16001	M16X2	31	21	13	33	22	6	CP150-16080, CP151-16160, CP152-16100

BUSHINGS – TAPERED – CP157 SERIES

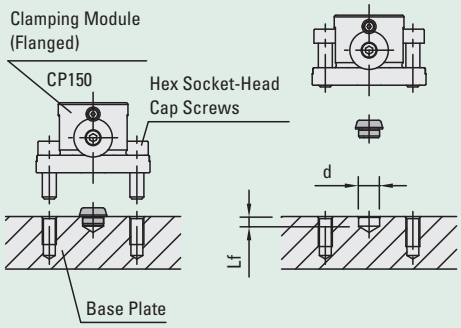
Accurate Type (CP157-L)



Standard Type (CP157-S)

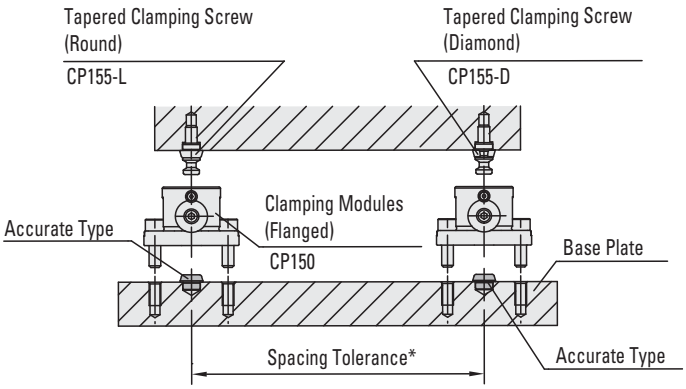


How To Install



Size	d (H7)	Lf
CP157-08001	12	5.5
CP157-12001	18	6.5
CP157-16001	22	8

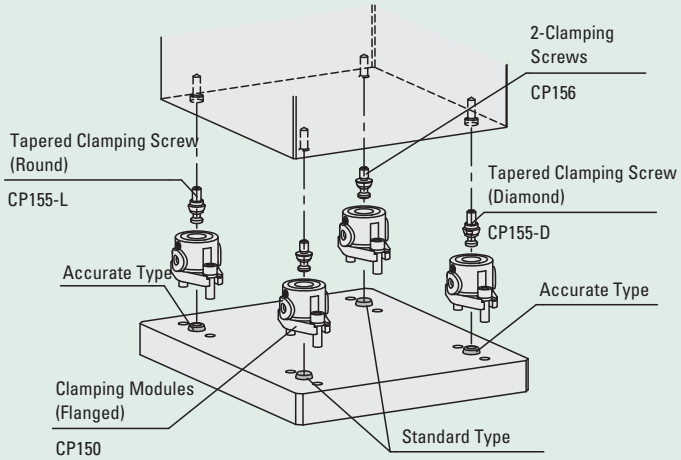
Note: The tolerance of dimension "d" for the Standard Type should be +0.1/0.



*Spacing tolerance for Accurate Type should be ±0.02 mm.

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

How To Use



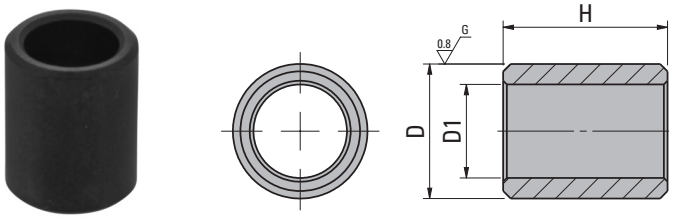
The tapered bushings are used to locate Flanged Clamping Modules (CP150) on a base plate. The accurate type is for precise locating. Made from S45C steel with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

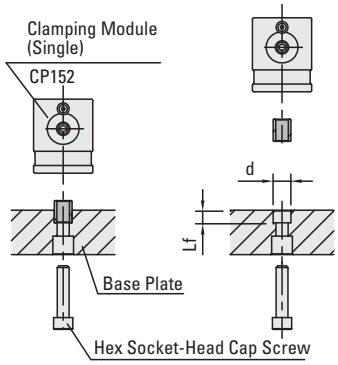
Part # Accurate Type	D mm	g6 D1 mm	D2 mm	H mm	H1 mm
CP157-08001L	15.5	12	8	5	5
CP157-12001L	24.5	18	12	8	6
CP157-16001L	31.5	22	16	10	7.5

See page 561 for g6 tolerance specifications.

Part # Standard Type	D mm	-0.02/-0.05 D1 mm	H mm	H1 mm
CP157-08001S	15.5	12	5	5
CP157-12001S	24.5	18	8	6
CP157-16001S	31.5	22	10	7.5

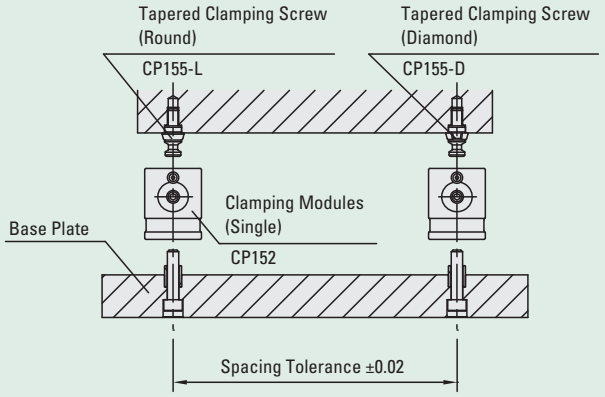
LOCATING BUSHINGS – CP159 SERIES



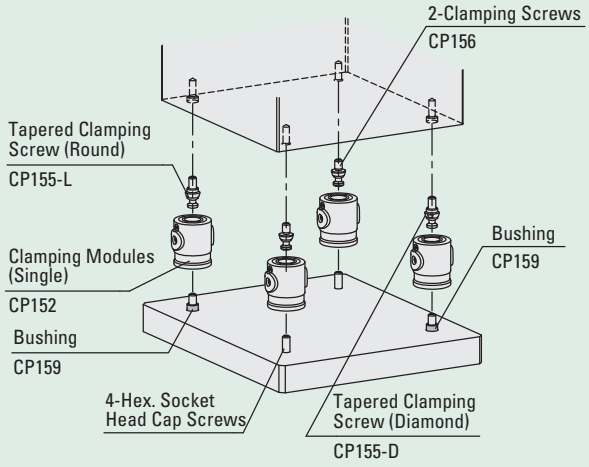


Part Number	d (H7)	Lf
CP159-08001	12	8.5
CP159-12001	18	12.5
CP159-16001	22	16.5

How To Install



How To Use



These bushings are used to locate Single Modular Clamps (CP152) on a base plate. Made from SCM435 quenched and tempered steel with a black oxide finish. For complete technical information, search for the part number at www.fixtureworks.net.

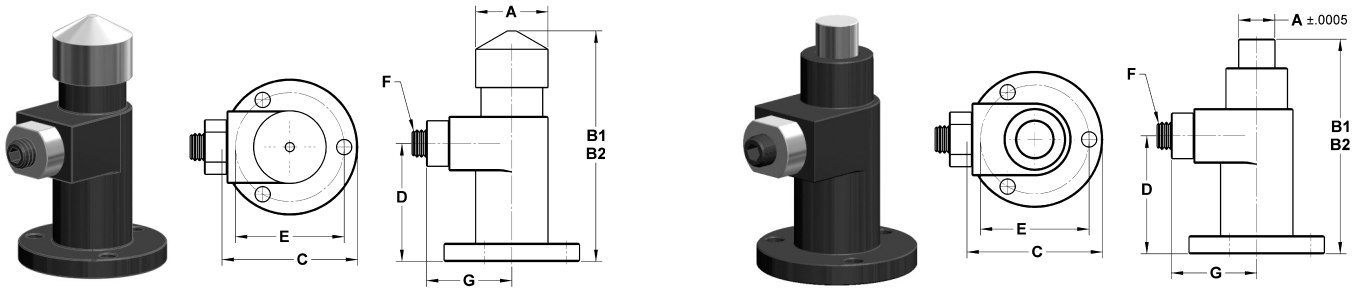
Part #	h6 D mm	D1 mm	H mm
CP159-08001	12	8.5	15
CP159-12001	18	12.5	22
CP159-16001	22	16.5	28

HEAVY DUTY WORK SUPPORTS

These heavy duty spring loaded supports are used to eliminate chatter and work piece deflection. The modular design is ideal for use where space is limited. The spring loaded adjustable support is locked into place by tightening the set screw on the side of the support using a 3/16" hex wrench. They are available with a tip or without a tip. The style without a tip allows the user to fabricate a contact tip to meet special application needs. The tip is press fit onto the support cylinder. The flange mounts to a base using #10 socket head cap screws. Made from hardened tool steel with black oxide finish.

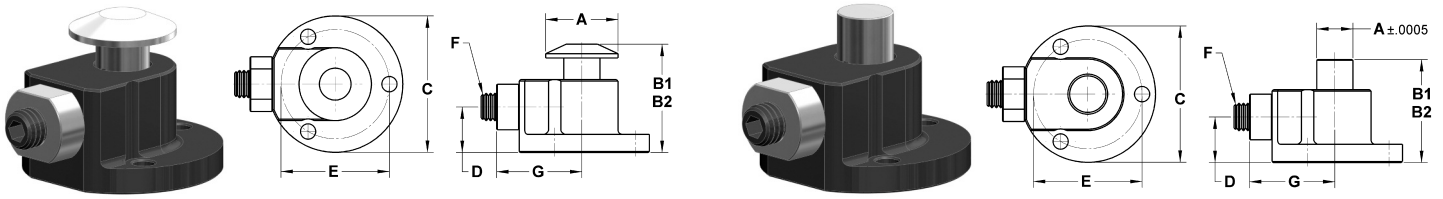
For proper operation of the supports:

1. Fully compress the work support and lock in the compressed position.
2. Clamp work piece into the fixture.
3. Unlock the work support so the spring loaded tip contacts the work piece and then tighten the set screw on the support to lock it into position.
4. Do not apply heavy clamping forces directly over the work supports.



Standard

Part #	Style	A Tip Dia	B1 Height Min	B2 Height Max	C Flange Dia	D Screw Height	E Bolt Center Dia	F Hex Size	G	Spring Load Lbs.	Support Capacity Lbs.
MP-2805601	With Tip	1.00	2.933	3.267	1.87	1.625	1.50	3/16	1.178	6.50	3,800
MP-2805603	Without Tip	.50	2.622	2.956	1.87	1.625	1.50	3/16	1.178	6.50	3,800



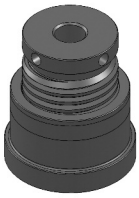
Low Profile

Part #	Style	A Tip Dia	B1 Height Min	B2 Height Max	C Flange Dia	D Screw Height	E Bolt Center Dia	F Hex Size	G	Spring Load Lbs.	Support Capacity Lbs.
MP-2805600	With Tip	1.00	1.233	1.467	1.87	.625	1.50	3/16	1.178	6.50	3,100
MP-2805602	Without Tip	.50	1.178	1.412	1.87	.625	1.50	3/16	1.178	6.50	3,100

fixtureworks Workholding Technologies

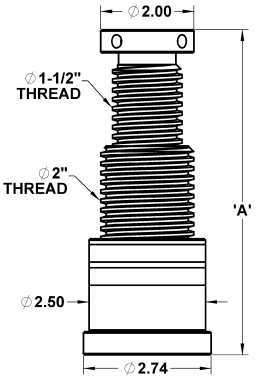
LONG TRAVEL WORK SUPPORTS

Supports

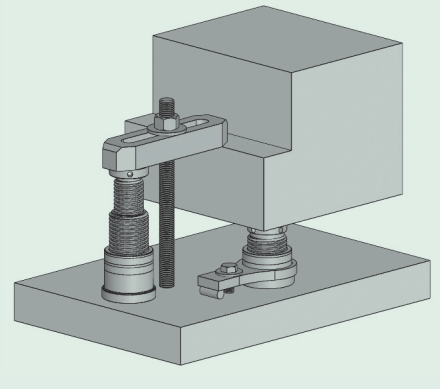


AWS-0200

AWS-0300, AWS-0400, AWS-0900



How To Use



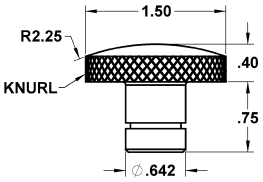
These long travel adjustable work supports are used to eliminate chatter and work piece deflection. The wide range of clamping heights makes them very versatile for use in a wide range of applications. The Acme style thread provides infinite height adjustment and eliminates the need for shims while reducing set up time. Tested to handle up to 40,000 lbs of load. These supports can be used in both vertical and horizontal applications. Made from 1144 stress proof steel with black oxide finish. Accessories are available to meet specific application needs.

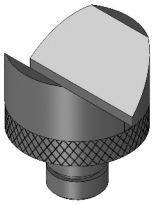
Part #	A Min	A Max
AWS-0200	2-1/8	3-1/8
AWS-0300	3	6-1/2

Part #	A Min	A Max
AWS-0400	4	9-1/2
AWS-0900	9	24

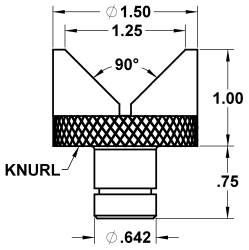
Contact Points

Spherical

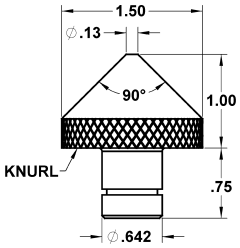


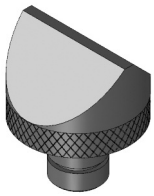


V-Notch

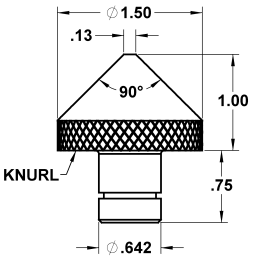


Pointed





Wedge



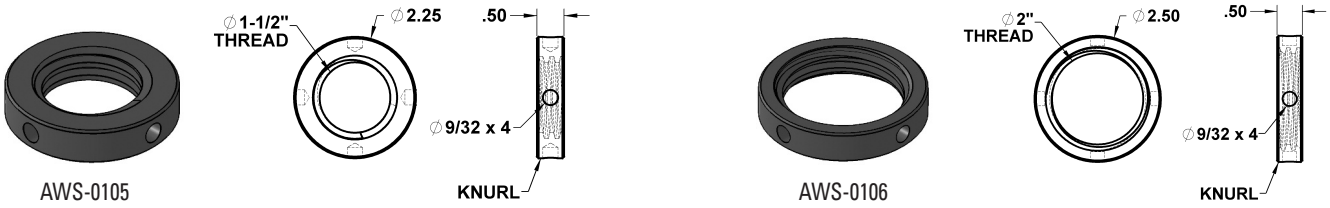
These contact points are used with the long travel adjustable work supports to allow the supports to meet specific applications. They are held in place with the included retaining ring. Made from 4140 steel and heat treated to Rc 40/50 with black oxide finish.

Part #	Description
AWS-0101	Spherical Style
AWS-0102	Pointed Style

Part #	Description
AWS-0103	V-Notch Style
AWS-0104	Wedge Style

LONG TRAVEL WORK SUPPORTS

Locking Collar



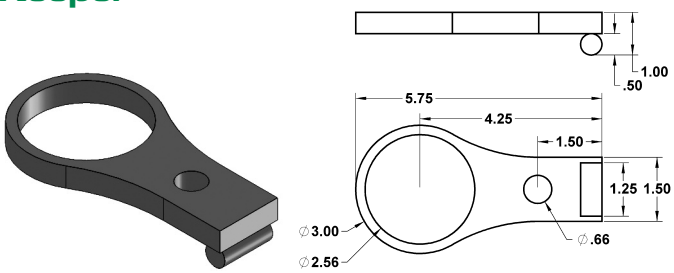
AWS-0105 AWS-0106

These locking collars are used with the long travel adjustable work supports to allow the height of the clamp to be locked into position to prevent movement for repeated machining. Made from steel with black oxide finish.

Part #	Description
AWS-0105	1-1/2" Locking Collar

Part #	Description
AWS-0106	2" Locking Collar

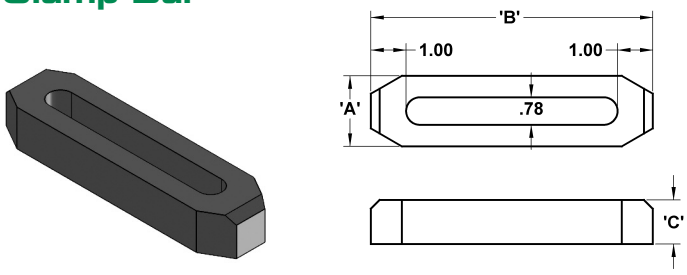
Keeper



These keepers fit to the bottom of the long travel adjustable work supports to prevent the support from accidental movement. Made from steel with black oxide finish.

Part #	Description
AWS-0001	Work Support Keeper

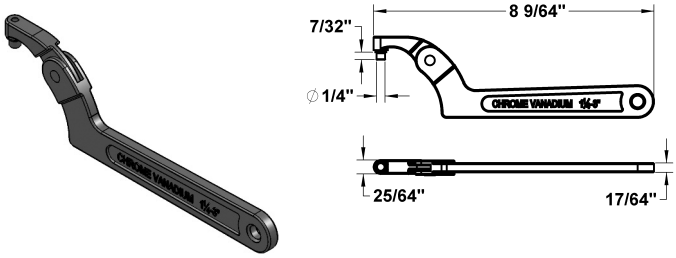
Clamp Bar



These clamping bars are used with the long travel adjustable work supports to allow the supports to be used in clamping applications.

Part #	A	B	C
AWS-0008	2	8	1-1/4
AWS-0012	2-1/4	12	1-1/2

Spanner Wrench

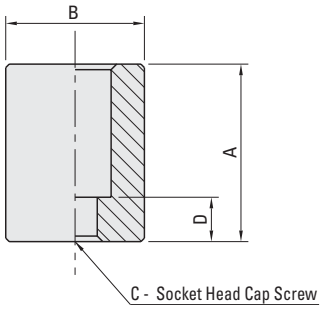


The spanner wrench is used to adjust and tighten the work supports and locking collars.

Part #	Description
AWS-0107	Spanner Wrench

IMAO

SUPPORT CYLINDERS



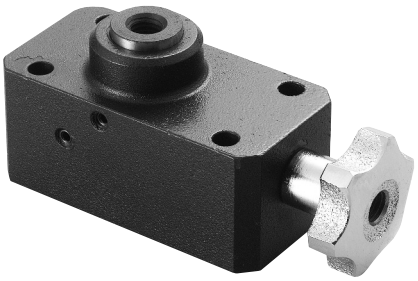
These support cylinders are designed to be used under a work piece providing proper support and preventing chatter and movement during machining operations. Made from SAE-1045 alloy steel. Precision ground and heat treated with black oxide finish.

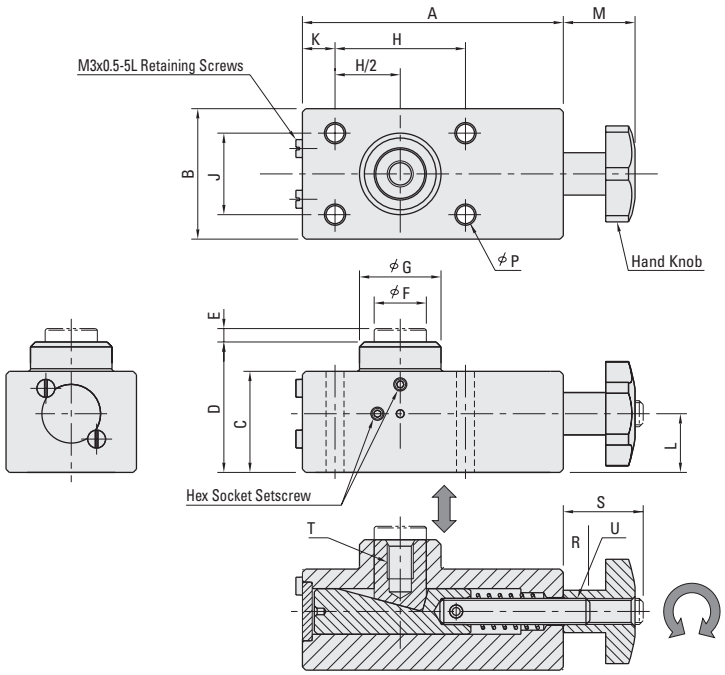
Part #	+/-.01 A mm	B mm	C mm	D mm
BJ300-08016	16	25	M8	7
BJ300-08020	20	25	M8	7
BJ300-08025	25	25	M8	7
BJ300-08032	32	25	M8	7
BJ300-08040	40	25	M8	7
BJ300-08050	50	25	M8	7
BJ300-10020	20	32	M10	9
BJ300-10025	25	32	M10	9
BJ300-10032	32	32	M10	9
BJ300-10040	40	32	M10	9

Part #	+/-.01 A mm	B mm	C mm	D mm
BJ300-10050	50	32	M10	9
BJ300-10063	63	32	M10	9
BJ300-12020	20	40	M12	7
BJ300-12025	25	40	M12	12
BJ300-12032	32	40	M12	12
BJ300-12040	40	40	M12	12
BJ300-12050	50	40	M12	12
BJ300-12063	63	40	M12	12
BJ300-12080	80	40	M12	22
BJ300-12100	100	40	M12	22

Part #	+/-.01 A mm	B mm	C mm	D mm
BJ300-16025	25	50	M16	8
BJ300-16032	32	50	M16	15
BJ300-16040	40	50	M16	15
BJ300-16050	50	50	M16	15
BJ300-16063	63	50	M16	15
BJ300-16080	80	50	M16	35
BJ300-16100	100	50	M16	35
BJ300-16125	125	50	M16	35

EXTENDABLE WORK SUPPORTS

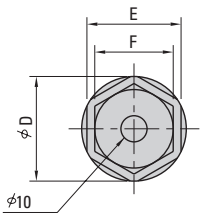


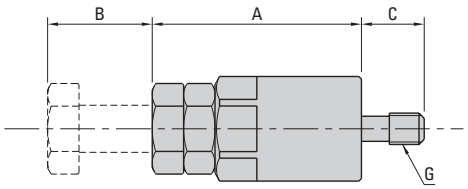


These extendable work supports provide proper support and positioning to prevent chatter and movement during machining operations. They allow for easy adjustment with the hand knob. Turning the knob clockwise pushes the work support upward, counterclockwise moves it downward. A custom spindle can be adapted to the clamp to extend the knob past the work piece. The body is made from SAE-1045 with black oxide finish. The piston and locking pin are made from SAE-1095 alloy steel and heat treated with black oxide finish. The adjustment knob is cast iron.

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	T mm	U mm	Support Capacity Lbs.
CP300-08040	80	40	31	40	4	16	25	40	25	10	18	22	5.5	8	23.5	M8X1.25	M8X1.25	150
CP300-10050	95	50	39	50	5	20	32	50	30	10	23	25	6.5	9	28.0	M10X1.5	M10X1.5	175
CP300-12060	115	60	47	60	6	24	38	60	40	15	28	32	9.0	12	35.5	M12X1.75	M12X1.75	200

SCREW JACKS – REPLACEABLE TIP STYLE

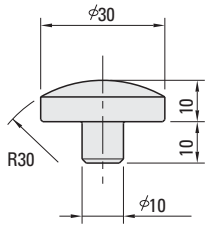




These jack screws allow you to provide proper work piece support and positioning to prevent chattering and deflection. They are designed to be used with screw jack tips shown below. The body is made from SAE-1045 alloy steel. The bolt is made from SAE-4135 and heat treated. Black oxide finish. Replacement tips sold below.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Load Capacity Lbs.
BJ330-12040	40	10	30	40	36	30	M12X1.75	7,148
BJ330-12050	50	20	30	40	36	30	M12X1.75	7,148
BJ330-12070	70	40	30	40	36	30	M12X1.75	7,148
BJ330-12100	100	50	30	50	46	36	M12X1.75	10,093
BJ330-12150	150	100	30	50	46	36	M12X1.75	10,093
BJ330-16040	40	10	30	40	36	30	M16X2	7,148
BJ330-16050	50	20	30	40	36	30	M16X2	7,148
BJ330-16070	70	40	30	40	36	30	M16X2	7,148
BJ330-16100	100	50	30	50	46	36	M16X2	10,093
BJ330-16150	150	100	30	50	46	36	M16X2	10,093

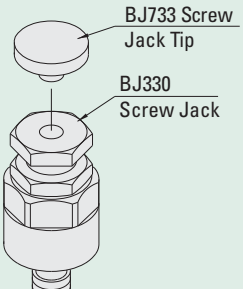
SCREW JACK TIP



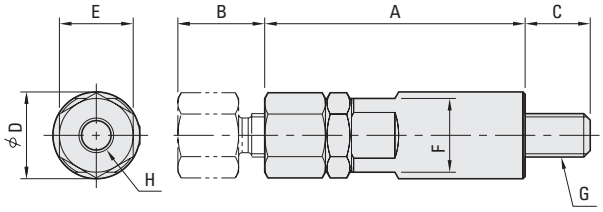
For use with the replaceable tip style screw jacks shown above. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	Description
BJ733-10100	Screw Jack Tip

How To Use



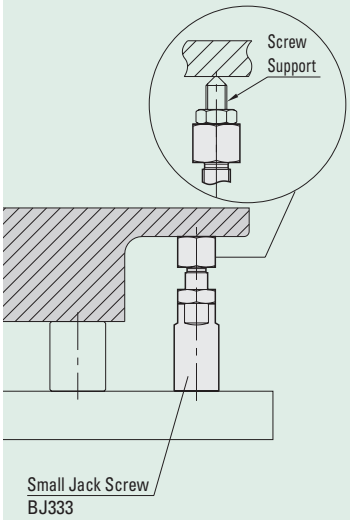
JACK SCREW SUPPORT RISERS



These jack screw risers allow you to provide proper work piece support and positioning to prevent chattering and deflection. Easy height adjustment allows for proper support. The low profile allows for use in confined spaces. They have a tapped hole in the top for mounting a tip. Can be used with the threaded jack screw supports shown on page 163. Made from SAE-1045 alloy steel with black oxide finish.

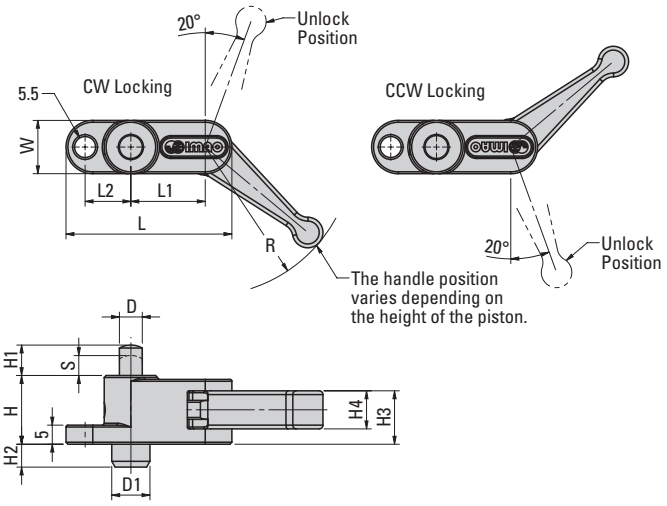
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
BJ333-08040	40	10	12	16	13	13	M8X1.25	M6X1 (6mm Deep)
BJ333-08050	50	20	12	16	13	13	M8X1.25	M6X1 (6mm Deep)
BJ333-10050	50	10	14	20	17	17	M10X1.5	M8X1.25 (8mm Deep)
BJ333-10060	60	20	14	20	17	17	M10X1.5	M8x1.25 (8mm Deep)
BJ333-12065	65	15	19	24	22	22	M12X1.75	M10X1.5 (10mm Deep)
BJ333-12080	80	30	19	24	22	22	M12X1.75	M10X1.5 (10mm Deep)
BJ333-16080	80	15	24	32	27	27	M16X2	M12X1.75 (12mm Deep)
BJ333-16095	95	30	24	32	27	27	M16X2	M12X1.75 (12mm Deep)

How To Use

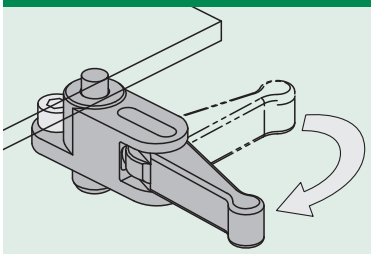


COMPACT WORK SUPPORT – CAM HANDLE

ONE-TOUCH
Clamps

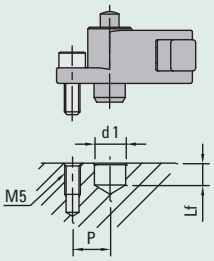


How To Use



Load the workpiece to compress the cylinder. Rotate the handle to lock the cylinder into place.

How To Mount



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

Size	d1 (+0.3/0)	Lf	P
BJ362-06001	10	7	12
BJ362-10001	14	10.5	14

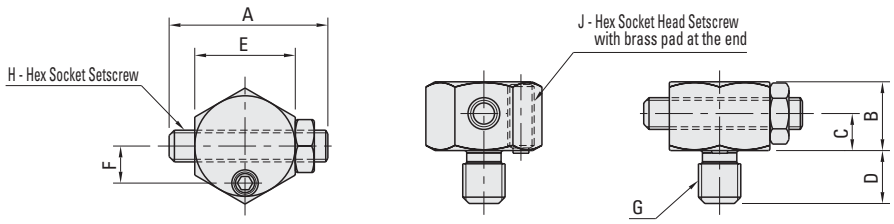
Part #	Operating Load* Lbs.	Support Capacity Lbs.	Piston Spring Force Lbs.
BJ362-06001R	17	44	.33 – .67
BJ362-06001L	17	44	.33 – .67
BJ362-10001R	22	89	.40 – .67
BJ362-10001L	22	89	.40 – .67

* Allowable load to operate handle

These supports help reduce chatter and workpiece deflection while using very little space on a fixture. The spring-loaded cylinder is compressed by the workpiece and locked in place using the cam lever. The body is made from S45C steel with a black oxide finish. The piston is made from SCM440 steel, hardened to Rc 50/55, with a black oxide finish. The cam handle is made from die-cast zinc with a plated chrome finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	Locking Direction	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	R mm	S mm
BJ362-06001R	CW (Right)	6	10	43.5	19.5	12	14	18	8	6	14	10	39	3
BJ362-06001L	CCW (Left)	6	10	43.5	19.5	12	14	18	8	6	14	10	39	3
BJ362-10001R	CW (Right)	10	14	50.4	22.4	14	18	25	10	9.5	18.5	13	50	4
BJ362-10001L	CCW (Left)	10	14	50.4	22.4	14	18	25	10	9.5	18.5	13	50	4

ADJUSTABLE STOPS – SCREW STOP STYLE

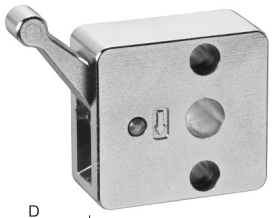


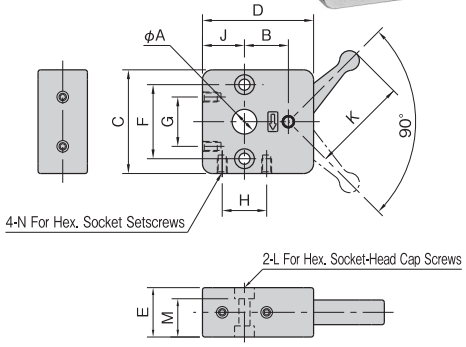
These screw stop buttons are ideal for low profile work to provide proper work piece positioning and to prevent chatter and movement during machining operations. To install, screw in the body, screw in the adjustment screw and then tighten the set screw to lock the body. Made from SAE-1045 alloy steel, 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
BJ214-08001	30	13.0	7.0	10	19	7	M8X1.25	M6X1	M5X0.8X12
BJ214-10001	40	16.5	8.5	12	22	8	M10X1.5	M8X1.25	M5X0.8X12
BJ214-12001	50	21.0	11.0	15	24	9	M12X1.75	M10X1.5	M6X1X20
BJ214-16001	60	23.0	12.0	20	30	12	M16X2	M12X1.75	M6X1X20

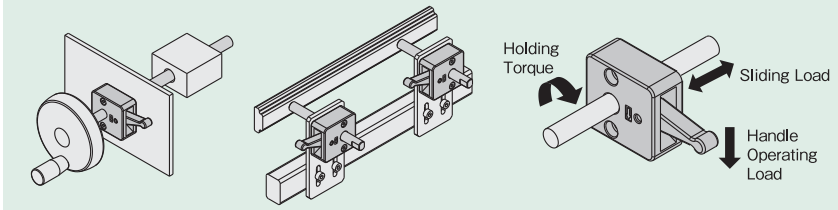
QUICK SHAFT LOCKING CLAMPS – QSC SERIES

ONE-TOUCH Clamps





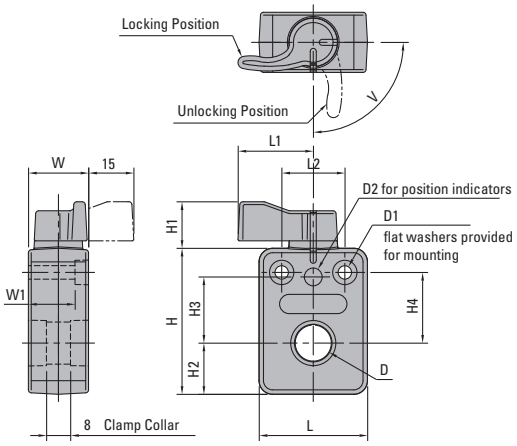
How To Use



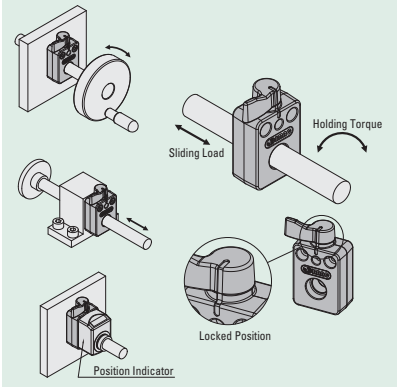
These quick shaft locking clamps are designed to positively lock a shaft quickly without the use of tools or handles. Ideal for applications where frequent position adjustments are made or space is limited. As the handle is pushed down, a locking block clamps the shaft into position. As the handle is released, a spring releases the locking block allowing the shaft to move freely. Both faces and two sides can be used for installation allowing for multiple mounting configurations. The body and handle are made from die cast zinc with chrome plating. The internal locking block is brass. Shaft tolerance h9. See page 561 for h9 tolerance specifications.

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	Handle Load Lbs.	Holding Torque Ft/Lbs.	Sliding Load Lbs.
QSC10S	10	17.6	42	45	20	30	20	18	17	39	M4	15.5	M4X0.7 - (6mm Deep)	18	1.4	50
QSC12S	12	18.8	42	45	20	30	20	18	17	39	M4	15.5	M4X0.7 - (6mm Deep)	18	2.2	50
QSC14S	14	19.9	42	45	20	30	20	18	17	39	M4	15.5	M4X0.7 - (6mm Deep)	18	2.5	50
QSC15L	15	24.1	50	55	26	35	20	20	20	50	M5	20.5	M5X0.8 - (8mm Deep)	18	3.3	50
QSC16L	16	24.7	50	55	26	35	20	20	20	50	M5	20.5	M5X0.8 - (8mm Deep)	18	4	50
QSC20L	20	27	50	55	26	35	20	20	20	50	M5	20.5	M5X0.8 - (8mm Deep)	18	4.7	50

QUICK SHAFT-LOCKING CLAMPS – QCSPL SERIES



How To Use



These shaft locking clamps are designed to positively lock a shaft quickly without the use of tools. Ideal for applications where frequent position adjustments are made. As the handle is pushed, a locking block clamps the shaft into position. As the handle is released, a spring releases the locking block allowing the shaft to move freely. The position of the handle and indication marks on the body of clamp shows the locked and unlocked positions. The bodies have mounting holes for use with a position indicator. The body and handle are made from glass-fiber reinforced plastic. The clamp collar is made from SUS630 stainless steel.

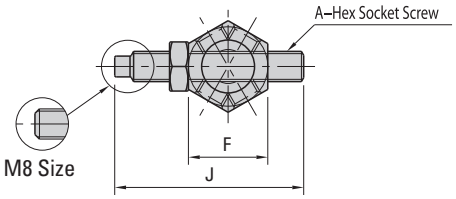
Orange Knob Part #	Black Knob Part #	D (h7) For Shaft Dia mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Holding Torque Ft. Lbs.	Sliding Load Lbs.
QCSPL0408-OG	QCSPL0408-BK	8	M4	6	36	25	21	20	14	48.5	15.5	17	22	23.5	2.2	89
QCSPL0410-OG	QCSPL0410-BK	10	M4	6	36	25	21	20	14	48.5	15.5	17	22	23.5	2.2	89
QCSPL0412-OG	QCSPL0412-BK	12	M4	6	36	25	21	20	14	48.5	15.5	17	22	23.5	2.9	89
QCSPL0414-OG	QCSPL0414-BK	14	M4	6	36	25	21	20	14	48.5	15.5	17	22	23.5	2.9	89
QCSPL0912-OG	QCSPL0912-BK	12	M5	6	51	25	34	20	12.5	69	15.5	26	30	17	3.6	112
QCSPL0915-OG	QCSPL0915-BK	15	M5	6	51	25	34	20	12.5	69	15.5	26	30	17	3.6	112
QCSPL0916-OG	QCSPL0916-BK	16	M5	6	51	25	34	20	12.5	69	15.5	26	30	17	4.4	112
QCSPL0920-OG	QCSPL0920-BK	20	M5	6	51	25	34	20	12.5	69	15.5	26	30	17	4.4	112

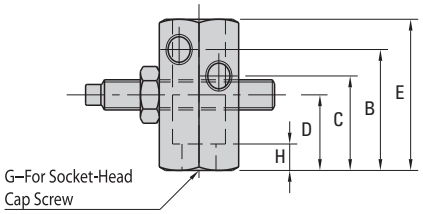
Note: Using shafts with tolerances other than h7 may decrease the allowable holding torque and/or sliding load.

See page 561 for h7 tolerance specifications.

IMAO

ADJUSTABLE STOPS – STANDARD

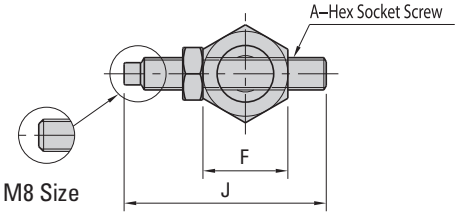


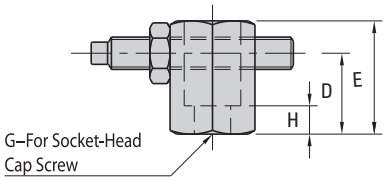


These adjustable stops offer three holes for different screw heights to provide for proper work piece positioning and to prevent chatter and movement during machining operations. The threaded stop allows for horizontal adjustments. Mounts with a socket head cap screw. Made from SAE-1045 alloy steel with black oxide finish. The adjustment screw is heat treated.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm
BJ210-08040	M8X1.25	32	25	20	40	21	M8	7	50
BJ210-12050	M12X1.75	50	40	32	60	36	M12	12	100
BJ210-16063	M16X2	63	50	40	80	46	M16	14	100

ADJUSTABLE STOPS – LOW PROFILE

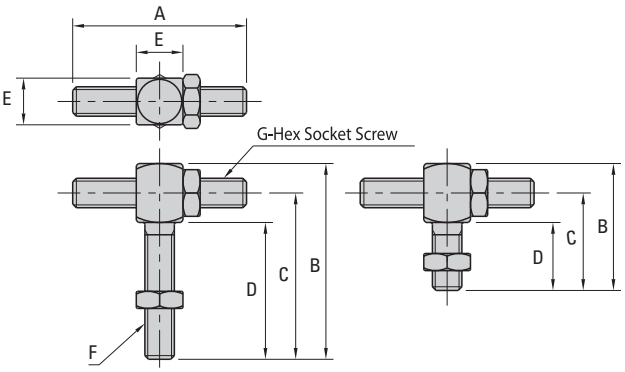




These low profile adjustable stops provide for proper work piece positioning and to prevent chatter and movement during machining operations. The threaded stop allows for horizontal adjustments. Mounts with a socket head cap screw. Made from SAE-1045 alloy steel with black oxide finish. The adjustment screw is heat treated.

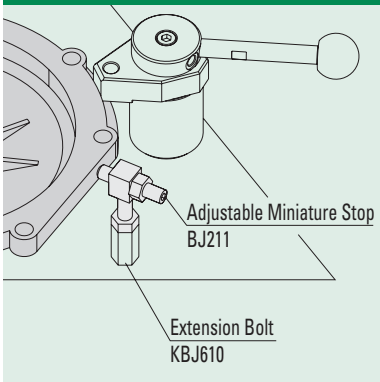
Part #	A mm	D mm	E mm	F mm	G mm	H mm	J mm
BJ210-08020S	M8X1.25	20	28	21	M8	7	50
BJ210-10025S	M10X1.5	25	35	30	M10	9	90
BJ210-12032S	M12X1.75	32	44	36	M12	12	100
BJ210-16040S	M16X2	40	56	46	M16	14	100

ADJUSTABLE MINI STOPS



Standard Short

How To Use

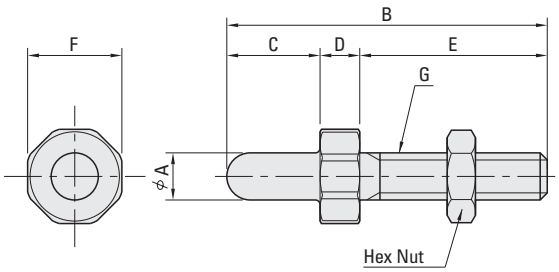


These adjustable mini stops allow for quick vertical and horizontal adjustments to provide proper work piece positioning and to prevent chatter and movement during machining operations. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

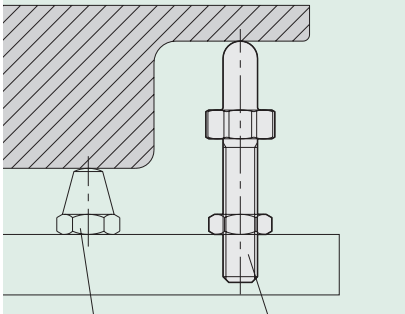
Standard Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm
BJ211-08001	40	56	48	40	13	M8X1.25	M8X1.25
BJ211-10001	50	70	60	50	17	M10X1.5	M10X1.5
BJ211-12001	60	84	72	60	19	M12X1.75	M12X1.75
BJ211-16001	80	112	96	80	24	M16X2	M16X2

Short Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm
BJ211-08011	40	36	28	20	13	M8X1.25	M8X1.25
BJ211-10011	50	45	35	25	17	M10X1.5	M10X1.5
BJ211-12011	60	54	42	30	19	M12X1.75	M12X1.75
BJ211-16011	80	72	56	40	24	M16X2	M16X2

THREADED JACK SCREW SUPPORTS



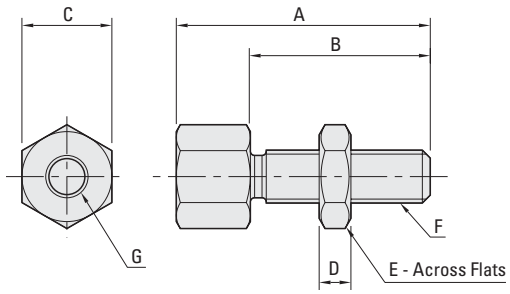
How To Use



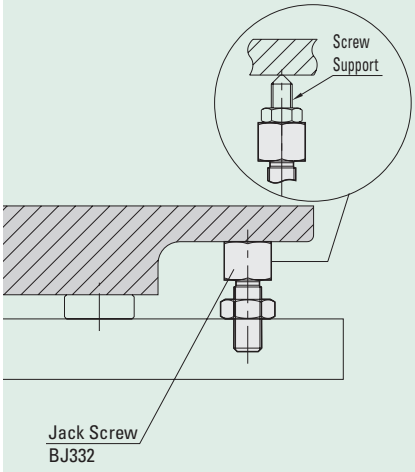
These jack screw supports allow you to provide proper work piece support and positioning to prevent chattering and deflection. Made from SAE-1045 alloy steel. Heat treated to RC 33-39. Black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Load Capacity Lbs.
BJ331-06001	6	37	6	6	25	13	M6X1	809
BJ331-06002	6	43	12	6	25	13	M6X1	809
BJ331-08001	8	45	8	7	30	17	M8X1.25	1,461
BJ331-08002	8	53	16	7	30	17	M8X1.25	1,461
BJ331-10001	10	58	10	8	40	19	M10X1.50	2,338
BJ331-10002	10	68	20	8	40	19	M10X1.50	2,338
BJ331-12001	12	72	12	10	50	24	M12X1.75	3,394
BJ331-12002	12	84	24	10	50	24	M12X1.75	3,394
BJ331-16001	16	89	16	13	60	30	M16X2	6,339
BJ331-16002	16	105	32	13	60	30	M16X2	6,339
BJ331-20001	20	115	20	15	80	36	M20X2.50	9,914
BJ331-20002	20	135	40	15	80	36	M20X2.50	9,914

JACK SCREWS



How To Use

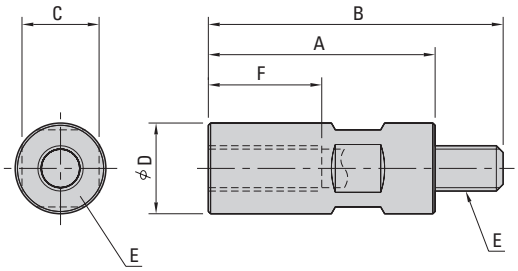


These jack screws allow you to provide proper work piece support and positioning to prevent chattering and deflection. The jack screw has a tapped hole in the top for mounting a screw support or other tip. Easy height adjustment allows for proper support. Made from SAE-1045 alloy steel with black oxide finish.

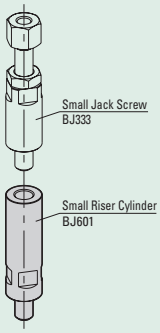
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm
BJ332-08020	30	20	13	5	13	M8X1.25	M6X1 (6mm Deep)
BJ332-08030	40	30	13	5	13	M8X1.25	M6X1 (6mm Deep)
BJ332-10024	38	24	17	6	17	M10X1.5	M8X1.25 (8mm Deep)
BJ332-10034	48	34	17	6	17	M10X1.5	M8X1.25 (8mm Deep)
BJ332-12033	51	33	22	7	22	M12X1.75	M10X1.5 (10mm Deep)
BJ332-12048	66	48	22	7	22	M12X1.75	M10X1.5 (10mm Deep)
BJ332-16040	62	40	27	10	27	M16X2	M12X1.75 (12mm Deep)
BJ332-16055	77	55	27	10	27	M16X2	M12X1.75 (12mm Deep)

IMAO

SMALL RISER CYLINDERS



How To Use



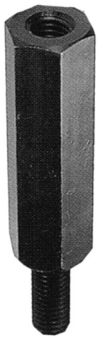
Can be used with the jack screw risers shown on page 159 for additional height. Made from SAE-1045 alloy steel with black oxide finish.

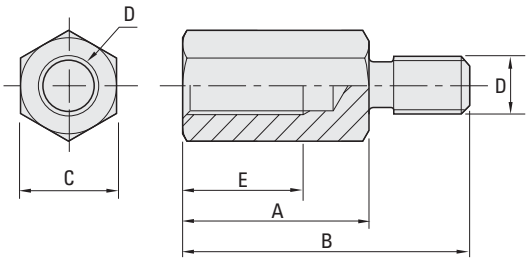
Part #	A mm	B mm	C mm	D mm	E mm	F mm
BJ601-08032	32	44	13	16	M8X1.25	20
BJ601-08040	40	52	13	16	M8X1.25	20
BJ601-08050	50	62	13	16	M8X1.25	20
BJ601-08065	65	77	13	16	M8X1.25	20
BJ601-08080	80	92	13	16	M8X1.25	20
BJ601-08100	100	112	13	16	M8X1.25	20
BJ601-10040	40	54	17	20	M10X1.5	25
BJ601-10050	50	64	17	20	M10X1.5	25
BJ601-10065	65	79	17	20	M10X1.5	25
BJ601-10080	80	94	17	20	M10X1.5	25
BJ601-10100	100	114	17	20	M10X1.5	25

Part #	A mm	B mm	C mm	D mm	E mm	F mm
BJ601-12050	50	69	22	24	M12X1.75	30
BJ601-12065	65	84	22	24	M12X1.75	30
BJ601-12080	80	99	22	24	M12X1.75	30
BJ601-12100	100	119	22	24	M12X1.75	30
BJ601-12125	125	144	22	24	M12X1.75	30
BJ601-12160	160	179	22	24	M12X1.75	30
BJ601-16050	50	74	27	32	M16X2	32
BJ601-16065	65	89	27	32	M16X2	40
BJ601-16080	80	104	27	32	M16X2	40
BJ601-16100	100	124	27	32	M16X2	40
BJ601-16125	125	149	27	32	M16X2	40
BJ601-16160	160	184	27	32	M16X2	40

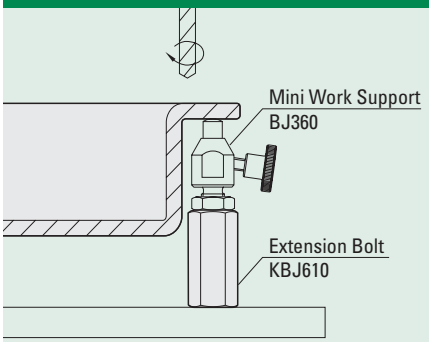
Kipp

EXTENSION BOLTS





How To Use



Use to raise a support.

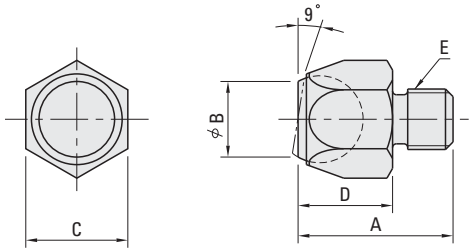
These extension bolts are used to provide additional height for proper work support. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm
KBJ610-08025	25	38	13	M8X1.25	16
KBJ610-08032	32	45	13	M8X1.25	16
KBJ610-08040	40	53	13	M8X1.25	16
KBJ610-10032	32	48	17	M10X1.5	20
KBJ610-10050	50	66	17	M10X1.5	20
KBJ610-10075	75	91	17	M10X1.5	20
KBJ610-12032	32	50	22	M12X1.75	20
KBJ610-12050	50	68	22	M12X1.75	20
KBJ610-12075	75	93	22	M12X1.75	20

Part #	A mm	B mm	C mm	D mm	E mm
KBJ610-16032	32	57	27	M16X2	20
KBJ610-16050	50	75	27	M16X2	30
KBJ610-16075	75	100	27	M16X2	30
KBJ611-16032	32	62	27	M16X2	20
KBJ611-16050	50	80	27	M16X2	30
KBJ611-16075	75	105	27	M16X2	30

IMAO

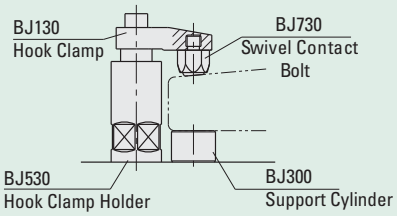
SWIVEL CONTACT BOLTS



Use to clamp from above or below the work piece. Contact swivels to compensate for uneven work surface. The ball swivels 9 degrees from centerline. The body is made from SAE-1045 steel with black oxide finish. The ball is made from SAE-52100 stainless steel and hardened.

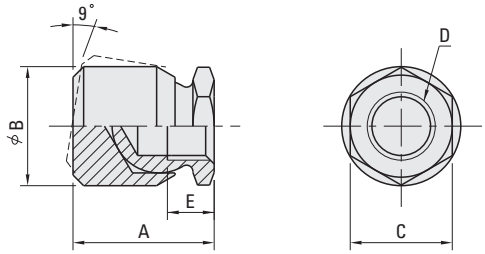
Part #	A mm	B mm	C mm	D mm	E mm	Load Capacity Lbs.
BJ730-06009	16	7.4	10	9	M6X1	3,079
BJ730-08012	21	10.5	13	12	M8X1.25	5,754
BJ730-10016	27	12.7	17	16	M10X1.5	8,992
BJ730-12020	32	15.0	22	20	M12X1.75	13,353
BJ730-16025	41	20.0	27	25	M16X2	21,670

How To Use



Use to clamp from above or below a workpiece. Ball swivel is not limited.

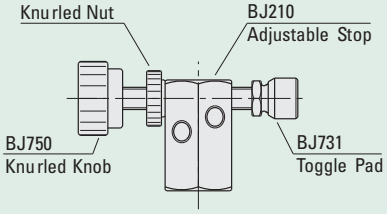
TOGGLE PADS



Used to distribute clamping pressure to irregular work piece surfaces. The pad swivels 9 degrees from centerline. Made from SAE-1045 alloy steel with black oxide finish. The contact surface is hardened.

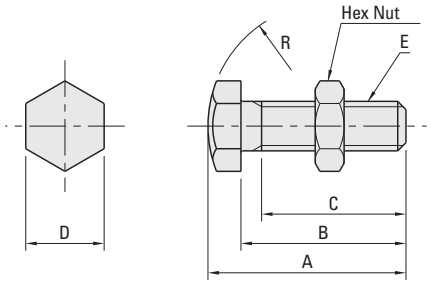
Part #	A mm	B mm	C mm	D mm	E mm	Static Load Capacity Lbs.	Dynamic Capacity Lbs.
BJ731-08017	17	15	13	M8X1.25	6	1,798	1,190
BJ731-12025	25	22	19	M12X1.75	8	3,574	2,382
BJ731-16033	33	28	24	M16X2	10	6,002	4,000

How To Use



Use to distribute pressure to irregular workpiece surfaces.

CONTACT BOLTS

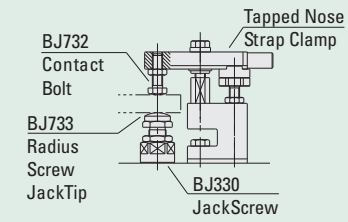


Radius head for even clamping pressure on irregular work piece surface. Made from SAE-4135 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	R mm
BJ732-06025	30	25	22	10	M6X1	R15
BJ732-06035	40	35	32	10	M6X1	R15
BJ732-06045	50	45	42	10	M6X1	R15
BJ732-08030	36	30	27	13	M8X1.25	R17.5
BJ732-08040	46	40	37	13	M8X1.25	R17.5
BJ732-08050	56	50	47	13	M8X1.25	R17.5
BJ732-10040	48	40	37	17	M10X1.5	R20
BJ732-10050	58	50	47	17	M10X1.5	R20

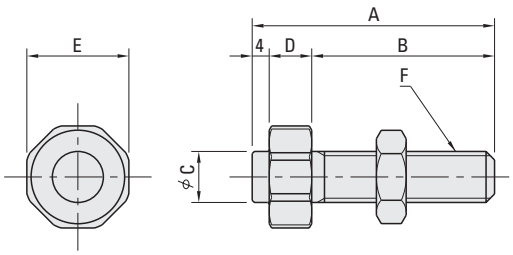
Part #	A mm	B mm	C mm	D mm	E mm	R mm
BJ732-10060	68	60	57	17	M10X1.5	R20
BJ732-12050	50	40	35	19	M12X1.75	R30
BJ732-12060	70	60	55	19	M12X1.75	R30
BJ732-12070	80	70	65	19	M12X1.75	R30
BJ732-16055	55	45	40	24	M16X2	R35
BJ732-16065	75	65	60	24	M16X2	R35
BJ732-16075	85	75	70	24	M16X2	R35

How To Use

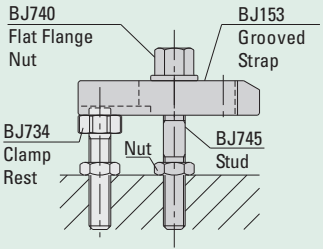


Use to distribute pressure to irregular workpiece surfaces.

CLAMP RESTS



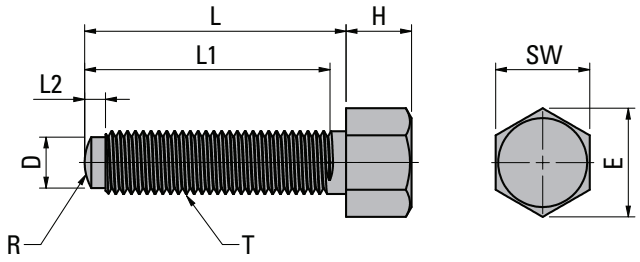
How To Use



For use with strap clamps shown on page 179. 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
BJ734-08001	41	30	8	7	17	M8X1.25
BJ734-08002	51	40	8	7	17	M8X1.25
BJ734-10001	44	32	10	8	19	M10X1.5
BJ734-10002	59	47	10	8	19	M10X1.5
BJ734-12001	57	43	12	10	24	M12X1.75
BJ734-12002	72	58	12	10	24	M12X1.75
BJ734-16001	57	43	16	10	30	M16X2
BJ734-16002	72	58	16	10	30	M16X2

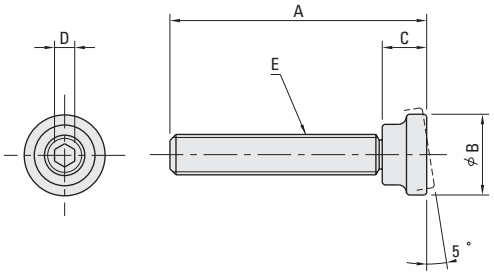
CLAMP SCREWS — BJ748 SERIES



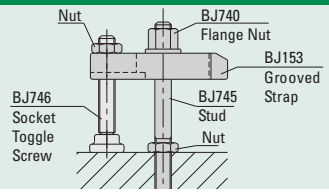
These clamp screws are used with fixed stops and supports to locate and hold the workpiece. Radius tip. Made from SAE-4135 alloy steel with a black oxide finish. Heat treated to Rc 33/39.

Part #	T mm	D mm	L mm	L1 mm	L2 mm	H mm	SW mm	E mm	R mm	Clamping Force Lbs.	Allowable Torque Ft Lbs.
BJ748-06030	M6X1	4.5	30	27	2.5	8	10	11.5	R5	1,798	7
BJ748-06040	M6X1	4.5	40	37	2.5	8	10	11.5	R5	1,798	7
BJ748-06050	M6X1	4.5	50	47	2.5	8	10	11.5	R5	1,798	7
BJ748-08040	M8X1.25	5.5	40	37	3.0	10	13	15.0	R6	3,596	18
BJ748-08050	M8X1.25	5.5	50	47	3.0	10	13	15.0	R6	3,596	18
BJ748-08060	M8X1.25	5.5	60	57	3.0	10	13	15.0	R6	3,596	18
BJ748-10040	M10X1.5	7.5	40	37	3.5	12	17	19.6	R8	5,620	36
BJ748-10050	M10X1.5	7.5	50	47	3.5	12	17	19.6	R8	5,620	36
BJ748-10060	M10X1.5	7.5	60	57	3.5	12	17	19.6	R8	5,620	36
BJ748-12060	M12X1.75	9.0	60	55	5.0	15	19	21.9	R9	8,542	66
BJ748-12080	M12X1.75	9.0	80	75	5.0	15	19	21.9	R9	8,542	66
BJ748-12100	M12X1.75	9.0	100	95	5.0	15	19	21.9	R9	8,542	66
BJ748-12125	M12X1.75	9.0	125	120	5.0	15	19	21.9	R9	8,542	66
BJ748-16080	M16X2	12.0	80	75	6.0	20	24	27.7	R12	14,162	147
BJ748-16100	M16X2	12.0	100	95	6.0	20	24	27.7	R12	14,162	147
BJ748-16125	M16X2	12.0	125	120	6.0	20	24	27.7	R12	14,162	147
BJ748-16150	M16X2	12.0	150	145	6.0	20	24	27.7	R12	14,162	147
BJ748-20080	M20X2.5	15.0	80	70	7.0	25	30	34.6	R15	22,031	287
BJ748-20100	M20X2.5	15.0	100	90	7.0	25	30	34.6	R15	22,031	287
BJ748-20125	M20X2.5	15.0	125	115	7.0	25	30	34.6	R15	22,031	287
BJ748-24100	M24X3	19.5	100	90	8.0	25	36	41.6	R20	31,473	494
BJ748-24125	M24X3	19.5	125	115	8.0	25	36	41.6	R20	31,473	494
BJ748-24150	M24X3	19.5	150	140	8.0	25	36	41.6	R20	31,473	494

SOCKET TOGGLE SCREWS



How To Use

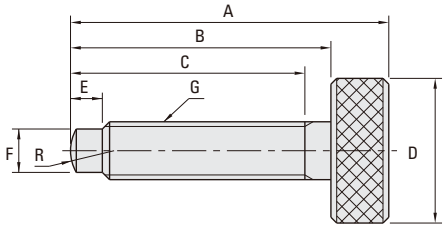


Used as a support for the strap clamps shown on page 181. The pad swivels 5 degrees from center to compensate for uneven work surfaces and clamping misalignment. The steel style is made from SAE-1045 alloy steel, heat treated with black oxide finish. The stainless style is made from 304 stainless steel.

Steel Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm
BJ746-06001	BJ746-06001-SUS	27	12	7	3	M6X1
BJ746-06002	BJ746-06002-SUS	42	12	7	3	M6X1
BJ746-08001	BJ746-08001-SUS	43	16	9	4	M8X1.25
BJ746-08002	BJ746-08002-SUS	63	16	9	4	M8X1.25
BJ746-08003	BJ746-08003-SUS	83	16	9	4	M8X1.25
BJ746-10001	BJ746-10001-SUS	64	20	11	5	M10X1.5
BJ746-10002	BJ746-10002-SUS	84	20	11	5	M10X1.5
BJ746-10003	BJ746-10003-SUS	104	20	11	5	M10X1.5
BJ746-12001	BJ746-12001-SUS	65	25	13	6	M12X1.75
BJ746-12002	BJ746-12002-SUS	85	25	13	6	M12X1.75
BJ746-12003	BJ746-12003-SUS	105	25	13	6	M12X1.75

Steel Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm
BJ746-12004	—	130	25	13	6	M12X1.75
BJ746-16001	—	85	32	15	8	M16X2
BJ746-16002	—	105	32	15	8	M16X2
BJ746-16003	—	130	32	15	8	M16X2
BJ746-16004	—	155	32	15	8	M16X2
BJ746-20001	—	105	40	16	10	M20X2.5
BJ746-20002	—	130	40	16	10	M20X2.5
BJ746-20003	—	155	40	16	10	M20X2.5

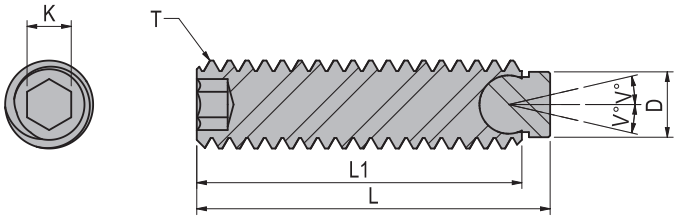
KNURLED HEAD SCREWS



Knurled head for easy gripping. These screws have a radius dog point for quick alignment. The steel style are made from SAE-1045 alloy steel, heat treated with black oxide finish. The stainless style is made from 440 stainless and is induction hardened on the edge.

Steel Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	R mm
BJ764-05001	BJ764-05001-SUS	31	25	23	16	3	4	M5X0.8	R4
BJ764-05002	BJ764-05002-SUS	46	40	38	16	3	4	M5X0.8	R4
BJ764-06001	BJ764-06001-SUS	42	35	33	18	3.5	4.5	M6X1	R5
BJ764-06002	BJ764-06002-SUS	57	50	48	18	3.5	4.5	M6X1	R5
BJ764-08001	BJ764-08001-SUS	53	45	42	20	5	6	M8X1.25	R6
BJ764-08002	BJ764-08002-SUS	68	60	57	20	5	6	M8X1.25	R6
BJ764-10001	BJ764-10001-SUS	55	45	42	25	5.5	7.5	M10X1.5	R8
BJ764-10002	BJ764-10002-SUS	70	60	57	25	5.5	7.5	M10X1.5	R8
BJ764-12001	BJ764-12001-SUS	72	60	56.5	32	6.5	9	M12X1.75	R10
BJ764-12002	BJ764-12002-SUS	92	80	76.5	32	6.5	9	M12X1.75	R10
BJ764-16001	—	96	80	76	40	8.5	12	M16X2	R12
BJ764-16002	—	116	100	96	40	8.5	12	M16X2	R12

SOCKET TOGGLE SCREWS – F131 SERIES

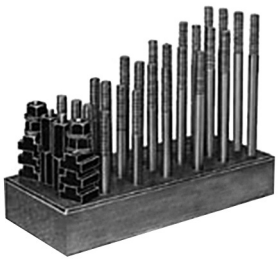


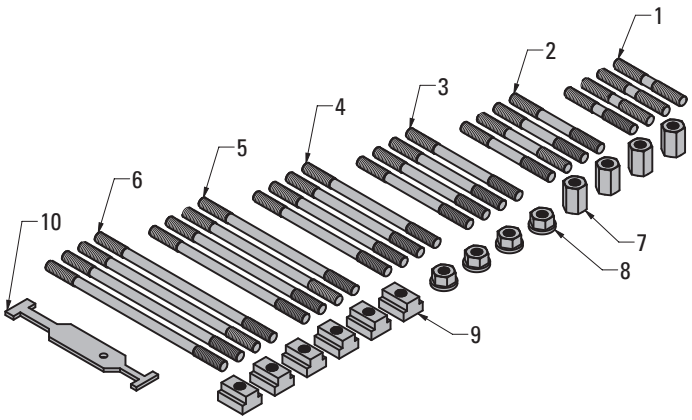
Used to position and align workpieces. The pad swivels 3.5 degrees from center to compensate for uneven work surfaces and clamping misalignment. Made from heat-treated steel with a black oxide finish.

Part #	T	D	L	L1	K	V Degrees
F131-0408	1/4-20	.185	1/2	3/8	1/8	3.5
F131-0412	1/4-20	.185	3/4	5/8	1/8	3.5
F131-0416	1/4-20	.185	1	7/8	1/8	3.5
F131-0516	5/16-18	.245	1	7/8	5/32	3.5
F131-0524	5/16-18	.245	1-1/2	1-3/8	5/32	3.5
F131-0532	5/16-18	.245	2	1-7/8	5/32	3.5
F131-0612	3/8-16	.297	3/4	9/16	3/16	3.5
F131-0624	3/8-16	.297	1-1/2	1-5/16	3/16	3.5
F131-0632	3/8-16	0.297	2	1-7/8	3/16	3.5

Part #	T	D	L	L1	K	V Degrees
F131-0816	1/2-13	.405	1	13/16	1/4	3.5
F131-0832	1/2-13	.405	2	1-13/16	1/4	3.5
F131-0840	1/2-13	.405	2-1/2	2-5/16	1/4	3.5
F131-1032	5/8-11	.500	2	1-3/4	5/16	3.5
F131-1048	5/8-11	.500	3	2-3/4	5/16	3.5

T-NUT & STUD KITS – F103 SERIES





Set Components

Item	Description	Qty
1	Stud - 3" Length	4
2	Stud - 4" Length	4
3	Stud - 5" Length	4
4	Stud - 6" Length	4
5	Stud - 7" Length	4
6	Stud - 8" Length	4
7	Coupling Nuts	4
8	Flanged Nuts	4
9	T-Slot Nuts	6
10	T-Slot Cleaner	1
–	Holder	1

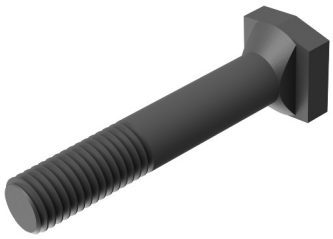
Includes T-Nuts, studs, coupling nuts and flange nuts. T-nuts, coupling nuts and flange nuts made from heat-treated steel with a black oxide finish. Studs made from ASTM A 311 Class B high tensile strength steel. Includes a holder to keep the set components together when not in use. For complete technical information, go to www.fixtureworks.net.

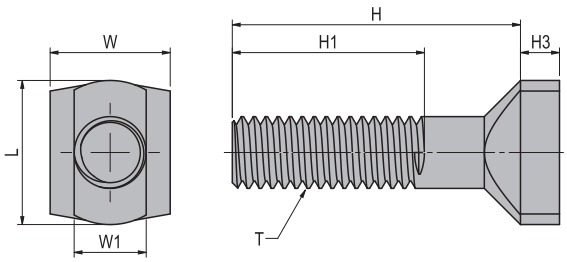
Part #	Thread	Table Slot
F103-0506	5/16-18	3/8
F103-0607	3/8-16	7/16
F103-0608	3/8-16	1/2
F103-0609	3/8-16	9/16
F103-0809	1/2-13	9/16

Part #	Thread	Table Slot
F103-0809	1/2-13	9/16
F103-0810	1/2-13	5/8
F103-0811	1/2-13	11/16
F103-1011	5/8-11	11/16
F103-1012	5/8-11	3/4
F103-1013	5/8-11	13/16

Part #	Thread	Table Slot
F103-1206	3/4-10	3/8
F103-1213	3/4-10	13/16
F103-1214	3/4-10	7/8
F103-1216	3/4-10	1
F103-1406	7/8-9	3/8
F103-1606	1"-8	3/8

T-SLOT BOLTS – INCH – F118 SERIES



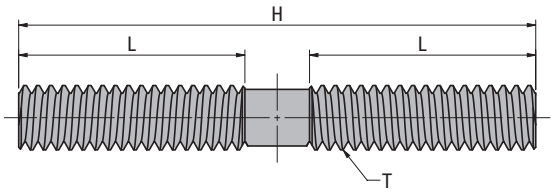


Heads fit into table slot to prevent twisting or jamming. Made from AISI 1045 steel.

Part #	T	H	H1	H2	W1	W	L	Use with Flange Nut
F118-0616	3/8-16	1	5/8	13/64	3/8	5/8	3/4	F121-0106
F118-0624	3/8-16	1-1/2	1	13/64	3/8	5/8	3/4	F121-0106
F118-0632	3/8-16	2	1-1/4	13/64	3/8	5/8	3/4	F121-0106
F118-0640	3/8-16	2-1/2	1-1/2	13/64	3/8	5/8	3/4	F121-0106
F118-0648	3/8-16	3	1-1/2	13/64	3/8	5/8	3/4	F121-0106
F118-0656	3/8-16	3-1/2	1-1/2	13/64	3/8	5/8	3/4	F121-0106
F118-0664	3/8-16	4	1-1/2	13/64	3/8	5/8	3/4	F121-0106
F118-0824	1/2-13	1-1/2	1	1/4	1/2	13/16	1	F121-0108
F118-0832	1/2-13	2	1-1/4	1/4	1/2	13/16	1	F121-0108
F118-0840	1/2-13	2-1/2	1-1/2	1/4	1/2	13/16	1	F121-0108
F118-0848	1/2-13	3	1-1/2	1/4	1/2	13/16	1	F121-0108
F118-0856	1/2-13	3-1/2	1-1/2	1/4	1/2	13/16	1	F121-0108
F118-0864	1/2-13	4	1-1/2	1/4	1/2	13/16	1	F121-0108
F118-0880	1/2-13	5	1-1/2	1/4	1/2	13/16	1	F121-0108
F118-0896	1/2-13	6	2	1/4	1/2	13/16	1	F121-0108
F118-1024	5/8-11	1-1/2	1	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1032	5/8-11	2	1-1/4	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1040	5/8-11	2-1/2	1-1/2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1048	5/8-11	3	1-1/2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1056	5/8-11	3-1/2	1-1/2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1064	5/8-11	4	1-1/2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1080	5/8-11	5	1-1/2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1096	5/8-11	6	2	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1128	5/8-11	8	3	5/16	5/8	1-1/64	1-1/8	F121-0110
F118-1248	3/4-10	3	1-1/2	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1256	3/4-10	3-1/2	1-1/2	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1264	3/4-10	4	1-1/2	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1280	3/4-10	5	1-1/2	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1296	3/4-10	6	2	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1328	3/4-10	8	3	3/8	3/4	1-1/4	1-1/8	F121-0112
F118-1664	1-8	4	2	1/2	1	1-21/32	1-1/8	F121-0116
F118-1680	1-8	5	2	1/2	1	1-21/32	1-1/8	F121-0116
F118-1696	1-8	6	2	1/2	1	1-21/32	1-1/8	F121-0116
F118-1728	1-8	8	3	1/2	1	1-21/32	1-1/8	F121-0116
F118-1760	1-8	10	3	1/2	1	1-21/32	1-1/8	F121-0116

fixtureworks Workholding Technologies

THREADED STUDS – INCH – F115 SERIES



Used for clamping and setup applications with T-nuts, flanged nuts, strap clamps, etc. Made from ASTM A 311 Class B high tensile strength steel.

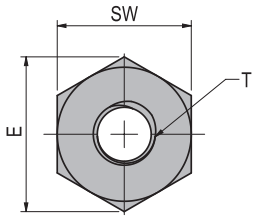
Part #	T	L	H
F115-0424	1/4-20	1**	1-1/2
F115-0432	1/4-20	1**	2
F115-0440	1/4-20	1	2-1/2
F115-0448	1/4-20	1	3
F115-0456	1/4-20	1	3-1/2
F115-0464	1/4-20	1	4
F115-0524	5/16-18	1-1/8**	1-1/2
F115-0532	5/16-18	1-1/8**	2
F115-0540	5/16-18	1-1/8	2-1/2
F115-0548	5/16-18	1-1/8	3
F115-0556	5/16-18	1-1/8	3-1/2
F115-0564	5/16-18	1-1/8	4
F115-0572	5/16-18	1-1/8	4-1/2
F115-0580	5/16-18	1-1/8	5
F115-0596	5/16-18	1-1/8	6
F115-0512	5/16-18	1-1/8	7
F115-0528	5/16-18	1-1/8	8
F115-0624	3/8-16	1-1/4**	1-1/2
F115-0632	3/8-16	1-1/4**	2
F115-0640	3/8-16	1-1/4**	2-1/2
F115-0648	3/8-16	1-1/4	3
F115-0656	3/8-16	1-1/4	3-1/2
F115-0664	3/8-16	1-1/4	4
F115-0672	3/8-16	1-1/4	4-1/2
F115-0680	3/8-16	1-1/4	5
F115-0688	3/8-16	1-1/4	5-1/2
F115-0696	3/8-16	1-1/4	6
F115-0604	3/8-16	1-1/4	6-1/2

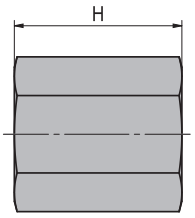
Part #	T	L	H
F115-0612	3/8-16	1-1/4	7
F115-0620	3/8-16	1-1/4	7-1/2
F115-0628	3/8-16	1-1/4	8
F115-0824	1/2-13	1-1/2**	1-1/2
F115-0832	1/2-13	1-1/2**	2
F115-0840	1/2-13	1-1/2**	2-1/2
F115-0848	1/2-13	1-1/2**	3
F115-0856	1/2-13	1-1/2	3-1/2
F115-0864	1/2-13	1-1/2	4
F115-0872	1/2-13	1-1/2	4-1/2
F115-0880	1/2-13	1-1/2	5
F115-0888	1/2-13	1-1/2	5-1/2
F115-0896	1/2-13	1-1/2	6
F115-0804	1/2-13	1-1/2	6-1/2
F115-0812	1/2-13	1-1/2	7
F115-0820	1/2-13	1-1/2	7-1/2
F115-0828	1/2-13	1-1/2	8
F115-1024	5/8-11	1-3/4**	1-1/2
F115-1032	5/8-11	1-3/4**	2
F115-1040	5/8-11	1-3/4**	2-1/2
F115-1048	5/8-11	1-3/4**	3
F115-1056	5/8-11	1-3/4**	3-1/2
F115-1064	5/8-11	1-3/4**	4
F115-1072	5/8-11	1-3/4	4-1/2
F115-1080	5/8-11	1-3/4	5
F115-1088	5/8-11	1-3/4	5-1/2
F115-1096	5/8-11	1-3/4	6
F115-1004	5/8-11	1-3/4	6-1/2

Part #	T	L	H
F115-1012	5/8-11	1-3/4	7
F115-1020	5/8-11	1-3/4	7-1/2
F115-1028	5/8-11	1-3/4	8
F115-1248	3/4-10	2**	3
F115-1256	3/4-10	2**	3-1/2
F115-1264	3/4-10	2**	4
F115-1272	3/4-10	2**	4-1/2
F115-1280	3/4-10	2	5
F115-1288	3/4-10	2	5-1/2
F115-1296	3/4-10	2	6
F115-1204	3/4-10	2	6-1/2
F115-1212	3/4-10	2	7
F115-1220	3/4-10	2	7-1/2
F115-1228	3/4-10	2	8
F115-1448	7/8-9	2-1/4**	3
F115-1464	7/8-9	2-1/4**	4
F115-1488	7/8-9	2-1/4**	5
F115-1496	7/8-9	2-1/4	6
F115-1412	7/8-9	2-1/4	7
F115-1428	7/8-9	2-1/4	8
F115-1648	1-8	2-1/2**	3
F115-1664	1-8	2-1/2**	4
F115-1688	1-8	2-1/2	5
F115-1696	1-8	2-1/2	6
F115-1612	1-8	2-1/2	7
F115-1628	1-8	2-1/2	8

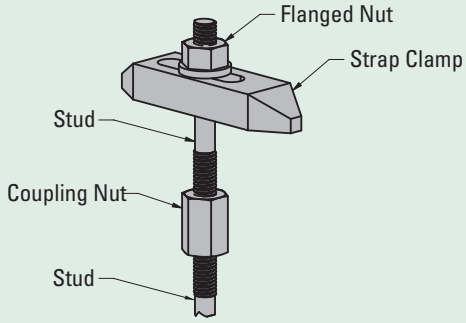
** Threads lengths may vary. Studs too short for given lengths will be threaded as close to center as possible.

COUPLING NUTS – INCH – F120 SERIES





How To Use

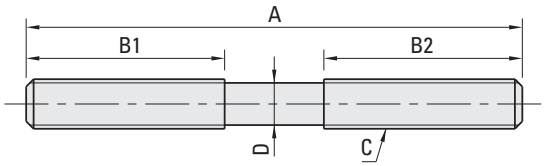


Also known as extension nuts, they are commonly used in jig and fixtures to provide height adjustments. Made from SAE-1045 alloy steel. Heat treated with black oxide finish .

Part #	T	H	SW	E
F120-0104	1/4-20	5/8	1/2	0.58
F120-0105	5/16-18	7/8	9/16	0.65
F120-0106	3/8-16	1	11/16	0.79
F120-0107	7/16-14	1-1/4	3/4	0.87
F120-0108	1/2-13	1-1/4	7/8	1.01

Part #	T	H	SW	E
F120-0110	5/8-11	1-5/8	1-1/16	1.23
F120-0112	3/4-10	1-7/8	1-1/4	1.44
F120-0114	7/8-9	2-1/4	1-7/16	1.66
F120-0116	1-8	2-1/2	1-5/8	1.88
F120-0120	1-1/4-7	3	1-7/8	2.17

SET UP STUDS

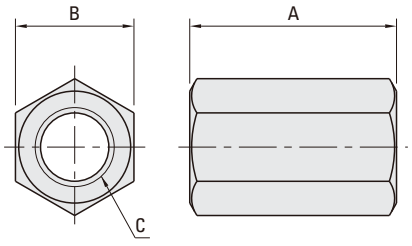


These set up studs are commonly used for clamping and setup applications with T-nuts, flanged nuts, strap clamps, etc. Made from SAE-1045 alloy steel with black oxide finish. Heat treated.

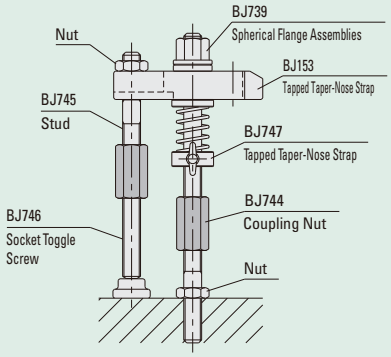
Part #	A mm	B1 mm	B2 mm	C mm	D mm
BJ745-08050	50	20	20	M8X1.25	7.1
BJ745-08063	63	25	25	M8X1.25	7.1
BJ745-08080	80	32	32	M8X1.25	7.1
BJ745-08100	100	32	32	M8X1.25	7.1
BJ745-08125	125	32	32	M8X1.25	7.1
BJ745-08160	160	32	32	M8X1.25	7.1
BJ745-10050	50	20	20	M10X1.5	8.9
BJ745-10063	63	25	25	M10X1.5	8.9
BJ745-10080	80	32	32	M10X1.5	8.9
BJ745-10100	100	40	40	M10X1.5	8.9
BJ745-10125	125	40	40	M10X1.5	8.9
BJ745-10160	160	40	40	M10X1.5	8.9
BJ745-10200	200	40	40	M10X1.5	8.9
BJ745-12050	50	20	20	M12X1.75	10.7
BJ745-12063	63	25	25	M12X1.75	10.7
BJ745-12080	80	32	32	M12X1.75	10.7
BJ745-12100	100	40	40	M12X1.75	10.7
BJ745-12125	125	40	40	M12X1.75	10.7
BJ745-12160	160	40	40	M12X1.75	10.7
BJ745-12200	200	40	40	M12X1.75	10.7
BJ745-16063	63	25	25	M16X2	14.5
BJ745-16080	80	32	32	M16X2	14.5
BJ745-16100	100	40	40	M16X2	14.5
BJ745-16125	125	40	40	M16X2	14.5
BJ745-16160	160	50	50	M16X2	14.5
BJ745-16200	200	50	50	M16X2	14.5

Part #	A mm	B1 mm	B2 mm	C mm	D mm
BJ745-16250	250	63	63	M16X2	14.5
BJ745-16315	315	63	63	M16X2	14.5
BJ745-16400	400	63	63	M16X2	14.5
BJ745-16500	500	63	63	M16X2	14.5
BJ745-20080	80	32	32	M20X2.5	18.3
BJ745-20100	100	40	40	M20X2.5	18.3
BJ745-20125	125	40	40	M20X2.5	18.3
BJ745-20160	160	50	50	M20X2.5	18.3
BJ745-20200	200	50	50	M20X2.5	18.3
BJ745-20250	250	63	63	M20X2.5	18.3
BJ745-20315	315	63	63	M20X2.5	18.3
BJ745-20400	400	63	63	M20X2.5	18.3
BJ745-20500	500	63	63	M20X2.5	18.3
BJ745-24100	100	35	45	M24X3	22
BJ745-24125	125	35	63	M24X3	22
BJ745-24160	160	35	100	M24X3	22
BJ745-24200	200	35	125	M24X3	22
BJ745-24250	250	35	160	M24X3	22
BJ745-24315	315	35	200	M24X3	22
BJ745-24400	400	35	250	M24X3	22
BJ745-24500	500	35	315	M24X3	22

COUPLING NUTS



Application Example

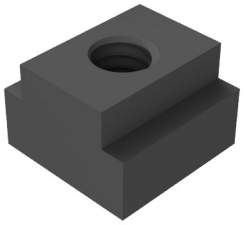


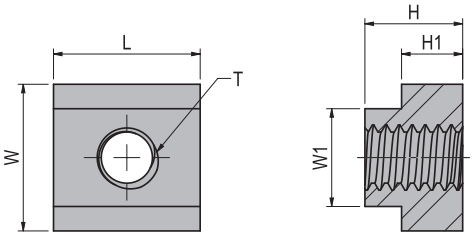
Also known as extension nuts, they are commonly used in jig and fixtures to provide height adjustments. The steel style is made from SAE-1045 alloy steel. Heat treated with black oxide finish. The stainless style is made from 304 stainless steel.

Steel Part #	Stainless Part #	A mm	B mm	C mm
BJ744-06001	BJ744-06001-SUS	18	10	M6X1
BJ744-08001	—	24	13	M8X1.25
—	BJ744-08001-SUS	24	14	M8X1.25
BJ744-10001	BJ744-10001-SUS	30	17	M10X1.5
BJ744-12001	BJ744-12001-SUS	36	19	M12X1.75
BJ744-16001	—	48	24	M16X2
BJ744-20001	—	60	30	M20X2.5
BJ744-24001	—	72	36	M24X3

fixtureworks Workholding Technologies

T-SLOT NUTS – COMPLETE THREADS – F117 SERIES



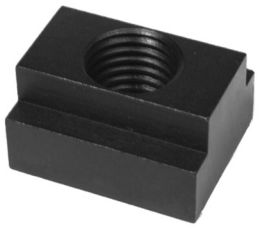


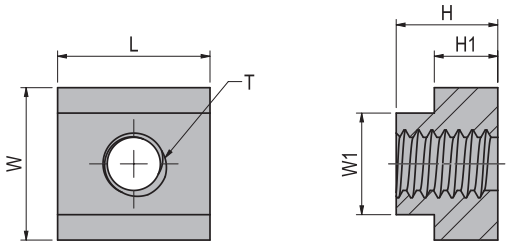
Threads are complete. Made from heat-treated steel with a black oxide finish.

Part #	T	L	W	W1 Table Slot	H	H1
F117-0405	1/4-20	9/16	9/16	5/16	1/4	3/16
F117-0406	1/4-20	9/16	9/16	3/8	3/8	15/64
F117-0506	5/16-18	7/8	5/8	3/8	1/2	3/16
F117-0507	5/16-18	7/8	11/16	7/16	1/2	7/32
F117-0607	3/8-16	7/8	11/16	7/16	1/2	7/32
F117-0508	5/16-18	7/8	7/8	1/2	1/2	9/32
F117-0608	3/8-16	7/8	7/8	1/2	1/2	9/32
F117-0708	7/16-14	7/8	7/8	1/2	1/2	9/32
F117-07081	7/16-14	7/8	3/4	1/2	3/8	7/32
F117-0609	3/8-16	1-1/8	7/8	9/16	5/8	11/32
F117-0809	1/2-13	1-1/8	7/8	9/16	5/8	11/32
F117-0810	1/2-13	1-1/8	1	5/8	5/8	11/32
F117-08101	1/2-13	1-1/8	1-1/8	5/8	3/4	3/8
F117-0811	1/2-13	1-1/4	1-1/8	11/16	3/4	7/16
F117-1011	5/8-11	1-1/4	1-1/8	11/16	3/4	7/16
F117-0812	1/2-13	1-1/4	1-1/4	3/4	3/4	15/32

Part #	T	L	W	W1 Table Slot	H	H1
F117-1012	5/8-11	1-1/4	1-1/4	3/4	3/4	15/32
F117-1013	5/8-11	1-1/2	1-1/4	13/16	1	9/16
F117-1213	3/4-10	1-1/2	1-1/4	13/16	1	9/16
F117-1214	3/4-10	1-1/2	1-1/2	7/8	1	9/16
F117-1216	3/4-10	1-3/4	1-3/4	1	1-3/4	3/4
F117-12161	3/4-10	1-3/4	1-5/8	1	1	5/8
F117-1416	7/8-9	1-3/4	1-5/8	1	1	5/8
F117-1217	3/4-10	2	1-5/8	1-1/16	1-1/8	11/16
F117-1417	7/8-9	2	1-5/8	1-1/16	1-1/8	11/16
F117-1617	1-8	2	1-5/8	1-1/16	1-1/8	11/16
F117-1418	7/8-9	2	1-3/4	1-1/8	1-1/2	3/4
F117-1618	1-8	2	1-3/4	1-1/8	1-1/2	3/4
F117-1620	1-8	2	2	1-1/4	1-1/4	7/8
F117-1421	7/8-9	2	2	1-5/16	1-1/4	15/16
F117-1621	1-8	2	2	1-5/16	1-1/4	15/16
F117-2022	1-1/4-7	2-1/2	2-1/2	1-3/8	1-3/4	1-1/8

T-SLOT NUTS – INCOMPLETE THREADS – F116 SERIES



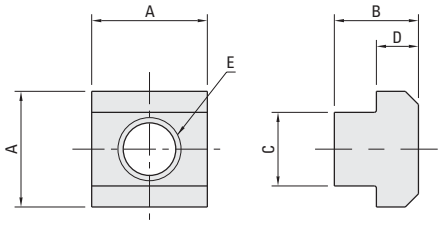


Threads are incomplete to prevent the stud from damaging the table slot. Made from heat-treated steel with a black oxide finish.

Part #	T	L	W	W1 Table Slot	H	H1
F116-0405	1/4-20	9/16	9/16	5/16	1/4	3/16
F116-0406	1/4-20	9/16	9/16	3/8	3/8	15/64
F116-0506	5/16-18	7/8	5/8	3/8	1/2	3/16
F116-0507	5/16-18	7/8	11/16	7/16	1/2	7/32
F116-0607	3/8-16	7/8	11/16	7/16	1/2	7/32
F116-0508	5/16-18	7/8	7/8	1/2	1/2	9/32
F116-0608	3/8-16	7/8	7/8	1/2	1/2	9/32
F116-0708	7/16-14	7/8	7/8	1/2	1/2	9/32
F116-07081	7/16-14	7/8	3/4	1/2	3/8	7/32
F116-0609	3/8-16	1-1/8	7/8	9/16	5/8	11/32
F116-0809	1/2-13	1-1/8	7/8	9/16	5/8	11/32
F116-0810	1/2-13	1-1/8	1	5/8	5/8	11/32
F116-08101	1/2-13	1-1/8	1-1/8	5/8	3/4	3/8
F116-0811	1/2-13	1-1/4	1-1/8	11/16	3/4	7/16
F116-1011	5/8-11	1-1/4	1-1/8	11/16	3/4	7/16
F116-0812	1/2-13	1-1/4	1-1/4	3/4	3/4	15/32

Part #	T	L	W	W1 Table Slot	H	H1
F116-1012	5/8-11	1-1/4	1-1/4	3/4	3/4	15/32
F116-1013	5/8-11	1-1/2	1-1/4	13/16	1	9/16
F116-1213	3/4-10	1-1/2	1-1/4	13/16	1	9/16
F116-1214	3/4-10	1-1/2	1-1/2	7/8	1	9/16
F116-1216	3/4-10	1-3/4	1-3/4	1	1-3/4	3/4
F116-12161	3/4-10	1-3/4	1-5/8	1	1	5/8
F116-1416	7/8-9	1-3/4	1-5/8	1	1	5/8
F116-1217	3/4-10	2	1-5/8	1-1/16	1-1/8	11/16
F116-1417	7/8-9	2	1-5/8	1-1/16	1-1/8	11/16
F116-1617	1-8	2	1-5/8	1-1/16	1-1/8	11/16
F116-1418	7/8-9	2	1-3/4	1-1/8	1-1/2	3/4
F116-1618	1-8	2	1-3/4	1-1/8	1-1/2	3/4
F116-1620	1-8	2	2	1-1/4	1-1/4	7/8
F116-1421	7/8-9	2	2	1-5/16	1-1/4	15/16
F116-1621	1-8	2	2	1-5/16	1-1/4	15/16
F116-2022	1-1/4-7	2-1/2	2-1/2	1-3/8	1-3/4	1-1/8

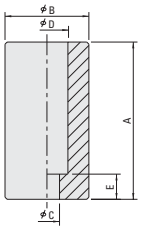
T-SLOT NUTS



Bottoms are chamfered for easier installation. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	-0.2/-0.6 C mm	D mm	E mm
BJ749-06010	15	12	10	6	M6X1
BJ749-08010	15	12	10	6	M8X1.25
BJ749-08012	18	14	12	7	M8X1.25
BJ749-10012	18	14	12	7	M10X1.5
BJ749-10014	22	16	14	8	M10X1.5
BJ749-12014	22	16	14	8	M12X1.75
BJ749-12018	28	20	18	10	M12X1.75
BJ749-16018	28	20	18	10	M16X2
BJ749-20022	34	28	22	14	M20X2.5

LOCATING CYLINDERS

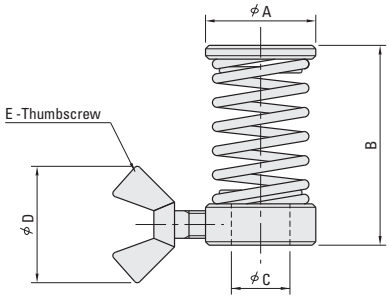


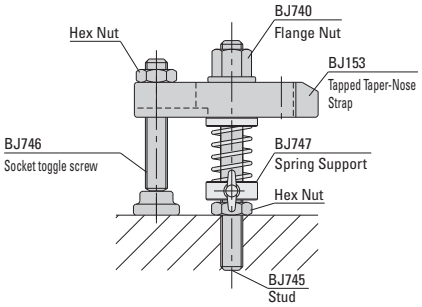
For use with the locating screws shown on page 181. Made from SAE-1045 alloy steel. Precision ground. Heat treated to RC 39-45 with black oxide finish.

Part #	+/-.01 A mm	+/-.01 B mm	(H7) C mm	D mm	E mm	Use Locating Screw
BJ400-12075	75	40	12	20	12	BJ701-12045
BJ400-12100	100	50	12	20	22	BJ701-12055
BJ400-16075	75	50	16	26	15	BJ701-16055
BJ400-16100	100	50	16	26	25	BJ701-16065

See page 553 for H7 tolerance specifications.

SPRING SUPPORTS



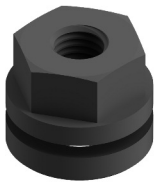


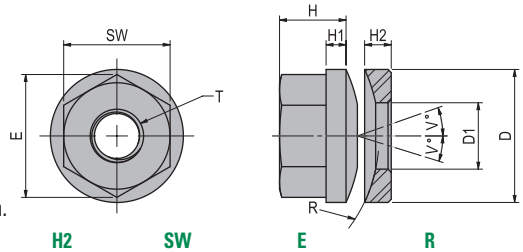
Used with the strap clamps shown on page 179 to retract the clamp from the work piece. The thumb screw allows for adjustment of the spring tension. The spring is made from heat treated steel spring wire. The pad is made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm
BJ747-08001	16	19 to 29	8.5	21	M4X0.7
BJ747-10001	20	25 to 40	10.5	21	M4X0.7
BJ747-12001	25	30 to 46	13.0	21	M4X0.7
BJ747-16001	28	35 to 50	16.5	21	M5X0.8

fixtureworks Workholding Technologies

HEX NUTS – INCH – SPHERICAL FLANGE ASSEMBLIES – F121 SERIES

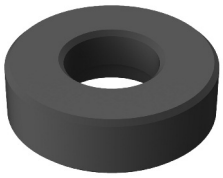


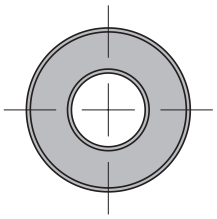


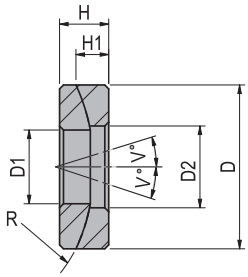
Includes spherical nut and spherical washer. Made from alloy steel with a black oxide finish.

Part #	T	D	D1	H	H1	H2	SW	E	R	V Degree
F121-0204	1/4-20	5/8	5/16	5/16	.09	.13	1/2	.58	3/4	2.25
F121-0205	5/16-18	3/4	3/8	3/8	.09	.16	9/16	.65	1	1.50
F121-0206	3/8-16	7/8	7/16	1/2	.13	.16	11/16	.79	1-1/4	1.25
F121-0207	7/16-14	1	1/2	9/16	.16	.22	3/4	.87	1-38/4	1.00
F121-0208	1/2-13	1-1/8	9/16	11/16	.16	.22	7/8	1.01	1-1/2	1.00
F121-0210	5/8-11	1-3/8	11/16	13/16	.19	.22	1-1/16	1.23	1-3/4	1.00
F121-0212	3/4-10	1-5/8	13/16	1	.25	.28	1-1/4	1.61	2-1/4	1.00
F121-0214	7/8-9	1-3/4	1	1-1/8	.25	.25	1-7/16	1.86	2-1/2	1.50
F121-0216	1-8	2	1-1/8	1-1/4	.25	.31	1-5/8	1.88	2-3/4	1.25

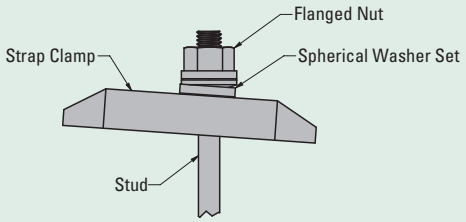
SPHERICAL WASHERS – INCH – F124 SERIES







How To Use

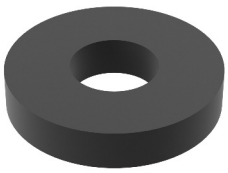


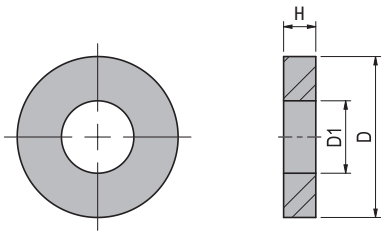
Used to compensate for misaligned parts. Two-piece washer set.

Also known as self-aligning washers, these two-piece washer sets work together to compensate for misaligned parts. These washers are commonly used in fixturing and clamping applications. The parts below include both a top and bottom washer. Made from heat-treated steel with a black oxide finish.

Part #	D	D1	D1 Bolt Size	D2	H	H1	R	V Degree
F124-0204	5/8	.28	1/4 or M7	5/16	3/16	.13	3/4	2.25
F124-0205	3/4	.34	5/16 or M8	3/8	1/4	.16	1	1.50
F124-0206	7/8	.41	3/8 or M10	7/16	1/4	.16	1-1/4	1.25
F124-0207	1	.47	7/16 or M11	1/2	5/16	.22	1-38/4	1.00
F124-0208	1-1/8	.53	1/2 or M13	9/16	5/16	.22	1-1/2	1.00
F124-0210	1-3/8	.66	5/8 or M16	11/16	5/16	.22	1-3/4	1.00
F124-0212	1-5/8	.78	3/4 or M19	13/16	3/8	.28	2-1/4	1.00
F124-0214	1-3/4	.94	7/8 or M23	1	3/8	.25	2-1/2	1.50
F124-0216	2	1.06	1 or M26	1-1/8	1/2	.31	2-3/4	1.25

FLAT WASHER – INCH – F124 SERIES





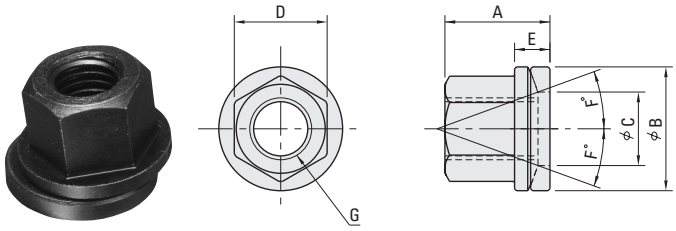
Made from heat-treated steel with a black oxide finish.

Part #	D	D1	D1 Bolt Size	H
F124-0103	1/2	13/64	M5 or 3/16	3/32
F124-0104	5/8	9/32	M7 or 1/4	1/8
F124-0105	3/4	11/32	M8 or 5/16	1/8
F124-0106	7/8	13/32	M10 or 3/8	1/8
F124-0107	1	15/32	M11 or 7/16	1/8

Part #	D	D1	D1 Bolt Size	H
F124-0108	1-1/8	17/32	M13 or 1/2	1/8
F124-0110	1-3/8	21/32	M16 or 5/8	1/8
F124-0112	1-5/8	25/32	M19 or 3/4	5/32
F124-0114	1-3/4	29/32	M23 or 7/8	5/32
F124-0116	2	1-1/32	M26 or 1	3/16
F124-0120	2-1/4	1-9/32	M32 or 1-1/4	3/16

IMAO

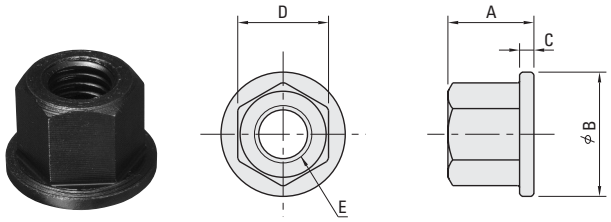
SPHERICAL FLANGE ASSEMBLIES



The concave washer and convex nut assembly work together to compensate for misaligned parts. Made from SAE-1045 alloy steel, heat treated with black oxide finish. The assembly includes the washer and nut.

Part #	A mm	B mm	C mm	D mm	E mm	F Degree	G mm
BJ739-08001	13.5	18	9.5	13	5.2	2	M8X1.25
BJ739-10001	17.0	22	12.0	17	6.0	2.5	M10X1.5
BJ739-12001	20.5	26	15.0	19	7.5	3	M12X1.75
BJ739-16001	27.0	32	19.0	24	9.0	2.5	M16X2

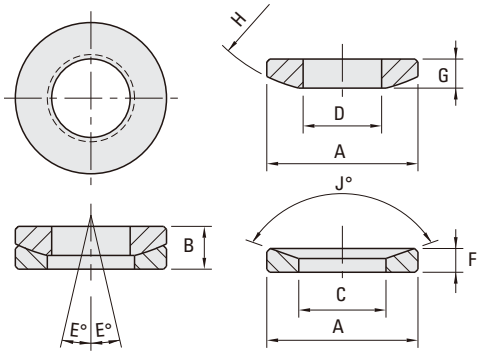
FLANGE NUTS



The flange provides a large contact surface when tightened. The steel styles are made from SAE-1045 alloy steel with black oxide finish. They are heat treated to RC 33-39 except the M24 size which is not heat treated. The stainless styles are made from 316 stainless steel.

Steel Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm
BJ740-06001	BJ740-06001-SUS	9	13	2	10	M6X1
BJ740-08001	BJ740-08001-SUS	12	18	2.5	13	M8X1.25
BJ740-10001	BJ740-10001-SUS	15	22	3	17	M10X1.5
BJ740-12001	BJ740-12001-SUS	18	26	3	19	M12X1.75
BJ740-16001	—	24	32	4	24	M16X2
BJ740-20001	—	30	40	4	30	M20X2.5
BJ740-24001	—	36	45	6	36	M24X3

SPHERICAL WASHERS



Also known as self-aligning washers, these two-piece washer sets work together to compensate for misaligned parts. These washers are commonly used in fixturing and clamping applications. The parts below include both a top and bottom washer. The steel style is made from SAE-1045 alloy steel, heat treated with black oxide finish. The stainless style is made from 303 stainless.

Steel

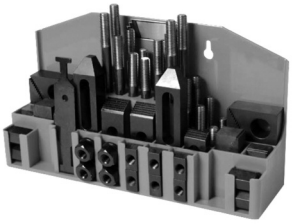
Part #	A mm	B mm	C mm	D mm	E Degree	F mm	G mm	H mm	J Degree
BJ742-06001	13	4.3	7	6.4	2.5	2.5	2.5	R15	140
BJ742-08001	18	5.2	9.5	8.7	2.5	3	3.5	R20	140
BJ742-10001	22	6	12	10.5	3	3.5	4	R25	140
BJ742-12001	26	7.5	15	13.5	4	4	5	R30	140
BJ742-16001	32	9.1	19	17	3	5	6	R35	140
BJ742-20001	40	12	23	21	3	7	7.5	R40	140
BJ742-24001	44	15	28	25	3	9.5	8.2	R32	120

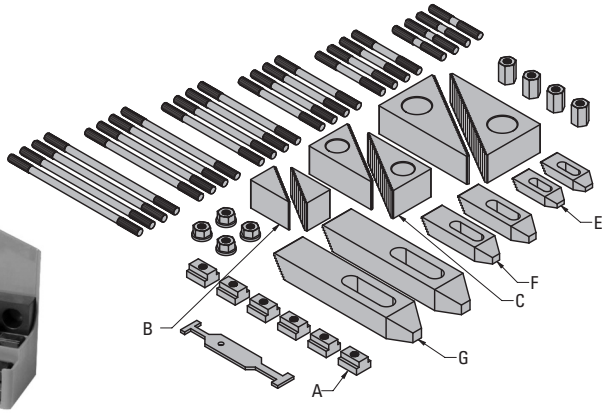
Stainless

Part #	A mm	B mm	C mm	D mm	E Degree	F mm	G mm	H mm	J Degree
BJ742-06201-SUS	12	4	7.1	6.4	3	2.8	2.3	R9	120
BJ742-08201-SUS	17	5	9.6	8.4	3	3.5	3.2	R12	120
BJ742-10201-SUS	21	6.3	12	10.5	3	4.2	4	R15	120
BJ742-12201-SUS	24	8	14.2	13	3	5	4.6	R17	120
BJ742-16201-SUS	30	9.3	19	17	3	6.2	5.3	R22	120

fixtureworks Workholding Technologies

CLAMPING KITS – WITH 1.5 IN STEEL BLOCKS - F102 SERIES





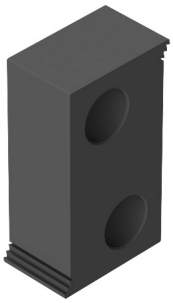
Set Components

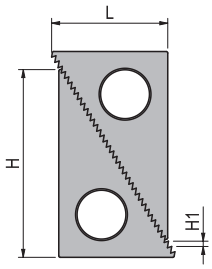
Item	Part #	Description	Qty
1	F018-0124	Spring Clamp - 1.5" Length	3
2	F018-0137	Spring Clamp - 2.3" Length	3
3	F010-0103	Adjustable Positioner Plate - 3" Length	2
4	F019-0201	Delrin Height Adjuster	1
5	F021-0114	Support Tip - Delrin Cone	3
6	F017-0108	Pin Rest - 1/2" Diameter x 1/2" Height	3
7	F017-0112	Pin Rest - 3/4" Diameter x 1/2" Height	3
8	F019-0412	Standoff - Steel - 1/2" Diameter x 3/4" Height	3
9	F019-0416	Standoff - Steel - 1/2" Diameter x 1" Height	6
10	F019-0432	Standoff - Steel - 1/2" Diameter x 2" Height	3
11	F019-0512	Standoff - Steel - 3/4" Diameter x 3/4" Height	3
12	F019-0516	Standoff - Steel - 3/4" Diameter x 1" Height	6
13	F019-0532	Standoff - Steel - 3/4" Diameter x 2" Height	3
–	F013-0901	Clamp Set Component Holder	1

For use with machines with table slots. Blocks made from steel with a black oxide finish. Clamps made from heat-treated steel with a black oxide finish. Includes a holder to keep the set components together when not in use. For complete technical information, go to www.fixtureworks.net.

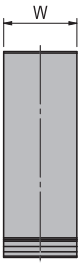
Part #	Stud	Table Slot	Block Width	T-Nut	A Step Clamp (2 ea)	B Med Step Clamp (2 ea)	C Lg Step Clamp (2 ea)	D Step Blocks (2 ea)	E Med Step Blocks (2 ea)	F Lg Step Blocks (2 ea)
F102-0809	1/2-13	9/16	1-1/2	F116-0809	F112-0840	F112-0864	F112-0896	F114-2424	F114-2440	F114-2456
F102-0810	1/2-13	5/8	1-1/2	F116-0810	F112-0840	F112-0864	F112-0896	F114-2424	F114-2440	F114-2456
F102-0811	1/2-13	11/16	1-1/2	F116-0811	F112-0840	F112-0864	F112-0896	F114-2424	F114-2440	F114-2456
F102-1011	5/8-11	11/16	1-1/2	F116-1011	F112-1040	F112-1064	F112-1096	F114-2424	F114-2440	F114-2456
F102-1012	5/8-11	3/4	1-1/2	F116-1012	F112-1040	F112-1064	F112-1096	F114-2424	F114-2440	F114-2456
F102-1013	5/8-11	13/16	1-1/2	F116-1013	F112-1040	F112-1064	F112-1096	F114-2424	F114-2440	F114-2456

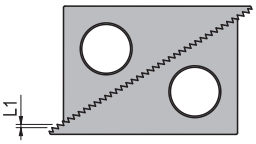
STEP BLOCKS – STEEL & ALUMINUM – F114 SERIES





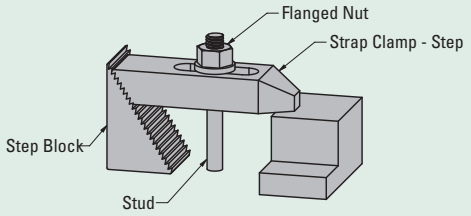
POSITIONED VERTICALLY





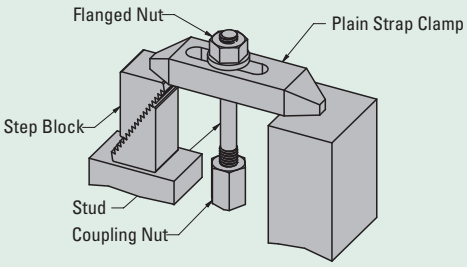
POSITIONED HORIZONTALLY

How To Use



The teeth match the step clamps and adjust the height in 1/8" increments.

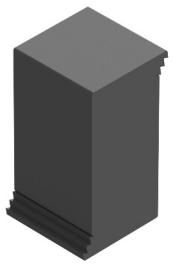
How To Use

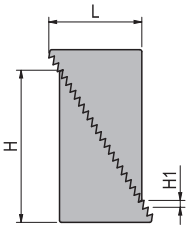


Used to provide vertical or horizontal support for strap clamps. Height is adjusted at 1/8" increments vertically or 1/16" increments horizontally. Each part number includes two halves of the block. Made from steel with a black oxide finish or 6061-T6 aluminum.

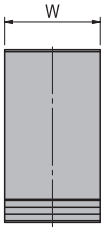
Steel Part #	Aluminum Part #	L	L1	W	H	H1	Capacity of Full Block
F114-1612	F113-1612	11/16	1/16	1	1-1/8	1/8	3/4 to 1-1/2
F114-1618	F113-1618	1-1/32	1/16	1	1-3/4	1/8	1-1/8 to 2-1/2
F114-1640	F113-1640	2-3/8	1/16	1	3-7/8	1/8	2-1/2 to 6
F114-2424	F113-2424	1-1/2	1/16	1-1/2	2-3/8	1/8	1-1/2 to 3-3/4
F114-2440	F113-2440	2-3/8	1/16	1-1/2	3-7/8	1/8	2-1/2 to 6
F114-2456	F113-2456	3-5/16	1/16	1-1/2	5-1/2	1/8	3-1/2 to 9
F114-3224	—	1-1/2	1/16	2	2-3/8	1/8	1-1/2 to 3-3/4
F114-3256	—	3-5/16	1/16	2	5-1/2	1/8	3-1/2 to 9

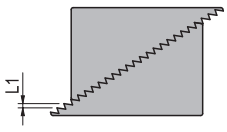
STEP BLOCKS – ALUMINUM – F113 SERIES





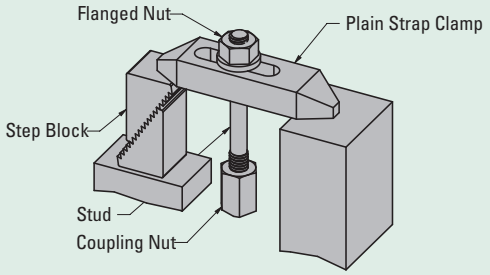
POSITIONED VERTICALLY





POSITONED HORIZONTALLY

How To Use

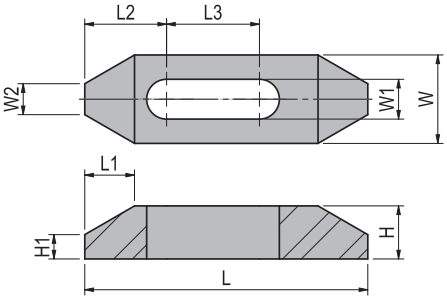


Used to provide vertical or horizontal support for strap clamps. Height is adjusted at 1/8" increments vertically or 1/16" increments horizontally. Each part number includes two halves of the block. Made from 6061-T6 aluminum.

Part #	L	L1	W	H	H1	Capacity of Full Block
F113-1612	11/16	1/16	1	1-1/8	1/8	3/4 to 1-1/2
F113-1618	1-1/32	1/16	1	1-3/4	1/8	1-1/8 to 2-1/2
F113-1640	2-3/8	1/16	1	3-7/8	1/8	2-1/2 to 6
F113-2424	1-1/2	1/16	1-1/2	2-3/8	1/8	1-1/2 to 3-3/4
F113-2456	3-5/16	1/16	1-1/2	5-1/2	1/8	3-1/2 to 9

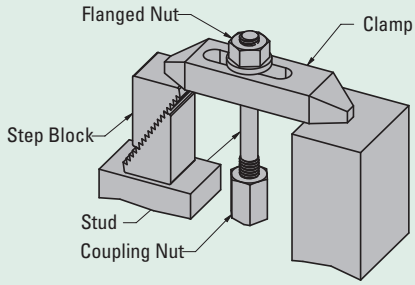
fixtureworks Workholding Technologies

STRAP CLAMPS – TAPERED NOSE – F110 SERIES



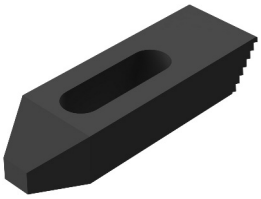
Used to hold down dies, fixtures and workpieces on a wide variety of machines. The long mounting slot offers a wide range of clamp movement and positioning. Made from heat-treated steel with a black oxide finish.

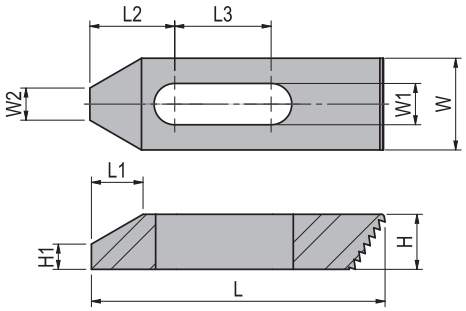
How To Use



Part #	L	L1	L2	L3	W	W1	W1 Bolt Size	W2	H	H1
F110-0640	2-1/2	.48	.84	.81	1	.44	5-16 or 3/8	.44	1/2	.22
F110-0664	4	.64	1.03	1.44	1	.44	5-16 or 3/8	.25	5/8	.25
F110-0696	6	.70	1.16	2.19	1-1/8	.44	5-16 or 3/8	.31	3/4	.34
F110-0840	2-1/2	.48	.91	.69	1-1/8	.56	1/2	.56	1/2	.22
F110-0864	4	.70	1.16	1.31	1-1/4	.56	1/2	.44	3/4	.34
F110-0896	6	.70	1.28	2.06	1-1/4	.56	1/2	.44	7/8	.47
F110-1040	2-1/2	.48	.97	.56	1-1/4	.69	5/8	.69	5/8	.34
F110-1064	4	.70	1.28	1.19	1-1/2	.69	5/8	.69	3/4	.34
F110-1096	6	.78	1.41	1.94	1-1/2	.69	5/8	.59	7/8	.42
F110-1228	8	1.05	1.91	2.19	1-3/4	.81	3/4	.53	1-1/8	.52
F110-1240	4	.70	1.34	1.06	1-1/2	.81	3/4	.69	3/4	.34
F110-1264	6	.83	1.47	1.94	1-5/8	.81	3/4	.53	1	.52
F110-1616	10	1.05	2.03	2.94	2	1.06	7/8 or 1	.78	1-1/2	.89
F110-1628	8	1.05	2.03	1.94	2	1.06	7/8 or 1	.78	1-3/8	.77
F110-1696	6	1.05	1.84	1.69	2	1.06	7/8 or 1	.78	1-1/4	.64

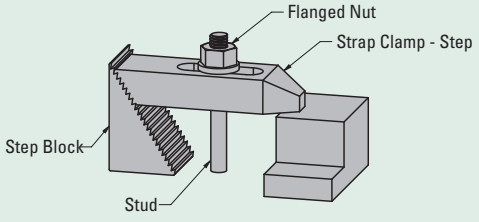
STRAP CLAMPS – STEP – F112 SERIES





Used to hold down dies, fixtures and workpieces on a wide variety of machines. The teeth match the steel and aluminum step blocks and adjust the height in 1/8" increments. The long mounting slot offers a wide range of clamp movement and positioning. Made from heat-treated steel with a black oxide finish.

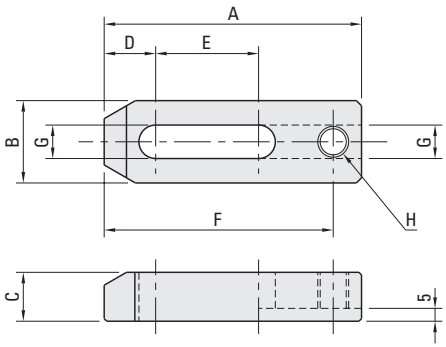
How To Use



The teeth match the steel and aluminum step blocks and adjust the height in 1/8" increments.

Part #	L	L1	L2	L3	W	W1	W1 Bolt Size	W2	H	H1
F112-0640	2-1/2	.48	.84	.81	1	.44	5-16 or 3/8	.44	1/2	.22
F112-0664	4	.64	1.03	1.44	1	.44	5-16 or 3/8	.25	5/8	.25
F112-0696	6	.70	1.16	2.19	1-1/8	.44	5-16 or 3/8	.31	3/4	.34
F112-0840	2-1/2	.48	.91	.69	1-1/8	.56	1/2	.56	1/2	.22
F112-0864	4	.70	1.16	1.31	1-1/4	.56	1/2	.44	3/4	.34
F112-0896	6	.70	1.28	2.06	1-1/4	.56	1/2	.44	7/8	.47
F112-1040	2-1/2	.48	.97	.56	1-1/4	.69	5/8	.69	5/8	.34
F112-1064	4	.70	1.28	1.19	1-1/2	.69	5/8	.69	3/4	.34
F112-1096	6	.78	1.41	1.94	1-1/2	.69	5/8	.59	7/8	.42
F112-1228	8	1.05	1.91	2.19	1-3/4	.81	3/4	.53	1-1/8	.52
F112-1264	4	.70	1.34	1.06	1-1/2	.81	3/4	.69	3/4	.34
F112-1296	6	.83	1.47	1.94	1-5/8	.81	3/4	.53	1	.52
F112-1616	10	1.05	2.03	2.94	2	1.06	7/8 or 1	.78	1-1/2	.89
F112-1628	8	1.05	2.03	1.94	2	1.06	7/8 or 1	.78	1-3/8	.77
F112-1696	6	1.05	1.84	1.69	2	1.06	7/8 or 1	.78	1-1/4	.64

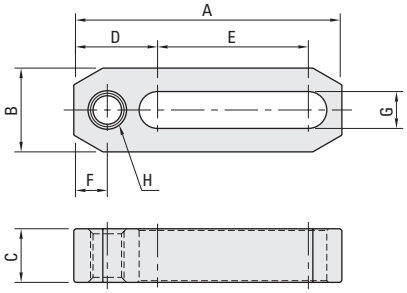
STRAP CLAMPS – TAPER NOSE – TAPPED



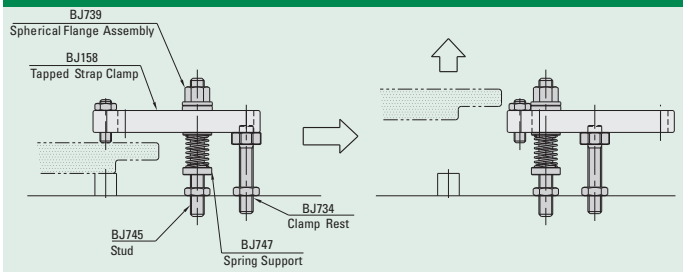
These versatile clamps provide high clamping forces. Used to hold down dies, fixtures and work pieces on a wide variety of machines. The long mounting slot offers a wide range of clamp movement and positioning. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Clamping Force Min Lbs.	Clamping Force Max Lbs.	Screw Torque Ft Lbs.
BJ153-08050	50	19	12	12	14	42	9	M8X1.25	989	1,618	12
BJ153-08063	63	19	12	12	27	55	9	M8X1.25	764	2,023	12
BJ153-10063	63	25	12	15	18	53	11	M10X1.50	1,371	2,607	25
BJ153-10080	80	25	16	15	32	70	11	M10X1.50	1,596	3,799	25
BJ153-10100	100	25	16	15	40	90	11	M10X1.50	1,888	4,023	37
BJ153-12063	63	32	16	14	14	52	13	M12X1.75	3,035	4,788	52
BJ153-12080	80	32	16	20	25	69	13	M12X1.75	2,292	4,653	52
BJ153-12100	100	32	19	20	40	89	13	M12X1.75	2,540	6,047	62
BJ153-12125	125	32	19	20	50	114	13	M12X1.75	3,012	6,429	62
BJ153-16080	80	38	19	18	17	65	17	M16X2	3,978	6,226	72
BJ153-16100	100	38	25	25	30	85	17	M16X2	4,001	8,002	95
BJ153-16125	125	38	25	25	45	110	17	M16X2	4,113	8,767	95
BJ153-16160	160	38	25	25	65	145	17	M16X2	4,293	9,374	95

STRAP CLAMPS – TAPPED



How To Use and Install

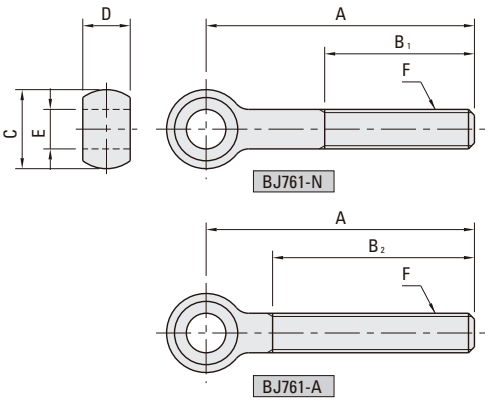


The long closed hole in the strap allows for flexibility in adjusting the clamping position.

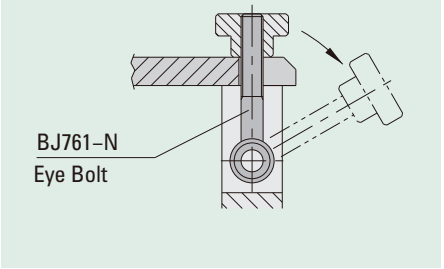
These versatile clamps provide high clamping forces. Used to hold down dies, fixtures and work pieces on a wide variety of machines. The long mounting slot offers a wide range of clamp movement and positioning. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
BJ158-08063	63	19	12	19	36	7	9	M8X1.25
BJ158-08080	80	19	12	19	53	7	9	M8X1.25
BJ158-10080	80	25	16	25	45	10	11	M10X1.50
BJ158-10100	100	25	16	25	65	10	11	M10X1.50
BJ158-10125	125	25	16	25	90	10	11	M10X1.50
BJ158-12100	100	32	19	28	60	10	13	M12X1.75
BJ158-12125	125	32	19	28	85	10	13	M12X1.75
BJ158-12160	160	32	19	28	120	10	13	M12X1.75
BJ158-16125	125	38	25	36	73	12	17	M16X2
BJ158-16160	160	38	25	36	108	12	17	M16X2
BJ158-16200	200	38	25	36	148	12	17	M16X2

SWING EYE BOLTS



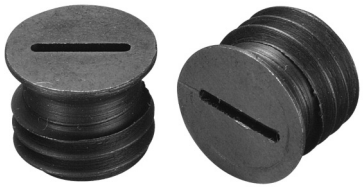
Application Example

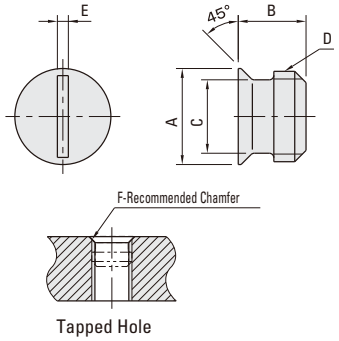


These swing eye bolts are commonly used in jig and fixturing workholding applications. They are made from SAE-1045 alloy steel. Hardened with black oxide finish. They are available in both fully threaded and partially threaded styles.

Partial Thread Part #	Full Thread Part #	A mm	B1 mm	B2 mm	C mm	D mm	+0.2/-.00 E mm	F mm
BJ761-06001N	—	35	20	-	14	7	6	M6X1
BJ761-06002N	BJ761-06002A	50	25	40	14	7	6	M6X1
BJ761-08011N	—	35	20	-	18	9	8	M8X1.25
BJ761-08001N	BJ761-08001A	50	30	37	18	9	8	M8X1.25
BJ761-08002N	BJ761-08002A	75	30	62	18	9	8	M8X1.25
BJ761-10011N	—	50	30	-	20	12	10	M10X1.5
BJ761-10001N	BJ761-10001A	75	45	60	20	12	10	M10X1.5
BJ761-10002N	BJ761-10002A	100	45	85	20	12	10	M10X1.5
BJ761-12011N	—	50	30	-	25	14	12	M12X1.75
BJ761-12001N	BJ761-12001A	75	50	57	25	14	12	M12X1.75
BJ761-12002N	—	100	50	-	25	14	12	M12X1.75
BJ761-12003N	BJ761-12003A	125	50	107	25	14	12	M12X1.75
BJ761-16011N	BJ761-16011A	100	50	80	32	17	16	M16X2
BJ761-16001N	—	125	60	-	32	17	16	M16X2
BJ761-16002N	BJ761-16002A	150	60	130	32	17	16	M16X2
BJ761-20011N	BJ761-20011A	100	55	75	40	22	18	M20X2.5
BJ761-20001N	—	125	65	-	40	22	18	M20X2.5
BJ761-20002N	BJ761-20002A	150	65	125	40	22	18	M20X2.5

PROTECTION PLUGS FOR TAPPED HOLE



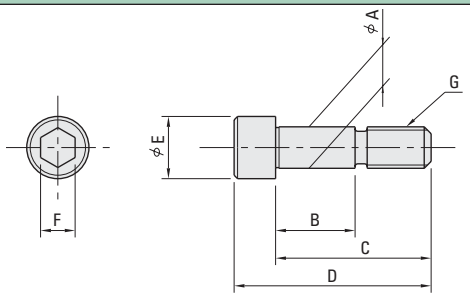


Tapped Hole

These protection plugs are intended to be used to keep chips and dirt out of unused tapped holes. They provide constant screw in depth and allow for quick installation and removal. The steel style is made from SAE-1045 alloy steel. The stainless style is made from 304 stainless steel.

Steel Part #	Stainless Part #	A mm	B mm	C mm	D mm	E mm	Min. F mm
THP8	THP8-SUS	8.5	6	6.5	M8X1.25	1.2	1.2
THP10	THP10-SUS	10	8	7.7	M10X1.5	1.2	1.5
THP12	THP12-SUS	12.5	10	9.4	M12X1.75	1.2	2
THP16	—	16.5	12	13	M16X2	1.8	2
THP20	—	20.5	16	16.5	M20X2.5	1.8	2.5

LOCATING SCREWS – STANDARD

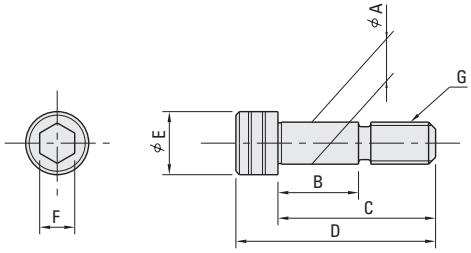


Used to locate a component with two or more locating screw holes. Made from SAE-4135 alloy steel with black oxide finish. Heat treated and precision ground. See page 173 for locating cylinders.

Part #	(f7) A mm	B mm	C mm	D mm	E mm	F mm	G mm
BJ700-12055	12	33	55	67	18	10	M12X1.75
BJ700-12065	12	43	65	77	18	10	M12X1.75
BJ700-16055	16	30	55	71	24	14	M16X2
BJ700-16075	16	50	75	91	24	14	M16X2

See page 561 for f7 tolerance specifications.

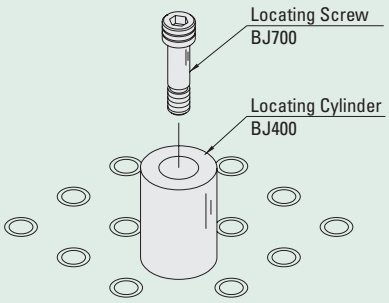
LOCATING SCREWS – PRECISION



Used to locate a component using a single screw hole. Made from SAE-4135 alloy steel with black oxide finish. Heat treated and precision ground. See page 173 for locating cylinders.

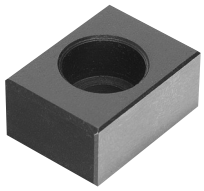
Part #	-.005/-.013 A mm	B mm	C mm	D mm	E mm	F mm	G mm
BJ701-12045	12	23	45	57	18	10	M12X1.75
BJ701-12055	12	33	55	67	18	10	M12X1.75
BJ701-16055	16	30	55	71	24	14	M16X2
BJ701-16065	16	40	65	81	24	14	M16X2

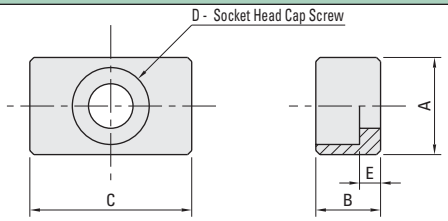
How To Use



Used to mount locating cylinders on the fixture plate.

FLAT KEYS



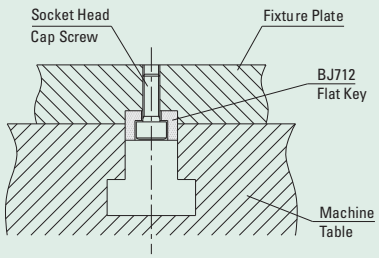


Used to locate and fasten fixture plates to machine tables. Made from SAE-1045 alloy steel with black oxide finish. Heat treated to RC 39-45 and precision ground.

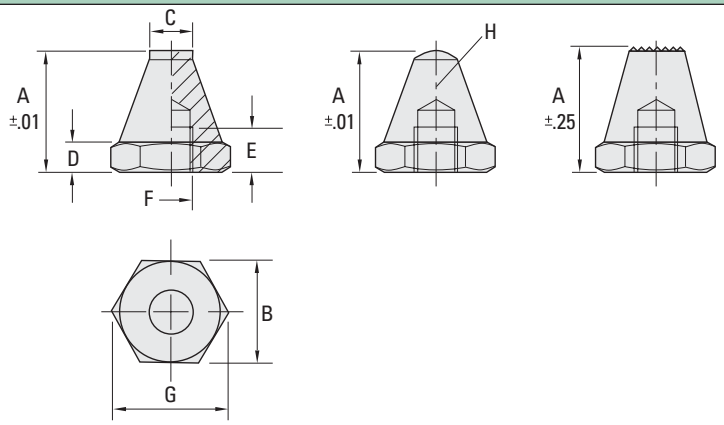
Part #	(h6) A mm	B mm	C mm	D mm	E mm
BJ712-12020	12	8	20	M5	2.6
BJ712-14022	14	10	22	M6	3.5
BJ712-16022	16	10	22	M6	3.5
BJ712-18022	18	10	22	M6	3.5
BJ712-20022	20	10	22	M6	3.5

See page 561 for h6 tolerance specifications.

How To Use



REST PADS

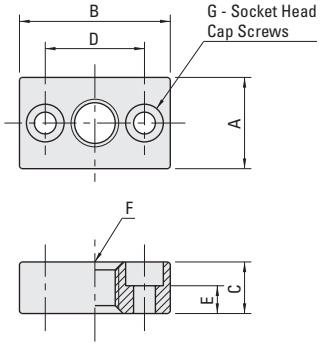


These rest pads provide support or act as stops for both rough and machined parts. To change into a male thread, simply glue in a threaded stud. Body is made from tempered steel, heat treated with black oxide finish.

Flat Part #	Radius Part #	Serrated Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
02028-106012-F	02028-206012-R	02028-306012-S	12.5	11	6	3	4	M6X1.0	12.7	5.0
02028-106025-F	02028-206025-R	02028-306025-S	25.0	11	6	3	7	M6X1.0	12.7	5.0
02028-108015-F	02028-208015-R	02028-308015-S	15.0	13	8	4	6	M8X1.25	15.0	8.5
02028-108030-F	02028-208030-R	02028-308030-S	30.0	13	8	4	9	M8X1.25	15.0	8.5
02028-110020-F	02028-210020-R	02028-310020-S	20.0	17	10	5	9	M10X1.50	19.6	9.0
02028-110040-F	02028-210040-R	02028-310040-S	40.0	17	10	5	13	M10X1.50	19.6	9.0
02028-112025-F	02028-212025-R	02028-312025-S	25.0	19	12	6	11	M12X1.75	21.9	12.8
02028-112050-F	02028-212050-R	02028-312050-S	50.0	19	12	6	16	M12X1.75	21.9	12.8

IMAO

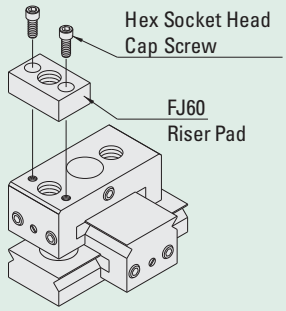
RISER PADS



Used with sliding units shown on the next page to adjust height of clamps and stops. Made from SAE-1045 alloy steel. Heat treated and precision ground with black oxide finish.

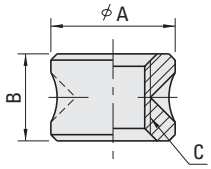
Part #	A mm	B mm	C +/-.01 mm	D mm	E mm	F mm	G mm
FJ60-16017	30	48	17	32	10	M16X2	M6

How To Use



Fasten to the Sliding Unit using cap screws.

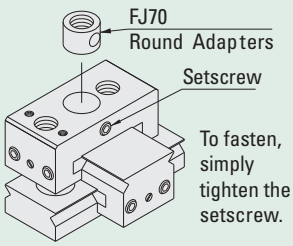
ROUND ADAPTERS



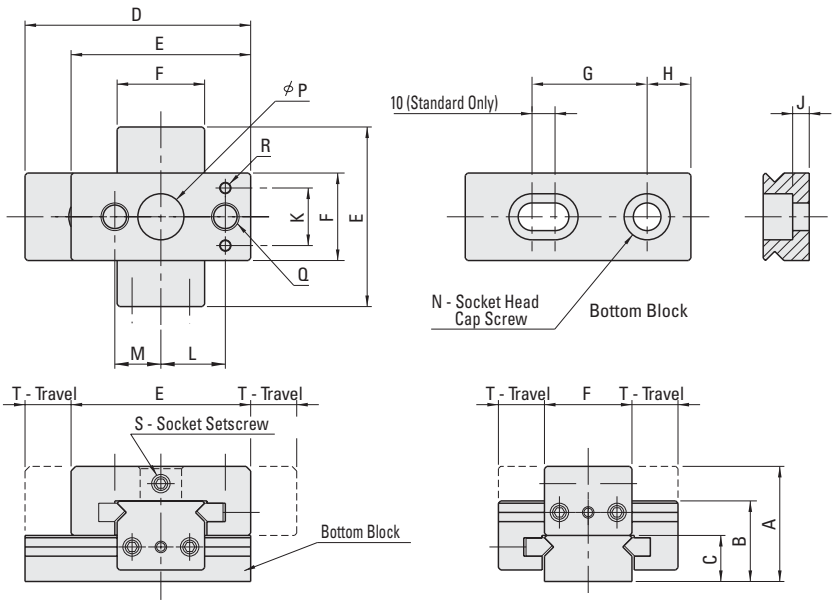
Used with sliding units shown on the next page to adapt the hole to a threaded hole for attaching clamps and stops. Made from SAE-1045 alloy steel. Heat treated with black oxide finish.

Part #	A mm	B mm	C mm
FJ70-16001	25	18	M16X2

How To Use



SLIDING MOUNT UNITS

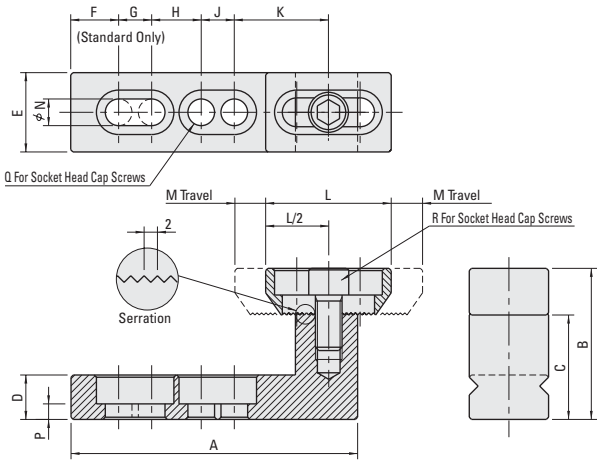


These sliding units mount on fixture plates to allow for both horizontal and vertical adjustments of clamps, supports, rests, etc. The center block slides on the bottom block and the top block slides on the center block. Tightening the locking screws fastens the top or center block after positioning. The center and bottom blocks are graduated for reading and recording travel for easier set up. Mounts using socket head cap screws. Made from SAE-1045 alloy steel. Precision ground and heat treated with black oxide finish.

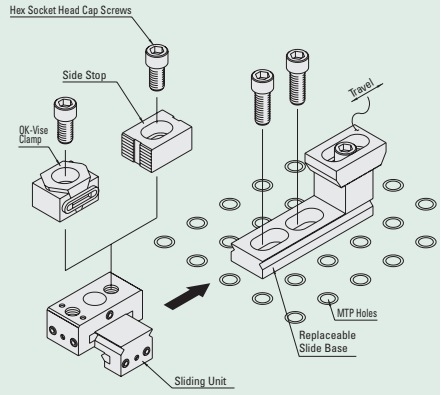
Part #	A +/-.02 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P (H8) mm	Q mm	R mm	S mm	T mm
FJ20-16063	63	43	23	123	98	48	50	24	6	32	34	25	M16	25.0	M16X2X19	M6X1X12	M10X1.5	25

See page 553 for H8 tolerance specifications.

REPLACEABLE SLIDE BASES



How To Use

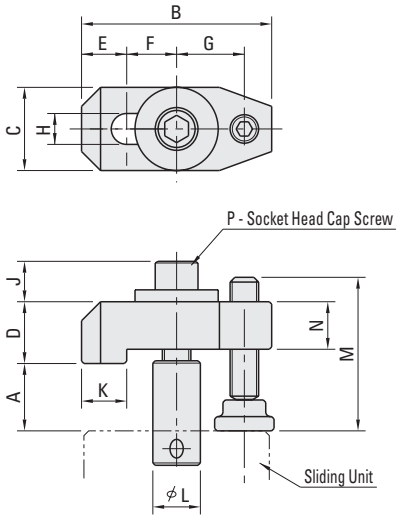


Backstop prevents an OK-Vise or Slide Stop mounted on a Sliding Unit from sliding back.

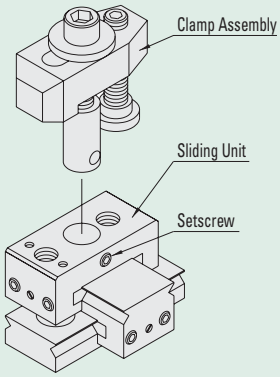
These replaceable slide bases are designed to be used with the sliding mount units shown above. They act as the base mount and provide a back stop so the clamping device does not slide backward on the mount. Mounts on the fixture plate with socket head cap screws. Made from SAE-1045 alloy steel. Precision ground and heat treated with black oxide finish.

Part #	A +/-.01 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	Q mm	R mm
FJ21-16063	174	86	60	23	48	29	20	30	20	57	76	18	16.0	5	M16	M16X2X30

CLAMP ASSEMBLIES



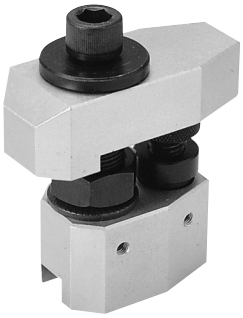
How To Use

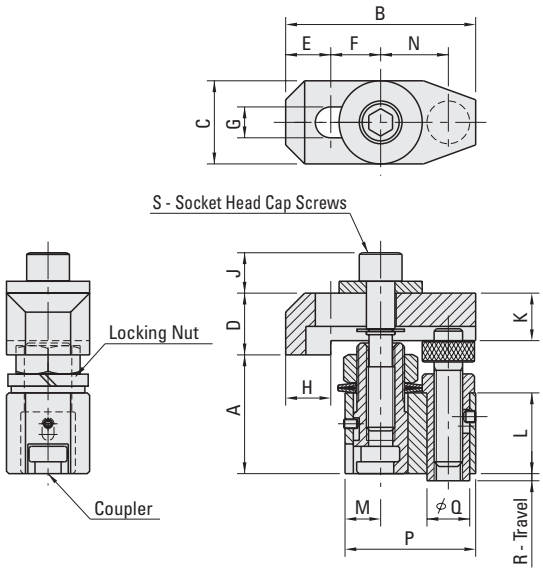


Designed for use with the sliding mount units shown on the previous page to allow the clamps to be adjusted and moved. Install by inserting the mounting base into the top sliding mount and tightening the set screw on the mount. The strap clamp is made from A7075 aluminum with natural anodized finish. The support and mount are 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	L mm	M mm	N mm	P mm
FJ30-16025	25-55	100	45	34	24	26	35.0	17	22	24	25	85	27	M16X2X80

HIGH RISE CLAMP ASSEMBLIES

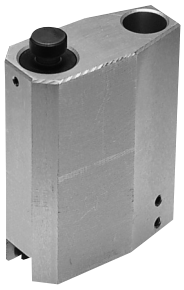


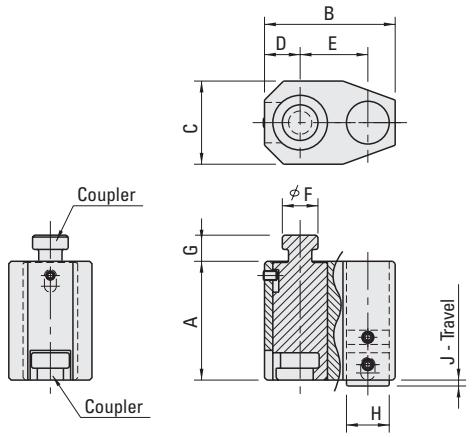


These high rise clamp assemblies are designed for use with the quick clamp risers and lock screws shown on pages 185-186. This system allows for quickly assembling clamps to fixture plates. These clamps quickly attach to the risers to obtain the necessary height for clamping of the work piece. The strap clamp is slotted to allow for horizontal adjustments. The base is made from A6061S-T6 aluminum and the strap is made from A7075 aluminum. The aluminum parts have a natural anodized finish. The support and mount are made from SAE-1045 alloy steel, heat treated with black oxide finish.

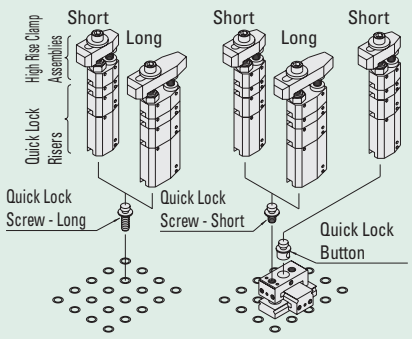
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm
FJ40-16055S	55-80	100	45	34	24	26	17	24	22	27	36.5	18	35.0	68	22	4	M16X2X75
FJ40-16055L	55-80	150	45	34	24	51	17	24	22	27	36.5	18	60.0	93	22	4	M16X2X75

QUICK CLAMP RISERS





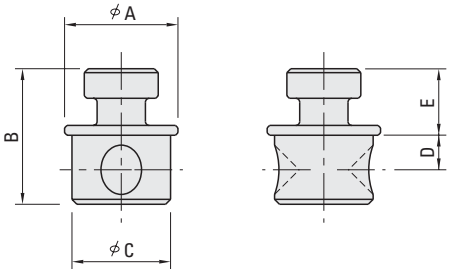
How To Use



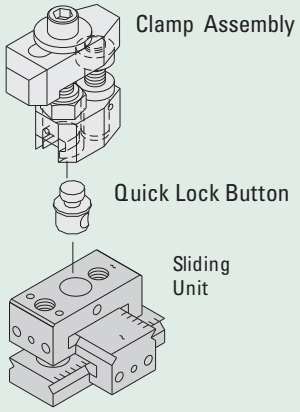
These quick clamp risers are designed to work with the high rise clamp assemblies shown on the previous page. These risers allow you to quickly piece them together to the proper height for clamping the work piece. The risers are attached to the fixture plate using a long quick lock screw shown on page 186. The risers then can be pieced together using the couplers that are included in the riser assembly. These risers can also be used with the sliding mount units shown on page 183 using the short quick lock screws or quick lock buttons. The riser is made from A6061S-T6 aluminum with a natural anodized finish. The coupler 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	Use with High Rise Clamp Assembly #
FJ41-16025S	25	68	45	18	35.0	18	13.5	22	4	FJ40-16055S
FJ41-16050S	50	68	45	18	35.0	18	13.5	22	4	FJ40-16055S
FJ41-16100S	100	68	45	18	35.0	18	13.5	22	4	FJ40-16055S
FJ41-16025L	25	93	45	18	60.0	18	13.5	22	4	FJ40-16055L
FJ41-16050L	50	93	45	18	60.0	18	13.5	22	4	FJ40-16055L
FJ41-16100L	100	93	45	18	60.0	18	13.5	22	4	FJ40-16055L

QUICK LOCK BUTTONS



How To Use

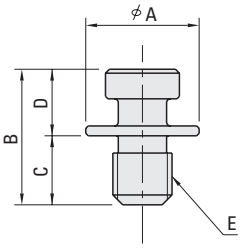


Designed to attach quick clamp risers (shown above) and high rise clamp assemblies (on page 184) to the sliding mount units shown on page 183. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm
FJ42-16001	28	35.0	25	9.5	16.0

IMAO

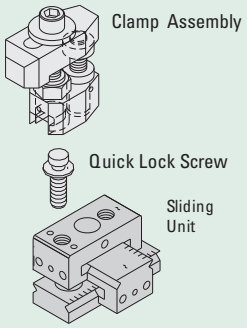
QUICK LOCK SCREWS – SHORT



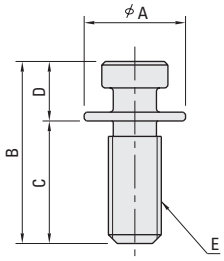
Designed to attach quick clamp risers and high rise clamp assemblies to the sliding mount units shown on page 183. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm
FJ42-16002	28	35.0	19	16.0	M16X2

How To Use



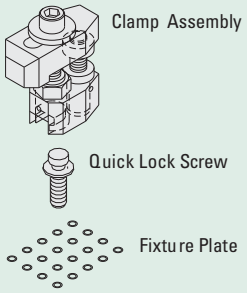
QUICK LOCK SCREWS – LONG



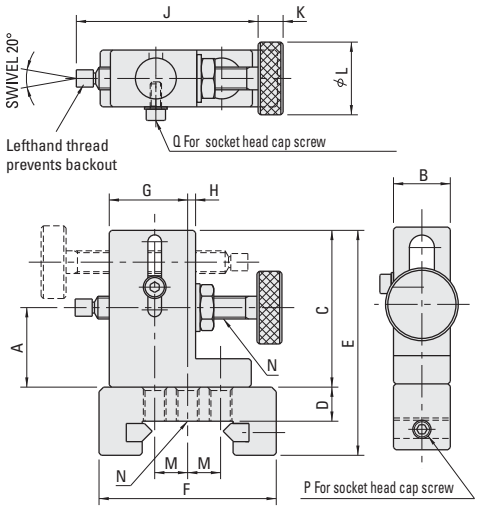
Designed to attach quick clamp risers or high rise clamp assemblies to a fixture plate. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm
FJ42-16003	28	51.0	35	16.0	M16X2

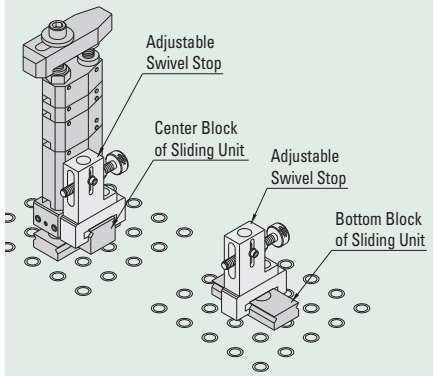
How To Use



ADJUSTABLE SWIVEL STOPS



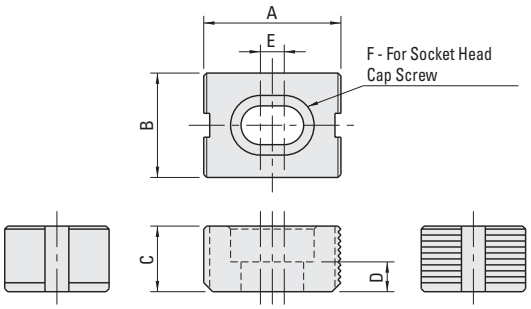
How To Use



These stops have a vertical slot which allows the horizontal adjustment to slide up or down for various work piece height. The end of the horizontal adjustment swivels 20 degrees from center to allow for clamping on uneven surfaces or misaligned parts. Mounts to either the bottom block of a sliding mount unit or the center block of a sliding mount unit shown on page 183. The horizontal adjustment can face either left or right. Body and base are precision ground. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D +/-.01 mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm
FJ50-16030	30-70	30	89	20	128	98	43.5	6.5	100	13	32	18.5	M12X1.75	M10X1.5	M6X1

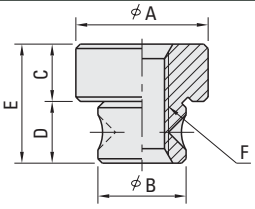
SIDE STOPS



These side stops can be used with the OK Vises shown on pages 54-56. Can be used with the sliding mount units and replaceable slide bases shown on page 183. 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
FJ51-16001	62	45	30	14	12	M16

LOCATING ADAPTERS

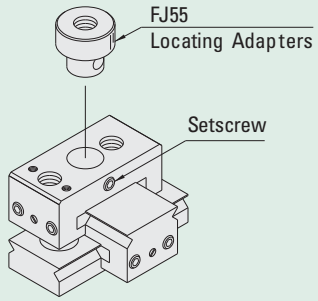


Used with sliding mount units shown on page 183 to adapt the hole to a threaded hole for attaching clamps and stops. Made from SAE-1045 heat treated and precision ground.

Part #	A mm	(f7) B mm	+/-.01 C mm	D mm	E mm	F mm
FJ55-16040	40	25	17	19	36	M16X2

See page 561 for f7 tolerance specifications.

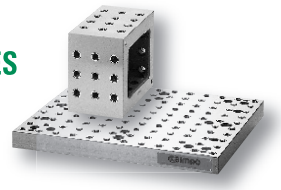
How To Use



To fasten, simply tighten the setscrew.

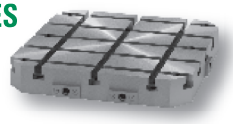
PRECISION TOOLING PLATES, BLOCKS & LOCATORS

GRID PLATES & BLOCKS

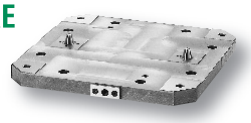


BLANK FIXTURE BLOCKS

T-SLOT PLATES & BLOCKS



FLEX FIXTURE PLATES

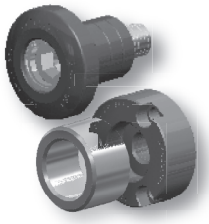


FLEX LOCATORS

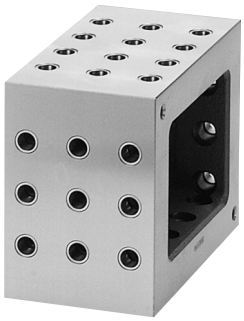
APS

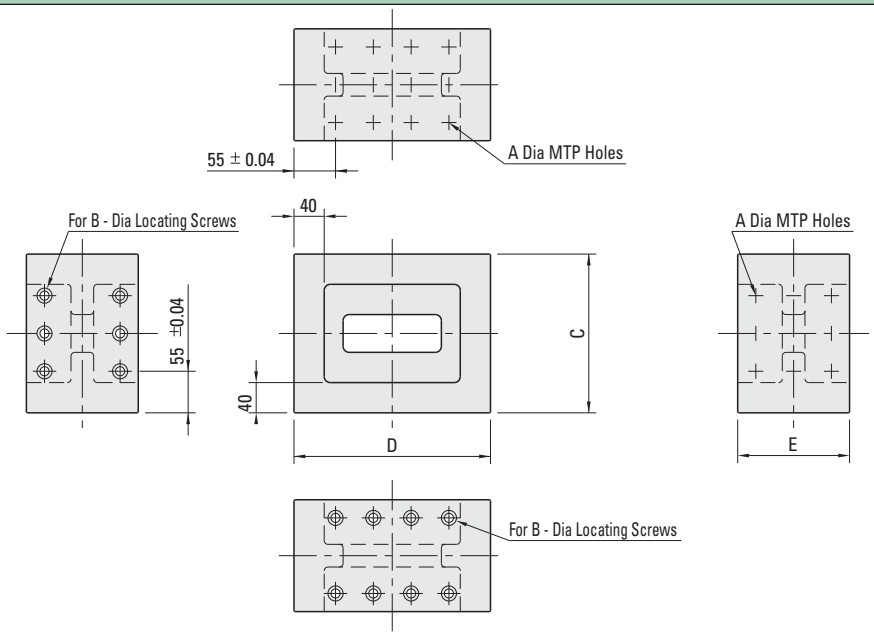
MODLOC TOOLING COLUMNS

SPEEDLOC PRECISION LOCATORS



RISER BLOCKS



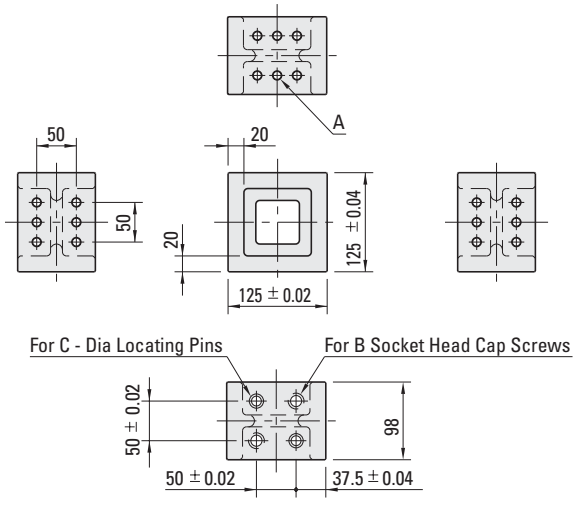


The body is made from FC300 cast iron – annealed and precision ground. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs. Locate on tooling plate or block using BJ700 locating screws. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	B mm	+/-.02 C mm	+/-.02 D mm	E mm	No. of MTP Holes	No. of Mounting Holes	Use Locating Screw
BJ090-1621-12	12	M12X1.75	12	160	210	148	15	10	BJ700-12065
BJ090-2126-12	12	M12X1.75	12	210	260	148	21	14	BJ700-12065
BJ090-1621-16	16	M16X2	16	160	210	148	15	10	BJ700-16075
BJ090-2126-16	16	M16X2	16	210	260	148	21	14	BJ700-16075

See page 561 for F7 tolerance specifications.

COMPACT RISER BLOCKS



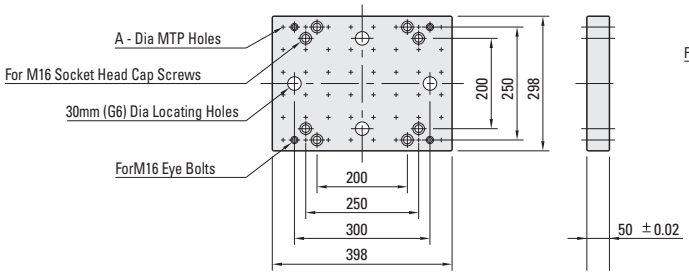
The body is made from FC300 cast iron – annealed and precision ground. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. Hole spacing is 50mm +/-0.02.

Part #	A Thread mm	B mm	(F7) C mm
BJ091-12125	M12X1.75	M12	12
BJ091-16125	M16X2	M16	16

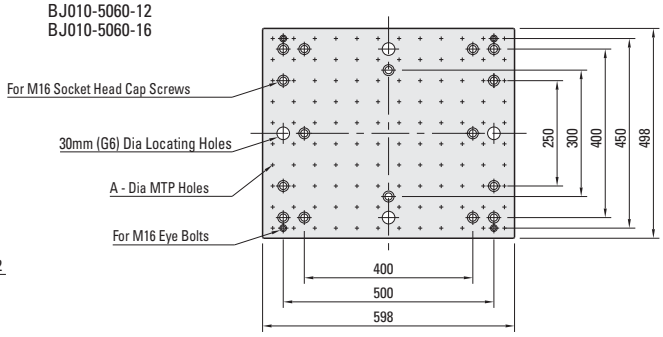
See page 561 for F7 tolerance specifications.

RECTANGULAR GRID PLATES

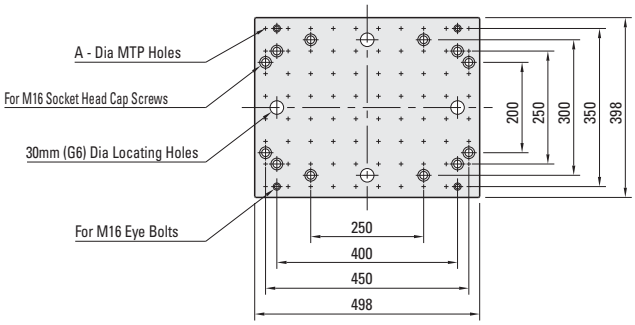
BJ010-3040-12



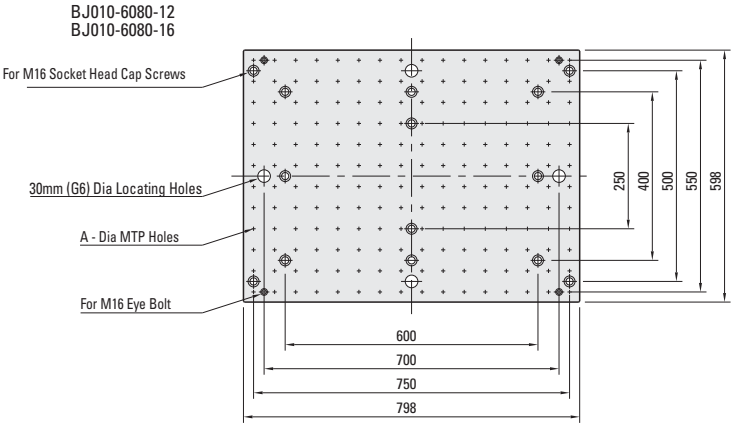
BJ010-5060-12
BJ010-5060-16



BJ010-4050-12
BJ010-4050-16



BJ010-6080-12
BJ010-6080-16



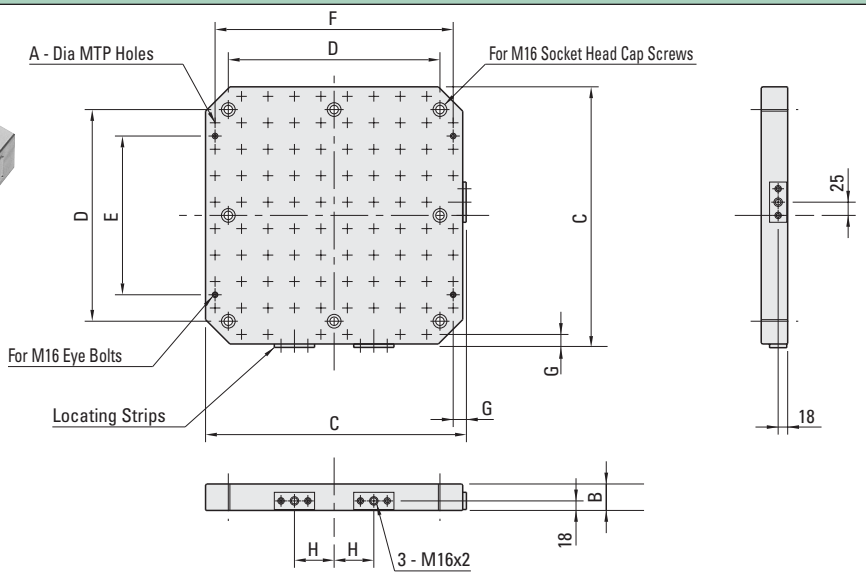
The body is made from FC250 cast iron – annealed and precision ground. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs and eyebolts. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	No. of MTP Holes	No. of Mounting Holes
BJ010-3040-12	12	M12X1.75	48	8
BJ010-4050-12	12	M12X1.75	80	12
BJ010-4050-16	16	M16X2	80	12
BJ010-5060-12	12	M12X1.75	120	16
BJ010-5060-16	16	M16X2	120	16
BJ010-6080-12	12	M12X1.75	192	14
BJ010-6080-16	16	M16X2	192	14

See page 561 for F7 and G6 tolerance specifications.

IMAO

SQUARE GRID PLATES

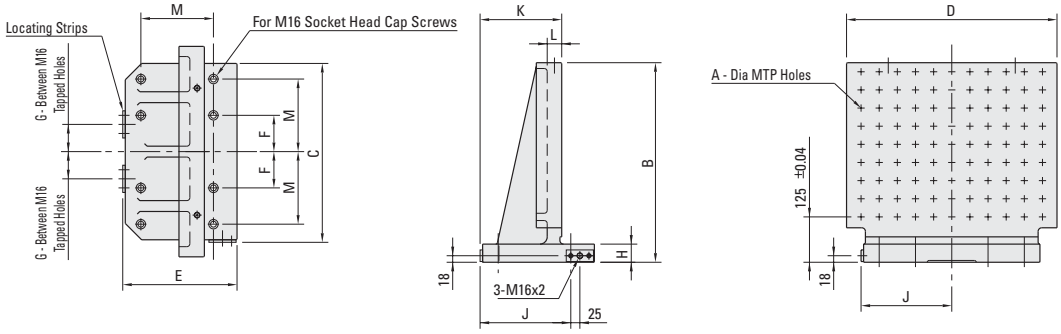


The body is made from FC250 cast iron – annealed and precision ground. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs and eyebolts. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	+/-.02 B mm	C mm	D mm	E mm	F mm	+/-.04 G mm	H mm	Number of MTP Holes	Number of Mounting Holes
BJ040-4040-12	12	M12X1.75	50	393	320	200	350	25	55	59	4
BJ040-4040-16	16	M16X2	50	393	320	200	350	25	55	59	4
BJ040-5050-12	12	M12X1.75	50	493	400	300	450	25	75	93	8
BJ040-5050-16	16	M16X2	50	493	400	300	450	25	75	93	8
BJ040-6363-12	12	M12X1.75	50	623	500	400	550	40	100	139	8
BJ040-6363-16	16	M16X2	50	623	500	400	550	40	100	139	8
BJ040-8080-12	12	M12X1.75	60	793	640	500	750	25	135	237	8
BJ040-8080-16	16	M16X2	60	793	640	500	750	25	135	237	8

See page 561 for F7 tolerance specifications.

ANGLE GRID PLATES

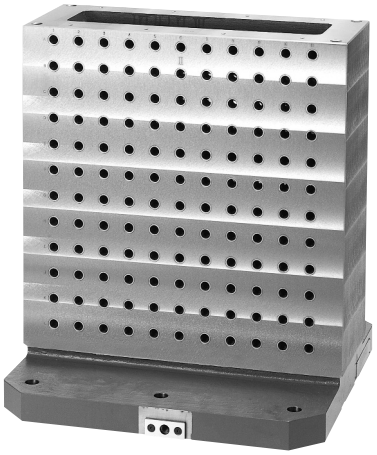


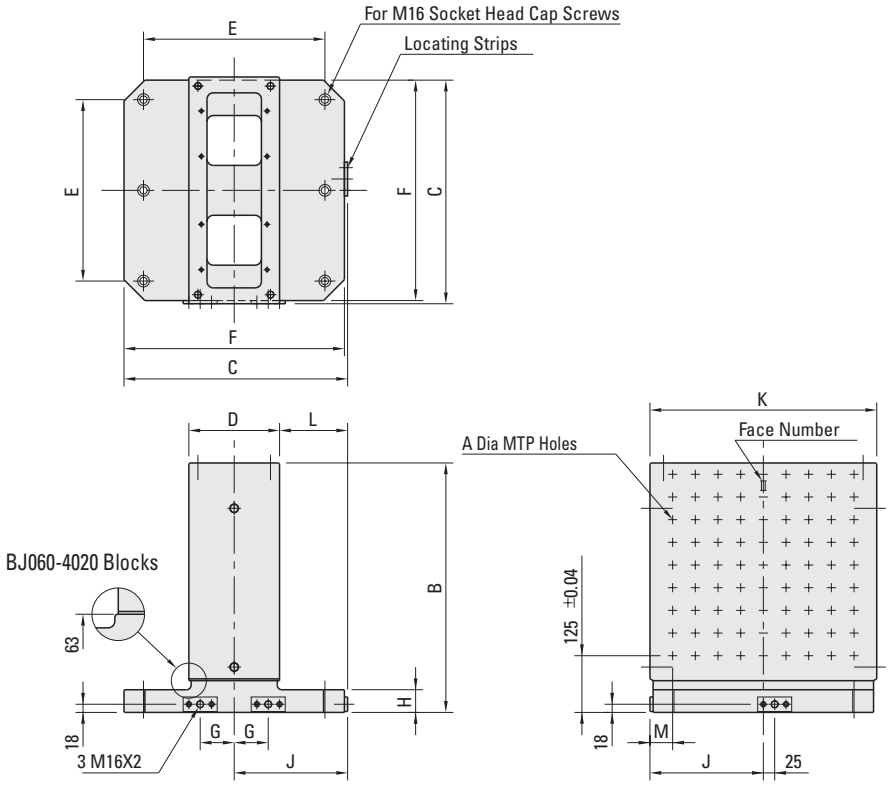
The body is made from FC300 cast iron – annealed and precision machined. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs and eyebolts. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	+/-.04 J mm	+/-.04 K mm	L mm	M mm	Number of MTP Holes	No. of Mounting Holes
BJ050-4101-12	12	M12X1.75	450	393	470	265	-	55	45	200	175	40	160	63	4
BJ050-4101-16	16	M16X2	450	393	470	265	-	55	45	200	175	40	160	63	4
BJ050-5101-12	12	M12X1.75	550	493	580	315	100	75	50	250	225	40	200	99	8
BJ050-5101-16	16	M16X2	550	493	580	315	100	75	50	250	225	40	200	99	8
BJ050-6101-12	12	M12X1.75	700	623	760	380	125	100	55	315	265	50	250	180	8
BJ050-6101-16	16	M16X2	700	623	760	380	125	100	55	315	265	50	250	180	8
BJ050-8101-12	12	M12X1.75	800	793	900	465	160	135	60	400	350	50	320	238	8
BJ050-8101-16	16	M16X2	800	793	900	465	160	135	60	400	350	50	320	238	8

See page 561 for F7 tolerance specifications.

TWO-SIDED GRID BLOCKS



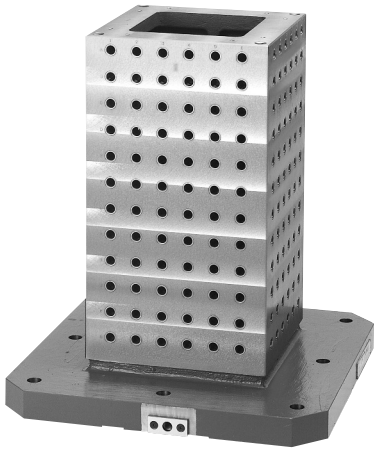


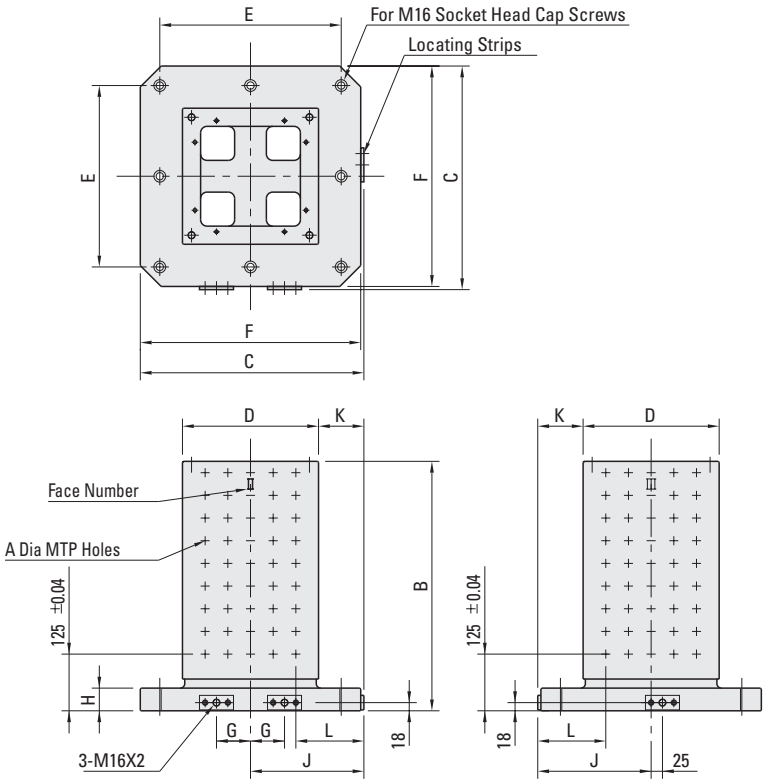
The body is made from FC300 cast iron – annealed and precision machined. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs and eyebolts. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	B mm	C mm	+/-.04 D mm	E mm	F mm	G mm	H mm	J mm	K mm	+/-.04 L mm	+/-.04 M mm	Number of MTP Holes	No. of Mounting Holes
BJ060-4015-12	12	M12X1.75	450	393	150	320	386	55	50	200	400	125	50	98	4
BJ060-4015-16	16	M16X2	450	393	150	320	386	55	50	200	400	125	50	98	4
BJ060-5020-12	12	M12X1.75	550	493	200	400	486	75	50	250	500	150	50	162	6
BJ060-5020-16	16	M16X2	550	493	200	400	486	75	50	250	500	150	50	162	6
BJ060-6325-12	12	M12X1.75	700	623	250	500	616	100	55	315	630	190	65	264	6
BJ060-6325-16	16	M16X2	700	623	250	500	616	100	55	315	630	190	65	264	6
BJ060-8030-12	12	M12X1.75	800	793	300	640	786	135	60	400	800	250	50	420	6
BJ060-8030-16	16	M16X2	800	793	300	640	786	135	60	400	800	250	50	420	6
BJ061-4015-12	12	M12X1.75	550	393	150	320	386	55	50	200	400	125	50	126	4
BJ061-4015-16	16	M16X2	550	393	150	320	386	55	50	200	400	125	50	126	4
BJ061-5020-12	12	M12X1.75	650	493	200	400	486	75	50	250	500	150	50	198	6
BJ061-5020-16	16	M16X2	650	493	200	400	486	75	50	250	500	150	50	198	6
BJ061-6325-12	12	M12X1.75	800	623	250	500	616	100	55	315	630	190	65	308	6
BJ061-6325-16	16	M16X2	800	623	250	500	616	100	55	315	630	190	65	308	6

See page 561 for F7 tolerance specifications.

FOUR-SIDED GRID BLOCKS





The body is made from FC300 cast iron – annealed and precision machined. The alignment bushings are made from SUJ2 steel. The thread inserts are made from SAE-1045 alloy steel and heat treated. MTP hole spacing is 50mm +/-0.02. Includes protection plugs and eyebolts. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

Part #	(F7) A mm	A Thread mm	B mm	C mm	+/-.04 D mm	E mm	F mm	G mm	H mm	J mm	+/-.04 K mm	+/-.04 L mm	Number of MTP Holes	No. of Mounting Holes
BJ070-4025-12	12	M12X1.75	450	393	250	320	386	55	50	200	75	125	112	4
BJ070-4025-16	16	M16X2	450	393	250	320	386	55	50	200	75	125	112	4
BJ070-5030-12	12	M12X1.75	550	493	300	400	486	75	50	250	100	150	180	8
BJ070-5030-16	16	M16X2	550	493	300	400	486	75	50	250	100	150	180	8
BJ070-6335-12	12	M12X1.75	700	623	350	500	616	100	55	315	140	190	288	8
BJ070-6335-16	16	M16X2	700	623	350	500	616	100	55	315	140	190	288	8
BJ070-8050-12	12	M12X1.75	800	793	500	640	786	135	60	400	150	200	504	8
BJ070-8050-16	16	M16X2	800	793	500	640	786	135	60	400	150	200	504	8
BJ071-4025-12	12	M12X1.75	550	393	250	320	386	55	50	200	75	125	144	4
BJ071-4025-16	16	M16X2	550	393	250	320	386	55	50	200	75	125	144	4
BJ071-5030-12	12	M12X1.75	650	493	300	400	486	75	50	250	100	150	220	8
BJ071-5030-16	16	M16X2	650	493	300	400	486	75	50	250	100	150	220	8
BJ071-6335-12	12	M12X1.75	800	623	350	500	616	100	55	315	140	190	336	8
BJ071-6335-16	16	M16X2	800	623	350	500	616	100	55	315	140	190	336	8

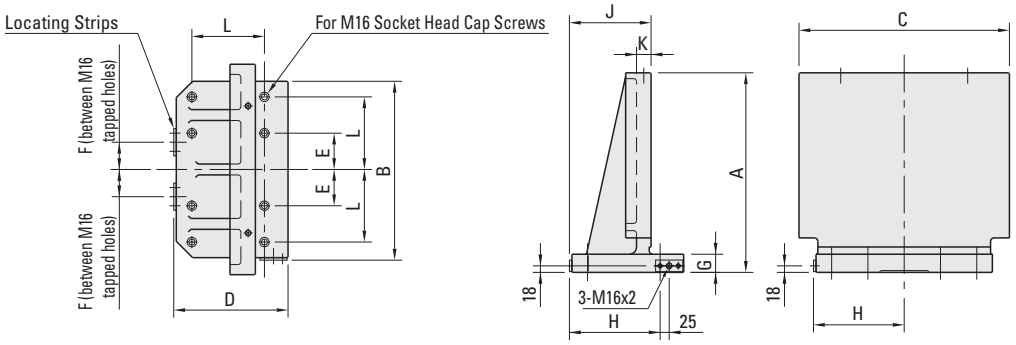
See page 561 for F7 tolerance specifications.

METAL PROTECTION PLUGS

Used to keep chips and dirt out of unused MTP holes. Made from zinc die cast.

Part #	Thread
BJ770-12001	M12
BJ770-16001	M16

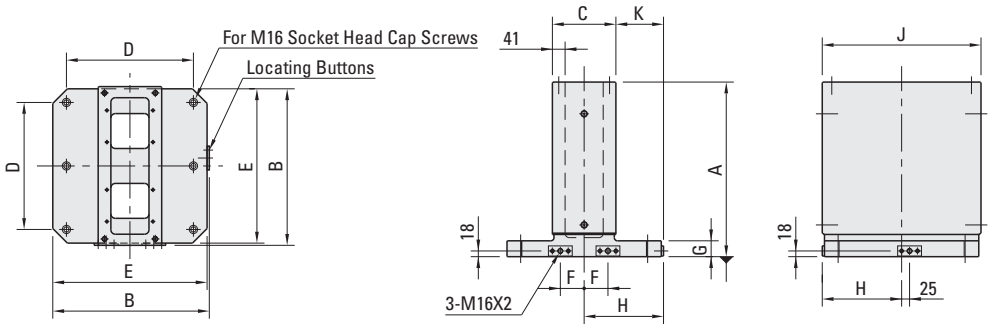
BLANK ANGLE BLOCKS



The body is made from FC300 cast iron – annealed and semi-finish machined.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J +/-.2 mm	K mm	L mm	No. of Mounting Holes
BJ050-4101-00	450	393	470	265	-	55	45	200	176	40	160	4
BJ050-5101-00	550	493	580	315	100	75	50	250	226	40	200	8
BJ050-6101-00	700	623	760	380	125	100	55	315	266	50	250	8
BJ050-8101-00	800	793	900	465	160	135	60	400	351	50	320	8

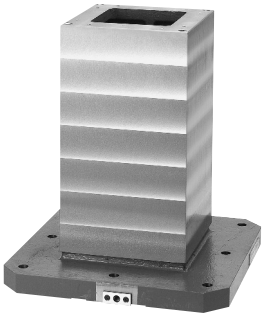
BLANK TWO-SIDED BLOCKS

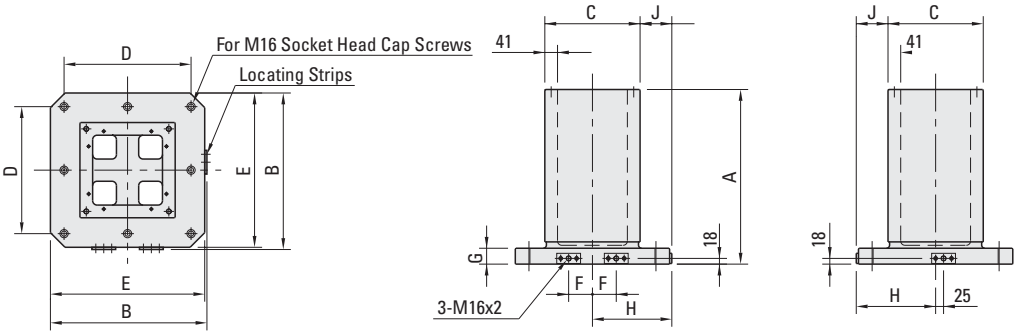


The body is made from FC300 cast iron – annealed and semi-finish machined.

Part #	A mm	B mm	C +/-.2 mm	D mm	E mm	F mm	G mm	H mm	J mm	K +/-.2 mm	No. of Mounting Holes
BJ060-4015-00	450	393	151	320	386	55	50	200	400	124.5	4
BJ060-5020-00	550	493	201	400	486	75	50	250	500	149.5	6
BJ060-6325-00	700	623	251	500	616	100	55	315	630	189.5	6
BJ060-8030-00	800	793	301	640	786	135	60	400	800	249.5	6
BJ061-4015-00	550	393	151	320	386	55	50	200	400	124.5	4
BJ061-5020-00	650	493	201	400	486	75	50	250	500	149.5	6
BJ061-6325-00	800	623	251	500	616	100	55	315	630	189.5	6

BLANK FOUR-SIDED BLOCKS

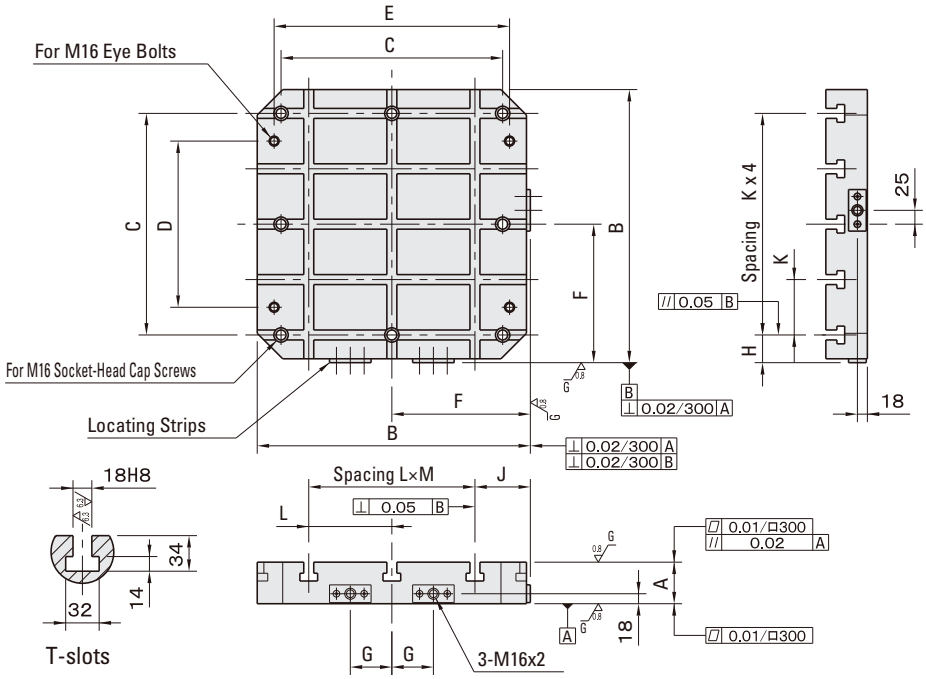




The body is made from FC300 cast iron – annealed and semi-finish machined.

Part #	A mm	B mm	+/-.2 C mm	D mm	E mm	F mm	G mm	H mm	+/-.2 J mm	No. of Mounting Holes
BJ070-4025-00	450	393	251	320	386	55	50	200	74.5	4
BJ070-5030-00	550	493	301	400	486	75	50	250	99.5	8
BJ070-6335-00	700	623	351	500	616	100	55	315	139.5	8
BJ070-8050-00	800	793	501	640	786	135	60	400	149.5	8
BJ071-4025-00	550	393	251	320	386	55	50	200	74.5	4
BJ071-5030-00	650	493	301	400	486	75	50	250	99.5	8
BJ071-6335-00	800	623	351	500	616	100	55	315	139.5	8

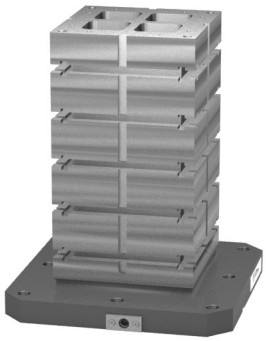
SQUARE T-SLOT PLATES

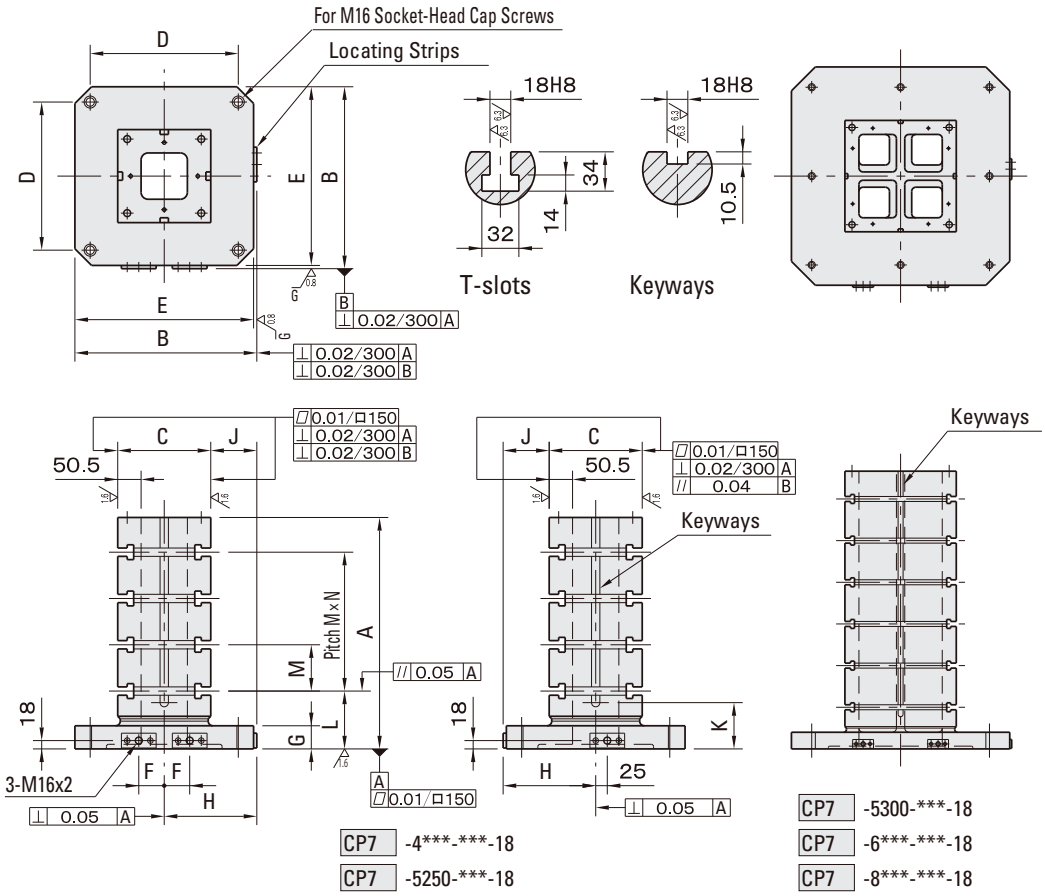


The body is made from FC250 cast iron – annealed and precision ground. Eye bolts included.

Part #	Pallet Size mm	+/-0.02 A mm	B mm	C mm	D mm	E mm	F mm	G mm	+/-0.04 H mm	+/-0.04 J mm	+/-0.04 K mm	+/-0.04 L mm	M mm	# of Mounting Holes
CP4-4040-080-18	400	75	393	320	250	250	200	55	40	40	80	80	4	4
CP4-4040-081-18	400	75	393	320	250	340	200	55	40	75	80	125	2	4
CP4-5050-100-18	500	75	493	400	300	325	250	75	50	50	100	100	4	8
CP4-5050-101-18	500	75	493	400	300	425	250	75	50	100	100	150	2	8
CP4-6363-121-18	630	75	623	500	400	575	315	100	65	65	125	125	4	8
CP4-6363-122-18	630	75	623	500	400	550	315	100	65	115	125	200	2	8
CP4-8080-161-18	800	80	793	640	500	725	400	135	80	80	160	160	4	8
CP4-8080-162-18	800	80	793	640	500	725	400	135	80	150	160	250	2	8

FOUR-SIDED T-SLOT BLOCKS

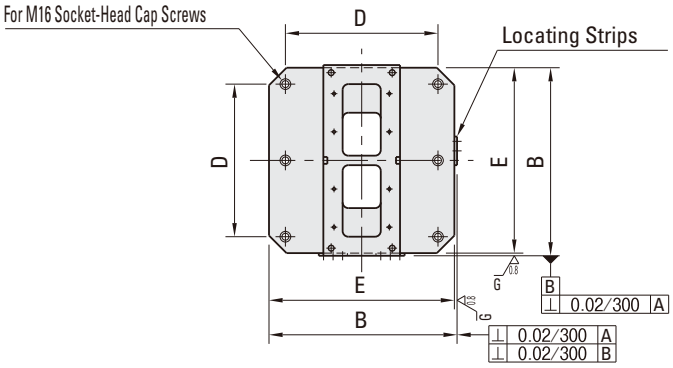


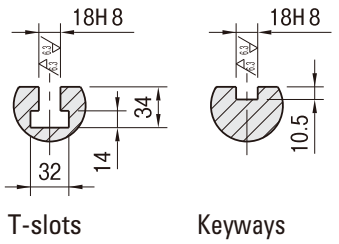


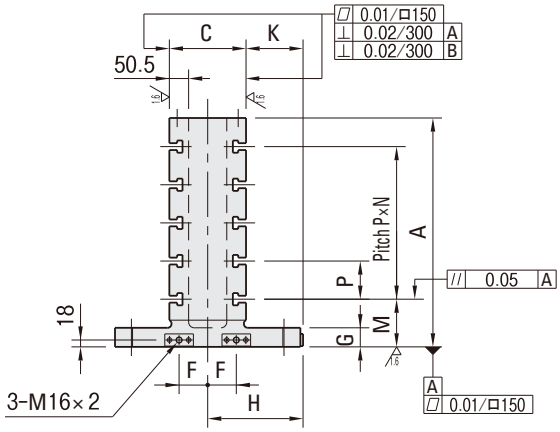
The body is made from FC300 cast iron – annealed and precision machined. Each face is machined with 0.5mm deep finishing allowance for extra face finish to your specifications. Eye bolts included. Custom configurations are available.

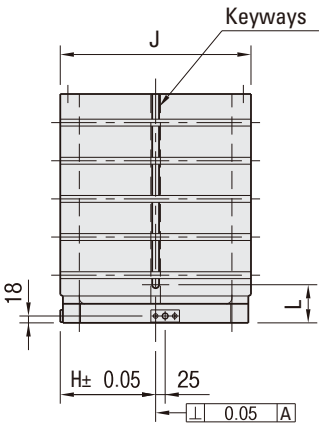
Part #	Pallet Size mm	A mm	B mm	+/-0.2 C mm	D mm	E mm	F mm	G mm	+/-0.05 H mm	+/-0.2 J mm	K mm	+/-0.05 L mm	+/-0.04 M mm	N	# of Mounting Holes
CP7-4200-500-18	400	500	393	201	320	386	55	50	200	99.5	100	125	100	3	4
CP7-4250-500-18	400	500	393	251	320	386	55	50	200	74.5	100	125	100	3	4
CP7-4200-600-18	400	600	393	201	320	386	55	50	200	99.5	100	125	100	4	4
CP7-4250-600-18	400	600	393	251	320	386	55	50	200	74.5	100	125	100	4	4
CP7-5250-600-18	500	600	493	251	400	486	75	50	250	124.5	100	125	100	4	8
CP7-5300-600-18	500	600	493	301	400	486	75	50	250	99.5	100	125	100	4	8
CP7-5250-700-18	500	700	493	251	400	486	75	50	250	124.5	100	125	100	5	8
CP7-5300-700-18	500	700	493	301	400	486	75	50	250	99.5	100	125	100	5	8
CP7-6300-725-18	630	725	623	301	500	616	100	55	315	164.5	125	150	125	4	8
CP7-6400-725-18	630	725	623	401	500	616	100	55	315	114.5	125	150	125	4	8
CP7-6300-850-18	630	850	623	301	500	616	100	55	315	164.5	125	150	125	5	8
CP7-6400-850-18	630	850	623	401	500	616	100	55	315	114.5	125	150	125	5	8
CP7-8400-100-18	800	1000	793	401	640	786	135	60	400	199.5	125	150	150	5	8
CP7-8500-100-18	800	1000	793	501	640	786	135	60	400	149.5	125	150	150	5	8
CP7-8400-115-18	800	1150	793	401	640	786	135	60	400	199.5	125	150	150	6	8
CP7-8500-115-18	800	1150	793	501	640	786	135	60	400	149.5	125	150	150	6	8

TWO-SIDED T-SLOT BLOCKS









The body is made from FC300 cast iron – annealed and precision machined. Each face is machined with 0.5mm deep finishing allowance for extra face finish to your specifications. Eye bolts included. Custom configurations are available.

Part #	Pallet Size mm	A mm	B mm	+/-0.2 C mm	D mm	E mm	F mm	G mm	H mm	J mm	+/-0.2 K mm	L mm	+/-0.05 M mm	N	+/-0.04 P mm	# of Mounting Holes
CP6-4150-500-18	400	500	393	171	320	386	55	50	200	400	114.5	100	125	3	100	4
CP6-4200-500-18	400	500	393	201	320	386	55	50	200	400	99.5	100	125	3	100	4
CP6-4150-600-18	400	600	393	171	320	386	55	50	200	400	114.5	100	125	4	100	4
CP6-4200-600-18	400	600	393	201	320	386	55	50	200	400	99.5	100	125	4	100	4
CP6-5200-600-18	500	600	493	201	400	486	75	50	250	500	149.5	100	125	4	100	6
CP6-5250-600-18	500	600	493	251	400	486	75	50	250	500	124.5	100	125	4	100	6
CP6-5200-700-18	500	700	493	201	400	486	75	50	250	500	149.5	100	125	5	100	6
CP6-5250-700-18	500	700	493	251	400	486	75	50	250	500	124.5	100	125	5	100	6
CP6-6250-725-18	630	725	623	251	500	616	100	55	315	630	189.5	125	150	4	125	6
CP6-6300-725-18	630	725	623	301	500	616	100	55	315	630	164.5	125	150	4	125	6
CP6-6250-850-18	630	850	623	251	500	616	100	55	315	630	189.5	125	150	5	125	6
CP6-6300-850-18	630	850	623	301	500	616	100	55	315	630	164.5	125	150	5	125	6
CP6-8300-100-18	800	1000	793	301	640	786	135	60	400	800	249.5	125	150	5	150	6
CP6-8350-100-18	800	1000	793	351	640	786	135	60	400	800	224.5	125	150	5	150	6
CP6-8300-115-18	800	1150	793	301	640	786	135	60	400	800	249.5	125	150	6	150	6
CP6-8350-115-18	800	1150	793	351	640	786	135	60	400	800	224.5	125	150	6	150	6

IMAO

FLEX FIXTURING SYSTEM

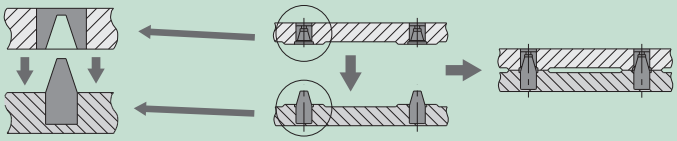
The Flex (Flexible) Quick Change Fixturing System consists of a base plate that can be used with both the fixture plates and angle plates.

Together this system allows for:

- Fast and Accurate Fixture Changes
- Mounting the Same Fixture on Different Machines
- Machining from Five Sides on One Fixture
- Quick Fixture Setup

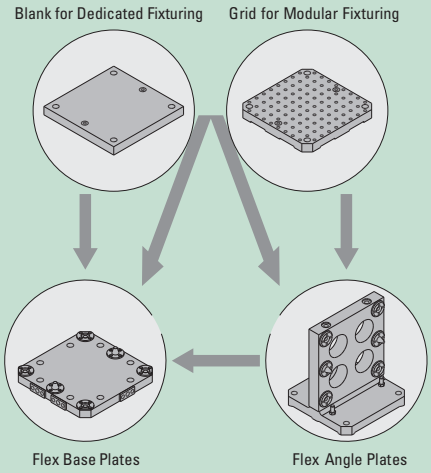
Repeatability

The two tapered pins on the base plate mate with receiver bushings on the fixture plates or angle plates for highly accurate locating repeatability.



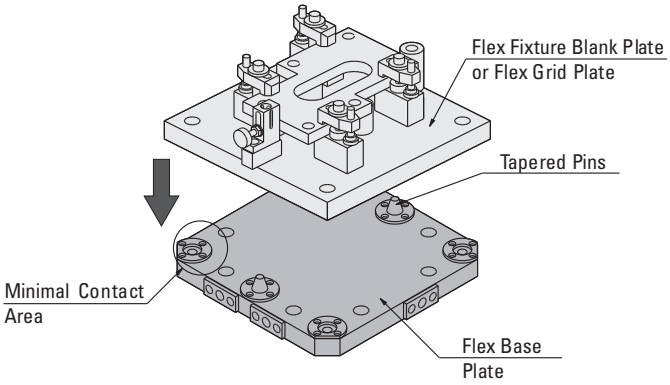
Flexibility

This system can be used in various configurations to mount the Flex Fixture Plates as shown below.



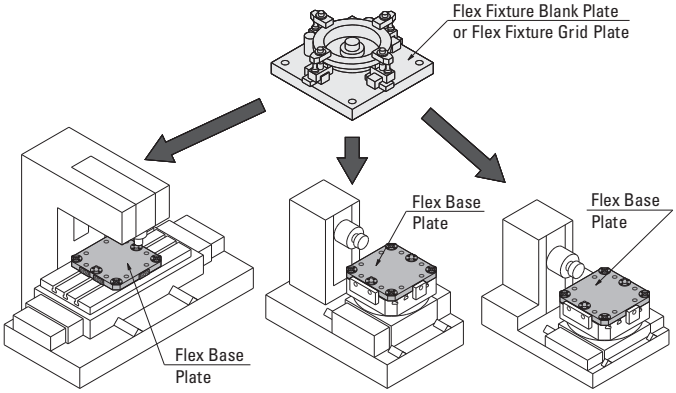
Fast and Accurate Fixture Changes

The two tapered pins allow simply locating a Flex Fixture Plate or Flex Angle Plate on a Flex Base Plate. These plates sit on the Flex Base Plate with minimal contact area which allows for easy and accurate fixture changes.



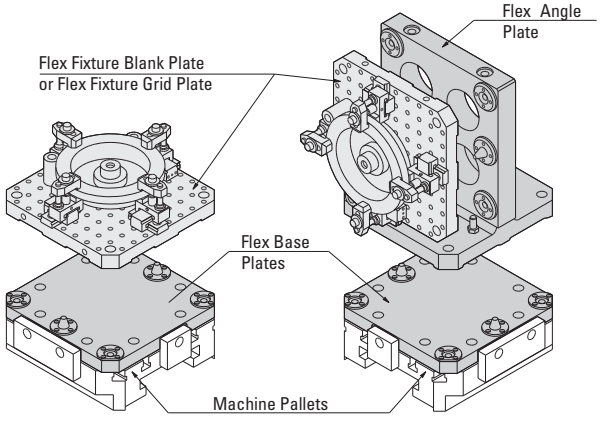
Mounting the Same Fixture on Different Machines

Once a Flex Base Plate is installed on different machines, the same fixture can then be easily and accurately mounted on any of those machines.



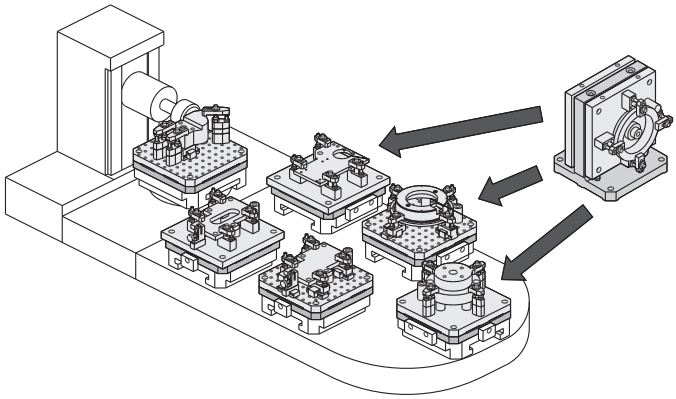
Machining from Five Sides on One Fixture

Using a Flex Angle Plate with a Flex Base Plate allows mounting the same fixture horizontally and vertically on the same pallet for machining from five sides. Centering is not required when a fixture is turned over.

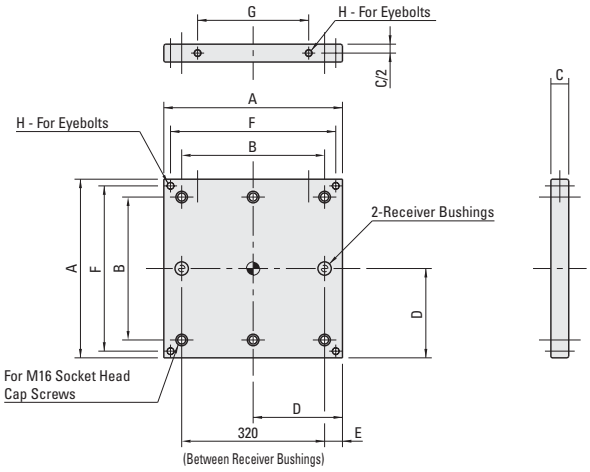


Quick Fixture Setup

Because there is no need for fixture centering , fixtures can be set up quicker with excellent repeatability.



FLEX BLANK FIXTURE PLATES

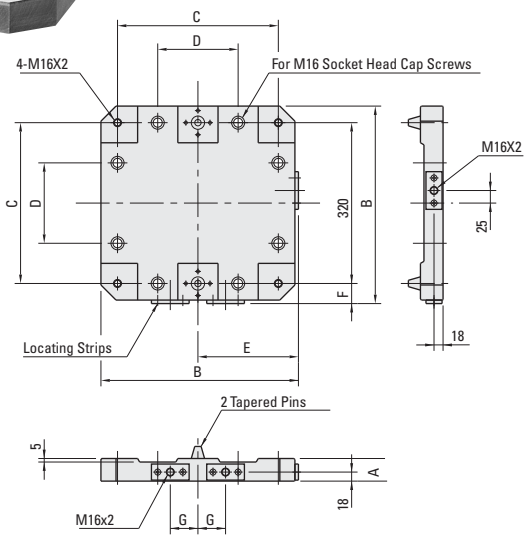


Designed for dedicated fixturing that mounts on Flex Base Plates and Flex Angle Plates. Machining references are provided for better machining. The body is made from S50C steel – precision ground. The tapered pins and receiver bushings are made from SAE-1045 alloy steel, precision ground and heat treated. Eyebolts included. It is recommended that the user does not grind the bottom of these plates to preserve the accurate fit of its receiver bushings with the tapered pins of the sub-plate.

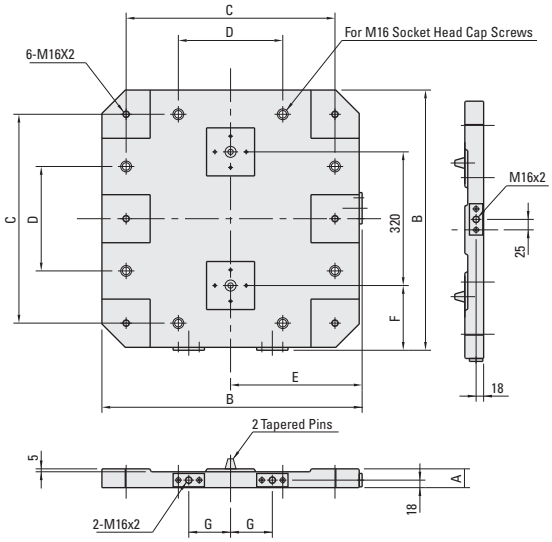
Part #	A mm	B mm	+.30/+.15 C mm	+/-.1 D mm	E mm	F mm	G mm	H mm	No. of Mounting Holes
FJ12-4040-00	400	320	40	200	40	370	280	M12X1.75	4
FJ12-5050-00	500	400	40	250	90	460	350	M12X1.75	4
FJ12-6363-00	630	500	40	315	155	540	460	M16X2	6
FJ12-8080-00	800	640	45	400	240	680	570	M16X2	6

FLEX BASE PLATES

FJ01-4040
FJ01-5050



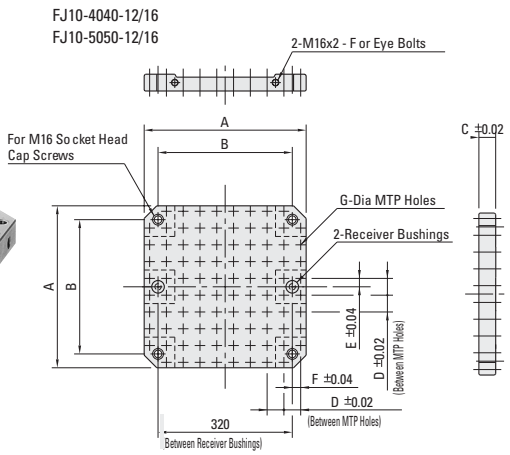
FJ01-6363
FJ01-8080

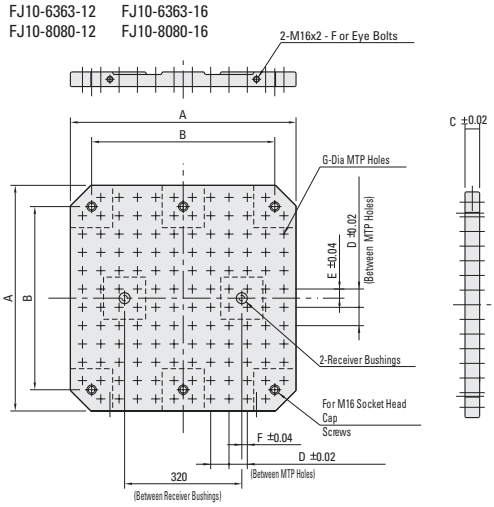


These Flex Base Plates are designed to mount on the machining center pallet to JIS B 6337 standards. Manufactured from FC250 cast iron – annealed and precision ground. The tapered pins are made from SAE-1095 alloy steel, heat treated and precision ground. Eyebolts are included.

Part #	+/-.02 A mm	B mm	C mm	D mm	+/-.04 E mm	+/-.04 F mm	G mm	No. of Mounting Holes
FJ01-4040N	40	393	320	160	200	40	55	8
FJ01-5050N	40	493	400	200	250	90	75	8
FJ01-6363N	40	623	500	250	315	155	100	8
FJ01-8080N	45	793	640	320	400	240	135	8

FLEX GRID FIXTURE PLATES





Mounts on Flex Base Plates and Flex Angle Plates. The body is made from FC250 cast iron – annealed and precision ground. The tapered pins and receiver bushings are made from SAE-1045 alloy steel, precision ground and heat treated with black oxide finish. Protection plugs and eyebolts are included. MTP hole spacing is +/-.02mm. Each MTP hole is lettered and numbered for addressing holes. See page 561 for MTP hole construction.

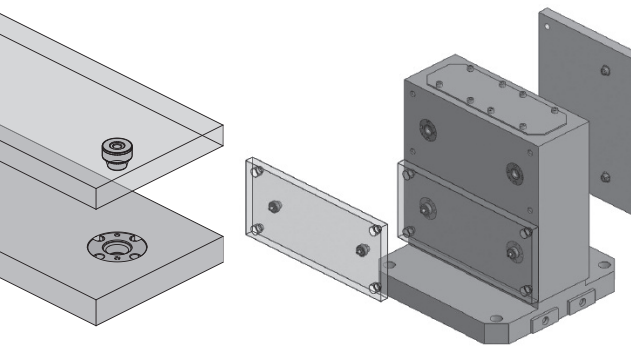
Part #	A mm	B mm	C mm	D mm	E mm	F mm	(F7) G mm	Threads G mm	No. of MTP Holes	No. of Mounting Holes
FJ10-4040-12	386	320	40	50	25	15	12	M12X1.75	60	4
FJ10-4040-16	386	320	40	50	25	15	16	M16X2	60	4
FJ10-5050-12	486	400	40	50	25	15	12	M12X1.75	96	4
FJ10-5050-16	486	400	40	50	25	15	16	M16X2	96	4
FJ10-6363-12	616	500	40	50	25	15	12	M12X1.75	140	6
FJ10-6363-16	616	500	40	50	25	15	16	M16X2	140	6
FJ10-8080-12	786	640	45	50	25	15	12	M12X1.75	240	6
FJ10-8080-16	786	640	45	50	25	15	16	M16X2	240	6

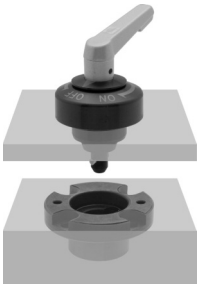
See page 561 for F7 tolerance specifications.

FLEX LOCATORS

The Flex Locators consists of taper pins and receiver bushings. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning with repeatability of .01mm. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. The bushings are spring loaded to make removing the fixture plate quick and easy.

Flex Locators





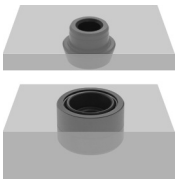
ONE TOUCH FLEX LOCATORS

Quick changeover without the use of tools.

LOCATING REPEATABILITY 10 MICRONS.

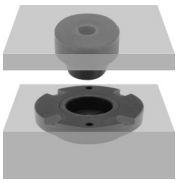
TAPERED DESIGN FOR EFFICIENT LOCATING.

COMPACT, COST-EFFECTIVE DESIGN.



THROUGH STYLE

Press fit receiver bushing. Space-saving design.



BLIND STYLE

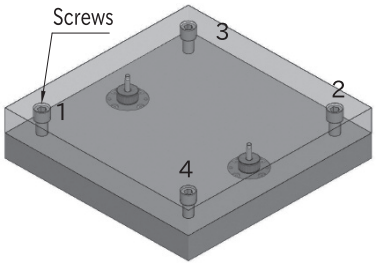
Easy mounting of receiver with bushing and screws.

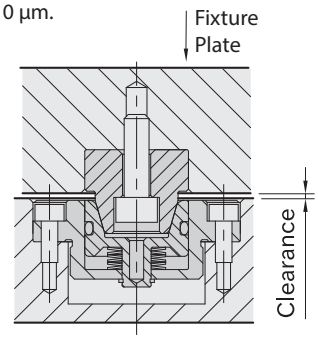
Part #	Max Loading Capacity Lbs.
25050	270
38070	450
56095	495

The maximum load shown is when using two sets of tapered pins & receiver bushings and includes the fixture plate, fixtures and workpieces. If the total load exceeds the capacity, the locating repeatability may exceed .01mm.

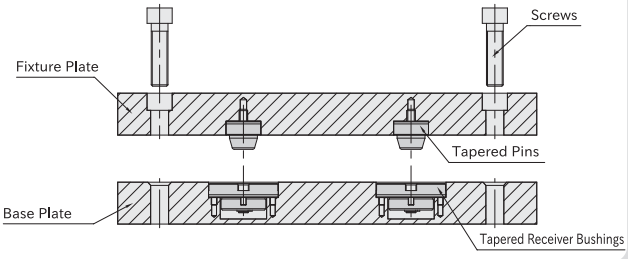
Tightening Order of Screws

1. Make sure the plates are in contact with each other. (The spring force of the receiver bushing may push the fixture plate upward)
2. Tighten screws to about 50% of final tightening in order 1-2-3-4.
3. Tighten screws to final tightening in order 1-2-3-4. Note: If screws are not tightened in correct order the locating repeatability may exceed 10 µm.

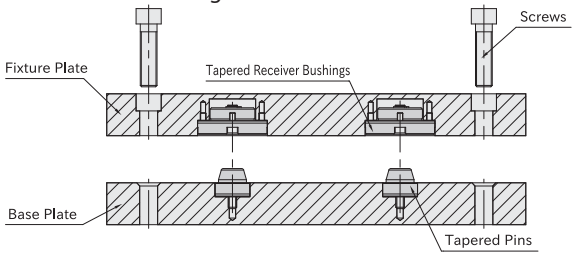




Tapered Receiver Bushings - Base Plate Mount

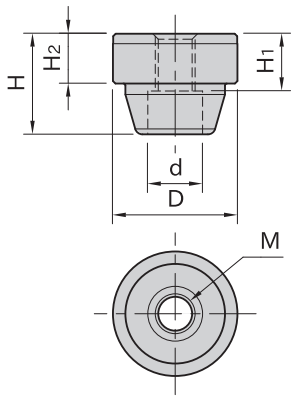


Tapered Receiver Bushings - Fixture Plate Mount

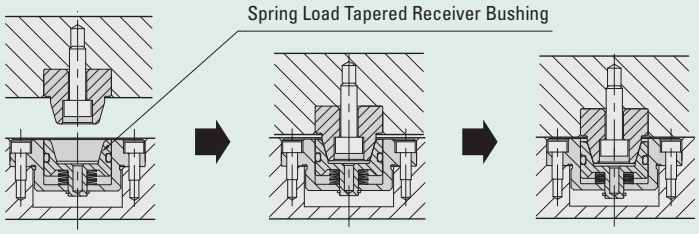


FLEX LOCATORS – BLIND STYLE

Pins | CP720



How To Use



The spring loaded tapered receiver bushing is pushed up by the inner spring.

When the fixture plated is lowered, the tapered pin contacts with the tapered receiver bushing.

The spring loaded tapered receiver bushing retracts and the fixture plate contacts with the base plate.

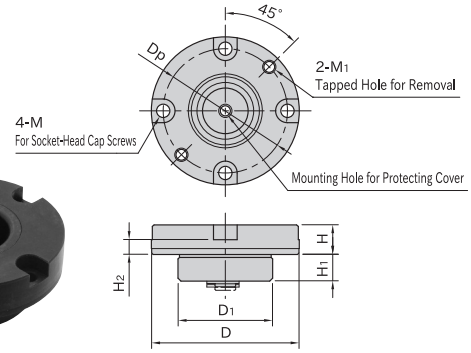
The flex locator pins are used with the flex receiver bushings. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. Made from SAE-4140 alloy steel, nitrocarburized treated.

Part #	D (g6) mm	d mm	H mm	H1 mm	H2 mm	M mm	Use Receiver Bushing	Use Protective Cover*
CP720-25050	25	11	20	11.5	10	M8X1.25 (6.8)	CP725-25050	CP725-25050P
CP720-38070	38	14	29.5	18	15	M10X1.5 (8.5)	CP725-38070	CP725-38070P
CP720-56095	56	20	43.5	28.5	22	M16X2 (14)	CP725-56095	CP725-56095P

See page 561 for g6 and H7 tolerance specifications.

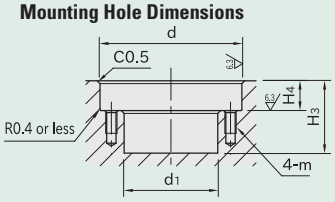
*Mounted in the receiver bushings to keep out dirt and contaminants while bushings are not in use. For complete information, search for the part number at www.fixtureworks.net.

Bushings | CP725



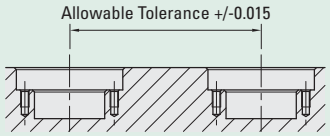
How To Install

Mounting Hole Dimensions

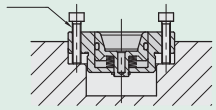


Part Number	d (H7)	H4 (±0.05)	d1	H3	m
CP725-25050	50	10.5	33	24	M4X0.7
CP725-38070	70	15.5	49	35	M5X0.8
CP725-56095	95	22.5	71	51	M6X1

Spacing Tolerance



How to Remove



For removal, instert a screw into the tapped hole and tighten.

The flex locator bushings are used with the flex locating pins. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. The bushings are spring loaded to make removing the fixture plate quick and easy. Made from SAE-4140 alloy steel, nitrocarburized treated.

Part #	D (g6) mm	D1 mm	Dp mm	H mm	H1 mm	H2 mm	M mm	M1 mm	Lifting Force Lbs.*	Use Locator Pin	Use Protective Cover**
CP725-25050	50	32	42	10	9	5	M4	M4X0.7	40	CP720-25050	CP725-25050P
CP725-38070	70	48	60	15	14	9	M5	M5X0.8	90	CP720-38070	CP725-38070P
CP725-56095	95	70	84	22	21	15	M6	M6X1	155	CP720-56095	CP725-56095P

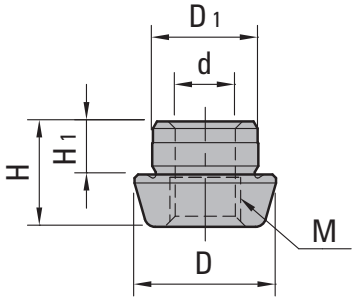
* Spring force to push up the tapered bushing.

**Mounted in the receiver bushings to keep out dirt and contaminants while bushings are not in use. For complete information, search for the part number at www.fixtureworks.net.

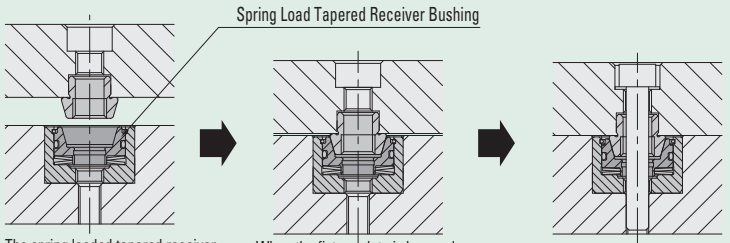
See page 561 for g6 and H7 tolerance specifications.

FLEX LOCATORS – THROUGH STYLE

Pins | CP721



How To Use



The spring loaded tapered receiver bushing is pushed up by the inner spring.

When the fixture plate is lowered, the tapered pin contacts with the tapered receiver bushing.

The spring loaded tapered receiver bushing retracts when screwing the clamping screw and the fixture plate contacts with the base plate.

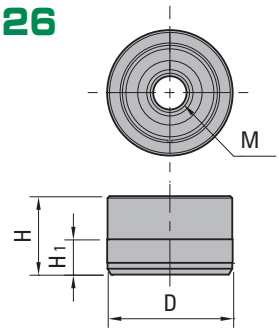
The flex locator pins are used with the flex receiver bushings. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning. Pin and bushing flex locators can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. Through-style locator pins engage with the through-style bushings by screwing down the single clamping screw through the pin and bushing. This retracts the spring-loaded receiver bushing allowing the fixture plate to contact the base plate. Made from SAE-4140 alloy steel, nitrocarburized treated.

Part #	D mm	(p6) D1 mm	d mm	H mm	H1 mm	M mm	Use Receiver Bushing	Use Protective Cover *
CP721-12025	15	12	8.5	10	4.5	M10X1.5 Depth 3.5	CP726-12025	CP726-12025P
CP721-15032	20	15	10.2	15	7.5	M12X1.75 Depth 4.5	CP726-15032	CP726-15032P
CP721-20045	30	20	14	20	10	M16X2 Depth 5.5	CP726-20045	CP726-20045P

See page 561 for p6 tolerance specifications.

* Mounted in the receiver bushings to keep out debris while bushings are not in use. For complete information, search for the part number at www.fixtureworks.net.

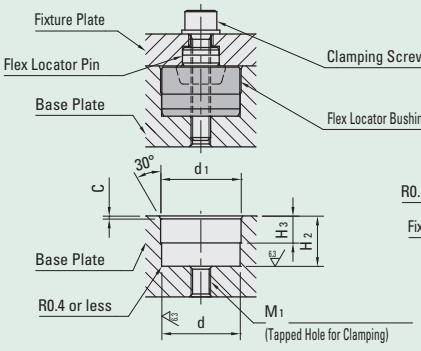
Bushings | CP726



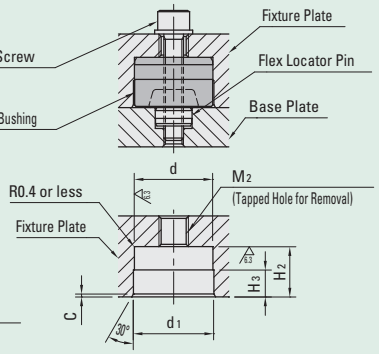
The flex locator pins are used with the flex receiver bushings. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning. Pin and bushing flex locators can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. Through-style locator pins engage with the through-style bushings by screwing down the single clamping screw through the pin and bushing. This retracts the spring-loaded receiver bushing allowing the fixture plate to contact the base plate. Made from SAE-4140 alloy steel, nitrocarburized treated.

How To Install

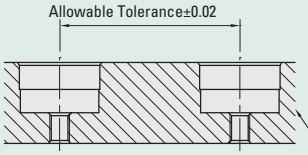
Installation of the Bushings on the Base Plate



Installation of the Bushings on the Fixture Plate



Spacing Tolerance



Part Number	d (H6)	H 2 (±0.05)	d 1	H 3	C	M 1	M 2
CP726-12025	25	16.5	25.2	8	1	M 6 × 1	M10 × 1.5
CP726-15032	32	20.5	32.2	11	1.2	M 8 × 1.25	M12 × 1.75
CP726-20045	45	26.5	45.2	15	1.5	M12 × 1.75	M16 × 2

Part #	D mm	H mm	H1 mm	M mm	Lifting Force Lbs.*	Use Locator Pin	Use Protective Cover **
CP726-12025	25 (+0.028) (+0.018)	16	8	M8X1.25 (6.8)	121	CP721-12025	CP726-12025P
CP726-15032	32 (+0.031) (+0.021)	20	9	M10X1.5 (8.5)	135	CP721-15032	CP726-15032P
CP726-20045	45 (+0.031) (+0.021)	26	11	M14X1.5(12.5)	175	CP721-20045	CP726-20045P

*Spring force to push up the tapered bushing

** Mounted in the receiver bushings to keep out debris while bushings are not in use. For complete information, search for the part number at www.fixtureworks.net.

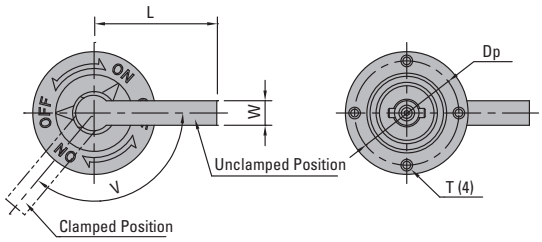
IMAO

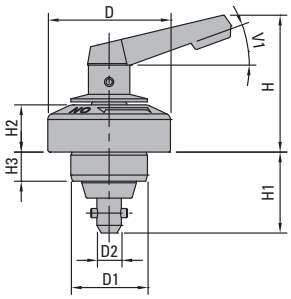
FLEX LOCATORS

Fasteners | CP722

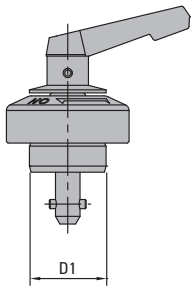
CP722-0840R-06

CP722-0840R-06N



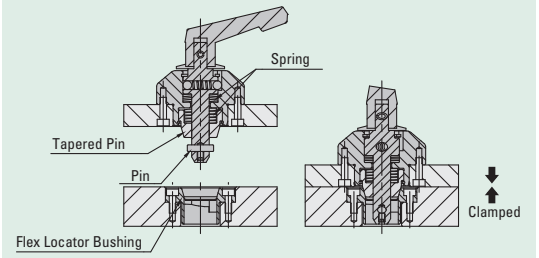


CP722-0840R-06



CP722-0840R-06N

How To Use



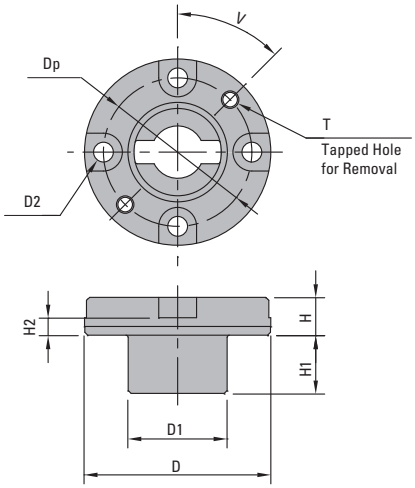
These flex locator fasteners are used with the flex receiver bushings. In combination, these parts are designed to secure fixture bases and plates with highly accurate locating and positioning without the use of tools. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. The body and shank are made from SCM440 steel with a black oxide finish. The tapered pin is made from SCM440 steel with a nitrocarburized finish. The handle is made from die-cast zinc with a silver-gray painted finish. The pin is made from SUS303 stainless steel with a natural finish. For complete installation and technical information, search for the part number at www.fixtureworks.net.

Part #	Style	T mm	D mm	D1* mm	D2 mm	Dp mm	L mm	W mm	H mm	H1 mm	H2 mm	H3 mm	V degrees	V1 degrees	Clamping Force Lbs	Lifting Force** Lbs	Use with Bushing
CP722-0840R-06	with tapered pin	M3X0.5	40	25	8	34	40	8	45	26	15.5	9.5	130	20	134	22	CP727-0840R
CP722-0840R-06N	without tapered pin	M3X0.5	40	25	8	34	40	8	45	26	15.5	9.5	130	20	157	—	CP727-0840R

* For CP722-0840R-06, g6 tolerance. For CP722-0840R-06N, -0.05/-0.15 tolerance.

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

Bushings | CP727

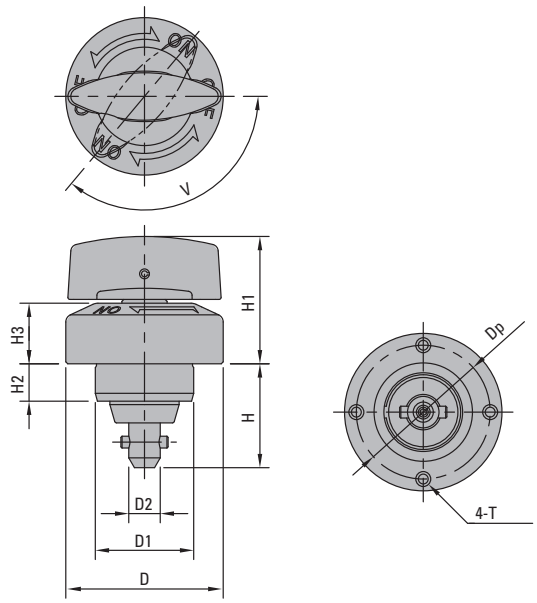


These flex locator bushings are used with the flex locator fasteners. In combination, these parts are designed to be mounted on fixture bases and plates to allow for highly accurate locating and positioning. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. The bushings are spring loaded to make removing the fixture plate quick and easy. Made from SCM440 steel, nitrocarburized treated. For complete installation and technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D (g6) mm	D1 mm	D2 mm	Dp mm	H mm	H1 mm	H2 mm	V degrees	Use with Locators
CP727-0632R	M3X0.5	28	12.5	3.4	21.5	5.5	8	2	45	CP727-0840R-06, CP727-0840R-06N
CP727-0840R	M3X0.5	32	17	3.4	25.5	6.5	10	3	45	CP727-0840R-06, CP727-0840R-06N

See page 561 for g6 tolerance specifications.

Fasteners | CP723



These flex locator fasteners are used with the flex receiver bushings. In combination, these parts are designed to secure fixture bases and plates with highly accurate locating and positioning without the use of tools. They can be used on a wide variety of fixturing and allow for precise repeatability when mounting. This allows a fixture plate to be mounted on different bases very accurately when moving to a new machine or different operation. They can be used in both vertical and horizontal applications. The body and shank are made from SCM440 steel with a black oxide finish. The tapered pin is made from SCM440 steel with a nitrocarburized finish. The knob is made from SCS13 with a natural finish. The pin is made from SUS303 stainless steel with a natural finish. For complete installation and technical information, search for the part number at www.fixtureworks.net.

Part #	D mm	g6 D1 mm	D2 mm	Dp mm	H mm	H1 mm	H2 mm	H3 mm	V degrees	Clamping Force Lbs	Lifting Force* Lbs	Use with Bushing
CP723-0632R-04	32	16	5.5	25.5	22	27	7.5	12	130	78.6	6.7	CP727-0632R
CP723-0840R-06	40	25	8	34	26	32	9.5	15.5	130	134.8	22.4	CP727-0840R

See page 561 for g6 tolerance specifications.

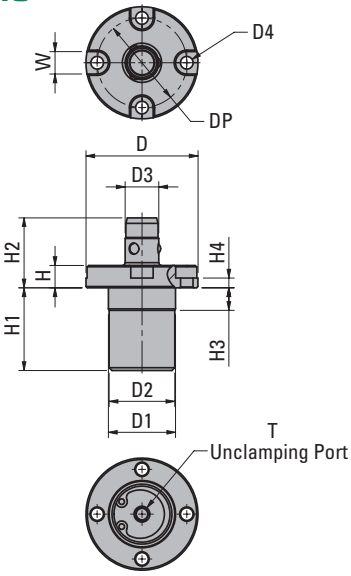
* The lifting force is the power of the inner spring to push up the movable tapered pin.

FLEX LOCATORS

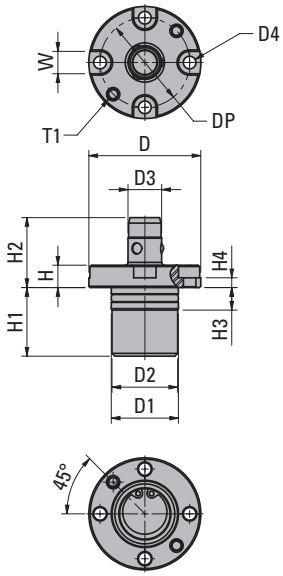
Pins | Pneumatic

AMWFL-S
Port Style

AMWFL-S-G
Direct Style

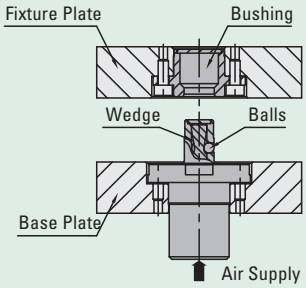


AMWFL-S
Port Style

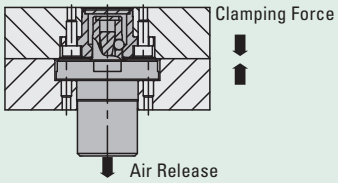


AMWFL-S-G
Direct Style

How To Use



Supply air for unclamping. The wedge is driven upward to release the balls.



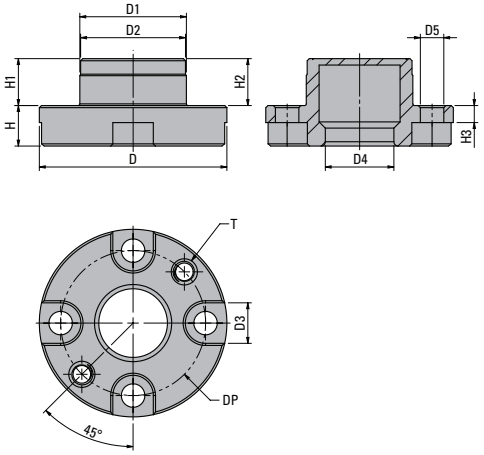
Release air pressure for clamping. Remains clamped without air supply.

These pneumatic flex locator pins are used with flex locator receptacles for locating and fastening in a wide range of tooling, fixturing and assembly operations. The bushing is centered and clamped when the three balls are pushed out for high locating repeatability. When air pressure is applied, the balls retract into the pin, allowing the pin to be released from the receptacle. The port style features an unclamping port. Locating repeatability is ±10 micrometers. The body is made from S45C steel with an electroless nickel plated finish. The balls are made from SUS440C stainless steel. The coiled spring is made from SUS304WPB stainless steel. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T Port	T1	D mm	g6 D1 mm	D2 mm	h8 D3 mm	D4 mm	Dp mm	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	Air Pressure psi	Clamping Force Lbs.	Use with Receptacle
AMWF18L-4S	M5X0.8	–	40	24	23.4	12	4.5	32	8	8	29.5	25	8	3.5	72.5	56	AMWF18-BU
AMWF26L-4S	M5X0.8	–	51	32	31.4	16	5.5	41	9.5	9.5	31.7	28.5	8.5	4	72.5	78	AMWF26-BU
AMWF18L-4S-G	–	M4X0.7	40	24	23.4	12	4.5	32	8	8	24.5	25	8	3.5	72.5	56	AMWF18-BU
AMWF26L-4S-G	–	M5X0.8	51	32	31.4	16	5.5	41	9.5	9.5	25.5	28.5	8.5	4	72.5	78	AMWF26-BU

See page 561 for g6 tolerance specifications.

Bushings | Pneumatic



These flex locator receptacles are used with the pneumatic flex locator pins for locating and fastening in a wide range of tooling, fixturing and assembly operations. When air pressure is applied, the balls retract into the pin, allowing the pin to be released from the receptacle. Locating repeatability is ±10 micrometers. The body is made from S45C steel with an electroless nickel plated finish. For complete technical information, search for the part number at www.fixtureworks.net.

Part #	T mm	D mm	g6 D1 mm	D2 mm	D3 mm	E7 D4 mm	D5 mm	Dp mm	H mm	H1 mm	H2 mm	H3 mm	Use with Pin
AMWF18-BU	M4X0.7	36	20	19.6	8	12.1	4.5	28	8	10.5	7.5	3.5	AMWF18
AMWF26-BU	M5X0.8	44	25	24.6	9.5	16.1	5.5	34	9.5	11	7	4	AMWF26

See page 561 for g6 tolerance specifications.

APS ZERO-POINT LOCATING SYSTEM

The Pneumatic Zero-Point System of Choice

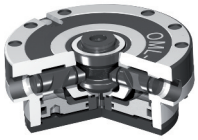
Designed to reduce your setup times and increased productivity, APS (Automatic Positioning System) is a universal connection between the machine tool, the clamping device and/or the workpiece that allows both positioning and clamping in one operation. Used with clamping pins that are mounted to a plate or a workpiece, the APS modules use oiled compressed air (6 BAR-85 psi) for unlocking and spring force for clamping. No compressed air is required in the locked condition. Positioning and clamping in one operation with repeatability accuracy of 5 microns (.0002")

Complete Module Plate Units Available!

Columns, interface plates, and fittings available!

SMW® AUTOBLOK

Designed by SMW-Autoblok, a leading manufacturer of workholding equipment.

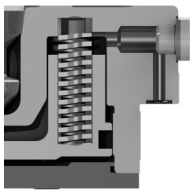


Maximum Accuracy

Maximum accuracy of the tapered coupling between the pin and the module. Tapered pin for self-centering.

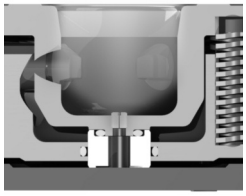
Maximum Rigidity

Monolithic piston with inclined planes. Jaws with double inclined plane which generates the "PULL DOWN" effect.

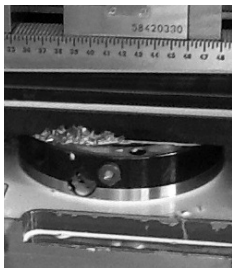


Turbo Function

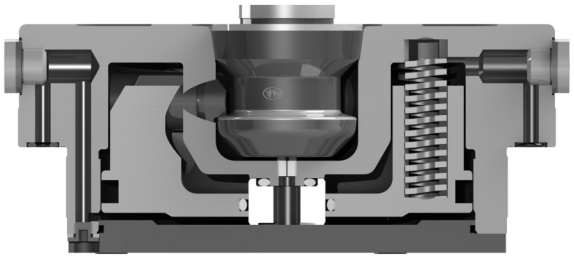
The Turbo function is always integrated in APS PREMIUM modules. Turbo is the function by means of which the compressed air increases the clamping force applied by the springs (2,698 lbs.) until reaching the "PULL DOWN" clamping force of 6,744 lbs.



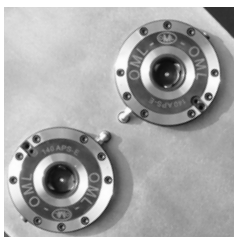
Automatic Cleaning Function (APS Premium)

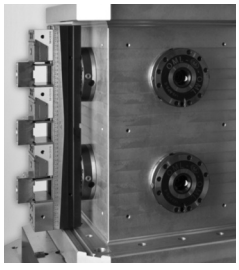


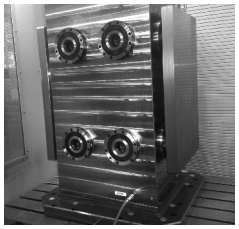
Clamping & Positioning in One Operation



- Air is applied to open the module to receive the pin.
- When the air is released, the jaws are forced outward by the springs and slide up the inclined plane on the pin, causing a pull down effect.
- With the air supply disconnected, the piston is kept in the lower position by the pre-loaded springs. The clamping force is 1,686 lbs.
- When air is applied to the Turbo port, the pull-down force increases to 5,845 lbs. as the air pressure increasing the extension of the springs and the jaws force the pins down even more.
- The air applied to the Turbo port will be discharged automatically with the module is unclamped.





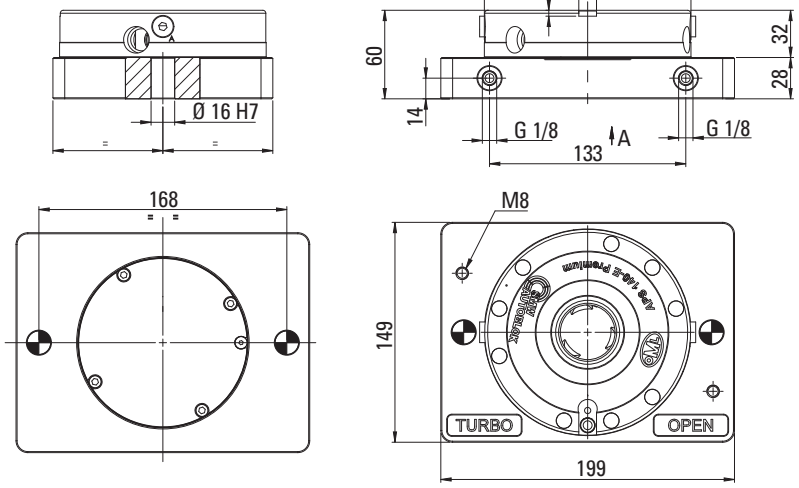


APS Modules

Part #	Module Type	Number of Jaws	Turbo	Anti Rotation Key	Automatic Cleaning Function	Automatic Pallet Change (APC)	Pull Down Force (Lbs.)
F646-162120	APS 100 E Premium	2	•	•	•	•	3,372
F646-162180	APS 100 E Basic	2	•	-	-	-	3,372
F646-162300	APS 140 E Premium	3	•	•	•	•	6,744
F646-162380	APS 140 E Premium Light	3	•	-	•	-	6,744
F646-162800	APS 140 E Premium Inox SS	3	•	•	•	•	6,744
F646-162400	APS 140 I Premium	3	•	•	•	•	6,744
F646-162500	APS 140 E Basic	2	-	-	-	-	2,698
F646-162610	APS 190 E Premium	3	•	•	•	•	10,116

APS ZERO-POINT LOCATING SYSTEM

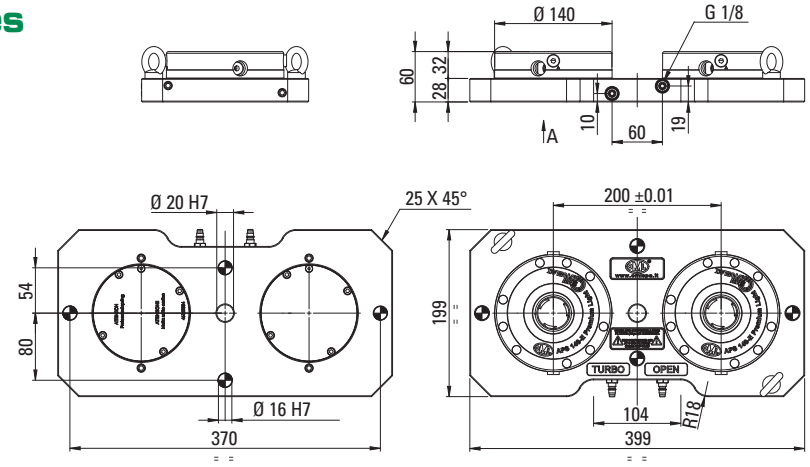
Plate Units | APS 140 | 1 Module



Pre-assembled clamping unit includes rectangular plate and one Premium APS 140-E module.

Part #	Type
F646-168260	Premium

Plate Units | APS 140 | 2 Modules

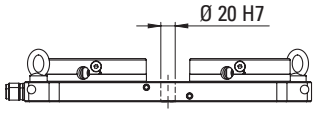


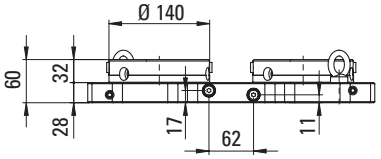
Pre-assembled clamping unit includes rectangular plate and two APS 140-E modules. Select Premium Light or Basic module configurations.

Part #	Type
F646-168270	Premium Light
F646-168275	Basic

APS ZERO-POINT LOCATING SYSTEM

Plate Units | APS 140 | 4 Modules | Vertical





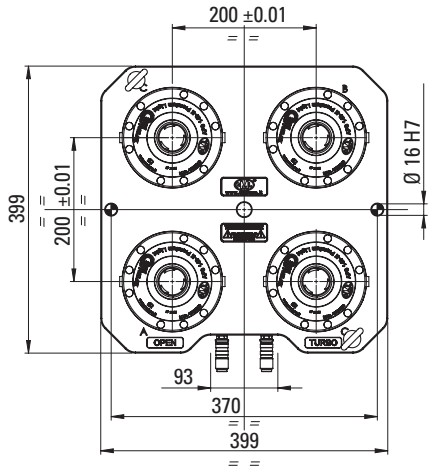
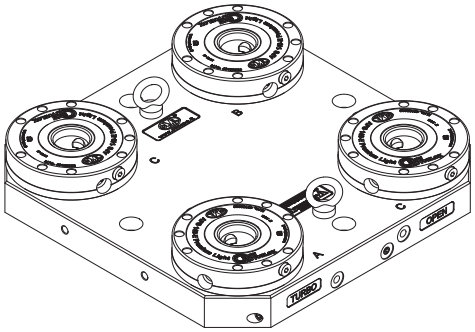
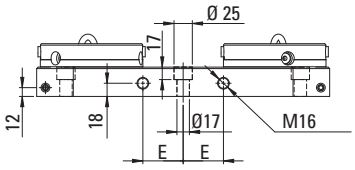


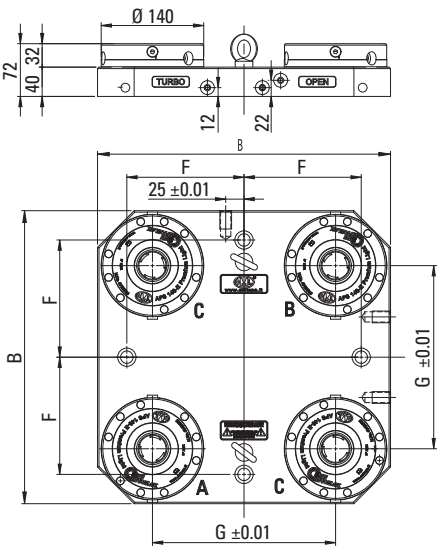
Plate with four APS 140-E modules for vertical machining. Select Premium Light or Basic module configurations.

Part #	Module Type
F646-168210	APS Premium Light
F646-168215	APS Basic

Plate Units | APS 140 | 4 Modules | Horizontal





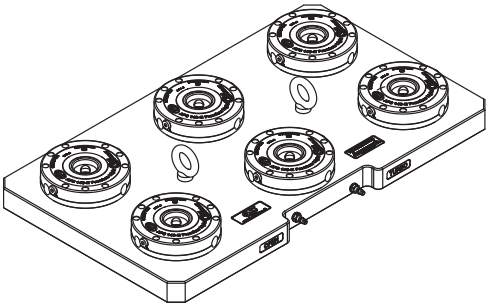


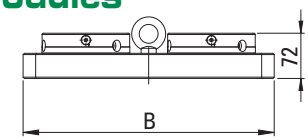
Pre-assembled clamping unit includes square plate and four APS 140-E modules. For use on horizontal machining centers. Select Premium Light or Basic module configurations.

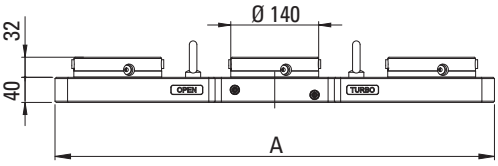
Part #	B mm	E mm	F mm	G mm	Type
F646-167040	400	55	160	250	Premium Light
F646-167045	400	55	160	250	Basic
F646-167050	500	75	200	300	Premium Light
F646-167055	500	75	200	300	Basic
F646-167060	630	100	250	420	Premium Light
F646-167065	630	100	250	420	Basic

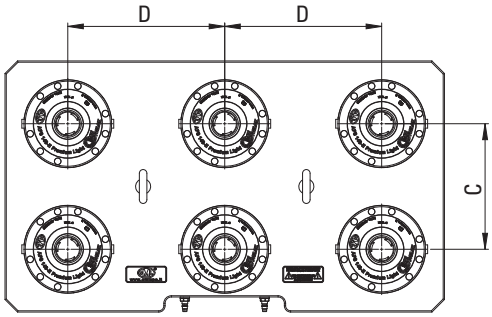
APS ZERO-POINT LOCATING SYSTEM

Plate Units | APS 140 | 6 Modules





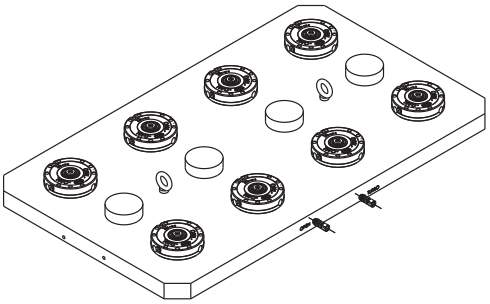


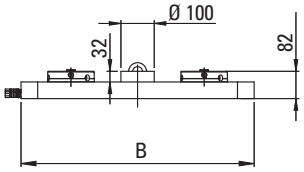


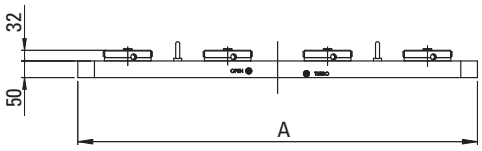
Pre-assembled clamping unit includes rectangular plate and six APS 140-E modules. Select Premium Light or Basic module configurations.

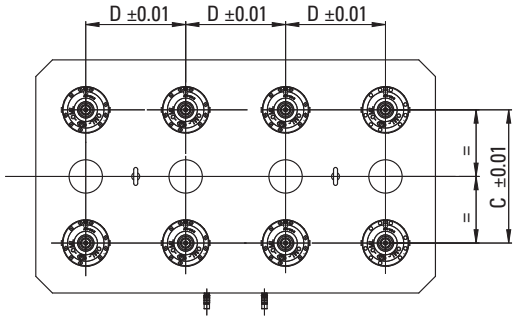
Part #	A mm	B mm	C mm	D mm	Type
F646-168110	600	400	200	200	Premium Light
F646-168115	600	400	200	200	Basic
F646-168120	700	400	200	250	Premium Light
F646-168125	700	400	200	250	Basic
F646-168130	800	400	300	300	Premium Light
F646-168135	800	400	300	300	Basic

Plate Units | APS 140 | 8/10 Modules







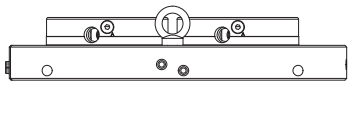


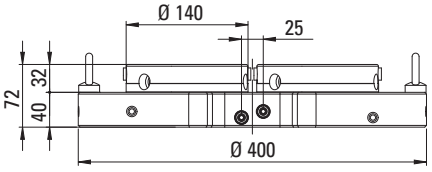
Pre-assembled clamping unit includes rectangular plate eight or ten APS 140-E modules. Select Premium Light or Basic module configurations.

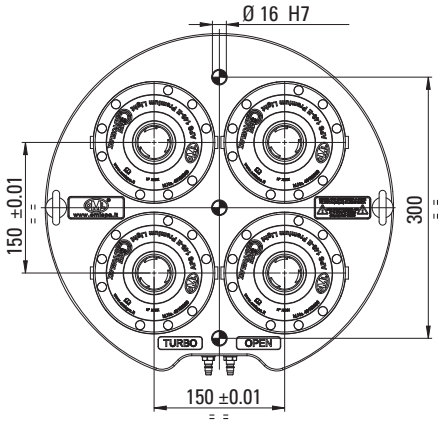
Part #	A mm	B mm	C mm	D mm	Qty of Modules	Type
F646-168140	1000	500	250	250	8	Premium Light
F646-168145	1000	500	250	250	8	Basic
F646-168150	1200	700	400	300	8	Premium Light
F646-168155	1200	700	400	300	8	Basic
F646-168160	1400	700	400	300	10	Premium Light
F646-168165	1400	700	400	300	10	Basic

APS ZERO-POINT LOCATING SYSTEM

Plate Units | APS 140 | 4 Modules | Round



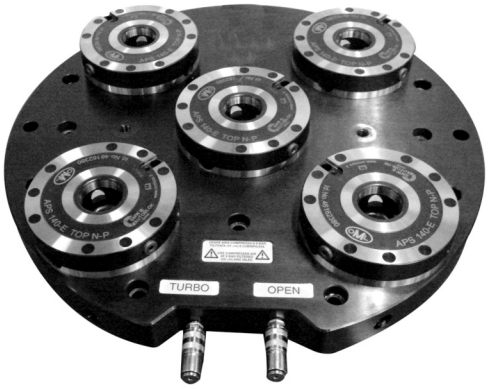


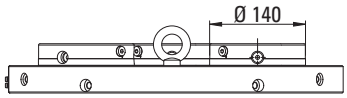


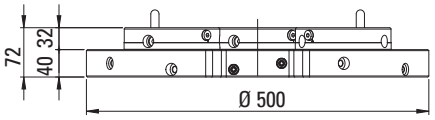
Pre-assembled clamping unit includes round plate and four APS 140-E modules. Select Premium Light or Basic module configurations.

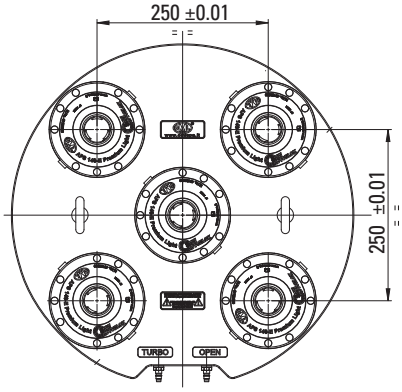
Part #	Type
F646-168020	Premium Light
F646-168025	Basic

Plate Units | APS 140 | 5 Modules | Round







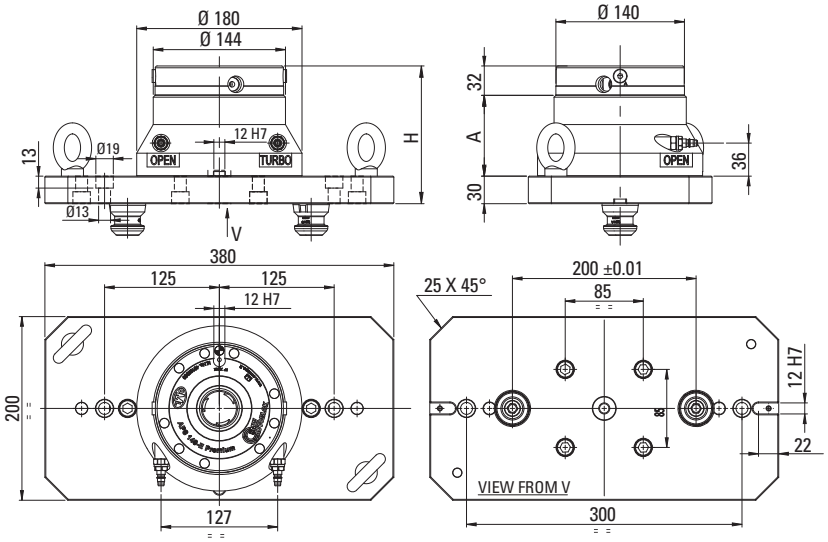


Pre-assembled clamping unit includes round plate and five APS 140-E modules. Select Premium Light or Basic module configurations.

Part #	Type
F646-168030	Premium Light
F646-168035	Basic

APS ZERO-POINT LOCATING SYSTEM

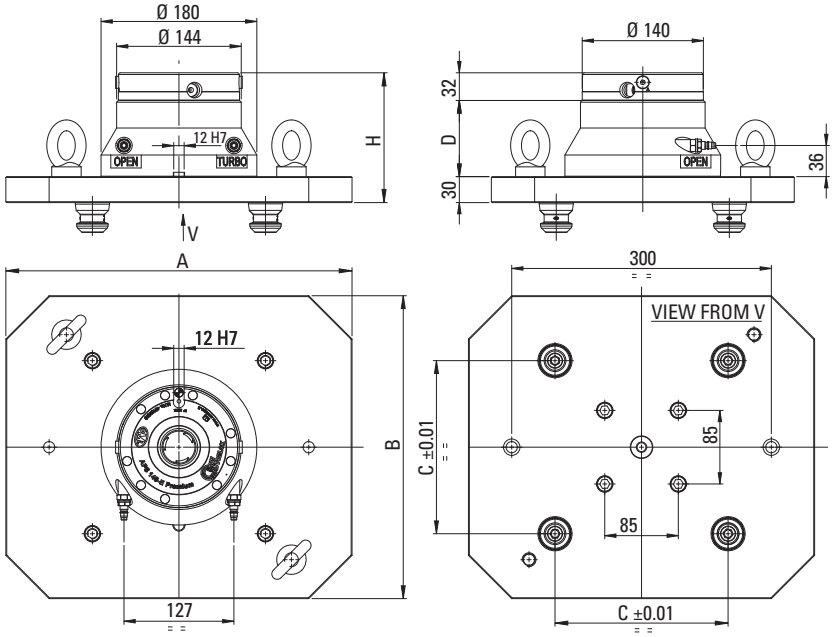
Plate Units | APS 140 | 1 Module | 5-Axis | 2-Mod Adapt



Pre-assembled clamping unit includes rectangular plate and one Premium APS 140-E module for 5-axis machine tool. Plate is adaptable for two-module use.

Part #	A mm	H mm	Type
F646-167810	88	150	Premium
F646-167820	148	210	Premium

Plate Units | APS 140 | 1 Module | 5-Axis | 4-Mod Adapt

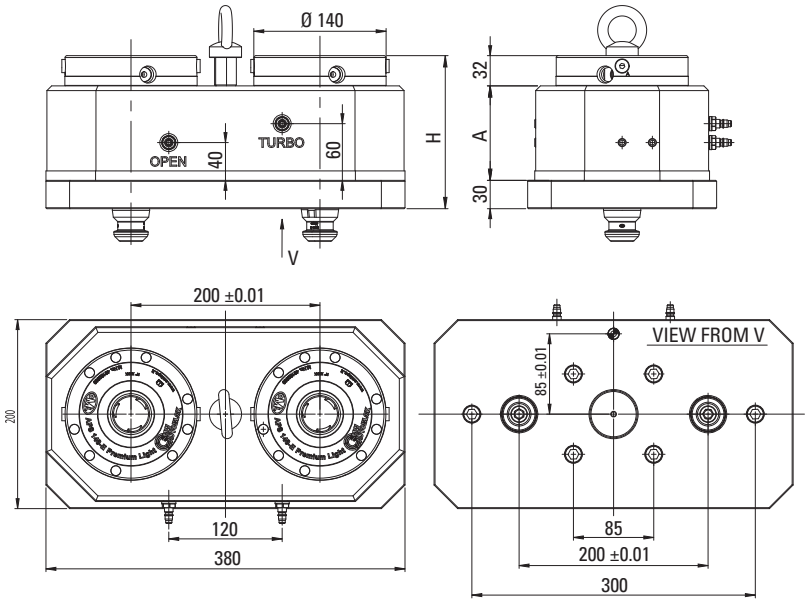


Pre-assembled clamping unit includes rectangular plate and one Premium APS 140-E module for 5-axis machine tool. Plate is adaptable for four-module use.

Part #	A mm	B mm	C mm	D mm	H mm	Type
F646-167830	400	350	200	88	150	Premium
F646-167840	400	350	200	148	210	Premium
F646-167850	500	450	300	88	150	Premium
F646-167860	500	450	300	300	210	Premium

APS ZERO-POINT LOCATING SYSTEM

Plate Units | APS 140 | 2 Modules | 5-Axis | 2-Mod Adapt

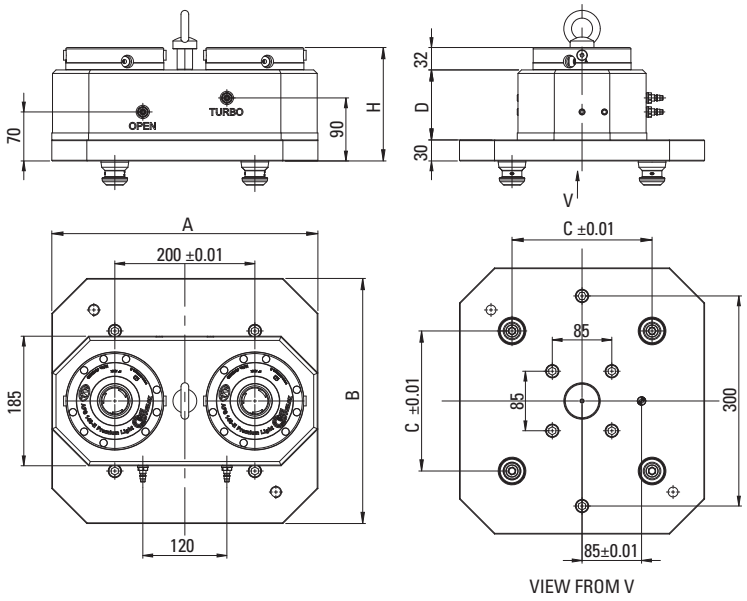


Pre-assembled clamping unit includes rectangular plate and two Premium APS 140-E modules for 5-axis machine tool. Adaptation for plates at two modules.

Part #	A mm	H mm	Type
F646-167910	100	162	Premium Light
F646-167915	100	162	Basic
F646-167920	200	262	Premium Light
F646-167925	200	262	Basic

APS ZERO-POINT LOCATING SYSTEM

Plate Units | APS 140 | 2 Modules | 5-Axis | 4-Mod Adapt



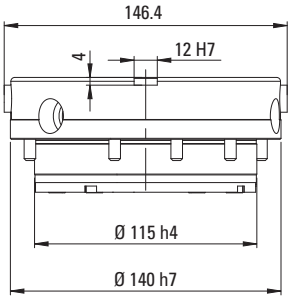
VIEW FROM V

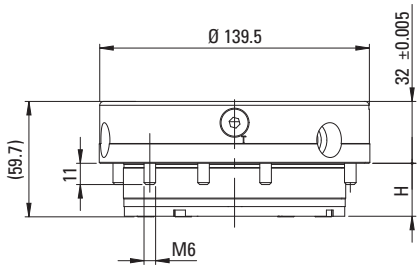
Pre-assembled clamping unit includes rectangular plate and two Premium APS 140-E modules for 5-axis machine tool. Plate is adaptable for four-module use.

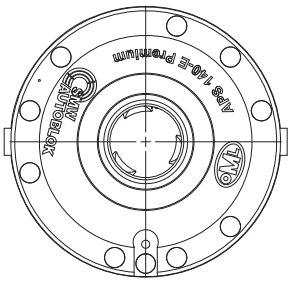
Part #	A mm	B mm	C mm	D mm	H mm	Type
F646-167930	400	350	200	100	162	Premium Light
F646-167935	400	350	200	100	162	Basic
F646-167940	400	350	200	200	262	Premium Light
F656-167945	400	350	200	200	262	Basic
F646-167950	500	450	300	100	162	Premium Light
F646-167955	500	450	300	100	162	Basic
F646-167960	500	450	300	200	262	Premium Light
F646-167965	500	450	300	200	262	Basic

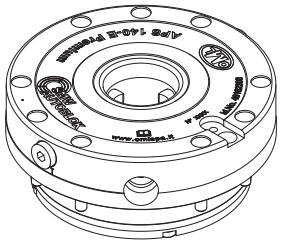
APS ZERO-POINT LOCATING SYSTEM

Modules | 140-E | Premium





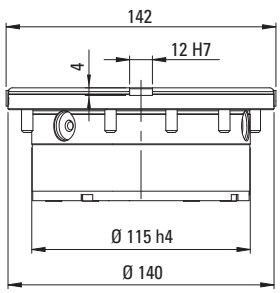


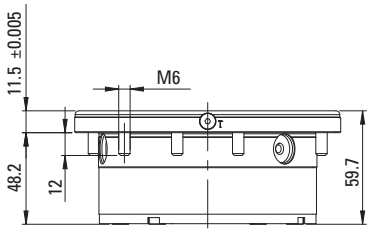


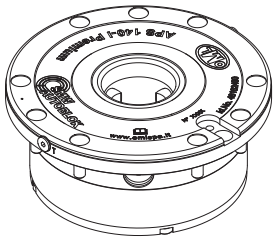
APS 140-E Premium modules provide the highest range of features in the APS line including anti-rotating protection, automatic cleaning, 3-jaw clamping and theTurbo function. Fully sealed, protective coating. Select steel or Inox stainless steel versions.

Part #	H mm	Pull Down Force w/ Turbo Function Lbs.	Holding Force M10/M12/M16 Lbs.	Unlocking Pressure Bar	Repeatability mm	APS-140 Type
F646-162300	27.4	6744	7,868 / 11,240 / 16,861	6	<0.005	Premium
F646-162800	27.7	6744	7,868 / 11,240 / 16,861	6	<0.005	Premium Inox Stainless

Modules | 140-I | Premium





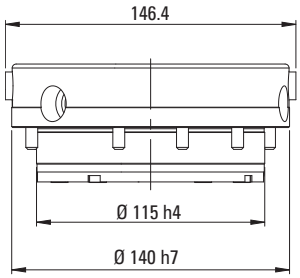


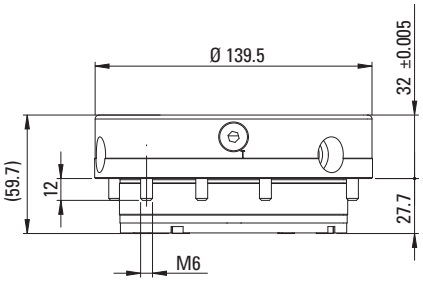
The 140-I Premium module features an even more compact design for extra low installations. Features include anti-rotating protection, automatic cleaning, 3-jaw clamping and theTurbo function. Fully sealed, protective coating.

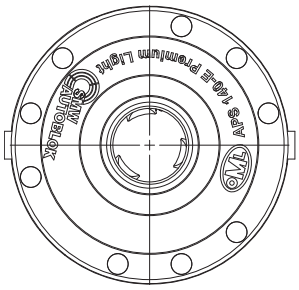
Part #	Pull Down Force w/ Turbo Function Lbs.	Holding Force M10/M12/M16 Lbs.	Unlocking Pressure Bar	Repeatability mm	APS-140 Type
F646-162400	6744	7,868 / 11,240 / 16,861	6	<0.005	Premium

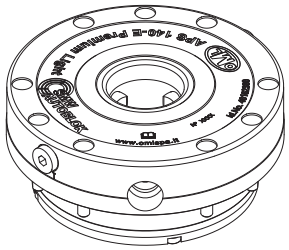
APS ZERO-POINT LOCATING SYSTEM

Modules | 140 | Premium Light





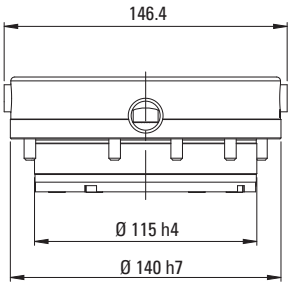


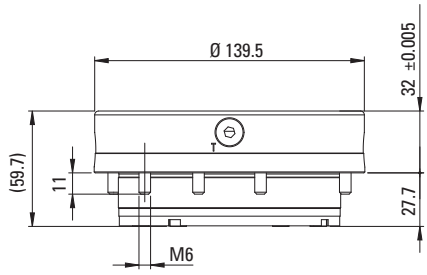


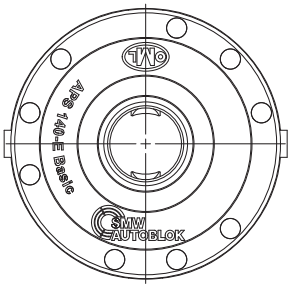
APS 140-E Premium Light module features 3-jaw clamping, air cleaning and the Turbo function. Fully sealed, protective coating.

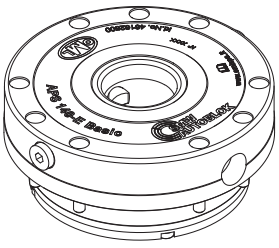
Part #	Pull Down Force w/ Turbo Function Lbs.	Holding Force M10/M12/M16 Lbs.	Unlocking Pressure Bar	Repeatability mm	APS-140 Type
F646-162380	6744	7,868 / 11,240 / 16,861	6	<0.005	Premium Light

Modules | 140 | Basic







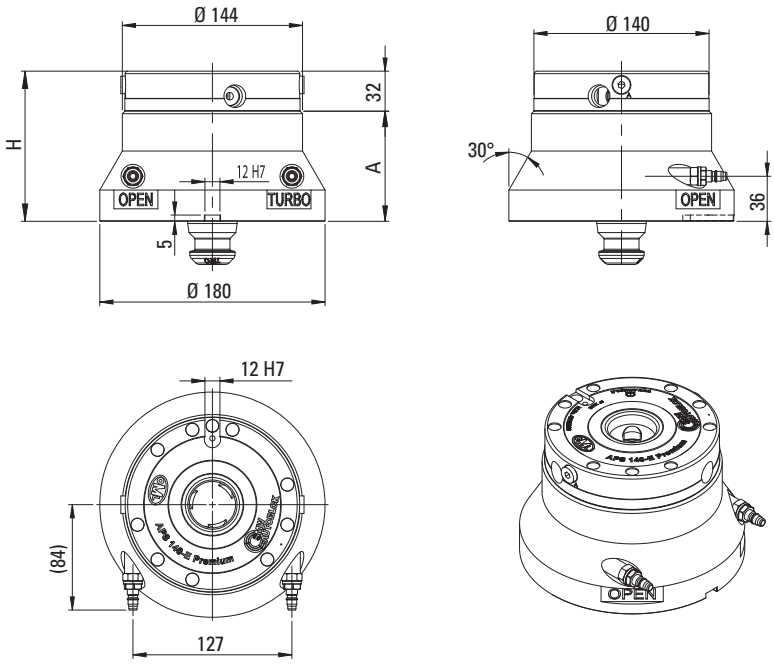


APS 140-E Basic module features 2-jaw clamping and the Turbo function. Fully sealed, protective coating.

Part #	Pull Down Force w/ Turbo Function Lbs.	Holding Force M10/M12/M16 Lbs.	Unlocking Pressure Bar	Repeatability mm	APS-140 Type
F646-162500	2698	7,868 /11,240 / 16,861	6	<0.005	Basic

APS ZERO-POINT LOCATING SYSTEM

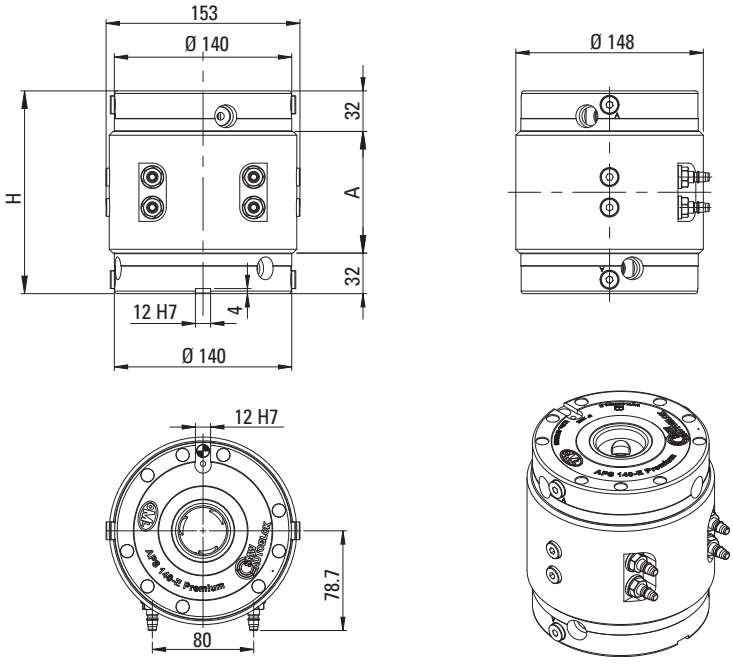
Riser | APS 140 | 5-Axis



APS 140-E riser includes one Premium APS 140-E module. Attach the riser onto a separate APS module with a Type A pin to raise you clamping height off worktable or plate for 5-axis machine tooling. Select from two Riser unit heights.

Part #	A mm	H mm	APS-140 Type
F646-167819	88	120	Premium
F646-167829	148	180	Premium

Combi Unit | APS 140



APS 140 Combi clamping unit is equipped with two APS 140-E Premium clamping modules. Select from two Combi unit heights.

Part #	A mm	H mm	APS-140 Type
F646-168350	56	120	Premium
F646-168310	96	160	Premium

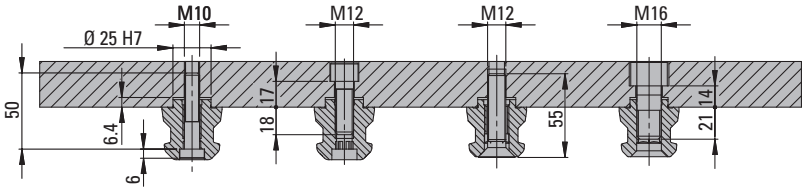
APS ZERO-POINT LOCATING SYSTEM

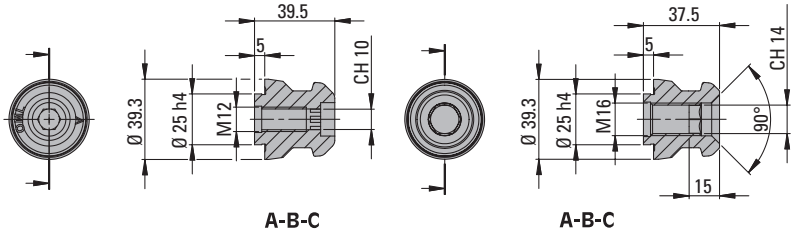
Clamping Pins | APS 140 | A - B - C

A - Centering Pin

B - Positioning Pin

C - Clamping Pin

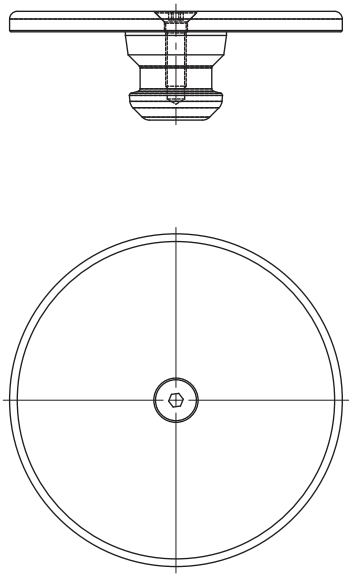




APS 140 Clamping Pins for positioning and clamping on the APS 140 system. Wear resistant due to an extra hard protective coating. Large entry radii of the clamping pins for easy and safe loading.

Part #	Pin Type	Pin Use	Centering Tolerance mm	Holding Force Lbs.	Size
F646-162355	A	Centering and Clamping	-	11,240	M12
F646-162356	B	Reference and Clamping	-	11,240	M12
F646-162357	C	Clamping only	±0.05	11,240	M12
F646-162455	A	Centering and Clamping	-	16,861	M16
F646-162456	B	Reference and Clamping	-	16,861	M16
F646-162457	C	Clamping only	±0.05	16,861	M16

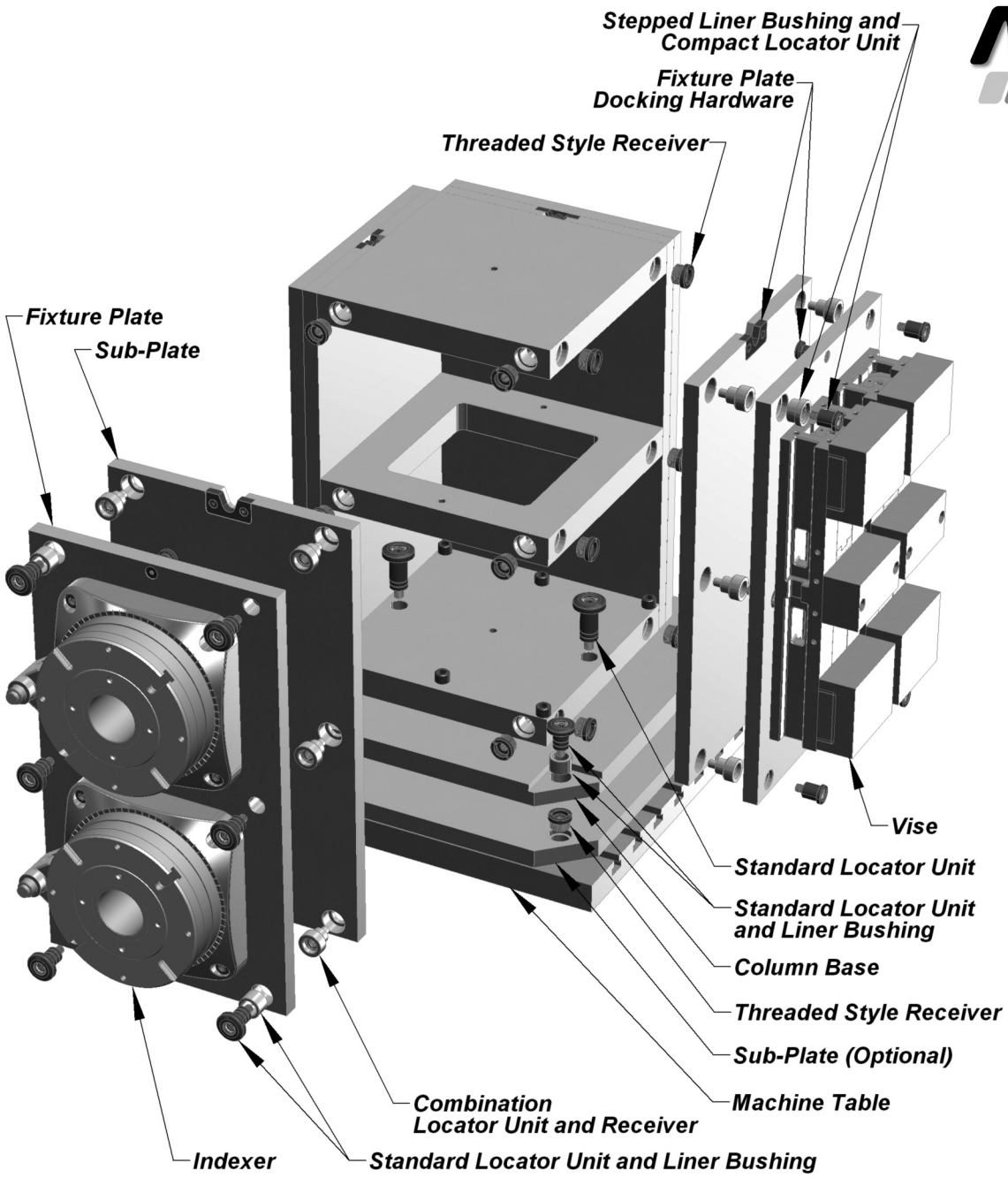
Module Protection Cover | APS140



This protective cover fits on any APS 140 clamping module.

Part #	Type
F646-162325	APS 140

MODULAR TOOLING COLUMNS

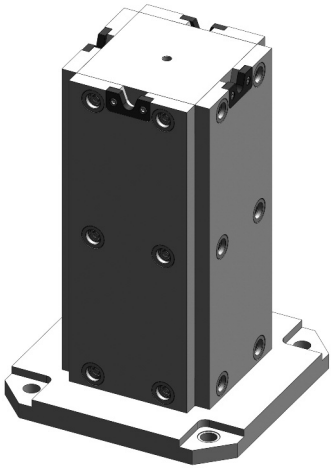


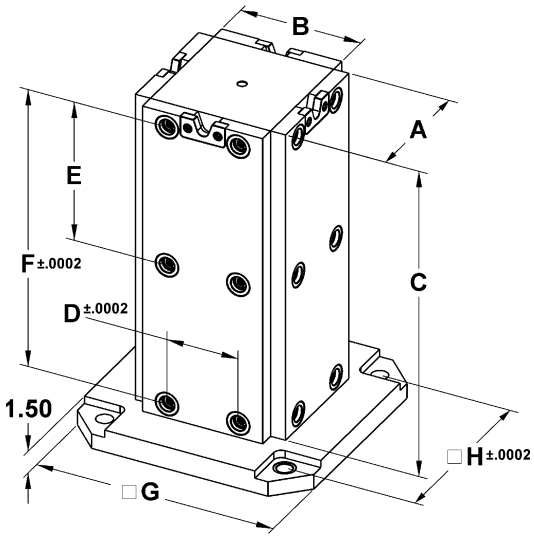
The ModLoc Modular Tooling Columns feature a unique design that consists of structural support brackets and sub-plates to form a tooling column that is as rigid and strong as traditional cast tombstones. These tooling columns are easily adapted to a variety of setups to help maximize the use of machining center's functional envelope. Because they are modular in design they permit flexible configurations that fully utilize the speed and accuracy of the SpeedLoc precision mounting and locating system.

The open architecture allows these columns to easily accommodate hydraulic and electrical systems inside the column. This design also reduces the overall weight of the columns. All the tooling columns are supplied with four aluminum or steel sub-plates. Each sub-plate comes with six SpeedLoc receivers for fast and accurate fastening of fixture plates to the sub-plates. The supplied sub-plates are available in MIC-6 aluminum or A36 steel. When assembled the ModLoc columns are square within .001" or less per foot (top to bottom and across a face). The part numbers on the following page are supplied with docking plate hardware (MPDH-10001) on each of the four column faces. Tooling columns without docking plates are available by request. Bases are configurable in steel or aluminum.

Part numbers on the following page ending with SL are supplied with four base mounting holes as shown on the drawing. Two holes are supplied with precision liners to be used with the SpeedLoc mounting system. Part numbers ending with XX designate user specified base mounting hole spacing. The following pages show just some of the sizes and options available. Fixtureworks can assist you to customize any of these products to meet your exact needs.

MODULAR TOOLING SQUARE COLUMNS





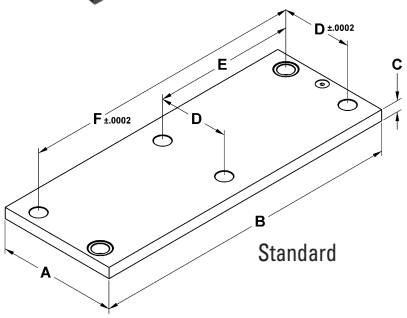
Aluminum

Part #	Face Size A	Face Size B	Height C	Hole Spacing D	Hole Spacing E	Hole Spacing F	Base Size G mm	Hole Spacing H	Receiver Size mm	Weight Lbs.
MPCA-080821-400SL	8.00	8.00	21.00	4.75	9.50	19.05	400	12.00	25	145
MPCA-080821-400XX	8.00	8.00	21.00	4.75	9.50	19.05	400	—	25	145
MPCA-080821-500SL	8.00	8.00	21.00	4.75	9.50	19.05	500	16.00	25	165
MPCA-080821-500XX	8.00	8.00	21.00	4.75	9.50	19.05	500	—	25	165
MPCA-080821-630SL	8.00	8.00	21.00	4.75	9.50	19.05	630	20.00	25	215
MPCA-080821-630XX	8.00	8.00	21.00	4.75	9.50	19.05	630	—	25	215
MPCA-101024-400SL	10.00	10.00	24.00	6.75	11.00	22.05	400	12.00	25	195
MPCA-101024-400XX	10.00	10.00	24.00	6.75	11.00	22.05	400	—	25	195
MPCA-101024-500SL	10.00	10.00	24.00	6.75	11.00	22.05	500	16.00	25	215
MPCA-101024-500XX	10.00	10.00	24.00	6.75	11.00	22.05	500	—	25	215
MPCA-101024-630SL	10.00	10.00	24.00	6.75	11.00	22.05	630	20.00	25	265
MPCA-101024-630XX	10.00	10.00	24.00	6.75	11.00	22.05	630	—	25	265
MPCA-121224-500SL	12.00	12.00	24.00	8.75	11.00	22.05	500	16.00	25	250
MPCA-121224-500XX	12.00	12.00	24.00	8.75	11.00	22.05	500	—	25	250
MPCA-121224-630SL	12.00	12.00	24.00	8.75	11.00	22.05	630	20.00	25	280
MPCA-121224-630XX	12.00	12.00	24.00	8.75	11.00	22.05	630	—	25	280
MPCA-161628-630SL	16.00	16.00	28.00	12.75	13.00	26.05	630	20.00	25	425
MPCA-161628-630XX	16.00	16.00	28.00	12.75	13.00	26.05	630	—	25	425

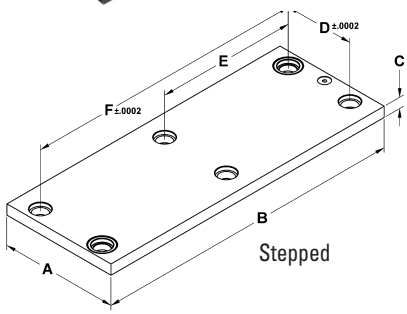
Steel

Part #	Face Size A	Face Size B	Height C	Hole Spacing D	Hole Spacing E	Hole Spacing F	Base Size G mm	Hole Spacing H	Receiver Size mm	Weight Lbs.
MPCS-080821-400SL	8.00	8.00	21.00	4.75	9.50	19.05	400	12.00	25	385
MPCS-080821-400XX	8.00	8.00	21.00	4.75	9.50	19.05	400	—	25	385
MPCS-080821-500SL	8.00	8.00	21.00	4.75	9.50	19.05	500	16.00	25	440
MPCS-080821-500XX	8.00	8.00	21.00	4.75	9.50	19.05	500	—	25	440
MPCS-080821-630SL	8.00	8.00	21.00	4.75	9.50	19.05	630	20.00	25	535
MPCS-080821-630XX	8.00	8.00	21.00	4.75	9.50	19.05	630	—	25	535
MPCS-101024-400SL	10.00	10.00	24.00	6.75	11.00	22.05	400	12.00	25	515
MPCS-101024-400XX	10.00	10.00	24.00	6.75	11.00	22.05	400	—	25	515
MPCS-101024-500SL	10.00	10.00	24.00	6.75	11.00	22.05	500	16.00	25	575
MPCS-101024-500XX	10.00	10.00	24.00	6.75	11.00	22.05	500	—	25	575
MPCS-101024-630SL	10.00	10.00	24.00	6.75	11.00	22.05	630	20.00	25	670
MPCS-101024-630XX	10.00	10.00	24.00	6.75	11.00	22.05	630	—	25	670
MPCS-121224-500SL	12.00	12.00	24.00	8.75	11.00	22.05	500	16.00	25	685
MPCS-121224-500XX	12.00	12.00	24.00	8.75	11.00	22.05	500	—	25	685
MPCS-121224-630SL	12.00	12.00	24.00	8.75	11.00	22.05	630	20.00	25	780
MPCS-121224-630XX	12.00	12.00	24.00	8.75	11.00	22.05	630	—	25	780
MPCS-161628-630SL	16.00	16.00	28.00	12.75	13.00	26.05	630	20.00	25	1,135
MPCS-161628-630XX	16.00	16.00	28.00	12.75	13.00	26.05	630	—	25	1,135

MODULAR TOOLING COLUMN FIXTURE PLATES



Standard



Stepped

These pre-machined fixture plates allow for fast and accurate fixture assembly and setup using SpeedLoc locators. They are designed for precise fit with the ModLoc tooling columns and will also work with any machine configuration requiring a fixture plate. Each plate includes six pre-drilled holes for locating and fastening with the SpeedLoc locators to the ModLoc tooling column sub-plates (Two holes are lined with bushings for precise locating). The fixture plates are available with either standard or stepped liners. Thickness tolerance is a minimum +/-.005". The aluminum sub-plates are made from MIC-6 aluminum. The steel sub-plates are made from A36 steel. These fixture plates can be supplied with positioning studs installed for use with the docking hardware. The parts below show just some of the sizes and options available. Fixtureworks can assist you to customize any of these products to meet your exact needs.

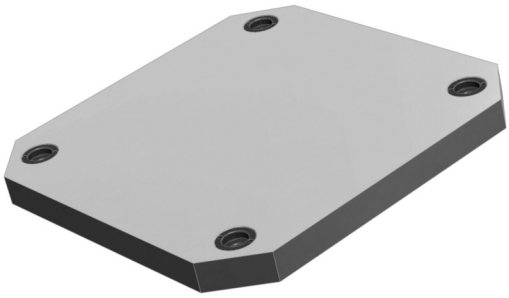
Aluminum

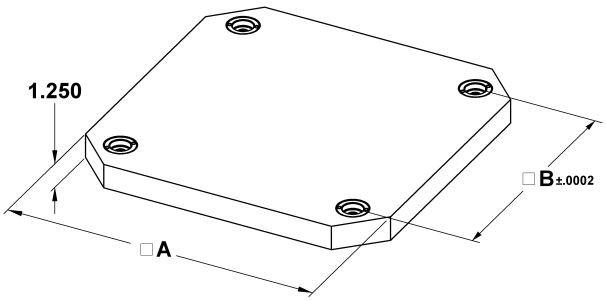
Standard Liner Part #	Stepped Liner Part #	Width A	Length B	Thickness C	Hole Spacing D	Hole Spacing E	Hole Spacing F	Liner Size mm	Weight Lbs.
MPFPA-0821075-SL	MPFPA-0821075-CH	8.00	21.00	.75	4.75	9.50	19.05	25	12
MPFPA-0821100-SL	MPFPA-0821100-CH	8.00	21.00	1.00	4.75	9.50	19.05	25	16
MPFPA-1024075-SL	MPFPA-1024075-CH	10.00	24.00	.75	6.75	11.00	22.05	25	17
MPFPA-1024100-SL	MPFPA-1024100-CH	10.00	24.00	1.00	6.75	11.00	22.05	25	23
MPFPA-1224075-SL	MPFPA-1224075-CH	12.00	24.00	.75	8.75	11.00	22.05	25	21
MPFPA-1224100-SL	MPFPA-1224100-CH	12.00	24.00	1.00	8.75	11.00	22.05	25	27
MPFPA-1628075-SL	MPFPA-1628075-CH	16.00	28.00	.75	12.75	13.00	26.05	25	32
MPFPA-1628100-SL	MPFPA-1628100-CH	16.00	28.00	1.00	12.75	13.00	26.05	25	42

Steel

Standard Liner Part #	Stepped Liner Part #	Width A	Length B	Thickness C	Hole Spacing D	Hole Spacing E	Hole Spacing F	Liner Size mm	Weight Lbs.
MPFPS-0821075-SL	MPFPS-0821075-CH	8.00	21.00	.75	4.75	9.50	19.05	25	36
MPFPS-0821100-SL	MPFPS-0821100-CH	8.00	21.00	1.00	4.75	9.50	19.05	25	48
MPFPS-1024075-SL	MPFPS-1024075-CH	10.00	24.00	.75	6.75	11.00	22.05	25	51
MPFPS-1024100-SL	MPFPS-1024100-CH	10.00	24.00	1.00	6.75	11.00	22.05	25	68
MPFPS-1224075-SL	MPFPS-1224075-CH	12.00	24.00	.75	8.75	11.00	22.05	25	62
MPFPS-1224100-SL	MPFPS-1224100-CH	12.00	24.00	1.00	8.75	11.00	22.05	25	82
MPFPS-1628075-SL	MPFPS-1628075-CH	16.00	28.00	.75	12.75	13.00	26.05	25	96
MPFPS-1628100-SL	MPFPS-1628100-CH	16.00	28.00	1.00	12.75	13.00	26.05	25	127

MODULAR TOOLING COLUMN SUB-PLATES





These machined column sub-plates attach to the machine table to allow for fast and accurate removal/fastening of the tooling columns. They are supplied with four Speedloc receivers so the user can utilize Speedloc locators to quickly and accurately attach the tooling column or fixture plate. The aluminum sub-plates are made from MIC-6 aluminum. The steel sub-plates are made from A36 steel. Hard anodized finish on the aluminum sub-plates is available by request. The 500 and 630mm plates can be supplied with additional hole configurations on the same plate to fit multiple column sizes on the same sub-plate. The part numbers ending with XX designate the user must specify the required mounting hole spacing. Parts without the XX are supplied without mounting holes. The following part numbers show just some of the sizes and options available. Fixtureworks can assist you to customize any of these products to meet your exact needs.

Aluminum

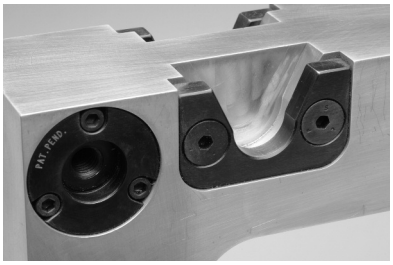
Part #	Width A mm	Receiver Hole Spacing B	Receiver Size mm	Weight Lbs.
MPSPA-400	400	12.00	25	29
MPSPA-400XX	400	12.00	25	29
MPSPA-500	500	16.00	25	45
MPSPA-500XX	500	16.00	25	45
MPSPA-630	630	20.00	25	72
MPSPA-630XX	630	20.00	25	72

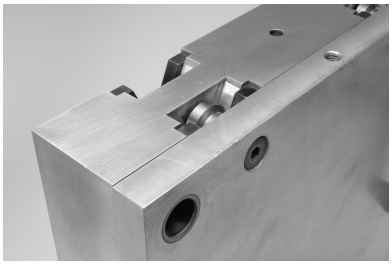
Steel

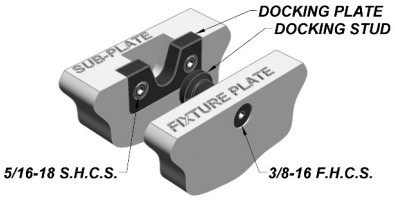
Part #	Width A mm	Receiver Hole Spacing B	Receiver Size mm	Weight Lbs.
MPSPS-400	400	12.00	25	88
MPSPS-400XX	400	12.00	25	88
MPSPS-500	500	16.00	25	137
MPSPS-500XX	500	16.00	25	137
MPSPS-630	630	20.00	25	218
MPSPS-630XX	630	20.00	25	218

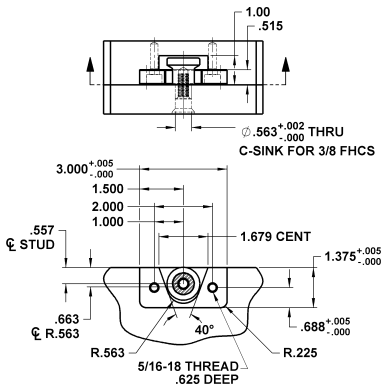
PRECISION LOCATING & MOUNTING SYSTEM

Docking Hardware







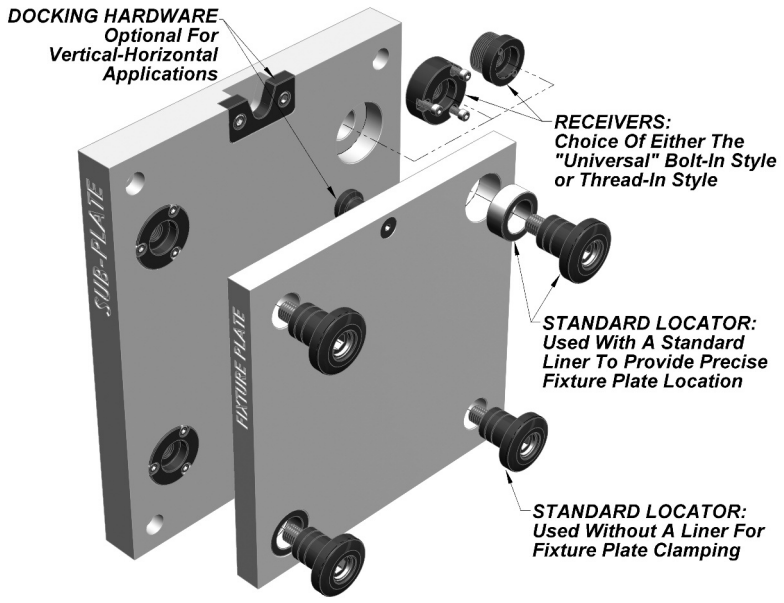


Docking hardware allows a user to position a fixture plate, before fastening the surfaces together with SpeedLoc locators. This allows for faster set ups and eliminates the need for additional personnel or lifting aids to mount fixture plates. The docking hardware consists of two parts: The docking plate and docking stud. The docking hardware can be installed on any conventional tooling column. The docking plate is installed into the top of a tooling column and mates with the positioning studs mounted to the fixture plate. Made from alloy steel with black oxide finish.

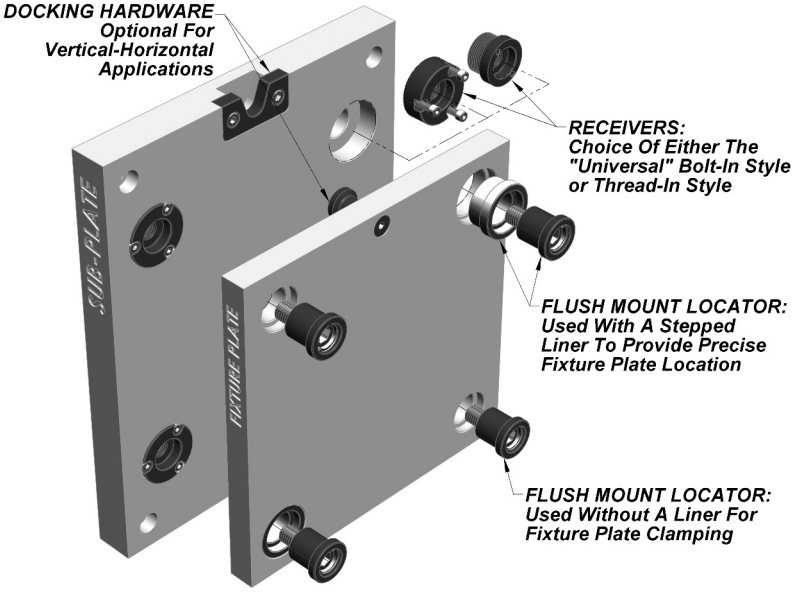
Part #	Description
MP-DH-10001	Plate with Fasteners
MP-DH-10003	Positioning Stud with Fasteners – For 1" Plate
MP-DH-10007	Positioning Stud with Fasteners – For 3/4" Plate

PRECISION LOCATING & MOUNTING SYSTEM

Standard Locators



Flush Mount Locators



SpeedLoc®

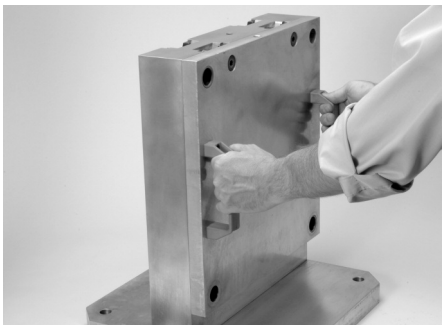
The SpeedLoc™ Precision Locating & Mounting System consists of locators/fasteners, receivers and bushings for use in a wide range of tooling, fixturing, workholding, production, welding and assembly applications. They offer the ability to make fast, accurate set-up changes which enables significant improvements in machining productivity, throughput rates, quality, and reduced operating costs.

SpeedLoc has solved the typical problems associated with precision attachment and removal of fixture plates, tooling, and accessories. The SpeedLoc System eliminates the need to pry, pound and use jack screws to separate the fixture plate from the sub-plate or machine table. The SpeedLoc System uses a threaded fastening device to mechanically extract the precision "locator" from its "receiver", allowing easy separation of fixture plates, tooling, and accessories. Unlike competitive ball locking products, SpeedLoc does not require expensive "repair kits" since there are no rubber o-rings to break or finicky ball bearings to fall out or fracture.

The SpeedLoc Precision Locating & Mounting System is often used with:

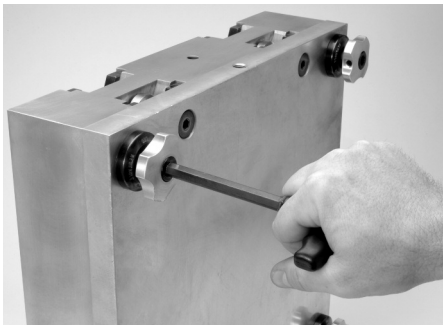
- CNC Machines
- Fabricating
- Assembly Machines
- Welding Fixtures
- Palletized Fixtures
- Injection Molding
- EDM
- Stamping
- Packaging Machines
- Robotics
- Tooling Columns
- Fixture Plates
- Modular Fixturing

PRECISION LOCATING & MOUNTING SYSTEM

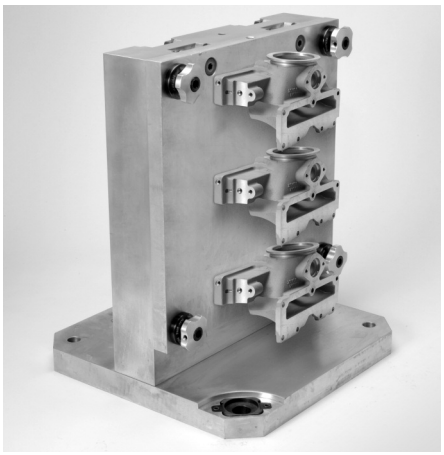


Place fixture plate over sub-plate or machine table containing SpeedLoc receivers.

Insert two SpeedLoc precision locators through holes lined with hardened bushings and into the receivers.



Insert remaining two locators into unlined holes and tighten to draw each locator to the desired torque.



Total time required to unload existing fixture plate and load a new fixture plate is typically under 2 minutes.

Speed LOC®

SpeedLoc Precision Mounting and Locating System features include...

- **Self-Extracting** – the unique design of SpeedLoc enables the device to easily and quickly "self-extract" from tooling, fixturing, etc. There is no binding or other hang-ups that delay removal time or compromise the accuracy of the locking system.
- **Precise Locating** – Features a repeatability of +/- .0004"
- **Easy Installation** – the SpeedLoc System is easily installed into a wide range of applications using standard tooling and machining practices.
- **Compact** – requires minimal space in tooling and fixturing applications.
- **American Made** – Manufactured from quality alloy materials.
- **High Clamping Strength** – over 45,000 lbs.
- **Recessed/Flush mount capability**.
- **Ability to retrofit with existing competitive ball lock type systems.**

Commonly asked questions...

Q. What is the SpeedLoc Precision Locating & Mounting System?
A. It is a means of locating and locking two flat surfaces together. These surfaces are most commonly a fixture plate and sub-plate, however, they are also used in many other applications because of their holding strength and accuracy.

Q. How does it locate the fixture plate?
A. The SpeedLoc System locates with receivers in the base plate, liner bushings in the sub-plate and locator/fasteners locking the two surfaces together.

Q. How many locators are needed to locate and fasten the fixture plate?
A. Two locators with liner bushings are required to accurately position and two locators without liner bushings to fasten only.

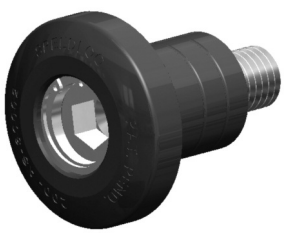
Q. How does it fasten?
A. The SpeedLoc locators use standard threads to hold the two surfaces together. By tightening the locators into the receivers very high holding forces can be achieved.

Q. Can the SpeedLoc be mounted so the work piece mounting surface is free from any interference?
A. Yes, flush mount locators allow the head to lie flush with the fixture plate surface.

Q. Can the SpeedLoc System be used in high temperature applications?
A. Yes, because all parts are made from heat treated alloy steel, temperatures up to +500°F are not a problem. The user should account for thermal expansion of the fixture plates and bases that could affect tolerances.

Q. Can fixture plates be mounted in both the horizontal and vertical positions with the SpeedLoc System?
A. Yes, in vertical mounting applications, SpeedLoc offers docking hardware to “hang” the fixture plate from the tooling column before fastening the surfaces together.

Q. Can a current ball locking type system be retrofit to work with the SpeedLoc System?
A. Yes, the Universal Bolt-In Receivers will fit directly into the pocket that holds ball locking type receivers. Also, the SpeedLoc locators will fit the existing holes and liners of a fixture plate set up for ball locking systems.



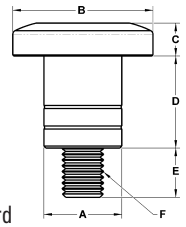
Standard Locators

Flush Mount Locators

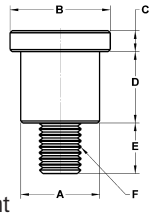
Thread-In Receivers

Universal Bolt-In Receivers

PRECISION LOCATING & MOUNTING SYSTEM



Standard



Flush Mount

Speed LOC

Material	Heat Treat	Tensile Strength PSI Min	Yield Strength PSI Min	Finish
AISI-4340	Rc 40-43	180,000	140,000	Black Oxide

These locators offer easy installation, quick operation, high holding strength and precise repeatability for use in a wide range of tooling, fixturing and assembly operations. They thread into the receivers shown on the following pages or can be used in specialty customer designed applications for accurate and fast set up. In addition, they can also be used in production environments. The flush mount locators allow the head to lie flush with the fixture plate surface leaving the surface free from interference. The unique design enables these locators to easily and quickly "self-extract" from fixture plates. This eliminates binding issues which can compromise alignment accuracy or damage fixturing.

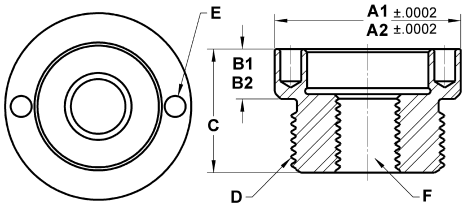
Standard Locators

Part#	FixturePlate Thickness +/-.005"	Shank Dia.(mm) A	Head Dia. B	Head Thickness C	Shank Length D	Thread Length E	Screw Size F	Max Holding Force(Lbs.)	Max Torque (Ft./Lbs.)
MPAS-13001	.500	13	1.000	.250	.780	.40	1/4-20	2,964	13
MPAS-13002	.750	13	1.000	.250	1.030	.40	1/4-20	2,964	13
MPAS-16001	.500	16	1.375	.312	.780	.43	5/16-18	5,385	26
MPAS-16002	.750	16	1.375	.312	1.030	.43	5/16-18	5,385	26
MPAS-16003	1.000	16	1.375	.312	1.280	.43	5/16-18	5,385	26
MPAS-20001	.750	20	1.625	.375	1.070	.50	3/8-16	8,107	46
MPAS-20002	1.000	20	1.625	.375	1.320	.50	3/8-16	8,107	46
MPAS-20003	1.500	20	1.625	.375	1.820	.50	3/8-16	8,107	46
MPAS-20004	2.000	20	1.625	.375	2.320	.50	3/8-16	8,107	46
MPAS-25001	.750	25	1.800	.406	1.065	.63	1/2-13	14,709	113
MPAS-25002	1.000	25	1.800	.406	1.315	.63	1/2-13	14,709	113
MPAS-25005	1.500	25	1.800	.406	1.815	.63	1/2-13	14,709	113
MPAS-25004	2.000	25	1.800	.406	2.315	.63	1/2-13	14,709	113
MPAS-30001	.750	30	2.125	.500	1.150	.75	5/8-11	22,623	213
MPAS-30002	1.000	30	2.125	.500	1.400	.75	5/8-11	22,623	213
MPAS-30003	1.500	30	2.125	.500	1.900	.75	5/8-11	22,623	213
MPAS-30004	2.000	30	2.125	.500	2.400	.75	5/8-11	22,623	213
MPAS-35001	.750	35	2.250	.500	1.150	.88	3/4-10	31,572	375
MPAS-35002	1.000	35	2.250	.500	1.400	.88	3/4-10	31,572	375
MPAS-35003	1.500	35	2.250	.500	1.900	.88	3/4-10	31,572	375
MPAS-35004	2.000	35	2.250	.500	2.400	.88	3/4-10	31,572	375
MPAS-50001	.750	50	3.000	.687	1.270	1.17	1"-8	46,958	781
MPAS-50002	1.000	50	3.000	.687	1.520	1.17	1"-8	46,958	781
MPAS-50003	1.500	50	3.000	.687	2.020	1.17	1"-8	46,958	781
MPAS-50004	2.000	50	3.000	.687	2.520	1.17	1"-8	46,958	781

Flush Mount Locators

Part#	FixturePlate Thickness +/-.005"	Shank Dia.(mm) A	Head Dia. B	Head Thickness C	Shank Length D	Thread Length E	Screw Size F	Max Holding Force(Lbs.)	Max Torque (Ft./Lbs.)
MPAS-13010	.500	13	.635	.175	.587	.40	1/4-20	2,964	13
MPAS-13011	.750	13	.635	.175	.837	.40	1/4-20	2,964	13
MPAS-16010	.500	16	.786	.175	.587	.38	5/16-18	5,385	26
MPAS-16011	.750	16	.786	.175	.837	.38	5/16-18	5,385	26
MPAS-16012	1.000	16	.786	.175	1.087	.38	5/16-18	5,385	26
MPAS-20010	.750	20	.975	.250	.800	.45	3/8-16	8,107	46
MPAS-20011	1.000	20	.975	.250	1.050	.45	3/8-16	8,107	46
MPAS-20013	1.500	20	.975	.250	1.550	.45	3/8-16	8,107	46
MPAS-20014	2.000	20	.975	.250	2.050	.45	3/8-16	8,107	46
MPAS-25010	.750	25	1.218	.250	.800	.55	1/2-13	14,709	113
MPAS-25011	1.000	25	1.218	.250	1.050	.55	1/2-13	14,709	113
MPAS-25013	1.500	25	1.218	.250	1.55	.55	1/2-13	14,709	113
MPAS-25014	2.000	25	1.218	.250	2.050	.55	1/2-13	14,709	113
MPAS-30010	.750	30	1.500	.312	.825	.75	5/8-11	22,623	213
MPAS-30011	1.000	30	1.500	.312	1.075	.75	5/8-11	22,623	213
MPAS-30013	1.500	30	1.500	.312	1.575	.75	5/8-11	22,623	213
MPAS-30014	2.000	30	1.500	.312	2.075	.75	5/8-11	22,623	213
MPAS-35010	1.000	35	1.750	.312	1.075	.88	3/4-10	31,572	375
MPAS-35012	1.500	35	1.750	.312	1.575	.88	3/4-10	31,572	375
MPAS-35014	2.000	35	1.750	.312	2.075	.88	3/4-10	31,572	375
MPAS-50011	1.500	50	2.460	.312	1.513	1.17	1"-8	46,958	781
MPAS-50013	2.000	50	2.460	.312	2.013	1.17	1"-8	46,958	781

Thread-In Receivers

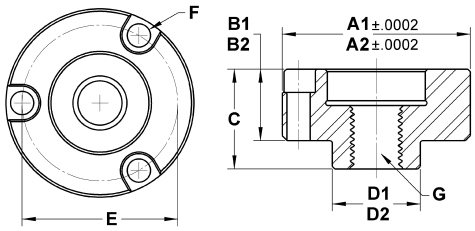


Material	Heat Treat	Tensile Strength PSI Min	Yield Strength PSI Min	Finish
AISI-4340	Rc 40-43	180,000	140,000	Black Oxide

These receivers are installed in the sub-plate or table to receive the locator units. Thread-in receivers occupy a smaller footprint which optimizes sub-plate space. They are easier to install, less expensive and offer higher pull out strengths than the universal bolt-in receivers. In addition, thread-in receivers allow the sub-plate to be fully machined from one side.

Part #	Fixture Plate Thickness Min. (Inch)	Locator Size mm	Receiver Head Dia. A1	Fixture Plate Bore Dia. A2	Receiver Head Height B1	Fixture Plate C'Bore Depth B2	Receiver Height C	Thread Size D	Spanner Wrench Hole E	Tap F
MPAR-13005	.75	13	.9498	.9506	.285	.305	.720	3/4-16	.140	1/4-20
MPAR-16005	.75	16	1.0623	1.0631	.285	.305	.720	7/8-14	.140	5/16-18
MPAR-20005	1.00	20	1.2748	1.2756	.375	.395	.840	1"-12	.170	3/8-16
MPAR-25005	1.00	25	1.4998	1.5006	.375	.395	.955	1-1/4-12	.170	1/2-13
MPAR-30005	1.25	30	1.8123	1.8131	.485	.510	1.200	1-1/2-12	.204	5/8-11
MPAR-35005	1.31	35	2.1248	2.1256	.607	.635	1.265	1-1/2-12	.265	3/4-10
MPAR-50005	1.75	50	2.7498	2.7506	.750	.770	1.700	2-12	.265	1"-8

Universal Bolt-In Receivers

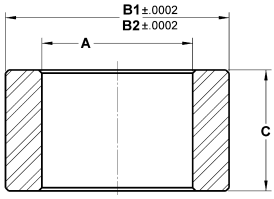


Material	Heat Treat	Tensile Strength PSI Min	Yield Strength PSI Min	Finish
AISI-4340	Rc 40-43	180,000	140,000	Black Oxide

These receivers are installed in the sub-plate or machine table to receive the locator units. Universal bolt-in receivers are interchangeable with competitive ball locking systems. They allow you to take advantage of the speed, precision and easy installation of the SpeedLoc System without the need to produce new sub-plates or reworking existing sub-plates. Mounting socket head cap screws are included.

Part #	Fixture Plate Thickness Min. (inch)	Locator Size (mm)	Receiver Head Dia. A1	Fixture Plate Bore Dia. A2	Receiver Head Height B1	Fixture Plate C'Bore Depth B2	Receiver Height C	Receiver OD D1	Fixture Plate Clear. Hole D2	Bolt Center Dia. E	SHCS Size F	Tap G	Max Torque on Screw (ft/lbs)
MPAR-13001	.75	13	1.3748	1.3756	.454	.474	.720	.563	.688	.984	#8-32 X .50	1/4-20	3.6
MPAR-16001	.75	16	1.4368	1.4376	.454	.474	.720	.688	.813	1.125	#8-32 X .50	5/16-18	3.6
MPAR-20001	1.00	20	1.6871	1.6879	.625	.642	.840	.750	.813	1.362	#10-32 X .75	3/8-16	5.6
MPAR-25001	1.25	25	2.0621	2.0629	.785	.804	.955	.875	1.000	1.644	1/4-28 X .88	1/2-13	14.4
MPAR-30001	1.38	30	2.2652	2.2660	.860	.876	1.200	1.063	1.188	1.875	1/4-28 X 1.00	5/8-11	14.4
MPAR-35001	1.50	35	2.6871	2.6879	.890	.909	1.265	1.438	1.563	2.178	5/16-24 X1.00	3/4-10	28.8
MPAR-50001	2.00	50	3.4996	3.5004	1.225	1.244	1.700	2.000	2.156	2.916	3/8-24 X 1.25	1"-8	52.8

Standard Liner Bushings

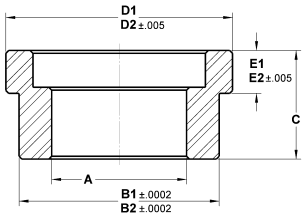


Standard headless liner bushings are used with standard SpeedLoc locators to protect the integrity of precision locating holes on bases, fixture plates, indexers and other workholding devices. They are a critical component for creating the highest possible machining accuracy and extending the life of the SpeedLoc System. For most applications, only two bushings should be used to avoid binding and alignment issues. Made from AISI-1144 alloy steel. Hardened to Rc 62-64.

Part #	Fixture Plate Thickness +/-.005"	Locator Size A (mm)	Liner OD B1	Plate Bore Dia. B2	Liner Height C
MPAL-13001	.500	13	0.7516	.7510	.450
MPAL-13002	.750	13	0.7516	.7510	.700
MPAL-16001	.500	16	1.0016	1.0010	.450
MPAL-16002	.750	16	1.0016	1.0010	.700
MPAL-16004	1.000	16	1.0016	1.0010	.950
MPAL-20011	.750	20	1.1268	1.1261	.700
MPAL-20012	1.000	20	1.1268	1.1261	.950
MPAL-20013	1.500	20	1.1268	1.1261	1.450
MPAL-20014	2.000	20	1.1268	1.1261	1.950
MPAL-25001	.750	25	1.3770	1.3764	.700
MPAL-25002	1.000	25	1.3770	1.3764	.950
MPAL-25003	1.500	25	1.3770	1.3764	1.450
MPAL-25004	2.000	25	1.3770	1.3764	1.950

Part #	Fixture Plate Thickness +/-.005"	Locator Size A (mm)	Liner OD B1	Plate Bore Dia. B2	Liner Height C
MPAL-30001	.750	30	1.7521	1.7515	.700
MPAL-30002	1.000	30	1.7521	1.7515	.950
MPAL-30003	1.500	30	1.7521	1.7515	1.450
MPAL-30004	2.000	30	1.7521	1.7515	1.950
MPAL-35001	.750	35	1.7521	1.7515	.700
MPAL-35002	1.000	35	1.7521	1.7515	.950
MPAL-35003	1.500	35	1.7521	1.7515	1.450
MPAL-35004	2.000	35	1.7521	1.7515	1.950
MPAL-50001	.750	50	2.5023	2.5017	.700
MPAL-50002	1.000	50	2.5023	2.5017	.950
MPAL-50003	1.500	50	2.5023	2.5017	1.450
MPAL-50004	2.000	50	2.5023	2.5017	1.950

Stepped Liner Bushings

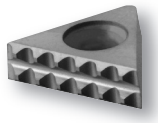


Stepped liner bushings are used with flush mount SpeedLoc locators and offer a flush work surface free from interference. (stepped liners may be used with standard locators) Liners protect the integrity of locating holes on bases, fixture plates, indexers and other workholding devices. They are a critical component for creating the highest possible machining accuracy and extending the life of the SpeedLoc System. For most applications, only two bushings should be used to avoid binding and alignment issues. Made from AISI-1144 alloy steel. Hardened to Rc 62-64.

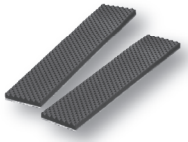
Part #	Fixture Plate Thickness +/-.005"	Locator Size A (mm)	Liner OD B1	Fixture Plate Bore Dia. B2	Liner Height C	Liner Head OD D1	Fixture Plate C'Bore Dia. D2	Liner C'Bore Height E1	Fixture Plate C'Bore Depth E2
MPAL-13101	.500	13	.7516	.7510	.450	.922	.935	.218	.235
MPAL-13102	.750	13	.7516	.7510	.700	.922	.935	.218	.235
MPAL-16101	.500	16	1.0016	1.0010	.450	1.234	1.250	.313	.330
MPAL-16102	.750	16	1.0016	1.0010	.700	1.234	1.250	.313	.330
MPAL-16103	1.000	16	1.0016	1.0010	.950	1.234	1.250	.313	.330
MPAL-20111	.750	20	1.1268	1.1261	.700	1.359	1.375	.375	.395
MPAL-20112	1.000	20	1.1268	1.1261	.950	1.359	1.375	.375	.395
MPAL-20113	1.500	20	1.1268	1.1261	1.450	1.359	1.375	.375	.395
MPAL-20114	2.000	20	1.1268	1.1261	1.950	1.359	1.375	.375	.395
MPAL-25101	.750	25	1.3770	1.3764	.700	1.609	1.625	.375	.395
MPAL-25102	1.000	25	1.3770	1.3764	.950	1.609	1.625	.375	.395
MPAL-25103	1.500	25	1.3770	1.3764	1.450	1.609	1.625	.375	.395
MPAL-25104	2.000	25	1.3770	1.3764	1.950	1.609	1.625	.375	.395
MPAL-30101	.750	30	1.7521	1.7515	.700	1.984	2.000	.375	.395
MPAL-30102	1.000	30	1.7521	1.7515	.950	1.984	2.000	.375	.395
MPAL-30103	1.500	30	1.7521	1.7515	1.450	1.984	2.000	.375	.395
MPAL-30104	2.000	30	1.7521	1.7515	1.950	1.984	2.000	.375	.395
MPAL-35102	1.000	35	1.7521	1.7515	.950	1.984	2.000	.450	.470
MPAL-35103	1.500	35	1.7521	1.7515	1.450	1.984	2.000	.450	.470
MPAL-35104	2.000	35	1.7521	1.7515	1.950	1.984	2.000	.450	.470
MPAL-50103	1.500	50	2.5023	2.5018	1.450	3.000	3.015	.700	.715
MPAL-50104	2.000	50	2.5023	2.5018	1.950	3.000	3.015	.700	.715

WORKHOLDING & POSITIONING GRIPPERS

TRIGRIP



GP-SERIES



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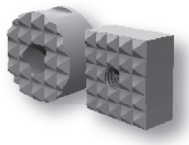
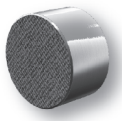
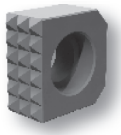


SOF-TOP URETHANE

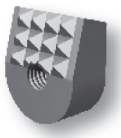
ABRASIVE DIAMOND



EDGE



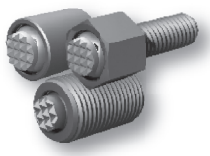
ANGLE



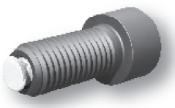
ADJUSTABLE

REST PADS

SWIVOTS



THRUST SCREWS

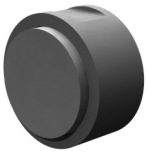


Fairlane®

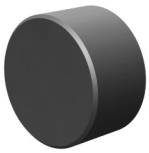
REPLACEABLE PAD OVERVIEW

Rest Pads & Gripper Pads

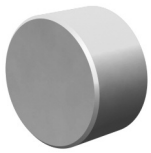
Solid Carbide
High impact carbide pads.
Can be brazed or bonded into place.



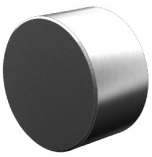
Carbide Tipped
Constructed with a high impact carbide pad brazed to a heat treated alloy steel body. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.



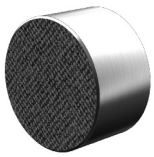
Hardened Steel
Made from 8620 steel, carburized and hardened to Rc 58/60 .050" case with black oxide finish. Mounts with tapped or counter bored hole.



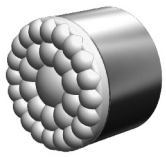
Non-Marring Delrin
Manufactured from white Delrin. Mounts with tapped or counter bored hole.



Stainless Steel
The pad is made from 17-4 stainless steel, hardened to Rc 43/46. Mounts with tapped or counter bored hole.



Abrasive Diamond Surface
The abrasive surface is permanently fused to a 17-4 stainless steel pad, hardened to Rc 43/46. The surface texture is comparable to a 100 grit abrasive. Mounts with tapped or counter bored hole.

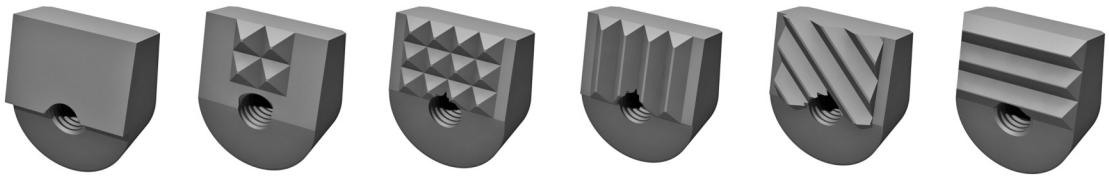


Sof-Top® Urethane Surface
The urethane surface is permanently bonded to a 300 series stainless steel pad. The urethane provides excellent protection against damage on delicate work surfaces. They are available in two durometers. Tapped hole mounting.

GP-Series Rubber Gripper Pad
Black nitrile rubber is molded to a malleable aluminum backing that can be formed to round or sharp corners. Highly customizable and easily replaceable for industrial grade contact wear points in automation and positioning applications.

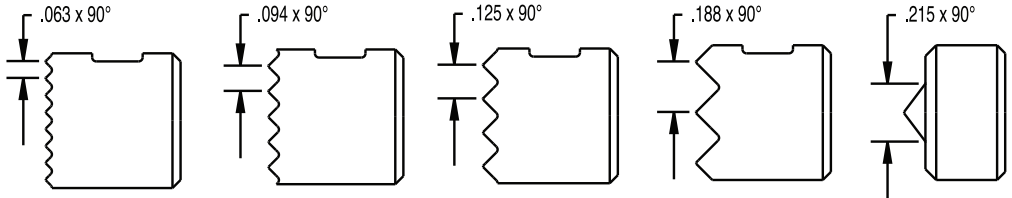
TOOTH PATTERN SPECIFICATIONS

Angle Grippers

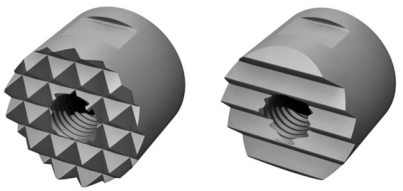


Smooth | 4 Point | Fine | Straight | Angular Straight | 3 Point / 90° Straight

Round and Square Grippers



Super Fine "SF" | Extra Fine "EF" | Fine | Coarse | Single Point



Diamond Serration Pattern

Straight Serration Pattern "SS"

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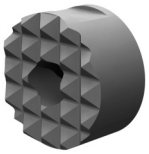
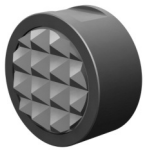
REPLACEABLE PAD OVERVIEW

Serrated Gripper Pads



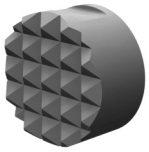
High Speed Tool Steel

Round, square, edge, and angle grippers manufactured from M-2 high speed tool steel, hardened to Rc 60/62 with black oxide finish. Mounts with tapped hole, counter bored hole or a flat on the outside diameter for set screw mounting.



Carbide Tipped

Round, square, and angle grippers constructed with a high impact carbide pad brazed to a heat treated alloy steel body. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.



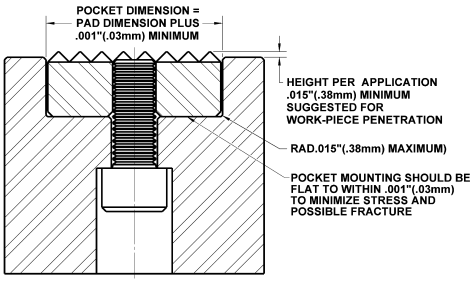
Solid Carbide

Round and square grippers manufactured from high impact carbide in a solid gripper pad or as a solid gripper body with a threaded brazed-in steel insert. Mounts with tapped hole or a flat on the outside diameter for set screw mounting.

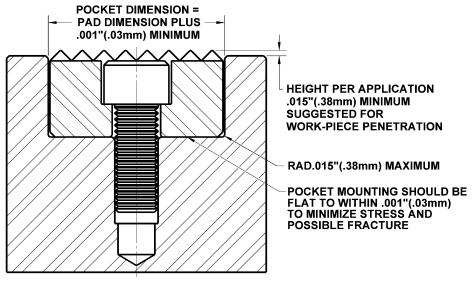
GRIPPER PAD AND REST PAD MOUNTING APPLICATIONS AND SPECIFICATIONS

Below are some of the more common mounting applications for fixed grippers, rest pads and carbide pads shown in this catalog.

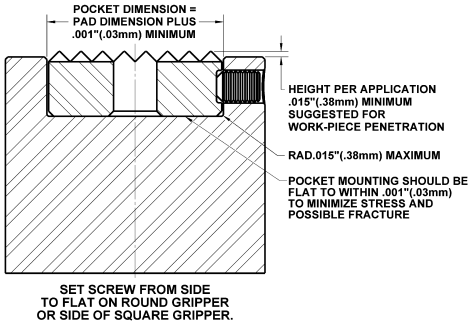
Round or square grippers and rest pads with tapped blind-hole or through hole tap.



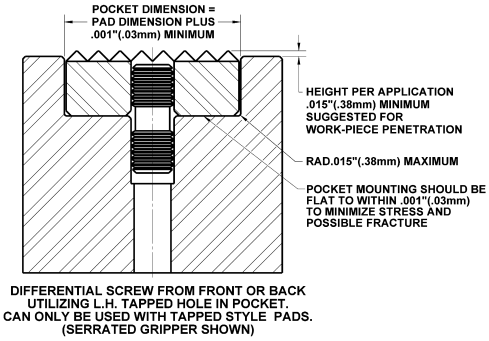
Round or square grippers and rest pads with counter-bored hole.



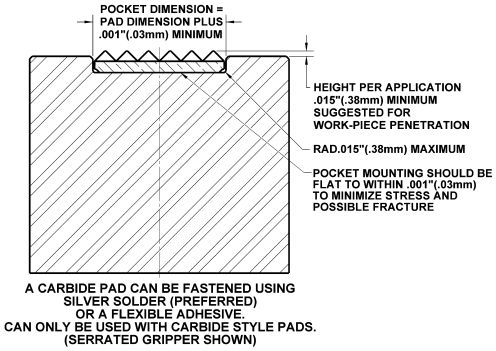
Round grippers with flat on the O.D. for set screw mounting, or square gripper.



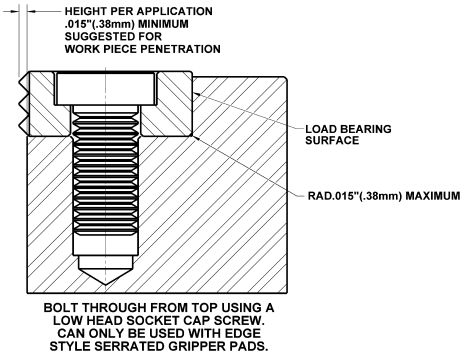
Round or square grippers with through tapped hole.



Round or square carbide pads.



Counter-bored edge grippers.



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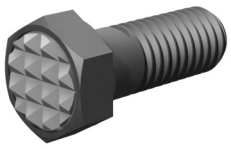
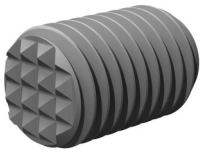
THREADED ADJUSTABLE GRIPPER OVERVIEW



Carbide Tipped
Round and Hex head styles constructed with a steel body. Carbide tipped for positive holding and wear resistance.



High Speed Steel
Manufactured from M-2 high speed tool steel, hardened to Rc 55/58. Internal hex on backside allows for positioning adjustment.

AdjustaGrip™
The gripper pad can be replaced when it becomes worn. Uses tapped through hole grippers.

AccuGrip™
Designed to fit within chuck jaws to adjust concentricity. Carbide tipped for wear resistance.

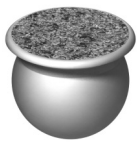
SWIVOTS® & THRUST SCREW OVERVIEW

Swivots® & Thrust Screw Replaceable Balls

Sof-Top™ Urethane Surface Cone
The urethane surface is permanently bonded to a stainless steel ball. Provides excellent protection and non-slip grip on finished and other delicate surfaces. Available in two durometers.

Non-Marring Delrin Cone
Made from white Delrin plastic. Non-marring and non-staining for finished and other delicate surfaces.

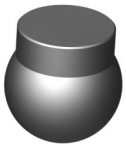
Stainless Steel Cone
Made from stainless steel. Provides excellent corrosion resistance in harsh environments.



Abrasive Diamond Surface
The diamond surface is permanently bonded to a stainless steel ball. The surface texture is comparable to a 100 grit abrasive. Provides excellent grip on a variety of surfaces with minimal penetration.

High Speed Steel -Serrated
Made from hardened M-2 high speed tool steel. Available in 3 different serration patterns.

Non-Marring Delrin
Made from white Delrin plastic. Non-marring and non-staining for finished and other delicate surfaces. Available with different stand off heights.



Flat Tool Steel
Made from hardened M-2 high speed tool steel. Heat treated to Rc 60/62. Available with different stand off heights.

Round Delrin Ball
Made from white Delrin plastic. Non-marring and non-staining.

Round Stainless Steel Ball
Made from 440c stainless steel. Heat treated to Rc 58/62.

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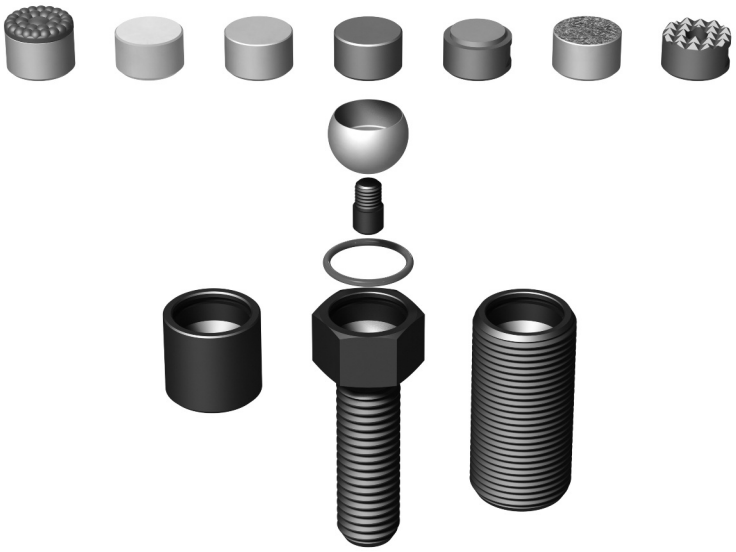
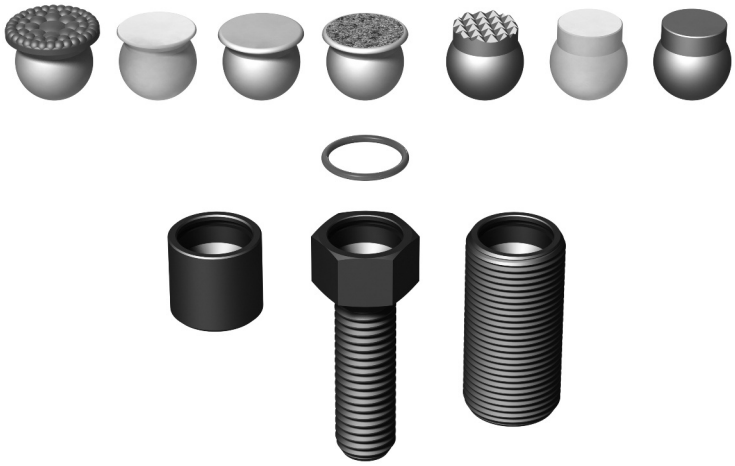
SWIVOTS® & THRUST SCREW OVERVIEW

Replaceable Pad Style Swivots®



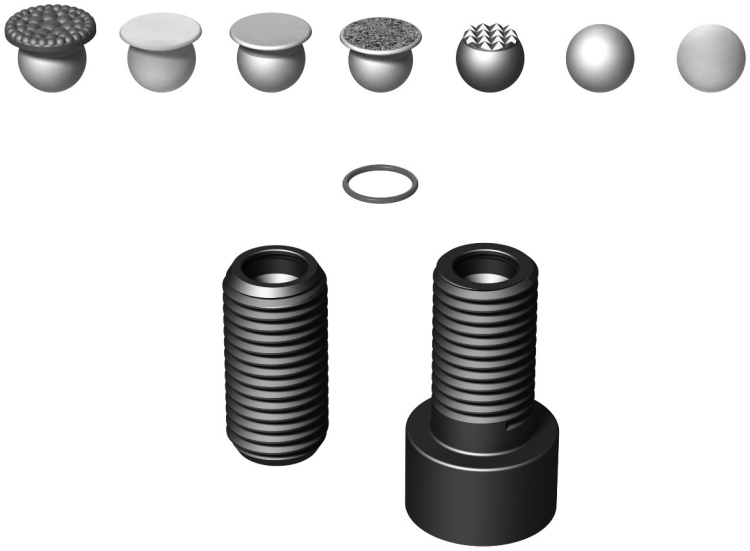
- Unique design allows the pad and ball cup to swivel, tilt, clamp, grip, hold position and secure a work piece.
- The internal ball cup allows the pad to rotate 360 degrees and tilt at varying degrees from center.
- Interchangeable parts speed setups and changeovers.
- O-ring holds the ball in place and keeps out dirt and other contaminants.
- Replaceable pad design allows for easy change out when the pad is worn or a different contact surface is required.

Replaceable Swivel Ball Style Swivots®



- The unique design of the Swivots prevent the ball from exceeding the specified degree of swivel which stops the ball from rolling over in the housing.
- The replaceable ball can be changed when it is worn or another contact surface is required.
- The ball is held in place with a Viton o-ring which allows for smooth movement and keeps out dirt and contaminants.
- The replaceable balls are available in several different styles to meet a wide range of workholding and positioning applications.

Replaceable Swivel Ball Style Thrust Screw Assemblies



- The free floating ball design allows the thrust screw to continue rotating while the ball remains stationary against the contact surface.
- They are ideal for holding and positioning irregular shaped or contoured work pieces.
- The different housing styles allow for a variety of mounting options.
- The ball is held in place with a Viton o-ring which allows for smooth movement and keeps out dirt and other contaminants.

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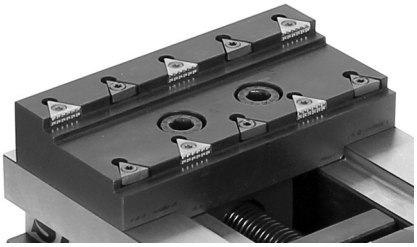
TRIGRIP WORKHOLDING GRIPPERS SYSTEM

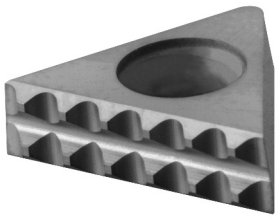
Typical Clamping Surface (Double Row)	Min. Clamping Surface (Single Row)
3.5mm (.14")	2mm (.08")

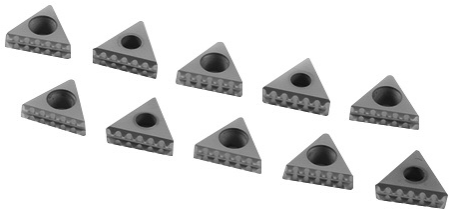
With as little as 2mm (.08") of workpiece clamp surface to securely hold the workpiece, TriGrip workholding grippers are ideal for 5-axis machining operations and minimizing scrap material. The TriGrip grippers offer many advantages over traditional clamping systems including exceptional clamping stability, no need for pre-machining or dovetailing workpieces, vibration dampening and allowing for very secure holding at lower clamping forces to avoid deforming the workpiece. Because of the geometry of the grippers and jaws, the TriGrip grippers create a pull down effect that prevents any lifting of the workpiece while clamping. TriGrip grippers combine a coated carbide with specialized teeth and triangular shapes that penetrate different types of workpiece materials including steel, hardened steel / titanium (up to 50-54 HRC) and aluminum. Typical vise applications can use 1-5 inserts per jaw, requiring up to 6,600 lbs. of clamping force for tooth penetration. See www.fixtureworks.net for complete technical information and insert-to-force charts. Each insert type is sold in a pack of 10.

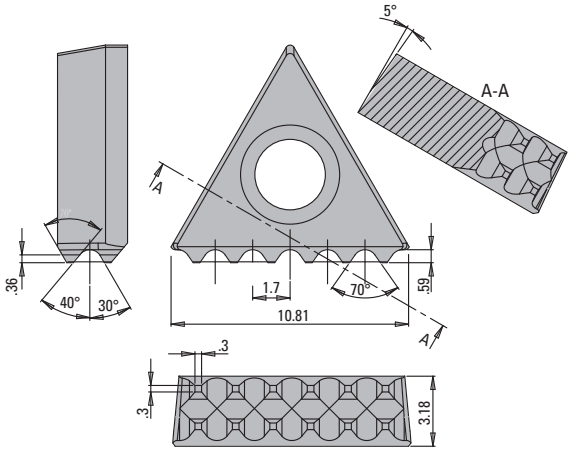


DIMENSIONS IN MILLIMETERS

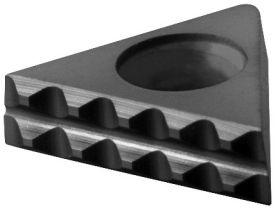
Grippers For Steel

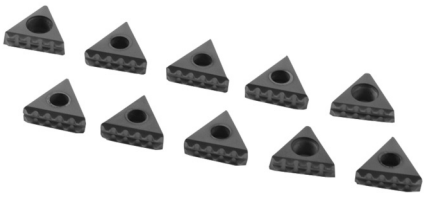


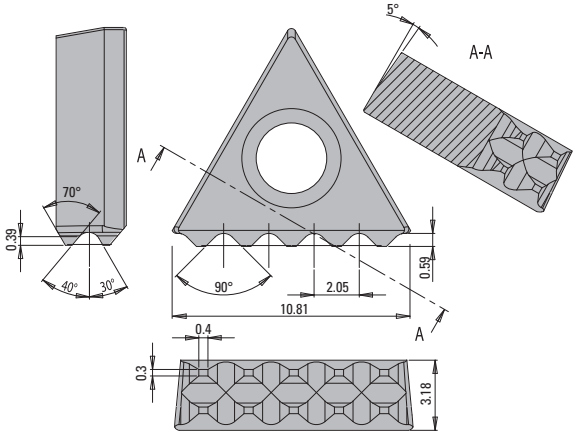




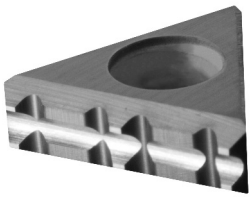
Grippers For Hardened Steel / Titanium

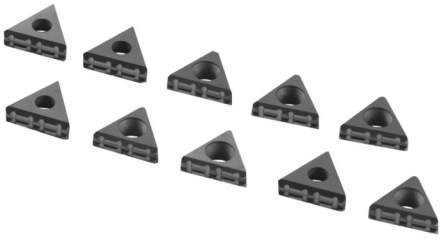


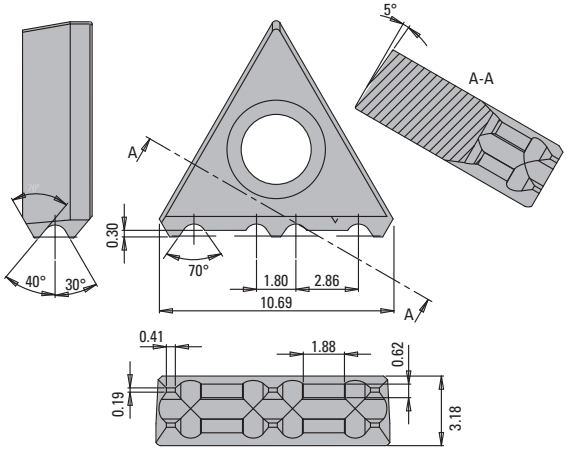




Grippers For Aluminum







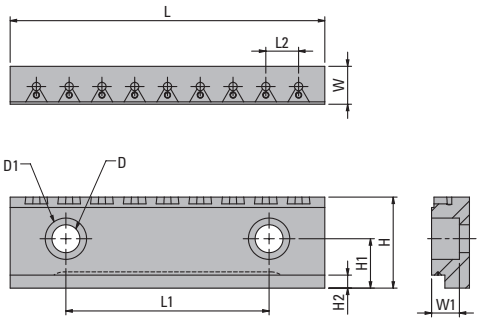
Part #	Pack Quantity	For Use With
TG-STD	10	Steel
TG-HRC	10	Hardened Steel/Titanium
TG-ALU	10	Aluminum

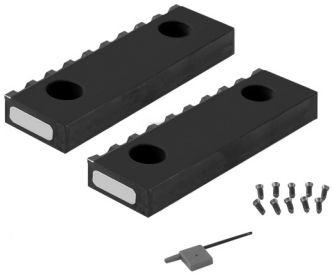
Fairlane®

TRIGRIP WORKHOLDING GRIPPERS SYSTEM

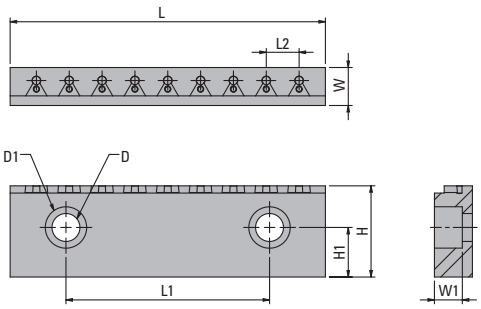
Jaw Set | Retrofit Kurt 6"

TGJ-06P





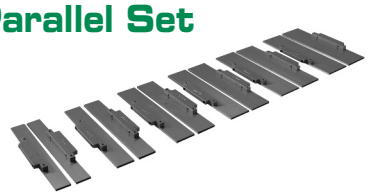
TGJ-06



These jaw sets allows you to use TriGrip inserts on Kurt 6" vises. Set includes one pair of jaws, Torx T9 wrench and 10-pack of screws. TGJ-06P also includes one pair of quick change 41 mm parallels. On TGJ-06P, install and uninstall the parallels easily by hand with no additional tools necessary.

Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	W mm	W1 mm	H mm	H1 mm	Parallel Height mm
TGJ-06	11	20	152	98.4	15.875	18.4	13.5	44.1	23.6	–
TGJ-06P	11	20	152	98.4	15.875	18.4	13.5	44.1	23.6	41

Parallel Set



Patented snap-in, self-locking design allows quick change of parallels on the retrofit jaw sets shown above. Set includes 6 pairs of parallels with heights as listed below.

Part #	Parallel Pairs Qty	Parallel Height mm
F658-459226	6	15/20/25/30/39*/42**

*5mm clamping surface compatible with TriGrip low profile grippers (full)

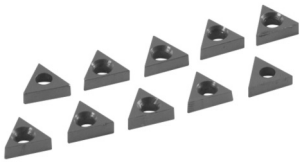
**2mm clamping surface compatible with TriGrip low profile grippers (single row)

TriGrip Screws

These screws are used to mount the TriGrip workholding inserts. Includes set of 10 Torx T9 screws.

Part #	Qty	Torx mm
TG-SCW	10	T9

Aluminum Protective Covers



These covers protect the jaw from dirt and debris when TripGrip inserts are not in place. The covers are made from aluminum and available in sets of ten.

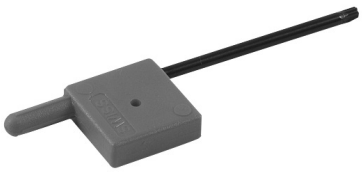
Part #	Qty
TG-PRO	10

Torx T9 Screwdriver

This screwdriver fits Torx T9 screws. Designed for use with all TriGrip workholding inserts.

Part #	Torx
F658-450310	T9

Torx T9 Wrench



This wrench fits Torx T9 screws. Designed for use with all TriGrip workholding inserts.

Part #	Torx
F658-450320	T9

D3 Cutting Tool

This cutting tool is used to prepare jaws to receive TripGrip workholding inserts. Parameters of this 3.3 mm diameter cutting tool: 80% 120 M/mm; Fz = .02 mm per tooth. Cutting tool is 3-fluted and made from solid carbide.

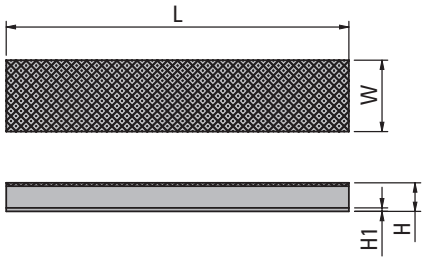
Part #	Size/Type
TG-CUTTER	D3

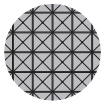
Fairlane®

RUBBER GRIPPER PADS – GP SERIES

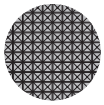
Strips

MA MODIFICATIONS AVAILABLE





Hatch Surface
Least surface contact; Increased surface pressure; forces applied over reduced contact area



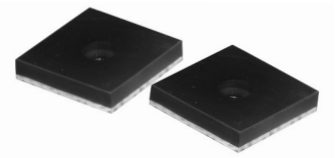
Fine Hatch Surface
Medium surface contact; Medium surface pressure; forces applied over reduced contact area

Smooth Surface
Greatest surface contact; Gripping forces evenly distributed

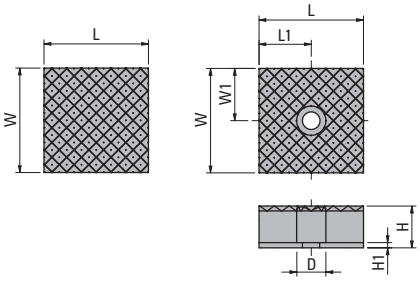
Rubber gripper pads are ideal for industrial grade contact wear points in automation and positioning applications. Black nitrile rubber (60A durometer) is molded to a malleable aluminum backing that can be formed to round or sharp corners. The aluminum backing is 1/16" thick. Select the smooth surface for the greatest contact area to evenly distribute the gripping forces. Select the fine hatch or hatch surface to increase surface pressure and apply the force over a reduced contact area. Adhesive backing (.045" thick) available for mounting and is provided separately, not affixed. Highly customizable and easily replaceable for a wide variety of uses. Standard sizes available off-the-shelf for designers and end users to make final size and mounting preparation, or custom sizes made to order. See nitrile material specifications on page 519.

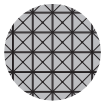
					-.000/+.030	
Part #	Plate	Surface	L	W	H	H1
GP-604H	Aluminum	Hatch	6	1-1/4	1/4	1/16
GP-604F	Aluminum	Fine Hatch	6	1-1/4	1/4	1/16
GP-604S	Aluminum	Smooth	6	1-1/4	1/4	1/16
GP-608H	Aluminum	Hatch	6	1-1/4	1/2	1/16
GP-608F	Aluminum	Fine Hatch	6	1-1/4	1/2	1/16
GP-608S	Aluminum	Smooth	6	1-1/4	1/2	1/16
GPA-604H	Aluminum w/ Adhesive Backing	Hatch	6	1-1/4	1/4	1/16
GPA-604F	Aluminum w/ Adhesive Backing	Fine Hatch	6	1-1/4	1/4	1/16
GPA-604S	Aluminum w/ Adhesive Backing	Smooth	6	1-1/4	1/4	1/16
GPA-608H	Aluminum w/ Adhesive Backing	Hatch	6	1-1/4	1/2	1/16
GPA-608F	Aluminum w/ Adhesive Backing	Fine Hatch	6	1-1/4	1/2	1/16
GPA-608S	Aluminum w/ Adhesive Backing	Smooth	6	1-1/4	1/2	1/16

Squares

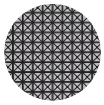


MA MODIFICATIONS AVAILABLE





Hatch Surface
Least surface contact; Increased surface pressure; forces applied over reduced contact area



Fine Hatch Surface
Medium surface contact; Medium surface pressure; forces applied over reduced contact area

Smooth Surface
Greatest surface contact; Gripping forces evenly distributed

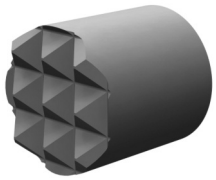
Rubber gripper pads are ideal for industrial grade contact wear points in automation and positioning applications. Black nitrile rubber (60A durometer) is molded to a malleable aluminum backing that can be formed to round or sharp corners. The aluminum backing is 1/16" thick. Select the smooth surface for the greatest contact area to evenly distribute the gripping forces. Select the fine hatch or hatch surface to increase surface pressure and apply the force over a reduced contact area. Offered with a c'bore hole or adhesive backing or mounting. The adhesive backing is .045" thick and affixed to the aluminum backing. Highly customizable and easily replaceable for a wide variety of uses. Custom sizes available. See nitrile material specifications on page 519.

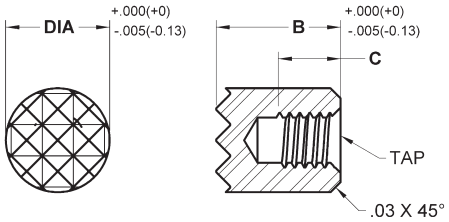
			D					-.000/+.030	
Part #	Plate	Surface	For BHCS Screw	L	L1	W	W1	H	H1
GP-124H	Aluminum	Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-124F	Aluminum	Fine Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-124S	Aluminum	Smooth	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-128H	Aluminum	Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GP-128F	Aluminum	Fine Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GP-128S	Aluminum	Smooth	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-124H	Aluminum w/ Adhesive Backing	Hatch	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-124F	Aluminum w/ Adhesive Backing	Fine Hatch	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-124S	Aluminum w/ Adhesive Backing	Smooth	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-128H	Aluminum w/ Adhesive Backing	Hatch	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-128F	Aluminum w/ Adhesive Backing	Fine Hatch	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-128S	Aluminum w/ Adhesive Backing	Smooth	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16

Fairlane®

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Tapped | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C Tap Depth	Tooth Pattern
1/4" Dia - #8-32 Tap			
HS-20	3/8	3/16	EF
HS-20-SF	3/8	3/16	SF
HS-205	1/2	5/16	EF
HS-205-SF	1/2	5/16	SF
5/16" Dia - #8-32 Tap			
HS-30	3/8	3/16	EF
HS-30-SF	3/8	3/16	SF
HS-305	1/2	5/16	EF
HS-305-SF	1/2	5/16	SF

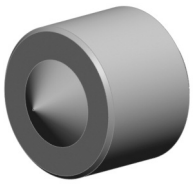
Part #	B Height	C Tap Depth	Tooth Pattern
3/8" Dia - #10-32 Tap			
HS-40-BL	3/8	3/16	EF
HS-40-BL-SF	3/8	3/16	SF
HS-405-BL	1/2	5/16	EF
HS-405-BL-SF	1/2	5/16	SF
1/2" Dia - #10-32 Tap			
HS-50-BL	3/8	3/16	Fine
HS-50-BL-EF	3/8	3/16	EF
HS-50-BL-SF	3/8	3/16	SF
HS-53-BL	1/2	5/16	Fine
HS-53-BL-EF	1/2	5/16	EF
HS-53-BL-SF	1/2	5/16	SF

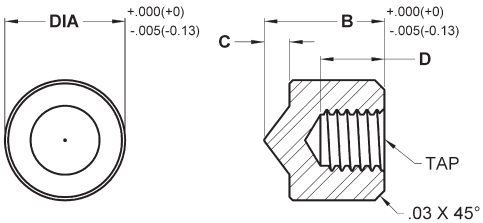
METRIC

Part #	B Height	C Tap Depth	Tooth Pattern
6mm Dia - M3x0.5 Tap			
MHS-060-SF	10	5	SF
MHS-062-SF	12	7	SF

Part #	B Height	C Tap Depth	Tooth Pattern
8mm Dia - M4x0.7 Tap			
MHS-080-SF	10	5	SF
MHS-082-SF	12	7	SF

Round Style | Tool Steel | Single Point | Tapped | Inch





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Single point contact allows for reduced force yet deeper penetration. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

INCH

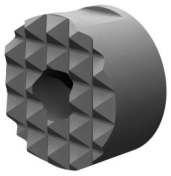
Part #	B Height	C Stand Off	D Tap Depth
1/4" Dia - #8-32 Tap			
HS-20-1	3/8	5/64	1/8
HS-205-1	1/2	5/64	1/4
5/16" Dia - #8-32 Tap			
HS-30-1	3/8	5/64	1/8
HS-305-1	1/2	5/64	1/4

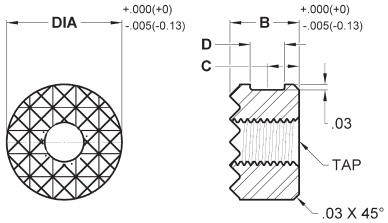
Part #	B Height	C Stand Off	D Tap Depth
3/8" Dia - #10-32 Tap			
HS-40-1	3/8	5/64	1/8
HS-405-1	1/2	5/64	1/4
1/2" Dia - #10-32 Tap			
HS-50-1	3/8	5/64	1/8
HS-53-1	1/2	5/64	1/4

Fairlane®

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Tapped | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. Flat on O.D. for set screw mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/8" Dia - #10-32 Tap				
HS-40	3/8	11/64	3/16	EF
HS-40-SF	3/8	11/64	3/16	SF
HS-405	1/2	15/64	3/16	EF
HS-405-SF	1/2	15/64	3/16	SF
1/2" Dia - #10-32 Tap				
HS-50	3/8	11/64	3/16	Fine
HS-50-EF	3/8	11/64	3/16	EF
HS-50-SF	3/8	11/64	3/16	SF
HS-51	1/2	15/64	3/16	Coarse
HS-52*	1/2	Keyway	–	Fine
HS-52-EF*	1/2	Keyway	–	EF
HS-53	1/2	15/64	3/16	Fine
HS-53-EF	1/2	15/64	3/16	EF
HS-53-SF	1/2	15/64	3/16	SF
HS-54	.651	19/64	3/16	Fine
HS-54-EF	.651	19/64	3/16	EF

*Keyway = .130" width, .060" depth

Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
5/8" Dia - 1/4-28 Tap				
HS-62	3/8	11/64	3/16	Fine
HS-62-EF	3/8	11/64	3/16	EF
HS-63	3/8	11/64	3/16	Coarse
HS-625	1/2	15/64	3/16	Fine
HS-625-EF	1/2	15/64	3/16	EF
HS-635	1/2	15/64	3/16	Coarse
3/4" Dia - 1/4-28 Tap				
HS-75	3/8	11/64	3/16	Fine
HS-75-EF	3/8	11/64	3/16	EF
HS-76	3/8	11/64	3/16	Coarse
HS-755	1/2	15/64	3/16	Fine
HS-755-EF	1/2	15/64	3/16	EF
HS-765	1/2	15/64	3/16	Coarse
1" Dia - 1/4-28 Tap				
HS-81	3/8	11/64	3/16	Coarse
HS-82	3/8	11/64	3/16	Fine
HS-82-EF	3/8	11/64	3/16	EF
HS-815	1/2	15/64	3/16	Coarse
HS-825	1/2	15/64	3/16	Fine
HS-825-EF	1/2	15/64	3/16	EF

METRIC

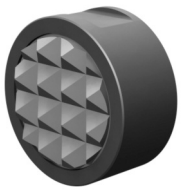
Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
10mm Dia - M5x0.8 Tap				
MHS-100	10	4.5	4.75	EF
MHS-102	12	6	4.75	EF
12mm Dia - M5x0.8 Tap				
MHS-120	10	4.5	4.75	Fine
MHS-122	12	6	4.75	Fine
16mm Dia - M6x1.0 Tap				
MHS-160	10	4.5	4.75	Fine
MHS-162	12	6	4.75	Fine

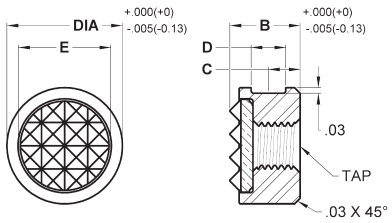
Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
20mm Dia - M6x1.0 Tap				
MHS-200	10	4.5	4.75	Fine
MHS-202	12	6	4.75	Fine
25mm Dia - M6x1.0 Tap				
MHS-250	10	4.5	4.75	Fine
MHS-252	12	6	4.75	Fine

Fairlane®

FIXED GRIPPERS

Round Style | Carbide Tipped | Serrated | Tapped | Inch & Metric





Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
3/8" Dia – #10-32 Tap					
CT-830	3/8	11/64	3/16	5/16	EF
CT-830-4	3/8	11/64	3/16	5/16	4 Point
CT-835	1/2	15/64	3/16	5/16	EF
CT-835-4	1/2	15/64	3/16	5/16	4 Point
1/2" Dia – #10-32 Tap					
CT-840	1/2	15/64	3/16	3/8	Fine
CT-840-EF	1/2	15/64	3/16	3/8	EF
CT-840-4	1/2	15/64	3/16	3/8	4 Point
CT-841	3/8	11/64	3/16	3/8	Fine
CT-841-EF	3/8	11/64	3/16	3/8	EF
CT-841-4	3/8	11/64	3/16	3/8	4 Point
CT-842	.651	19/64	3/16	3/8	Fine
CT-842-EF	.651	19/64	3/16	3/8	EF
CT-842-4	.651	19/64	3/16	3/8	4 Point
CT-844*	1/2	Keyway	–	3/8	Fine
CT-844-EF*	1/2	Keyway	–	3/8	EF
CT-844-4*	1/2	Keyway	–	3/8	4 Point
5/8" Dia – 1/4-28 Tap					
CT-850	3/8	11/64	3/16	1/2	Fine
CT-850-EF	3/8	11/64	3/16	1/2	EF
CT-855	1/2	15/64	3/16	1/2	Fine
CT-855-EF	1/2	15/64	3/16	1/2	EF
CT-071*	5/8	Keyway	–	1/2	Fine
CT-071-EF*	5/8	Keyway	–	1/2	EF
CT-071-4*	5/8	Keyway	–	1/2	4 Point
3/4" Dia – 1/4-28 Tap					
CT-860	3/8	11/64	3/16	5/8	Fine
CT-860-EF	3/8	11/64	3/16	5/8	EF
CT-862	1/2	15/64	3/16	5/8	Fine
CT-862-EF	1/2	15/64	3/16	5/8	EF
1" Dia – 1/4-28 Tap					
CT-865	3/8	11/64	3/16	3/4	Fine
CT-865-EF	3/8	11/64	3/16	3/4	EF

*Keyway= .130" width, .060" depth

METRIC

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
10mm Dia – M5x0.8 Tap					
MCT-100	10	4.5	4.75	5/16	EF
MCT-102	12	6.0	4.75	5/16	EF
12mm Dia – M5x0.8 Tap					
MCT-120	10	4.5	4.75	3/8	Fine
MCT-122	12	6.0	4.75	3/8	Fine
16mm Dia – M6x1.0 Tap					
MCT-160	10	4.5	4.75	1/2	Fine
MCT-162	12	6.0	4.75	1/2	Fine
20mm Dia – M6x1.0 Tap					
MCT-200	10	4.5	4.75	5/8	Fine
MCT-202	12	6.0	4.75	5/8	Fine
25mm Dia – M6x1.0 Tap					
MCT-250	10	4.5	4.75	3/4	Fine
MCT-252	12	6.0	4.75	3/4	Fine

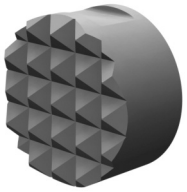
INCH DIAMETERS WITH METRIC THREADS

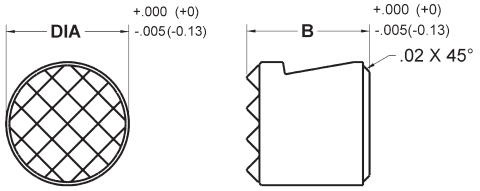
Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.	Tooth Pattern
1/2" Dia – M6x1.0 Tap					
MCT-840-EF	1/2	15/64	3/16	3/8	EF
MCT-841-EF	3/8	11/64	3/16	3/8	EF
MCT-842-EF	.651	19/64	3/16	3/8	EF
5/8" Dia – M6x1.0 Tap					
MCT-850-EF	3/8	11/64	3/16	1/2	EF
3/4" Dia – M6x1.0 Tap					
MCT-860-EF	3/8	11/64	3/16	5/8	EF

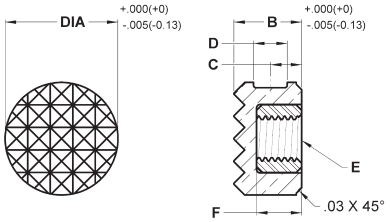
Fairlane®

FIXED GRIPPERS

Round Style | Solid Carbide | Serrated | Tapped | Inch







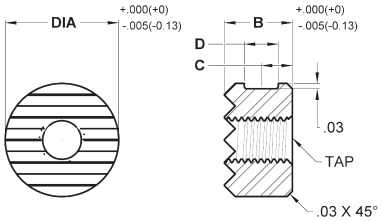
Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	E Thread Size	F Tap Depth	Tooth Pattern
1/4" Dia						
FSC-20-SF-SL	3/8	—	—	—	—	SF
FSC-20-4-SL	3/8	—	—	—	—	4 Point
5/16" Dia						
FSC-30-SL	3/8	—	—	—	—	EF
FSC-30-4-SL	3/8	—	—	—	—	4 Point
3/8" Dia						
FSC-40-SL	3/8	—	—	—	—	EF
FSC-40-4-SL	3/8	—	—	—	—	4 Point

Part #	B Height	C Flat Pos.	D Flat Width	E Thread Size	F Tap Depth	Tooth Pattern
1/2" Dia						
FSC-841	3/8	11/64	3/16	#10-32	3/16	Fine
FSC-844-4	1/2	15/64	3/16	#10-32	5/16	4 Point
FSC-844	1/2	15/64	3/16	#10-32	5/16	Fine
FSC-844-SL	1/2	15/64	3/16	—	—	Fine
FSC-070-4	1/2	—	Keyway	#10-32	5/16	4 Point
FSC-070	1/2	—	Keyway	#10-32	5/16	Fine
5/8" Dia						
FSC-850	3/8	11/64	3/16	1/4-28	3/16	Fine
3/4" Dia						
FSC-860	3/8	11/64	3/16	1/4-28	3/16	Fine

Round Style | Tool Steel | Straight Serrations | Tapped | Inch



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. Flat on O.D. for set screw mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

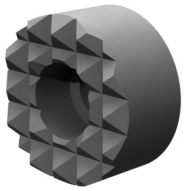
Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/8" Dia - #10-32 Tap				
HS-40-SS	3/8	11/64	3/16	EF
HS-40-SS-SF	3/8	11/64	3/16	SF
HS-405-SS	1/2	15/64	3/16	EF
HS-405-SS-SF	1/2	15/64	3/16	SF
1/2" Dia - #10-32 Tap				
HS-50-SS	3/8	11/64	3/16	Fine
HS-50-SS-EF	3/8	11/64	3/16	EF
HS-50-SS-SF	3/8	11/64	3/16	SF
HS-51-SS	1/2	15/64	3/16	Coarse
HS-53-SS	1/2	15/64	3/16	Fine
HS-53-SS-EF	1/2	15/64	3/16	EF
HS-53-SS-SF	1/2	15/64	3/16	SF
5/8" Dia - 1/4-28 Tap				
HS-62-SS	3/8	11/64	3/16	Fine
HS-62-SS-EF	3/8	11/64	3/16	EF
HS-63-SS	3/8	11/64	3/16	Coarse
HS-625-SS	1/2	15/64	3/16	Fine
HS-625-SS-EF	1/2	15/64	3/16	EF
HS-635-SS	1/2	15/64	3/16	Coarse

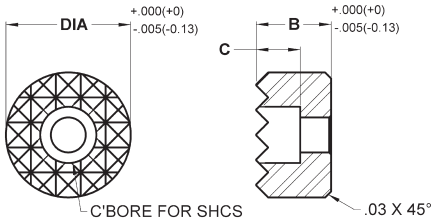
Part #	B Height	C Flat Pos.	D Flat Width	Tooth Pattern
3/4" Dia - 1/4-28 Tap				
HS-75-SS	3/8	11/64	3/16	Fine
HS-75-SS-EF	3/8	11/64	3/16	EF
HS-76-SS	3/8	11/64	3/16	Coarse
HS-755-SS	1/2	15/64	3/16	Fine
HS-755-SS-EF	1/2	15/64	3/16	EF
HS-765-SS	1/2	15/64	3/16	Coarse
1" Dia - 1/4-28 Tap				
HS-81-SS	3/8	11/64	3/16	Coarse
HS-82-SS	3/8	11/64	3/16	Fine
HS-82-SS-EF	3/8	11/64	3/16	EF
HS-815-SS	1/2	15/64	3/16	Coarse
HS-825-SS	1/2	15/64	3/16	Fine
HS-825-SS-EF	1/2	15/64	3/16	EF

Fairlane®

FIXED GRIPPERS

Round Style | Tool Steel | Serrated | Counter Bored | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth	Tooth Pattern
1/2" Dia - Counter Bored for #8 SHCS			
HS-50-C	3/8	7/32	Fine
HS-50-C-EF	3/8	7/32	EF
HS-50-C-SF	3/8	7/32	SF
HS-53-C	1/2	7/32	Fine
HS-53-C-EF	1/2	7/32	EF
HS-53-C-SF	1/2	7/32	SF
5/8" Dia - Counter Bored for #8 SHCS			
HS-62-C	3/8	7/32	Fine
HS-62-C-EF	3/8	7/32	EF
HS-625-C	1/2	7/32	Fine
HS-625-C-EF	1/2	7/32	EF
3/4" Dia - Counter Bored for #10 SHCS			
HS-75-C	3/8	1/4	Fine
HS-75-C-EF	3/8	1/4	EF
HS-755-C	1/2	1/4	Fine
HS-755-C-EF	1/2	1/4	EF
HS-76-C	3/8	1/4	Coarse
HS-765-C	1/2	5/16	Coarse
1" Dia - Counter Bored for 1/4" SHCS			
HS-81-C	1/2	5/16	Coarse
HS-82-C	1/2	5/16	Fine
HS-82-C-EF	1/2	5/16	EF

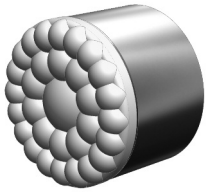
METRIC

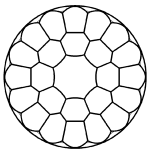
Part #	B Height	C C'Bore Depth	Tooth Pattern
12mm Dia - Counter Bored for M4 SHCS			
MHS-120-C	10	5.6	Fine
MHS-122-C	12	5.6	Fine
16mm Dia - Counter Bored for M4 SHCS			
MHS-160-C	10	5.6	Fine
MHS-162-C	12	5.6	Fine
20mm Dia - Counter Bored for M5 SHCS			
MHS-200-C	10	6.6	Fine
MHS-202-C	12	6.6	Fine
25mm Dia - Counter Bored for M6 SHCS			
MHS-250-C	10	7.6	Fine
MHS-252-C	12	7.6	Fine

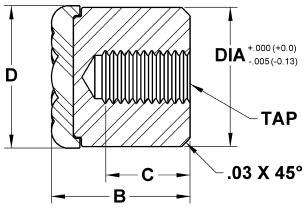
Fairlane®

FIXED GRIPPERS

Round Style | Stainless Steel | Sof-Top Urethane Surface | Tapped | Inch & Metric







The urethane surface is permanently bonded to a 300 series stainless steel pad. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

INCH

Part #	B Height	C Tap Depth	D Contact Dia.	Durometer	Urethane Thickness	Load Compression Lbs.*
5/16" Dia - #8-32 Tap						
CSRP-305-60UR	1/2	1/4	.315	60	.08	30
CSRP-305-80UR	1/2	1/4	.315	80	.08	45
3/8" Dia - #10-32 Tap						
CSRP-405-60UR	1/2	1/4	.394	60	.08	35
CSRP-405-80UR	1/2	1/4	.394	80	.08	90
1/2" Dia - #10-32 Tap						
CSRP-53-60UR	1/2	1/4	.512	60	.08	75
CSRP-53-80UR	1/2	1/4	.512	80	.08	190
5/8" Dia - 1/4-28 Tap						
CSRP-625-60UR	1/2	1/4	.630	60	.08	160
CSRP-625-80UR	1/2	1/4	.630	80	.08	260
3/4" Dia - 1/4-28 Tap						
CSRP-755-60UR	1/2	1/4	.827	60	.12	230
CSRP-755-80UR	1/2	1/4	.827	80	.12	365
1" Dia - 1/4-28 Tap						
CSRP-815-60UR	1/2	1/4	1.063	60	.12	300
CSRP-815-80UR	1/2	1/4	1.063	80	.12	600

*Load compression is based on the weight to compress the urethane surface .032" for the .08" thick pad and .042" for the .12" thick pad. These ratings can vary greatly depending on temperature and other factors that normally affect the performance of urethane.

METRIC

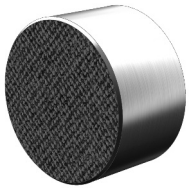
Part #	B Height	C Tap Depth	D Contact Dia.	Durometer	Urethane Thickness	Load Compression Lbs.*
8mm Dia – M4x0.7 Tap						
MCSRP-082-60UR	12	6	8	60	2	30
MCSRP-082-80UR	12	6	8	80	2	45
10mm Dia - M5x0.8 Tap						
MCSRP-102-60UR	12	6	10	60	2	35
MCSRP-102-80UR	12	6	10	80	2	90
12mm Dia - M5x0.8 Tap						
MCSRP-122-60UR	12	6	13	60	2	75
MCSRP-122-80UR	12	6	13	80	2	190
16mm Dia - M6x1.0 Tap						
MCSRP-162-60UR	12	6	16	60	2	160
MCSRP-162-80UR	12	6	16	80	2	260
20mm Dia - M6x1.0 Tap						
MCSRP-202-60UR	12	6	21	60	3	230
MCSRP-202-80UR	12	6	21	80	3	365
25mm Dia - M6x1.0 Tap						
MCSRP-252-60UR	12	6	27	60	3	300
MCSRP-252-80UR	12	6	27	80	3	600

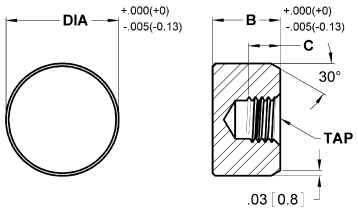
*Load compression is based on the weight to compress the urethane surface .812mm for the 2mm thick pad and 1.066mm for the 3mm thick pad. These ratings can vary greatly depending on temperature and other factors that normally affect the performance of urethane.

Fairlane®

FIXED GRIPPERS

Round Style | Stainless Steel | Abrasive Diamond Surface | Tapped | Inch & Metric





The abrasive surface is permanently fused to a stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface also provides unparalleled wear resistance. The pad is made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

INCH

Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap		
CSRP-30-DS	3/8	3/16
CSRP-305-DS	1/2	5/16
3/8" Dia - #10-32 Tap		
CSRP-40-DS	3/8	3/16
CSRP-405-DS	1/2	5/16
1/2" Dia - #10-32 Tap		
CSRP-50-DS	3/8	3/16
CSRP-53-DS	1/2	5/16

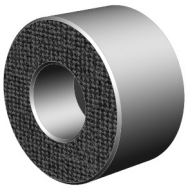
Part #	B Height	C Tap Depth
5/8" Dia - 1/4-28 Tap		
CSRP-62-DS	3/8	3/16
CSRP-625-DS	1/2	5/16
3/4" Dia - 1/4-28 Tap		
CSRP-75-DS	3/8	3/16
CSRP-755-DS	1/2	5/16
1" Dia - 1/4-28 Tap		
CSRP-81-DS	3/8	3/16
CSRP-815-DS	1/2	5/16

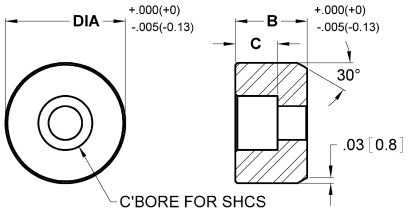
METRIC

Part #	B Height	C Tap Depth
8mm Dia – M4x0.7 Tap		
MCSRP-080-DS	10	5
MCSRP-082-DS	12	6.4
10mm Dia - M5x0.8 Tap		
MCSRP-100-DS	10	5
MCSRP-102-DS	12	6.4
12mm Dia - M5x0.8 Tap		
MCSRP-120-DS	10	5
MCSRP-122-DS	12	6.4

Part #	B Height	C Tap Depth
16mm Dia - M6x1.0 Tap		
MCSRP-160-DS	10	5
MCSRP-162-DS	12	6.4
20mm Dia - M6x1.0 Tap		
MCSRP-200-DS	10	5
MCSRP-202-DS	12	6.4
25mm Dia - M6x1.0 Tap		
MCSRP-250-DS	10	5
MCSRP-252-DS	12	6.4

Round Style | Stainless Steel | Abrasive Diamond Surface | Counter Bored | Inch & Metric





The abrasive surface is permanently fused to a stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface also provides unparalleled wear resistance. The pad is made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Counter bored hole for front mounting with a socket head cap screw. See page 233 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS		
CSRP-40-C-DS	3/8	3/16
CSRP-405-C-DS	1/2	3/16
1/2" Dia - Counter Bored for #8 SHCS		
CSRP-50-C-DS	3/8	7/32
CSRP-53-C-DS	1/2	7/32
5/8" Dia - Counter Bored for #8 SHCS		
CSRP-62-C-DS	3/8	7/32
CSRP-625-C-DS	1/2	7/32

Part #	B Height	C C'Bore Depth
3/4" Dia - Counter Bored for #10 SHCS		
CSRP-75-C-DS	3/8	1/4
CSRP-755-C-DS	1/2	1/4
1" Dia - Counter Bored for 1/4" SHCS		
CSRP-81-C-DS	3/8	9/32
CSRP-815-C-DS	1/2	9/32

METRIC

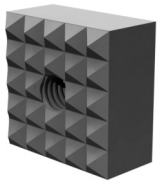
Part #	B Height	C C'Bore Depth
10mm Dia - Counter Bored for M3 SHCS		
MCSRP-100-C-DS	10	5
MCSRP-102-C-DS	12	5
12mm Dia - Counter Bored for M4 SHCS		
MCSRP-120-C-DS	10	5.6
MCSRP-122-C-DS	12	5.6
16mm Dia - Counter Bored for M5 SHCS		
MCSRP-160-C-DS	10	6.6
MCSRP-162-C-DS	12	6.6

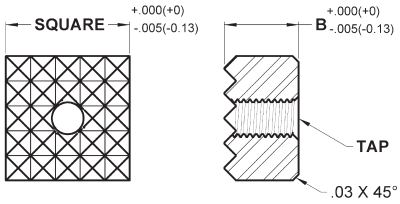
Part #	B Height	C C'Bore Depth
20mm Dia - Counter Bored for M6 SHCS		
MCSRP-200-C-DS	10	7.6
MCSRP-202-C-DS	12	7.6
25mm Dia - Counter Bored for M6 SHCS		
MCSRP-250-C-DS	10	7.6
MCSRP-252-C-DS	12	7.6

Fairlane®

FIXED GRIPPERS

Square Style | Tool Steel | Serrated | Tapped | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	Tooth Pattern
3/8" Square - #10-32 Tap		
HS-90	3/8	EF
HS-90-SF	3/8	SF
HS-905	1/2	EF
HS-905-SF	1/2	SF
1/2" Square - #10-32 Tap		
HS-95	3/8	Fine
HS-95-EF	3/8	EF
HS-95-SF	3/8	SF
HS-955	1/2	Fine
HS-955-EF	1/2	EF
HS-955-SF	1/2	SF
HS-96	3/8	Coarse
HS-965	1/2	Coarse

Part #	B Height	Tooth Pattern
5/8" Square - #10-32 Tap		
HS-962	3/8	Fine
HS-962-EF	3/8	EF
HS-963	3/8	Coarse
HS-9625	1/2	Fine
HS-9625-EF	1/2	EF
HS-9635	1/2	Coarse
3/4" Square - #10-32 Tap		
HS-97	3/8	Fine
HS-97-EF	3/8	EF
HS-98	3/8	Coarse
HS-975	1/2	Fine
HS-975-EF	1/2	EF
HS-985	1/2	Coarse

Part #	B Height	Tooth Pattern
1" Square - 1/4-28 Tap		
HS-101	3/8	Fine
HS-101-EF	3/8	EF
HS-102	3/8	Coarse
HS-105	1/2	Fine
HS-105-EF	1/2	EF
HS-106	1/2	Coarse

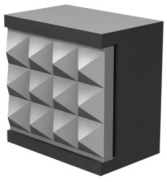
METRIC

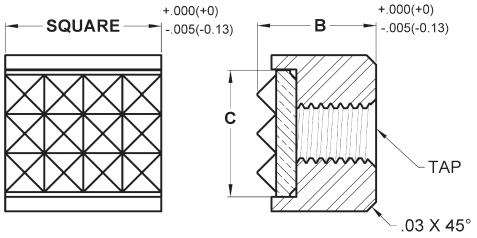
Part #	B Height	Tooth Pattern
10mm Square - M5x0.8 Tap		
MHS-9100	10	EF
MHS-9102	12	EF
12mm Square - M5x0.8 Tap		
MHS-9120	10	Fine
MHS-9122	12	Fine

Part #	B Height	Tooth Pattern
16mm Square - M6x1.0 Tap		
MHS-9160	10	Fine
MHS-9162	12	Fine
20mm Square - M5x0.8 Tap		
MHS-9200	10	Fine
MHS-9202	12	Fine

Part #	B Height	Tooth Pattern
25mm Square - M6x1.0 Tap		
MHS-9250	10	Fine
MHS-9252	12	Fine

Square Style | Carbide Tipped | Serrated | Tapped | Inch & Metric





Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Blind-hole tap for back side mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C	Tooth Pattern
1/2" Square - #10-32 Tap			
CT-870	3/8	13/32	Fine
CT-870-EF	3/8	13/32	EF
CT-875	1/2	13/32	Fine
CT-875-EF	1/2	13/32	EF

INCH WITH METRIC THREADS

Part #	B Height	C	Tooth Pattern
1/2" Square - M6x1.0 Tap			
MCT-870-EF	3/8	13/32	EF

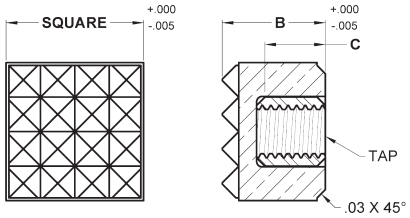
METRIC

Part #	B Height	C	Tooth Pattern
12mm Square - M5x0.8 Tap			
MCT-9120	10	13/32	Fine
MCT-9122	12	13/32	Fine

Fairlane®

FIXED GRIPPERS

Square Style | Solid Carbide | Serrated | Tapped | Inch

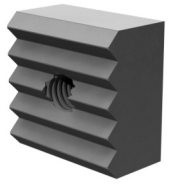


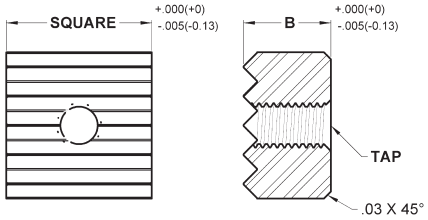
Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Blind-hole tap for back side mounting. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C Tap Depth	Tooth Pattern
1/2" Square - #10-32 Tap			
FSC-870	3/8	3/16	Fine
FSC-875	1/2	5/16	Fine

Square Style | Tool Steel | Straight Serrations | Tapped | Inch





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Thru-hole tap. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

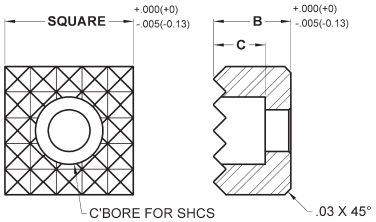
Part #	B Height	Tooth Pattern
3/8" Square - #10-32 Tap		
HS-90-SS	3/8	EF
HS-90-SS-SF	3/8	SF
HS-905-SS	1/2	EF
HS-905-SS-SF	1/2	SF
1/2" Square - #10-32 Tap		
HS-95-SS	3/8	Fine
HS-95-SS-EF	3/8	EF
HS-95-SS-SF	3/8	SF
HS-955-SS	1/2	Fine
HS-955-SS-EF	1/2	EF
HS-955-SS-SF	1/2	SF
HS-96-SS	3/8	Coarse
HS-965-SS	1/2	Coarse

Part #	B Height	Tooth Pattern
5/8" Square - #10-32 Tap		
HS-962-SS	3/8	Fine
HS-962-SS-EF	3/8	EF
HS-9625-SS	1/2	Fine
HS-9625-SS-EF	1/2	EF
HS-963-SS	3/8	Coarse
HS-9635-SS	1/2	Coarse
3/4" Square - #10-32 Tap		
HS-97-SS	3/8	Fine
HS-97-SS-EF	3/8	EF
HS-975-SS	1/2	Fine
HS-975-SS-EF	1/2	EF
HS-98-SS	3/8	Coarse
HS-985-SS	1/2	Coarse

Part #	B Height	Tooth Pattern
1" Square - 1/4-28 Tap		
HS-101-SS	3/8	Fine
HS-101-SS-EF	3/8	EF
HS-102-SS	3/8	Coarse
HS-105-SS	1/2	Fine
HS-105-SS-EF	1/2	EF
HS-106-SS	1/2	Coarse

FIXED GRIPPERS

Square Style | Tool Steel | Serrated | Counter Bored | Inch & Metric



Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

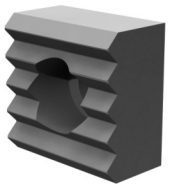
INCH

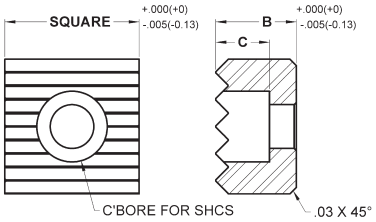
Part #	B Height	C C'Bore Depth	Tooth Pattern
1/2" Square - Counter Bored for #10 SHCS			
HS-92-C	3/8	1/4	Fine
HS-92-C-EF	3/8	1/4	EF
HS-92-C-SF	3/8	1/4	SF
HS-95-C	1/2	1/4	Fine
HS-95-C-EF	1/2	1/4	EF
HS-95-C-SF	1/2	1/4	SF
5/8" Square - Counter Bored for #10 SHCS			
HS-962-C	3/8	1/4	Fine
HS-962-C-EF	3/8	1/4	EF
HS-9625-C	1/2	1/4	Fine
HS-9625-C-EF	1/2	1/4	EF
HS-963-C	3/8	1/4	Coarse
HS-9635-C	1/2	1/4	Coarse
3/4" Square - Counter Bored for 1/4" SHCS			
HS-97-C	1/2	5/16	Fine
HS-97-C-EF	1/2	5/16	EF
HS-98-C	1/2	5/16	Coarse
1" Square - Counter Bored for 1/4" SHCS			
HS-101-C	1/2	5/16	Fine
HS-101-C-EF	1/2	5/16	EF
HS-102-C	1/2	5/16	Coarse

METRIC

Part #	B Height	C C'Bore Depth	Tooth Pattern
12mm Square - Counter Bored for M4 SHCS			
MHS-9120-C	10	5.6	Fine
MHS-9122-C	12	5.6	Fine
16mm Square - Counter Bored for M4 SHCS			
MHS-9160-C	10	5.6	Fine
MHS-9162-C	12	5.6	Fine
20mm Square - Counter Bored for M5 SHCS			
MHS-9200-C	10	6.6	Fine
MHS-9202-C	12	6.6	Fine
25mm Square - Counter Bored for M6 SHCS			
MHS-9250-C	10	7.6	Fine
MHS-9252-C	12	7.6	Fine

Square Style | Tool Steel | Straight Serrations | Counter Bored | Inch





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated for positive holding in tough applications. Counter bored hole for front mounting with a socket head cap screw. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

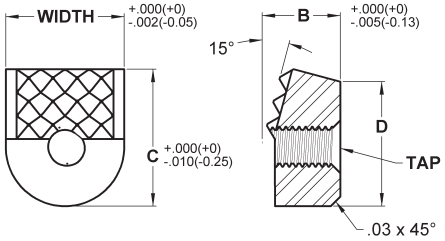
Part #	B Height	C C'Bore Depth	Tooth Pattern
1/2" Square - Counter Bored for #10 SHCS			
HS-92-C-SS	3/8	1/4	Fine
HS-92-C-SS-EF	3/8	1/4	EF
HS-92-C-SS-SF	3/8	1/4	SF
HS-95-C-SS	1/2	1/4	Fine
HS-95-C-SS-EF	1/2	1/4	EF
HS-95-C-SS-SF	1/2	1/4	SF

Part #	B Height	C C'Bore Depth	Tooth Pattern
5/8" Square - Counter Bored for #10 SHCS			
HS-962-C-SS	3/8	1/4	Fine
HS-962-C-SS-EF	3/8	1/4	EF
HS-9625-C-SS	1/2	1/4	Fine
HS-9625-C-SS-EF	1/2	1/4	EF
HS-963-C-SS	3/8	1/4	Coarse
HS-9635-C-SS	1/2	1/4	Coarse

Part #	B Height	C C'Bore Depth	Tooth Pattern
3/4" Square - Counter Bored for 1/4" SHCS			
HS-97-C-SS	1/2	5/16	Fine
HS-97-C-SS-EF	1/2	5/16	EF
HS-98-C-SS	1/2	5/16	Coarse
1" Square - Counter Bored for 1/4" SHCS			
HS-101-C-SS	1/2	5/16	Fine
HS-101-C-SS-EF	1/2	5/16	EF
HS-102-C-SS	1/2	5/16	Coarse

FIXED GRIPPERS

Angled Style | Tool Steel | Tapped | Inch & Metric

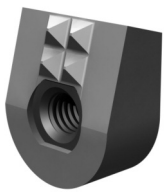


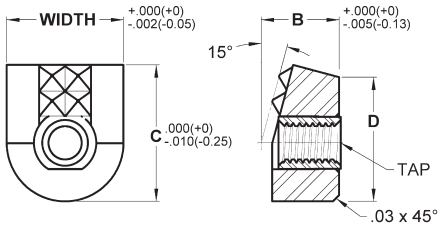
Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Serrated and smooth styles available. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. Thru-hole tap. See page 232 for tooth pattern specifications.

Part #	B	C	D	Tooth Pattern
9/16" Width - #10-32 Tap				
HS-110	3/8	.65	.60	Smooth
HS-127-4	3/8	.65	.60	4 Point
HS-127-12	3/8	.65	.60	Fine
HS-130-4	3/8	.65	.60	Straight
HS-145-5	3/8	.65	.60	Angular
HS-150-3	3/8	.65	.60	3 Point/90°ST
9/16" Width - M5x0.8 Tap				
MHS-110	3/8	.65	.60	Smooth
MHS-127-4	3/8	.65	.60	4 Point
MHS-127-12	3/8	.65	.60	Fine
MHS-130-4	3/8	.65	.60	Straight
MHS-145-5	3/8	.65	.60	Angular
MHS-150-3	3/8	.65	.60	3 Point/90°ST
3/4" Width - 1/4-28 Tap				
HS-128-4	1/2	.88	.81	4 Point
HS-128-22	1/2	.88	.81	Fine
HS-158-3	1/2	.88	.81	3 Point/90°ST

Part #	B	C	D	Tooth Pattern
10mm Width - #10-32 Tap				
HS-110-10MM	3/8	.65	.60	Smooth
HS-127-4-10MM	3/8	.65	.60	4 Point
HS-130-4-10MM	3/8	.65	.60	Straight
HS-145-5-10MM	3/8	.65	.60	Angular
HS-150-3-10MM	3/8	.65	.60	3 Point/90°ST
10mm Width - M5x0.8 Tap				
MHS-110-10MM	3/8	.65	.60	Smooth
MHS-127-4-10MM	3/8	.65	.60	4 Point
MHS-130-4-10MM	3/8	.65	.60	Straight
MHS-145-5-10MM	3/8	.65	.60	Angular
MHS-150-3-10MM	3/8	.65	.60	3 Point/90°ST

Angled Style | Solid Carbide | Tapped | Inch & Metric





Made from solid carbide for high wear and high load applications. Serrated for positive holding in tough applications. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. Thru-hole tap. See page 232 for tooth pattern specifications.

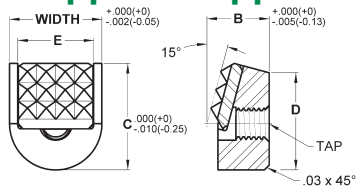
Part #	B	C	D	Tooth Pattern
9/16" Width - #10-32 Tap				
FSC-127-4	3/8	.65	.60	4 Point
FSC-127-10	3/8	.65	.60	Fine
FSC-130-4	3/8	.65	.60	Straight
FSC-145-5	3/8	.65	.60	Angular
9/16" Width - M5x0.8 Tap				
MFSC-127-4	3/8	.65	.60	4 Point
MFSC-127-10	3/8	.65	.60	Fine
MFSC-130-4	3/8	.65	.60	Straight
MFSC-145-5	3/8	.65	.60	Angular

Part #	B	C	D	Tooth Pattern
10mm Width - #10-32 Tap				
FSC-127-4-10MM	3/8	.65	.60	4 Point
FSC-130-2-10MM	3/8	.65	.60	Straight
10mm Width - M5x0.8 Tap				
MFSC-127-4-10MM	3/8	.65	.60	4 Point
MFSC-130-2-10MM	3/8	.65	.60	Straight

Fairlane®

FIXED GRIPPERS

Angled Style | Carbide Tipped | Tapped | Inch & Metric



Constructed with a serrated carbide gripper pad brazed to a heat treated alloy steel body. Serrated for positive holding in tough applications. Grippers are angled at 15 degrees to fit Woodworth, Maxi-Grip, and Ultra-Grip rocker style chucks. Thru-hole tap. See page 232 for tooth pattern specifications.

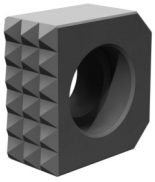
INCH

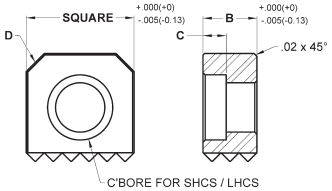
Part #	B	C	D	E	Tooth Pattern
9/16" Width - #10-32 Tap					
CT-127-4	3/8	.65	.60	15/32	4 Point
CT-127-12	3/8	.65	.60	15/32	Fine
CT-130-4	3/8	.65	.60	15/32	Straight
CT-145-5	3/8	.65	.60	15/32	Angular

INCH WITH METRIC THREADS

Part #	B	C	D	E	Tooth Pattern
9/16" Width - M5x0.8 Tap					
MCT-127-4	3/8	.65	.60	15/32	4 Point
MCT-127-12	3/8	.65	.60	15/32	Fine
MCT-130-4	3/8	.65	.60	15/32	Straight
MCT-145-5	3/8	.65	.60	15/32	Angular

Edge Style | Tool Steel | Serrated | Counter Bored | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Square edge grippers have serrations on one side. Counter bored hole for front mounting with a socket head or low head cap screw. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
3/8" Square - Counter Bored for #6 SHCS				
HSE-902	1/4	.146	1/16 x 45°	EF
HSE-902-SF	1/4	.146	1/16 x 45°	SF
HSE-903	3/8	.146	1/16 x 45°	EF
HSE-903-SF	3/8	.146	1/16 x 45°	SF
HSE-905	1/2	.146	1/16 x 45°	EF
HSE-905-SF	1/2	.146	1/16 x 45°	SF
1/2" Square - Counter Bored for #8 SHCS				
HSE-952	1/4	.170	3/32 x 45°	Fine
HSE-952-EF	1/4	.170	3/32 x 45°	EF
HSE-952-SF	1/4	.170	3/32 x 45°	SF
HSE-953	3/8	.175	3/32 x 45°	Fine
HSE-953-EF	3/8	.175	3/32 x 45°	EF
HSE-953-SF	3/8	.175	3/32 x 45°	SF
HSE-955	1/2	.175	3/32 x 45°	Fine
HSE-955-EF	1/2	.175	3/32 x 45°	EF
HSE-955-SF	1/2	.175	3/32 x 45°	SF

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
5/8" Square - Counter Bored for 1/4" LHCS				
HSE-962	1/4	.130	1/8 x 45°	Fine
HSE-962-EF	1/4	.130	1/8 x 45°	EF
HSE-963	3/8	.130	1/8 x 45°	Fine
HSE-963-EF	3/8	.130	1/8 x 45°	EF
HSE-965	1/2	.130	1/8 x 45°	Fine
HSE-965-EF	1/2	.130	1/8 x 45°	EF
3/4" Square - Counter Bored for 5/16" LHCS				
HSE-972	1/4	.161	1/8 x 45°	Fine
HSE-972-EF	1/4	.161	1/8 x 45°	EF
HSE-973	3/8	.161	1/8 x 45°	Fine
HSE-973-EF	3/8	.161	1/8 x 45°	EF
HSE-975	1/2	.161	1/8 x 45°	Fine
HSE-975-EF	1/2	.161	1/8 x 45°	EF
1" Square - Counter Bored for 3/8" LHCS				
HSE-102	1/4	.194	1/8 x 45°	Fine
HSE-102-EF	1/4	.194	1/8 x 45°	EF
HSE-103	3/8	.194	1/8 x 45°	Fine
HSE-103-EF	3/8	.194	1/8 x 45°	EF
HSE-105	1/2	.194	1/8 x 45°	Fine
HSE-105-EF	1/2	.194	1/8 x 45°	EF

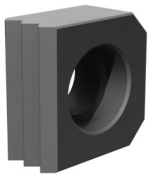
METRIC

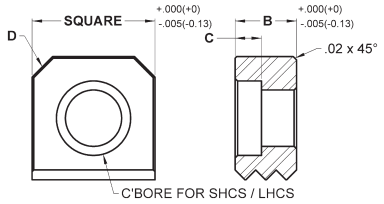
Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
10mm Square - Counter Bored for M3 SHCS				
MHSE-9106	6	3.2	1.6 x 45°	EF
MHSE-9100	10	3.2	1.6 x 45°	EF
12mm Square - Counter Bored for M4 SHCS				
MHSE-9126	6	4.06	2.3 x 45°	Fine
MHSE-9120	10	4.06	2.3 x 45°	Fine
MHSE-9122	12	4.06	2.3 x 45°	Fine

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
16mm Square - Counter Bored for M6 LHCS				
MHSE-9166	6	4.2	3.2 x 45°	Fine
MHSE-9160	10	4.2	3.2 x 45°	Fine
MHSE-9162	12	4.2	3.2 x 45°	Fine
20mm Square - Counter Bored for M8 LHCS				
MHSE-9206	6	5.08	3.2 x 45°	Fine
MHSE-9200	10	5.08	3.2 x 45°	Fine
MHSE-9202	12	5.08	3.2 x 45°	Fine
25mm Square - Counter Bored for M10 LHCS				
MHSE-9250	10	6.6	3.2 x 45°	Fine
MHSE-9252	12	6.6	3.2 x 45°	Fine

FIXED GRIPPERS

Edge Style | Tool Steel | Straight Serrations | Counter Bored | Inch & Metric





Made from M-2 high speed steel. Hardened to Rc 60/62 with black oxide finish. Square edge grippers have serrations on one side. Counter bored hole for front mounting with a socket head or low head cap screw. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
3/8" Square - Counter Bored for #6 SHCS				
HSE-902-SS	1/4	.200	1/16 x 45°	EF
HSE-902-SS-SF	1/4	.200	1/16 x 45°	SF
HSE-903-SS	3/8	.200	1/16 x 45°	EF
HSE-903-SS-SF	3/8	.200	1/16 x 45°	SF
HSE-905-SS	1/2	.200	1/16 x 45°	EF
HSE-905-SS-SF	1/2	.200	1/16 x 45°	SF
1/2" Square - Counter Bored for #8 SHCS				
HSE-952-SS	1/4	.220	3/32 x 45°	Fine
HSE-952-SS-EF	1/4	.220	3/32 x 45°	EF
HSE-952-SS-SF	1/4	.220	3/32 x 45°	SF
HSE-953-SS	3/8	.220	3/32 x 45°	Fine
HSE-953-SS-EF	3/8	.220	3/32 x 45°	EF
HSE-953-SS-SF	3/8	.220	3/32 x 45°	SF
HSE-955-SS	1/2	.220	3/32 x 45°	Fine
HSE-955-SS-EF	1/2	.220	3/32 x 45°	EF
HSE-955-SS-SF	1/2	.220	3/32 x 45°	SF

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
5/8" Square - Counter Bored for 1/4" LHCS				
HSE-962-SS	1/4	.130	1/8 x 45°	Fine
HSE-962-SS-EF	1/4	.130	1/8 x 45°	EF
HSE-963-SS	3/8	.130	1/8 x 45°	Fine
HSE-963-SS-EF	3/8	.130	1/8 x 45°	EF
HSE-965-SS	1/2	.130	1/8 x 45°	Fine
HSE-965-SS-EF	1/2	.130	1/8 x 45°	EF
3/4" Square - Counter Bored for 5/16" LHCS				
HSE-972-SS	1/4	.161	1/8 x 45°	Fine
HSE-972-SS-EF	1/4	.161	1/8 x 45°	EF
HSE-973-SS	3/8	.161	1/8 x 45°	Fine
HSE-973-SS-EF	3/8	.161	1/8 x 45°	EF
HSE-975-SS	1/2	.161	1/8 x 45°	Fine
HSE-975-SS-EF	1/2	.161	1/8 x 45°	EF
1" Square - Counter Bored for 3/8" LHCS				
HSE-102-SS	1/4	.194	1/8 x 45°	Fine
HSE-102-SS-EF	1/4	.194	1/8 x 45°	EF
HSE-103-SS	3/8	.194	1/8 x 45°	Fine
HSE-103-SS-EF	3/8	.194	1/8 x 45°	EF
HSE-105-SS	1/2	.194	1/8 x 45°	Fine
HSE-105-SS-EF	1/2	.194	1/8 x 45°	EF

METRIC

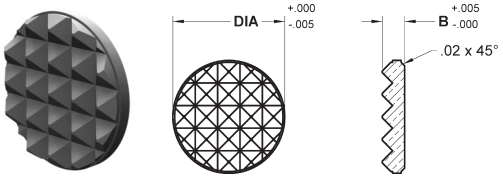
Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
10mm Square - Counter Bored for M3 SHCS				
MHSE-9106-SS	6	3.2	1.6 x 45°	EF
MHSE-9100-SS	10	3.2	1.6 x 45°	EF
12mm Square - Counter Bored for M4 SHCS				
MHSE-9126-SS	6	4.06	2.3 x 45°	Fine
MHSE-9120-SS	10	4.06	2.3 x 45°	Fine
MHSE-9122-SS	12	4.06	2.3 x 45°	Fine
16mm Square - Counter Bored for M6 LHCS				
MHSE-9166-SS	6	4.2	3.2 x 45°	Fine
MHSE-9160-SS	10	4.2	3.2 x 45°	Fine
MHSE-9162-SS	12	4.2	3.2 x 45°	Fine

Part #	B Height	C C'Bore Depth	D Chamfer	Tooth Pattern
20mm Square - Counter Bored for M8 LHCS				
MHSE-9206-SS	6	5.08	3.2 x 45°	Fine
MHSE-9200-SS	10	5.08	3.2 x 45°	Fine
MHSE-9202-SS	12	5.08	3.2 x 45°	Fine
25mm Square - Counter Bored for M10 LHCS				
MHSE-9250-SS	10	6.6	3.2 x 45°	Fine
MHSE-9252-SS	12	6.6	3.2 x 45°	Fine

Fairlane®

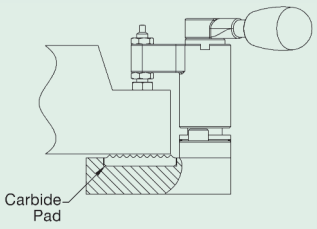
CARBIDE PADS

Round Style | Solid Carbide Pad | Serrated | No Hole | Inch



Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

How To Use



Carbide pads can be brazed or bonded in a pocket to give a better gripping surface.

INCH

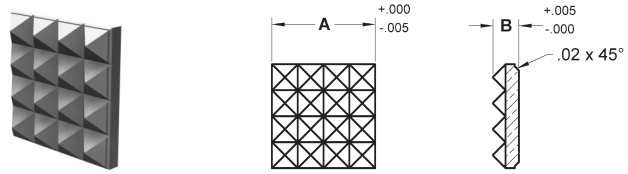
Part #	B Height	Tooth Pattern
1/4" Dia		
CC-1	1/8	EF
CC-1-SF	1/8	SF
5/16" Dia		
CC-2	1/8	EF
CC-2-SF	1/8	SF
CC-2-4	1/8	4 Point
3/8" Dia		
CC-3	1/8	Fine
CC-3-EF	1/8	EF
CC-3-4	1/8	4 Point

Part #	B Height	Tooth Pattern
7/16" Dia		
CC-437	1/8	Fine
CC-437-EF	1/8	EF
CC-437-4 *	5/32	4 Point
1/2" Dia		
CC-4	1/8	Fine
CC-4-EF	1/8	EF
CC-4-4	5/32	4 Point

* "B" dimension tolerance = +.002/-.003

Part #	B Height	Tooth Pattern
5/8" Dia		
CC-5	1/8	Fine
CC-5-EF	1/8	EF
3/4" Dia		
CC-6	1/8	Fine
CC-6-EF	1/8	EF
CC-6X156-EF	5/32	EF
1" Dia		
CC-8-EF	5/32	EF

Square Style | Solid Carbide Pad | Serrated | No Hole | Inch



Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

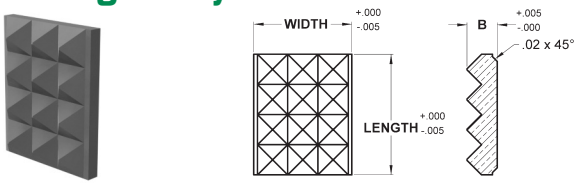
INCH

Part #	B Height	Tooth Pattern
3/8" Square		
CS-3	1/8	Fine
CS-3-EF	1/8	EF

Part #	B Height	Tooth Pattern
1/2" Square		
CS-4	1/8	Fine
CS-4-EF	1/8	EF
5/8" Square		
CS-5-EF	1/8	EF

Part #	B Height	Tooth Pattern
3/4" Square		
CS-6X125-EF	1/8	EF
CS-6-EF	5/32	EF
1" Square		
CS-8-EF	5/32	EF

Rectangle Style | Solid Carbide Pad | Serrated | No Hole | Inch



Made from solid carbide for high wear resistance and serrated for additional gripping strength. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 232 for tooth pattern specifications. See page 233 for mounting specifications.

INCH

Part #	B Height	Tooth Pattern
3/8" x 1/4" Rectangle		
CR-2-EF	1/8	EF
1/2" x 13/32" Rectangle		
CR-870	1/8	Fine
CR-870-EF	1/8	EF
CR-870X156-EF	5/32	EF

Part #	B Height	Tooth Pattern
29/64" x 13/32" Rectangle		
CR-127-4	1/8	4 Point
CR-127-12	1/8	Fine
CR-130-4	1/8	Straight
CR-145-5	1/8	Angular

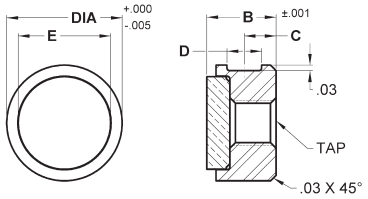
Part #	B Height	Tooth Pattern
1" x 1/2" Rectangle		
CR-4-EF	3/16	EF
CR-4 *	3/16	Saw Tooth
1-1/2" x 3/4" Rectangle		
CR-6 *	1/4	Saw Tooth

* Parts have approximately 1/64 to 1/32 additional stock on blanks.

Fairlane®

REST PADS

Carbide Tipped | Tapped | Inch



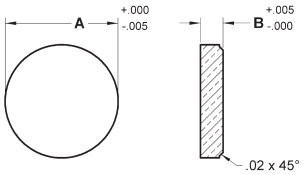
Constructed with a carbide pad brazed to a heat treated alloy steel body for better wear. Black oxide finish. Blind-hole tap for back side mounting. Flat on O.D. for set screw mounting. See page 233 for mounting specifications.

INCH

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.
3/8" Dia - #10-32 Tap				
CRP-40	3/8	11/64	3/16	5/16
CRP-405	1/2	15/64	3/16	5/16
1/2" Dia - #10-32 Tap				
CRP-50	3/8	11/64	3/16	3/8
CRP-53	1/2	15/64	3/16	3/8

Part #	B Height	C Flat Pos.	D Flat Width	E Pad Dia.
5/8" Dia - 1/4-28 Tap				
CRP-62	3/8	11/64	3/16	1/2
CRP-625	1/2	15/64	3/16	1/2
3/4" Dia - 1/4-28 Tap				
CRP-75	3/8	11/64	3/16	5/8
CRP-755	1/2	15/64	3/16	5/8
1" Dia - 1/4-28 Tap				
CRP-81	3/8	11/64	3/16	3/4

Solid Carbide | No Hole | Inch



Made from solid carbide for high wear resistance. Can be brazed or bonded in jigs, fixtures, clamps, etc. The bottom is chamfered for clearance in mounting pocket. See page 233 for mounting specifications.

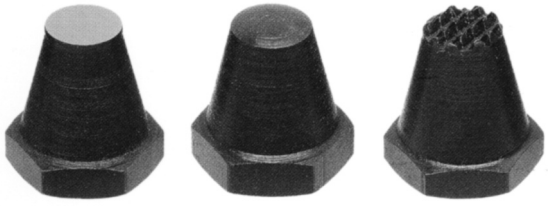
INCH

Part #	A Dia.	B Height
CC-1F	1/4	1/8
CC-2F	5/16	1/8
CC-3F	3/8	1/8
CC-4F	1/2	1/8

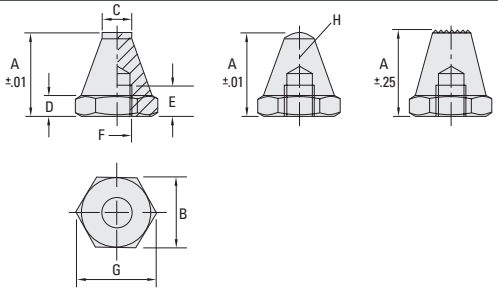
Part #	A Dia.	B Height
CC-5F	5/8	1/8
CC-6F	3/4	1/8
CC-8F	1	5/32

Kipp®

REST PADS



Flat Radius Serrated



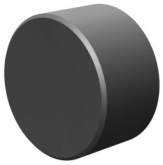
These rest pads provide support or act as stops for both rough and machined parts. To change into a male thread, simply glue in a threaded stud. Body is made from tempered steel, heat treated with black oxide finish.

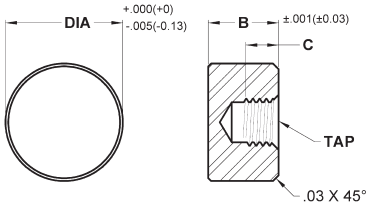
Flat Part #	Radius Part #	Serrated Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
02028-106012-F	02028-206012-R	02028-306012-S	12.5	11	6	3	4	M6X1.0	12.7	5.0
02028-106025-F	02028-206025-R	02028-306025-S	25.0	11	6	3	7	M6X1.0	12.7	5.0
02028-108015-F	02028-208015-R	02028-308015-S	15.0	13	8	4	6	M8X1.25	15.0	8.5
02028-108030-F	02028-208030-R	02028-308030-S	30.0	13	8	4	9	M8X1.25	15.0	8.5
02028-110020-F	02028-210020-R	02028-310020-S	20.0	17	10	5	9	M10X1.50	19.6	9.0
02028-110040-F	02028-210040-R	02028-310040-S	40.0	17	10	5	13	M10X1.50	19.6	9.0
02028-112025-F	02028-212025-R	02028-312025-S	25.0	19	12	6	11	M12X1.75	21.9	12.8
02028-112050-F	02028-212050-R	02028-312050-S	50.0	19	12	6	16	M12X1.75	21.9	12.8

Fairlane®

REST PADS

Steel | Tapped | Inch & Metric





Made from 8620 steel, carburized and hardened to Rc 58/60 with .050" case. Black oxide finish. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

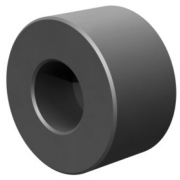
INCH

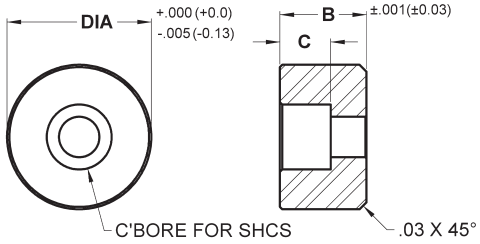
Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap		
SRP-30	3/8	3/16
SRP-305	1/2	5/16
3/8" Dia - #10-32 Tap		
SRP-40	3/8	3/16
SRP-405	1/2	5/16
1/2" Dia - #10-32 Tap		
SRP-50	3/8	3/16
SRP-53	1/2	5/16
5/8" Dia - 1/4-28 Tap		
SRP-62	3/8	3/16
SRP-625	1/2	5/16
3/4" Dia - 1/4-28 Tap		
SRP-75	3/8	3/16
SRP-755	1/2	5/16
1" Dia - 1/4-28 Tap		
SRP-81	3/8	3/16
SRP-815	1/2	5/16

METRIC

Part #	B Height	C Tap Depth
8mm Dia - M4x0.7 Tap		
MSRP-080	10	5
MSRP-082	12	6.4
10mm Dia - M5x0.8 Tap		
MSRP-100	10	5
MSRP-102	12	6.4
12mm Dia - M5x0.8 Tap		
MSRP-120	10	5
MSRP-122	12	6.4
16mm Dia - M6x1.0 Tap		
MSRP-160	10	5
MSRP-162	12	6.4
20mm Dia - M6x1.0 Tap		
MSRP-200	10	5
MSRP-202	12	6.4
25mm Dia - M6x1.0 Tap		
MSRP-250	10	5
MSRP-252	12	6.4

Steel | Counter Bored | Inch & Metric





Made from 8620 steel, carburized and hardened to Rc 58/60 with .050" case. Black oxide finish. Counter bored hole for front mounting with a socket head cap screw. See page 233 for mounting specifications.

INCH

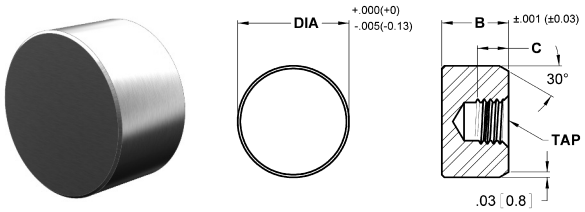
Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS		
SRP-40-C	3/8	3/16
SRP-405-C	1/2	3/16
1/2" Dia - Counter Bored for #8 SHCS		
SRP-50-C	3/8	7/32
SRP-53-C	1/2	7/32
5/8" Dia - Counter Bored for #8 SHCS		
SRP-62-C	3/8	7/32
SRP-625-C	1/2	7/32
3/4" Dia - Counter Bored for #10 SHCS		
SRP-75-C	3/8	1/4
SRP-755-C	1/2	1/4
1" Dia - Counter Bored for 1/4" SHCS		
SRP-81-C	3/8	9/32
SRP-815-C	1/2	9/32

METRIC

Part #	B Height	C C'Bore Depth
10mm Dia - Counter Bored for M3 SHCS		
MSRP-100-C	10	5
MSRP-102-C	12	5
12mm Dia - Counter Bored for M4 SHCS		
MSRP-120-C	10	5.6
MSRP-122-C	12	5.6
16mm Dia - Counter Bored for M5 SHCS		
MSRP-160-C	10	6.6
MSRP-162-C	12	6.6
20mm Dia - Counter Bored for M6 SHCS		
MSRP-200-C	10	7.6
MSRP-202-C	12	7.6
25mm Dia - Counter Bored for M6 SHCS		
MSRP-250-C	10	7.6
MSRP-252-C	12	7.6

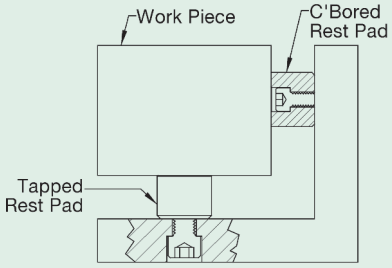
REST PADS

Stainless Steel | Tapped | Inch & Metric



Made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

How To Use



Rest Pads are made to be accurate work supports and work stops.

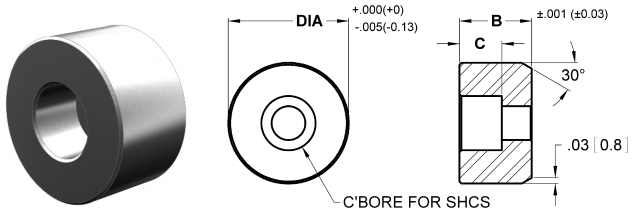
INCH

Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap		
CSRP-30	3/8	3/16
CSRP-305	1/2	5/16
3/8" Dia - #10-32 Tap		
CSRP-40	3/8	3/16
CSRP-405	1/2	5/16
1/2" Dia - #10-32 Tap		
CSRP-50	3/8	3/16
CSRP-53	1/2	5/16
5/8" Dia - 1/4-28 Tap		
CSRP-62	3/8	3/16
CSRP-625	1/2	5/16
3/4" Dia - 1/4-28 Tap		
CSRP-75	3/8	3/16
CSRP-755	1/2	5/16
1" Dia - 1/4-28 Tap		
CSRP-81	3/8	3/16
CSRP-815	1/2	5/16

METRIC

Part #	B Height	C Tap Depth
8mm Dia – M4x0.7 Tap		
MCSRP-080	10	5
MCSRP-082	12	6.4
10mm Dia - M5x0.8 Tap		
MCSRP-100	10	5
MCSRP-102	12	6.4
12mm Dia - M5x0.8 Tap		
MCSRP-120	10	5
MCSRP-122	12	6.4
16mm Dia - M6x1.0 Tap		
MCSRP-160	10	5
MCSRP-162	12	6.4
20mm Dia - M6x1.0 Tap		
MCSRP-200	10	5
MCSRP-202	12	6.4
25mm Dia - M6x1.0 Tap		
MCSRP-250	10	5
MCSRP-252	12	6.4

Stainless Steel | Counter Bored | Inch & Metric



Made from 17-4 stainless steel which provides high strength as well as protection against chemical and environmental corrosion. Heat treated to Rc 43/46. Counter bored hole for front mounting with a socket head cap screw. See page 233 for mounting specifications.

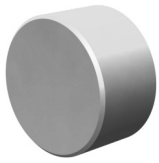
INCH

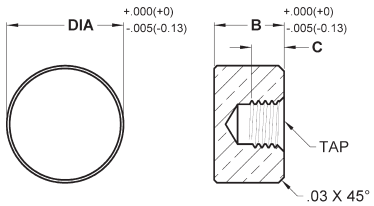
Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS		
CSRP-40-C	3/8	3/16
CSRP-405-C	1/2	3/16
1/2" Dia - Counter Bored for #8 SHCS		
CSRP-50-C	3/8	7/32
CSRP-53-C	1/2	7/32
5/8" Dia - Counter Bored for #8 SHCS		
CSRP-62-C	3/8	7/32
CSRP-625-C	1/2	7/32
3/4" Dia - Counter Bored for #10 SHCS		
CSRP-75-C	3/8	1/4
CSRP-755-C	1/2	1/4
1" Dia - Counter Bored for 1/4" SHCS		
CSRP-81-C	3/8	9/32
CSRP-815-C	1/2	9/32

METRIC

Part #	B Height	C C'Bore Depth
10mm Dia - Counter Bored for M3 SHCS		
MCSRP-100-C	10	5
MCSRP-102-C	12	5
12mm Dia - Counter Bored for M4 SHCS		
MCSRP-120-C	10	5.6
MCSRP-122-C	12	5.6
16mm Dia - Counter Bored for M5 SHCS		
MCSRP-160-C	10	6.6
MCSRP-162-C	12	6.6
20mm Dia - Counter Bored for M6 SHCS		
MCSRP-200-C	10	7.6
MCSRP-202-C	12	7.6
25mm Dia - Counter Bored for M6 SHCS		
MCSRP-250-C	10	7.6
MCSRP-252-C	12	7.6

Delrin | Tapped | Inch & Metric





Made from white Delrin. Non-marring and non-absorbing. Blind-hole tap for back side mounting. See page 233 for mounting specifications.

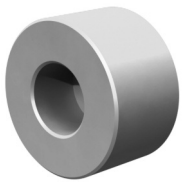
INCH

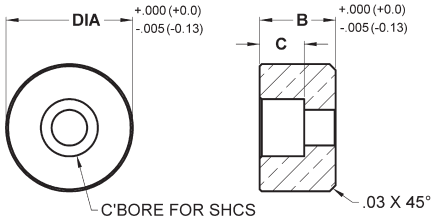
Part #	B Height	C Tap Depth
5/16" Dia - #8-32 Tap		
DRP-30	3/8	3/16
DRP-305	1/2	5/16
3/8" Dia - #10-32 Tap		
DRP-40	3/8	3/16
DRP-405	1/2	5/16
1/2" Dia - #10-32 Tap		
DRP-50	3/8	3/16
DRP-53	1/2	5/16
5/8" Dia - 1/4-28 Tap		
DRP-62	3/8	3/16
DRP-625	1/2	5/16
3/4" Dia - 1/4-28 Tap		
DRP-75	3/8	3/16
DRP-755	1/2	5/16
1" Dia - 1/4-28 Tap		
DRP-81	3/8	3/16
DRP-815	1/2	5/16

METRIC

Part #	B Height	C Tap Depth
8mm Dia - M4x0.7 Tap		
MDRP-080	10	5
MDRP-082	12	6.4
10mm Dia - M5x0.8 Tap		
MDRP-100	10	5
MDRP-102	12	6.4
12mm Dia - M5x0.8 Tap		
MDRP-120	10	5
MDRP-122	12	6.4
16mm Dia - M6x1.0 Tap		
MDRP-160	10	5
MDRP-162	12	6.4
20mm Dia - M6x1.0 Tap		
MDRP-200	10	5
MDRP-202	12	6.4
25mm Dia - M6x1.0 Tap		
MDRP-250	10	5
MDRP-252	12	6.4

Delrin | Counter Bored | Inch & Metric





Made from white Delrin. Non-marring and non-absorbing. Counter bored hole for front mounting with a socket head cap screw. See page 233 for mounting specifications.

INCH

Part #	B Height	C C'Bore Depth
3/8" Dia - Counter Bored for #6 SHCS		
DRP-40-C	3/8	3/16
DRP-405-C	1/2	3/16
1/2" Dia - Counter Bored for #8 SHCS		
DRP-50-C	3/8	7/32
DRP-53-C	1/2	7/32
5/8" Dia - Counter Bored for #8 SHCS		
DRP-62-C	3/8	7/32
DRP-625-C	1/2	7/32
3/4" Dia - Counter Bored for #10 SHCS		
DRP-75-C	3/8	1/4
DRP-755-C	1/2	1/4
1" Dia - Counter Bored for 1/4" SHCS		
DRP-81-C	3/8	9/32
DRP-815-C	1/2	9/32

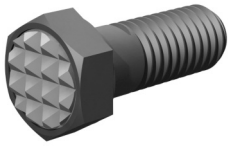
METRIC

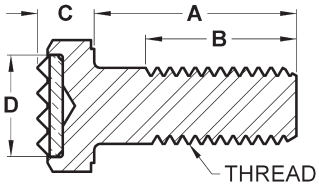
Part #	B Height	C C'Bore Depth
10mm Dia - Counter Bored for M3 SHCS		
MDRP-100-C	10	5
MDRP-102-C	12	5
12mm Dia - Counter Bored for M4 SHCS		
MDRP-120-C	10	5.6
MDRP-122-C	12	5.6
16mm Dia - Counter Bored for M5 SHCS		
MDRP-160-C	10	6.6
MDRP-162-C	12	6.6
20mm Dia - Counter Bored for M6 SHCS		
MDRP-200-C	10	7.6
MDRP-202-C	12	7.6
25mm Dia - Counter Bored for M6 SHCS		
MDRP-250-C	10	7.6
MDRP-252-C	12	7.6

Fairlane®

THREADED ADJUSTABLE GRIPPERS

Hex Head Style | Carbide Tipped | Inch





The threaded body allows the user to adjust the height of the gripper. The serrated carbide tip provides positive holding and wear resistance. The body is made from a Grade 8 fastener (metric are 10.9) with a black oxide finish. The serrated carbide pad is brazed into a pocket in the head. See page 232 for tooth pattern specifications.

INCH

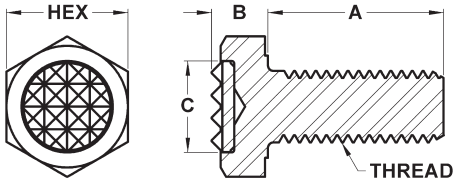
Part #	A Shank Length	B Thread Length	C Head Height	D Pad Dia.	Tooth Pattern
1/4-20 Threads - 7/16" Hex					
CTH-0200	1/2	1/2	13/64	5/16	EF
CTH-0250	1	7/8	13/64	5/16	EF
CTHF-0250	1	1	13/64	5/16	EF
CTH-0250 X 1.5	1-1/2	7/8	13/64	5/16	EF
CTHF-0250 X 1.5	1-1/2	1-1/2	13/64	5/16	EF
1/4-28 Threads - 7/16" Hex					
CTH-0280	1/2	1/2	13/64	5/16	EF
CTH-0281	1	7/8	13/64	5/16	EF
CTHF-0281	1	1	13/64	5/16	EF
CTH-0281 X 1.5	1-1/2	7/8	13/64	5/16	EF
CTHF-0281 X 1.5	1-1/2	1-1/2	13/64	5/16	EF
5/16-18 Threads - 1/2" Hex					
CTH-0310	1/2	1/2	1/4	3/8	Fine
CTH-0310-EF	1/2	1/2	1/4	3/8	EF
CTH-0312	1	1	1/4	3/8	Fine
CTH-0312-EF	1	1	1/4	3/8	EF
CTH-0312 X 1.5	1-1/2	1	1/4	3/8	Fine
CTHF-0312 X 1.5	1-1/2	1-1/2	1/4	3/8	Fine
CTH-0312 X 1.5-EF	1-1/2	1	1/4	3/8	EF
CTHF-0312 X 1.5-EF	1-1/2	1-1/2	1/4	3/8	EF
5/16-24 Threads - 1/2" Hex					
CTH-0320	1/2	1/2	1/4	3/8	Fine
CTH-0320-EF	1/2	1/2	1/4	3/8	EF
CTH-0321	1	1	1/4	3/8	Fine
CTH-0321-EF	1	1	1/4	3/8	EF
CTH-0321 X 1.5	1-1/2	1	1/4	3/8	Fine
CTHF-0321 X 1.5	1-1/2	1-1/2	1/4	3/8	Fine
CTH-0321 X 1.5-EF	1-1/2	1	1/4	3/8	EF
CTHF-0321 X 1.5-EF	1-1/2	1-1/2	1/4	3/8	EF
3/8-16 Threads - 9/16" Hex					
CTH-0370	1/2	1/2	9/32	1/2	Fine
CTH-0370-EF	1/2	1/2	9/32	1/2	EF
CTH-0375	1	1	9/32	1/2	Fine
CTH-0375-EF	1	1	9/32	1/2	EF
CTH-0375 X 1.5	1-1/2	1-1/8	9/32	1/2	Fine
CTHF-0375 X 1.5	1-1/2	1-1/2	9/32	1/2	Fine
CTH-0375 X 1.5-EF	1-1/2	1-1/8	9/32	1/2	EF
CTHF-0375 X 1.5-EF	1-1/2	1-1/2	9/32	1/2	EF
3/8-24 Threads - 9/16" Hex					
CTH-0230	1/2	1/2	9/32	1/2	Fine
CTH-0230-EF	1/2	1/2	9/32	1/2	EF
CTH-0231	1	1	9/32	1/2	Fine
CTH-0231-EF	1	1	9/32	1/2	EF
CTH-0231 X 1.5	1-1/2	1-1/8	9/32	1/2	Fine
CTHF-0231 X 1.5	1-1/2	1-1/2	9/32	1/2	Fine
CTH-0231 X 1.5-EF	1-1/2	1-1/8	9/32	1/2	EF
CTHF-0231 X 1.5-EF	1-1/2	1-1/2	9/32	1/2	EF

Part #	A Shank Length	B Thread Length	C Head Height	D Pad Dia.	Tooth Pattern
1/2-13 Threads - 3/4" Hex					
CTH-0510	1	1	23/64	5/8	Fine
CTH-0510-EF	1	1	23/64	5/8	EF
CTH-0515	1-1/2	1-1/2	23/64	5/8	Fine
CTH-0515-EF	1-1/2	1-1/2	23/64	5/8	EF
1/2-20 Threads - 3/4" Hex					
CTH-0240	1	1	23/64	5/8	Fine
CTH-0240-EF	1	1	23/64	5/8	EF
CTH-0500	1-1/2	1-1/2	23/64	5/8	Fine
CTH-0500-EF	1-1/2	1-1/2	23/64	5/8	EF
5/8-11 Threads - 15/16" Hex					
CTH-0625	1	1	7/16	3/4	Fine
CTH-0625-EF	1	1	7/16	3/4	EF
CTH-0625 X 2	2	1-1/2	7/16	3/4	Fine
CTHF-0625 X 2	2	2	7/16	3/4	Fine
CTH-0625 X 2-EF	2	1-1/2	7/16	3/4	EF
CTHF-0625 X 2-EF	2	2	7/16	3/4	EF
5/8-18 Threads - 15/16" Hex					
CTH-0620	1	1	7/16	3/4	Fine
CTH-0620-EF	1	1	7/16	3/4	EF
CTH-0620 X 2	2	1-1/2	7/16	3/4	Fine
CTHF-0620 X 2	2	2	7/16	3/4	Fine
CTH-0620 X 2-EF	2	1-1/2	7/16	3/4	EF
CTHF-0620 X 2-EF	2	2	7/16	3/4	EF
3/4-10 Threads - 1-1/8" Hex					
CTH-0755-EF	1	1	1/2	1	EF
CTH-0755 X 2.5-EF	2-1/2	1-3/4	1/2	1	EF
CTHF-0755 X 2.5-EF	2-1/2	2-1/2	1/2	1	EF
3/4-16 Threads - 1-1/8" Hex					
CTH-0750-EF	1	1	1/2	1	EF
CTH-0750 X 2.5-EF	2-1/2	1-3/4	1/2	1	EF
CTHF-0750 X 2.5-EF	2-1/2	2-1/2	1/2	1	EF

Fairlane®

THREADED ADJUSTABLE GRIPPERS

Hex Head Style | Carbide Tipped | Metric

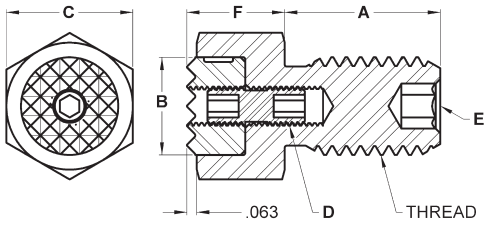


METRIC

Part #	A Shank Length	B Head Height	C Pad Dia.	Tooth Pattern
M6x1.00 Threads - 10mm Hex				
MCTH-06102	12	5	5/16	EF
MCTH-06100	25	5	5/16	EF
M8x1.25 Threads - 13mm Hex				
MCTH-08122	12	6.4	3/8	Fine
MCTH-08125X10	10	6.4	3/8	Fine
MCTH-08125X16	16	6.4	3/8	Fine
MCTH-08125	25	6.4	3/8	Fine
MCTH-08125X30	30	6.4	3/8	Fine
MCTH-08125X35	35	6.4	3/8	Fine
M10x1.25 Threads - 17mm Hex				
MCTH-10125	25	7.5	1/2	Fine
MCTH-10125X40	40	7.5	1/2	Fine

Part #	A Shank Length	B Head Height	C Pad Dia.	Tooth Pattern
M10x1.50 Threads - 17mm Hex				
MCTH-10152	12	7.5	1/2	Fine
MCTH-10150	25	7.5	1/2	Fine
MCTH-10150X40	40	7.5	1/2	Fine
M12x1.75 Threads - 19mm Hex				
MCTH-12175	25	8.7	5/8	Fine
MCTH-12175X40	40	8.7	5/8	Fine
M16x2.00 Threads - 24mm Hex				
MCTH-16200	35	11	3/4	Fine
MCTH-16200X50	50	11	3/4	Fine
M20x2.50 Threads - 30mm Hex				
MCTH-20250	40	13.7	1	EF
MCTH-20250X60	60	13.7	1	EF

AdjustaGrip™ Hex Head | Replaceable Pad | Inch



The replaceable gripper is held in place with a differential lock screw. The gripper can be replaced when worn or a different style gripper is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The threads are rolled for strength and rigidity. The parts listed below are for the housing unit and differential lock screw only and do not include a gripper. Grippers must be ordered separately. Use only with grippers that have a tapped through hole.

INCH

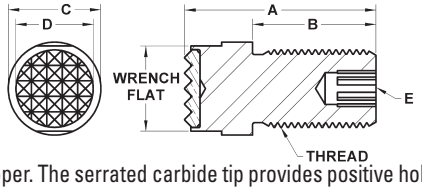
Part #	A Thread Length	B Use With Gripper Dia.	C Hex	D Int. Tap	E Int. Hex	F Head Height
3/8-16 Threads						
AJH-0370	1/2	3/8	9/16	#10-32 L.H.	3/16	1/2
AJH-0375	1	3/8	9/16	#10-32 L.H.	1/8	1/2
AJH-0375 X 1.5	1-1/2	3/8	9/16	#10-32 L.H.	1/8	1/2
3/8-24 Threads						
AJH-0230	1/2	3/8	9/16	#10-32 L.H.	3/16	1/2
AJH-0231	1	3/8	9/16	#10-32 L.H.	1/8	1/2
AJH-0231 X 1.5	1-1/2	3/8	9/16	#10-32 L.H.	1/8	1/2
1/2-13 Threads						
AJH-0510	1	1/2	11/16	#10-32 L.H.	3/16	5/8
AJH-0515	1-1/2	1/2	11/16	#10-32 L.H.	3/16	5/8
1/2-20 Threads						
AJH-0240	1	1/2	11/16	#10-32 L.H.	3/16	5/8
AJH-0500	1-1/2	1/2	11/16	#10-32 L.H.	3/16	5/8

Part #	A Thread Length	B Use With Gripper Dia.	C Hex	D Int. Tap	E Int. Hex	F Head Height
5/8-11 Threads						
AJH-0625 X 1	1	5/8	13/16	1/4-28 L.H.	1/4	5/8
AJH-0625 X 2	2	5/8	13/16	1/4-28 L.H.	1/4	5/8
5/8-18 Threads						
AJH-0620 X 1	1	5/8	13/16	1/4-28 L.H.	1/4	5/8
AJH-0620 X 2	2	5/8	13/16	1/4-28 L.H.	1/4	5/8
3/4-10 Threads						
AJH-0755 X 1	1	3/4	15/16	1/4-28 L.H.	5/16	5/8
AJH-0755 X 2.5	2-1/2	3/4	15/16	1/4-28 L.H.	5/16	5/8
3/4-16 Threads						
AJH-0750 X 1	1	3/4	15/16	1/4-28 L.H.	5/16	5/8
AJH-0750 X 2.5	2-1/2	3/4	15/16	1/4-28 L.H.	5/16	5/8

Fairlane®

THREADED ADJUSTABLE GRIPPERS

Round Head Style | Carbide Tipped | Inch



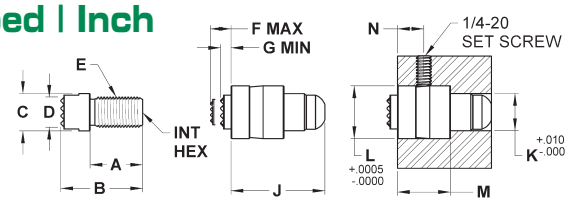
The threaded body allows the user to adjust the height of the gripper. The serrated carbide tip provides positive holding and wear resistance. The round head allows for additional clearance and has wrench flats for easy adjustments. The internal hex allows for adjustment from the backside. The body is made from heat-treated alloy steel with a black oxide finish. The threads are rolled for strength and rigidity. The serrated carbide pad is brazed into a pocket in the head. See page 232 for tooth pattern specifications.

INCH

Part #	A OAL	B Thread Length	C Dia.	D Pad Dia.	E Int. Hex	Tooth Pattern
3/8-16 Threads						
AG-0370	15/16	9/16	1/2	3/8	1/8	Fine
AG-0370-EF	15/16	9/16	1/2	3/8	1/8	EF
AG-0375	1-3/8	1	1/2	3/8	1/8	Fine
AG-0375-EF	1-3/8	1	1/2	3/8	1/8	EF
AG-0375 X 1.5	1-7/8	1-1/2	1/2	3/8	1/8	Fine
AG-0375 X 1.5-EF	1-7/8	1-1/2	1/2	3/8	1/8	EF
3/8-24 Threads						
AG-0230	15/16	9/16	1/2	3/8	1/8	Fine
AG-0230-EF	15/16	9/16	1/2	3/8	1/8	EF
AG-0231	1-3/8	1	1/2	3/8	1/8	Fine
AG-0231-EF	1-3/8	1	1/2	3/8	1/8	EF
AG-0231 X 1.5	1-7/8	1-1/2	1/2	3/8	1/8	Fine
AG-0231 X 1.5-EF	1-7/8	1-1/2	1/2	3/8	1/8	EF
1/2-13 Threads						
AG-0510	1-3/8	7/8	5/8	1/2	3/16	Fine
AG-0510-EF	1-3/8	7/8	5/8	1/2	3/16	EF
AG-0515	2-1/16	1-1/2	5/8	1/2	3/16	Fine
AG-0515-EF	2-1/16	1-1/2	5/8	1/2	3/16	EF
1/2-20 Threads						
AG-0240	1-3/8	7/8	5/8	1/2	3/16	Fine
AG-0240-EF	1-3/8	7/8	5/8	1/2	3/16	EF
AG-0500	2-1/16	1-1/2	5/8	1/2	3/16	Fine
AG-0500-EF	2-1/16	1-1/2	5/8	1/2	3/16	EF

Part #	A OAL	B Thread Length	C Dia.	D Pad Dia.	E Int. Hex	Tooth Pattern
5/8-11 Threads						
AG-0625 X 1	1-9/16	1	3/4	5/8	1/4	Fine
AG-0625 X 1-EF	1-9/16	1	3/4	5/8	1/4	EF
AG-0625 X 2	2-9/16	2	3/4	5/8	1/4	Fine
AG-0625 X 2-EF	2-9/16	2	3/4	5/8	1/4	EF
5/8-18 Threads						
AG-0620 X 1	1-9/16	1	3/4	5/8	1/4	Fine
AG-0620 X 1-EF	1-9/16	1	3/4	5/8	1/4	EF
AG-0620 X 2	2-9/16	2	3/4	5/8	1/4	Fine
AG-0620 X 2-EF	2-9/16	2	3/4	5/8	1/4	EF
3/4-10 Threads						
AG-0755 X 1	1-9/16	1	7/8	3/4	5/16	Fine
AG-0755 X 1-EF	1-9/16	1	7/8	3/4	5/16	EF
AG-0755 X 2.5	3-1/16	2-1/2	7/8	3/4	5/16	Fine
AG-0755 X 2.5-EF	3-1/16	2-1/2	7/8	3/4	5/16	EF
3/4-16 Threads						
AG-0750 X 1	1-9/16	1	7/8	3/4	5/16	Fine
AG-0750 X 1-EF	1-9/16	1	7/8	3/4	5/16	EF
AG-0750 X 2.5	3-1/16	2-1/2	7/8	3/4	5/16	Fine
AG-0750 X 2.5-EF	3-1/16	2-1/2	7/8	3/4	5/16	EF

AccuGrip™ | Carbide Tipped | Inch



The Accugrip grippers are designed to fit into chuck jaws and allow the user to adjust the concentricity within the jaws. The complete Accugrip assembly consists of three components: Adjustable Gripper, Housing and Lock Screw. The housing is installed into the chuck jaws after the gripper assembly has been installed into the housing. The gripper assembly can be replaced when worn. The housing, gripper body and lock screw are made from heat-treated alloy steel. The gripper assembly is available with either a flat or serrated carbide tipped pad. The serrated grippers have fine serrations.

COMPLETE ACCUGRIP ASSEMBLY

Part #	Tooth Pattern	A	B	C	D	E Thread	F Max	G Min	J
ACG-0230-F	Flat	17/32	15/16	.499	3/8	3/8-24	9/32	5/32	1
ACG-0230-S	Serrated	17/32	15/16	.499	3/8	3/8-24	9/32	5/32	1
ACG-0240-F	Flat	7/8	1-3/8	.624	1/2	1/2-20	5/16	3/16	1-9/16
ACG-0240-S	Serrated	7/8	1-3/8	.624	1/2	1/2-20	5/16	3/16	1-9/16

MOUNTING DIMENSIONS

Part #	K	L	M	N
ACG-0230-F	1/2	.625	11/16	13/32
ACG-0230-S	1/2	.625	11/16	13/32
ACG-0240-F	21/32	.875	7/8	7/16
ACG-0240-S	21/32	.875	7/8	7/16

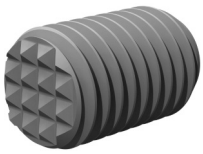
REPLACEMENT PARTS

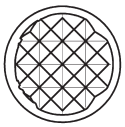
Gripper Assembly Only	Housing Only	Lockscrew Only
ACG-0230-1S	ACG-0230-2	ACG-0230-3
ACG-0230-1F	ACG-0230-2	ACG-0230-3
ACG-0240-1S	ACG-0240-2	ACG-0240-3
ACG-0240-1F	ACG-0240-2	ACG-0240-3

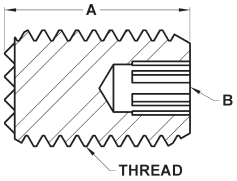
Fairlane®

THREADED ADJUSTABLE GRIPPERS

Threaded Body Style | Tool Steel | Inch & Metric







The threaded body allows the user to adjust the position of the gripper. The internal hex allows for adjustment from the backside. The serrated gripper provides positive holding. Made from M-2 high speed steel and hardened to Rc 55/58 with a black oxide finish. See page 232 for tooth pattern specifications.

INCH

Part #	A Length	B Int. Hex	Tooth Pattern
3/8-16 Threads			
HS-0370	1/2	1/8	EF
HS-0371	1	1/8	EF
HS-0375	1-1/2	1/8	EF
3/8-24 Threads			
HS-0230	1/2	1/8	EF
HS-0231	1	1/8	EF
HS-0235	1-1/2	1/8	EF
1/2-13 Threads			
HS-0510	1	3/16	Fine
HS-0515	1-1/2	3/16	Fine
1/2-20 Threads			
HS-0240	1	3/16	Fine
HS-0500	1-1/2	3/16	Fine

Part #	A Length	B Int. Hex	Tooth Pattern
5/8-11 Threads			
HS-0625 X 1	1	1/4	Fine
HS-0625	1-1/2	1/4	Fine
5/8-18 Threads			
HS-0620 X 1	1	1/4	Fine
HS-0620	1-1/2	1/4	Fine
3/4-10 Threads			
HS-0755 X 1	1	5/16	Fine
HS-0755	1-1/2	5/16	Fine
3/4-16 Threads			
HS-0750 X 1	1	5/16	Fine
HS-0750	1-1/2	5/16	Fine

METRIC

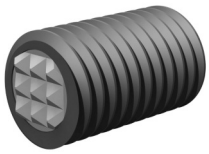
Part #	A Length	B Int. Hex	Tooth Pattern
M8x1.25 Threads			
MHS-08125X25	25	3	SF
MHS-08125X50	50	3	SF
M10x1.50 Threads			
MHS-10150 X 25	25	3	EF
MHS-10150 X 40	40	3	EF
M12x1.75 Threads			
MHS-12175 X 25	25	5	Fine
MHS-12175 X 40	40	5	Fine

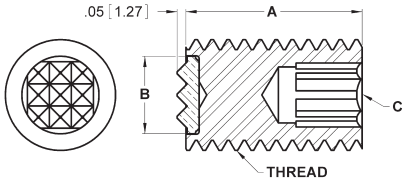
Part #	A Length	B Int. Hex	Tooth Pattern
M16x2.00 Threads			
MHS-16200 X 25	25	6	Fine
MHS-16200 X 40	40	6	Fine
M20x2.50 Threads			
MHS-20250 X 25	25	8	Fine
MHS-20250 X 40	40	8	Fine

Fairlane®

THREADED ADJUSTABLE GRIPPERS

Threaded Body Style | Carbide Tipped | Inch & Metric





The threaded body allows the user to adjust the position of the gripper. The internal hex allows for adjustment from the backside. The serrated carbide tip provides positive holding and wear resistance. The body is made from alloy steel and hardened to Rc 43/46 with a black oxide finish. The serrated carbide pad is brazed into a pocket in the head. See page 232 for tooth pattern specifications.

INCH

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
3/8-16 Threads				
PG-0370	1/2	1/4	3/16	EF
PG-0375	1	1/4	3/16	EF
PG-0375 X 2	2	1/4	3/16	EF
PG-0375 X 3	3	1/4	3/16	EF
3/8-24 Threads				
PG-0230	1/2	1/4	3/16	EF
PG-0231	1	1/4	3/16	EF
PG-0231 X 1.5	1-1/2	1/4	3/16	EF
PG-0231 X 2	2	1/4	3/16	EF
PG-0231 X 3	3	1/4	3/16	EF
1/2-13 Threads				
PG-0513	3/4	3/8	1/4	Fine
PG-0513-4	3/4	3/8	1/4	4 Point
PG-0513-EF	3/4	3/8	1/4	EF
PG-0510	1	3/8	1/4	Fine
PG-0510-EF	1	3/8	1/4	EF
PG-0510-4	1	3/8	1/4	4 Point
PG-0510 X 2	2	3/8	1/4	Fine
PG-0510 X 2-EF	2	3/8	1/4	EF
PG-0510 X 2-4	2	3/8	1/4	4 Point
PG-0510 X 3	3	3/8	1/4	Fine
PG-0510 X 3-EF	3	3/8	1/4	EF
PG-0510 X 3-4	3	3/8	1/4	4 Point

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
1/2-20 Threads				
PG-0503	3/4	3/8	1/4	Fine
PG-0503-4	3/4	3/8	1/4	4 Point
PG-0503-EF	3/4	3/8	1/4	EF
PG-0500	1	3/8	1/4	Fine
PG-0500-EF	1	3/8	1/4	EF
PG-0500-4	1	3/8	1/4	4 Point
PG-0500 X 2	2	3/8	1/4	Fine
PG-0500 X 2-EF	2	3/8	1/4	EF
PG-0500 X 2-4	2	3/8	1/4	4 Point
PG-0500 X 3	3	3/8	1/4	Fine
PG-0500 X 3-EF	3	3/8	1/4	EF
PG-0500 X 3-4	3	3/8	1/4	4 Point
5/8-11 Threads				
PG-0625	1	7/16	5/16	Fine
PG-0625-EF	1	7/16	5/16	EF
PG-0625-4	1	7/16	5/16	4 Point
PG-0625 X 2	2	7/16	5/16	Fine
PG-0625 X 2-EF	2	7/16	5/16	EF
PG-0625 X 2-4	2	7/16	5/16	4 Point
PG-0625 X 3	3	7/16	5/16	Fine
PG-0625 X 3-EF	3	7/16	5/16	EF
PG-0625 X 3-4	3	7/16	5/16	4 Point

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
5/8-18 Threads				
PG-0620	1	1/2	5/16	Fine
PG-0620-EF	1	1/2	5/16	EF
PG-0620-4	1	1/2	5/16	4 Point
PG-0620 X 1.75	1-3/4	1/2	5/16	Fine
PG-0620 X 1.75-EF	1-3/4	1/2	5/16	EF
PG-0620 X 1.75-4	1-3/4	1/2	5/16	4 Point
PG-0620 X 2	2	1/2	5/16	Fine
PG-0620 X 2-EF	2	1/2	5/16	EF
PG-0620 X 2-4	2	1/2	5/16	4 Point
PG-0620 X 3	3	1/2	5/16	Fine
PG-0620 X 3-EF	3	1/2	5/16	EF
PG-0620 X 3-4	3	1/2	5/16	4 Point
3/4-10 Threads				
PG-0755	1	1/2	3/8	Fine
PG-0755-EF	1	1/2	3/8	EF
PG-0755-4	1	1/2	3/8	4 Point
PG-0755 X 2	2	1/2	3/8	Fine
PG-0755 X 2-EF	2	1/2	3/8	EF
PG-0755 X 2-4	2	1/2	3/8	4 Point
PG-0755 X 3	3	1/2	3/8	Fine
PG-0755 X 3-EF	3	1/2	3/8	EF
PG-0755 X 3-4	3	1/2	3/8	4 Point
3/4-16 Threads				
PG-0750	1	1/2	3/8	Fine
PG-0750-EF	1	1/2	3/8	EF
PG-0750-4	1	1/2	3/8	4 Point
PG-0750 X 2	2	1/2	3/8	Fine
PG-0750 X 2-EF	2	1/2	3/8	EF
PG-0750 X 2-4	2	1/2	3/8	4 Point
PG-0750 X 3	3	1/2	3/8	Fine
PG-0750 X 3-EF	3	1/2	3/8	EF
PG-0750 X 3-4	3	1/2	3/8	4 Point

METRIC

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M10x1.50 Threads				
MPG-10150	25	1/4	5	EF
MPG-10150 X 50	50	1/4	5	EF
M12x1.75 Threads				
MPG-12175-4	25	5/16	6	4 Point
MPG-12175	25	5/16	6	EF
MPG-12175 X 50-4	50	5/16	6	4 Point
MPG-12175 X 50	50	5/16	6	EF

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M16x2.00 Threads				
MPG-16200-4	25	7/16	8	4 Point
MPG-16200	25	7/16	8	Fine
MPG-16200 X 50-4	50	7/16	8	4 Point
MPG-16200 X 50	50	7/16	8	Fine

Part #	A Thread Length	B Pad Dia.	C Int. Hex	Tooth Pattern
M20x2.50 Threads				
MPG-20250-4	25	1/2	10	4 Point
MPG-20250	25	1/2	10	Fine
MPG-20250 X 50-4	50	1/2	10	4 Point
MPG-20250 X 50	50	1/2	10	Fine

Swivots® Replaceable Swivel Ball Style

These Replaceable Ball Style Swivots® are found on the following pages.

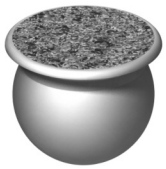
REPLACEABLE BALLS

Sof-Top Cone
Urethane Surface
Stainless

Flat Cone
Delrin

Flat Cone
Stainless

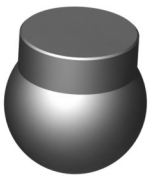
Abrasive
Diamond Cone
Stainless



Serrated
Tool Steel

Flat
Delrin

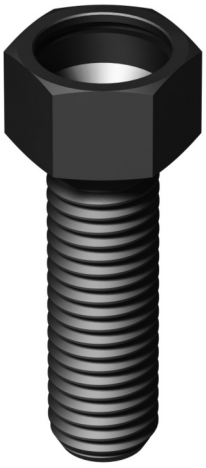
Flat
Tool Steel



VITON O-RING

HOUSINGS

Base Design



Hex Head
Design

Threaded
Body Design

Load Calculator

To calculate the load on the contact surface, divide the torque applied (in/lbs) by a factor shown below. Assumes no lubrication threaded into steel. Use as a guideline only.

Note: Contact surface load calculator does not apply for serrated contact pieces.

INCH

Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

METRIC

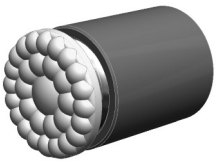
Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

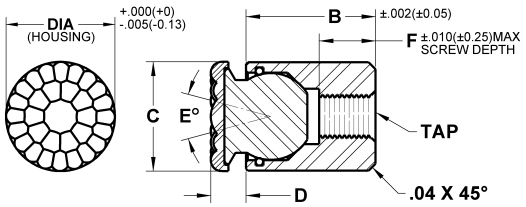
- These Replaceable Ball Style Swivots are a modular component system that allows the ball to swivel, tilt, pivot, grip, hold, position or secure work pieces. The ball rotates 360 degrees and tilts at varying degrees in any direction from the centerline.
- The different housing styles allows for a variety of mounting options.
- These Replaceable Ball Style Swivots allow you to easily change the ball when worn or another style is needed for an application.
- Unique design prevents the ball from exceeding the specified degree of swivel - preventing the ball from rolling over in the housing.
- The ball is held in place with a Viton O-ring which allows the ball to be easily changed and keeps out dirt and other contaminants.
- Replacement balls and O-rings can be ordered separately. It is recommended the O-ring be replaced when the ball is replaced. Please call for replacement parts.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Base Design | Stainless Ball | Inch & Metric
Sof-Top Urethane Surface Ball





Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. Visit www.fixtureworks.net for compression load ratings. To order part, add desired durometer (xx) to the part number.
Sample BBU-100-FC-35UR.

INCH

Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Urethane Thickness	xx = Durometer
BBU-100-FC-xxUR	3/8	#4-40	5/16	.315	.143	28	1/4	3/16	.08	60 / 80
BBU-105-FC-xxUR	3/8	#4-40	7/16	.315	.143	28	5/16	3/16	.08	60 / 80
BBU-107-FC-xxUR	3/8	#4-40	11/16	.315	.143	28	5/16	3/16	.08	60 / 80
BBU-200-FC-xxUR	7/16	#8-32	3/8	.394	.174	28	5/32	9/32	.08	60 / 80
BBU-201-FC-xxUR	7/16	#8-32	15/16	.394	.174	28	1/2	9/32	.08	60 / 80
BBU-300-FC-xxUR	1/2	#10-32	1/2	.512	.205	28	5/32	3/8	.08	60 / 80
BBU-301-FC-xxUR	1/2	#10-32	1	.512	.205	28	5/8	3/8	.08	60 / 80
BBU-500-FC-xxUR	5/8	1/4-28	3/4	.630	.205	28	1/4	1/2	.08	60 / 80
BBU-600-FC-xxUR	13/16	5/16-24	7/8	.827	.236	32	11/32	5/8	.08	60 / 80
BBU-700-FC-xxUR	15/16	3/8-24	7/8	.906	.236	32	9/32	3/4	.08	60 / 80

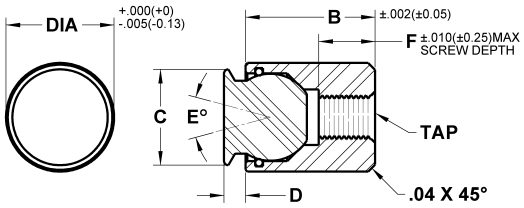
METRIC

Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Urethane Thickness	xx = Durometer
MBBU-1012-FC-xxUR	10	M4X0.7	10.5	10	4	28	3.5	7	2	60 / 80
MBBU-1025-FC-xxUR	10	M4X0.7	23.5	10	4	28	9	7	2	60 / 80
MBBU-1316-FC-xxUR	13	M5X0.8	14.5	13	5	28	6.5	10	2	60 / 80
MBBU-1325-FC-xxUR	13	M5X0.8	23.5	13	5	28	9	10	2	60 / 80
MBBU-1722-FC-xxUR	17	M6X1.0	18	16	5	28	7.5	13	2	60 / 80
MBBU-1924-FC-xxUR	19	M8X1.25	20	21	6	24	8.5	15	2	60 / 80
MBBU-2428-FC-xxUR	24	M10X1.5	24	23	6	24	9	20	2	60 / 80

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Base Design | Flat Cone | Inch & Metric
Delrin, Stainless & Diamond Surface Ball



Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The delrin ball is made from non-marring white delrin. The stainless ball is made from 300 series stainless steel. The diamond style has a diamond abrasive surface that is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

INCH

Delrin Part #	Stainless Part #	Diamond Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Load Rating Lbs.*
BBU-100-DC	BBU-100-FC	BBU-100-FC-DS	3/8	#4-40	5/16	.236	.063	28	1/4	3/16	1,835
BBU-105-DC	BBU-105-FC	BBU-105- FC-DS	3/8	#4-40	7/16	.236	.063	28	5/16	3/16	1,835
BBU-107-DC	BBU-107-FC	BBU-107- FC-DS	3/8	#4-40	11/16	.236	.063	28	5/16	3/16	1,835
BBU-200-DC	BBU-200-FC	BBU-200- FC-DS	7/16	#8-32	3/8	.315	.094	28	5/32	9/32	3,339
BBU-201-DC	BBU-201-FC	BBU-201- FC-DS	7/16	#8-32	15/16	315	.094	28	1/2	9/32	3,339
BBU-300-DC	BBU-300-FC	BBU-300- FC-DS	1/2	#10-32	1/2	.433	.125	28	5/32	3/8	4,697
BBU-301-DC	BBU-301-FC	BBU-301- FC-DS	1/2	#10-32	1	.433	.125	28	5/8	3/8	4,697
BBU-500-DC	BBU-500-FC	BBU-500- FC-DS	5/8	1/4-28	3/4	.551	.125	28	1/4	1/2	5,849
BBU-600-DC	BBU-600-FC	BBU-600- FC-DS	13/16	5/16-24	7/8	.748	.156	32	11/32	5/8	10,925
BBU-700-DC	BBU-700-FC	BBU-700- FC-DS	15/16	3/8-24	7/8	.827	.156	32	9/32	3/4	13,325

*Load ratings do not apply to the delrin ball styles.

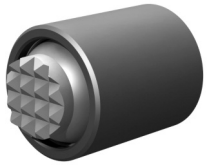
METRIC

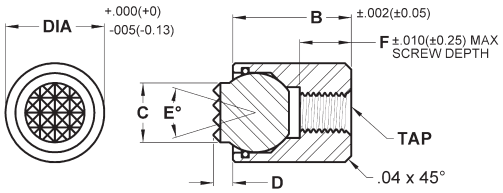
Delrin Part #	Stainless Part #	Diamond Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Load Rating Lbs.*
MBBU-1012-DC	MBBU-1012-FC	MBBU-1012- FC-DS	10	M4X0.7	10.5	8	2	28	3.5	7	2,585
MBBU-1025-DC	MBBU-1025-FC	MBBU-1025- FC-DS	10	M4X0.7	23.5	8	2	28	9	7	2,585
MBBU-1316-DC	MBBU-1316-FC	MBBU-1316- FC-DS	13	M5X0.8	14.5	11	3	28	6.5	10	4,452
MBBU-1325-DC	MBBU-1325-FC	MBBU-1325- FC-DS	13	M5X0.8	23.5	11	3	28	9	10	4,452
MBBU-1722-DC	MBBU-1722-FC	MBBU-1722- FC-DS	17	M6X1.0	18	14	3	28	7.5	13	6,170
MBBU-1924-DC	MBBU-1924-FC	MBBU-1924- FC-DS	19	M8X1.25	20	19	4	24	8.5	15	8,688
MBBU-2428-DC	MBBU-2428-FC	MBBU-2428- FC-DS	24	M10X1.5	24	21	4	24	9	20	13,117

*Load ratings do not apply to the delrin ball styles.

SWIVOTS® – REPLACEABLE SWIVEL BALL

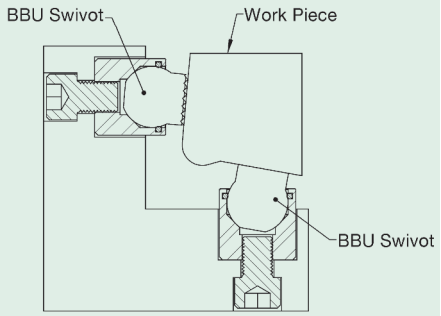
Base Design | Serrated | Inch & Metric Tool Steel Ball





Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. See page 232 for tooth pattern specifications.

How To Use



Swivot balls align, grip and hold uneven surfaces.

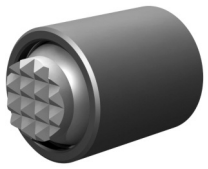
INCH

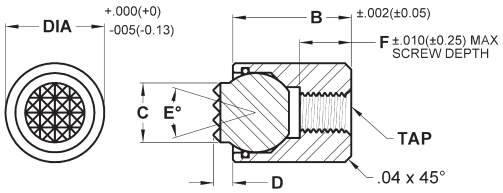
Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Tooth Pattern	Load Rating Lbs.
BBU-100-S	3/8	#4-40	5/16	5/32	1/16	28	1/4	3/16	SF	1,835
BBU-105-S	3/8	#4-40	7/16	5/32	1/16	28	5/16	3/16	SF	1,835
BBU-107-S	3/8	#4-40	11/16	5/32	1/16	28	5/16	3/16	SF	1,835
BBU-200-S	7/16	#8-32	3/8	1/4	1/16	28	5/32	9/32	SF	3,339
BBU-200-S-T	7/16	#8-32	3/8	1/4	1/8	28	5/32	9/32	SF	3,339
BBU-201-S	7/16	#8-32	15/16	1/4	1/16	28	1/2	9/32	SF	3,339
BBU-201-S-T	7/16	#8-32	15/16	1/4	1/8	28	1/2	9/32	SF	3,339
BBU-300-S	1/2	#10-32	1/2	5/16	1/16	28	5/32	3/8	EF	4,697
BBU-300-S-T	1/2	#10-32	1/2	5/16	1/8	28	5/32	3/8	EF	4,697
BBU-300-SF	1/2	#10-32	1/2	5/16	1/16	28	5/32	3/8	SF	4,697
BBU-300-SF-T	1/2	#10-32	1/2	5/16	1/8	28	5/32	3/8	SF	4,697
BBU-301-S	1/2	#10-32	1	5/16	1/16	28	5/8	3/8	EF	4,697
BBU-301-S-T	1/2	#10-32	1	5/16	1/8	28	5/8	3/8	EF	4,697
BBU-301-SF	1/2	#10-32	1	5/16	1/16	28	5/8	3/8	SF	4,697
BBU-301-SF-T	1/2	#10-32	1	5/16	1/8	28	5/8	3/8	SF	4,697
BBU-500-S	5/8	1/4-28	3/4	3/8	1/8	40	1/4	1/2	EF	5,849
BBU-500-S-T	5/8	1/4-28	3/4	3/8	1/4	40	1/4	1/2	EF	5,849
BBU-500-SF	5/8	1/4-28	3/4	3/8	1/8	40	1/4	1/2	SF	5,849
BBU-500-SF-T	5/8	1/4-28	3/4	3/8	1/4	40	1/4	1/2	SF	5,849
BBU-600-S	13/16	5/16-24	7/8	1/2	1/8	40	11/32	5/8	Fine	10,925
BBU-600-S-T	13/16	5/16-24	7/8	1/2	1/4	40	11/32	5/8	Fine	10,925
BBU-600-EF	13/16	5/16-24	7/8	1/2	1/8	40	11/32	5/8	EF	10,925
BBU-600-EF-T	13/16	5/16-24	7/8	1/2	1/4	40	11/32	5/8	EF	10,925
BBU-600-SF	13/16	5/16-24	7/8	1/2	1/8	40	11/32	5/8	SF	10,925
BBU-600-SF-T	13/16	5/16-24	7/8	1/2	1/4	40	11/32	5/8	SF	10,925
BBU-700-S	15/16	3/8-24	7/8	5/8	1/8	34	9/32	3/4	Fine	13,325
BBU-700-S-T	15/16	3/8-24	7/8	5/8	1/4	34	9/32	3/4	Fine	13,325
BBU-700-EF	15/16	3/8-24	7/8	5/8	1/8	34	9/32	3/4	EF	13,325
BBU-700-EF-T	15/16	3/8-24	7/8	5/8	1/4	34	9/32	3/4	EF	13,325

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Base Design | Serrated | Inch & Metric (continued)
Tool Steel Ball



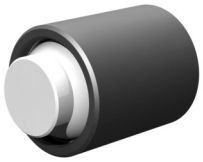


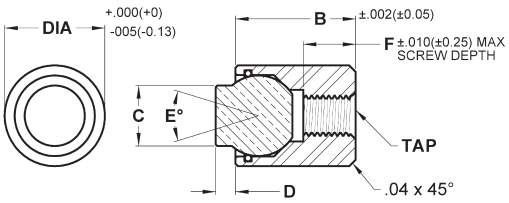
METRIC

Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Tooth Pattern	Load Rating Lbs.
MBBU-1012-S	10	M4X0.7	10.5	6	1.5	28	3.5	7	SF	2,585
MBBU-1012-S-T	10	M4X0.7	10.5	6	3	28	3.5	7	SF	2,585
MBBU-1025-S	10	M4X0.7	23.5	6	1.5	28	9	7	SF	2,585
MBBU-1025-S-T	10	M4X0.7	23.5	6	3	28	9	7	SF	2,585
MBBU-1316-S	13	M5X0.8	14.5	8.5	1.5	24	6.5	10	EF	4,452
MBBU-1316-S-T	13	M5X0.8	14.5	8.5	3	24	6.5	10	EF	4,452
MBBU-1325-S	13	M5X0.8	23.5	8.5	1.5	24	9	10	EF	4,452
MBBU-1325-S-T	13	M5X0.8	23.5	8.5	3	24	9	10	EF	4,452
MBBU-1722-S	17	M6X1.0	18	10	4	42	7.5	13	EF	6,170
MBBU-1722-S-T	17	M6X1.0	18	10	6	42	7.5	13	EF	6,170
MBBU-1924-S	19	M8X1.25	20	12	4	45	8.5	15	Fine	8,688
MBBU-1924-S-T	19	M8X1.25	20	12	6	45	8.5	15	Fine	8,688
MBBU-2428-S	24	M10X1.5	24	16	4	40	9	20	Fine	13,117
MBBU-2428-S-T	24	M10X1.5	24	16	6	40	9	20	Fine	13,117

SWIVOTS® – REPLACEABLE SWIVEL BALL

Base Design | Flat Ball | Inch & Metric
Delrin & Tool Steel Ball





Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The delrin ball is made from non-marring white delrin. The steel ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

INCH

Delrin Part #	Steel Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Load Rating Lbs*
BBU-100-D	BBU-100-F	3/8	#4-40	5/16	5/32	1/16	28	1/4	3/16	1,835
BBU-105-D	BBU-105-F	3/8	#4-40	7/16	5/32	1/16	28	5/16	3/16	1,835
BBU-107-D	BBU-107-F	3/8	#4-40	11/16	5/32	1/16	28	5/16	3/16	1,835
BBU-200-D	BBU-200-F	7/16	#8-32	3/8	1/4	1/16	28	5/32	9/32	3,339
BBU-200-D-T	BBU-200-F-T	7/16	#8-32	3/8	1/4	1/8	28	5/32	9/32	3,339
BBU-201-D	BBU-201-F	7/16	#8-32	15/16	1/4	1/16	28	1/2	9/32	3,339
BBU-201-D-T	BBU-201-F-T	7/16	#8-32	15/16	1/4	1/8	28	1/2	9/32	3,339
BBU-300-D	BBU-300-F	1/2	#10-32	1/2	5/16	1/16	28	5/32	3/8	4,697
BBU-300-D-T	BBU-300-F-T	1/2	#10-32	1/2	5/16	1/8	28	5/32	3/8	4,697
BBU-301-D	BBU-301-F	1/2	#10-32	1	5/16	1/16	28	5/8	3/8	4,697
BBU-301-D-T	BBU-301-F-T	1/2	#10-32	1	5/16	1/8	28	5/8	3/8	4,697
BBU-500-D	BBU-500-F	5/8	1/4-28	3/4	3/8	1/8	40	1/4	1/2	5,849
BBU-500-D-T	BBU-500-F-T	5/8	1/4-28	3/4	3/8	1/4	40	1/4	1/2	5,849
BBU-600-D	BBU-600-F	13/16	5/16-24	7/8	1/2	1/8	40	11/32	5/8	10,925
BBU-600-D-T	BBU-600-F-T	13/16	5/16-24	7/8	1/2	1/4	40	11/32	5/8	10,925
BBU-700-D	BBU-700-F	15/16	3/8-24	7/8	5/8	1/8	34	9/32	3/4	13,325
BBU-700-D-T	BBU-700-F-T	15/16	3/8-24	7/8	5/8	1/4	34	9/32	3/4	13,325

*Load ratings do not apply to the delrin ball styles.

METRIC

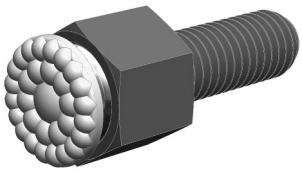
Delrin Part #	Steel Part #	Dia.	Tap	B Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Thread Depth	Ball Dia.	Load Rating Lbs*
MBBU-1012-D	MBBU-1012-F	10	M4X0.7	10.5	6	1.5	28	3.5	7	2,585
MBBU-1012-D-T	MBBU-1012-F-T	10	M4X0.7	10.5	6	3	28	3.5	7	2,585
MBBU-1025-D	MBBU-1025-F	10	M4X0.7	23.5	6	1.5	28	9	7	2,585
MBBU-1025-D-T	MBBU-1025-F-T	10	M4X0.7	23.5	6	3	28	9	7	2,585
MBBU-1316-D	MBBU-1316-F	13	M5X0.8	14.5	8.5	1.5	24	6.5	10	4,452
MBBU-1316-D-T	MBBU-1316-F-T	13	M5X0.8	14.5	8.5	3	24	6.5	10	4,452
MBBU-1325-D	MBBU-1325-F	13	M5X0.8	23.5	8.5	1.5	24	9	10	4,452
MBBU-1325-D-T	MBBU-1325-F-T	13	M5X0.8	23.5	8.5	3	24	9	10	4,452
MBBU-1722-D	MBBU-1722-F	17	M6X1.0	18	10	4	42	7.5	13	6,170
MBBU-1722-D-T	MBBU-1722-F-T	17	M6X1.0	18	10	6	42	7.5	13	6,170
MBBU-1924-D	MBBU-1924-F	19	M8X1.25	20	12	4	45	8.5	15	8,688
MBBU-1924-D-T	MBBU-1924-F-T	19	M8X1.25	20	12	6	45	8.5	15	8,688
MBBU-2428-D	MBBU-2428-F	24	M10X1.5	24	16	4	40	9	20	13,117
MBBU-2428-D-T	MBBU-2428-F-T	24	M10X1.5	24	16	6	40	9	20	13,117

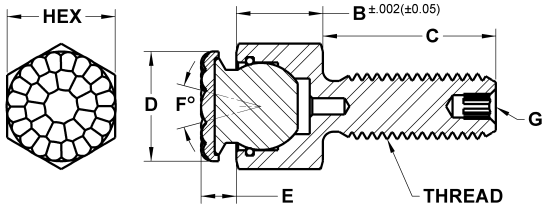
*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

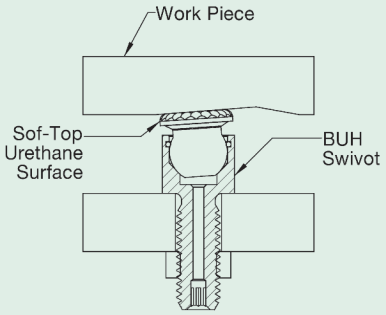
Hex Head | Stainless Ball | Inch & Metric
Sof-Top Urethane Surface Ball





The replaceable ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The threads are rolled for strength and rigidity. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. Visit www.fixtureworks.net for compression load ratings. To order part, add desired durometer (xx) to the part number. Sample BUH-0124-FC-35UR.

How To Use



Sof-Top urethane surfaced swivots are used to secure painted or precision ground workpieces.

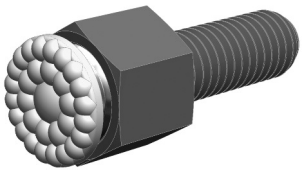
INCH

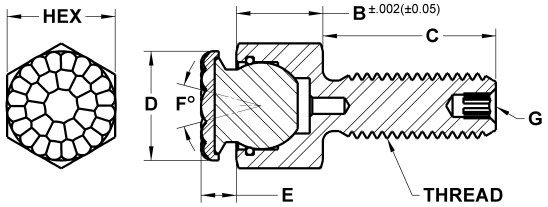
Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Urethane Thickness	xx = Durometer
BUH-0124-FC-xxUR	#10-24	3/8	1/4	1/2	.315	.143	28	—	3/16	.08	60 / 80
BUH-0124 X 1-FC-xxUR	#10-24	3/8	1/4	1	.315	.143	28	—	3/16	.08	60 / 80
BUH-0132-FC-xxUR	#10-32	3/8	1/4	1/2	.315	.143	28	—	3/16	.08	60 / 80
BUH-0132 X 1-FC-xxUR	#10-32	3/8	1/4	1	.315	.143	28	—	3/16	.08	60 / 80
BUH-0250-FC-xxUR	1/4-20	7/16	5/16	1/2	.394	.174	28	—	9/32	.08	60 / 80
BUH-0251-FC-xxUR	1/4-20	7/16	5/16	1	.394	.174	28	—	9/32	.08	60 / 80
BUH-0251 X 1.5-FC-xxUR	1/4-20	7/16	5/16	1-1/2	.394	.174	28	—	9/32	.08	60 / 80
BUH-0280-FC-xxUR	1/4-28	7/16	5/16	1/2	.394	.174	28	—	9/32	.08	60 / 80
BUH-0281-FC-xxUR	1/4-28	7/16	5/16	1	.394	.174	28	—	9/32	.08	60 / 80
BUH-0281 X 1.5-FC-xxUR	1/4-28	7/16	5/16	1-1/2	.394	.174	28	—	9/32	.08	60 / 80
BUH-0310-FC-xxUR	5/16-18	1/2	3/8	1/2	.512	.205	28	—	3/8	.08	60 / 80
BUH-0312-FC-xxUR	5/16-18	1/2	3/8	1	.512	.205	28	—	3/8	.08	60 / 80
BUH-0312 X 1.5-FC-xxUR	5/16-18	1/2	3/8	1-1/2	.512	.205	28	—	3/8	.08	60 / 80
BUH-0320-FC-xxUR	5/16-24	1/2	3/8	1/2	.512	.205	28	—	3/8	.08	60 / 80
BUH-0321-FC-xxUR	5/16-24	1/2	3/8	1	.512	.205	28	—	3/8	.08	60 / 80
BUH-0321 X 1.5-FC-xxUR	5/16-24	1/2	3/8	1-1/2	.512	.205	28	—	3/8	.08	60 / 80
BUH-0370-FC-xxUR	3/8-16	5/8	1/2	1/2	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0375-FC-xxUR	3/8-16	5/8	1/2	1	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0375 X 1.5-FC-xxUR	3/8-16	5/8	1/2	1-1/2	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0230-FC-xxUR	3/8-24	5/8	1/2	1/2	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0231-FC-xxUR	3/8-24	5/8	1/2	1	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0231 X 1.5-FC-xxUR	3/8-24	5/8	1/2	1-1/2	.630	.205	28	1/8	1/2	.08	60 / 80
BUH-0510-FC-xxUR	1/2-13	13/16	5/8	1	.827	.236	33	3/16	5/8	.08	60 / 80
BUH-0515-FC-xxUR	1/2-13	13/16	5/8	1-1/2	.827	.236	33	3/16	5/8	.08	60 / 80
BUH-0240-FC-xxUR	1/2-20	13/16	5/8	1	.827	.236	33	3/16	5/8	.08	60 / 80
BUH-0500-FC-xxUR	1/2-20	13/16	5/8	1-1/2	.827	.236	33	3/16	5/8	.08	60 / 80
BUH-0625-FC-xxUR	5/8-11	15/16	11/16	1	.906	.236	33	1/4	3/4	.08	60 / 80
BUH-0625 X 2-FC-xxUR	5/8-11	15/16	11/16	2	.906	.236	33	1/4	3/4	.08	60 / 80
BUH-0620-FC-xxUR	5/8-18	15/16	11/16	1	.906	.236	33	1/4	3/4	.08	60 / 80
BUH-0620 X 2-FC-xxUR	5/8-18	15/16	11/16	2	.906	.236	33	1/4	3/4	.08	60 / 80

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Stainless Ball | Inch & Metric (continued)
Sof-Top Urethane Surface Ball





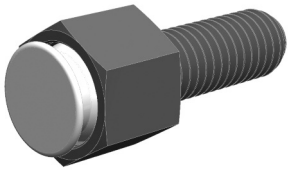
METRIC

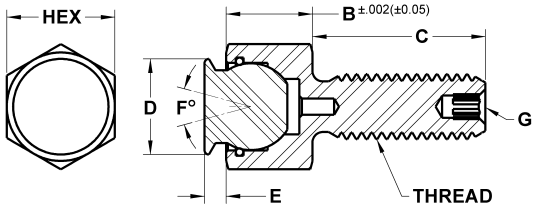
Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Urethane Thickness	xx = Durometer
MBUH-06012-FC-xxUR	M6X1.0	10	8	12	10	4	28	—	7	2	60 / 80
MBUH-06025-FC-xxUR	M6X1.0	10	8	25	10	4	28	—	7	2	60 / 80
MBUH-06040-FC-xxUR	M6X1.0	10	8	40	10	4	28	—	7	2	60 / 80
MBUH-08012-FC-xxUR	M8X1.25	13	11.5	12	13	5	28	—	10	2	60 / 80
MBUH-08025-FC-xxUR	M8X1.25	13	11.5	25	13	5	28	—	10	2	60 / 80
MBUH-08040-FC-xxUR	M8X1.25	13	11.5	40	13	5	28	—	10	2	60 / 80
MBUH-10015-FC-xxUR	M10X1.5	17	13	15	16	5	28	3	13	2	60 / 80
MBUH-10030-FC-xxUR	M10X1.5	17	13	30	16	5	28	3	13	2	60 / 80
MBUH-10050-FC-xxUR	M10X1.5	17	13	50	16	5	28	3	13	2	60 / 80
MBUH-12020-FC-xxUR	M12X1.75	19	15	20	21	6	24	5	15	2	60 / 80
MBUH-12040-FC-xxUR	M12X1.75	19	15	40	21	6	24	5	15	2	60 / 80
MBUH-12060-FC-xxUR	M12X1.75	19	15	60	21	6	24	5	15	2	60 / 80
MBUH-16025-FC-xxUR	M16X2.0	24	19	25	23	6	24	6	20	2	60 / 80
MBUH-16050-FC-xxUR	M16X2.0	24	19	50	23	6	24	6	20	2	60 / 80
MBUH-16080-FC-xxUR	M16X2.0	24	19	80	23	6	24	6	20	2	60 / 80

Fairlane®

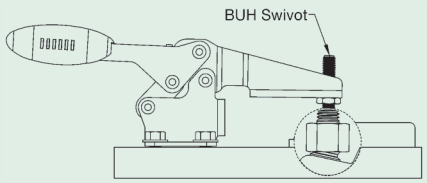
SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Flat Cone | Inch & Metric
Delrin, Stainless & Diamond Surface Ball





How To Use



Swivots align, grip and hold uneven surfaces.

The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The threads are rolled for strength and rigidity. The delrin ball is made from non-marring white delrin. The stainless ball is made from 300 series stainless steel. The diamond style has a diamond abrasive surface that is permanently fused to a 300 series stainless steel ball. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

INCH

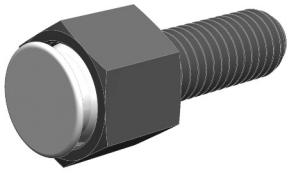
Delrin Part #	Stainless Part #	Diamond Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Load Rating Lbs.*
BUH-0124-DC	BUH-0124-FC	BUH-0124-FC-DS	#10-24	3/8	1/4	1/2	.236	.063	28	—	3/16	1,176
BUH-0124 X 1-DC	BUH-0124 X 1-FC	BUH-0124 X 1-FC-DS	#10-24	3/8	1/4	1	.236	.063	28	—	3/16	1,176
BUH-0132-DC	BUH-0132-FC	BUH-0132-FC-DS	#10-32	3/8	1/4	1/2	.236	.063	28	—	3/16	1,176
BUH-0132 X 1-DC	BUH-0132 X 1-FC	BUH-0132 X 1-FC-DS	#10-32	3/8	1/4	1	.236	.063	28	—	3/16	1,176
BUH-0250-DC	BUH-0250-FC	BUH-0250-FC-DS	1/4-20	7/16	5/16	1/2	.315	.094	28	—	9/32	2,441
BUH-0251-DC	BUH-0251-FC	BUH-0251-FC-DS	1/4-20	7/16	5/16	1	.315	.094	28	—	9/32	2,441
BUH-0251 X 1.5-DC	BUH-0251 X 1.5-FC	BUH-0251 X 1.5-FC-DS	1/4-20	7/16	5/16	1-1/2	.315	.094	28	—	9/32	2,441
BUH-0280-DC	BUH-0280-FC	BUH-0280-FC-DS	1/4-28	7/16	5/16	1/2	.315	.094	28	—	9/32	2,441
BUH-0281-DC	BUH-0281-FC	BUH-0281-FC-DS	1/4-28	7/16	5/16	1	.315	.094	28	—	9/32	2,441
BUH-0281 X 1.5-DC	BUH-0281 X 1.5-FC	BUH-0281 X 1.5-FC-DS	1/4-28	7/16	5/16	1-1/2	.315	.094	28	—	9/32	2,441
BUH-0310-DC	BUH-0310-FC	BUH-0310-FC-DS	5/16-18	1/2	3/8	1/2	.433	.125	28	—	3/8	2,792
BUH-0312-DC	BUH-0312-FC	BUH-0312-FC-DS	5/16-18	1/2	3/8	1	.433	.125	28	—	3/8	2,792
BUH-0312 X 1.5-DC	BUH-0312 X 1.5-FC	BUH-0312 X 1.5-FC-DS	5/16-18	1/2	3/8	1-1/2	.433	.125	28	—	3/8	2,792
BUH-0320-DC	BUH-0320-FC	BUH-0320-FC-DS	5/16-24	1/2	3/8	1/2	.433	.125	28	—	3/8	2,792
BUH-0321-DC	BUH-0321-FC	BUH-0321-FC-DS	5/16-24	1/2	3/8	1	.433	.125	28	—	3/8	2,792
BUH-0321 X 1.5-DC	BUH-0321 X 1.5-FC	BUH-0321 X 1.5-FC-DS	5/16-24	1/2	3/8	1-1/2	.433	.125	28	—	3/8	2,792
BUH-0370-DC	BUH-0370-FC	BUH-0370-FC-DS	3/8-16	5/8	1/2	1/2	.551	.125	28	1/8	1/2	3,446
BUH-0375-DC	BUH-0375-FC	BUH-0375-FC-DS	3/8-16	5/8	1/2	1	.551	.125	28	1/8	1/2	3,446
BUH-0375 X 1.5-DC	BUH-0375 X 1.5-FC	BUH-0375 X 1.5-FC-DS	3/8-16	5/8	1/2	1-1/2	.551	.125	28	1/8	1/2	3,446
BUH-0230-DC	BUH-0230-FC	BUH-0230-FC-DS	3/8-24	5/8	1/2	1/2	.551	.125	28	1/8	1/2	3,446
BUH-0231-DC	BUH-0231-FC	BUH-0231-FC-DS	3/8-24	5/8	1/2	1	.551	.125	28	1/8	1/2	3,446
BUH-0231 X 1.5-DC	BUH-0231 X 1.5-FC	BUH-0231 X 1.5-FC-DS	3/8-24	5/8	1/2	1-1/2	.551	.125	28	1/8	1/2	3,446
BUH-0510-DC	BUH-0510-FC	BUH-0510-FC-DS	1/2-13	13/16	5/8	1	.748	.156	32	3/16	5/8	5,937
BUH-0515-DC	BUH-0515-FC	BUH-0515-FC-DS	1/2-13	13/16	5/8	1-1/2	.748	.156	32	3/16	5/8	5,937
BUH-0240-DC	BUH-0240-FC	BUH-0240-FC-DS	1/2-20	13/16	5/8	1	.748	.156	32	3/16	5/8	7,178
BUH-0500-DC	BUH-0500-FC	BUH-0500-FC-DS	1/2-20	13/16	5/8	1-1/2	.748	.156	32	3/16	5/8	7,178
BUH-0625-DC	BUH-0625-FC	BUH-0625-FC-DS	5/8-11	15/16	11/16	1	.827	.156	32	1/4	3/4	9,932
BUH-0625 X 2-DC	BUH-0625 X 2-FC	BUH-0625 X 2-FC-DS	5/8-11	15/16	11/16	2	.827	.156	32	1/4	3/4	9,932
BUH-0620-DC	BUH-0620-FC	BUH-0620-FC-DS	5/8-18	15/16	11/16	1	.827	.156	32	1/4	3/4	11,874
BUH-0620 X 2-DC	BUH-0620 X 2-FC	BUH-0620 X 2-FC-DS	5/8-18	15/16	11/16	2	.827	.156	32	1/4	3/4	11,874

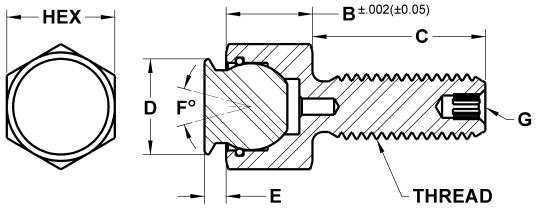
*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Flat Cone | Inch & Metric (continued)
Delrin, Stainless & Diamond Surface Ball





METRIC

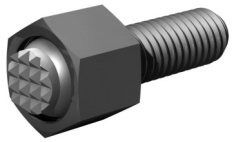
Delrin Part #	Stainless Part #	Diamond Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Load Rating Lbs.*
MBUH-06012-DC	MBUH-06012-FC	MBUH-06012-FC-DS	M6X1.0	10	8	12	8	2	28	—	7	2,061
MBUH-06025-DC	MBUH-06025-FC	MBUH-06025-FC-DS	M6X1.0	10	8	25	8	2	28	—	7	2,061
MBUH-06040-DC	MBUH-06040-FC	MBUH-06040-FC-DS	M6X1.0	10	8	40	8	2	28	—	7	2,061
MBUH-08012-DC	MBUH-08012-FC	MBUH-08012-FC-DS	M8X1.25	13	11.5	12	11	3	28	—	10	3,450
MBUH-08025-DC	MBUH-08025-FC	MBUH-08025-FC-DS	M8X1.25	13	11.5	25	11	3	28	—	10	3,450
MBUH-08040-DC	MBUH-08040-FC	MBUH-08040-FC-DS	M8X1.25	13	11.5	40	11	3	28	—	10	3,450
MBUH-10015-DC	MBUH-10015-FC	MBUH-10015-FC-DS	M10X1.5	17	13	15	14	3	28	3	13	4,194
MBUH-10030-DC	MBUH-10030-FC	MBUH-10030-FC-DS	M10X1.5	17	13	30	14	3	28	3	13	4,194
MBUH-10050-DC	MBUH-10050-FC	MBUH-10050-FC-DS	M10X1.5	17	13	50	14	3	28	3	13	4,194
MBUH-12020-DC	MBUH-12020-FC	MBUH-12020-FC-DS	M12X1.75	19	15	20	19	4	24	5	15	6,627
MBUH-12040-DC	MBUH-12040-FC	MBUH-12040-FC-DS	M12X1.75	19	15	40	19	4	24	5	15	6,627
MBUH-12060-DC	MBUH-12060-FC	MBUH-12060-FC-DS	M12X1.75	19	15	60	19	4	24	5	15	6,627
MBUH-16025-DC	MBUH-16025-FC	MBUH-16025-FC-DS	M16X2.0	24	19	25	21	4	24	6	20	11,183
MBUH-16050-DC	MBUH-16050-FC	MBUH-16050-FC-DS	M16X2.0	24	19	50	21	4	24	6	20	11,183
MBUH-16080-DC	MBUH-16080-FC	MBUH-16080-FC-DS	M16X2.0	24	19	80	21	4	24	6	20	11,183

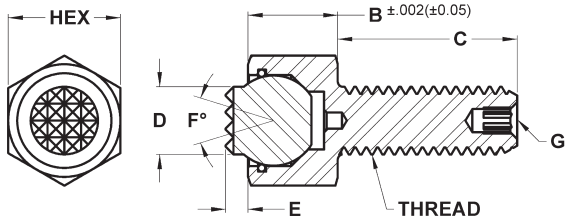
*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Serrated | Inch & Metric Tool Steel Ball





The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The threads are rolled for strength and rigidity. The replaceable ball is made from M-2 high speed steel, heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. See page 232 for tooth pattern specifications.

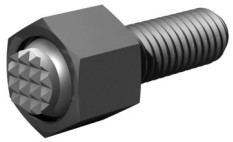
INCH

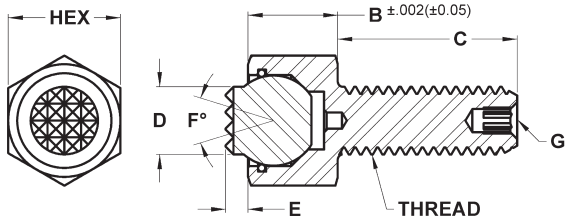
Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
BUH-0124-S	#10-24	3/8	1/4	1/2	5/32	1/16	28	—	3/16	SF	1,176
BUH-0124 X 1-S	#10-24	3/8	1/4	1	5/32	1/16	28	—	3/16	SF	1,176
BUH-0132-S	#10-32	3/8	1/4	1/2	5/32	1/16	28	—	3/16	SF	1,176
BUH-0132 X 1-S	#10-32	3/8	1/4	1	5/32	1/16	28	—	3/16	SF	1,176
BUH-0250-S	1/4-20	7/16	5/16	1/2	1/4	1/16	28	—	9/32	SF	2,441
BUH-0250-S-T	1/4-20	7/16	5/16	1/2	1/4	1/8	28	—	9/32	SF	2,441
BUH-0251-S	1/4-20	7/16	5/16	1	1/4	1/16	28	—	9/32	SF	2,441
BUH-0251-S-T	1/4-20	7/16	5/16	1	1/4	1/8	28	—	9/32	SF	2,441
BUH-0251 X 1.5-S	1/4-20	7/16	5/16	1-1/2	1/4	1/16	28	—	9/32	SF	2,441
BUH-0251 X 1.5-S-T	1/4-20	7/16	5/16	1-1/2	1/4	1/8	28	—	9/32	SF	2,441
BUH-0280-S	1/4-28	7/16	5/16	1/2	1/4	1/16	28	—	9/32	SF	2,441
BUH-0280-S-T	1/4-28	7/16	5/16	1/2	1/4	1/8	28	—	9/32	SF	2,441
BUH-0281-S	1/4-28	7/16	5/16	1	1/4	1/16	28	—	9/32	SF	2,441
BUH-0281-S-T	1/4-28	7/16	5/16	1	1/4	1/8	28	—	9/32	SF	2,441
BUH-0281 X 1.5-S	1/4-28	7/16	5/16	1-1/2	1/4	1/16	28	—	9/32	SF	2,441
BUH-0281 X 1.5-S-T	1/4-28	7/16	5/16	1-1/2	1/4	1/8	28	—	9/32	SF	2,441
BUH-0310-S	5/16-18	1/2	3/8	1/2	5/16	1/16	28	—	3/8	EF	2,792
BUH-0310-S-T	5/16-18	1/2	3/8	1/2	5/16	1/8	28	—	3/8	EF	2,792
BUH-0310-SF	5/16-18	1/2	3/8	1/2	5/16	1/16	28	—	3/8	SF	2,792
BUH-0310-SF-T	5/16-18	1/2	3/8	1/2	5/16	1/8	28	—	3/8	SF	2,792
BUH-0312-S	5/16-18	1/2	3/8	1	5/16	1/16	28	—	3/8	EF	2,792
BUH-0312-S-T	5/16-18	1/2	3/8	1	5/16	1/8	28	—	3/8	EF	2,792
BUH-0312-SF	5/16-18	1/2	3/8	1	5/16	1/16	28	—	3/8	SF	2,792
BUH-0312-SF-T	5/16-18	1/2	3/8	1	5/16	1/8	28	—	3/8	SF	2,792
BUH-0312 X 1.5-S	5/16-18	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	EF	2,792
BUH-0312 X 1.5-S-T	5/16-18	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	EF	2,792
BUH-0312 X 1.5-SF	5/16-18	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	SF	2,792
BUH-0312 X 1.5-SF-T	5/16-18	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	SF	2,792
BUH-0320-S	5/16-24	1/2	3/8	1/2	5/16	1/16	28	—	3/8	EF	2,792
BUH-0320-S-T	5/16-24	1/2	3/8	1/2	5/16	1/8	28	—	3/8	EF	2,792
BUH-0320-SF	5/16-24	1/2	3/8	1/2	5/16	1/16	28	—	3/8	SF	2,792
BUH-0320-SF-T	5/16-24	1/2	3/8	1/2	5/16	1/8	28	—	3/8	SF	2,792
BUH-0321-S	5/16-24	1/2	3/8	1	5/16	1/16	28	—	3/8	EF	2,792
BUH-0321-S-T	5/16-24	1/2	3/8	1	5/16	1/8	28	—	3/8	EF	2,792
BUH-0321-SF	5/16-24	1/2	3/8	1	5/16	1/16	28	—	3/8	SF	2,792
BUH-0321-SF-T	5/16-24	1/2	3/8	1	5/16	1/8	28	—	3/8	SF	2,792
BUH-0321 X 1.5-S	5/16-24	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	EF	2,792
BUH-0321 X 1.5-S-T	5/16-24	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	EF	2,792
BUH-0321 X 1.5-SF	5/16-24	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	SF	2,792
BUH-0321 X 1.5-SF-T	5/16-24	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	SF	2,792

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Serrated | Inch & Metric (continued)
Tool Steel Ball





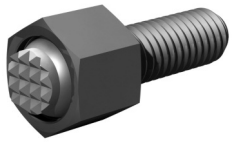
INCH (CONTINUED)

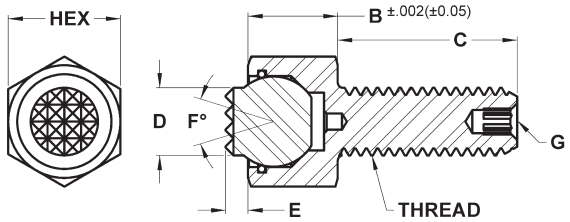
Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
BUH-0370-S	3/8-16	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0370-S-T	3/8-16	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0370-SF	3/8-16	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0370-SF-T	3/8-16	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0375-S	3/8-16	5/8	1/2	1	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0375-S-T	3/8-16	5/8	1/2	1	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0375-SF	3/8-16	5/8	1/2	1	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0375-SF-T	3/8-16	5/8	1/2	1	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0375 X 1.5-S	3/8-16	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0375 X 1.5-S-T	3/8-16	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0375 X 1.5-SF	3/8-16	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0375 X 1.5-SF-T	3/8-16	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0230-S	3/8-24	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0230-S-T	3/8-24	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0230-SF	3/8-24	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0230-SF-T	3/8-24	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0231-S	3/8-24	5/8	1/2	1	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0231-S-T	3/8-24	5/8	1/2	1	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0231-SF	3/8-24	5/8	1/2	1	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0231-SF-T	3/8-24	5/8	1/2	1	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0231 X 1.5-S	3/8-24	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	EF	3,446
BUH-0231 X 1.5-S-T	3/8-24	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	EF	3,446
BUH-0231 X 1.5-SF	3/8-24	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	SF	3,446
BUH-0231 X 1.5-SF-T	3/8-24	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	SF	3,446
BUH-0510-S	1/2-13	13/16	5/8	1	1/2	1/8	40	3/16	5/8	Fine	5,937
BUH-0510-S-T	1/2-13	13/16	5/8	1	1/2	1/4	40	3/16	5/8	Fine	5,937
BUH-0510-EF	1/2-13	13/16	5/8	1	1/2	1/8	40	3/16	5/8	EF	5,937
BUH-0510-EF-T	1/2-13	13/16	5/8	1	1/2	1/4	40	3/16	5/8	EF	5,937
BUH-0510-SF	1/2-13	13/16	5/8	1	1/2	1/8	40	3/16	5/8	SF	5,937
BUH-0510-SF-T	1/2-13	13/16	5/8	1	1/2	1/4	40	3/16	5/8	SF	5,937
BUH-0515-S	1/2-13	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	Fine	5,937
BUH-0515-S-T	1/2-13	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	Fine	5,937
BUH-0515-EF	1/2-13	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	EF	5,937
BUH-0515-EF-T	1/2-13	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	EF	5,937
BUH-0515-SF	1/2-13	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	SF	5,937
BUH-0515-SF-T	1/2-13	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	SF	5,937
BUH-0240-S	1/2-20	13/16	5/8	1	1/2	1/8	40	3/16	5/8	Fine	7,178
BUH-0240-S-T	1/2-20	13/16	5/8	1	1/2	1/4	40	3/16	5/8	Fine	7,178
BUH-0240-EF	1/2-20	13/16	5/8	1	1/2	1/8	40	3/16	5/8	EF	7,178
BUH-0240-EF-T	1/2-20	13/16	5/8	1	1/2	1/4	40	3/16	5/8	EF	7,178
BUH-0240-SF	1/2-20	13/16	5/8	1	1/2	1/8	40	3/16	5/8	SF	7,178
BUH-0240-SF-T	1/2-20	13/16	5/8	1	1/2	1/4	40	3/16	5/8	SF	7,178
BUH-0500-S	1/2-20	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	Fine	7,178
BUH-0500-S-T	1/2-20	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	Fine	7,178
BUH-0500-EF	1/2-20	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	EF	7,178
BUH-0500-EF-T	1/2-20	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	EF	7,178
BUH-0500-SF	1/2-20	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	SF	7,178
BUH-0500-SF-T	1/2-20	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	SF	7,178
BUH-0625-S	5/8-11	15/16	11/16	1	5/8	1/8	34	1/4	3/4	Fine	9,932
BUH-0625-S-T	5/8-11	15/16	11/16	1	5/8	1/4	34	1/4	3/4	Fine	9,932
BUH-0625-EF	5/8-11	15/16	11/16	1	5/8	1/8	34	1/4	3/4	EF	9,932
BUH-0625-EF-T	5/8-11	15/16	11/16	1	5/8	1/4	34	1/4	3/4	EF	9,932

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Serrated | Inch & Metric (continued)
Tool Steel Ball





INCH (CONTINUED)

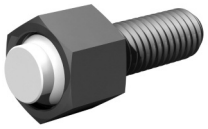
Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
BUH-0625 X 2-S	5/8-11	15/16	11/16	2	5/8	1/8	34	1/4	3/4	Fine	9,932
BUH-0625 X 2-S-T	5/8-11	15/16	11/16	2	5/8	1/4	34	1/4	3/4	Fine	9,932
BUH-0625 X 2-EF	5/8-11	15/16	11/16	2	5/8	1/8	34	1/4	3/4	EF	9,932
BUH-0625 X 2-EF-T	5/8-11	15/16	11/16	2	5/8	1/4	34	3/4	3/4	EF	9,932
BUH-0620-S	5/8-18	15/16	11/16	1	5/8	1/8	34	1/4	3/4	Fine	11,874
BUH-0620-S-T	5/8-18	15/16	11/16	1	5/8	1/4	34	1/4	3/4	Fine	11,874
BUH-0620-EF	5/8-18	15/16	11/16	1	5/8	1/8	34	1/4	3/4	EF	11,874
BUH-0620-EF-T	5/8-18	15/16	11/16	1	5/8	1/4	34	1/4	3/4	EF	11,874
BUH-0620 X 2-S	5/8-18	15/16	11/16	2	5/8	1/8	34	1/4	3/4	Fine	11,874
BUH-0620 X 2-S-T	5/8-18	15/16	11/16	2	5/8	1/4	34	1/4	3/4	Fine	11,874
BUH-0620 X 2-EF	5/8-18	15/16	11/16	2	5/8	1/8	34	1/4	3/4	EF	11,874
BUH-0620 X 2-EF-T	5/8-18	15/16	11/16	2	5/8	1/4	34	1/4	3/4	EF	11,874

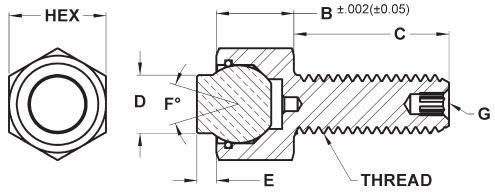
METRIC

Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
MBUH-06012-S	M6X1.0	10	8	12	6	1.5	28	—	7	SF	2,061
MBUH-06012-S-T	M6X1.0	10	8	12	6	3	28	—	7	SF	2,061
MBUH-06025-S	M6X1.0	10	8	25	6	1.5	28	—	7	SF	2,061
MBUH-06025-S-T	M6X1.0	10	8	25	6	3	28	—	7	SF	2,061
MBUH-06040-S	M6X1.0	10	8	40	6	1.5	28	—	7	SF	2,061
MBUH-06040-S-T	M6X1.0	10	8	40	6	3	28	—	7	SF	2,061
MBUH-08012-S	M8X1.25	13	11.5	12	8.5	1.5	24	—	10	EF	3,450
MBUH-08012-S-T	M8X1.25	13	11.5	12	8.5	3	24	—	10	EF	3,450
MBUH-08025-S	M8X1.25	13	11.5	25	8.5	1.5	24	—	10	EF	3,450
MBUH-08025-S-T	M8X1.25	13	11.5	25	8.5	3	24	—	10	EF	3,450
MBUH-08040-S	M8X1.25	13	11.5	40	8.5	1.5	24	—	10	EF	3,450
MBUH-08040-S-T	M8X1.25	13	11.5	40	8.5	3	24	—	10	EF	3,450
MBUH-10015-S	M10X1.5	17	13	15	10	4	42	3	13	EF	4,194
MBUH-10015-S-T	M10X1.5	17	13	15	10	6	42	3	13	EF	4,194
MBUH-10030-S	M10X1.5	17	13	30	10	4	42	3	13	EF	4,194
MBUH-10030-S-T	M10X1.5	17	13	30	10	6	42	3	13	EF	4,194
MBUH-10050-S	M10X1.5	17	13	50	10	4	42	3	13	EF	4,194
MBUH-10050-S-T	M10X1.5	17	13	50	10	6	42	3	13	EF	4,194
MBUH-12020-S	M12X1.75	19	15	20	12	4	45	5	15	Fine	6,627
MBUH-12020-S-T	M12X1.75	19	15	20	12	6	45	5	15	Fine	6,627
MBUH-12040-S	M12X1.75	19	15	40	12	4	45	5	15	Fine	6,627
MBUH-12040-S-T	M12X1.75	19	15	40	12	6	45	5	15	Fine	6,627
MBUH-12060-S	M12X1.75	19	15	60	12	4	45	5	15	Fine	6,627
MBUH-12060-S-T	M12X1.75	19	15	60	12	6	45	5	15	Fine	6,627
MBUH-16025-S	M16X2.0	24	19	25	16	4	40	6	20	Fine	11,183
MBUH-16025-S-T	M16X2.0	24	19	25	16	6	40	6	20	Fine	11,183
MBUH-16050-S	M16X2.0	24	19	50	16	4	40	6	20	Fine	11,183
MBUH-16050-S-T	M16X2.0	24	19	50	16	6	40	6	20	Fine	11,183
MBUH-16080-S	M16X2.0	24	19	80	16	4	40	6	20	Fine	11,183
MBUH-16080-S-T	M16X2.0	24	19	80	16	6	40	6	20	Fine	11,183

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Flat Ball | Inch & Metric
Delrin & Steel Ball





The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The delrin ball is made from non-marring white delrin. The steel ball is made from M-2 high speed steel heat treated to Rc 60/62. The threads are rolled for strength and rigidity. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

INCH

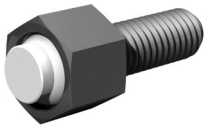
Delrin Part #	Steel Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Load Rating Lbs*
BUH-0124-D	BUH-0124-F	#10-24	3/8	1/4	1/2	5/32	1/16	28	—	3/16	1,176
BUH-0124 X 1-D	BUH-0124 X 1-F	#10-24	3/8	1/4	1	5/32	1/16	28	—	3/16	1,176
BUH-0132-D	BUH-0132-F	#10-32	3/8	1/4	1/2	5/32	1/16	28	—	3/16	1,176
BUH-0132 X 1-D	BUH-0132 X 1-F	#10-32	3/8	1/4	1	5/32	1/16	28	—	3/16	1,176
BUH-0250-D	BUH-0250-F	1/4-20	7/16	5/16	1/2	1/4	1/16	28	—	9/32	2,441
BUH-0250-D-T	BUH-0250-F-T	1/4-20	7/16	5/16	1/2	1/4	1/8	28	—	9/32	2,441
BUH-0251-D	BUH-0251-F	1/4-20	7/16	5/16	1	1/4	1/16	28	—	9/32	2,441
BUH-0251-D-T	BUH-0251-F-T	1/4-20	7/16	5/16	1	1/4	1/8	28	—	9/32	2,441
BUH-0251 X 1.5-D	BUH-0251 X 1.5-F	1/4-20	7/16	5/16	1-1/2	1/4	1/16	28	—	9/32	2,441
BUH-0251 X 1.5-D-T	BUH-0251 X 1.5-F-T	1/4-20	7/16	5/16	1-1/2	1/4	1/8	28	—	9/32	2,441
BUH-0280-D	BUH-0280-F	1/4-28	7/16	5/16	1/2	1/4	1/16	28	—	9/32	2,441
BUH-0280-D-T	BUH-0280-F-T	1/4-28	7/16	5/16	1/2	1/4	1/8	28	—	9/32	2,441
BUH-0281-D	BUH-0281-F	1/4-28	7/16	5/16	1	1/4	1/16	28	—	9/32	2,441
BUH-0281-D-T	BUH-0281-F-T	1/4-28	7/16	5/16	1	1/4	1/8	28	—	9/32	2,441
BUH-0281 X 1.5-D	BUH-0281 X 1.5-F	1/4-28	7/16	5/16	1-1/2	1/4	1/16	28	—	9/32	2,441
BUH-0281 X 1.5-D-T	BUH-0281 X 1.5-F-T	1/4-28	7/16	5/16	1-1/2	1/4	1/8	28	—	9/32	2,441
BUH-0310-D	BUH-0310-F	5/16-18	1/2	3/8	1/2	5/16	1/16	28	—	3/8	2,792
BUH-0310-D-T	BUH-0310-F-T	5/16-18	1/2	3/8	1/2	5/16	1/8	28	—	3/8	2,792
BUH-0312-D	BUH-0312-F	5/16-18	1/2	3/8	1	5/16	1/16	28	—	3/8	2,792
BUH-0312-D-T	BUH-0312-F-T	5/16-18	1/2	3/8	1	5/16	1/8	28	—	3/8	2,792
BUH-0312 X 1.5-D	BUH-0312 X 1.5-F	5/16-18	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	2,792
BUH-0312 X 1.5-D-T	BUH-0312 X 1.5-F-T	5/16-18	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	2,792
BUH-0320-D	BUH-0320-F	5/16-24	1/2	3/8	1/2	5/16	1/16	28	—	3/8	2,792
BUH-0320-D-T	BUH-0320-F-T	5/16-24	1/2	3/8	1/2	5/16	1/8	28	—	3/8	2,792
BUH-0321-D	BUH-0321-F	5/16-24	1/2	3/8	1	5/16	1/16	28	—	3/8	2,792
BUH-0321-D-T	BUH-0321-F-T	5/16-24	1/2	3/8	1	5/16	1/8	28	—	3/8	2,792
BUH-0321 X 1.5-D	BUH-0321 X 1.5-F	5/16-24	1/2	3/8	1-1/2	5/16	1/16	28	—	3/8	2,792
BUH-0321 X 1.5-D-T	BUH-0321 X 1.5-F-T	5/16-24	1/2	3/8	1-1/2	5/16	1/8	28	—	3/8	2,792
BUH-0370-D	BUH-0370-F	3/8-16	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	3,446
BUH-0370-D-T	BUH-0370-F-T	3/8-16	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	3,446
BUH-0375-D	BUH-0375-F	3/8-16	5/8	1/2	1	3/8	1/8	40	1/8	1/2	3,446
BUH-0375-D-T	BUH-0375-F-T	3/8-16	5/8	1/2	1	3/8	1/4	40	1/8	1/2	3,446
BUH-0375 X 1.5-D	BUH-0375 X 1.5-F	3/8-16	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	3,446
BUH-0375 X 1.5-D-T	BUH-0375 X 1.5-F-T	3/8-16	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	3,446
BUH-0230-D	BUH-0230-F	3/8-24	5/8	1/2	1/2	3/8	1/8	40	1/8	1/2	3,446
BUH-0230-D-T	BUH-0230-F-T	3/8-24	5/8	1/2	1/2	3/8	1/4	40	1/8	1/2	3,446
BUH-0231-D	BUH-0231-F	3/8-24	5/8	1/2	1	3/8	1/8	40	1/8	1/2	3,446
BUH-0231-D-T	BUH-0231-F-T	3/8-24	5/8	1/2	1	3/8	1/4	40	1/8	1/2	3,446
BUH-0231 X 1.5-D	BUH-0231 X 1.5-F	3/8-24	5/8	1/2	1-1/2	3/8	1/8	40	1/8	1/2	3,446
BUH-0231 X 1.5-D-T	BUH-0231 X 1.5-F-T	3/8-24	5/8	1/2	1-1/2	3/8	1/4	40	1/8	1/2	3,446
BUH-0510-D	BUH-0510-F	1/2-13	13/16	5/8	1	1/2	1/8	40	3/16	5/8	5,937
BUH-0510-D-T	BUH-0510-F-T	1/2-13	13/16	5/8	1	1/2	1/4	40	3/16	5/8	5,937
BUH-0515-D	BUH-0515-F	1/2-13	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	5,937
BUH-0515-D-T	BUH-0515-F-T	1/2-13	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	5,937

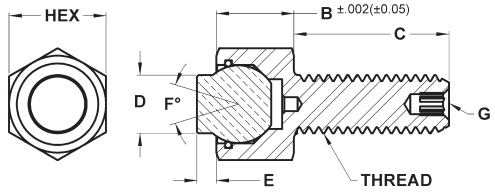
*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Hex Head | Flat Ball | Inch & Metric (continued)
Delrin & Steel Ball





INCH (CONTNUED)

Delrin Part #	Steel Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Load Rating Lbs*
BUH-0240-D	BUH-0240-F	1/2-20	13/16	5/8	1	1/2	1/8	40	3/16	5/8	7,178
BUH-0240-D-T	BUH-0240-F-T	1/2-20	13/16	5/8	1	1/2	1/4	40	3/16	5/8	7,178
BUH-0500-D	BUH-0500-F	1/2-20	13/16	5/8	1-1/2	1/2	1/8	40	3/16	5/8	7,178
BUH-0500-D-T	BUH-0500-F-T	1/2-20	13/16	5/8	1-1/2	1/2	1/4	40	3/16	5/8	7,178
BUH-0625-D	BUH-0625-F	5/8-11	15/16	11/16	1	5/8	1/8	34	1/4	3/4	9,932
BUH-0625-D-T	BUH-0625-F-T	5/8-11	15/16	11/16	1	5/8	1/4	34	1/4	3/4	9,932
BUH-0625 X 2-D	BUH-0625 X 2-F	5/8-11	15/16	11/16	2	5/8	1/8	34	1/4	3/4	9,932
BUH-0625 X 2-D-T	BUH-0625 X 2-F-T	5/8-11	15/16	11/16	2	5/8	1/4	34	1/4	3/4	9,932
BUH-0620-D	BUH-0620-F	5/8-18	15/16	11/16	1	5/8	1/8	34	1/4	3/4	11,874
BUH-0620-D-T	BUH-0620-F-T	5/8-18	15/16	11/16	1	5/8	1/4	34	1/4	3/4	11,874
BUH-0620 X 2-D	BUH-0620 X 2-F	5/8-18	15/16	11/16	2	5/8	1/8	34	1/4	3/4	11,874
BUH-0620 X 2-D-T	BUH-0620 X 2-F-T	5/8-18	15/16	11/16	2	5/8	1/4	34	1/4	3/4	11,874

*Load ratings do not apply to the delrin ball styles.

METRIC

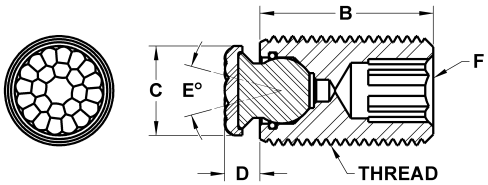
Delrin Part #	Steel Part #	Thread	Hex Head	B Head Height	C Thread Length	D Contact Dia.	E Stand Off	F Degree Swivel	G Int. Hex	Ball Dia.	Load Rating Lbs*
MBUH-06012-D	MBUH-06012-F	M6X1.0	10	8	12	6	1.5	28	—	7	2,061
MBUH-06012-D-T	MBUH-06012-F-T	M6X1.0	10	8	12	6	3	28	—	7	2,061
MBUH-06025-D	MBUH-06025-F	M6X1.0	10	8	25	6	1.5	28	—	7	2,061
MBUH-06025-D-T	MBUH-06025-F-T	M6X1.0	10	8	25	6	3	28	—	7	2,061
MBUH-06040-D	MBUH-06040-F	M6X1.0	10	8	40	6	1.5	28	—	7	2,061
MBUH-06040-D-T	MBUH-06040-F-T	M6X1.0	10	8	40	6	3	28	—	7	2,061
MBUH-08012-D	MBUH-08012-F	M8X1.25	13	11.5	12	8.5	1.5	24	—	10	3,450
MBUH-08012-D-T	MBUH-08012-F-T	M8X1.25	13	11.5	12	8.5	3	24	—	10	3,450
MBUH-08025-D	MBUH-08025-F	M8X1.25	13	11.5	25	8.5	1.5	24	—	10	3,450
MBUH-08025-D-T	MBUH-08025-F-T	M8X1.25	13	11.5	25	8.5	3	24	—	10	3,450
MBUH-08040-D	MBUH-08040-F	M8X1.25	13	11.5	40	8.5	1.5	24	—	10	3,450
MBUH-08040-D-T	MBUH-08040-F-T	M8X1.25	13	11.5	40	8.5	3	24	—	10	3,450
MBUH-10015-D	MBUH-10015-F	M10X1.5	17	13	15	10	4	42	3	13	4,194
MBUH-10015-D-T	MBUH-10015-F-T	M10X1.5	17	13	15	10	6	42	3	13	4,194
MBUH-10030-D	MBUH-10030-F	M10X1.5	17	13	30	10	4	42	3	13	4,194
MBUH-10030-D-T	MBUH-10030-F-T	M10X1.5	17	13	30	10	6	42	3	13	4,194
MBUH-10050-D	MBUH-10050-F	M10X1.5	17	13	50	10	4	42	3	13	4,194
MBUH-10050-D-T	MBUH-10050-F-T	M10X1.5	17	13	50	10	6	42	3	13	4,194
MBUH-12020-D	MBUH-12020-F	M12X1.75	19	15	20	12	4	45	5	15	6,627
MBUH-12020-D-T	MBUH-12020-F-T	M12X1.75	19	15	20	12	6	45	5	15	6,627
MBUH-12040-D	MBUH-12040-F	M12X1.75	19	15	40	12	4	45	5	15	6,627
MBUH-12040-D-T	MBUH-12040-F-T	M12X1.75	19	15	40	12	6	45	5	15	6,627
MBUH-12060-D	MBUH-12060-F	M12X1.75	19	15	60	12	4	45	5	15	6,627
MBUH-12060-D-T	MBUH-12060-F-T	M12X1.75	19	15	60	12	6	45	5	15	6,627
MBUH-16025-D	MBUH-16025-F	M16X2.0	24	19	25	16	4	40	6	20	11,183
MBUH-16025-D-T	MBUH-16025-F-T	M16X2.0	24	19	25	16	6	40	6	20	11,183
MBUH-16050-D	MBUH-16050-F	M16X2.0	24	19	50	16	4	40	6	20	11,183
MBUH-16050-D-T	MBUH-16050-F-T	M16X2.0	24	19	50	16	6	40	6	20	11,183
MBUH-16080-D	MBUH-16080-F	M16X2.0	24	19	80	16	4	40	6	20	11,183
MBUH-16080-D-T	MBUH-16080-F-T	M16X2.0	24	19	80	16	6	40	6	20	11,183

*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Inch & Metric
Sof-Top Urethane Surface Ball



The replaceable ball swivels to allow for better self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. Visit www.fixtureworks.net for compression load ratings. To order part, add desired durometer (xx) to the part number. Sample TBU-0370-FC-35UR.

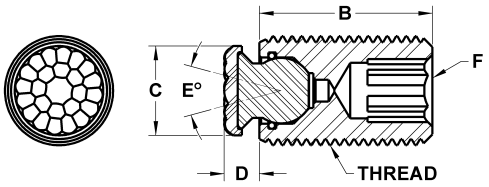
INCH

Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Urethane Thickness	xx = Durometer
TBU-0370-FC-xxUR	3/8-16	1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0375-FC-xxUR	3/8-16	1	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0375 X 2-FC-xxUR	3/8-16	2	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0375 X 3-FC-xxUR	3/8-16	3	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0230-FC-xxUR	3/8-24	1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0231-FC-xxUR	3/8-24	1	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0231 X 2-FC-xxUR	3/8-24	2	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0231 X 3-FC-xxUR	3/8-24	3	.315	.143	28	3/16	3/16	.08	60 / 80
TBU-0513-FC-xxUR	1/2-13	3/4	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0510-FC-xxUR	1/2-13	1	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0510 X 2-FC-xxUR	1/2-13	2	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0510 X 3-FC-xxUR	1/2-13	3	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0503-FC-xxUR	1/2-20	3/4	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0500-FC-xxUR	1/2-20	1	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0500 X 2-FC-xxUR	1/2-20	2	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0500 X 3-FC-xxUR	1/2-20	3	.394	.174	28	1/4	9/32	.08	60 / 80
TBU-0625-FC-xxUR	5/8-11	1	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0625 X 2-FC-xxUR	5/8-11	2	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0625 X 3-FC-xxUR	5/8-11	3	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0620-FC-xxUR	5/8-18	1	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0620 X 2-FC-xxUR	5/8-18	2	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0620 X 3-FC-xxUR	5/8-18	3	.512	.205	28	5/16	3/8	.08	60 / 80
TBU-0755-FC-xxUR	3/4-10	1	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-0755 X 2-FC-xxUR	3/4-10	2	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-0755 X 3-FC-xxUR	3/4-10	3	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-0750-FC-xxUR	3/4-16	1	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-0750 X 2-FC-xxUR	3/4-16	2	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-0750 X 3-FC-xxUR	3/4-16	3	.630	.205	28	3/8	1/2	.08	60 / 80
TBU-1108-FC-xxUR	1"-8	1	.827	.236	32	3/8	5/8	.08	60 / 80
TBU-1108 X 2-FC-xxUR	1"-8	2	.827	.236	32	3/8	5/8	.08	60 / 80
TBU-1108 X 3-FC-xxUR	1"-8	3	.827	.236	32	3/8	5/8	.08	60 / 80
TBU-1114-FC-xxUR	1"-14	1	.906	.236	32	3/8	3/4	.08	60 / 80
TBU-1114 X 2-FC-xxUR	1"-14	2	.906	.236	32	3/8	3/4	.08	60 / 80
TBU-1114 X 3-FC-xxUR	1"-14	3	.906	.236	32	3/8	3/4	.08	60 / 80

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Stainless Ball | Inch & Metric (continued)
Sof-Top Urethane Surface Ball



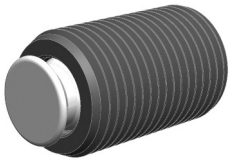
METRIC

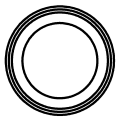
Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Urethane Thickness	xx = Durometer
MTBU-10025-FC-xxUR	M10X1.5	25	8	3.5	28	5	5	2	60 / 80
MTBU-10035-FC-xxUR	M10X1.5	35	8	3.5	28	5	5	2	60 / 80
MTBU-10050-FC-xxUR	M10X1.5	50	8	3.5	28	5	5	2	60 / 80
MTBU-12025-FC-xxUR	M12X1.75	25	10	4	28	6	7	2	60 / 80
MTBU-12035-FC-xxUR	M12X1.75	35	10	4	28	6	7	2	60 / 80
MTBU-12050-FC-xxUR	M12X1.75	50	10	4	28	6	7	2	60 / 80
MTBU-16025-FC-xxUR	M16X2.0	25	13	5	28	8	10	2	60 / 80
MTBU-16035-FC-xxUR	M16X2.0	35	13	5	28	8	10	2	60 / 80
MTBU-16050-FC-xxUR	M16X2.0	50	13	5	28	8	10	2	60 / 80
MTBU-20030-FC-xxUR	M20X2.5	30	16	5	28	10	13	2	60 / 80
MTBU-20050-FC-xxUR	M20X2.5	50	16	5	28	10	13	2	60 / 80
MTBU-20070-FC-xxUR	M20X2.5	70	16	5	28	10	13	2	60 / 80
MTBU-24040-FC-xxUR	M24X3.0	40	21	6	24	10	15	2	60 / 80
MTBU-24080-FC-xxUR	M24X3.0	80	21	6	24	10	15	2	60 / 80

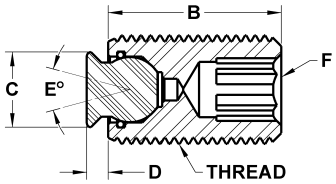
Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Flat Cone | Inch & Metric
Delrin, Stainless & Diamond Surface Ball







The replaceable ball swivels to allow for self-alignment on uneven surfaces. The flat cone design provides a large contact surface for greater force distribution. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The delrin ball is made from non-marring white delrin. The stainless ball is made from 300 series stainless steel. The diamond style has a diamond abrasive surface that is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

INCH

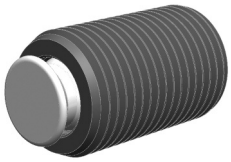
Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
TBU-0370-DC	TBU-0370-FC	TBU-0370-FC-DS	3/8-16	1/2	.236	.063	28	3/16	3/16	1,763
TBU-0375-DC	TBU-0375-FC	TBU-0375-FC-DS	3/8-16	1	.236	.063	28	3/16	3/16	1,763
TBU-0375 X 2-DC	TBU-0375 X 2-FC	TBU-0375 X 2-FC-DS	3/8-16	2	.236	.063	28	3/16	3/16	1,763
TBU-0375 X 3-DC	TBU-0375 X 3-FC	TBU-0375 X 3-FC-DS	3/8-16	3	.236	.063	28	3/16	3/16	1,763
TBU-0230-DC	TBU-0230-FC	TBU-0230-FC-DS	3/8-24	1/2	.236	.063	28	3/16	3/16	1,763
TBU-0231-DC	TBU-0231-FC	TBU-0231-FC-DS	3/8-24	1	.236	.063	28	3/16	3/16	1,763
TBU-0231 X 2-DC	TBU-0231 X 2-FC	TBU-0231 X 2-FC-DS	3/8-24	2	.236	.063	28	3/16	3/16	1,763
TBU-0231 X 3-DC	TBU-0231 X 3-FC	TBU-0231 X 3-FC-DS	3/8-24	3	.236	.063	28	3/16	3/16	1,763
TBU-0513-DC	TBU-0513-FC	TBU-0513-FC-DS	1/2-13	3/4	.315	.094	28	1/4	9/32	4,527
TBU-0510-DC	TBU-0510-FC	TBU-0510-FC-DS	1/2-13	1	.315	.094	28	1/4	9/32	4,527
TBU-0510 X 2-DC	TBU-0510 X 2-FC	TBU-0510 X 2-FC-DS	1/2-13	2	.315	.094	28	1/4	9/32	4,527
TBU-0510 X 3-DC	TBU-0510 X 3-FC	TBU-0510 X 3-FC-DS	1/2-13	3	.315	.094	28	1/4	9/32	4,527
TBU-0503-DC	TBU-0503-FC	TBU-0503-FC-DS	1/2-20	3/4	.315	.094	28	1/4	9/32	4,527
TBU-0500-DC	TBU-0500-FC	TBU-0500-FC-DS	1/2-20	1	.315	.094	28	1/4	9/32	4,527
TBU-0500 X 2-DC	TBU-0500 X 2-FC	TBU-0500 X 2-FC-DS	1/2-20	2	.315	.094	28	1/4	9/32	4,527
TBU-0500 X 3-DC	TBU-0500 X 3-FC	TBU-0500 X 3-FC-DS	1/2-20	3	.315	.094	28	1/4	9/32	4,527
TBU-0625-DC	TBU-0625-FC	TBU-0625-FC-DS	5/8-11	1	.433	.125	28	5/16	3/8	6,131
TBU-0625 X 2-DC	TBU-0625 X 2-FC	TBU-0625 X 2-FC-DS	5/8-11	2	.433	.125	28	5/16	3/8	6,131
TBU-0625 X 3-DC	TBU-0625 X 3-FC	TBU-0625 X 3-FC-DS	5/8-11	3	.433	.125	28	5/16	3/8	6,131
TBU-0620-DC	TBU-0620-FC	TBU-0620-FC-DS	5/8-18	1	.433	.125	28	5/16	3/8	6,131
TBU-0620 X 2-DC	TBU-0620 X 2-FC	TBU-0620 X 2-FC-DS	5/8-18	2	.433	.125	28	5/16	3/8	6,131
TBU-0620 X 3-DC	TBU-0620 X 3-FC	TBU-0620 X 3-FC-DS	5/8-18	3	.433	.125	28	5/16	3/8	6,131
TBU-0755-DC	TBU-0755-FC	TBU-0755-FC-DS	3/4-10	1	.551	.125	28	3/8	1/2	8,150
TBU-0755 X 2-DC	TBU-0755 X 2-FC	TBU-0755 X 2-FC-DS	3/4-10	2	.551	.125	28	3/8	1/2	8,150
TBU-0755 X 3-DC	TBU-0755 X 3-FC	TBU-0755 X 3-FC-DS	3/4-10	3	.551	.125	28	3/8	1/2	8,150
TBU-0750-DC	TBU-0750-FC	TBU-0750-FC-DS	3/4-16	1	.551	.125	28	3/8	1/2	8,150
TBU-0750 X 2-DC	TBU-0750 X 2-FC	TBU-0750 X 2-FC-DS	3/4-16	2	.551	.125	28	3/8	1/2	8,150
TBU-0750 X 3-DC	TBU-0750 X 3-FC	TBU-0750 X 3-FC-DS	3/4-16	3	.551	.125	28	3/8	1/2	8,150
TBU-1108-DC	TBU-1108-FC	TBU-1108-FC-DS	1"-8	1	.748	.156	32	3/8	5/8	14,757
TBU-1108 X 2-DC	TBU-1108 X 2-FC	TBU-1108 X 2-FC-DS	1"-8	2	.748	.156	32	3/8	5/8	14,757
TBU-1108 X 3-DC	TBU-1108 X 3-FC	TBU-1108 X 3-FC-DS	1"-8	3	.748	.156	32	3/8	5/8	14,757
TBU-1114-DC	TBU-1114-FC	TBU-1114-FC-DS	1"-14	1	.827	.156	32	3/8	3/4	17,210
TBU-1114 X 2-DC	TBU-1114 X 2-FC	TBU-1114 X 2-FC-DS	1"-14	2	.827	.156	32	3/8	3/4	17,210
TBU-1114 X 3-DC	TBU-1114 X 3-FC	TBU-1114 X 3-FC-DS	1"-14	3	.827	.156	32	3/8	3/4	17,210

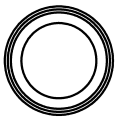
*Load ratings do not apply to the delrin ball styles.

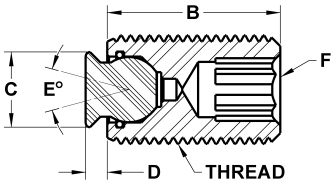
Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Flat Cone | Inch & Metric (continued)
Delrin, Stainless & Diamond Surface Ball







METRIC

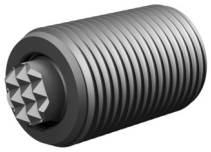
Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
MTBU-10025-DC	MTBU-10025-FC	MTBU-10025-FC-DS	M10X1.5	25	6	1.5	28	5	5	—
MTBU-10035-DC	MTBU-10035-FC	MTBU-10035-FC-DS	M10X1.5	35	6	1.5	28	5	5	—
MTBU-10050-DC	MTBU-10050-FC	MTBU-10050-FC-DS	M10X1.5	50	6	1.5	28	5	5	—
MTBU-12025-DC	MTBU-12025-FC	MTBU-12025-FC-DS	M12X1.75	25	8	2	28	6	7	3,440
MTBU-12035-DC	MTBU-12035-FC	MTBU-12035-FC-DS	M12X1.75	35	8	2	28	6	7	3,440
MTBU-12050-DC	MTBU-12050-FC	MTBU-12050-FC-DS	M12X1.75	50	8	2	28	6	7	3,440
MTBU-16025-DC	MTBU-16025-FC	MTBU-16025-FC-DS	M16X2.0	25	11	3	28	8	10	5,190
MTBU-16035-DC	MTBU-16035-FC	MTBU-16035-FC-DS	M16X2.0	35	11	3	28	8	10	5,190
MTBU-16050-DC	MTBU-16050-FC	MTBU-16050-FC-DS	M16X2.0	50	11	3	28	8	10	5,190
MTBU-20030-DC	MTBU-20030-FC	MTBU-20030-FC-DS	M20X2.5	30	14	3	28	10	13	8,379
MTBU-20050-DC	MTBU-20050-FC	MTBU-20050-FC-DS	M20X2.5	50	14	3	28	10	13	8,379
MTBU-20070-DC	MTBU-20070-FC	MTBU-20070-FC-DS	M20X2.5	70	14	3	28	10	13	8,379
MTBU-24040-DC	MTBU-24040-FC	MTBU-24040-FC-DS	M24X3.0	40	19	4	24	10	15	12,233
MTBU-24080-DC	MTBU-24080-FC	MTBU-24080-FC-DS	M24X3.0	80	19	4	24	10	15	12,233

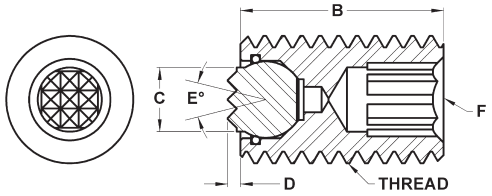
*Load ratings do not apply to the delrin ball styles.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Serrated | Inch & Metric Tool Steel Ball





The replaceable serrated ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components. See page 232 for tooth pattern specifications.

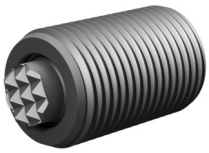
INCH

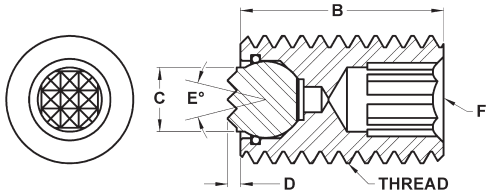
Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
TBU-0370-S	3/8-16	1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0375-S	3/8-16	1	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0375 X 2-S	3/8-16	2	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0375 X 3-S	3/8-16	3	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0230-S	3/8-24	1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0231-S	3/8-24	1	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0231 X 2-S	3/8-24	2	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0231 X 3-S	3/8-24	3	5/32	1/16	28	3/16	3/16	SF	1,763
TBU-0513-S	1/2-13	3/4	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0513-S-T	1/2-13	3/4	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0510-S	1/2-13	1	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0510-S-T	1/2-13	1	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0510 X 2-S	1/2-13	2	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0510 X 2-S-T	1/2-13	2	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0510 X 3-S	1/2-13	3	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0510 X 3-S-T	1/2-13	3	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0503-S	1/2-20	3/4	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0503-S-T	1/2-20	3/4	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0500-S	1/2-20	1	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0500-S-T	1/2-20	1	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0500 X 2-S	1/2-20	2	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0500 X 2-S-T	1/2-20	2	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0500 X 3-S	1/2-20	3	1/4	1/16	28	1/4	9/32	SF	4,527
TBU-0500 X 3-S-T	1/2-20	3	1/4	1/8	28	1/4	9/32	SF	4,527
TBU-0625-S	5/8-11	1	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0625-S-T	5/8-11	1	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0625-SF	5/8-11	1	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0625-SF-T	5/8-11	1	5/16	1/8	28	5/16	3/8	SF	6,131
TBU-0625 X 2-S	5/8-11	2	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0625 X 2-S-T	5/8-11	2	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0625 X 2-SF	5/8-11	2	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0625 X 2-SF-T	5/8-11	2	5/16	1/8	28	5/16	3/8	SF	6,131
TBU-0625 X 3-S	5/8-11	3	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0625 X 3-S-T	5/8-11	3	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0625 X 3-SF	5/8-11	3	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0625 X 3-SF-T	5/8-11	3	5/16	1/8	28	5/16	3/8	SF	6,131
TBU-0620-S	5/8-18	1	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0620-S-T	5/8-18	1	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0620-SF	5/8-18	1	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0620-SF-T	5/8-18	1	5/16	1/8	28	5/16	3/8	SF	6,131
TBU-0620 X 2-S	5/8-18	2	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0620 X 2-S-T	5/8-18	2	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0620 X 2-SF	5/8-18	2	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0620 X 2-SF-T	5/8-18	2	5/16	1/8	28	5/16	3/8	SF	6,131
TBU-0620 X 3-S	5/8-18	3	5/16	1/16	28	5/16	3/8	EF	6,131
TBU-0620 X 3-S-T	5/8-18	3	5/16	1/8	28	5/16	3/8	EF	6,131
TBU-0620 X 3-SF	5/8-18	3	5/16	1/16	28	5/16	3/8	SF	6,131
TBU-0620 X 3-SF-T	5/8-18	3	5/16	1/8	28	5/16	3/8	SF	6,131

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Serrated | Inch & Metric (continued)
Tool Steel Ball





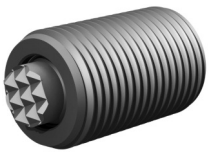
INCH (CONTINUED)

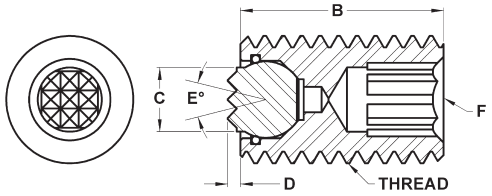
Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
TBU-0755-S	3/4-10	1	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0755-S-T	3/4-10	1	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0755-SF	3/4-10	1	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0755-SF-T	3/4-10	1	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-0755 X 2-S	3/4-10	2	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0755 X 2-S-T	3/4-10	2	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0755 X 2-SF	3/4-10	2	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0755 X 2-SF-T	3/4-10	2	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-0755 X 3-S	3/4-10	3	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0755 X 3-S-T	3/4-10	3	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0755 X 3-SF	3/4-10	3	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0755 X 3-SF-T	3/4-10	3	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-0750-S	3/4-16	1	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0750-S-T	3/4-16	1	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0750-SF	3/4-16	1	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0750-SF-T	3/4-16	1	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-0750 X 2-S	3/4-16	2	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0750 X 2-S-T	3/4-16	2	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0750 X 2-SF	3/4-16	2	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0750 X 2-SF-T	3/4-16	2	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-0750 X 3-S	3/4-16	3	3/8	1/8	40	3/8	1/2	EF	8,150
TBU-0750 X 3-S-T	3/4-16	3	3/8	1/4	40	3/8	1/2	EF	8,150
TBU-0750 X 3-SF	3/4-16	3	3/8	1/8	40	3/8	1/2	SF	8,150
TBU-0750 X 3-SF-T	3/4-16	3	3/8	1/4	40	3/8	1/2	SF	8,150
TBU-1108-S	1"-8	1	1/2	1/8	40	3/8	5/8	Fine	14,757
TBU-1108-S-T	1"-8	1	1/2	1/4	40	3/8	5/8	Fine	14,757
TBU-1108-EF	1"-8	1	1/2	1/8	40	3/8	5/8	EF	14,757
TBU-1108-EF-T	1"-8	1	1/2	1/4	40	3/8	5/8	EF	14,757
TBU-1108-SF	1"-8	1	1/2	1/8	40	3/8	5/8	SF	14,757
TBU-1108-SF-T	1"-8	1	1/2	1/4	40	3/8	5/8	SF	14,757
TBU-1108 X 2-S	1"-8	2	1/2	1/8	40	3/8	5/8	Fine	14,757
TBU-1108 X 2-S-T	1"-8	2	1/2	1/4	40	3/8	5/8	Fine	14,757
TBU-1108 X 2-EF	1"-8	2	1/2	1/8	40	3/8	5/8	EF	14,757
TBU-1108 X 2-EF-T	1"-8	2	1/2	1/4	40	3/8	5/8	EF	14,757
TBU-1108 X 2-SF	1"-8	2	1/2	1/8	40	3/8	5/8	SF	14,757
TBU-1108 X 2-SF-T	1"-8	2	1/2	1/4	40	3/8	5/8	SF	14,757
TBU-1108 X 3-S	1"-8	3	1/2	1/8	40	3/8	5/8	Fine	14,757
TBU-1108 X 3-S-T	1"-8	3	1/2	1/4	40	3/8	5/8	Fine	14,757
TBU-1108 X 3-EF	1"-8	3	1/2	1/8	40	3/8	5/8	EF	14,757
TBU-1108 X 3-EF-T	1"-8	3	1/2	1/4	40	3/8	5/8	EF	14,757
TBU-1108 X 3-SF	1"-8	3	1/2	1/8	40	3/8	5/8	SF	14,757
TBU-1108 X 3-SF-T	1"-8	3	1/2	1/4	40	3/8	5/8	SF	14,757
TBU-1114-S	1"-14	1	5/8	1/8	34	3/8	3/4	Fine	14,757
TBU-1114-S-T	1"-14	1	5/8	1/4	34	3/8	3/4	Fine	14,757
TBU-1114-EF	1"-14	1	5/8	1/8	34	3/8	3/4	EF	14,757
TBU-1114-EF-T	1"-14	1	5/8	1/4	34	3/8	3/4	EF	14,757
TBU-1114 X 2-S	1"-14	2	5/8	1/8	34	3/8	3/4	Fine	14,757
TBU-1114 X 2-S-T	1"-14	2	5/8	1/4	34	3/8	3/4	Fine	14,757
TBU-1114 X 2-EF	1"-14	2	5/8	1/8	34	3/8	3/4	EF	14,757
TBU-1114 X 2-EF-T	1"-14	2	5/8	1/4	34	3/8	3/4	EF	14,757
TBU-1114 X 3-S	1"-14	3	5/8	1/8	34	3/8	3/4	Fine	14,757
TBU-1114 X 3-S-T	1"-14	3	5/8	1/4	34	3/8	3/4	Fine	14,757
TBU-1114 X 3-EF	1"-14	3	5/8	1/8	34	3/8	3/4	EF	14,757
TBU-1114 X 3-EF-T	1"-14	3	5/8	1/4	34	3/8	3/4	EF	14,757

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Serrated | Inch & Metric (continued)
Tool Steel Ball





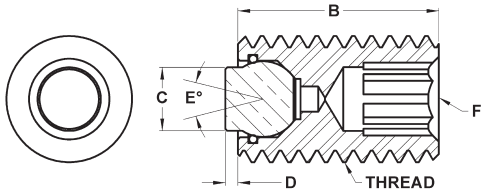
METRIC

Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
MTBU-10025-S	M10X1.50	25	4	1.5	30	5	5	SF	—
MTBU-10035-S	M10X1.50	35	4	1.5	30	5	5	SF	—
MTBU-10050-S	M10X1.50	50	4	1.5	30	5	5	SF	—
MTBU-12025-S	M12X1.75	25	6	1.5	28	6	7	SF	3,440
MTBU-12025-S-T	M12X1.75	25	6	3	28	6	7	SF	3,440
MTBU-12035-S	M12X1.75	35	6	1.5	28	6	7	SF	3,440
MTBU-12035-S-T	M12X1.75	35	6	3	28	6	7	SF	3,440
MTBU-12050-S	M12X1.75	50	6	1.5	28	6	7	SF	3,440
MTBU-12050-S-T	M12X1.75	50	6	3	28	6	7	SF	3,440
MTBU-16025-S	M16X2.0	25	8.5	1.5	24	8	10	EF	5,190
MTBU-16025-S-T	M16X2.0	25	8.5	3	24	8	10	EF	5,190
MTBU-16035-S	M16X2.0	35	8.5	1.5	24	8	10	EF	5,190
MTBU-16035-S-T	M16X2.0	35	8.5	3	24	8	10	EF	5,190
MTBU-16050-S	M16X2.0	50	8.5	1.5	24	8	10	EF	5,190
MTBU-16050-S-T	M16X2.0	50	8.5	3	24	8	10	EF	5,190
MTBU-20030-S	M20X2.5	30	10	4	42	10	13	EF	8,379
MTBU-20030-S-T	M20X2.5	30	10	6	42	10	13	EF	8,379
MTBU-20050-S	M20X2.5	50	10	4	42	10	13	EF	8,379
MTBU-20050-S-T	M20X2.5	50	10	6	42	10	13	EF	8,379
MTBU-20070-S	M20X2.5	70	10	4	42	10	13	EF	8,379
MTBU-20070-S-T	M20X2.5	70	10	6	42	10	13	EF	8,379
MTBU-24040-S	M24X3.0	40	12	4	45	10	15	Fine	12,233
MTBU-24040-S-T	M24X3.0	40	12	6	45	10	15	Fine	12,233
MTBU-24080-S	M24X3.0	80	12	4	45	10	15	Fine	12,233
MTBU-24080-S-T	M24X3.0	80	12	6	45	10	15	Fine	12,233

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Flat Ball | Inch & Metric
Delrin & Tool Steel Ball



The replaceable flat ball swivels to allow for self-alignment on uneven surfaces. A Viton O-ring holds the ball in place while keeping contaminants out and providing smooth ball movement. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The delrin ball is made from non-marring white delrin. The steel ball is made from M-2 high speed steel heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 262 for diagram of components.

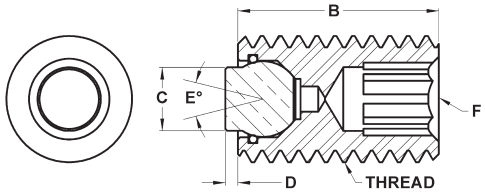
INCH

Delrin Part #	Steel Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
TBU-0370-D	TBU-0370-F	3/8-16	1/2	5/32	1/16	28	3/16	3/16	1,763
TBU-0375-D	TBU-0375-F	3/8-16	1	5/32	1/16	28	3/16	3/16	1,763
TBU-0375 X 2-D	TBU-0375 X 2-F	3/8-16	2	5/32	1/16	28	3/16	3/16	1,763
TBU-0375 X 3-D	TBU-0375 X 3-F	3/8-16	3	5/32	1/16	28	3/16	3/16	1,763
TBU-0230-D	TBU-0230-F	3/8-24	1/2	5/32	1/16	28	3/16	3/16	1,763
TBU-0231-D	TBU-0231-F	3/8-24	1	5/32	1/16	28	3/16	3/16	1,763
TBU-0231 X 2-D	TBU-0231 X 2-F	3/8-24	2	5/32	1/16	28	3/16	3/16	1,763
TBU-0231 X 3-D	TBU-0231 X 3-F	3/8-24	3	5/32	1/16	28	3/16	3/16	1,763
TBU-0513-D	TBU-0513-F	1/2-13	3/4	1/4	1/16	28	1/4	9/32	4,527
TBU-0513-D-T	TBU-0513-F-T	1/2-13	3/4	1/4	1/8	28	1/4	9/32	4,527
TBU-0510-D	TBU-0510-F	1/2-13	1	1/4	1/16	28	1/4	9/32	4,527
TBU-0510-D-T	TBU-0510-F-T	1/2-13	1	1/4	1/8	28	1/4	9/32	4,527
TBU-0510 X 2-D	TBU-0510 X 2-F	1/2-13	2	1/4	1/16	28	1/4	9/32	4,527
TBU-0510 X 2-D-T	TBU-0510 X 2-F-T	1/2-13	2	1/4	1/8	28	1/4	9/32	4,527
TBU-0510 X 3-D	TBU-0510 X 3-F	1/2-13	3	1/4	1/16	28	1/4	9/32	4,527
TBU-0510 X 3-D-T	TBU-0510 X 3-F-T	1/2-13	3	1/4	1/8	28	1/4	9/32	4,527
TBU-0503-D	TBU-0503-F	1/2-20	3/4	1/4	1/16	28	1/4	9/32	4,527
TBU-0503-D-T	TBU-0503-F-T	1/2-20	3/4	1/4	1/8	28	1/4	9/32	4,527
TBU-0500-D	TBU-0500-F	1/2-20	1	1/4	1/16	28	1/4	9/32	4,527
TBU-0500-D-T	TBU-0500-F-T	1/2-20	1	1/4	1/8	28	1/4	9/32	4,527
TBU-0500 X 2-D	TBU-0500 X 2-F	1/2-20	2	1/4	1/16	28	1/4	9/32	4,527
TBU-0500 X 2-D-T	TBU-0500 X 2-F-T	1/2-20	2	1/4	1/8	28	1/4	9/32	4,527
TBU-0500 X 3-D	TBU-0500 X 3-F	1/2-20	3	1/4	1/16	28	1/4	9/32	4,527
TBU-0500 X 3-D-T	TBU-0500 X 3-F-T	1/2-20	3	1/4	1/8	28	1/4	9/32	4,527
TBU-0625-D	TBU-0625-F	5/8-11	1	5/16	1/16	28	5/16	3/8	6,131
TBU-0625-D-T	TBU-0625-F-T	5/8-11	1	5/16	1/8	28	5/16	3/8	6,131
TBU-0625 X 2-D	TBU-0625 X 2-F	5/8-11	2	5/16	1/16	28	5/16	3/8	6,131
TBU-0625 X 2-D-T	TBU-0625 X 2-F-T	5/8-11	2	5/16	1/8	28	5/16	3/8	6,131
TBU-0625 X 3-D	TBU-0625 X 3-F	5/8-11	3	5/16	1/16	28	5/16	3/8	6,131
TBU-0625 X 3-D-T	TBU-0625 X 3-F-T	5/8-11	3	5/16	1/8	28	5/16	3/8	6,131
TBU-0620-D	TBU-0620-F	5/8-18	1	5/16	1/16	28	5/16	3/8	6,131
TBU-0620-D-T	TBU-0620-F-T	5/8-18	1	5/16	1/8	28	5/16	3/8	6,131
TBU-0620 X 2-D	TBU-0620 X 2-F	5/8-18	2	5/16	1/16	28	5/16	3/8	6,131
TBU-0620 X 2-D-T	TBU-0620 X 2-F-T	5/8-18	2	5/16	1/8	28	5/16	3/8	6,131
TBU-0620 X 3-D	TBU-0620 X 3-F	5/8-18	3	5/16	1/16	28	5/16	3/8	6,131
TBU-0620 X 3-D-T	TBU-0620 X 3-F-T	5/8-18	3	5/16	1/8	28	5/16	3/8	6,131
TBU-0755-D	TBU-0755-F	3/4-10	1	3/8	1/8	40	3/8	1/2	8,150
TBU-0755-D-T	TBU-0755-F-T	3/4-10	1	3/8	1/4	40	3/8	1/2	8,150
TBU-0755 X 2-D	TBU-0755 X 2-F	3/4-10	2	3/8	1/8	40	3/8	1/2	8,150
TBU-0755 X 2-D-T	TBU-0755 X 2-F-T	3/4-10	2	3/8	1/4	40	3/8	1/2	8,150
TBU-0755 X 3-D	TBU-0755 X 3-F	3/4-10	3	3/8	1/8	40	3/8	1/2	8,150
TBU-0755 X 3-D-T	TBU-0755 X 3-F-T	3/4-10	3	3/8	1/4	40	3/8	1/2	8,150
TBU-0750-D	TBU-0750-F	3/4-16	1	3/8	1/8	40	3/8	1/2	8,150
TBU-0750-D-T	TBU-0750-F-T	3/4-16	1	3/8	1/4	40	3/8	1/2	8,150
TBU-0750 X 2-D	TBU-0750 X 2-F	3/4-16	2	3/8	1/8	40	3/8	1/2	8,150
TBU-0750 X 2-D-T	TBU-0750 X 2-F-T	3/4-16	2	3/8	1/4	40	3/8	1/2	8,150
TBU-0750 X 3-D	TBU-0750 X 3-F	3/4-16	3	3/8	1/8	40	3/8	1/2	8,150
TBU-0750 X 3-D-T	TBU-0750 X 3-F-T	3/4-16	3	3/8	1/4	40	3/8	1/2	8,150

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL BALL

Threaded Body | Flat Ball | Inch & Metric (continued)
Delrin & Tool Steel Ball



INCH (CONTINUED)

Delrin Part #	Steel Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
TBU-1108-D	TBU-1108-F	1"-8	1	1/2	1/8	40	3/8	5/8	14,757
TBU-1108-D-T	TBU-1108-F-T	1"-8	1	1/2	1/4	40	3/8	5/8	14,757
TBU-1108 X 2-D	TBU-1108 X 2-F	1"-8	2	1/2	1/8	40	3/8	5/8	14,757
TBU-1108 X 2-D-T	TBU-1108 X 2-F-T	1"-8	2	1/2	1/4	40	3/8	5/8	14,757
TBU-1108 X 3-D	TBU-1108 X 3-F	1"-8	3	1/2	1/8	40	3/8	5/8	14,757
TBU-1108 X 3-D-T	TBU-1108 X 3-F-T	1"-8	3	1/2	1/4	40	3/8	5/8	14,757
TBU-1114-D	TBU-1114-F	1"-14	1	5/8	1/8	34	3/8	3/4	17,210
TBU-1114-D-T	TBU-1114-F-T	1"-14	1	5/8	1/4	34	3/8	3/4	17,210
TBU-1114 X 2-D	TBU-1114 X 2-F	1"-14	2	5/8	1/8	34	3/8	3/4	17,210
TBU-1114 X 2-D-T	TBU-1114 X 2-F-T	1"-14	2	5/8	1/4	34	3/8	3/4	17,210
TBU-1114 X 3-D	TBU-1114 X 3-F	1"-14	3	5/8	1/8	34	3/8	3/4	17,210
TBU-1114 X 3-D-T	TBU-1114 X 3-F-T	1"-14	3	5/8	1/4	34	3/8	3/4	17,210

*Load ratings do not apply to the delrin ball styles.

METRIC

Delrin Part #	Steel Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
MTBU-12025-D	MTBU-12025-F	M12X1.75	25	6	1.5	28	6	7	3,440
MTBU-12025-D-T	MTBU-12025-F-T	M12X1.75	25	6	3	28	6	7	3,440
MTBU-12035-D	MTBU-12035-F	M12X1.75	35	6	1.5	28	6	7	3,440
MTBU-12035-D-T	MTBU-12035-F-T	M12X1.75	35	6	3	28	6	7	3,440
MTBU-12050-D	MTBU-12050-F	M12X1.75	50	6	1.5	28	6	7	3,440
MTBU-12050-D-T	MTBU-12050-F-T	M12X1.75	50	6	3	28	6	7	3,440
MTBU-16025-D	MTBU-16025-F	M16X2.0	25	8.5	1.5	24	8	10	5,190
MTBU-16025-D-T	MTBU-16025-F-T	M16X2.0	25	8.5	3	24	8	10	5,190
MTBU-16035-D	MTBU-16035-F	M16X2.0	35	8.5	1.5	24	8	10	5,190
MTBU-16035-D-T	MTBU-16035-F-T	M16X2.0	35	8.5	3	24	8	10	5,190
MTBU-16050-D	MTBU-16050-F	M16X2.0	50	8.5	1.5	24	8	10	5,190
MTBU-16050-D-T	MTBU-16050-F-T	M16X2.0	50	8.5	3	24	8	10	5,190
MTBU-20030-D	MTBU-20030-F	M20X2.5	30	10	4	42	10	13	8,379
MTBU-20030-D-T	MTBU-20030-F-T	M20X2.5	30	10	6	42	10	13	8,379
MTBU-20050-D	MTBU-20050-F	M20X2.5	50	10	4	42	10	13	8,379
MTBU-20050-D-T	MTBU-20050-F-T	M20X2.5	50	10	6	42	10	13	8,379
MTBU-20070-D	MTBU-20070-F	M20X2.5	70	10	4	42	10	13	8,379
MTBU-20070-D-T	MTBU-20070-F-T	M20X2.5	70	10	6	42	10	13	8,379
MTBU-24040-D	MTBU-24040-F	M24X3.0	40	12	4	45	10	15	12,233
MTBU-24040-D-T	MTBU-24040-F-T	M24X3.0	40	12	6	45	10	15	12,233
MTBU-24080-D	MTBU-24080-F	M24X3.0	80	12	4	45	10	15	12,233
MTBU-24080-D-T	MTBU-24080-F-T	M24X3.0	80	12	6	45	10	15	12,233

*Load ratings do not apply to the delrin ball styles.

Swivots® Replaceable Swivel Pad Style

These Replaceable Pad Style Swivots® are found on the following pages.

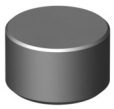
REPLACEABLE PADS

Sof-Top Urethane Surface Stainless

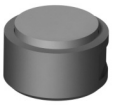
Flat Delrin

Flat Stainless

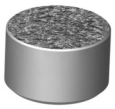
Flat Steel



Flat Carbide Tipped

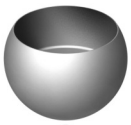


Abrasive Diamond Stainless



Serrated Tool Steel, Carbide Tipped or Solid Carbide

STAINLESS BALL CUP

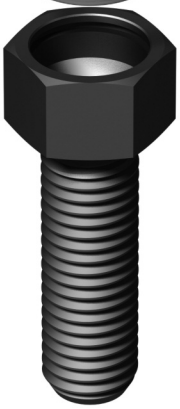


LOCK SCREW

VITON O-RING

HOUSINGS

Base Design



Hex Head Design

Threaded Body Design

Load Calculator

To calculate the load on the contact surface, divide the torque applied (in/lbs) by a factor shown below. Assumes no lubrication threaded into steel. Use as a guideline only.

Note: Contact surface load calculator does not apply for serrated contact points.

INCH

Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

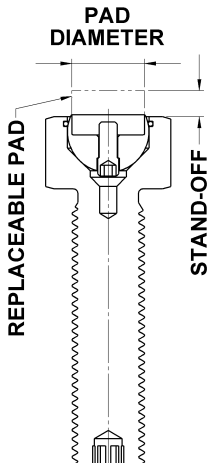
METRIC

Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

- These Replaceable Pad Style Swivots are a modular component system that allows the pad and ball cup to swivel, tilt, clamp, grip, hold, position or secure work pieces. The internal ball cup allows the pad to rotate 360 degrees and tilt at varying degrees in any direction from the centerline.
- The interchangeable parts help to speed set ups and changeovers. The Replaceable Pads allow you to easily change the pad when worn or another style is needed for an application. The swivel assemblies include the housing, O-ring, lock screw and ball cup. Pads must be ordered separately.
- The ball cup is held in place with an O-ring which allows the pad to swivel and keeps out dirt and other contaminants.
- The pad can easily be replaced by pulling the ball cup out of the housing and unscrewing the lock screw which holds the pad into the ball cup.

To select the proper pad:

1. Determine the diameter of the pad for the housing assembly. This can be found on the following pages under "Replaceable Pad Dia."
2. Determine the "Stand Off" dimension required using the



information below:

- 3/8" Pad Height provides 1/8" Stand Off
- 1/2" Pad Height provides 1/4" Stand Off
- 10mm Pad Height provides 4mm Stand Off
- 12mm Pad Height provides 6mm Stand Off

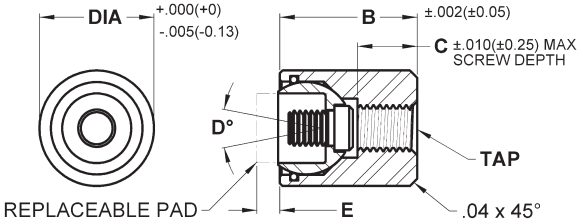
3. Select any Round Fixed Gripper or Rest Pad with the proper diameter and stand off that has a tapped hole.

If you need additional assistance selecting the proper pad or ordering replacement parts, please contact us.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL PAD

Base Design | Inch & Metric



The replaceable pad swivels to allow for self-alignment on uneven surfaces. Cylindrical body allows for installation in tight areas. The housing is tapped for backside fastening. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 286 for diagram of components.

INCH

Part #	Dia.	Tap	B Length	C Screw Depth	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
BBU-500	5/8	1/4-28	3/4	15/64	20	1/8	1/4	1/2	3/8	5,849
BBU-600	13/16	5/16-24	7/8	11/32	24	1/8	1/4	5/8	1/2	10,925
BBU-700	15/16	3/8-24	7/8	9/32	22	1/8	1/4	3/4	5/8	13,325
BBU-800	1-1/8	1/2-20	15/16	17/64	20	1/8	1/4	7/8	3/4	18,863
BBU-1100	1-1/2	1/2-20	1-1/4	7/16	20	1/8	1/4	1-1/8	1	34,619

*E1 – Stand off with 3/8" height pad; E2 – Stand off with 1/2" height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

METRIC

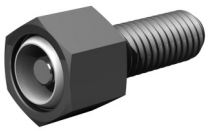
Part #	Dia.	Tap	B Length	C Screw Depth	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
MBBU-1722	17	M6X1.0	18	7.5	20	4	6	13	10	6,170
MBBU-1924	19	M8X1.25	20	8.5	20	4	6	15	12	8,688
MBBU-2428	24	M10X1.50	24	9	20	4	6	20	16	13,122
MBBU-3030	30	M12X1.75	26	8.5	20	4	6	23	20	21,348
MBBU-3636	36	M12X1.75	32	12	20	4	6	28	25	30,558

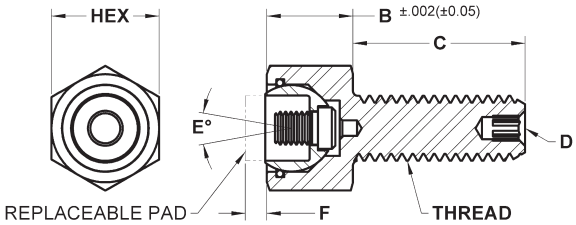
*E1 – Stand off with 10mm height pad; E2 – Stand off with 12mm height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL PAD

Hex Head | Inch & Metric





The replaceable pad swivels to allow for self-alignment on uneven surfaces. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The threads are rolled for strength and rigidity. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 286 for diagram of components.

INCH

Part #	Thread	Hex	B Head Height	C Thread Length	D Int. Hex	E Degree Swivel	F* Stand Off 1	F* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
BUH-0370	3/8-16	5/8	1/2	1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0375	3/8-16	5/8	1/2	1	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0375 X 1.5	3/8-16	5/8	1/2	1-1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0230	3/8-24	5/8	1/2	1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0231	3/8-24	5/8	1/2	1	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0231 X 1.5	3/8-24	5/8	1/2	1-1/2	1/8	20	1/8	1/4	1/2	3/8	3,446
BUH-0510	1/2-13	13/16	5/8	1	3/16	24	1/8	1/4	5/8	1/2	5,937
BUH-0515	1/2-13	13/16	5/8	1-1/2	3/16	24	1/8	1/4	5/8	1/2	5,937
BUH-0240	1/2-20	13/16	5/8	1	3/16	24	1/8	1/4	5/8	1/2	7,178
BUH-0500	1/2-20	13/16	5/8	1-1/2	3/16	24	1/8	1/4	5/8	1/2	7,178
BUH-0625	5/8-11	15/16	11/16	1	1/4	22	1/8	1/4	3/4	5/8	9,932
BUH-0625 X 2	5/8-11	15/16	11/16	2	1/4	22	1/8	1/4	3/4	5/8	9,932
BUH-0620	5/8-18	15/16	11/16	1	1/4	22	1/8	1/4	3/4	5/8	11,874
BUH-0620 X 2	5/8-18	15/16	11/16	2	1/4	22	1/8	1/4	3/4	5/8	11,874
BUH-0755	3/4-10	1-1/8	3/4	1	5/16	20	1/8	1/4	7/8	3/4	14,862
BUH-0755 X 2.5	3/4-10	1-1/8	3/4	2-1/2	5/16	20	1/8	1/4	7/8	3/4	14,862
BUH-0750	3/4-16	1-1/8	3/4	1	5/16	20	1/8	1/4	7/8	3/4	13,565
BUH-0750 X 2.5	3/4-16	1-1/8	3/4	2-1/2	5/16	20	1/8	1/4	7/8	3/4	13,565
BUH-1108 X 2	1"-8	1-1/2	1	2	3/8	20	1/8	1/4	1-1/8	1	28,158
BUH-1108 X 4	1"-8	1-1/2	1	4	3/8	20	1/8	1/4	1-1/8	1	28,158
BUH-1114 X 2	1"-14	1-1/2	1	2	3/8	20	1/8	1/4	1-1/8	1	26,234
BUH-1114 X 4	1"-14	1-1/2	1	4	3/8	20	1/8	1/4	1-1/8	1	26,234

* F1 – Stand off with 3/8" height pad; F2 – Stand off with 1/2" height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

METRIC

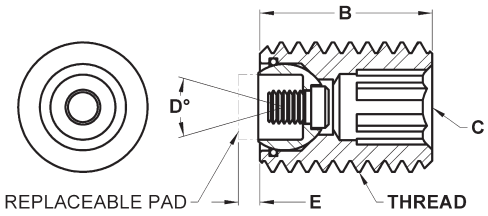
Part #	Thread	Hex	B Head Height	C Thread Length	D Int. Hex	E Degree Swivel	F* Stand Off 1	F* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
MBUH-10015	M10X1.5	17	13	15	3	20	4	6	13	10	4,194
MBUH-10030	M10X1.5	17	13	30	3	20	4	6	13	10	4,194
MBUH-10050	M10X1.5	17	13	50	3	20	4	6	13	10	4,194
MBUH-12020	M12X1.75	19	15	20	5	20	4	6	15	12	6,627
MBUH-12040	M12X1.75	19	15	40	5	20	4	6	15	12	6,627
MBUH-12060	M12X1.75	19	15	60	5	20	4	6	15	12	6,627
MBUH-16025	M16X2.0	24	19	25	6	20	4	6	20	16	11,193
MBUH-16050	M16X2.0	24	19	50	6	20	4	6	20	16	11,193
MBUH-16080	M16X2.0	24	19	80	6	20	4	6	20	16	11,193
MBUH-20030	M20X2.5	30	20	30	8	20	4	6	23	20	19,136
MBUH-20060	M20X2.5	30	20	60	8	20	4	6	23	20	19,136
MBUH-20100	M20X2.5	30	20	100	8	20	4	6	23	20	19,136
MBUH-24040	M24X3.0	36	26	40	10	20	4	6	28	25	27,239
MBUH-24100	M24X3.0	36	26	100	10	20	4	6	28	25	27,239

* F1 – Stand off with 10mm height pad; F2 – Stand off with 12mm height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

Fairlane®

SWIVOTS® – REPLACEABLE SWIVEL PAD

Threaded Body | Inch & Metric



The replaceable pad swivels to allow for self-alignment on uneven surfaces. The replaceable pad fits in a hardened (Rc 58/60) 440c stainless ball cup and is held in place with a lock screw. The pad can be replaced when worn or a different style pad is required. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The parts below are for the Swivot assembly only and do not include a pad. Pads must be ordered separately. See page 286 for diagram of components.

INCH

Part #	Thread	B Length	C Int. Hex	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
TBU-0755	3/4-10	1	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0755 X 2	3/4-10	2	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0755 X 3	3/4-10	3	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0750	3/4-16	1	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0750 X 2	3/4-16	2	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-0750 X 3	3/4-16	3	3/8	20	1/8	1/4	1/2	3/8	8,150
TBU-1108 X 2	1"-8	2	3/8	24	1/8	1/4	5/8	1/2	14,757
TBU-1108 X 3	1"-8	3	3/8	24	1/8	1/4	5/8	1/2	14,757
TBU-1114 X 2	1"-14	2	3/8	34	1/8	1/4	3/4	5/8	17,210
TBU-1114 X 3	1"-14	3	3/8	34	1/8	1/4	3/4	5/8	17,210

* E1 – Stand off with 3/8" height pad; E2 – Stand off with 1/2" height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

METRIC

Part #	Thread	B Length	C Int. Hex	D Degree Swivel	E* Stand Off 1	E* Stand Off 2	Ball Dia.	Replaceable Pad Dia.**	Load Rating Lbs.
MTBU-20030	M20X2.5	30	10	20	4	6	13	10	8,379
MTBU-20050	M20X2.5	50	10	20	4	6	13	10	8,379
MTBU-20070	M20X2.5	70	10	20	4	6	13	10	8,379
MTBU-24040	M24X3.0	40	10	20	4	6	15	12	12,233
MTBU-24080	M24X3.0	80	10	20	4	6	15	12	12,233

*E1 – Stand off with 10mm height pad; E2 – Stand off with 12mm height pad.
** Select any fixed gripper or rest pad with the proper diameter and tapped hole.

Replaceable Ball Thrust Screw Assemblies

These Replaceable Ball Thrust Screw Assemblies are found on the following pages.

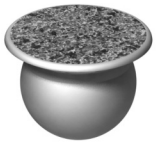
REPLACEABLE BALLS

Sof-Top Cone
Urethane Surface
Stainless

Flat Cone
Delrin

Flat Cone
Stainless

Abrasive Diamond Cone
Stainless



Serrated
Tool Steel

Round Ball
Stainless

Round Ball
Delrn

VITON O-RING

HOUSINGS

Threaded Body Design

Socket Head Design

Tightening Torque Calculator

To calculate the approximate tightening torque (in/lb) required to achieve a required force, multiply the force by the appropriate factor listed below. Assumes no lubrication threaded into steel. Use as a guideline only.

Note: This rating is for the ball, not the gripper points or cone surface.

INCH

Thread	Factor	Thread	Factor
#10-24	0.036	1/2-13	0.093
#10-32	0.035	1/2-20	0.091
1/4-20	0.047	5/8-11	0.116
1/4-28	0.046	5/8-18	0.113
5/16-18	0.059	3/4-10	0.138
5/16-24	0.058	3/4-16	0.135
3/8-16	0.070	1-8	0.183
3/8-24	0.068	1-14	0.180

METRIC

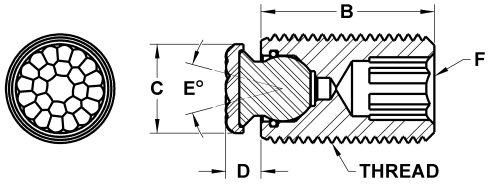
Thread	Factor	Thread	Factor
M6x1.00	0.044	M16x2.00	0.116
M8x1.25	0.058	M20x2.50	0.144
M10x1.50	0.073	M24x3.00	0.173
M12x1.75	0.087		

- These Replaceable Ball Thrust Screw Assemblies are a modular component system that allows the ball to swivel, tilt, pivot, grip, hold, position or secure work pieces.
- The different housing styles allows for a variety of mounting options.
- Unique design prevents the ball from exceeding the specified degree of swivel -preventing the ball from rolling over in the housing.
- The replaceable ball can be changed when it is worn or another style is needed for a job.
- The ball is held in place with a Viton O-ring which allows for smooth movement and keeps out dirt and other contaminants.
- Replacement balls and o-rings can be ordered separately. It is recommended the o-ring be replaced when the ball is replaced.

Fairlane®

THRUST SCREW ASSEMBLIES

Threaded Body | Stainless Ball | Inch
Sof-Top Urethane Surface Ball



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately.
See page 290 for diagram of components. Visit www.fixtureworks.net for compression load ratings. To order part, add desired durometer (xx) to the part number. Sample TST-0370-FC-35UR.

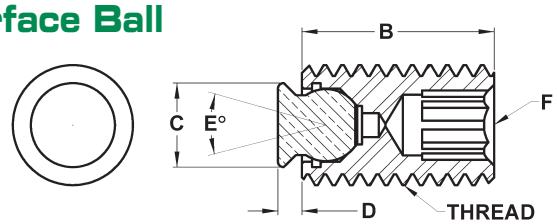
INCH

Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Urethane Thickness	xx = Durometer
TST-0370-FC-xxUR	3/8-16	1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0375 X .75-FC-xxUR	3/8-16	3/4	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0375-FC-xxUR	3/8-16	1	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0375 X 1.5-FC-xxUR	3/8-16	1-1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0375 X 2-FC-xxUR	3/8-16	2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0375 X 3-FC-xxUR	3/8-16	3	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0230-FC-xxUR	3/8-24	1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0230 X .75-FC-xxUR	3/8-24	3/4	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0231-FC-xxUR	3/8-24	1	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0231 X 1.5-FC-xxUR	3/8-24	1-1/2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0231 X 2-FC-xxUR	3/8-24	2	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0231 X 3-FC-xxUR	3/8-24	3	.315	.143	28	3/16	3/16	.08	60 / 80
TST-0513-FC-xxUR	1/2-13	3/4	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0510-FC-xxUR	1/2-13	1	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0510 X 1.5-FC-xxUR	1/2-13	1-1/2	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0510 X 2-FC-xxUR	1/2-13	2	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0510 X 3-FC-xxUR	1/2-13	3	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0503-FC-xxUR	1/2-20	3/4	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0500-FC-xxUR	1/2-20	1	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0500 X 1.5-FC-xxUR	1/2-20	1-1/2	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0500 X 2-FC-xxUR	1/2-20	2	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0500 X 3-FC-xxUR	1/2-20	3	.394	.174	28	1/4	9/32	.08	60 / 80
TST-0625-FC-xxUR	5/8-11	1	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0625 X 2-FC-xxUR	5/8-11	2	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0625 X 3-FC-xxUR	5/8-11	3	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0620-FC-xxUR	5/8-18	1	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0620 X 2-FC-xxUR	5/8-18	2	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0620 X 3-FC-xxUR	5/8-18	3	.512	.205	28	5/16	3/8	.08	60 / 80
TST-0755-FC-xxUR	3/4-10	1	.630	.205	28	3/8	1/2	.08	60 / 80
TST-0755 X 2-FC-xxUR	3/4-10	2	.630	.205	28	3/8	1/2	.08	60 / 80
TST-0755 X 3-FC-xxUR	3/4-10	3	.630	.205	28	3/8	1/2	.08	60 / 80
TST-0750-FC-xxUR	3/4-16	1	.630	.205	28	3/8	1/2	.08	60 / 80
TST-0750 X 2-FC-xxUR	3/4-16	2	.630	.205	28	3/8	1/2	.08	60 / 80
TST-0750 X 3-FC-xxUR	3/4-16	3	.630	.205	28	3/8	1/2	.08	60 / 80
TST-1108-FC-xxUR	1"-8	1	.827	.236	32	3/8	5/8	.08	60 / 80
TST-1108 X 2-FC-xxUR	1"-8	2	.827	.236	32	3/8	5/8	.08	60 / 80
TST-1108 X 3-FC-xxUR	1"-8	3	.827	.236	32	3/8	5/8	.08	60 / 80
TST-1114-FC-xxUR	1"-14	1	.906	.236	32	3/8	3/4	.08	60 / 80
TST-1114 X 2-FC-xxUR	1"-14	2	.906	.236	32	3/8	3/4	.08	60 / 80
TST-1114 X 3-FC-xxUR	1"-14	3	.906	.236	32	3/8	3/4	.08	60 / 80

Fairlane®

THRUST SCREW ASSEMBLIES

Threaded Body | Flat Cone | Inch
Delrin, Stainless & Diamond Surface Ball



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The delrin ball is made from non-marring white delrin. The stainless ball is made from 300 series stainless steel. The diamond style has a diamond abrasive surface that is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 290 for diagram of components.

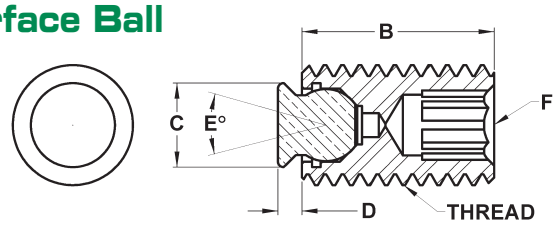
INCH

Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
TST-0250-DC	TST-0250-FC	—	1/4-20	1/2	9/64	1/16	30	1/8	1/8	—
TST-0251-DC	TST-0251-FC	—	1/4-20	3/4	9/64	1/16	30	1/8	1/8	—
TST-0251 X 1-DC	TST-0251 X 1-FC	—	1/4-20	1	9/64	1/16	30	1/8	1/8	—
TST-0280-DC	TST-0280-FC	—	1/4-28	1/2	9/64	1/16	30	1/8	1/8	—
TST-0281-DC	TST-0281-FC	—	1/4-28	3/4	9/64	1/16	30	1/8	1/8	—
TST-0281 X 1-DC	TST-0281 X 1-FC	—	1/4-28	1	9/64	1/16	30	1/8	1/8	—
TST-0310-DC	TST-0310-FC	—	5/16-18	1/2	13/64	1/16	30	5/32	5/32	—
TST-0312-DC	TST-0312-FC	—	5/16-18	3/4	13/64	1/16	30	5/32	5/32	—
TST-0312 X 1-DC	TST-0312 X 1-FC	—	5/16-18	1	13/64	1/16	30	5/32	5/32	—
TST-0312 X 1.5-DC	TST-0312 X 1.5-FC	—	5/16-18	1-1/2	13/64	1/16	30	5/32	5/32	—
TST-0320-DC	TST-0320-FC	—	5/16-24	1/2	13/64	1/16	30	5/32	5/32	—
TST-0321-DC	TST-0321-FC	—	5/16-24	3/4	13/64	1/16	30	5/32	5/32	—
TST-0321 X 1-DC	TST-0321 X 1-FC	—	5/16-24	1	13/64	1/16	30	5/32	5/32	—
TST-0321 X 1.5-DC	TST-0321 X 1.5-FC	—	5/16-24	1-1/2	13/64	1/16	30	5/32	5/32	—
TST-0370-DC	TST-0370-FC	TST-0370-FC-DS	3/8-16	1/2	1/4	3/32	28	3/16	3/16	1,763
TST-0370 X .75-DC	TST-0370 X .75-FC	TST-0370 X .75-FC-DS	3/8-16	3/4	1/4	3/32	28	3/16	3/16	1,763
TST-0375-DC	TST-0375-FC	TST-0375-FC-DS	3/8-16	1	1/4	3/32	28	3/16	3/16	1,763
TST-0375 X 1.5-DC	TST-0375 X 1.5-FC	TST-0375 X 1.5-FC-DS	3/8-16	1-1/2	1/4	3/32	28	3/16	3/16	1,763
TST-0375 X 2-DC	TST-0375 X 2-FC	TST-0375 X 2-FC-DS	3/8-16	2	1/4	3/32	28	3/16	3/16	1,763
TST-0375 X 3-DC	TST-0375 X 3-FC	TST-0375 X 3-FC-DS	3/8-16	3	1/4	3/32	28	3/16	3/16	1,763
TST-0230-DC	TST-0230-FC	TST-0230-FC-DS	3/8-24	1/2	1/4	3/32	28	3/16	3/16	1,763
TST-0230 X .75-DC	TST-0230 X .75-FC	TST-0230 X .75-FC-DS	3/8-24	3/4	1/4	3/32	28	3/16	3/16	1,763
TST-0231-DC	TST-0231-FC	TST-0231-FC-DS	3/8-24	1	1/4	3/32	28	3/16	3/16	1,763
TST-0231 X 1.5-DC	TST-0231 X 1.5-FC	TST-0231 X 1.5-FC-DS	3/8-24	1-1/2	1/4	3/32	28	3/16	3/16	1,763
TST-0231 X 2-DC	TST-0231 X 2-FC	TST-0231 X 2-FC-DS	3/8-24	2	1/4	3/32	28	3/16	3/16	1,763
TST-0231 X 3-DC	TST-0231 X 3-FC	TST-0231 X 3-FC-DS	3/8-24	3	1/4	3/32	28	3/16	3/16	1,763
TST-0513-DC	TST-0513-FC	TST-0513-FC-DS	1/2-13	3/4	11/32	3/32	28	1/4	9/32	4,527
TST-0510-DC	TST-0510-FC	TST-0510-FC-DS	1/2-13	1	11/32	3/32	28	1/4	9/32	4,527
TST-0510 X 1.5-DC	TST-0510 X 1.5-FC	TST-0510 X 1.5-FC-DS	1/2-13	1-1/2	11/32	3/32	28	1/4	9/32	4,527
TST-0510 X 2-DC	TST-0510 X 2-FC	TST-0510 X 2-FC-DS	1/2-13	2	11/32	3/32	28	1/4	9/32	4,527
TST-0510 X 3-DC	TST-0510 X 3-FC	TST-0510 X 3-FC-DS	1/2-13	3	11/32	3/32	28	1/4	9/32	4,527
TST-0503-DC	TST-0503-FC	TST-0503-FC-DS	1/2-20	3/4	11/32	3/32	28	1/4	9/32	4,527
TST-0500-DC	TST-0500-FC	TST-0500-FC-DS	1/2-20	1	11/32	3/32	28	1/4	9/32	4,527
TST-0500 X 1.5-DC	TST-0500 X 1.5-FC	TST-0500 X 1.5-FC-DS	1/2-20	1-1/2	11/32	3/32	28	1/4	9/32	4,527
TST-0500 X 2-DC	TST-0500 X 2-FC	TST-0500 X 2-FC-DS	1/2-20	2	11/32	3/32	28	1/4	9/32	4,527
TST-0500 X 3-DC	TST-0500 X 3-FC	TST-0500 X 3-FC-DS	1/2-20	3	11/32	3/32	28	1/4	9/32	4,527
TST-0625-DC	TST-0625-FC	TST-0625-FC-DS	5/8-11	1	7/16	1/8	28	5/16	3/8	6,131
TST-0625 X 2-DC	TST-0625 X 2-FC	TST-0625 X 2-FC-DS	5/8-11	2	7/16	1/8	28	5/16	3/8	6,131
TST-0625 X 3-DC	TST-0625 X 3-FC	TST-0625 X 3-FC-DS	5/8-11	3	7/16	1/8	28	5/16	3/8	6,131
TST-0620-DC	TST-0620-FC	TST-0620-FC-DS	5/8-18	1	7/16	1/8	28	5/16	3/8	6,131
TST-0620 X 2-DC	TST-0620 X 2-FC	TST-0620 X 2-FC-DS	5/8-18	2	7/16	1/8	28	5/16	3/8	6,131
TST-0620 X 3-DC	TST-0620 X 3-FC	TST-0620 X 3-FC-DS	5/8-18	3	7/16	1/8	28	5/16	3/8	6,131

Fairlane®

THRUST SCREW ASSEMBLIES

Threaded Body | Flat Cone | Inch (continued)
Delrin, Stainless & Diamond Surface Ball



INCH (CONTINUED)

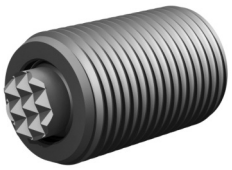
Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Load Rating Lbs.*
TST-0755-DC	TST-0755-FC	TST-0755-FC-DS	3/4-10	1	33/64	1/8	28	3/8	1/2	8,150
TST-0755 X 2-DC	TST-0755 X 2-FC	TST-0755 X 2-FC-DS	3/4-10	2	33/64	1/8	28	3/8	1/2	8,150
TST-0755 X 3-DC	TST-0755 X 3-FC	TST-0755 X 3-FC-DS	3/4-10	3	33/64	1/8	28	3/8	1/2	8,150
TST-0750-DC	TST-0750-FC	TST-0750-FC-DS	3/4-16	1	33/64	1/8	28	3/8	1/2	8,150
TST-0750 X 2-DC	TST-0750 X 2-FC	TST-0750 X 2-FC-DS	3/4-16	2	33/64	1/8	28	3/8	1/2	8,150
TST-0750 X 3-DC	TST-0750 X 3-FC	TST-0750 X 3-FC-DS	3/4-16	3	33/64	1/8	28	3/8	1/2	8,150
TST-1108-DC	TST-1108-FC	TST-1108-FC-DS	1"-8	1	11/16	5/32	32	3/8	5/8	14,757
TST-1108 X 2-DC	TST-1108 X 2-FC	TST-1108 X 2-FC-DS	1"-8	2	11/16	5/32	32	3/8	5/8	14,757
TST-1108 X 3-DC	TST-1108 X 3-FC	TST-1108 X 3-FC-DS	1"-8	3	11/16	5/32	32	3/8	5/8	14,757
TST-1114-DC	TST-1114-FC	TST-1114-FC-DS	1"-14	1	49/64	5/32	32	3/8	3/4	17,210
TST-1114 X 2-DC	TST-1114 X 2-FC	TST-1114 X 2-FC-DS	1"-14	2	49/64	5/32	32	3/8	3/4	17,210
TST-1114 X 3-DC	TST-1114 X 3-FC	TST-1114 X 3-FC-DS	1"-14	3	49/64	5/32	32	3/8	3/4	17,210

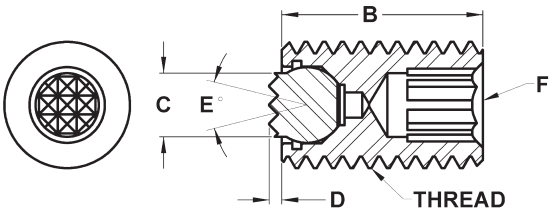
*Load ratings do not apply to the delrin ball styles.

Fairlane®

THRUST SCREW ASSEMBLIES

Threaded Body | Serrated | Inch
Tool Steel Ball





These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from M-2 high speed steel and heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 232 for tooth pattern specifications. See page 290 for diagram of components.

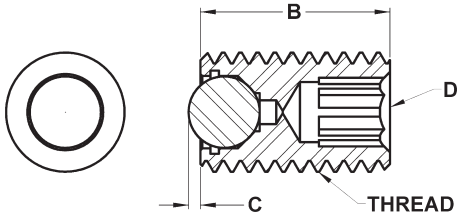
INCH

Part #	Thread	B Thread Length	C Contact Dia.	D Stand Off	E Degree Swivel	F Int. Hex	Ball Dia.	Tooth Pattern	Load Rating Lbs.
TST-0370-S	3/8-16	1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0370 X .75-S	3/8-16	3/4	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0375-S	3/8-16	1	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0375 X 1.5-S	3/8-16	1-1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0375 X 2-S	3/8-16	2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0375 X 3-S	3/8-16	3	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0230-S	3/8-24	1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0230 X .75-S	3/8-24	3/4	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0231-S	3/8-24	1	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0231 X 1.5-S	3/8-24	1-1/2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0231 X 2-S	3/8-24	2	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0231 X 3-S	3/8-24	3	5/32	1/16	28	3/16	3/16	SF	1,763
TST-0513-S	1/2-13	3/4	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0510-S	1/2-13	1	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0510 X 1.5-S	1/2-13	1-1/2	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0510 X 2-S	1/2-13	2	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0510 X 3-S	1/2-13	3	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0503-S	1/2-20	3/4	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0500-S	1/2-20	1	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0500 X 1.5-S	1/2-20	1-1/2	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0500 X 2-S	1/2-20	2	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0500 X 3-S	1/2-20	3	1/4	1/16	28	1/4	9/32	SF	4,527
TST-0625-S	5/8-11	1	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0625 X 2-S	5/8-11	2	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0625 X 3-S	5/8-11	3	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0620-S	5/8-18	1	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0620 X 2-S	5/8-18	2	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0620 X 3-S	5/8-18	3	5/16	1/16	28	5/16	3/8	EF	6,131
TST-0755-S	3/4-10	1	3/8	1/8	40	3/8	1/2	EF	8,150
TST-0755 X 2-S	3/4-10	2	3/8	1/8	40	3/8	1/2	EF	8,150
TST-0755 X 3-S	3/4-10	3	3/8	1/8	40	3/8	1/2	EF	8,150
TST-0750-S	3/4-16	1	3/8	1/8	40	3/8	1/2	EF	8,150
TST-0750 X 2-S	3/4-16	2	3/8	1/8	40	3/8	1/2	EF	8,150
TST-0750 X 3-S	3/4-16	3	3/8	1/8	40	3/8	1/2	EF	8,150
TST-1108-S	1"-8	1	1/2	1/8	40	3/8	5/8	Fine	14,757
TST-1108 X 2-S	1"-8	2	1/2	1/8	40	3/8	5/8	Fine	14,757
TST-1108 X 3-S	1"-8	3	1/2	1/8	40	3/8	5/8	Fine	14,757
TST-1114-S	1"-14	1	5/8	1/8	34	3/8	3/4	Fine	17,210
TST-1114 X 2-S	1"-14	2	5/8	1/8	34	3/8	3/4	Fine	17,210
TST-1114 X 3-S	1"-14	3	5/8	1/8	34	3/8	3/4	Fine	17,210

Fairlane®

THRUST SCREW ASSEMBLIES

Threaded Body | Round Ball | Inch
Delrin & Stainless Ball



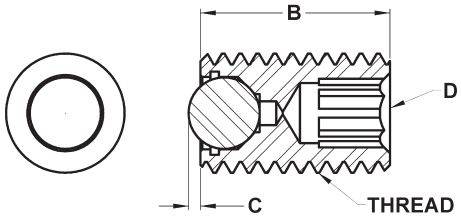
These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The delrin ball is made from non-marring white delrin. The stainless ball is made from 440c stainless steel and heat treated to Rc 58/62. Replacement balls and O-rings can be ordered separately. See page 290 for diagram of components.

INCH

Delrin Part #	Stainless Part #	Thread	B Thread Length	C Stand Off	Ball Dia.	D Int. Hex	Load Rating Lbs.*
TST-0310-DB	TST-0310-SB	5/16-18	1/2	.026	5/32	5/32	—
TST-0312-DB	TST-0312-SB	5/16-18	3/4	.026	5/32	5/32	—
TST-0312 X 1-DB	TST-0312 X 1-SB	5/16-18	1	.026	5/32	5/32	—
TST-0312 X 1.5-DB	TST-0312 X 1.5-SB	5/16-18	1-1/2	.026	5/32	5/32	—
TST-0320-DB	TST-0320-SB	5/16-24	1/2	.026	5/32	5/32	—
TST-0321-DB	TST-0321-SB	5/16-24	3/4	.026	5/32	5/32	—
TST-0321 X 1-DB	TST-0321 X 1-SB	5/16-24	1	.026	5/32	5/32	—
TST-0321 X 1.5-DB	TST-0321 X 1.5-SB	5/16-24	1-1/2	.026	5/32	5/32	—
TST-0370-DB	TST-0370-SB	3/8-16	1/2	.024	3/16	3/16	1,763
TST-0370 X .75-DB	TST-0370 X .75-SB	3/8-16	3/4	.024	3/16	3/16	1,763
TST-0375-DB	TST-0375-SB	3/8-16	1	.024	3/16	3/16	1,763
TST-0375 X 1.5-DB	TST-0375 X 1.5-SB	3/8-16	1-1/2	.024	3/16	3/16	1,763
TST-0375 X 2-DB	TST-0375 X 2-SB	3/8-16	2	.024	3/16	3/16	1,763
TST-0375 X 3-DB	TST-0375 X 3-SB	3/8-16	3	.024	3/16	3/16	1,763
TST-0230-DB	TST-0230-SB	3/8-24	1/2	.024	3/16	3/16	1,763
TST-0230 X .75-DB	TST-0230 X .75-SB	3/8-24	3/4	.024	3/16	3/16	1,763
TST-0231-DB	TST-0231-SB	3/8-24	1	.024	3/16	3/16	1,763
TST-0231 X 1.5-DB	TST-0231 X 1.5-SB	3/8-24	1-1/2	.024	3/16	3/16	1,763
TST-0231 X 2-DB	TST-0231 X 2-SB	3/8-24	2	.024	3/16	3/16	1,763
TST-0231 X 3-DB	TST-0231 X 3-SB	3/8-24	3	.024	3/16	3/16	1,763
TST-0513-DB	TST-0513-SB	1/2-13	3/4	.063	9/32	1/4	4,527
TST-0510-DB	TST-0510-SB	1/2-13	1	.063	9/32	1/4	4,527
TST-0510 X 1.5-DB	TST-0510 X 1.5-SB	1/2-13	1-1/2	.063	9/32	1/4	4,527
TST-0510 X 2-DB	TST-0510 X 2-SB	1/2-13	2	.063	9/32	1/4	4,527
TST-0510 X 3-DB	TST-0510 X 3-SB	1/2-13	3	.063	9/32	1/4	4,527
TST-0503-DB	TST-0503-SB	1/2-20	3/4	.063	9/32	1/4	4,527
TST-0500-DB	TST-0500-SB	1/2-20	1	.063	9/32	1/4	4,527
TST-0500 X 1.5-DB	TST-0500 X 1.5-SB	1/2-20	1-1/2	.063	9/32	1/4	4,527
TST-0500 X 2-DB	TST-0500 X 2-SB	1/2-20	2	.063	9/32	1/4	4,527
TST-0500 X 3-DB	TST-0500 X 3-SB	1/2-20	3	.063	9/32	1/4	4,527
TST-0625-DB	TST-0625-SB	5/8-11	1	.063	3/8	5/16	6,131
TST-0625 X 2-DB	TST-0625 X 2-SB	5/8-11	2	.063	3/8	5/16	6,131
TST-0625 X 3-DB	TST-0625 X 3-SB	5/8-11	3	.063	3/8	5/16	6,131
TST-0620-DB	TST-0620-SB	5/8-18	1	.063	3/8	5/16	6,131
TST-0620 X 2-DB	TST-0620 X 2-SB	5/8-18	2	.063	3/8	5/16	6,131
TST-0620 X 3-DB	TST-0620 X 3-SB	5/8-18	3	.063	3/8	5/16	6,131
TST-0755-DB	TST-0755-SB	3/4-10	1	.107	1/2	3/8	8,150
TST-0755 X 2-DB	TST-0755 X 2-SB	3/4-10	2	.107	1/2	3/8	8,150
TST-0755 X 3-DB	TST-0755 X 3-SB	3/4-10	3	.107	1/2	3/8	8,150
TST-0750-DB	TST-0750-SB	3/4-16	1	.107	1/2	3/8	8,150
TST-0750 X 2-DB	TST-0750 X 2-SB	3/4-16	2	.107	1/2	3/8	8,150
TST-0750 X 3-DB	TST-0750 X 3-SB	3/4-16	3	.107	1/2	3/8	8,150

*Load ratings do not apply to the delrin ball styles.

Threaded Body | Round Ball | Inch (continued)
Delrin & Stainless Ball



INCH (CONTINUED)

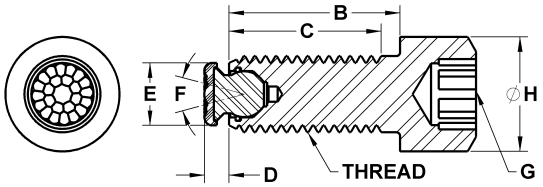
Delrin Part #	Stainless Part #	Thread	B Thread Length	C Stand Off	Ball Dia.	D Int. Hex	Load Rating Lbs.*
TST-1108-DB	TST-1108-SB	1"-8	1	.175	5/8	3/8	14,757
TST-1108 X 2-DB	TST-1108 X 2-SB	1"-8	2	.175	5/8	3/8	14,757
TST-1108 X 3-DB	TST-1108 X 3-SB	1"-8	3	.175	5/8	3/8	14,757
TST-1114-DB	TST-1114-SB	1"-14	1	.208	3/4	3/8	17,210
TST-1114 X 2-DB	TST-1114 X 2-SB	1"-14	2	.208	3/4	3/8	17,210
TST-1114 X 3-DB	TST-1114 X 3-SB	1"-14	3	.208	3/4	3/8	17,210

*Load ratings do not apply to the delrin ball styles.

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Inch
Sof-Top Urethane Surface Ball



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The urethane surface is permanently bonded to a 300 series stainless steel ball. The non-marking, non-staining urethane provides excellent protection against damage on delicate work surfaces. The "bubbled" texture of the urethane top offers firm holding and allows air to escape so no suction is created between the contact surface and the top of the rest pad as it is compressed. Because the top is made of urethane it offers superior abrasion and wear resistance. They are available in two durometers to meet a wide variety of application needs. Replacement balls and O-rings can be ordered separately.
See page 290 for diagram of components. Visit www.fixtureworks.net for compression load ratings. To order part, add desired durometer (xx) to the part number. Sample TSH-0375-FC-35UR.

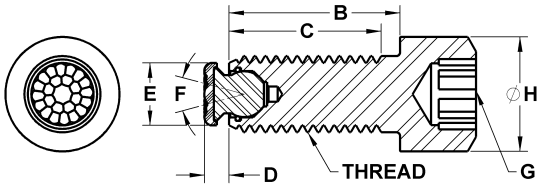
INCH

Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	H Head Dia.	Ball Dia.	Urethane Thickness	xx = Durometer
TSH-0375-FC-xxUR	3/8-16	1	1	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0375 X 1.5-FC-xxUR	3/8-16	1-1/2	1-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0375 X 2-FC-xxUR	3/8-16	2	1-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSHF-0375 X 2-FC-xxUR	3/8-16	2	2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0375 X 2.5-FC-xxUR	3/8-16	2-1/2	1-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSHF-0375 X 2.5-FC-xxUR	3/8-16	2-1/2	2-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0231-FC-xxUR	3/8-24	1	1	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0231 X 1.5-FC-xxUR	3/8-24	1-1/2	1-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0231 X 2-FC-xxUR	3/8-24	2	1-3/8	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSHF-0231 X 2-FC-xxUR	3/8-24	2	2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0231 X 2.5-FC-xxUR	3/8-24	2-1/2	1-3/8	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSHF-0231 X 2.5-FC-xxUR	3/8-24	2-1/2	2-1/2	.143	.315	28	5/16	9/16	3/16	.08	60 / 80
TSH-0510 X 1.25-FC-xxUR	1/2-13	1-1/4	1-1/4	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0510 X 2-FC-xxUR	1/2-13	2	2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0510 X 2.5-FC-xxUR	1/2-13	2-1/2	1-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSHF-0510 X 2.5-FC-xxUR	1/2-13	2-1/2	2-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0510 X 3-FC-xxUR	1/2-13	3	1-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSHF-0510 X 3-FC-xxUR	1/2-13	3	3	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0500 X 1.25-FC-xxUR	1/2-20	1-1/4	1-1/4	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0500 X 1.5-FC-xxUR	1/2-20	1-1/2	1-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0500 X 2-FC-xxUR	1/2-20	2	2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSHF-0500 X 2.5-FC-xxUR	1/2-20	2-1/2	2-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0500 X 3-FC-xxUR	1/2-20	3	1-1/2	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSHF-0500 X 3-FC-xxUR	1/2-20	3	3	.174	.394	28	3/8	3/4	9/32	.08	60 / 80
TSH-0625-FC-xxUR	5/8-11	1-1/2	1-1/2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0625 X 2-FC-xxUR	5/8-11	2	2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0625 X 2.5-FC-xxUR	5/8-11	2-1/2	1-3/4	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSHF-0625 X 2.5-FC-xxUR	5/8-11	2-1/2	2-1/2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0625 X 3-FC-xxUR	5/8-11	3	1-3/4	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSHF-0625 X 3-FC-xxUR	5/8-11	3	3	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0620-FC-xxUR	5/8-18	1-1/2	1-1/2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0620 X 2-FC-xxUR	5/8-18	2	2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0620 X 2.5-FC-xxUR	5/8-18	2-1/2	1-3/4	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSHF-0620 X 2.5-FC-xxUR	5/8-18	2-1/2	2-1/2	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSH-0620 X 3-FC-xxUR	5/8-18	3	1-3/4	.205	.512	28	1/2	15/16	3/8	.08	60 / 80
TSHF-0620 X 3-FC-xxUR	5/8-18	3	3	.205	.512	28	1/2	15/16	3/8	.08	60 / 80

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Stainless Ball | Inch (continued)
Sof-Top Urethane Surface Ball



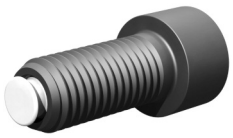
INCH (CONTINUED)

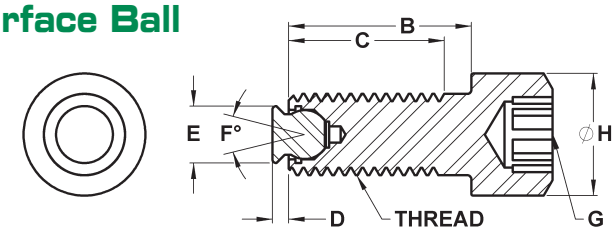
Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	H Head Dia.	Ball Dia.	Urethane Thickness	xx = Durometer
TSH-0755 X 2-FC-xxUR	3/4-10	2	2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-0755 X 2.5-FC-xxUR	3/4-10	2-1/2	2-1/2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-0755 X 3-FC-xxUR	3/4-10	3	2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSHF-0755 X 3-FC-xxUR	3/4-10	3	3	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-0750 X 2-FC-xxUR	3/4-16	2	2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-0750 X 2.5-FC-xxUR	3/4-16	2-1/2	2-1/2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-0750 X 3-FC-xxUR	3/4-16	3	2	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSHF-0750 X 3-FC-xxUR	3/4-16	3	3	.205	.630	28	5/8	1-1/8	1/2	.08	60 / 80
TSH-1108 X 2-FC-xxUR	1"-8	2	2	.236	.827	32	3/4	1-1/2	5/8	.08	60 / 80
TSH-1108 X 3-FC-xxUR	1"-8	3	3	.236	.827	32	3/4	1-1/2	5/8	.08	60 / 80
TSH-1108 X 4-FC-xxUR	1"-8	4	2-1/2	.236	.827	32	3/4	1-1/2	5/8	.08	60 / 80
TSHF-1108 X 4-FC-xxUR	1"-8	4	4	.236	.827	32	3/4	1-1/2	5/8	.08	60 / 80
TSH-1114 X 2-FC-xxUR	1"-14	2	2	.236	.906	32	3/4	1-1/2	3/4	.08	60 / 80
TSH-1114 X 3-FC-xxUR	1"-14	3	3	.236	.906	32	3/4	1-1/2	3/4	.08	60 / 80
TSH-1114 X 4-FC-xxUR	1"-14	4	2-1/2	.236	.906	32	3/4	1-1/2	3/4	.08	60 / 80
TSHF-1114 X 4-FC-xxUR	1"-14	4	4	.236	.906	32	3/4	1-1/2	3/4	.08	60 / 80

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Flat Cone | Inch
Delrin, Stainless & Diamond Surface Ball





These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The delrin ball is made from non-marring white delrin. The stainless ball is made from 300 series stainless steel. The diamond style has a diamond abrasive surface that is permanently fused to a 300 series stainless steel pad. The surface texture is comparable to a 100 grit abrasive. They are ideal for holding smooth or slippery applications with a minimum of clamping pressure. Individual diamond particles transfer holding pressure to a very small and well distributed area, providing superior holding with minimal surface marking. The diamond surface provides unparalleled wear resistance. Replacement balls and O-rings can be ordered separately. See page 290 for diagram of components.

INCH

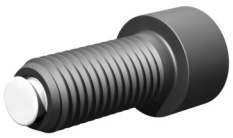
Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	H Head Dia.	Ball Dia.	Load Rating Lbs.*
TSH-0250-DC	TSH-0250-FC	—	1/4-20	3/4	3/4	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0251-DC	TSH-0251-FC	—	1/4-20	1	1	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0251 X 1.5-DC	TSH-0251 X 1.5-FC	—	1/4-20	1-1/2	1	1/16	9/64	30	3/16	3/8	1/8	—
TSHF-0251 X 1.5-DC	TSHF-0251 X 1.5-FC	—	1/4-20	1-1/2	1-1/2	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0280-DC	TSH-0280-FC	—	1/4-28	3/4	3/4	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0281-DC	TSH-0281-FC	—	1/4-28	1	1	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0281 X 1.5-DC	TSH-0281 X 1.5-FC	—	1/4-28	1-1/2	1	1/16	9/64	30	3/16	3/8	1/8	—
TSHF-0281 X 1.5-DC	TSHF-0281 X 1.5-FC	—	1/4-28	1-1/2	1-1/2	1/16	9/64	30	3/16	3/8	1/8	—
TSH-0310-DC	TSH-0310-FC	—	5/16-18	3/4	3/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0312-DC	TSH-0312-FC	—	5/16-18	1	1	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0312 X 1.25-DC	TSH-0312 X 1.25-FC	—	5/16-18	1-1/4	1-1/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0312 X 1.75-DC	TSH-0312 X 1.75-FC	—	5/16-18	1-3/4	1-1/8	1/16	13/64	30	1/4	15/32	5/32	—
TSHF-0312 X 1.75-DC	TSHF-0312 X 1.75-FC	—	5/16-18	1-3/4	1-3/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0312 X 2-DC	TSH-0312 X 2-FC	—	5/16-18	2	1-1/8	1/16	13/64	30	1/4	15/32	5/32	—
TSHF-0312 X 2-DC	TSHF-0312 X 2-FC	—	5/16-18	2	2	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0320-DC	TSH-0320-FC	—	5/16-24	3/4	3/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0321-DC	TSH-0321-FC	—	5/16-24	1	1	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0321 X 1.25-DC	TSH-0321 X 1.25-FC	—	5/16-24	1-1/4	1-1/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0321 X 1.75-DC	TSH-0321 X 1.75-FC	—	5/16-24	1-3/4	1-1/8	1/16	13/64	30	1/4	15/32	5/32	—
TSHF-0321 X 1.75-DC	TSHF-0321 X 1.75-FC	—	5/16-24	1-3/4	1-3/4	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0321 X 2-DC	TSH-0321 X 2-FC	—	5/16-24	2	1-1/8	1/16	13/64	30	1/4	15/32	5/32	—
TSHF-0321 X 2-DC	TSHF-0321 X 2-FC	—	5/16-24	2	2	1/16	13/64	30	1/4	15/32	5/32	—
TSH-0375-DC	TSH-0375-FC	TSH-0375-FC-DS	3/8-16	1	1	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0375 X 1.5-DC	TSH-0375 X 1.5-FC	TSH-0375 X 1.5-FC-DS	3/8-16	1-1/2	1-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0375 X 2-DC	TSH-0375 X 2-FC	TSH-0375 X 2-FC-DS	3/8-16	2	1-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSHF-0375 X 2-DC	TSHF-0375 X 2-FC	TSHF-0375 X 2-FC-DS	3/8-16	2	2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0375 X 2.5-DC	TSH-0375 X 2.5-FC	TSH-0375 X 2.5-FC-DS	3/8-16	2-1/2	1-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSHF-0375 X 2.5-DC	TSHF-0375 X 2.5-FC	TSHF-0375 X 2.5-FC-DS	3/8-16	2-1/2	2-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0231-DC	TSH-0231-FC	TSH-0231-FC-DS	3/8-24	1	1	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0231 X 1.5-DC	TSH-0231 X 1.5-FC	TSH-0231 X 1.5-FC-DS	3/8-24	1-1/2	1-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0231 X 2-DC	TSH-0231 X 2-FC	TSH-0231 X 2-FC-DS	3/8-24	2	1-3/8	3/32	1/4	28	5/16	9/16	3/16	1,763
TSHF-0231 X 2-DC	TSHF-0231 X 2-FC	TSHF-0231 X 2-FC-DS	3/8-24	2	2	3/32	1/4	28	5/16	9/16	3/16	1,763
TSH-0231 X 2.5-DC	TSH-0231 X 2.5-FC	TSH-0231 X 2.5-FC-DS	3/8-24	2-1/2	1-3/8	3/32	1/4	28	5/16	9/16	3/16	1,763
TSHF-0231 X 2.5-DC	TSHF-0231 X 2.5-FC	TSHF-0231 X 2.5-FC-DS	3/8-24	2-1/2	2-1/2	3/32	1/4	28	5/16	9/16	3/16	1,763

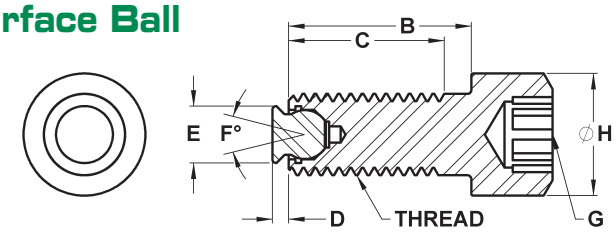
*Load ratings do not apply to the delrin ball styles.

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Flat Cone | Inch (continued)
Delrin, Stainless & Diamond Surface Ball





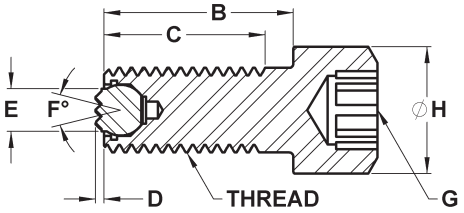
INCH (CONTINUED)

Delrin Part #	Stainless Part #	Diamond Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int. Hex	H Head Dia.	Ball Dia.	Load Rating Lbs.*
TSH-0510 X 1.25-DC	TSH-0510 X 1.25-FC	TSH-0510 X 1.25-FC-DS	1/2-13	1-1/4	1-1/4	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0510 X 1.5-DC	TSH-0510 X 1.5-FC	TSH-0510 X 1.5-FC-DS	1/2-13	1-1/2	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0510 X 2-DC	TSH-0510 X 2-FC	TSH-0510 X 2-FC-DS	1/2-13	2	2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0510 X 2.5-DC	TSH-0510 X 2.5-FC	TSH-0510 X 2.5-FC-DS	1/2-13	2-1/2	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSHF-0510 X 2.5-DC	TSHF-0510 X 2.5-FC	TSHF-0510 X 2.5-FC-DS	1/2-13	2-1/2	2-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0510 X 3-DC	TSH-0510 X 3-FC	TSH-0510 X 3-FC-DS	1/2-13	3	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSHF-0510 X 3-DC	TSHF-0510 X 3-FC	TSHF-0510 X 3-FC-DS	1/2-13	3	3	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0500 X 1.25-DC	TSH-0500 X 1.25-FC	TSH-0500 X 1.25-FC-DS	1/2-20	1-1/4	1-1/4	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0500 X 1.5-DC	TSH-0500 X 1.5-FC	TSH-0500 X 1.5-FC-DS	1/2-20	1-1/2	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0500 X 2-DC	TSH-0500 X 2-FC	TSH-0500 X 2-FC-DS	1/2-20	2	2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0500 X 2.5-DC	TSH-0500 X 2.5-FC	TSH-0500 X 2.5-FC-DS	1/2-20	2-1/2	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSHF-0500 X 2.5-DC	TSHF-0500 X 2.5-FC	TSHF-0500 X 2.5-FC-DS	1/2-20	2-1/2	2-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0500 X 3-DC	TSH-0500 X 3-FC	TSH-0500 X 3-FC-DS	1/2-20	3	1-1/2	3/32	11/32	28	3/8	3/4	9/32	4,527
TSHF-0500 X 3-DC	TSHF-0500 X 3-FC	TSHF-0500 X 3-FC-DS	1/2-20	3	3	3/32	11/32	28	3/8	3/4	9/32	4,527
TSH-0625-DC	TSH-0625-FC	TSH-0625-FC-DS	5/8-11	1-1/2	1-1/2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0625 X 2-DC	TSH-0625 X 2-FC	TSH-0625 X 2-FC-DS	5/8-11	2	2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0625 X 2.5-DC	TSH-0625 X 2.5-FC	TSH-0625 X 2.5-FC-DS	5/8-11	2-1/2	1-3/4	1/8	7/16	28	1/2	15/16	3/8	6,131
TSHF-0625 X 2.5-DC	TSHF-0625 X 2.5-FC	TSHF-0625 X 2.5-FC-DS	5/8-11	2-1/2	2-1/2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0625 X 3-DC	TSH-0625 X 3-FC	TSH-0625 X 3-FC-DS	5/8-11	3	1-3/4	1/8	7/16	28	1/2	15/16	3/8	6,131
TSHF-0625 X 3-DC	TSHF-0625 X 3-FC	TSHF-0625 X 3-FC-DS	5/8-11	3	3	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0620-DC	TSH-0620-FC	TSH-0620-FC-DS	5/8-18	11/2	1-1/2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0620 X 2-DC	TSH-0620 X 2-FC	TSH-0620 X 2-FC-DS	5/8-18	2	2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0620 X 2.5-DC	TSH-0620 X 2.5-FC	TSH-0620 X 2.5-FC-DS	5/8-18	2-1/2	1-3/4	1/8	7/16	28	1/2	15/16	3/8	6,131
TSHF-0620 X 2.5-DC	TSHF-0620 X 2.5-FC	TSHF-0620 X 2.5-FC-DS	5/8-18	2-1/2	2-1/2	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0620 X 3-DC	TSH-0620 X 3-FC	TSH-0620 X 3-FC-DS	5/8-18	3	1-3/4	1/8	7/16	28	1/2	15/16	3/8	6,131
TSHF-0620 X 3-DC	TSHF-0620 X 3-FC	TSHF-0620 X 3-FC-DS	5/8-18	3	3	1/8	7/16	28	1/2	15/16	3/8	6,131
TSH-0755 X 2-DC	TSH-0755 X 2-FC	TSH-0755 X 2-FC-DS	3/4-10	2	2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-0755 X 2.5-DC	TSH-0755 X 2.5-FC	TSH-0755 X 2.5-FC-DS	3/4-10	2-1/2	2-1/2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-0755 X 3-DC	TSH-0755 X 3-FC	TSH-0755 X 3-FC-DS	3/4-10	3	2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSHF-0755 X 3-DC	TSHF-0755 X 3-FC	TSHF-0755 X 3-FC-DS	3/4-10	3	3	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-0750 X 2-DC	TSH-0750 X 2-FC	TSH-0750 X 2-FC-DS	3/4-16	2	2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-0750 X 2.5-DC	TSH-0750 X 2.5-FC	TSH-0750 X 2.5-FC-DS	3/4-16	2-1/2	2-1/2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-0750 X 3-DC	TSH-0750 X 3-FC	TSH-0750 X 3-FC-DS	3/4-16	3	2	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSHF-0750 X 3-DC	TSHF-0750 X 3-FC	TSHF-0750 X 3-FC-DS	3/4-16	3	3	1/8	33/64	28	5/8	1-1/8	1/2	8,150
TSH-1108 X 2-DC	TSH-1108 X 2-FC	TSH-1108 X 2-FC-DS	1"-8	2	2	5/32	11/16	32	3/4	1-1/2	5/8	14,757
TSH-1108 X 3-DC	TSH-1108 X 3-FC	TSH-1108 X 3-FC-DS	1"-8	3	3	5/32	11/16	32	3/4	1-1/2	5/8	14,757
TSH-1108 X 4-DC	TSH-1108 X 4-FC	TSH-1108 X 4-FC-DS	1"-8	4	2-1/2	5/32	11/16	32	3/4	1-1/2	5/8	14,757
TSHF-1108 X 4-DC	TSHF-1108 X 4-FC	TSHF-1108 X 4-FC-DS	1"-8	4	4	5/32	11/16	32	3/4	1-1/2	5/8	14,757
TSH-1114 X 2-DC	TSH-1114 X 2-FC	TSH-1114 X 2-FC-DS	1"-14	2	2	5/32	49/64	32	3/4	1-1/2	3/4	17,210
TSH-1114 X 3-DC	TSH-1114 X 3-FC	TSH-1114 X 3-FC-DS	1"-14	3	3	5/32	49/64	32	3/4	1-1/2	3/4	17,210
TSH-1114 X 4-DC	TSH-1114 X 4-FC	TSH-1114 X 4-FC-DS	1"-14	4	2-1/2	5/32	49/64	32	3/4	1-1/2	3/4	17,210
TSHF-1114 X 4-DC	TSHF-1114 X 4-FC	TSHF-1114 X 4-FC-DS	1"-14	4	4	5/32	49/64	32	3/4	1-1/2	3/4	17,210

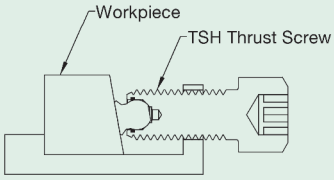
*Load ratings do not apply to the delrin ball styles.

THRUST SCREW ASSEMBLIES

Socket Head | Serrated | Inch
Tool Steel Ball



How To Use



As the thrust screw is tightened the thrust screw ball self aligns against the work piece. Once in contact with the work surface the ball will remain stationary as the thrust screw is tightened.

These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The ball is made from M-2 high speed steel and heat treated to Rc 60/62. Replacement balls and O-rings can be ordered separately. See page 232 for tooth pattern specifications. See page 290 for diagram of components.

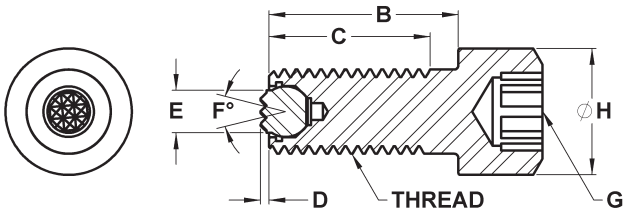
INCH

Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int Hex	H Head Dia.	Ball Dia.	Tooth Pattern	Load Rating Lbs.
TSH-0375-S	3/8-16	1	1	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0375 X 1.5-S	3/8-16	1-1/2	1-1/2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0375 X 2-S	3/8-16	2	1-1/4	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSHF-0375 X 2-S	3/8-16	2	2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0375 X 2.5-S	3/8-16	2-1/2	1-1/4	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSHF-0375 X 2.5-S	3/8-16	2-1/2	2-1/2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0231-S	3/8-24	1	1	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0231 X 1.5-S	3/8-24	1-1/2	1-1/2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0231 X 2-S	3/8-24	2	1-1/4	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSHF-0231 X 2-S	3/8-24	2	2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0231 X 2.5-S	3/8-24	2-1/2	1-1/4	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSHF-0231 X 2.5-S	3/8-24	2-1/2	2-1/2	1/16	5/32	28	5/16	9/16	3/16	SF	1,763
TSH-0510 X 1.25-S	1/2-13	1-1/4	1-1/4	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0510 X 1.5-S	1/2-13	1-1/2	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0510 X 2-S	1/2-13	2	2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0510 X 2.5-S	1/2-13	2-1/2	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSHF-0510 X 2.5-S	1/2-13	2-1/2	2-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0510 X 3-S	1/2-13	3	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSHF-0510 X 3-S	1/2-13	3	3	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0500 X 1.25-S	1/2-20	1-1/4	1-1/4	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0500 X 1.5-S	1/2-20	1-1/2	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0500 X 2-S	1/2-20	2	2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0500 X 2.5-S	1/2-20	2-1/2	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSHF-0500 X 2.5-S	1/2-20	2-1/2	2-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0500 X 3-S	1/2-20	3	1-1/2	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSHF-0500 X 3-S	1/2-20	3	3	1/16	1/4	28	3/8	3/4	9/32	SF	4,575
TSH-0625-S	5/8-11	1-1/2	1-3/4	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0625 X 2-S	5/8-11	2	2	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0625 X 2.5-S	5/8-11	2-1/2	1-3/4	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSHF-0625 X 2.5-S	5/8-11	2-1/2	2-1/2	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0625 X 3-S	5/8-11	3	1-3/4	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSHF-0625 X 3-S	5/8-11	3	3	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0620-S	5/8-18	1-1/2	1-1/2	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0620 X 2-S	5/8-18	2	2	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0620 X 2.5-S	5/8-18	2-1/2	1-3/4	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSHF-0620 X 2.5-S	5/8-18	2-1/2	2-1/2	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSH-0620 X 3-S	5/8-18	3	1-3/4	1/16	5/16	28	1/2	15/16	3/8	EF	6,131
TSHF-0620 X 3-S	5/8-18	3	3	1/16	5/16	28	1/2	15/16	3/8	EF	6,131

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Serrated | Inch (continued)
Tool Steel Ball



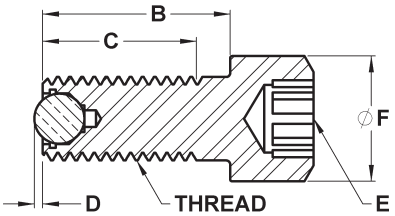
INCH (CONTINUED)

Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Contact Dia.	F Degree Swivel	G Int Hex	H Head Dia.	Ball Dia.	Tooth Pattern	Load Rating Lbs.
TSH-0755 X 2-S	3/4-10	2	2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-0755 X 2.5-S	3/4-10	2-1/2	2-1/2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-0755 X 3-S	3/4-10	3	2-1/2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSHF-0755 X 3-S	3/4-10	3	3	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-0750 X 2-S	3/4-16	2	2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-0750 X 2.5-S	3/4-16	2-1/2	2-1/2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-0750 X 3-S	3/4-16	3	2	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSHF-0750 X 3-S	3/4-16	3	3	1/8	3/8	40	5/8	1-1/8	1/2	EF	8,150
TSH-1108 X 2-S	1"-8	2	2	1/8	1/2	40	3/4	1-1/2	5/8	Fine	14,757
TSH-1108 X 3-S	1"-8	3	3	1/8	1/2	40	3/4	1-1/2	5/8	Fine	14,757
TSH-1108 X 4-S	1"-8	4	2-1/2	1/8	1/2	40	3/4	1-1/2	5/8	Fine	14,757
TSHF-1108 X 4-S	1"-8	4	4	1/8	1/2	40	3/4	1-1/2	5/8	Fine	14,757
TSH-1114 X 2-S	1"-14	2	2	1/8	5/8	34	3/4	1-1/2	3/4	Fine	17,210
TSH-1114 X 3-S	1"-14	3	3	1/8	5/8	34	3/4	1-1/2	3/4	Fine	17,210
TSH-1114 X 4-S	1"-14	4	2-1/2	1/8	5/8	34	3/4	1-1/2	3/4	Fine	17,210
TSHF-1114 X 4-S	1"-14	4	4	1/8	5/8	34	3/4	1-1/2	3/4	Fine	17,210

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Round Ball | Inch
Delrin & Stainless Ball



These thrust screw assemblies allow straight line static load thrust without transmitting torsional or radial force on to the contact area. The free floating ball design allows the thrust screw to continue to rotate while the ball remains stationary against the contact surface. Ideal for irregular shaped or contoured applications. The housing is made from alloy steel, heat treated to Rc 43/46 with black oxide finish. The replaceable ball is held in place with a viton O-ring which keeps contaminants out and allows the ball to swivel. The delrin ball is made from non-marring white delrin. The stainless ball is made from 440c stainless steel and heat treated to Rc 58/62. Replacement balls and O-rings can be ordered separately. See page 290 for diagram of components.

INCH

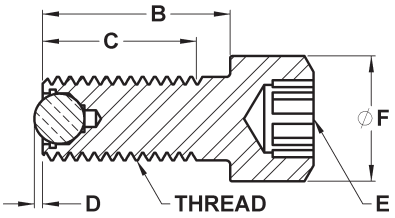
Delrin Part #	Stainless Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	F Head Dia.	Ball Dia.	Load Rating Lbs.*
TSH-0310-DB	TSH-0310-SB	5/16-18	3/4	3/4	.026	1/4	15/32	5/32	—
TSH-0312-DB	TSH-0312-SB	5/16-18	1	1	.026	1/4	15/32	5/32	—
TSH-0312 X 1.25-DB	TSH-0312 X 1.25-SB	5/16-18	1-1/4	1-1/4	.026	1/4	15/32	5/32	—
TSH-0312 X 1.75-DB	TSH-0312 X 1.75-SB	5/16-18	1-3/4	1-1/8	.026	1/4	15/32	5/32	—
TSHF-0312 X 1.75-DB	TSHF-0312 X 1.75-SB	5/16-18	1-3/4	1-3/4	.026	1/4	15/32	5/32	—
TSH-0312 X 2-DB	TSH-0312 X 2-SB	5/16-18	2	1-1/8	.026	1/4	15/32	5/32	—
TSHF-0312 X 2-DB	TSHF-0312 X 2-SB	5/16-18	2	2	.026	1/4	15/32	5/32	—
TSH-0320-DB	TSH-0320-SB	5/16-24	3/4	3/4	.026	1/4	15/32	5/32	—
TSH-0321-DB	TSH-0321-SB	5/16-24	1	1	.026	1/4	15/32	5/32	—
TSH-0321 X 1.25-DB	TSH-0321 X 1.25-SB	5/16-24	1-1/4	1-1/4	.026	1/4	15/32	5/32	—
TSH-0321 X 1.75-DB	TSH-0321 X 1.75-SB	5/16-24	1-3/4	1-1/8	.026	1/4	15/32	5/32	—
TSHF-0321 X 1.75-DB	TSHF-0321 X 1.75-SB	5/16-24	1-3/4	1-3/4	.026	1/4	15/32	5/32	—
TSH-0321 X 2-DB	TSH-0321 X 2-SB	5/16-24	2	1-1/8	.026	1/4	15/32	5/32	—
TSHF-0321 X 2-DB	TSHF-0321 X 2-SB	5/16-24	2	2	.026	1/4	15/32	5/32	—
TSH-0375-DB	TSH-0375-SB	3/8-16	1	1	.024	5/16	9/16	3/16	1,763
TSH-0375 X 1.5-DB	TSH-0375 X 1.5-SB	3/8-16	1-1/2	1-1/2	.024	5/16	9/16	3/16	1,763
TSH-0375 X 2-DB	TSH-0375 X 2-SB	3/8-16	2	1-1/2	.024	5/16	9/16	3/16	1,763
TSHF-0375 X 2-DB	TSHF-0375 X 2-SB	3/8-16	2	2	.024	5/16	9/16	3/16	1,763
TSH-0375 X 2.5-DB	TSH-0375 X 2.5-SB	3/8-16	2-1/2	1-1/2	.024	5/16	9/16	3/16	1,763
TSHF-0375 X 2.5-DB	TSHF-0375 X 2.5-SB	3/8-16	2-1/2	2-1/2	.024	5/16	9/16	3/16	1,763
TSH-0231-DB	TSH-0231-SB	3/8-24	1	1	.024	5/16	9/16	3/16	1,763
TSH-0231 X 1.5-DB	TSH-0231 X 1.5-SB	3/8-24	1-1/2	1-1/2	.024	5/16	9/16	3/16	1,763
TSH-0231 X 2-DB	TSH-0231 X 2-SB	3/8-24	2	1-3/8	.024	5/16	9/16	3/16	1,763
TSHF-0231 X 2-DB	TSHF-0231 X 2-SB	3/8-24	2	2	.024	5/16	9/16	3/16	1,763
TSH-0231 X 2.5-DB	TSH-0231 X 2.5-SB	3/8-24	2-1/2	1-3/8	.024	5/16	9/16	3/16	1,763
TSHF-0231 X 2.5-DB	TSHF-0231 X 2.5-SB	3/8-24	2-1/2	2-1/2	.024	5/16	9/16	3/16	1,763
TSH-0510 X 1.25-DB	TSH-0510 X 1.25-SB	1/2-13	1-1/4	1-1/4	.063	3/8	3/4	9/32	4,527
TSH-0510 X 1.5-DB	TSH-0510 X 1.5-SB	1/2-13	1-1/2	1-1/2	.063	3/8	3/4	9/32	4,527
TSH-0510 X 2-DB	TSH-0510 X 2-SB	1/2-13	2	2	.063	3/8	3/4	9/32	4,527
TSH-0510 X 2.5-DB	TSH-0510 X 2.5-SB	1/2-13	2-1/2	1-1/2	.063	3/8	3/4	9/32	4,527
TSHF-0510 X 2.5-DB	TSHF-0510 X 2.5-SB	1/2-13	2-1/2	2-1/2	.063	3/8	3/4	9/32	4,527
TSH-0510 X 3-DB	TSH-0510 X 3-SB	1/2-13	3	1-1/2	.063	3/8	3/4	9/32	4,527
TSHF-0510 X 3-DB	TSHF-0510 X 3-SB	1/2-13	3	3	.063	3/8	3/4	9/32	4,527
TSH-0500 X 1.25-DB	TSH-0500 X 1.25-SB	1/2-20	1-1/4	1-1/4	.063	3/8	3/4	9/32	4,527
TSH-0500 X 1.5-DB	TSH-0500 X 1.5-SB	1/2-20	1-1/2	1-1/2	.063	3/8	3/4	9/32	4,527
TSH-0500 X 2-DB	TSH-0500 X 2-SB	1/2-20	2	2	.063	3/8	3/4	9/32	4,527
TSH-0500 X 2.5-DB	TSH-0500 X 2.5-SB	1/2-20	2-1/2	1-1/2	.063	3/8	3/4	9/32	4,527
TSHF-0500 X 2.5-DB	TSHF-0500 X 2.5-SB	1/2-20	2-1/2	2-1/2	.063	3/8	3/4	9/32	4,527
TSH-0500 X 3-DB	TSH-0500 X 3-SB	1/2-20	3	1-1/2	.063	3/8	3/4	9/32	4,527
TSHF-0500 X 3-DB	TSHF-0500 X 3-SB	1/2-20	3	3	.063	3/8	3/4	9/32	4,527

*Load ratings do not apply to the delrin ball styles.

Fairlane®

THRUST SCREW ASSEMBLIES

Socket Head | Round Ball | Inch (continued)
Delrin & Stainless Ball



INCH (CONTINUED)

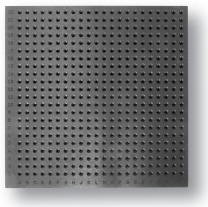
Delrin Part #	Stainless Part #	Thread	B Shank Length	C Thread Length	D Stand Off	E Int. Hex	F Head Dia.	Ball Dia.	Load Rating Lbs.*
TSH-0625-DB	TSH-0625-SB	5/8-11	1-1/2	1-1/2	.063	1/2	15/16	3/8	6,131
TSH-0625 X 2-DB	TSH-0625 X 2-SB	5/8-11	2	2	.063	1/2	15/16	3/8	6,131
TSH-0625 X 2.5-DB	TSH-0625 X 2.5-SB	5/8-11	2-1/2	1-3/4	.063	1/2	15/16	3/8	6,131
TSHF-0625 X 2.5-DB	TSHF-0625 X 2.5-SB	5/8-11	2-1/2	2-1/2	.063	1/2	15/16	3/8	6,131
TSH-0625 X 3-DB	TSH-0625 X 3-SB	5/8-11	3	1-3/4	.063	1/2	15/16	3/8	6,131
TSHF-0625 X 3-DB	TSHF-0625 X 3-SB	5/8-11	3	3	.063	1/2	15/16	3/8	6,131
TSH-0620-DB	TSH-0620-SB	5/8-18	1-1/2	1-1/2	.063	1/2	15/16	3/8	6,131
TSH-0620 X 2-DB	TSH-0620 X 2-SB	5/8-18	2	2	.063	1/2	15/16	3/8	6,131
TSH-0620 X 2.5-DB	TSH-0620 X 2.5-SB	5/8-18	2-1/2	1-3/4	.063	1/2	15/16	3/8	6,131
TSHF-0620 X 2.5-DB	TSHF-0620 X 2.5-SB	5/8-18	2-1/2	2-1/2	.063	1/2	15/16	3/8	6,131
TSH-0620 X 3-DB	TSH-0620 X 3-SB	5/8-18	3	1-3/4	.063	1/2	15/16	3/8	6,131
TSHF-0620 X 3-DB	TSHF-0620 X 3-SB	5/8-18	3	3	.063	1/2	15/16	3/8	6,131
TSH-0755 X 2-DB	TSH-0755 X 2-SB	3/4-10	2	2	.107	5/8	1-1/8	1/2	8,150
TSH-0755 X 2.5-DB	TSH-0755 X 2.5-SB	3/4-10	2-1/2	2-1/2	.107	5/8	1-1/8	1/2	8,150
TSH-0755 X 3-DB	TSH-0755 X 3-SB	3/4-10	3	2	.107	5/8	1-1/8	1/2	8,150
TSHF-0755 X 3-DB	TSHF-0755 X 3-SB	3/4-10	3	3	.107	5/8	1-1/8	1/2	8,150
TSH-0750 X 2-DB	TSH-0750 X 2-SB	3/4-16	2	2	.107	5/8	1-1/8	1/2	8,150
TSH-0750 X 2.5-DB	TSH-0750 X 2.5-SB	3/4-16	2-1/2	2-1/2	.107	5/8	1-1/8	1/2	8,150
TSH-0750 X 3-DB	TSH-0750 X 3-SB	3/4-16	3	2	.107	5/8	1-1/8	1/2	8,150
TSHF-0750 X 3-DB	TSHF-0750 X 3-SB	3/4-16	3	3	.107	5/8	1-1/8	1/2	8,150
TSH-1108 X 2-DB	TSH-1108 X 2-SB	1"-8	2	2	.175	3/4	1-1/2	5/8	14,757
TSH-1108 X 3-DB	TSH-1108 X 3-SB	1"-8	3	3	.175	3/4	1-1/2	5/8	14,757
TSH-1108 X 4-DB	TSH-1108 X 4-SB	1"-8	4	2-1/2	.175	3/4	1-1/2	5/8	14,757
TSHF-1108 X 4-DB	TSHF-1108 X 4-SB	1"-8	4	4	.175	3/4	1-1/2	5/8	14,757
TSH-1114 X 2-DB	TSH-1114 X 2-SB	1"-14	2	2	.208	3/4	1-1/2	3/4	17,210
TSH-1114 X 3-DB	TSH-1114 X 3-SB	1"-14	3	3	.208	3/4	1-1/2	3/4	17,210
TSH-1114 X 4-DB	TSH-1114 X 4-SB	1"-14	4	2-1/2	.208	3/4	1-1/2	3/4	17,210
TSHF-1114 X 4-DB	TSHF-1114 X 4-SB	1"-14	4	4	.208	3/4	1-1/2	3/4	17,210

*Load ratings do not apply to the delrin ball styles.

CMM INSPECTION FIXTURING

SETS

PLATES



COLUMNS

ACCESSORIES

MAGNETS

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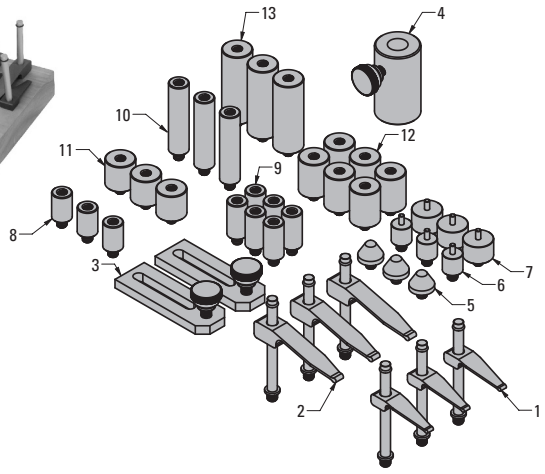
CLAMP SET – BASIC



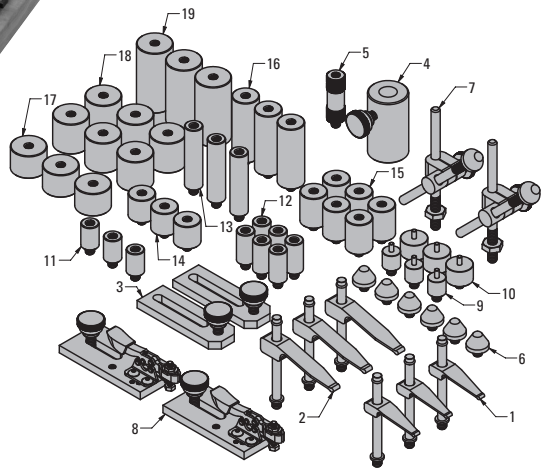
Set Components

Item	Part #	Description	Qty
1	F018-0124	Spring Clamp - 1.5" Length	3
2	F018-0137	Spring Clamp - 2.3" Length	3
3	F010-0103	Adjustable Positioner Plate - 3" Length	2
4	F019-0201	Delrin® Height Adjuster	1
5	F021-0114	Support Tip - Delrin® Cone	3
6	F017-0108	Pin Rest - 1/2" Diameter x 1/2" Height	3
7	F017-0112	Pin Rest - 3/4" Diameter x 1/2" Height	3
8	F019-0412	Standoff - Steel - 1/2" Diameter x 3/4" Height	3
9	F019-0416	Standoff - Steel - 1/2" Diameter x 1" Height	6
10	F019-0432	Standoff - Steel - 1/2" Diameter x 2" Height	3
11	F019-0512	Standoff - Steel - 3/4" Diameter x 3/4" Height	3
12	F019-0516	Standoff - Steel - 3/4" Diameter x 1" Height	6
13	F019-0532	Standoff - Steel - 3/4" Diameter x 2" Height	3
—	F013-0901	Clamp Set Component Holder (not shown)	1

Basic CMM clamp set with 1/4-20 thread size components. The kit is recommended for use with plastic, aluminum and steel parts. Includes a wooden holder to keep the set components together.

Part #	Thread
F013-0101	1/4-20

CLAMP SET – BASIC PLUS



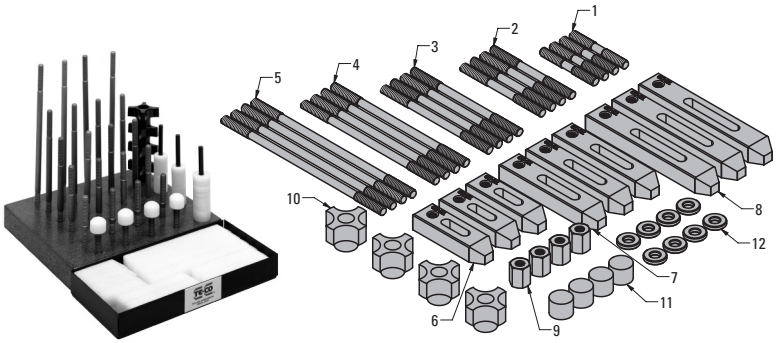
Set Components

Item	Part #	Description	Qty
1	F018-0124	Spring Clamp - 1.5" Length	3
2	F018-0137	Spring Clamp - 2.3" Length	3
3	F010-0103	Adjustable Positioner Plate - 3" Length	2
4	F019-0201	Delrin Height Adjuster (use with 1/2" Diameter Standoff)	1
5	F019-0301	Screw Jack Assembly - 1/2" Diameter x 1-3/4" Height	1
6	F021-0114	Support Tip - Delrin® Cone	6
7	F010-0204	Mini Articulating Arm - 4" Rod	2
8	F020-0100	Toggle Clamp - Small - with Pad	2
9	F017-0108	Pin Rest - 1/2" Diameter x 1/2" Height	3
10	F017-0112	Pin Rest - 3/4" Diameter x 1/2" Height	3
11	F019-0412	Standoff - Steel - 1/2" Diameter x 3/4" Height	3
12	F019-0416	Standoff - Steel - 1/2" Diameter x 1" Height	6
13	F019-0432	Standoff - Steel - 1/2" Diameter x 2" Height	3
14	F019-0512	Standoff - Steel - 3/4" Diameter x 3/4" Height	3
15	F019-0516	Standoff - Steel - 3/4" Diameter x 1" Height	6
16	F019-0532	Standoff - Steel - 3/4" Diameter x 2" Height	3
17	F019-0612	Standoff - Steel - 1" Diameter x 3/4" Height	3
18	F019-0616	Standoff - Steel - 1" Diameter x 1" Height	6
19	F019-0632	Standoff - Steel - 1" Diameter x 2" Height	3
–	F013-0902	Clamp Set Component Holder (not shown)	1

Basic Plus clamp set with 1/4-20 thread size components. The kit is recommended for use with plastic, aluminum and steel parts. Includes a wooden holder to keep the set components together.

Part #	Thread
F013-0102	1/4-20

CLAMP SET – PLASTIC



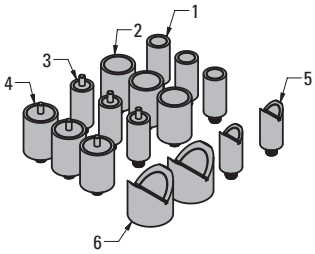
Set Components

Item	Description	Qty
1	Steel Stud - 2"	4
2	Steel Stud - 3"	4
3	Steel Stud - 4"	4
4	Steel Stud - 5"	4
5	Steel Stud - 6"	4
6	Plastic Clamp - 2.5"	4
7	Plastic Clamp - 3.5"	4
8	Plastic Clamp - 4.5"	4
9	Coupling Nuts	4
10	Plastic Hand Knobs	4
11	Plastic Rest Feet	4
12	Washers	8
–	Wooden Holder	1

The plastic clamping set is intended for CMM inspection and gaging applications. Plastic helps to prevent damage to delicate or painted workpieces. The hand-tightened clamps allow the user to apply force while minimizing the distortion of a pliable work piece. The clamps and rest feet are made from non-marring Delrin®. The studs, coupling nuts and washers are made from steel with a black oxide finish. Not for use in machining applications. Includes a metal holder to keep the set components together.

Part #	Thread
F013-0201	1/4-20

MAGNET SET



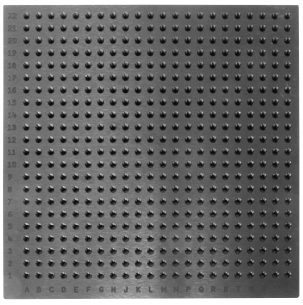
Set Components

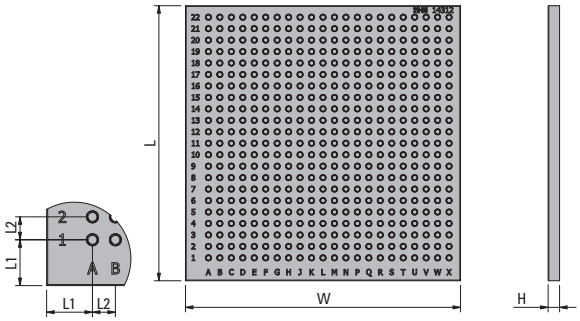
Item	Part #	Description	Qty
1	F014-0108	Magnetic Rest Pad - 1/2" Diameter x 1" Height	3
2	F014-0112	Magnetic Rest Pad - 3/4" Diameter x 1" Height	3
3	F014-0208	Magnetic Pin Rest - 1/2" Diameter x 1" Height	3
4	F014-0212	Magnetic Pin Rest - 3/4" Diameter x 1" Height	3
5	F014-0308	Magnetic V-Support - 1/2" Diameter x 1" Height	2
6	F014-0316	Magnetic V-Support - 1" Diameter x 1" Height	2
–	F013-0903	Component Holder	1

Magnetic fixturing set with 1/4-20 thread size components. The kit is recommended for use with iron and steel parts. Includes a wooden holder to keep the set components together.

Part #	Thread
F013-0103	1/4-20

CMM GRID PLATE – ALUMINUM





Typically used in CMM fixturing applications, these fixture grid plates are mounted to the frame or table on a coordinate measuring machine using step blocks and toe clamps, or by drilling mounting holes in the fixture plate that correspond to the inserts in the surface plate. Grid plate holes are equally spaced, and each hole is numbered and lettered for easy addressing. The plates are made from cast aluminum and have a black anodized finish.

			Center-Center			
Part #	T	L	L1	L2	W	H
F015-0112	1/4-20	12	1.00	1/2	12	1/2
F015-0118	1/4-20	18	1.00	1/2	18	1/2
F015-0224	1/4-20	24	1.00	1/2	24	3/4
F015-0228	1/4-20	28	1.00	1/2	40	3/4
F015-0230	1/4-20	30	1.00	1/2	30	3/4

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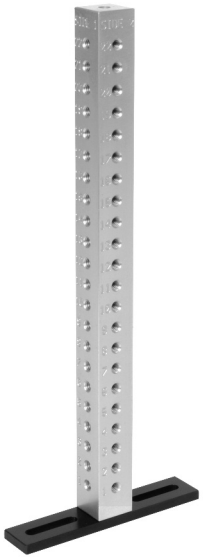
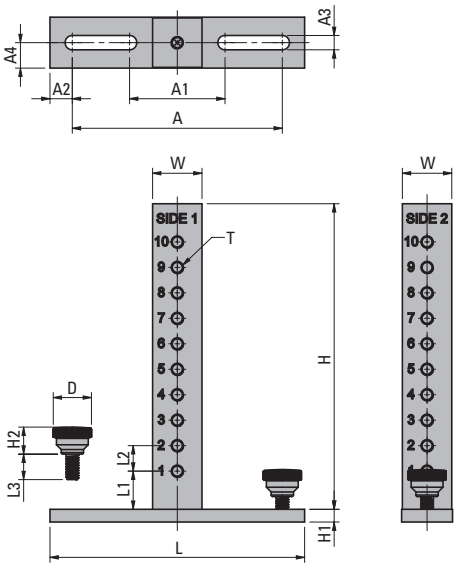
FIXTURE COLUMN – SINGLE ROW – ALUMINUM

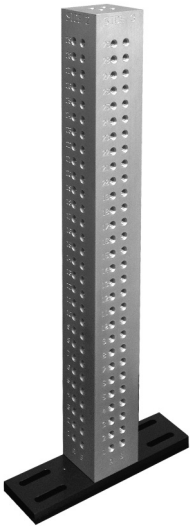


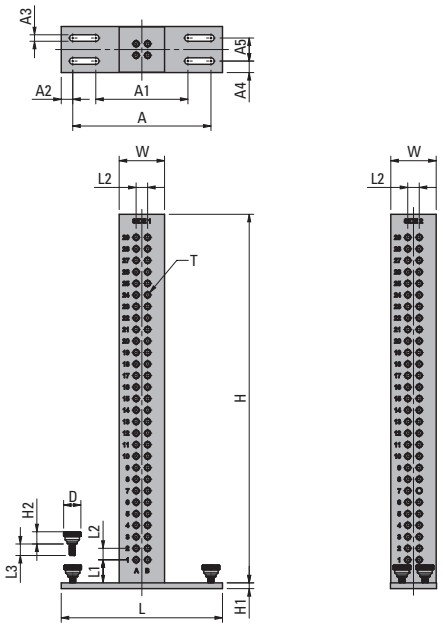


Aluminum fixture columns are typically used in vertical CMM fixturing applications where large or long parts need to be oriented in an upright position. Column holes are equally spaced, and each hole is numbered and lettered for easy addressing. Knurled knob studs are used to fasten the base to a fixture plate. The column is made from 6061 aluminum with a clear anodized finish. The base is made from steel with a black oxide finish.

					Center-Center									Bolt Size	
Part #	T	D	L	L1	L2	L3	W	H	H1	H2	A	A1	A2	A3	A4
F016-0106	1/4-20	1/2	5.00	3/4	1/2	1/2	1	6	1/4	.59	4-1/8	1-7/8	7/16	1/4-20 or M6	1/2
F016-0112	1/4-20	1/2	5.00	3/4	1/2	1/2	1	12	1/4	.59	4-1/8	1-7/8	7/16	1/4-20 or M6	1/2

FIXTURE COLUMN – DOUBLE ROW – ALUMINUM

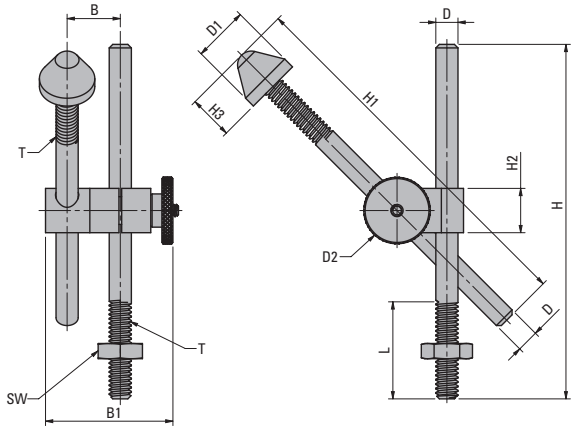




Aluminum fixture columns are typically used in vertical CMM fixturing applications where large or long parts need to be oriented in an upright position. Column holes are equally spaced, and each hole is numbered and lettered for easy addressing. Knurled knob studs are used to fasten the base to a fixture plate. The column is made from 6061 aluminum with a clear anodized finish. The base is made from steel with a black oxide finish.

					Center-Center									Bolt Size		
Part #	T	D	L	L1	L2	L3	W	H	H1	H2	A	A1	A2	A3	A4	A5
F016-0216	1/4-20	3/4	7.00	1	1/2	1/2	2	16	1/4	.59	6.00	4.00	1/2	1/4-20 or M6	1/2	1.00
F016-0220	1/4-20	3/4	7.00	1	1/2	1/2	2	20	1/4	.59	6.00	4.00	1/2	1/4-20 or M6	1/2	1.00
F016-0230	1/4-20	3/4	7.00	1	1/2	1/2	2	30	1/4	.59	6.00	4.00	1/2	1/4-20 or M6	1/2	1.00

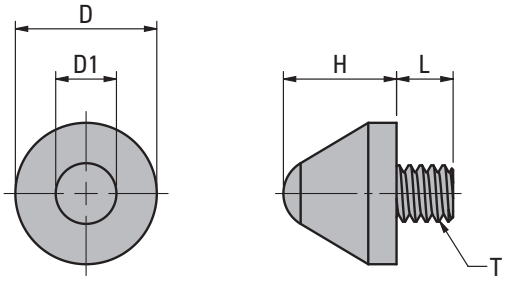
MINI ARTICULATING ARM



The mini articulating arm provides for a wide range of mounting positions. It rotates 360 degrees, pivots up and down, and extends and retracts to accommodate the workpiece. Made from steel with black oxide finish. Tip made from non-marring Delrin®.

Part #	T	D	D1	D2	L	B	B1	H	H1	H2	H3	SW
F010-0204	1/4-20	1/4	5/8	3/4	1	5/8	1-7/16	4	4-1/4	1/2	1/2	1/2

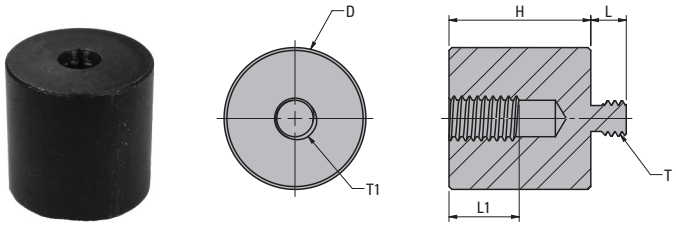
SUPPORT TIPS – DELRIN® CONE



Cone-shaped support tips provide support to cylindrical or curved work pieces during inspection. The non-marring Delrin® material is ideal for use with finished parts.

Part #	T	D	D1	L	+/-.005 H
F021-0114	1/4-20	5/8	.27	1/4	.500

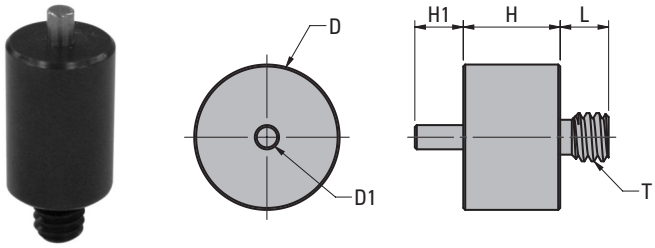
STANDOFF ADAPTERS – STEEL



Adapts threads between 1/4-20 and 5/16-18. Made from mild carbon steel with a black oxide finish.

Part #	T	T1	D	L	L1	H
F019-0145	1/4-20	5/16-18	1	1/4	.50	1.00
F019-0154	5/16-18	1/4-20	1	1/4	.50	1.00

PIN RESTS – STEEL



The pin rest serves as a resting point and side stop for locating and elevating parts during inspection. Made from mild carbon steel with a black oxide finish.

Part #	T	D	D1	L	+/-.005 H	H1
F017-0108	1/4-20	1/2	.125	1/4	.500	1/4
F017-0112	1/4-20	3/4	.125	1/4	.500	1/4

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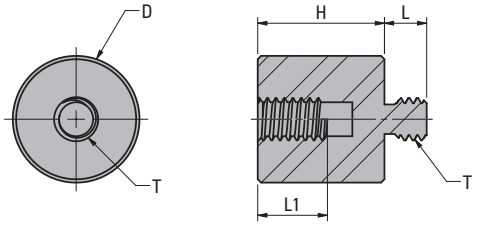
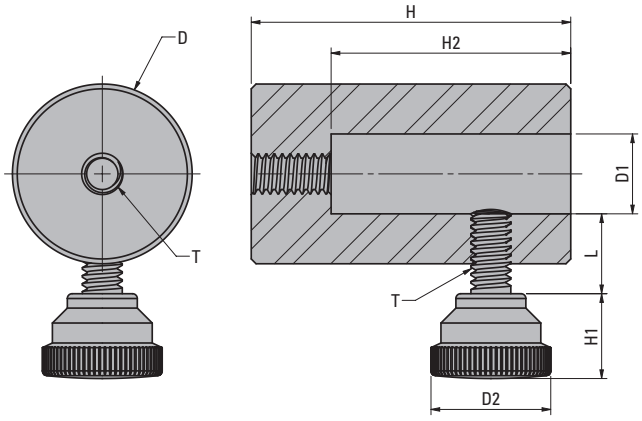
STANDOFFS – STEEL



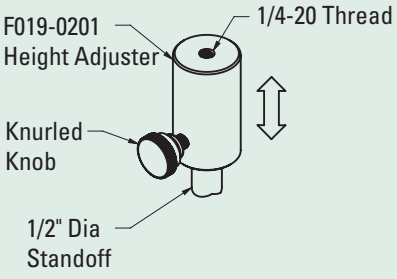
The standoff functions as a resting point to elevate workpieces during inspection. It is made from mild carbon steel with a black oxide finish.

Part #	T	D	L	L1	+/-.005 H
F019-0408	1/4-20	1/2	1/4	1/4	.500
F019-0412	1/4-20	1/2	1/4	3/8	.750
F019-0416	1/4-20	1/2	1/4	5/8	1.000
F019-0432	1/4-20	1/2	1/4	3/4	2.000
F019-0448	1/4-20	1/2	1/4	3/4	3.000
F019-0508	1/4-20	3/4	1/4	1/4	.500
F019-0512	1/4-20	3/4	1/4	3/8	.750
F019-0516	1/4-20	3/4	1/4	5/8	1.00
F019-0532	1/4-20	3/4	1/4	3/4	2.000
F019-0548	1/4-20	3/4	1/4	3/4	3.000
F019-0608	1/4-20	1	1/4	1/4	.500
F019-0612	1/4-20	1	1/4	3/8	.750
F019-0616	1/4-20	1	1/4	5/8	1.000
F019-0632	1/4-20	1	1/4	3/4	2.000
F019-0648	1/4-20	1	1/4	3/4	3.000

HEIGHT ADJUSTER – DELRIN®



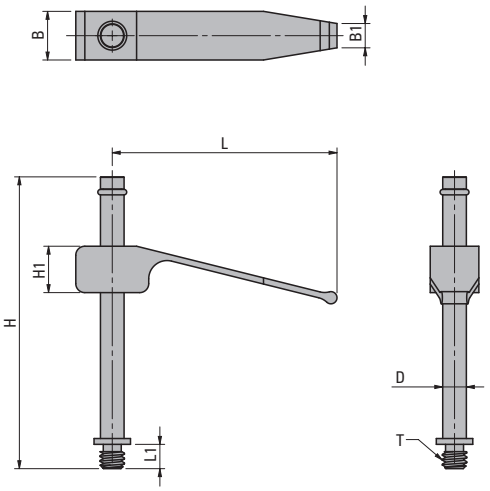
How To Use



The Delrin® height adjuster fits over a 1/2" standoff and allows for fine adjustment. Locks into place by tightening the knurled knob.

Part #	T	D	D1	D2	L	H	H1	H2
F019-0201	1/4-20	1-1/8	1/2	3/4	1/2	2	.59	1.50

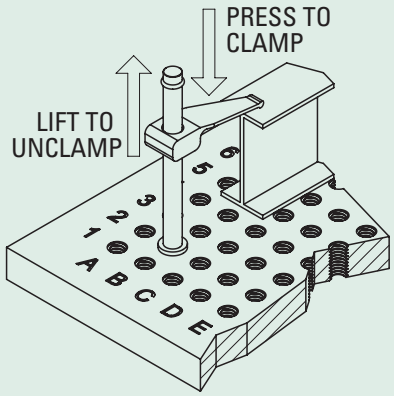
SPRING CLAMPS – ONE PIECE – ALUMINUM



How To Use

Actuate the clamp by pressing down on the clamping arm until it flexes back against the clamp rod.

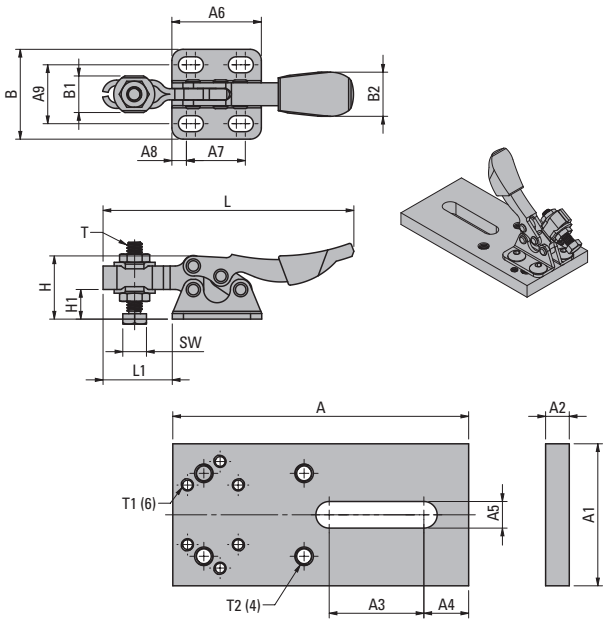
Release the clamp by pulling up on the back of the clamp arm and slide the clamp up the rod.



Spring clamps provide light-pressure clamping with limited deflection. They are actuated and released with the press of a finger. The rubber-tipped styles offer added protection against workpiece marring. The post has a 1/4-20 thread is made from 6061 aluminum with a clear anodized finish. Spring clamps are made from 7075 aluminum with a blue anodized finish.

Part #	T	D	L	L1	B	B1	H	H1	Tip Coating
F018-0124	1/4-20	.243	1.55	1/4	1/2	3/16	3.00	.312	none
F018-0137	1/4-20	.243	2.31	1/4	1/2	1/4	3.00	.477	none
F018-0224	1/4-20	.243	1.55	1/4	1/2	3/16	3.00	.312	rubber
F018-0237	1/4-20	.243	2.31	1/4	1/2	1/4	3.00	.477	rubber

TOGGLE CLAMP – SMALL



The small toggle clamp holds parts during inspection. The clamp includes an adjustable base for exact positioning and alignment. The plate is secured in place using a knurled knob with a 1/4-20 threaded stud. Clamp is made from steel. Plate is made from mild carbon steel with a black oxide finish.

Part #	T	T1	T2	L	L1	B	B1	B2	H	H1	SW	A	A1	A2	A3	A4	Bolt Size A5	A6	A7	A8	A9
F020-0100	8-32	6-32	10-32	3	3/4	1	1/2	5/8	1.00	3/8	1/4	3-1/8	1-1/2	1/4	1	7/16	1/4-20 or M6	1	5/8	5/32	5/8

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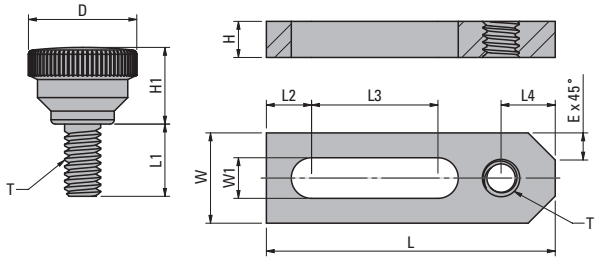
ADJUSTABLE POSITIONER PLATES

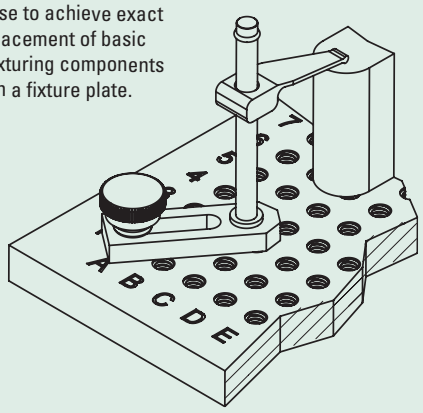


Adjustable positioner plates allow for exact placement of fixturing supports and positioning elements on a fixture plate when the holes in the standard grid patterns do not provide ideal placement. Positioner plates include a knurled knob with a 1/4-20 threaded stud to lock it in place. Made from mild carbon steel with a black oxide finish.

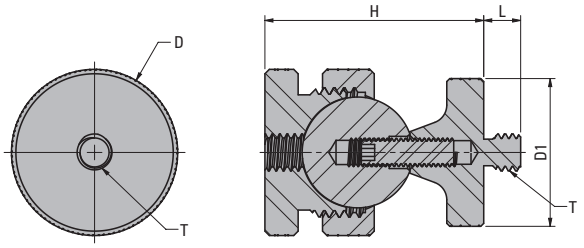
Part #	T	D	L	L1	L2	L3	L4	W	W1	H	H1	E x 45°
F010-0102	1/4-20	3/4	2	1/2	.313	.875	.38	.625	.281	.25	.59	3/16
F010-0103	1/4-20	3/4	3	1/2	.313	1.75	.38	1.00	.281	.25	.59	1/4

How To Use

Use to achieve exact placement of basic fixturing components on a fixture plate.



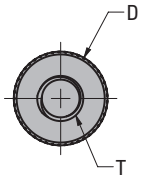
VARIABLE ANGLE BALL POSITIONER

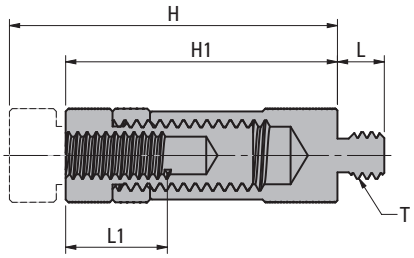


The positioner pivots to approximately 45 degrees for a wide range of angled positioning. Tighten the collar to lock the positioner in place. Receives fixturing components with a 1/4-20 threaded stud. The positioner is made from 6160 aluminum with a clear anodized finish. The ball is made from ball bearing steel.

Part #	T	D	D1	L	H
F010-0314	1/4-20	1-1/8	1"	1/4	1-1/2

SCREW JACK ASSEMBLY – ALUMINUM



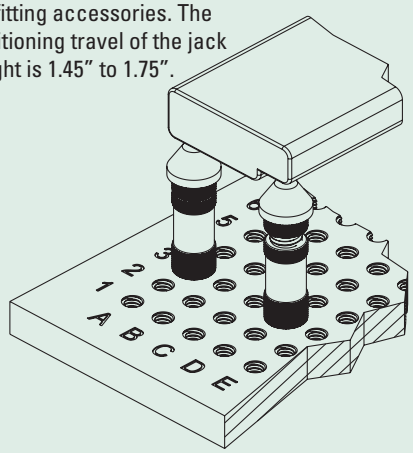


The screw jack assembly allows for fine height adjustment. The positioning travel of the jack is 1.45" – 1.75". The jack is made from aluminum with a clear anodized finish.

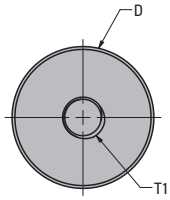
Part #	T	D	L	L1	H	H1
F019-0301	1/4-20	1/2	1/4	1/2	1.75	1.45

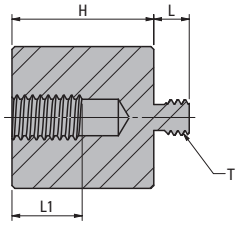
How To Use

The top of the jack is tapped for fitting accessories. The positioning travel of the jack height is 1.45" to 1.75".



STANDOFF ADAPTERS – STEEL

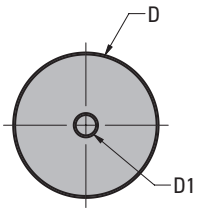


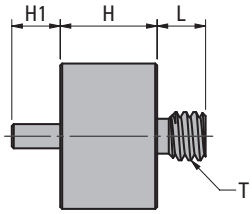


Adapts threads between 1/4-20 and 5/16-18. Made from mild carbon steel with a black oxide finish.

Part #	T	T1	D	L	L1	H
F019-0145	1/4-20	5/16-18	1	1/4	.50	1.00
F019-0154	5/16-18	1/4-20	1	1/4	.50	1.00

PIN RESTS – STEEL

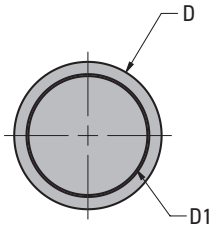


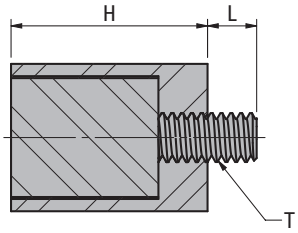


The pin rest serves as a resting point and side stop for locating and elevating parts during inspection. Made from mild carbon steel with a black oxide finish.

Part #	T	D	D1	L	+/-.005 H	H1
F017-0108	1/4-20	1/2	.125	1/4	.500	1/4
F017-0112	1/4-20	3/4	.125	1/4	.500	1/4

MAGNETIC REST PAD

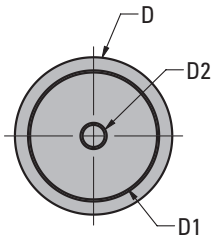


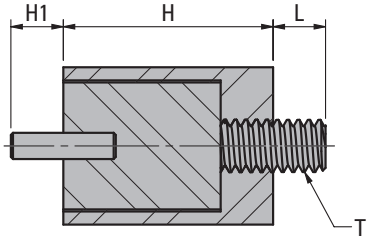


Magnetic rest pads are used to position and hold steel or iron parts for inspection. The alnico magnet is pressed into body with brass sleeve. Body made from mild carbon steel with black oxide finish.

Part #	T	D	D1	L	+/-.005 H
F014-0104	1/4-20	1/4	.168	1/4	1.00
F014-0108	1/4-20	1/2	.355	1/4	1.00
F014-0112	1/4-20	3/4	.605	1/4	1.00
F014-0116	1/4-20	1	.730	1/4	1.00

MAGNETIC PIN RESTS





The magnetic pin rest is used to position and hold steel or iron parts for inspection. Made from mild carbon steel with black oxide finish.

Part #	T	D	D1	D2	L	+/-.005 H	H1
F014-0208	1/4-20	1/2	.355	.125	1/4	1.00	1/4
F014-0212	1/4-20	3/4	.605	.125	1/4	1.00	1/4
F014-0216	1/4-20	1	.730	.125	1/4	1.00	1/4

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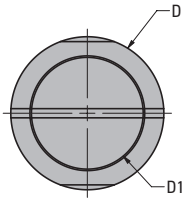
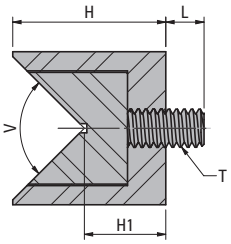
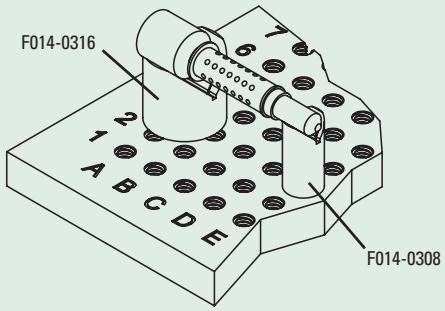
MAGNETIC V-SUPPORTS





How To Use

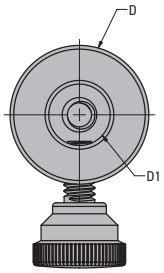
Holds and supports cylindrical steel or iron parts.

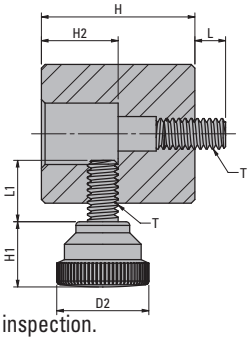


The magnetic V-support is used to hold and support cylindrical steel or iron parts for inspection. Delrin® alignment holders are available separately. Made from mild carbon steel with black oxide finish.

Part #	T	D	D1	L	H	H1	V	Holding Capacity Diameter	Use Holder
F014-0308	1/4-20	1/2	.355	1/4	1	.235	90°	.125 - .625	F014-0508
F014-0316	1/4-20	1"	.730	1/4	1	.465	90°	.125- 1.25	F014-0516

HOLDERS FOR MAGNETIC V-SUPPORTS – DELRIN®

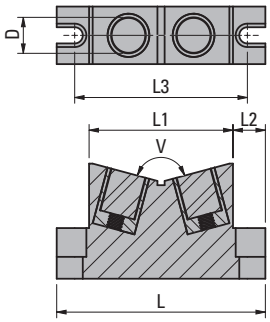


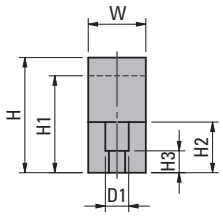


The Delrin® holder is used to align and lock a magnetic V-support. V-supports cradle cylindrical parts during inspection.

Part #	T	D	D1	D2	L	L1	H	H1	H2	Use With Part #
F014-0508	1/4-20	1.13	.50	3/4	1/4	1/2	1.25	.59	.63	F014-0308
F014-0516	1/4-20	1.63	1.00	3/4	1/4	1/2	1.25	.59	.50	F014-0316

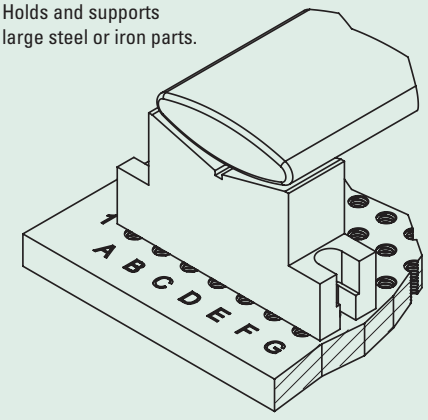
MAGNETIC V-SUPPORT BLOCK





How To Use

Holds and supports large steel or iron parts.



The magnetic V-support block is used to hold and support large cylindrical steel or iron parts. The block is mounted to the fixture plate using two cap screws (included) with 1/4-20 threads. The body is made from aluminum with a blue anodized finish.

Part #	D	D1	L	L1	L2	L3	W	H	H1	H2	H3	Holding Capacity Diameter
F014-0440	.605	1/4-20 or M6	3.63	2.5	.56	3.00	1	2	1.70	.69	3/8	2.00-6.25

QUICK RELEASE BALL LOCK PINS & FASTENERS

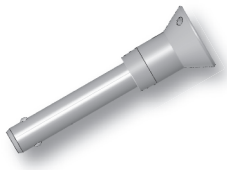
T-HANDLE

L-HANDLE

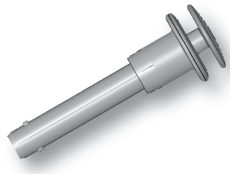
BUTTON HANDLE

RING HANDLE

NAUTICAL HANDLE



DOME HANDLE



DETENT PINS

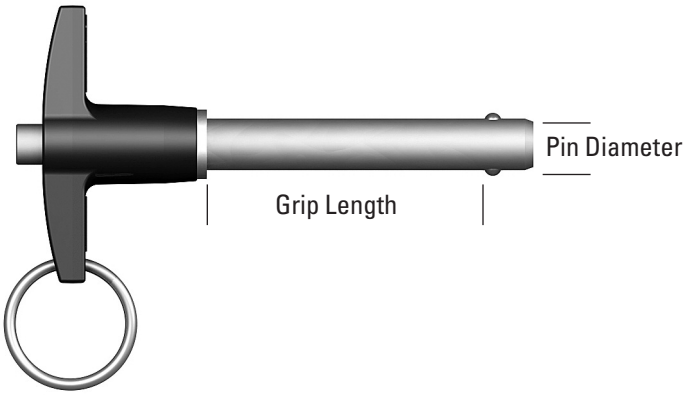
RECEPTACLES, END CAPS & LANYARD ASSEMBLIES

ONE-TOUCH FASTENERS

Selecting the proper Quick Release Ball Lock Pin

1. Select the proper pin diameter.

Our standard inch sizes are 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8". Our standard metric sizes are 5mm, 6mm, 8mm, 10mm, 12mm and 16mm. We also offer 3/4", 7/8" and 1" diameters as special order.



2. Select the proper grip length.

The grip length (also referred to as the useable length) is measured from the bottom of the handle to the top of the locking balls. Our standard inch grip lengths range from 1/2" up to 6" and our metric grip lengths range from 10mm up to 100mm depending on the diameter. Custom lengths are also available.

3. Select the proper shank material.

17-4 SS – Made from heat treated 17-4 stainless steel, they are designed for applications where higher shear strengths are required. Because they are made from stainless steel, they offer superior corrosion resistance over alloy steel. This combination of strength and corrosion resistance makes it a good choice for a wide range of demanding applications. RoHS compliant.

300 Series Stainless Steel – Made from 300 series stainless, **these pins are not designed to be used where shear strengths are demanding**. While these pins offer lower shear strengths than other materials, they are strong enough to meet the needs for many applications. This material also offers very good corrosion resistance. RoHS compliant.

4130 Alloy Steel – Made from heat treated and plated 4130 alloy steel, these pins are ideal where high strength is required and environmental factors are not an issue. Metric sizes are RoHS compliant.

4. Select the proper handle style.

Handle choice is based on clearance, use and appearance. Our handles are made from either aluminum alloy or stainless steel. The aluminum handles are anodized or E coated black and are available in Ring, Button, L, T, and Domed configurations. Stainless handles are available in Ring, Button, Nautical Recessed, and Domed configurations.

Alum T | Alum L | Alum Button | SS Button | Alum Ring | SS Ring | SS Nautical Recessed | Alum Dome | SS Dome

5. Select lanyard assembly.

Lanyard assemblies are used to attach the pin to a fixture so it does not get misplaced while the pin is not in use. The lanyard assemblies must be ordered separately. See pages 239 and 240 for our standard assemblies.

Fairlane®

QUICK RELEASE BALL LOCK PINS

Material Specifications

for the Fairlane pins shown in this catalog.

	17-4 SS PINS	300 SERIES SS PINS	STEEL ALLOY 4130 PINS
SHANK – Inch	CRES 17-4PH (Stainless Steel) (AMS-5643) (UNS S17400) (DIN 1.4542) Heat Treated Min. RC-40 Tensile Strength = 190,000 lb/in² Minimum Passivated Finish	CRES 304 (Stainless Steel) (AMS-5639) (UNS S530400) (DIN 1.4301) or CRES 303 (Stainless Steel) (AMS-5640) (UNS S30300) (DIN 1.4305) Tensile Strength = 73,000 lb/in² Minimum Passivated Finish	4130 (Alloy Steel) (AMS-6370) (UNS G41300) (DIN 1.7218) Heat Treated RC36-40 Tensile Strength = 160,000 to 180,000 lb/in² Cadmium Plate Finish
SHANK – Metric	CRES 17-4PH (Stainless Steel) (AMS-5643) (UNS S17400) (DIN 1.4542) Heat Treated Min. RC-40 Tensile Strength = 190,000 lb/in² Minimum Passivated Finish	————	4130 (Alloy Steel) (AMS-6370) (UNS G41300) (DIN 1.7218) Heat Treated RC36-40 Tensile Strength = 160,000 to 180,000 lb/in² Clear Zinc–Nickel Plate Finish
SPINDLE (Internal)	CRES 17-4PH (Stainless Steel) (AMS-5643) (UNS S17400) (DIN 1.4542) Heat Treated Min. RC-40 Tensile Strength = 190,000 lb/in² Minimum Passivated Finish	CRES 17-4PH (Stainless Steel) (AMS-5643) (UNS S17400) (DIN 1.4542) Heat Treated Min. RC-40 Tensile Strength = 190,000 lb/in² Minimum Passivated Finish	CRES 17-4PH (Stainless Steel) (AMS-5643) (UNS S17400) (DIN 1.4542) Heat Treated Min. RC-40 Tensile Strength = 190,000 lb/in² Minimum Passivated Finish
HANDLES (Aluminum Ring, Button, & Domed)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Black)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Black)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Black)
HANDLES (Stainless Ring, Button, Nautical Recessed, & Domed)	CRES 303 Stainless Steel (ASTM-A581) (UNS S30300) (DIN 1.4305) Passivated Finish	CRES 303 Stainless Steel (ASTM-A581) (UNS S30300) (DIN 1.4305) Passivated Finish	————
HANDLES (T & L)	Aluminum 380 Die Cast (ASTM-B85) (UNS A03800) (DIN AlSi9Cu3) Anodized Finish or E Coat (Black)	Aluminum 380 Die Cast (ASTM-B85) (UNS A03800) (DIN AlSi9Cu3) Anodized Finish or E Coat (Black)	Aluminum 380 Die Cast (ASTM-B85) (UNS A03800) (DIN AlSi9Cu3) Anodized Finish or E Coat (Black)
WEAR COLLAR	CRES 303 (Stainless Steel) (ASTM-A581) (UNS S30300) (DIN 1.4305) Passivated Finish	CRES 303 (Stainless Steel) (ASTM-A581) (UNS S30300) (DIN 1.4305) Passivated Finish	CRES 303 (Stainless Steel) (ASTM-A581) (UNS S30300) (DIN 1.4305) Passivated Finish
ACTUATOR BUTTON*	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Blue)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Blue)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Blue)
ACTUATOR BUTTON * (Aluminum Dome)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Clear)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Clear)	Aluminum 2024-T4 (ASTM-B211) (UNS A92024) (DIN AlCuMg2) Anodized Finish (Clear)
SPRING (Internal)	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish
BALLS	CRES 440C (Stainless Steel) (QQ-S-763) (UNS S44004) (DIN 1.4125) Heat Treated -RC (58-62) Passivated Finish	CRES 440C (Stainless Steel) (QQ-S-763) (UNS S44004) (DIN 1.4125) Heat Treated -RC (58-62) Passivated Finish	CRES 440C (Stainless Steel) (QQ-S-763) (UNS S44004) (DIN 1.4125) Heat Treated -RC (58-62) Passivated Finish
BAIL (Ring Handle)	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish
SPLIT RING	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish	CRES 302 (Stainless Steel) (ASTM-A313) (UNS S30200) (DIN 1.4300) Passivated Finish

*Note: When a stainless Ring, Button, Nautical Recessed, or Domed handle is specified, the actuator button will be made from CRES-303 (Stainless).

Hole Size / Performance Data

Inch

Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

Metric

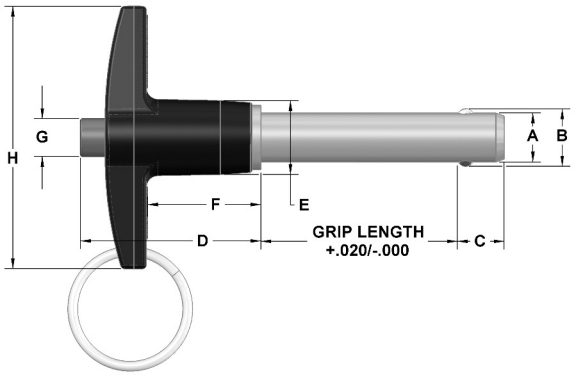
Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (N)	
	Max	Min	Strength (N)		
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

Fairlane®

QUICK RELEASE BALL LOCK PINS

T-Handle | Inch

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

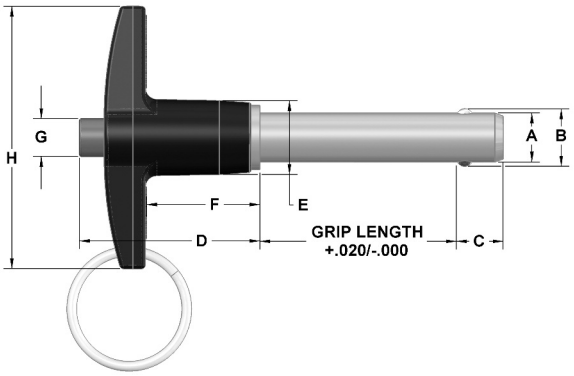
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in three shank materials to meet your application. The handles for the pins listed below are made from 380 aluminum casting with black E Coat or anodized finish. The pins are supplied with a stainless steel split ring for attaching a cable assembly. In addition to the standard sizes shown below, custom solutions and additional sizes are available as special order. See page 317 for complete specifications.

4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
TAAS-18-050	TACH-18-050	—	3/16	.1885	.1870	.50	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-075	TACH-18-075	—	3/16	.1885	.1870	.75	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-100	TACH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-125	TACH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-150	TACH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-175	TACH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-200	TACH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-250	TACH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-300	TACH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-350	TACH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	1.21	.47	.76	.23	1.81
TAAS-18-400	TACH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	1.21	.47	.76	.23	1.81
TAAS-25-050	TACH-25-050	TACS-25-050	1/4	.2485	.2470	.50	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-075	TACH-25-075	TACS-25-075	1/4	.2485	.2470	.75	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-100	TACH-25-100	TACS-25-100	1/4	.2485	.2470	1.00	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-125	TACH-25-125	TACS-25-125	1/4	.2485	.2470	1.25	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-150	TACH-25-150	TACS-25-150	1/4	.2485	.2470	1.50	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-175	TACH-25-175	TACS-25-175	1/4	.2485	.2470	1.75	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-200	TACH-25-200	TACS-25-200	1/4	.2485	.2470	2.00	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-250	TACH-25-250	TACS-25-250	1/4	.2485	.2470	2.50	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-300	TACH-25-300	TACS-25-300	1/4	.2485	.2470	3.00	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-350	TACH-25-350	TACS-25-350	1/4	.2485	.2470	3.50	.289	.290	1.21	.47	.76	.23	1.81
TAAS-25-400	TACH-25-400	TACS-25-400	1/4	.2485	.2470	4.00	.289	.290	1.21	.47	.76	.23	1.81
TAAS-31-050	TACH-31-050	TACS-31-050	5/16	.3110	.3095	.50	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-075	TACH-31-075	TACS-31-075	5/16	.3110	.3095	.75	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-100	TACH-31-100	TACS-31-100	5/16	.3110	.3095	1.00	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-125	TACH-31-125	TACS-31-125	5/16	.3110	.3095	1.25	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-150	TACH-31-150	TACS-31-150	5/16	.3110	.3095	1.50	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-175	TACH-31-175	TACS-31-175	5/16	.3110	.3095	1.75	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-200	TACH-31-200	TACS-31-200	5/16	.3110	.3095	2.00	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-250	TACH-31-250	TACS-31-250	5/16	.3110	.3095	2.50	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-300	TACH-31-300	TACS-31-300	5/16	.3110	.3095	3.00	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-350	TACH-31-350	TACS-31-350	5/16	.3110	.3095	3.50	.375	.330	1.21	.47	.76	.23	1.81
TAAS-31-400	TACH-31-400	TACS-31-400	5/16	.3110	.3095	4.00	.375	.330	1.21	.47	.76	.23	1.81

QUICK RELEASE BALL LOCK PINS

T-Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

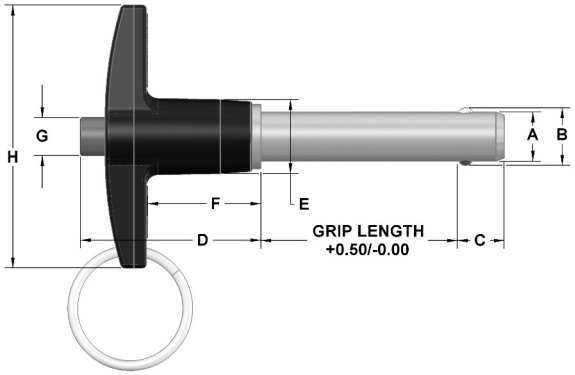
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
TAAS-37-050	TACH-37-050	TACS-37-050	3/8	.3735	.3720	.50	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-075	TACH-37-075	TACS-37-075	3/8	.3735	.3720	.75	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-100	TACH-37-100	TACS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-125	TACH-37-125	TACS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-150	TACH-37-150	TACS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-175	TACH-37-175	TACS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-200	TACH-37-200	TACS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-250	TACH-37-250	TACS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-300	TACH-37-300	TACS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-350	TACH-37-350	TACS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.37	.56	.87	.29	2.00
TAAS-37-400	TACH-37-400	TACS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.37	.56	.87	.29	2.00
TAAS-50-100	TACH-50-100	TACS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-125	TACH-50-125	TACS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-150	TACH-50-150	TACS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-175	TACH-50-175	TACS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-200	TACH-50-200	TACS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-250	TACH-50-250	TACS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-300	TACH-50-300	TACS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-350	TACH-50-350	TACS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-400	TACH-50-400	TACS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-450	TACH-50-450	TACS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-500	TACH-50-500	TACS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-550	TACH-50-550	TACS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-50-600	TACH-50-600	TACS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.60	.72	1.00	.42	2.25
TAAS-62-150	TACH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-175	TACH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-200	TACH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-250	TACH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-300	TACH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-350	TACH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-400	TACH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-450	TACH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-500	TACH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-550	TACH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.77	.94	1.11	.54	3.07
TAAS-62-600	TACH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.77	.94	1.11	.54	3.07

Fairlane®

QUICK RELEASE BALL LOCK PINS

T-Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

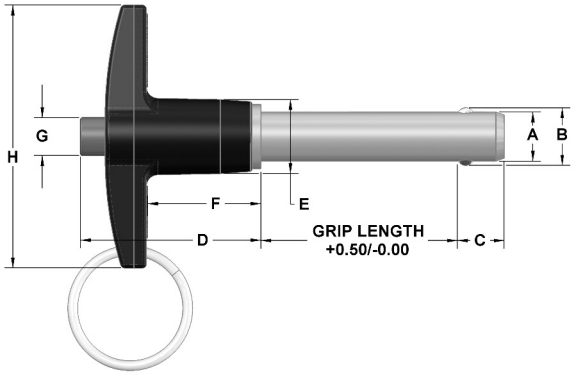
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are available in 4130 steel with zinc plating or 17-4PH stainless steel. The handles for the pins listed below are made from 380 aluminum casting with black E Coat or anodized finish. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MTAAS-05-010	MTACH-05-010	5	4.96	4.92	10	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-015	MTACH-05-015	5	4.96	4.92	15	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-020	MTACH-05-020	5	4.96	4.92	20	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-025	MTACH-05-025	5	4.96	4.92	25	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-030	MTACH-05-030	5	4.96	4.92	30	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-035	MTACH-05-035	5	4.96	4.92	35	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-040	MTACH-05-040	5	4.96	4.92	40	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-045	MTACH-05-045	5	4.96	4.92	45	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-050	MTACH-05-050	5	4.96	4.92	50	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-060	MTACH-05-060	5	4.96	4.92	60	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-070	MTACH-05-070	5	4.96	4.92	70	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-080	MTACH-05-080	5	4.96	4.92	80	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-090	MTACH-05-090	5	4.96	4.92	90	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-05-100	MTACH-05-100	5	4.96	4.92	100	5.54	6	30.7	11.9	19.3	5.8	46
MTAAS-06-010	MTACH-06-010	6	5.96	5.92	10	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-015	MTACH-06-015	6	5.96	5.92	15	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-020	MTACH-06-020	6	5.96	5.92	20	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-025	MTACH-06-025	6	5.96	5.92	25	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-030	MTACH-06-030	6	5.96	5.92	30	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-035	MTACH-06-035	6	5.96	5.92	35	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-040	MTACH-06-040	6	5.96	5.92	40	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-045	MTACH-06-045	6	5.96	5.92	45	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-050	MTACH-06-050	6	5.96	5.92	50	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-060	MTACH-06-060	6	5.96	5.92	60	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-070	MTACH-06-070	6	5.96	5.92	70	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-080	MTACH-06-080	6	5.96	5.92	80	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-090	MTACH-06-090	6	5.96	5.92	90	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-06-100	MTACH-06-100	6	5.96	5.92	100	6.99	7	30.7	11.9	19.3	5.8	46
MTAAS-08-010	MTACH-08-010	8	7.96	7.92	10	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-015	MTACH-08-015	8	7.96	7.92	15	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-020	MTACH-08-020	8	7.96	7.92	20	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-025	MTACH-08-025	8	7.96	7.92	25	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-030	MTACH-08-030	8	7.96	7.92	30	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-035	MTACH-08-035	8	7.96	7.92	35	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-040	MTACH-08-040	8	7.96	7.92	40	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-045	MTACH-08-045	8	7.96	7.92	45	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-050	MTACH-08-050	8	7.96	7.92	50	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-060	MTACH-08-060	8	7.96	7.92	60	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-070	MTACH-08-070	8	7.96	7.92	70	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-080	MTACH-08-080	8	7.96	7.92	80	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-090	MTACH-08-090	8	7.96	7.92	90	9.42	8	30.7	11.9	19.3	5.8	46
MTAAS-08-100	MTACH-08-100	8	7.96	7.92	100	9.42	8	30.7	11.9	19.3	5.8	46

QUICK RELEASE BALL LOCK PINS

T-Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

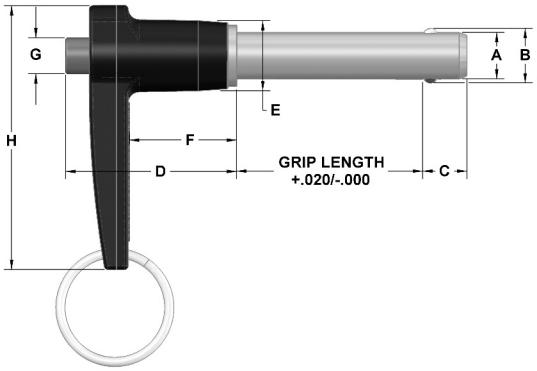
4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MTAAS-10-015	MTACH-10-015	10	9.96	9.92	15	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-020	MTACH-10-020	10	9.96	9.92	20	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-025	MTACH-10-025	10	9.96	9.92	25	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-030	MTACH-10-030	10	9.96	9.92	30	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-035	MTACH-10-035	10	9.96	9.92	35	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-040	MTACH-10-040	10	9.96	9.92	40	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-045	MTACH-10-045	10	9.96	9.92	45	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-050	MTACH-10-050	10	9.96	9.92	50	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-060	MTACH-10-060	10	9.96	9.92	60	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-070	MTACH-10-070	10	9.96	9.92	70	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-080	MTACH-10-080	10	9.96	9.92	80	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-090	MTACH-10-090	10	9.96	9.92	90	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-10-100	MTACH-10-100	10	9.96	9.92	100	11.86	9	34.8	14.2	22.1	7.4	50.8
MTAAS-12-020	MTACH-12-020	12	11.96	11.92	20	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-025	MTACH-12-025	12	11.96	11.92	25	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-030	MTACH-12-030	12	11.96	11.92	30	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-035	MTACH-12-035	12	11.96	11.92	35	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-040	MTACH-12-040	12	11.96	11.92	40	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-045	MTACH-12-045	12	11.96	11.92	45	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-050	MTACH-12-050	12	11.96	11.92	50	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-060	MTACH-12-060	12	11.96	11.92	60	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-070	MTACH-12-070	12	11.96	11.92	70	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-080	MTACH-12-080	12	11.96	11.92	80	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-090	MTACH-12-090	12	11.96	11.92	90	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-12-100	MTACH-12-100	12	11.96	11.92	100	14.45	10	40.6	18.3	25.4	10.7	57.2
MTAAS-16-025	MTACH-16-025	16	15.96	15.92	25	19	14	45	23.9	28.2	13.7	78
MTAAS-16-030	MTACH-16-030	16	15.96	15.92	30	19	14	45	23.9	28.2	13.7	78
MTAAS-16-035	MTACH-16-035	16	15.96	15.92	35	19	14	45	23.9	28.2	13.7	78
MTAAS-16-040	MTACH-16-040	16	15.96	15.92	40	19	14	45	23.9	28.2	13.7	78
MTAAS-16-045	MTACH-16-045	16	15.96	15.92	45	19	14	45	23.9	28.2	13.7	78
MTAAS-16-050	MTACH-16-050	16	15.96	15.92	50	19	14	45	23.9	28.2	13.7	78
MTAAS-16-060	MTACH-16-060	16	15.96	15.92	60	19	14	45	23.9	28.2	13.7	78
MTAAS-16-070	MTACH-16-070	16	15.96	15.92	70	19	14	45	23.9	28.2	13.7	78
MTAAS-16-080	MTACH-16-080	16	15.96	15.92	80	19	14	45	23.9	28.2	13.7	78
MTAAS-16-090	MTACH-16-090	16	15.96	15.92	90	19	14	45	23.9	28.2	13.7	78
MTAAS-16-100	MTACH-16-100	16	15.96	15.92	100	19	14	45	23.9	28.2	13.7	78

Fairlane®

QUICK RELEASE BALL LOCK PINS

L-Handle | Inch

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in three shank materials to meet your application. The handles for the pins listed below are made from 380 aluminum casting with black E Coat or anodized finish. The pins are supplied with a stainless steel split ring for attaching a cable assembly. In addition to the standard sizes shown below, custom solutions and additional sizes are available as special order. See page 317 for complete specifications.

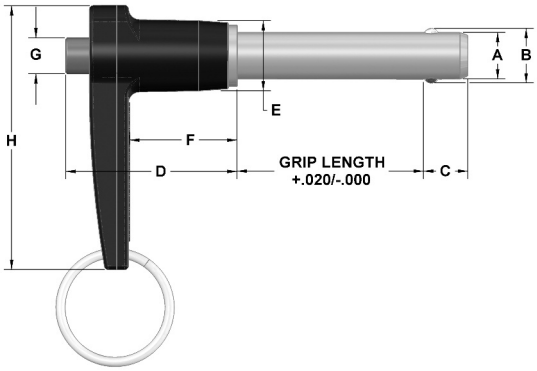
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
LAAS-18-050	LACH-18-050	—	3/16	.1885	.1870	.50	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-075	LACH-18-075	—	3/16	.1885	.1870	.75	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-100	LACH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-125	LACH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-150	LACH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-175	LACH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-200	LACH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-250	LACH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-300	LACH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-350	LACH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	1.21	.47	.76	.23	1.84
LAAS-18-400	LACH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	1.21	.47	.76	.23	1.84
LAAS-25-050	LACH-25-050	LACS-25-050	1/4	.2485	.2470	.50	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-075	LACH-25-075	LACS-25-075	1/4	.2485	.2470	.75	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-100	LACH-25-100	LACS-25-100	1/4	.2485	.2470	1.00	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-125	LACH-25-125	LACS-25-125	1/4	.2485	.2470	1.25	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-150	LACH-25-150	LACS-25-150	1/4	.2485	.2470	1.50	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-175	LACH-25-175	LACS-25-175	1/4	.2485	.2470	1.75	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-200	LACH-25-200	LACS-25-200	1/4	.2485	.2470	2.00	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-250	LACH-25-250	LACS-25-250	1/4	.2485	.2470	2.50	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-300	LACH-25-300	LACS-25-300	1/4	.2485	.2470	3.00	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-350	LACH-25-350	LACS-25-350	1/4	.2485	.2470	3.50	.289	.290	1.21	.47	.76	.23	1.84
LAAS-25-400	LACH-25-400	LACS-25-400	1/4	.2485	.2470	4.00	.289	.290	1.21	.47	.76	.23	1.84
LAAS-31-050	LACH-31-050	LACS-31-050	5/16	.3110	.3095	.50	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-075	LACH-31-075	LACS-31-075	5/16	.3110	.3095	.75	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-100	LACH-31-100	LACS-31-100	5/16	.3110	.3095	1.00	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-125	LACH-31-125	LACS-31-125	5/16	.3110	.3095	1.25	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-150	LACH-31-150	LACS-31-150	5/16	.3110	.3095	1.50	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-175	LACH-31-175	LACS-31-175	5/16	.3110	.3095	1.75	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-200	LACH-31-200	LACS-31-200	5/16	.3110	.3095	2.00	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-250	LACH-31-250	LACS-31-250	5/16	.3110	.3095	2.50	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-300	LACH-31-300	LACS-31-300	5/16	.3110	.3095	3.00	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-350	LACH-31-350	LACS-31-350	5/16	.3110	.3095	3.50	.375	.330	1.21	.47	.76	.23	1.84
LAAS-31-400	LACH-31-400	LACS-31-400	5/16	.3110	.3095	4.00	.375	.330	1.21	.47	.76	.23	1.84

Fairlane®

QUICK RELEASE BALL LOCK PINS

L-Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

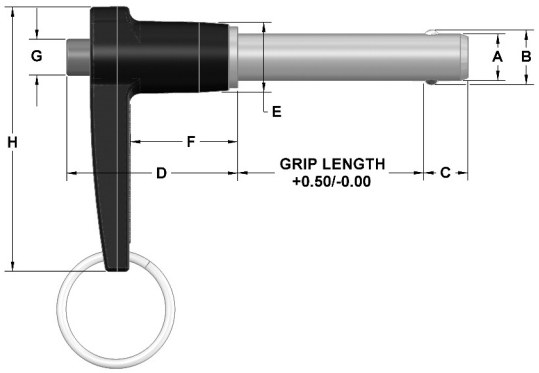
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
LAAS-37-050	LACH-37-050	LACS-37-050	3/8	.3735	.3720	.50	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-075	LACH-37-075	LACS-37-075	3/8	.3735	.3720	.75	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-100	LACH-37-100	LACS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-125	LACH-37-125	LACS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-150	LACH-37-150	LACS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-175	LACH-37-175	LACS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-200	LACH-37-200	LACS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-250	LACH-37-250	LACS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-300	LACH-37-300	LACS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-350	LACH-37-350	LACS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.37	.56	.87	.29	2.13
LAAS-37-400	LACH-37-400	LACS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.37	.56	.87	.29	2.13
LAAS-50-100	LACH-50-100	LACS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-125	LACH-50-125	LACS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-150	LACH-50-150	LACS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-175	LACH-50-175	LACS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-200	LACH-50-200	LACS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-250	LACH-50-250	LACS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-300	LACH-50-300	LACS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-350	LACH-50-350	LACS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-400	LACH-50-400	LACS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-450	LACH-50-450	LACS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-500	LACH-50-500	LACS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-550	LACH-50-550	LACS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-50-600	LACH-50-600	LACS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.60	.72	1.00	.42	2.37
LAAS-62-150	LACH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-175	LACH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-200	LACH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-250	LACH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-300	LACH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-350	LACH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-400	LACH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-450	LACH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-500	LACH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-550	LACH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.77	.94	1.11	.54	2.69
LAAS-62-600	LACH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.77	.94	1.11	.54	2.69

Fairlane®

QUICK RELEASE BALL LOCK PINS

L-Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

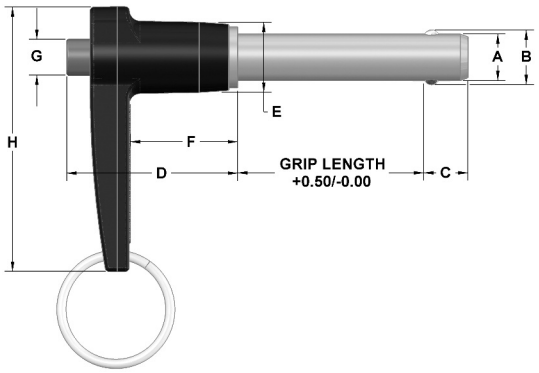
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are available in 4130 steel with zinc plating or 17-4PH stainless steel. The handles for the pins listed below are made from 380 aluminum casting with black E Coat or anodized finish. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MLAAS-05-010	MLACH-05-010	5	4.96	4.92	10	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-015	MLACH-05-015	5	4.96	4.92	15	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-020	MLACH-05-020	5	4.96	4.92	20	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-025	MLACH-05-025	5	4.96	4.92	25	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-030	MLACH-05-030	5	4.96	4.92	30	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-035	MLACH-05-035	5	4.96	4.92	35	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-040	MLACH-05-040	5	4.96	4.92	40	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-045	MLACH-05-045	5	4.96	4.92	45	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-050	MLACH-05-050	5	4.96	4.92	50	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-060	MLACH-05-060	5	4.96	4.92	60	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-070	MLACH-05-070	5	4.96	4.92	70	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-080	MLACH-05-080	5	4.96	4.92	80	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-090	MLACH-05-090	5	4.96	4.92	90	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-05-100	MLACH-05-100	5	4.96	4.92	100	5.54	6	30.7	11.9	19.3	5.8	46.7
MLAAS-06-010	MLACH-06-010	6	5.96	5.92	10	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-015	MLACH-06-015	6	5.96	5.92	15	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-020	MLACH-06-020	6	5.96	5.92	20	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-025	MLACH-06-025	6	5.96	5.92	25	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-030	MLACH-06-030	6	5.96	5.92	30	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-035	MLACH-06-035	6	5.96	5.92	35	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-040	MLACH-06-040	6	5.96	5.92	40	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-045	MLACH-06-045	6	5.96	5.92	45	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-050	MLACH-06-050	6	5.96	5.92	50	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-060	MLACH-06-060	6	5.96	5.92	60	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-070	MLACH-06-070	6	5.96	5.92	70	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-080	MLACH-06-080	6	5.96	5.92	80	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-090	MLACH-06-090	6	5.96	5.92	90	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-06-100	MLACH-06-100	6	5.96	5.92	100	6.99	7	30.7	11.9	19.3	5.8	46.7
MLAAS-08-010	MLACH-08-010	8	7.96	7.92	10	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-015	MLACH-08-015	8	7.96	7.92	15	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-020	MLACH-08-020	8	7.96	7.92	20	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-025	MLACH-08-025	8	7.96	7.92	25	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-030	MLACH-08-030	8	7.96	7.92	30	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-035	MLACH-08-035	8	7.96	7.92	35	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-040	MLACH-08-040	8	7.96	7.92	40	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-045	MLACH-08-045	8	7.96	7.92	45	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-050	MLACH-08-050	8	7.96	7.92	50	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-060	MLACH-08-060	8	7.96	7.92	60	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-070	MLACH-08-070	8	7.96	7.92	70	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-080	MLACH-08-080	8	7.96	7.92	80	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-090	MLACH-08-090	8	7.96	7.92	90	9.42	8	30.7	11.9	19.3	5.8	46.7
MLAAS-08-100	MLACH-08-100	8	7.96	7.92	100	9.42	8	30.7	11.9	19.3	5.8	46.7

QUICK RELEASE BALL LOCK PINS

L-Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

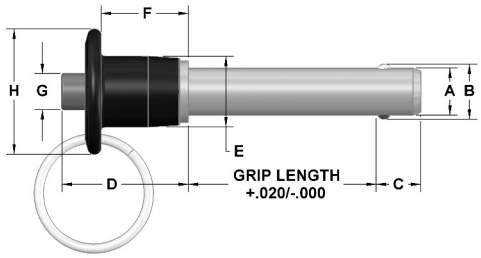
4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MLAAS-10-015	MLACH-10-015	10	9.96	9.92	15	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-020	MLACH-10-020	10	9.96	9.92	20	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-025	MLACH-10-025	10	9.96	9.92	25	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-030	MLACH-10-030	10	9.96	9.92	30	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-035	MLACH-10-035	10	9.96	9.92	35	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-040	MLACH-10-040	10	9.96	9.92	40	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-045	MLACH-10-045	10	9.96	9.92	45	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-050	MLACH-10-050	10	9.96	9.92	50	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-060	MLACH-10-060	10	9.96	9.92	60	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-070	MLACH-10-070	10	9.96	9.92	70	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-080	MLACH-10-080	10	9.96	9.92	80	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-090	MLACH-10-090	10	9.96	9.92	90	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-10-100	MLACH-10-100	10	9.96	9.92	100	11.86	9	34.8	14.2	22.1	7.4	54.1
MLAAS-12-020	MLACH-12-020	12	11.96	11.92	20	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-025	MLACH-12-025	12	11.96	11.92	25	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-030	MLACH-12-030	12	11.96	11.92	30	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-035	MLACH-12-035	12	11.96	11.92	35	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-040	MLACH-12-040	12	11.96	11.92	40	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-045	MLACH-12-045	12	11.96	11.92	45	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-050	MLACH-12-050	12	11.96	11.92	50	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-060	MLACH-12-060	12	11.96	11.92	60	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-070	MLACH-12-070	12	11.96	11.92	70	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-080	MLACH-12-080	12	11.96	11.92	80	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-090	MLACH-12-090	12	11.96	11.92	90	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-12-100	MLACH-12-100	12	11.96	11.92	100	14.45	10	40.6	18.3	25.4	10.7	60.2
MLAAS-16-025	MLACH-16-025	16	15.96	15.92	25	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-030	MLACH-16-030	16	15.96	15.92	30	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-035	MLACH-16-035	16	15.96	15.92	35	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-040	MLACH-16-040	16	15.96	15.92	40	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-045	MLACH-16-045	16	15.96	15.92	45	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-050	MLACH-16-050	16	15.96	15.92	50	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-060	MLACH-16-060	16	15.96	15.92	60	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-070	MLACH-16-070	16	15.96	15.92	70	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-080	MLACH-16-080	16	15.96	15.92	80	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-090	MLACH-16-090	16	15.96	15.92	90	19	14	45	23.9	28.2	13.7	68.3
MLAAS-16-100	MLACH-16-100	16	15.96	15.92	100	19	14	45	23.9	28.2	13.7	68.3

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Button Handle | Inch

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

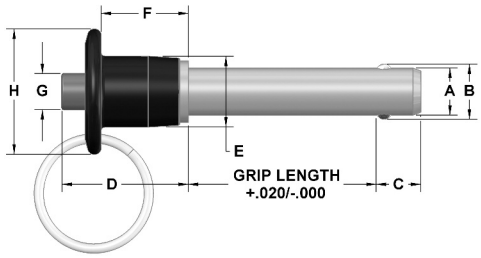
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in three shank materials to meet your application. The handles for the pins listed below are made from 2024-T4 aluminum and anodized black. The pins are supplied with a stainless steel split ring for attaching a cable assembly. In addition to the standard sizes shown below, custom solutions and additional sizes are available as special order. See page 317 for complete specifications.

4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
BAAS-18-050	BACH-18-050	—	3/16	.1885	.1870	.50	.220	.260	.92	.47	.63	.23	.81
BAAS-18-075	BACH-18-075	—	3/16	.1885	.1870	.75	.220	.260	.92	.47	.63	.23	.81
BAAS-18-100	BACH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	.92	.47	.63	.23	.81
BAAS-18-125	BACH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	.92	.47	.63	.23	.81
BAAS-18-150	BACH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	.92	.47	.63	.23	.81
BAAS-18-175	BACH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	.92	.47	.63	.23	.81
BAAS-18-200	BACH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	.92	.47	.63	.23	.81
BAAS-18-250	BACH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	.92	.47	.63	.23	.81
BAAS-18-300	BACH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	.92	.47	.63	.23	.81
BAAS-18-350	BACH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	.92	.47	.63	.23	.81
BAAS-18-400	BACH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	.92	.47	.63	.23	.81
BAAS-25-050	BACH-25-050	BACS-25-050	1/4	.2485	.2470	.50	.289	.290	.92	.47	.63	.23	.81
BAAS-25-075	BACH-25-075	BACS-25-075	1/4	.2485	.2470	.75	.289	.290	.92	.47	.63	.23	.81
BAAS-25-100	BACH-25-100	BACS-25-100	1/4	.2485	.2470	1.00	.289	.290	.92	.47	.63	.23	.81
BAAS-25-125	BACH-25-125	BACS-25-125	1/4	.2485	.2470	1.25	.289	.290	.92	.47	.63	.23	.81
BAAS-25-150	BACH-25-150	BACS-25-150	1/4	.2485	.2470	1.50	.289	.290	.92	.47	.63	.23	.81
BAAS-25-175	BACH-25-175	BACS-25-175	1/4	.2485	.2470	1.75	.289	.290	.92	.47	.63	.23	.81
BAAS-25-200	BACH-25-200	BACS-25-200	1/4	.2485	.2470	2.00	.289	.290	.92	.47	.63	.23	.81
BAAS-25-250	BACH-25-250	BACS-25-250	1/4	.2485	.2470	2.50	.289	.290	.92	.47	.63	.23	.81
BAAS-25-300	BACH-25-300	BACS-25-300	1/4	.2485	.2470	3.00	.289	.290	.92	.47	.63	.23	.81
BAAS-25-350	BACH-25-350	BACS-25-350	1/4	.2485	.2470	3.50	.289	.290	.92	.47	.63	.23	.81
BAAS-25-400	BACH-25-400	BACS-25-400	1/4	.2485	.2470	4.00	.289	.290	.92	.47	.63	.23	.81
BAAS-31-050	BACH-31-050	BACS-31-050	5/16	.3110	.3095	.50	.375	.330	.92	.47	.63	.23	.81
BAAS-31-075	BACH-31-075	BACS-31-075	5/16	.3110	.3095	.75	.375	.330	.92	.47	.63	.23	.81
BAAS-31-100	BACH-31-100	BACS-31-100	5/16	.3110	.3095	1.00	.375	.330	.92	.47	.63	.23	.81
BAAS-31-125	BACH-31-125	BACS-31-125	5/16	.3110	.3095	1.25	.375	.330	.92	.47	.63	.23	.81
BAAS-31-150	BACH-31-150	BACS-31-150	5/16	.3110	.3095	1.50	.375	.330	.92	.47	.63	.23	.81
BAAS-31-175	BACH-31-175	BACS-31-175	5/16	.3110	.3095	1.75	.375	.330	.92	.47	.63	.23	.81
BAAS-31-200	BACH-31-200	BACS-31-200	5/16	.3110	.3095	2.00	.375	.330	.92	.47	.63	.23	.81
BAAS-31-250	BACH-31-250	BACS-31-250	5/16	.3110	.3095	2.50	.375	.330	.92	.47	.63	.23	.81
BAAS-31-300	BACH-31-300	BACS-31-300	5/16	.3110	.3095	3.00	.375	.330	.92	.47	.63	.23	.81
BAAS-31-350	BACH-31-350	BACS-31-350	5/16	.3110	.3095	3.50	.375	.330	.92	.47	.63	.23	.81
BAAS-31-400	BACH-31-400	BACS-31-400	5/16	.3110	.3095	4.00	.375	.330	.92	.47	.63	.23	.81

QUICK RELEASE BALL LOCK PINS

Aluminum Button Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

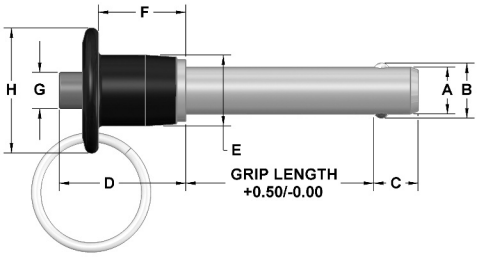
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
BAAS-37-050	BACH-37-050	BACS-37-050	3/8	.3735	.3720	.50	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-075	BACH-37-075	BACS-37-075	3/8	.3735	.3720	.75	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-100	BACH-37-100	BACS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-125	BACH-37-125	BACS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-150	BACH-37-150	BACS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-175	BACH-37-175	BACS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-200	BACH-37-200	BACS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-250	BACH-37-250	BACS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-300	BACH-37-300	BACS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-350	BACH-37-350	BACS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.01	.56	.70	.29	1.00
BAAS-37-400	BACH-37-400	BACS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.01	.56	.70	.29	1.00
BAAS-50-100	BACH-50-100	BACS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-125	BACH-50-125	BACS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-150	BACH-50-150	BACS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-175	BACH-50-175	BACS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-200	BACH-50-200	BACS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-250	BACH-50-250	BACS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-300	BACH-50-300	BACS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-350	BACH-50-350	BACS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-400	BACH-50-400	BACS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-450	BACH-50-450	BACS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-500	BACH-50-500	BACS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-550	BACH-50-550	BACS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.27	.72	.85	.42	1.37
BAAS-50-600	BACH-50-600	BACS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.27	.72	.85	.42	1.37
BAAS-62-150	BACH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-175	BACH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-200	BACH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-250	BACH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-300	BACH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-350	BACH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-400	BACH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-450	BACH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-500	BACH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-550	BACH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.65	.94	1.10	.54	1.75
BAAS-62-600	BACH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.65	.94	1.10	.54	1.75

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Button Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are available in 4130 steel with zinc plating or 17-4PH stainless steel. The handles for the pins listed below are made from 2024-T4 aluminum and anodized black. Stainless handles are also available. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

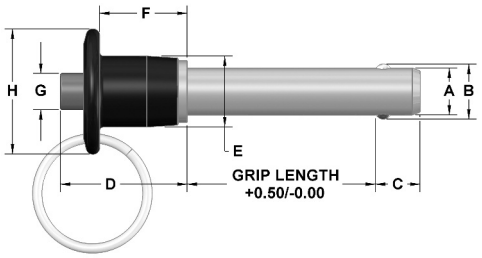
4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MBAAS-05-010	MBACH-05-010	5	4.96	4.92	10	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-015	MBACH-05-015	5	4.96	4.92	15	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-020	MBACH-05-020	5	4.96	4.92	20	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-025	MBACH-05-025	5	4.96	4.92	25	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-030	MBACH-05-030	5	4.96	4.92	30	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-035	MBACH-05-035	5	4.96	4.92	35	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-040	MBACH-05-040	5	4.96	4.92	40	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-045	MBACH-05-045	5	4.96	4.92	45	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-050	MBACH-05-050	5	4.96	4.92	50	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-060	MBACH-05-060	5	4.96	4.92	60	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-070	MBACH-05-070	5	4.96	4.92	70	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-080	MBACH-05-080	5	4.96	4.92	80	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-090	MBACH-05-090	5	4.96	4.92	90	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-05-100	MBACH-05-100	5	4.96	4.92	100	5.54	6	23.4	11.9	16	5.8	20.6
MBAAS-06-010	MBACH-06-010	6	5.96	5.92	10	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-015	MBACH-06-015	6	5.96	5.92	15	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-020	MBACH-06-020	6	5.96	5.92	20	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-025	MBACH-06-025	6	5.96	5.92	25	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-030	MBACH-06-030	6	5.96	5.92	30	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-035	MBACH-06-035	6	5.96	5.92	35	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-040	MBACH-06-040	6	5.96	5.92	40	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-045	MBACH-06-045	6	5.96	5.92	45	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-050	MBACH-06-050	6	5.96	5.92	50	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-060	MBACH-06-060	6	5.96	5.92	60	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-070	MBACH-06-070	6	5.96	5.92	70	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-080	MBACH-06-080	6	5.96	5.92	80	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-090	MBACH-06-090	6	5.96	5.92	90	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-06-100	MBACH-06-100	6	5.96	5.92	100	6.99	7	23.4	11.9	16	5.8	20.6
MBAAS-08-010	MBACH-08-010	8	7.96	7.92	10	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-015	MBACH-08-015	8	7.96	7.92	15	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-020	MBACH-08-020	8	7.96	7.92	20	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-025	MBACH-08-025	8	7.96	7.92	25	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-030	MBACH-08-030	8	7.96	7.92	30	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-035	MBACH-08-035	8	7.96	7.92	35	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-040	MBACH-08-040	8	7.96	7.92	40	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-045	MBACH-08-045	8	7.96	7.92	45	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-050	MBACH-08-050	8	7.96	7.92	50	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-060	MBACH-08-060	8	7.96	7.92	60	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-070	MBACH-08-070	8	7.96	7.92	70	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-080	MBACH-08-080	8	7.96	7.92	80	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-090	MBACH-08-090	8	7.96	7.92	90	9.42	8	23.4	11.9	16	5.8	20.6
MBAAS-08-100	MBACH-08-100	8	7.96	7.92	100	9.42	8	23.4	11.9	16	5.8	20.6

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Button Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MBAAS-10-015	MBACH-10-015	10	9.96	9.92	15	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-020	MBACH-10-020	10	9.96	9.92	20	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-025	MBACH-10-025	10	9.96	9.92	25	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-030	MBACH-10-030	10	9.96	9.92	30	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-035	MBACH-10-035	10	9.96	9.92	35	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-040	MBACH-10-040	10	9.96	9.92	40	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-045	MBACH-10-045	10	9.96	9.92	45	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-050	MBACH-10-050	10	9.96	9.92	50	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-060	MBACH-10-060	10	9.96	9.92	60	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-070	MBACH-10-070	10	9.96	9.92	70	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-080	MBACH-10-080	10	9.96	9.92	80	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-090	MBACH-10-090	10	9.96	9.92	90	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-10-100	MBACH-10-100	10	9.96	9.92	100	11.86	9	25.7	14.2	17.8	7.4	25.4
MBAAS-12-020	MBACH-12-020	12	11.96	11.92	20	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-025	MBACH-12-025	12	11.96	11.92	25	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-030	MBACH-12-030	12	11.96	11.92	30	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-035	MBACH-12-035	12	11.96	11.92	35	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-040	MBACH-12-040	12	11.96	11.92	40	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-045	MBACH-12-045	12	11.96	11.92	45	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-050	MBACH-12-050	12	11.96	11.92	50	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-060	MBACH-12-060	12	11.96	11.92	60	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-070	MBACH-12-070	12	11.96	11.92	70	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-080	MBACH-12-080	12	11.96	11.92	80	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-090	MBACH-12-090	12	11.96	11.92	90	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-12-100	MBACH-12-100	12	11.96	11.92	100	14.45	10	32.3	18.3	21.6	10.7	34.7
MBAAS-16-025	MBACH-16-025	16	15.96	15.92	25	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-030	MBACH-16-030	16	15.96	15.92	30	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-035	MBACH-16-035	16	15.96	15.92	35	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-040	MBACH-16-040	16	15.96	15.92	40	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-045	MBACH-16-045	16	15.96	15.92	45	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-050	MBACH-16-050	16	15.96	15.92	50	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-060	MBACH-16-060	16	15.96	15.92	60	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-070	MBACH-16-070	16	15.96	15.92	70	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-080	MBACH-16-080	16	15.96	15.92	80	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-090	MBACH-16-090	16	15.96	15.92	90	19	14	41.9	23.9	27.9	13.7	44.5
MBAAS-16-100	MBACH-16-100	16	15.96	15.92	100	19	14	41.9	23.9	27.9	13.7	44.5

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QUICK RELEASE BALL LOCK PINS

Stainless Steel Button Handle | Inch

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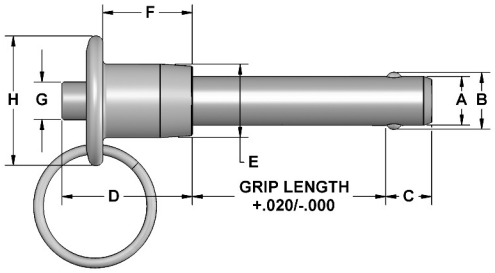


Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in two types of stainless steel to meet your application. The handles and actuator buttons for the pins listed below are made from 303 stainless steel. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications.

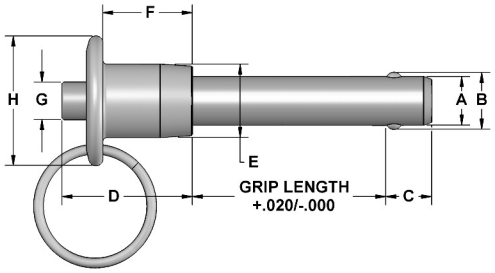
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
BCCH-18-050	—	3/16	.1885	.1870	.50	.220	.260	.92	.47	.63	.23	.81
BCCH-18-075	—	3/16	.1885	.1870	.75	.220	.260	.92	.47	.63	.23	.81
BCCH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	.92	.47	.63	.23	.81
BCCH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	.92	.47	.63	.23	.81
BCCH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	.92	.47	.63	.23	.81
BCCH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	.92	.47	.63	.23	.81
BCCH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	.92	.47	.63	.23	.81
BCCH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	.92	.47	.63	.23	.81
BCCH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	.92	.47	.63	.23	.81
BCCH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	.92	.47	.63	.23	.81
BCCH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	.92	.47	.63	.23	.81
BCCH-25-050	BCCS-25-050	1/4	.2485	.2470	.50	.289	.290	.92	.47	.63	.23	.81
BCCH-25-075	BCCS-25-075	1/4	.2485	.2470	.75	.289	.290	.92	.47	.63	.23	.81
BCCH-25-100	BCCS-25-100	1/4	.2485	.2470	1.00	.289	.290	.92	.47	.63	.23	.81
BCCH-25-125	BCCS-25-125	1/4	.2485	.2470	1.25	.289	.290	.92	.47	.63	.23	.81
BCCH-25-150	BCCS-25-150	1/4	.2485	.2470	1.50	.289	.290	.92	.47	.63	.23	.81
BCCH-25-175	BCCS-25-175	1/4	.2485	.2470	1.75	.289	.290	.92	.47	.63	.23	.81
BCCH-25-200	BCCS-25-200	1/4	.2485	.2470	2.00	.289	.290	.92	.47	.63	.23	.81
BCCH-25-250	BCCS-25-250	1/4	.2485	.2470	2.50	.289	.290	.92	.47	.63	.23	.81
BCCH-25-300	BCCS-25-300	1/4	.2485	.2470	3.00	.289	.290	.92	.47	.63	.23	.81
BCCH-25-350	BCCS-25-350	1/4	.2485	.2470	3.50	.289	.290	.92	.47	.63	.23	.81
BCCH-25-400	BCCS-25-400	1/4	.2485	.2470	4.00	.289	.290	.92	.47	.63	.23	.81
BCCH-31-050	BCCS-31-050	5/16	.3110	.3095	.50	.375	.330	.92	.47	.63	.23	.81
BCCH-31-075	BCCS-31-075	5/16	.3110	.3095	.75	.375	.330	.92	.47	.63	.23	.81
BCCH-31-100	BCCS-31-100	5/16	.3110	.3095	1.00	.375	.330	.92	.47	.63	.23	.81
BCCH-31-125	BCCS-31-125	5/16	.3110	.3095	1.25	.375	.330	.92	.47	.63	.23	.81
BCCH-31-150	BCCS-31-150	5/16	.3110	.3095	1.50	.375	.330	.92	.47	.63	.23	.81
BCCH-31-200	BCCS-31-200	5/16	.3110	.3095	1.75	.375	.330	.92	.47	.63	.23	.81
BCCH-31-200	BCCS-31-200	5/16	.3110	.3095	2.00	.375	.330	.92	.47	.63	.23	.81
BCCH-31-250	BCCS-31-250	5/16	.3110	.3095	2.50	.375	.330	.92	.47	.63	.23	.81
BCCH-31-300	BCCS-31-300	5/16	.3110	.3095	3.00	.375	.330	.92	.47	.63	.23	.81
BCCH-31-350	BCCS-31-350	5/16	.3110	.3095	3.50	.375	.330	.92	.47	.63	.23	.81
BCCH-31-400	BCCS-31-400	5/16	.3110	.3095	4.00	.375	.330	.92	.47	.63	.23	.81

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Button Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
BCCH-37-050	BCCS-37-050	3/8	.3735	.3720	.50	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-075	BCCS-37-075	3/8	.3735	.3720	.75	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-100	BCCS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-125	BCCS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-150	BCCS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-175	BCCS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-200	BCCS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-250	BCCS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-300	BCCS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-350	BCCS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.01	.56	.70	.29	1.00
BCCH-37-400	BCCS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.01	.56	.70	.29	1.00
BCCH-50-100	BCCS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-125	BCCS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-150	BCCS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-175	BCCS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-200	BCCS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-250	BCCS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-300	BCCS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-350	BCCS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-400	BCCS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-450	BCCS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-500	BCCS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-550	BCCS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.27	.72	.85	.42	1.37
BCCH-50-600	BCCS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.27	.72	.85	.42	1.37

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QUICK RELEASE BALL LOCK PINS

Stainless Steel Button Handle | Metric

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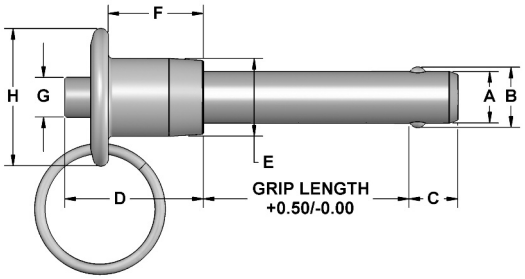


Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	mm	mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060

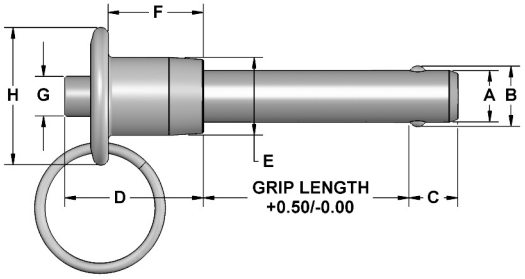
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The handles for the pins listed below are made from 303 stainless steel. The shanks are made from 17-4PH stainless steel. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications.
RoHS compliant.

17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MBCCH-05-010	5	4.96	4.92	10	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-015	5	4.96	4.92	15	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-020	5	4.96	4.92	20	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-025	5	4.96	4.92	25	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-030	5	4.96	4.92	30	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-035	5	4.96	4.92	35	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-040	5	4.96	4.92	40	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-045	5	4.96	4.92	45	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-050	5	4.96	4.92	50	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-060	5	4.96	4.92	60	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-070	5	4.96	4.92	70	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-080	5	4.96	4.92	80	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-090	5	4.96	4.92	90	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-05-100	5	4.96	4.92	100	5.54	6	23.4	11.9	16	5.8	20.6
MBCCH-06-010	6	5.96	5.92	10	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-015	6	5.96	5.92	15	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-020	6	5.96	5.92	20	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-025	6	5.96	5.92	25	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-030	6	5.96	5.92	30	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-035	6	5.96	5.92	35	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-040	6	5.96	5.92	40	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-045	6	5.96	5.92	45	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-050	6	5.96	5.92	50	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-060	6	5.96	5.92	60	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-070	6	5.96	5.92	70	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-080	6	5.96	5.92	80	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-090	6	5.96	5.92	90	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-06-100	6	5.96	5.92	100	6.99	7	23.4	11.9	16	5.8	20.6
MBCCH-08-010	8	7.96	7.92	10	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-015	8	7.96	7.92	15	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-020	8	7.96	7.92	20	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-025	8	7.96	7.92	25	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-030	8	7.96	7.92	30	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-035	8	7.96	7.92	35	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-040	8	7.96	7.92	40	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-045	8	7.96	7.92	45	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-050	8	7.96	7.92	50	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-060	8	7.96	7.92	60	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-070	8	7.96	7.92	70	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-080	8	7.96	7.92	80	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-090	8	7.96	7.92	90	9.42	8	23.4	11.9	16	5.8	20.6
MBCCH-08-100	8	7.96	7.92	100	9.42	8	23.4	11.9	16	5.8	20.6

QUICK RELEASE BALL LOCK PINS

Stainless Steel Button Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	mm	mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060

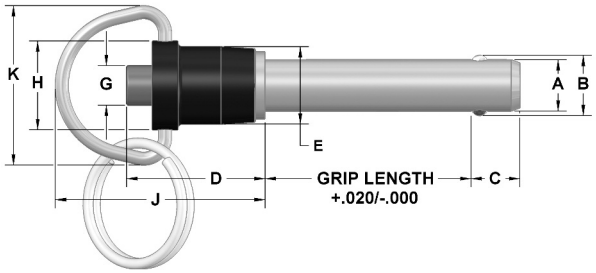
17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MBCCH-10-015	10	9.96	9.92	15	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-020	10	9.96	9.92	20	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-025	10	9.96	9.92	25	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-030	10	9.96	9.92	30	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-035	10	9.96	9.92	35	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-040	10	9.96	9.92	40	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-045	10	9.96	9.92	45	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-050	10	9.96	9.92	50	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-060	10	9.96	9.92	60	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-070	10	9.96	9.92	70	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-080	10	9.96	9.92	80	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-090	10	9.96	9.92	90	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-10-100	10	9.96	9.92	100	11.86	9	25.7	14.2	17.8	7.4	25.4
MBCCH-12-020	12	11.96	11.92	20	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-025	12	11.96	11.92	25	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-030	12	11.96	11.92	30	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-035	12	11.96	11.92	35	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-040	12	11.96	11.92	40	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-045	12	11.96	11.92	45	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-050	12	11.96	11.92	50	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-060	12	11.96	11.92	60	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-070	12	11.96	11.92	70	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-080	12	11.96	11.92	80	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-090	12	11.96	11.92	90	14.45	10	32.3	18.3	21.6	10.7	34.7
MBCCH-12-100	12	11.96	11.92	100	14.45	10	32.3	18.3	21.6	10.7	34.7

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Ring Handle | Inch

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in three shank materials to meet your application. The handles for the pins listed below are made from 2024-T4 aluminum and anodized black. Stainless handles are also available. The pins are supplied with a stainless steel split ring for attaching a cable assembly. In addition to the standard sizes shown below, custom solutions and additional sizes are available as special order. See page 317 for complete specifications.

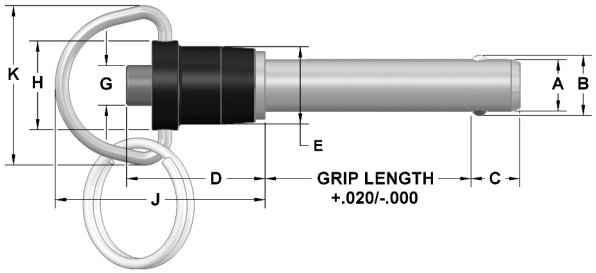
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	G	H	J	K
RAAS-18-050	RACH-18-050	—	3/16	.1885	.1870	.50	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-075	RACH-18-075	—	3/16	.1885	.1870	.75	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-100	RACH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-125	RACH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-150	RACH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-175	RACH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-200	RACH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-250	RACH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-300	RACH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-350	RACH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-18-400	RACH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	.92	.47	.23	.59	1.45	1.16
RAAS-25-050	RACH-25-050	RACS-25-050	1/4	.2485	.2470	.50	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-075	RACH-25-075	RACS-25-075	1/4	.2485	.2470	.75	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-100	RACH-25-100	RACS-25-100	1/4	.2485	.2470	1.00	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-125	RACH-25-125	RACS-25-125	1/4	.2485	.2470	1.25	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-150	RACH-25-150	RACS-25-150	1/4	.2485	.2470	1.50	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-175	RACH-25-175	RACS-25-175	1/4	.2485	.2470	1.75	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-200	RACH-25-200	RACS-25-200	1/4	.2485	.2470	2.00	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-250	RACH-25-250	RACS-25-250	1/4	.2485	.2470	2.50	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-300	RACH-25-300	RACS-25-300	1/4	.2485	.2470	3.00	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-350	RACH-25-350	RACS-25-350	1/4	.2485	.2470	3.50	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-25-400	RACH-25-400	RACS-25-400	1/4	.2485	.2470	4.00	.289	.290	.92	.47	.23	.59	1.45	1.16
RAAS-31-050	RACH-31-050	RACS-31-050	5/16	.3110	.3095	.50	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-075	RACH-31-075	RACS-31-075	5/16	.3110	.3095	.75	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-100	RACH-31-100	RACS-31-100	5/16	.3110	.3095	1.00	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-125	RACH-31-125	RACS-31-125	5/16	.3110	.3095	1.25	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-150	RACH-31-150	RACS-31-150	5/16	.3110	.3095	1.50	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-175	RACH-31-175	RACS-31-175	5/16	.3110	.3095	1.75	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-200	RACH-31-200	RACS-31-200	5/16	.3110	.3095	2.00	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-250	RACH-31-250	RACS-31-250	5/16	.3110	.3095	2.50	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-300	RACH-31-300	RACS-31-300	5/16	.3110	.3095	3.00	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-350	RACH-31-350	RACS-31-350	5/16	.3110	.3095	3.50	.375	.330	.92	.47	.23	.59	1.45	1.16
RAAS-31-400	RACH-31-400	RACS-31-400	5/16	.3110	.3095	4.00	.375	.330	.92	.47	.23	.59	1.45	1.16

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Ring Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

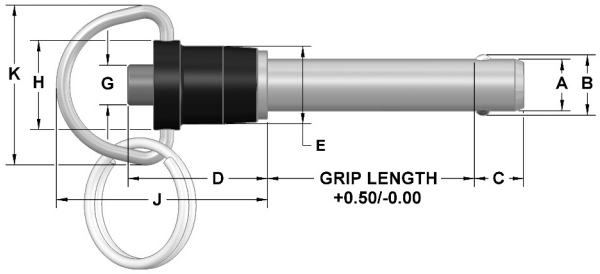
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	G	H	J	K
RAAS-37-050	RACH-37-050	RACS-37-050	3/8	.3735	.3720	.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-075	RACH-37-075	RACS-37-075	3/8	.3735	.3720	.75	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-100	RACH-37-100	RACS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-125	RACH-37-125	RACS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-150	RACH-37-150	RACS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-175	RACH-37-175	RACS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-200	RACH-37-200	RACS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-250	RACH-37-250	RACS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-300	RACH-37-300	RACS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-350	RACH-37-350	RACS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-37-400	RACH-37-400	RACS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RAAS-50-100	RACH-50-100	RACS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-125	RACH-50-125	RACS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-150	RACH-50-150	RACS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-175	RACH-50-175	RACS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-200	RACH-50-200	RACS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-250	RACH-50-250	RACS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-300	RACH-50-300	RACS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-350	RACH-50-350	RACS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-400	RACH-50-400	RACS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-450	RACH-50-450	RACS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-500	RACH-50-500	RACS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-550	RACH-50-550	RACS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-50-600	RACH-50-600	RACS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RAAS-62-150	RACH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-175	RACH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-200	RACH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-250	RACH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-300	RACH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-350	RACH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-400	RACH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-450	RACH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-500	RACH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-550	RACH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RAAS-62-600	RACH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Ring Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are available in 4130 steel with zinc plating or 17-4PH stainless steel. The handles for the pins listed below are made from 2024-T4 aluminum and anodized black. Stainless handles are also available. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm	K mm
MRAAS-05-010	MRACH-05-010	5	4.96	4.92	10	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-015	MRACH-05-015	5	4.96	4.92	15	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-020	MRACH-05-020	5	4.96	4.92	20	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-025	MRACH-05-025	5	4.96	4.92	25	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-030	MRACH-05-030	5	4.96	4.92	30	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-035	MRACH-05-035	5	4.96	4.92	35	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-040	MRACH-05-040	5	4.96	4.92	40	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-045	MRACH-05-045	5	4.96	4.92	45	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-050	MRACH-05-050	5	4.96	4.92	50	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-060	MRACH-05-060	5	4.96	4.92	60	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-070	MRACH-05-070	5	4.96	4.92	70	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-080	MRACH-05-080	5	4.96	4.92	80	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-090	MRACH-05-090	5	4.96	4.92	90	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-05-100	MRACH-05-100	5	4.96	4.92	100	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-010	MRACH-06-010	6	5.96	5.92	10	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-015	MRACH-06-015	6	5.96	5.92	15	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-020	MRACH-06-020	6	5.96	5.92	20	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-025	MRACH-06-025	6	5.96	5.92	25	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-030	MRACH-06-030	6	5.96	5.92	30	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-035	MRACH-06-035	6	5.96	5.92	35	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-040	MRACH-06-040	6	5.96	5.92	40	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-045	MRACH-06-045	6	5.96	5.92	45	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-050	MRACH-06-050	6	5.96	5.92	50	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-060	MRACH-06-060	6	5.96	5.92	60	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-070	MRACH-06-070	6	5.96	5.92	70	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-080	MRACH-06-080	6	5.96	5.92	80	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-090	MRACH-06-090	6	5.96	5.92	90	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-06-100	MRACH-06-100	6	5.96	5.92	100	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-010	MRACH-08-010	8	7.96	7.92	10	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-015	MRACH-08-015	8	7.96	7.92	15	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-020	MRACH-08-020	8	7.96	7.92	20	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-025	MRACH-08-025	8	7.96	7.92	25	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-030	MRACH-08-030	8	7.96	7.92	30	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-035	MRACH-08-035	8	7.96	7.92	35	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-040	MRACH-08-040	8	7.96	7.92	40	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-045	MRACH-08-045	8	7.96	7.92	45	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-050	MRACH-08-050	8	7.96	7.92	50	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-060	MRACH-08-060	8	7.96	7.92	60	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-070	MRACH-08-070	8	7.96	7.92	70	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-080	MRACH-08-080	8	7.96	7.92	80	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-090	MRACH-08-090	8	7.96	7.92	90	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRAAS-08-100	MRACH-08-100	8	7.96	7.92	100	9.42	8	23.4	11.9	5.8	15	36.8	29.5

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Ring Handle | Metric (continued)

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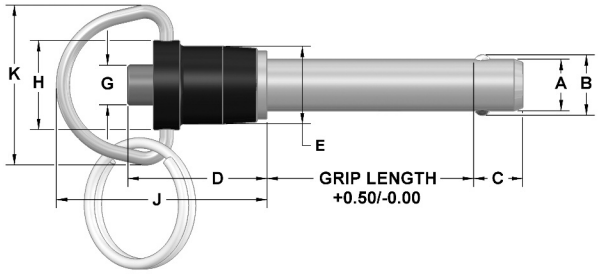

Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm	K mm
MRAAS-10-015	MRACH-10-015	10	9.96	9.92	15	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-020	MRACH-10-020	10	9.96	9.92	20	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-025	MRACH-10-025	10	9.96	9.92	25	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-030	MRACH-10-030	10	9.96	9.92	30	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-035	MRACH-10-035	10	9.96	9.92	35	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-040	MRACH-10-040	10	9.96	9.92	40	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-045	MRACH-10-045	10	9.96	9.92	45	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-050	MRACH-10-050	10	9.96	9.92	50	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-060	MRACH-10-060	10	9.96	9.92	60	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-070	MRACH-10-070	10	9.96	9.92	70	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-080	MRACH-10-080	10	9.96	9.92	80	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-090	MRACH-10-090	10	9.96	9.92	90	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-10-100	MRACH-10-100	10	9.96	9.92	100	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRAAS-12-020	MRACH-12-020	12	11.96	11.92	20	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-025	MRACH-12-025	12	11.96	11.92	25	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-030	MRACH-12-030	12	11.96	11.92	30	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-035	MRACH-12-035	12	11.96	11.92	35	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-040	MRACH-12-040	12	11.96	11.92	40	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-045	MRACH-12-045	12	11.96	11.92	45	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-050	MRACH-12-050	12	11.96	11.92	50	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-060	MRACH-12-060	12	11.96	11.92	60	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-070	MRACH-12-070	12	11.96	11.92	70	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-080	MRACH-12-080	12	11.96	11.92	80	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-090	MRACH-12-090	12	11.96	11.92	90	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-12-100	MRACH-12-100	12	11.96	11.92	100	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRAAS-16-025	MRACH-16-025	16	15.96	15.92	25	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-030	MRACH-16-030	16	15.96	15.92	30	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-035	MRACH-16-035	16	15.96	15.92	35	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-040	MRACH-16-040	16	15.96	15.92	40	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-045	MRACH-16-045	16	15.96	15.92	45	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-050	MRACH-16-050	16	15.96	15.92	50	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-060	MRACH-16-060	16	15.96	15.92	60	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-070	MRACH-16-070	16	15.96	15.92	70	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-080	MRACH-16-080	16	15.96	15.92	80	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-090	MRACH-16-090	16	15.96	15.92	90	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRAAS-16-100	MRACH-16-100	16	15.96	15.92	100	19	14	41.9	23.9	13.7	26.9	65.3	43.7

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Ring Handle | Inch

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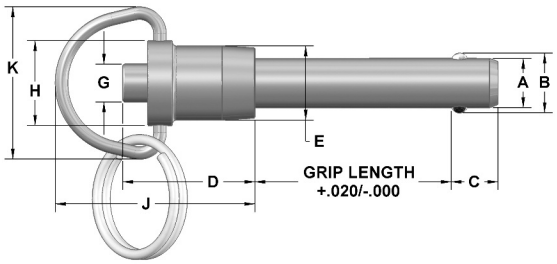


Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in two types of stainless steel to meet your application. The handles and actuator buttons for the pins listed below are made from 303 stainless steel. The pins are supplied with a stainless steel split ring for attaching a cable assembly. In addition to the standard sizes shown below, custom solutions and additional sizes are available as special order. See page 317 for complete specifications.

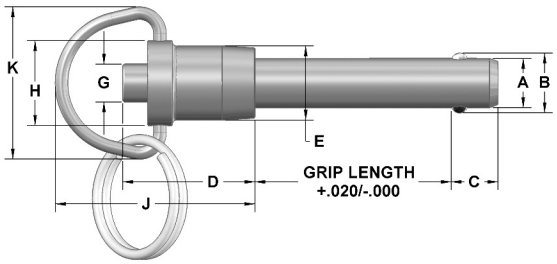
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	G	H	J	K
RCCH-18-050	—	3/16	.1885	.1870	.50	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-075	—	3/16	.1885	.1870	.75	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	92	.47	.23	.59	1.45	1.16
RCCH-25-050	RCCS-25-050	1/4	.2485	.2470	.50	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-075	RCCS-25-075	1/4	.2485	.2470	.75	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-100	RCCS-25-100	1/4	.2485	.2470	1.00	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-125	RCCS-25-125	1/4	.2485	.2470	1.25	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-150	RCCS-25-150	1/4	.2485	.2470	1.50	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-175	RCCS-25-175	1/4	.2485	.2470	1.75	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-200	RCCS-25-200	1/4	.2485	.2470	2.00	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-250	RCCS-25-250	1/4	.2485	.2470	2.50	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-300	RCCS-25-300	1/4	.2485	.2470	3.00	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-350	RCCS-25-350	1/4	.2485	.2470	3.50	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-25-400	RCCS-25-400	1/4	.2485	.2470	4.00	.289	.290	92	.47	.23	.59	1.45	1.16
RCCH-31-050	RCCS-31-050	5/16	.3110	.3095	.50	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-075	RCCS-31-075	5/16	.3110	.3095	.75	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-100	RCCS-31-100	5/16	.3110	.3095	1.00	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-125	RCCS-31-125	5/16	.3110	.3095	1.25	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-150	RCCS-31-150	5/16	.3110	.3095	1.50	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-175	RCCS-31-175	5/16	.3110	.3095	1.75	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-200	RCCS-31-200	5/16	.3110	.3095	2.00	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-250	RCCS-31-250	5/16	.3110	.3095	2.50	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-300	RCCS-31-300	5/16	.3110	.3095	3.00	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-350	RCCS-31-350	5/16	.3110	.3095	3.50	.375	.330	92	.47	.23	.59	1.45	1.16
RCCH-31-400	RCCS-31-400	5/16	.3110	.3095	4.00	.375	.330	92	.47	.23	.59	1.45	1.16

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Ring Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

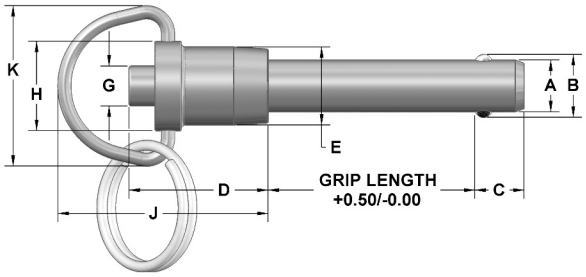
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	G	H	J	K
RCCH-37-050	RCCS-37-050	3/8	.3735	.3720	.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-075	RCCS-37-075	3/8	.3735	.3720	.75	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-100	RCCS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-125	RCCS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-150	RCCS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-175	RCCS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-200	RCCS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-250	RCCS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-300	RCCS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-350	RCCS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-37-400	RCCS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.01	.56	.29	.65	1.52	1.16
RCCH-50-100	RCCS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-125	RCCS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-150	RCCS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-175	RCCS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-200	RCCS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-250	RCCS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-300	RCCS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-350	RCCS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-400	RCCS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-450	RCCS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-500	RCCS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-550	RCCS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-50-600	RCCS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.27	.72	.42	.81	1.88	1.43
RCCH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.65	.94	.54	1.06	2.57	1.72
RCCH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.65	.94	.54	1.06	2.57	1.72

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Ring Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia mm	Hole Size Max mm	Hole Size Min mm	Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060
16	16.1	16.0	9,207	257,179

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The handles for the pins listed below are made from 303 stainless steel. The shanks are made from 17-4PH stainless steel. The pins are supplied with a stainless steel split ring for attaching a cable assembly. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications.
RoHS compliant.

17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	G mm	H mm	J mm	K mm
MRCCH-05-010	5	4.96	4.92	10	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-015	5	4.96	4.92	15	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-020	5	4.96	4.92	20	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-025	5	4.96	4.92	25	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-300	5	4.96	4.92	30	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-035	5	4.96	4.92	35	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-040	5	4.96	4.92	40	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-045	5	4.96	4.92	45	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-050	5	4.96	4.92	50	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-060	5	4.96	4.92	60	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-070	5	4.96	4.92	70	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-080	5	4.96	4.92	80	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-090	5	4.96	4.92	90	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-05-100	5	4.96	4.92	100	5.54	6	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-010	6	5.96	5.92	10	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-015	6	5.96	5.92	15	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-020	6	5.96	5.92	20	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-025	6	5.96	5.92	25	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-030	6	5.96	5.92	30	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-035	6	5.96	5.92	35	6.99	7	23.1	11.9	5.8	15	36.8	29.5
MRCCH-06-040	6	5.96	5.92	40	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-045	6	5.96	5.92	45	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-050	6	5.96	5.92	50	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-060	6	5.96	5.92	60	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-070	6	5.96	5.92	70	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-080	6	5.96	5.92	80	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-090	6	5.96	5.92	90	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-06-100	6	5.96	5.92	100	6.99	7	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-010	8	7.96	7.92	10	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-015	8	7.96	7.92	15	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-020	8	7.96	7.92	20	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-025	8	7.96	7.92	25	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-030	8	7.96	7.92	30	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-035	8	7.96	7.92	35	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-040	8	7.96	7.92	40	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-045	8	7.96	7.92	45	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-050	8	7.96	7.92	50	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-060	8	7.96	7.92	60	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-070	8	7.96	7.92	70	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-080	8	7.96	7.92	80	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-090	8	7.96	7.92	90	9.42	8	23.4	11.9	5.8	15	36.8	29.5
MRCCH-08-100	8	7.96	7.92	100	9.42	8	23.4	11.9	5.8	15	36.8	29.5

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Ring Handle | Metric (continued)

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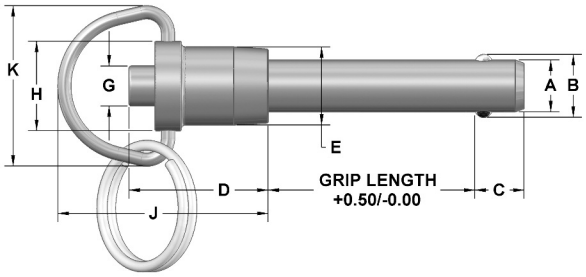

Dia	Hole Size		Mn. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	Max mm	Min mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060
16	16.1	16.0	9,207	257,179

17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	G mm	H mm	J mm	K mm
MRCCH-10-015	10	9.96	9.92	15	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-020	10	9.96	9.92	20	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-025	10	9.96	9.92	25	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-030	10	9.96	9.92	30	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-035	10	9.96	9.92	35	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-040	10	9.96	9.92	40	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-045	10	9.96	9.92	45	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-050	10	9.96	9.92	50	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-060	10	9.96	9.92	60	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-070	10	9.96	9.92	70	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-080	10	9.96	9.92	80	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-090	10	9.96	9.92	90	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-10-100	10	9.96	9.92	100	11.86	9	25.7	14.2	7.4	16.5	38.6	29.5
MRCCH-12-020	12	11.96	11.92	20	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-025	12	11.96	11.92	25	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-030	12	11.96	11.92	30	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-035	12	11.96	11.92	35	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-040	12	11.96	11.92	40	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-045	12	11.96	11.92	45	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-050	12	11.96	11.92	50	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-060	12	11.96	11.92	60	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-070	12	11.96	11.92	70	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-080	12	11.96	11.92	80	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-090	12	11.96	11.92	90	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-12-100	12	11.96	11.92	100	14.45	10	32.3	18.3	10.7	20.6	47.8	36.3
MRCCH-16-025	16	15.96	15.92	25	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-030	16	15.96	15.92	30	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-035	16	15.96	15.92	35	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-040	16	15.96	15.92	40	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-045	16	15.96	15.92	45	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-050	16	15.96	15.92	50	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-060	16	15.96	15.92	60	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-070	16	15.96	15.92	70	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-080	16	15.96	15.92	80	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-090	16	15.96	15.92	90	19	14	41.9	23.9	13.7	26.9	65.3	43.7
MRCCH-16-100	16	15.96	15.92	100	19	14	41.9	23.9	13.7	26.9	65.3	43.7

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Nautical Recessed Handle | Inch

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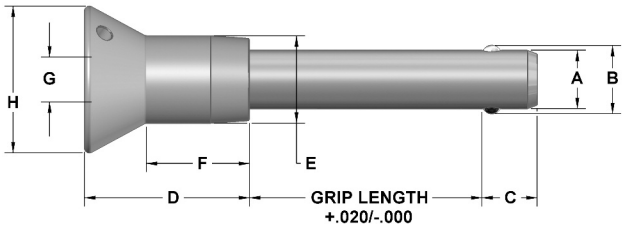


Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500
5/8	.6300	.6250	2,070	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in two stainless shank materials to meet your application. The handles are designed to prevent accidental release and are machined from 303 stainless steel. These pins are not supplied with stainless steel split rings. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. If a lanyard is ordered with the recessed handle, the lanyard will be attached directly to the pin without a split ring.

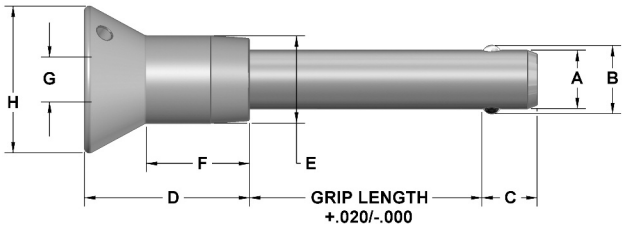
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	Button G	H
NCCH-18-050	—	3/16	.1885	.1870	.50	.220	.260	.97	.47	.64	.23	.81
NCCH-18-075	—	3/16	.1885	.1870	.75	.220	.260	.97	.47	.64	.23	.81
NCCH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	.97	.47	.64	.23	.81
NCCH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	.97	.47	.64	.23	.81
NCCH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	.97	.47	.64	.23	.81
NCCH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	.97	.47	.64	.23	.81
NCCH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	.97	.47	.64	.23	.81
NCCH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	.97	.47	.64	.23	.81
NCCH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	.97	.47	.64	.23	.81
NCCH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	.97	.47	.64	.23	.81
NCCH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	.97	.47	.64	.23	.81
NCCH-25-050	NCCS-25-050	1/4	.2485	.2470	.50	.289	.290	.97	.47	.64	.23	.81
NCCH-25-075	NCCS-25-075	1/4	.2485	.2470	.75	.289	.290	.97	.47	.64	.23	.81
NCCH-25-100	NCCS-25-100	1/4	.2485	.2470	1.00	.289	.290	.97	.47	.64	.23	.81
NCCH-25-125	NCCS-25-125	1/4	.2485	.2470	1.25	.289	.290	.97	.47	.64	.23	.81
NCCH-25-150	NCCS-25-150	1/4	.2485	.2470	1.50	.289	.290	.97	.47	.64	.23	.81
NCCH-25-175	NCCS-25-175	1/4	.2485	.2470	1.75	.289	.290	.97	.47	.64	.23	.81
NCCH-25-200	NCCS-25-200	1/4	.2485	.2470	2.00	.289	.290	.97	.47	.64	.23	.81
NCCH-25-250	NCCS-25-250	1/4	.2485	.2470	2.50	.289	.290	.97	.47	.64	.23	.81
NCCH-25-300	NCCS-25-300	1/4	.2485	.2470	3.00	.289	.290	.97	.47	.64	.23	.81
NCCH-25-350	NCCS-25-350	1/4	.2485	.2470	3.50	.289	.290	.97	.47	.64	.23	.81
NCCH-25-400	NCCS-25-400	1/4	.2485	.2470	4.00	.289	.290	.97	.47	.64	.23	.81
NCCH-31-050	NCCS-31-050	5/16	.3110	.3095	.50	.375	.330	.97	.47	.64	.23	.81
NCCH-31-075	NCCS-31-075	5/16	.3110	.3095	.75	.375	.330	.97	.47	.64	.23	.81
NCCH-31-100	NCCS-31-100	5/16	.3110	.3095	1.00	.375	.330	.97	.47	.64	.23	.81
NCCH-31-125	NCCS-31-125	5/16	.3110	.3095	1.25	.375	.330	.97	.47	.64	.23	.81
NCCH-31-150	NCCS-31-150	5/16	.3110	.3095	1.50	.375	.330	.97	.47	.64	.23	.81
NCCH-31-175	NCCS-31-175	5/16	.3110	.3095	1.75	.375	.330	.97	.47	.64	.23	.81
NCCH-31-200	NCCS-31-200	5/16	.3110	.3095	2.00	.375	.330	.97	.47	.64	.23	.81
NCCH-31-250	NCCS-31-250	5/16	.3110	.3095	2.50	.375	.330	.97	.47	.64	.23	.81
NCCH-31-300	NCCS-31-300	5/16	.3110	.3095	3.00	.375	.330	.97	.47	.64	.23	.81
NCCH-31-350	NCCS-31-350	5/16	.3110	.3095	3.50	.375	.330	.97	.47	.64	.23	.81
NCCH-31-400	NCCS-31-400	5/16	.3110	.3095	4.00	.375	.330	.97	.47	.64	.23	.81

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Nautical Recessed Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500
5/8	.6300	.6250	2,070	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

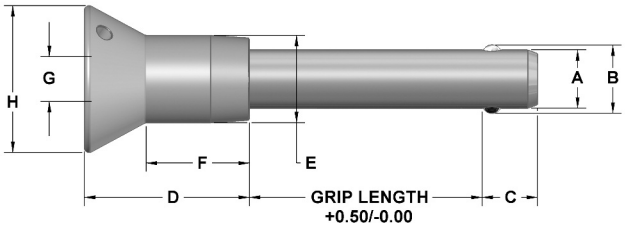
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	Button G	H
NCCH-37-050	NCCS-37-050	3/8	.3735	.3720	.50	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-075	NCCS-37-075	3/8	.3735	.3720	.75	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-100	NCCS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-125	NCCS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-150	NCCS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-175	NCCS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-200	NCCS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-250	NCCS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-300	NCCS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-350	NCCS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.06	.56	.66	.29	.94
NCCH-37-400	NCCS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.06	.56	.66	.29	.94
NCCH-50-100	NCCS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-125	NCCS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-150	NCCS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-175	NCCS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-200	NCCS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-250	NCCS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-300	NCCS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-350	NCCS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-400	NCCS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-450	NCCS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-500	NCCS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-550	NCCS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.31	.72	.89	.42	1.12
NCCH-50-600	NCCS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.31	.72	.89	.42	1.12
NCCH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.69	.94	1.12	.54	1.44
NCCH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.69	.94	1.12	.54	1.44

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Nautical Recessed Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	Max mm	Min mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060
16	16.1	16.0	9,207	257,179

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The handles are designed to prevent accidental release and are machined from 303 stainless steel. The shafts are made from 17-4PH stainless steel. These pins are not supplied with stainless steel split rings. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant. If a lanyard is ordered with the recessed handle, the lanyard will be attached directly to the pin without a split ring.

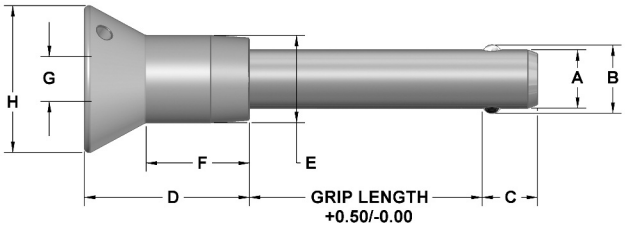
17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	Button G mm	H mm
MNCCH-05-010	5	4.96	4.92	10	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-015	5	4.96	4.92	15	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-020	5	4.96	4.92	20	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-025	5	4.96	4.92	25	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-030	5	4.96	4.92	30	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-035	5	4.96	4.92	35	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-040	5	4.96	4.92	40	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-045	5	4.96	4.92	45	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-050	5	4.96	4.92	50	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-060	5	4.96	4.92	60	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-070	5	4.96	4.92	70	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-080	5	4.96	4.92	80	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-090	5	4.96	4.92	90	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-05-100	5	4.96	4.92	100	5.54	6	24.6	11.9	16.3	5.8	20.6
MNCCH-06-010	6	5.96	5.92	10	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-015	6	5.96	5.92	15	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-020	6	5.96	5.92	20	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-025	6	5.96	5.92	25	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-030	6	5.96	5.92	30	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-035	6	5.96	5.92	35	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-040	6	5.96	5.92	40	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-045	6	5.96	5.92	45	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-050	6	5.96	5.92	50	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-060	6	5.96	5.92	60	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-070	6	5.96	5.92	70	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-080	6	5.96	5.92	80	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-090	6	5.96	5.92	90	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-06-100	6	5.96	5.92	100	6.99	7	24.6	11.9	16.3	5.8	20.6
MNCCH-08-010	8	7.96	7.92	10	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-015	8	7.96	7.92	15	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-020	8	7.96	7.92	20	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-025	8	7.96	7.92	25	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-030	8	7.96	7.92	30	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-035	8	7.96	7.92	35	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-040	8	7.96	7.92	40	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-045	8	7.96	7.92	45	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-050	8	7.96	7.92	50	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-060	8	7.96	7.92	60	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-070	8	7.96	7.92	70	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-080	8	7.96	7.92	80	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-090	8	7.96	7.92	90	9.42	8	24.6	11.9	16.3	5.8	20.6
MNCCH-08-100	8	7.96	7.92	100	9.42	8	24.6	11.9	16.3	5.8	20.6

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Steel Nautical Recessed Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



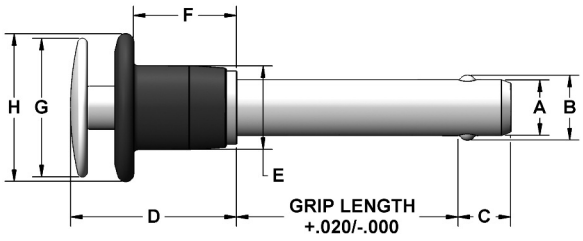
Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	Max mm	Min mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060
16	16.1	16.0	9,207	257,179

17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	Button G mm	H mm
MNCCH-10-015	10	9.96	9.92	15	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-020	10	9.96	9.92	20	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-025	10	9.96	9.92	25	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-030	10	9.96	9.92	30	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-035	10	9.96	9.92	35	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-040	10	9.96	9.92	40	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-045	10	9.96	9.92	45	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-050	10	9.96	9.92	50	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-060	10	9.96	9.92	60	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-070	10	9.96	9.92	70	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-080	10	9.96	9.92	80	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-090	10	9.96	9.92	90	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-10-100	10	9.96	9.92	100	11.86	9	26.9	14.2	16.8	7.4	23.9
MNCCH-12-020	12	11.96	11.92	20	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-025	12	11.96	11.92	25	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-030	12	11.96	11.92	30	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-035	12	11.96	11.92	35	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-040	12	11.96	11.92	40	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-045	12	11.96	11.92	45	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-050	12	11.96	11.92	50	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-060	12	11.96	11.92	60	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-070	12	11.96	11.92	70	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-080	12	11.96	11.92	80	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-090	12	11.96	11.92	90	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-12-100	12	11.96	11.92	100	14.45	10	33.3	18.3	22.6	10.7	28.4
MNCCH-16-025	16	15.96	15.92	25	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-030	16	15.96	15.92	30	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-035	16	15.96	15.92	35	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-040	16	15.96	15.92	40	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-045	16	15.96	15.92	45	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-050	16	15.96	15.92	50	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-060	16	15.96	15.92	60	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-070	16	15.96	15.92	70	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-080	16	15.96	15.92	80	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-090	16	15.96	15.92	90	19	14	42.9	23.8	28.5	13.7	36.5
MNCCH-16-100	16	15.96	15.92	100	19	14	42.9	23.8	28.5	13.7	36.5

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Dome Handle | Inch



MA MODIFICATIONS AVAILABLE

Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in three shank materials to meet your application. The dome actuator buttons are made from 2024-T4 aluminum and clear anodized. The handles are made from 2024-T4 aluminum and anodized black. Handle has hole for optional wire lanyard attachment. The large ergonomic dome actuator button facilitates easy installation and removal of the pin. They are ideal in applications where there is repetitive or frequent use of the pin. In addition, they can be used in situations where the operator is wearing gloves or has limited range of hand motion. They also add a unique look and feel that is not available with other pin styles and offer a large area for engraving or stamping to add logos, instructions, etc. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications.

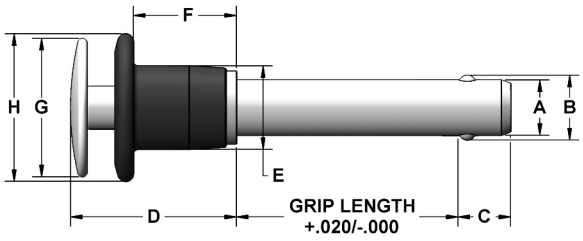
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
DAAS-18-050	DACH-18-050	—	3/16	.1885	.1870	.50	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-075	DACH-18-075	—	3/16	.1885	.1870	.75	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-100	DACH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-125	DACH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-150	DACH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-175	DACH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-200	DACH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-250	DACH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-300	DACH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-350	DACH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	1.00	.47	.63	.75	.81
DAAS-18-400	DACH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	1.00	.47	.63	.75	.81
DAAS-25-050	DACH-25-050	DACS-25-050	1/4	.2485	.2470	.50	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-075	DACH-25-075	DACS-25-075	1/4	.2485	.2470	.75	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-100	DACH-25-100	DACS-25-100	1/4	.2485	.2470	1.00	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-125	DACH-25-125	DACS-25-125	1/4	.2485	.2470	1.25	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-150	DACH-25-150	DACS-25-150	1/4	.2485	.2470	1.50	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-175	DACH-25-175	DACS-25-175	1/4	.2485	.2470	1.75	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-200	DACH-25-200	DACS-25-200	1/4	.2485	.2470	2.00	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-250	DACH-25-250	DACS-25-250	1/4	.2485	.2470	2.50	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-300	DACH-25-300	DACS-25-300	1/4	.2485	.2470	3.00	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-350	DACH-25-350	DACS-25-350	1/4	.2485	.2470	3.50	.289	.290	1.00	.47	.63	.75	.81
DAAS-25-400	DACH-25-400	DACS-25-400	1/4	.2485	.2470	4.00	.289	.290	1.00	.47	.63	.75	.81
DAAS-31-050	DACH-31-050	DACS-31-050	5/16	.3110	.3095	.50	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-075	DACH-31-075	DACS-31-075	5/16	.3110	.3095	.75	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-100	DACH-31-100	DACS-31-100	5/16	.3110	.3095	1.00	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-125	DACH-31-125	DACS-31-125	5/16	.3110	.3095	1.25	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-150	DACH-31-150	DACS-31-150	5/16	.3110	.3095	1.50	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-175	DACH-31-175	DACS-31-175	5/16	.3110	.3095	1.75	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-200	DACH-31-200	DACS-31-200	5/16	.3110	.3095	2.00	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-250	DACH-31-250	DACS-31-250	5/16	.3110	.3095	2.50	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-300	DACH-31-300	DACS-31-300	5/16	.3110	.3095	3.00	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-350	DACH-31-350	DACS-31-350	5/16	.3110	.3095	3.50	.375	.330	1.00	.47	.63	.75	.81
DAAS-31-400	DACH-31-400	DACS-31-400	5/16	.3110	.3095	4.00	.375	.330	1.00	.47	.63	.75	.81

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Dome Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out	Calculated Double Shear (lbs)		
	Max	Min	Strength (lbs)	4130 Steel	17-4 Stainless	300 Series SS*
3/16	.1940	.1900	200	4,600	5,150	—
1/4	.2540	.2500	230	8,200	9,200	2,200
5/16	.3165	.3125	510	12,800	14,400	3,500
3/8	.3790	.3750	575	18,400	20,600	4,500
1/2	.5050	.5000	1,160	32,800	36,800	11,500
5/8	.6300	.6250	2,070	51,200	57,500	—

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

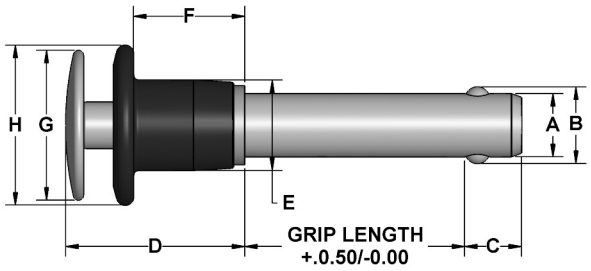
4130 Steel Part #	17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
DAAS-37-050	DACH-37-050	DACS-37-050	3/8	.3735	.3720	.50	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-075	DACH-37-075	DACS-37-075	3/8	.3735	.3720	.75	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-100	DACH-37-100	DACS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-125	DACH-37-125	DACS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-150	DACH-37-150	DACS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-175	DACH-37-175	DACS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-200	DACH-37-200	DACS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-250	DACH-37-250	DACS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-300	DACH-37-300	DACS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-350	DACH-37-350	DACS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.12	.56	.70	.932	1.00
DAAS-37-400	DACH-37-400	DACS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.12	.56	.70	.932	1.00
DAAS-50-100	DACH-50-100	DACS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-125	DACH-50-125	DACS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-150	DACH-50-150	DACS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-175	DACH-50-175	DACS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-200	DACH-50-200	DACS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-250	DACH-50-250	DACS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-300	DACH-50-300	DACS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-350	DACH-50-350	DACS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-400	DACH-50-400	DACS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-450	DACH-50-450	DACS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-500	DACH-50-500	DACS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-550	DACH-50-550	DACS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-50-600	DACH-50-600	DACS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.41	.72	.85	1.30	1.37
DAAS-62-150	DACH-62-150	—	5/8	.6235	.6220	1.50	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-175	DACH-62-175	—	5/8	.6235	.6220	1.75	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-200	DACH-62-200	—	5/8	.6235	.6220	2.00	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-250	DACH-62-250	—	5/8	.6235	.6220	2.50	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-300	DACH-62-300	—	5/8	.6235	.6220	3.00	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-350	DACH-62-350	—	5/8	.6235	.6220	3.50	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-400	DACH-62-400	—	5/8	.6235	.6220	4.00	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-450	DACH-62-450	—	5/8	.6235	.6220	4.50	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-500	DACH-62-500	—	5/8	.6235	.6220	5.00	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-550	DACH-62-550	—	5/8	.6235	.6220	5.50	.750	.580	1.84	.94	1.10	1.68	1.75
DAAS-62-600	DACH-62-600	—	5/8	.6235	.6220	6.00	.750	.580	1.84	.94	1.10	1.68	1.75

Fairlane®

QUICK RELEASE BALL LOCK PINS

Aluminum Dome Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

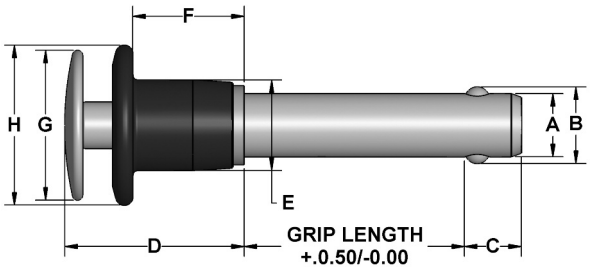
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are available in 4130 steel with zinc plating or 17-4PH stainless steel. Handle has hole for optional wire lanyard attachment. The dome actuator buttons are made from 2024-T4 aluminum and clear anodized. The handles are made from 2024-T4 aluminum and anodized black. The large ergonomic dome actuator button facilitates easy installation and removal of the pin. They are ideal in applications where there is repetitive or frequent use of the pin. In addition, they can be used in situations where the operator is wearing gloves or has limited range of hand motion. They also add a unique look and feel that is not available with other pin styles and offer a large area for engraving or stamping to add logos, instructions, etc. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MDAAS-05-010	MDACH-05-010	5	4.96	4.92	10	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-015	MDACH-05-015	5	4.96	4.92	15	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-020	MDACH-05-020	5	4.96	4.92	20	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-025	MDACH-05-025	5	4.96	4.92	25	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-030	MDACH-05-030	5	4.96	4.92	30	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-035	MDACH-05-035	5	4.96	4.92	35	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-040	MDACH-05-040	5	4.96	4.92	40	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-045	MDACH-05-045	5	4.96	4.92	45	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-050	MDACH-05-050	5	4.96	4.92	50	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-060	MDACH-05-060	5	4.96	4.92	60	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-070	MDACH-05-070	5	4.96	4.92	70	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-080	MDACH-05-080	5	4.96	4.92	80	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-090	MDACH-05-090	5	4.96	4.92	90	5.54	6	25.5	11.9	16	19	20.6
MDAAS-05-100	MDACH-05-100	5	4.96	4.92	100	5.54	6	25.5	11.9	16	19	20.6
MDAAS-06-010	MDACH-06-010	6	5.96	5.92	10	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-015	MDACH-06-015	6	5.96	5.92	15	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-020	MDACH-06-020	6	5.96	5.92	20	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-025	MDACH-06-025	6	5.96	5.92	25	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-030	MDACH-06-030	6	5.96	5.92	30	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-035	MDACH-06-035	6	5.96	5.92	35	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-040	MDACH-06-040	6	5.96	5.92	40	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-045	MDACH-06-045	6	5.96	5.92	45	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-050	MDACH-06-050	6	5.96	5.92	50	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-060	MDACH-06-060	6	5.96	5.92	60	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-070	MDACH-06-070	6	5.96	5.92	70	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-080	MDACH-06-080	6	5.96	5.92	80	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-090	MDACH-06-090	6	5.96	5.92	90	6.99	7	25.5	11.9	16	19	20.6
MDAAS-06-100	MDACH-06-100	6	5.96	5.92	100	6.99	7	25.5	11.9	16	19	20.6
MDAAS-08-010	MDACH-08-010	8	7.96	7.92	10	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-015	MDACH-08-015	8	7.96	7.92	15	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-020	MDACH-08-020	8	7.96	7.92	20	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-025	MDACH-08-025	8	7.96	7.92	25	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-030	MDACH-08-030	8	7.96	7.92	30	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-035	MDACH-08-035	8	7.96	7.92	35	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-040	MDACH-08-040	8	7.96	7.92	40	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-045	MDACH-08-045	8	7.96	7.92	45	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-050	MDACH-08-050	8	7.96	7.92	50	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-060	MDACH-08-060	8	7.96	7.92	60	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-070	MDACH-08-070	8	7.96	7.92	70	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-080	MDACH-08-080	8	7.96	7.92	80	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-090	MDACH-08-090	8	7.96	7.92	90	9.42	8	25.5	11.9	16	19	20.6
MDAAS-08-100	MDACH-08-100	8	7.96	7.92	100	9.42	8	25.5	11.9	16	19	20.6

QUICK RELEASE BALL LOCK PINS

Aluminum Dome Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE



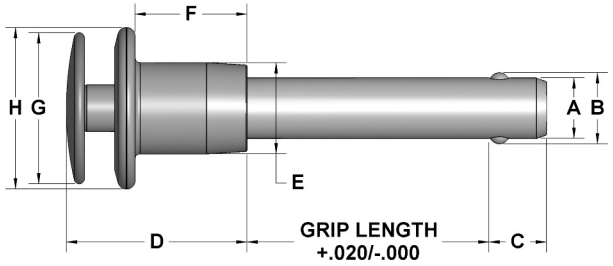
Dia	Hole Size		Min. Pull-Out Strength (N)	Calculated Double Shear (N)	
	Max	Min			
mm	mm	mm		4130 Steel	17-4 Stainless
5	5.1	5.0	890	21,600	24,400
6	6.1	6.0	1,023	31,686	35,640
8	8.1	8.0	2,268	56,712	63,804
10	10.1	10.0	2,558	88,977	100,101
12	12.1	12.0	5,160	128,050	144,060
16	16.1	16.0	9,207	228,602	257,179

4130 Steel Part #	17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MDAAS-10-015	MDACH-10-015	10	9.96	9.92	15	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-020	MDACH-10-020	10	9.96	9.92	20	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-025	MDACH-10-025	10	9.96	9.92	25	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-030	MDACH-10-030	10	9.96	9.92	30	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-035	MDACH-10-035	10	9.96	9.92	35	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-040	MDACH-10-040	10	9.96	9.92	40	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-045	MDACH-10-045	10	9.96	9.92	45	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-050	MDACH-10-050	10	9.96	9.92	50	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-060	MDACH-10-060	10	9.96	9.92	60	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-070	MDACH-10-070	10	9.96	9.92	70	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-080	MDACH-10-080	10	9.96	9.92	80	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-090	MDACH-10-090	10	9.96	9.92	90	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-10-100	MDACH-10-100	10	9.96	9.92	100	11.86	9	28.4	14.2	17.8	23.6	25.4
MDAAS-12-020	MDACH-12-020	12	11.96	11.92	20	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-025	MDACH-12-025	12	11.96	11.92	25	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-030	MDACH-12-030	12	11.96	11.92	30	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-035	MDACH-12-035	12	11.96	11.92	35	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-040	MDACH-12-040	12	11.96	11.92	40	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-045	MDACH-12-045	12	11.96	11.92	45	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-050	MDACH-12-050	12	11.96	11.92	50	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-060	MDACH-12-060	12	11.96	11.92	60	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-070	MDACH-12-070	12	11.96	11.92	70	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-080	MDACH-12-080	12	11.96	11.92	80	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-090	MDACH-12-090	12	11.96	11.92	90	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-12-100	MDACH-12-100	12	11.96	11.92	100	14.45	10	35.9	18.3	21.6	33	34.7
MDAAS-16-025	MDACH-16-025	16	15.96	15.92	25	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-030	MDACH-16-030	16	15.96	15.92	30	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-035	MDACH-16-035	16	15.96	15.92	35	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-040	MDACH-16-040	16	15.96	15.92	40	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-045	MDACH-16-045	16	15.96	15.92	45	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-050	MDACH-16-050	16	15.96	15.92	50	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-060	MDACH-16-060	16	15.96	15.92	60	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-070	MDACH-16-070	16	15.96	15.92	70	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-080	MDACH-16-080	16	15.96	15.92	80	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-090	MDACH-16-090	16	15.96	15.92	90	19	14	46.7	23.9	27.9	42.7	44.5
MDAAS-16-100	MDACH-16-100	16	15.96	15.92	100	19	14	46.7	23.9	27.9	42.7	44.5

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Dome Handle | Inch



MA MODIFICATIONS AVAILABLE

Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

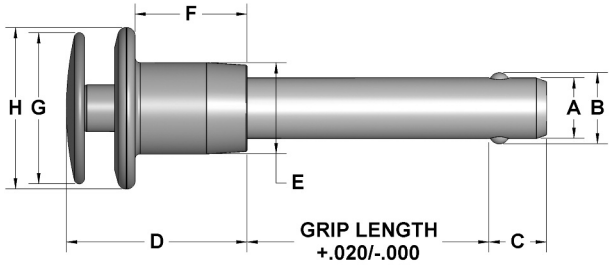
These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. They are available in two types of stainless steel to meet your application. Handle has hole for optional wire lanyard attachment. The handles and dome actuator buttons for the pins listed below are made from 303 stainless steel. The large ergonomic dome actuator button facilitates easy installation and removal of the pin. They are ideal in applications where there is repetitive or frequent use of the pin. In addition, they can be used in situations where the operator is wearing gloves or has limited range of hand motion. They also add a unique look and feel that is not available with other pin styles and offer a large area for engraving or stamping to add logos, instructions, etc. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications.

17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
DCCH-18-050	—	3/16	.1885	.1870	.50	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-075	—	3/16	.1885	.1870	.75	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-100	—	3/16	.1885	.1870	1.00	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-125	—	3/16	.1885	.1870	1.25	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-150	—	3/16	.1885	.1870	1.50	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-175	—	3/16	.1885	.1870	1.75	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-200	—	3/16	.1885	.1870	2.00	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-250	—	3/16	.1885	.1870	2.50	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-300	—	3/16	.1885	.1870	3.00	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-350	—	3/16	.1885	.1870	3.50	.220	.260	1.00	.47	.63	.75	.81
DCCH-18-400	—	3/16	.1885	.1870	4.00	.220	.260	1.00	.47	.63	.75	.81
DCCH-25-050	DCCS-25-050	1/4	.2485	.2470	.50	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-075	DCCS-25-075	1/4	.2485	.2470	.75	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-100	DCCS-25-100	1/4	.2485	.2470	1.00	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-125	DCCS-25-125	1/4	.2485	.2470	1.25	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-150	DCCS-25-150	1/4	.2485	.2470	1.50	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-175	DCCS-25-175	1/4	.2485	.2470	1.75	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-200	DCCS-25-200	1/4	.2485	.2470	2.00	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-250	DCCS-25-250	1/4	.2485	.2470	2.50	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-300	DCCS-25-300	1/4	.2485	.2470	3.00	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-350	DCCS-25-350	1/4	.2485	.2470	3.50	.289	.290	1.00	.47	.63	.75	.81
DCCH-25-400	DCCS-25-400	1/4	.2485	.2470	4.00	.289	.290	1.00	.47	.63	.75	.81
DCCH-31-050	DCCS-31-050	5/16	.3110	.3095	.50	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-075	DCCS-31-075	5/16	.3110	.3095	.75	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-100	DCCS-31-100	5/16	.3110	.3095	1.00	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-125	DCCS-31-125	5/16	.3110	.3095	1.25	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-150	DCCS-31-150	5/16	.3110	.3095	1.50	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-175	DCCS-31-175	5/16	.3110	.3095	1.75	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-200	DCCS-31-200	5/16	.3110	.3095	2.00	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-250	DCCS-31-250	5/16	.3110	.3095	2.50	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-300	DCCS-31-300	5/16	.3110	.3095	3.00	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-350	DCCS-31-350	5/16	.3110	.3095	3.50	.375	.330	1.00	.47	.63	.75	.81
DCCH-31-400	DCCS-31-400	5/16	.3110	.3095	4.00	.375	.330	1.00	.47	.63	.75	.81

QUICK RELEASE BALL LOCK PINS

Stainless Dome Handle | Inch (continued)

MA MODIFICATIONS AVAILABLE



Dia	Hole Size		Min. Pull-Out Strength (lbs)	Calculated Double Shear (lbs)	
	Max	Min		17-4 Stainless	300 Series SS* Stainless
3/16	.1940	.1900	200	5,150	—
1/4	.2540	.2500	230	9,200	2,200
5/16	.3165	.3125	510	14,400	3,500
3/8	.3790	.3750	575	20,600	4,500
1/2	.5050	.5000	1,160	36,800	11,500

*Note: 300 Series Stainless is not recommended in applications where shear forces are a factor.

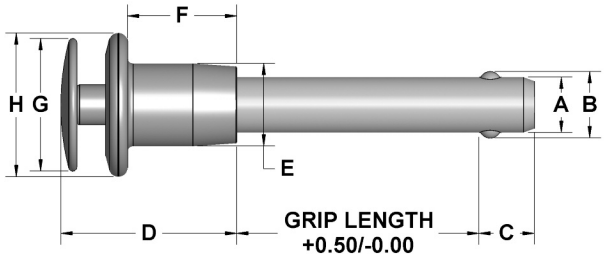
17-4 SS Part #	300 Series SS Part #	Nominal Diameter	A Max	A Min	Grip Length	+/-.005 B	+.000/-.030 C	D	E	F	G	H
DCCH-37-050	DCCS-37-050	3/8	.3735	.3720	.50	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-075	DCCS-37-075	3/8	.3735	.3720	.75	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-100	DCCS-37-100	3/8	.3735	.3720	1.00	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-125	DCCS-37-125	3/8	.3735	.3720	1.25	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-150	DCCS-37-150	3/8	.3735	.3720	1.50	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-175	DCCS-37-175	3/8	.3735	.3720	1.75	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-200	DCCS-37-200	3/8	.3735	.3720	2.00	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-250	DCCS-37-250	3/8	.3735	.3720	2.50	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-300	DCCS-37-300	3/8	.3735	.3720	3.00	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-350	DCCS-37-350	3/8	.3735	.3720	3.50	.440	.365	1.12	.56	.70	.93	1.00
DCCH-37-400	DCCS-37-400	3/8	.3735	.3720	4.00	.440	.365	1.12	.56	.70	.93	1.00
DCCH-50-100	DCCS-50-100	1/2	.4985	.4970	1.00	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-125	DCCS-50-125	1/2	.4985	.4970	1.25	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-150	DCCS-50-150	1/2	.4985	.4970	1.50	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-175	DCCS-50-175	1/2	.4985	.4970	1.75	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-200	DCCS-50-200	1/2	.4985	.4970	2.00	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-250	DCCS-50-250	1/2	.4985	.4970	2.50	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-300	DCCS-50-300	1/2	.4985	.4970	3.00	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-350	DCCS-50-350	1/2	.4985	.4970	3.50	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-400	DCCS-50-400	1/2	.4985	.4970	4.00	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-450	DCCS-50-450	1/2	.4985	.4970	4.50	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-500	DCCS-50-500	1/2	.4985	.4970	5.00	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-550	DCCS-50-550	1/2	.4985	.4970	5.50	.594	.460	1.41	.72	.85	1.30	1.37
DCCH-50-600	DCCS-50-600	1/2	.4985	.4970	6.00	.594	.460	1.41	.72	.85	1.30	1.37

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Dome Handle | Metric

MA MODIFICATIONS AVAILABLE



Dia mm	Hole Size Max mm	Hole Size Min mm	Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060

These positive locking quick release pins have a wide range of uses in fastening, locating, and alignment applications. The pins will not release until the button on the handle is depressed. Once the button is depressed, the balls retract into the shank allowing the pin to be inserted or removed into or out of a hole. The shanks are made from 17-4PH stainless steel. Handle has hole for optional wire lanyard attachment. The handles and dome actuator buttons for the pins listed below are made from 303 stainless steel. The large ergonomic dome actuator button facilitates easy installation and removal of the pin. They are ideal in applications where there is repetitive or frequent use of the pin. In addition, they can be used in situations where the operator is wearing gloves or has limited range of hand motion. They also add a unique look and feel that is not available with other pin styles and offer a large area for engraving or stamping to add logos, instructions, etc. For specific application requirements, custom modifications are available for this product line. See page 317 for complete specifications. RoHS compliant.

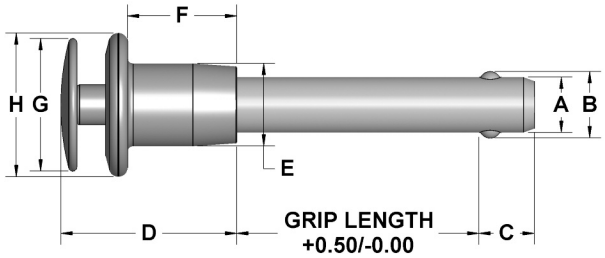
17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MDCCH-05-010	5	4.96	4.92	10	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-015	5	4.96	4.92	15	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-020	5	4.96	4.92	20	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-025	5	4.96	4.92	25	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-030	5	4.96	4.92	30	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-035	5	4.96	4.92	35	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-040	5	4.96	4.92	40	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-045	5	4.96	4.92	45	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-050	5	4.96	4.92	50	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-060	5	4.96	4.92	60	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-070	5	4.96	4.92	70	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-080	5	4.96	4.92	80	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-090	5	4.96	4.92	90	5.54	6	25.5	11.9	16	19	20.6
MDCCH-05-100	5	4.96	4.92	100	5.54	6	25.5	11.9	16	19	20.6
MDCCH-06-010	6	5.96	5.92	10	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-015	6	5.96	5.92	15	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-020	6	5.96	5.92	20	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-025	6	5.96	5.92	25	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-030	6	5.96	5.92	30	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-035	6	5.96	5.92	35	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-040	6	5.96	5.92	40	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-045	6	5.96	5.92	45	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-050	6	5.96	5.92	50	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-060	6	5.96	5.92	60	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-070	6	5.96	5.92	70	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-080	6	5.96	5.92	80	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-090	6	5.96	5.92	90	6.99	7	25.5	11.9	16	19	20.6
MDCCH-06-100	6	5.96	5.92	100	6.99	7	25.5	11.9	16	19	20.6
MDCCH-08-010	8	7.96	7.92	10	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-015	8	7.96	7.92	15	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-020	8	7.96	7.92	20	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-025	8	7.96	7.92	25	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-030	8	7.96	7.92	30	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-035	8	7.96	7.92	35	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-040	8	7.96	7.92	40	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-045	8	7.96	7.92	45	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-050	8	7.96	7.92	50	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-060	8	7.96	7.92	60	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-070	8	7.96	7.92	70	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-080	8	7.96	7.92	80	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-090	8	7.96	7.92	90	9.42	8	25.5	11.9	16	19	20.6
MDCCH-08-100	8	7.96	7.92	100	9.42	8	25.5	11.9	16	19	20.6

Fairlane®

QUICK RELEASE BALL LOCK PINS

Stainless Dome Handle | Metric (continued)

MA MODIFICATIONS AVAILABLE

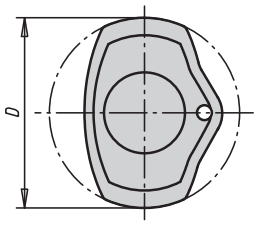


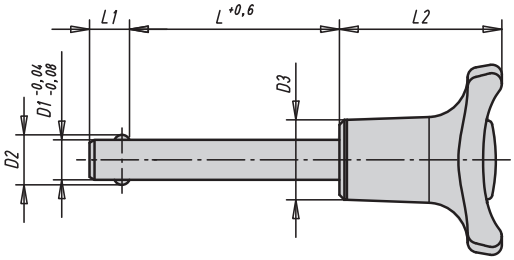
Dia	Hole Size Max	Hole Size Min	Min. Pull-Out Strength (N)	Calculated Double Shear (N) 17-4 Stainless
mm	mm	mm		
5	5.1	5.0	890	24,400
6	6.1	6.0	1,023	35,640
8	8.1	8.0	2,268	63,804
10	10.1	10.0	2,558	100,101
12	12.1	12.0	5,160	144,060

17-4 SS Part #	Nominal Diameter mm	A Max mm	A Min mm	Grip Length mm	+/-0.25 B mm	+/-1.0 C mm	D mm	E mm	F mm	G mm	H mm
MDCCH-10-015	10	9.96	9.92	15	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-020	10	9.96	9.92	20	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-025	10	9.96	9.92	25	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-030	10	9.96	9.92	30	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-035	10	9.96	9.92	35	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-040	10	9.96	9.92	40	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-045	10	9.96	9.92	45	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-050	10	9.96	9.92	50	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-060	10	9.96	9.92	60	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-070	10	9.96	9.92	70	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-080	10	9.96	9.92	80	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-090	10	9.96	9.92	90	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-10-100	10	9.96	9.92	100	11.86	9	28.4	14.2	17.8	23.6	25.4
MDCCH-12-020	12	11.96	11.92	20	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-025	12	11.96	11.92	25	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-030	12	11.96	11.92	30	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-035	12	11.96	11.92	35	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-040	12	11.96	11.92	40	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-045	12	11.96	11.92	45	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-050	12	11.96	11.92	50	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-060	12	11.96	11.92	60	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-070	12	11.96	11.92	70	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-080	12	11.96	11.92	80	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-090	12	11.96	11.92	90	14.45	10	35.9	18.3	21.6	33	34.7
MDCCH-12-100	12	11.96	11.92	100	14.45	10	35.9	18.3	21.6	33	34.7

QUICK RELEASE BALL LOCK PINS

Plastic Handle | Stainless Steel | Metric



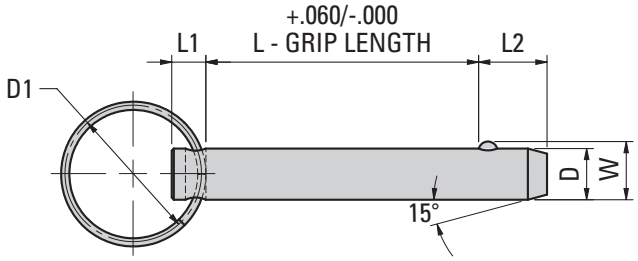


These pins have a wide range of uses for both fastening and locating operations. These positive locking pins will not release until the button on the handle is depressed which allow the balls to retract into the pin for insertion and removal. The handle is black thermoplastic and the push button is red thermoplastic. The shaft and balls are 300 series stainless steel.

Part #	D mm	-0.04/-0.08 D1 mm	+0.6 L mm	D2 mm	D3 mm	L1 mm	L2 mm	Shear Strength Double-Edged kN	Shear Force Double-Edged kN
03193-3805010	38	5	10	5.5	16	6	32.5	24	9
03193-3805015	38	5	15	5.5	16	6	32.5	24	9
03193-3805020	38	5	20	5.5	16	6	32.5	24	9
03193-3805025	38	5	25	5.5	16	6	32.5	24	9
03193-3805030	38	5	30	5.5	16	6	32.5	24	9
03193-3806010	38	6	10	7	16	7	32.5	35	13
03193-3806015	38	6	15	7	16	7	32.5	35	13
03193-3806020	38	6	20	7	16	7	32.5	35	13
03193-3806025	38	6	25	7	16	7	32.5	35	13
03193-3806030	38	6	30	7	16	7	32.5	35	13
03193-3806035	38	6	35	7	16	7	32.5	35	13
03193-3806040	38	6	40	7	16	7	32.5	35	13
03193-3806045	38	6	45	7	16	7	32.5	35	13
03193-3806050	38	6	50	7	16	7	32.5	35	13
03193-3808020	38	8	20	9.5	16	8	32.5	63	23
03193-3808025	38	8	25	9.5	16	8	32.5	63	23
03193-3808030	38	8	30	9.5	16	8	32.5	63	23
03193-3808035	38	8	35	9.5	16	8	32.5	63	23
03193-3808040	38	8	40	9.5	16	8	32.5	63	23
03193-3808045	38	8	45	9.5	16	8	32.5	63	23
03193-3808050	38	8	50	9.5	16	8	32.5	63	23
03193-4710020	47	10	20	12	23	9	40	100	35
03193-4710025	47	10	25	12	23	9	40	100	35
03193-4710030	47	10	30	12	23	9	40	100	35
03193-4710035	47	10	35	12	23	9	40	100	35
03193-4710040	47	10	40	12	23	9	40	100	35
03193-4710045	47	10	45	12	23	9	40	100	35
03193-4710050	47	10	50	12	23	9	40	100	35
03193-4710060	47	10	60	12	23	9	40	100	35
03193-4712025	47	12	25	14.5	23	10	40	144	51
03193-4712030	47	12	30	14.5	23	10	40	144	51
03193-4712035	47	12	35	14.5	23	10	40	144	51
03193-4712040	47	12	40	14.5	23	10	40	144	51
03193-4712045	47	12	45	14.5	23	10	40	144	51
03193-4712050	47	12	50	14.5	23	10	40	144	51
03193-4712060	47	12	60	14.5	23	10	40	144	51
03193-4712070	47	12	70	14.5	23	10	40	144	51
03193-4712080	47	12	80	14.5	23	10	40	144	51
03193-4716030	47	16	30	19	23	13	40	257	90
03193-4716035	47	16	35	19	23	13	40	257	90
03193-4716040	47	16	40	19	23	13	40	257	90
03193-4716045	47	16	45	19	23	13	40	257	90
03193-4716050	47	16	50	19	23	13	40	257	90
03193-4716060	47	16	60	19	23	13	40	257	90
03193-4716070	47	16	70	19	23	13	40	257	90
03193-4716080	47	16	80	19	23	13	40	257	90

QUICK RELEASE BALL LOCK PINS

Detent Pins | Ring Handle | Inch



Dia	Pull-Out Strength (lbs)	Min. Single Shear Strength (lbs)	
		C1144 Steel	300 Series SS
3/16	4 - 5	2,420	2,740
1/4	5 - 6	4,320	4,870
5/16	5 - 6	6,730	7,590
3/8	8 - 10	9,730	11,020
1/2	10 - 12	17,290	19,560
5/8	14 - 16	27,330	30,850
3/4	18 - 22	39,020	44,020
1	35 - 40	70,190	79,340

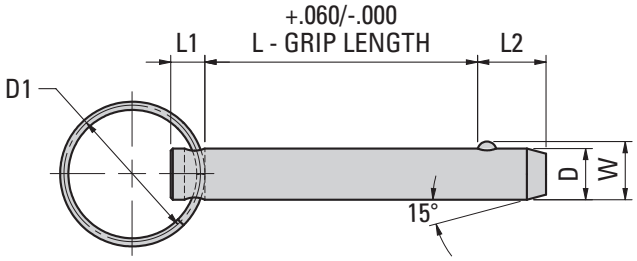
These pins have a wide range of uses in fastening, locating and alignment applications. The spring-loaded ball retracts when it is inserted or removed. Commercial drill tolerances provide clearance for the pins. The pins are available in two materials to suit your application. The steel pins are made from C1144 steel with steel split rings. The steel pins and rings have a zinc-plated clear chromate finish. The stainless pins are made from 303 stainless steel with 316 stainless rings. The ball and spring are made from 316 stainless steel. Made in the USA. RoHS compliant. DFARS compliant. Wire rope lanyard assemblies available separately.

C1144 Steel Part #	303 Series SS Part #	+.000/-.003 D	D1	L Grip Length	L1	L2	W
DAS-18-050	DCS-18-050	3/16	1.00	.50	.187	.200	.204
DAS-18-080	DCS-18-080	3/16	1.00	.80	.187	.200	.204
DAS-18-100	DCS-18-100	3/16	1.00	1.00	.187	.200	.204
DAS-18-130	DCS-18-130	3/16	1.00	1.30	.187	.200	.204
DAS-18-150	DCS-18-150	3/16	1.00	1.50	.187	.200	.204
DAS-18-200	DCS-18-200	3/16	1.00	2.00	.187	.200	.204
DAS-18-250	DCS-18-250	3/16	1.00	2.50	.187	.200	.204
DAS-18-300	DCS-18-300	3/16	1.00	3.00	.187	.200	.204
DAS-25-050	DCS-25-050	1/4	1.00	.50	.220	.312	.286
DAS-25-080	DCS-25-080	1/4	1.00	.80	.220	.312	.286
DAS-25-100	DCS-25-100	1/4	1.00	1.00	.220	.312	.286
DAS-25-130	DCS-25-130	1/4	1.00	1.30	.220	.312	.286
DAS-25-150	DCS-25-150	1/4	1.00	1.50	.220	.312	.286
DAS-25-200	DCS-25-200	1/4	1.00	2.00	.220	.312	.286
DAS-25-250	DCS-25-250	1/4	1.00	2.50	.220	.312	.286
DAS-25-300	DCS-25-300	1/4	1.00	3.00	.220	.312	.286
DAS-31-080	DCS-31-080	5/16	1.00	.80	.250	.375	.358
DAS-31-100	DCS-31-100	5/16	1.00	1.00	.250	.375	.358
DAS-31-130	DCS-31-130	5/16	1.00	1.30	.250	.375	.358
DAS-31-150	DCS-31-150	5/16	1.00	1.50	.250	.375	.358
DAS-31-200	DCS-31-200	5/16	1.00	2.00	.250	.375	.358
DAS-31-250	DCS-31-250	5/16	1.00	2.50	.250	.375	.358
DAS-31-300	DCS-31-300	5/16	1.00	3.00	.250	.375	.358
DAS-31-350	DCS-31-350	5/16	1.00	3.50	.250	.375	.358
DAS-31-400	DCS-31-400	5/16	1.00	4.00	.250	.375	.358
DAS-37-080	DCS-37-080	3/8	1.00	.80	.250	.500	.426
DAS-37-100	DCS-37-100	3/8	1.00	1.00	.250	.500	.426
DAS-37-130	DCS-37-130	3/8	1.00	1.30	.250	.500	.426
DAS-37-150	DCS-37-150	3/8	1.00	1.50	.250	.500	.426
DAS-37-200	DCS-37-200	3/8	1.00	2.00	.250	.500	.426
DAS-37-250	DCS-37-250	3/8	1.00	2.50	.250	.500	.426
DAS-37-300	DCS-37-300	3/8	1.00	3.00	.250	.500	.426
DAS-37-350	DCS-37-350	3/8	1.00	3.50	.250	.500	.426
DAS-37-400	DCS-37-400	3/8	1.00	4.00	.250	.500	.426
DAS-37-450	DCS-37-450	3/8	1.00	4.50	.250	.500	.426
DAS-37-500	DCS-37-500	3/8	1.00	5.00	.250	.500	.426
DAS-50-100	DCS-50-100	1/2	1.25	1.00	.312	.625	.570
DAS-50-130	DCS-50-130	1/2	1.25	1.30	.312	.625	.570
DAS-50-150	DCS-50-150	1/2	1.25	1.50	.312	.625	.570
DAS-50-200	DCS-50-200	1/2	1.25	2.00	.312	.625	.570
DAS-50-250	DCS-50-250	1/2	1.25	2.50	.312	.625	.570
DAS-50-300	DCS-50-300	1/2	1.25	3.00	.312	.625	.570
DAS-50-350	DCS-50-350	1/2	1.25	3.50	.312	.625	.570
DAS-50-400	DCS-50-400	1/2	1.25	4.00	.312	.625	.570
DAS-50-450	DCS-50-450	1/2	1.25	4.50	.312	.625	.570
DAS-50-500	DCS-50-500	1/2	1.25	5.00	.312	.625	.570
DAS-50-550	DCS-50-550	1/2	1.25	5.50	.312	.625	.570
DAS-50-600	DCS-50-600	1/2	1.25	6.00	.312	.625	.570

fixtureworks Workholding Technologies

QUICK RELEASE BALL LOCK PINS

Detent Pins | Ring Handle | Inch (continued)



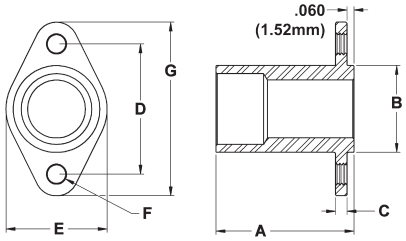
Dia	Pull-Out Strength (lbs)	Min. Single Shear Strength (lbs) C1144 Steel	300 Series SS
3/16	4 - 5	2,420	2,740
1/4	5 - 6	4,320	4,870
5/16	5 - 6	6,730	7,590
3/8	8 - 10	9,730	11,020
1/2	10 - 12	17,290	19,560
5/8	14 - 16	27,330	30,850
3/4	18 - 22	39,020	44,020
1	35 - 40	70,190	79,340

C1144 Steel Part #	303 Series SS Part #	+.000/-.003 D	D1	L Grip Length	L1	L2	W
DAS-62-200	DCS-62-200	5/8	1.25	2.00	.375	.750	.710
DAS-62-250	DCS-62-250	5/8	1.25	2.50	.375	.750	.710
DAS-62-300	DCS-62-300	5/8	1.25	3.00	.375	.750	.710
DAS-62-350	DCS-62-350	5/8	1.25	3.50	.375	.750	.710
DAS-62-400	DCS-62-400	5/8	1.25	4.00	.375	.750	.710
DAS-62-450	DCS-62-450	5/8	1.25	4.50	.375	.750	.710
DAS-62-500	DCS-62-500	5/8	1.25	5.00	.375	.750	.710
DAS-62-600	DCS-62-600	5/8	1.25	6.00	.375	.750	.710
DAS-75-200	DCS-75-200	3/4	1.50	2.00	.375	.937	.856
DAS-75-250	DCS-75-250	3/4	1.50	2.50	.375	.937	.856
DAS-75-300	DCS-75-300	3/4	1.50	3.00	.375	.937	.856
DAS-75-350	DCS-75-350	3/4	1.50	3.50	.375	.937	.856
DAS-75-400	DCS-75-400	3/4	1.50	4.00	.375	.937	.856
DAS-75-450	DCS-75-450	3/4	1.50	4.50	.375	.937	.856
DAS-75-500	DCS-75-500	3/4	1.50	5.00	.375	.937	.856
DAS-75-600	DCS-75-600	3/4	1.50	6.00	.375	.937	.856
DAS-100-200	DCS-100-200	1	1.50	2.00	.500	1.250	1.140
DAS-100-250	DCS-100-250	1	1.50	2.50	.500	1.250	1.140
DAS-100-300	DCS-100-300	1	1.50	3.00	.500	1.250	1.140
DAS-100-350	DCS-100-350	1	1.50	3.50	.500	1.250	1.140
DAS-100-400	DCS-100-400	1	1.50	4.00	.500	1.250	1.140
DAS-100-450	DCS-100-450	1	1.50	4.50	.500	1.250	1.140
DAS-100-500	DCS-100-500	1	1.50	5.00	.500	1.250	1.140
DAS-100-550	DCS-100-550	1	1.50	5.50	.500	1.250	1.140
DAS-100-600	DCS-100-600	1	1.50	6.00	.500	1.250	1.140

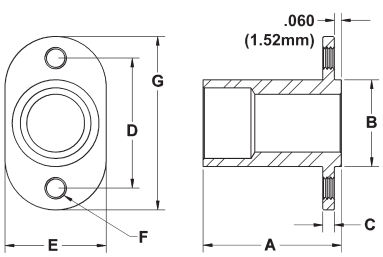
Fairlane®

BALL LOCK PIN FLANGE RECEPTACLES

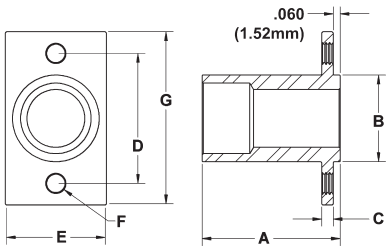
Diamond



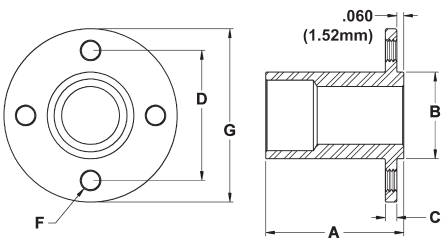
Oblong



Rectangle



Round



The flanged receptacles provide a permanent and proper mating hole for quick release ball lock pins. They are designed for use on materials and in applications where the pin does not have anything to lock against. Because the pin does not protrude through the bottom of the receptacles, they are ideal for blind-hole applications. The receptacles can be mounted with screws, rivets or bolts. They are made from 303 stainless steel. The "Grip Length Reduction" is the amount of pin that is inside the receptacle and reducing the usable length of the pin by this amount. The quick release ball lock pins are inserted from the flanged end.

INCH

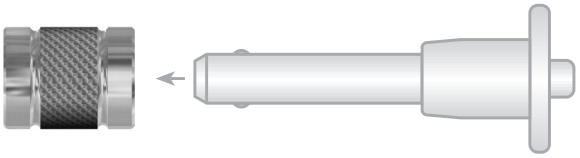
Part #	For Use With Pin Diameter	Flange Style	+.000/ -.005 A	+/-.005 B	+/-.005 C	+/-.005 D	+/-.010 E	F	+/-.010 G	Grip Length Reduction
DIFR-187	3/16	Diamond	.650	.375	.060	1.000	.625	6-32	1.250	.375
DIFR-250	1/4	Diamond	.650	.375	.060	1.000	.625	6-32	1.250	.375
DIFR-312	5/16	Diamond	.783	.469	.060	1.000	.625	6-32	1.250	.500
DIFR-375	3/8	Diamond	.913	.562	.060	1.000	.625	6-32	1.250	.562
DIFR-500	1/2	Diamond	1.195	.750	.100	1.125	.875	10-32	1.500	.750
OBFR-187	3/16	Oblong	.650	.375	.060	1.000	.625	6-32	1.250	.375
OBFR-250	1/4	Oblong	.650	.375	.060	1.000	.625	6-32	1.250	.375
OBFR-312	5/16	Oblong	.783	.469	.060	1.000	.625	6-32	1.250	.500
OBFR-375	3/8	Oblong	.913	.562	.060	1.000	.625	6-32	1.250	.562
OBFR-500	1/2	Oblong	1.195	.750	.100	1.125	.875	10-32	1.500	.750
REFR-187	3/16	Rectangle	.650	.375	.060	1.000	.625	6-32	1.250	.375
REFR-250	1/4	Rectangle	.650	.375	.060	1.000	.625	6-32	1.250	.375
REFR-312	5/16	Rectangle	.783	.469	.060	1.000	.625	6-32	1.250	.500
REFR-375	3/8	Rectangle	.913	.562	.060	1.000	.625	6-32	1.250	.562
ROFR-187	3/16	Round	.650	.375	.060	1.000	—	6-32	1.250	.375
ROFR-250	1/4	Round	.650	.375	.060	1.000	—	6-32	1.250	.375
ROFR-312	5/16	Round	.783	.469	.060	1.000	—	6-32	1.250	.500
ROFR-375	3/8	Round	.913	.562	.060	1.000	—	6-32	1.250	.562
ROFR-500	1/2	Round	1.195	.750	.100	1.125	—	10-32	1.500	.750

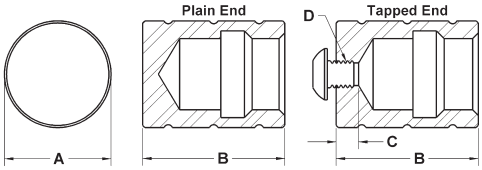
METRIC

Part#	For Use With Pin Diameter	Flange Style	+0.00/ -0.13 A mm	+/-0.13 B mm	+/-0.13 C mm	+/-0.13 D mm	+/-0.25 E mm	F mm	+/-0.25 G mm	Grip Length Reduction mm
MDIFR-05	5mm	Diamond	16.51	9.53	1.52	25	15.88	M4	31.75	10
MDIFR-06	6mm	Diamond	16.51	9.53	1.52	25	15.88	M4	31.75	10
MDIFR-08	8mm	Diamond	19.89	11.91	1.52	25	15.88	M4	31.75	13
MDIFR-10	10mm	Diamond	23.19	14.29	1.52	25	15.88	M4	31.75	15
MDIFR-12	12mm	Diamond	30.35	19.05	2.54	29	22.23	M5	38.10	20
MOBFR-05	5mm	Oblong	16.51	9.53	1.52	25	15.88	M4	31.75	10
MOBFR-06	6mm	Oblong	16.51	9.53	1.52	25	15.88	M4	31.75	10
MOBFR-08	8mm	Oblong	19.89	11.91	1.52	25	15.88	M4	31.75	13
MOBFR-10	10mm	Oblong	23.19	14.29	1.52	25	15.88	M4	31.75	15
MOBFR-12	12mm	Oblong	30.35	19.05	2.54	29	22.23	M5	38.10	20
MREFR-05	5mm	Rectangle	16.51	9.53	1.52	25	15.88	M4	31.75	10
MREFR-06	6mm	Rectangle	16.51	9.53	1.52	25	15.88	M4	31.75	10
MREFR-08	8mm	Rectangle	19.89	11.91	1.52	25	15.88	M4	31.75	13
MREFR-10	10mm	Rectangle	23.19	14.29	1.52	25	15.88	M4	31.75	15
MROFR-05	5mm	Round	16.51	9.53	1.52	25	—	M4	31.75	10
MROFR-06	6mm	Round	16.51	9.53	1.52	25	—	M4	31.75	10
MROFR-08	8mm	Round	19.89	11.91	1.52	25	—	M4	31.75	13
MROFR-10	10mm	Round	23.19	14.29	1.52	25	—	M4	31.75	15
MROFR-12	12mm	Round	30.35	19.05	2.54	29	—	M5	38.10	20

Fairlane®

BALL LOCK PIN END CAPS





These end caps fit over the end of the quick release ball lock pin and allow the pins to be used in applications where the receiving hole is not within tolerance or is out of round. The receiver caps can replace cotter pins and hitch pins to allow you to take advantage of quick changing and fieldwork without tools. The caps are made from 303 stainless steel. The "Grip Length Reduction" is the amount of pin that is inside the end cap which reduces the useable length of the pin by this amount. The end caps with the tapped ends allow the user to attach a lanyard to the end cap so it does not get lost while not in use.

INCH

Plain End Part #	Tapped End Part #	For Use With Pin Diameter	A Diameter	B Length	C* Screw Depth	D Thread	Grip Length Reduction
RC-187	RCT-187	3/16	.375	.580	.12	10-32	.125
RC-250	RCT-250	1/4	.375	.580	.12	10-32	.125
RC-312	RCT-312	5/16	.500	.625	.12	10-32	.125
RC-375	RCT-375	3/8	.563	.730	.18	10-32	.187
RC-500	RCT-500	1/2	.750	1.000	.18	10-32	.250
RC-625	RCT-625	5/8	1.000	1.250	.18	1/4-28	.250

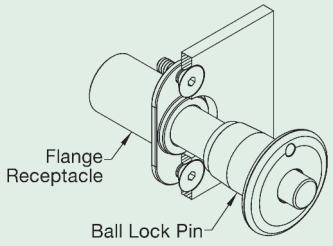
* Maximum Screw Depth

METRIC

Plain End Part #	Tapped End Part #	For Use With Pin Diameter	A Diameter mm	B Length mm	C* Screw Depth mm	D Thread mm	Grip Length Reduction mm
MRC-05	MRCT-05	5mm	9.53	14.73	3	M5	3
MRC-06	MRCT-06	6mm	9.53	14.73	3	M5	3
MRC-08	MRCT-08	8mm	12.70	15.88	3	M5	3
MRC-10	MRCT-10	10mm	14.29	18.54	4	M5	5
MRC-12	MRCT-12	12mm	19.05	25.40	4	M5	6
MRC-16	MRCT-16	16mm	25.40	31.75	5	M6	6

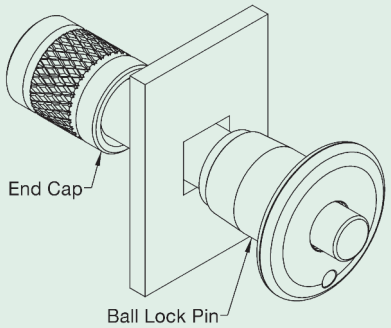
* Maximum Screw Depth

How To Use



Flange receptacles are used to give a permanent mounting hole in materials where the balls have nothing to lock against.

How To Use



End cap is used when the receiving hole is out of tolerance or is not round.

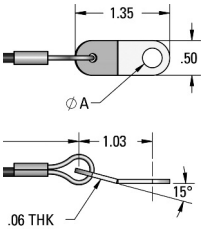
Fairlane®

WIRE ROPE LANYARD ASSEMBLIES

MA MODIFICATIONS AVAILABLE

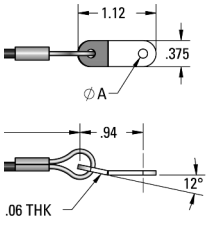
Tab Styles

Rectangular - Stainless



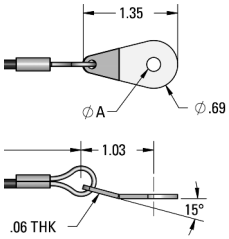
Tab
R20 (A =.20)
R28 (A =.28)

Rectangular - Aluminum



Tab
RA13 (A=.13)
RA20 (A=.20)

Teardrop - Stainless



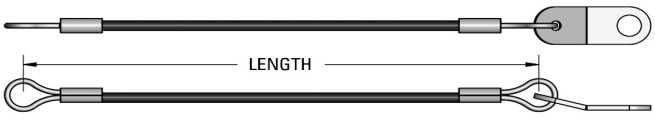
Tab
T13 (A=.13)
T20 (A =.20)
T28 (A =.28)

Wire Rope Lanyard Assembly Specifications

Wire Rope:	7x7 Stainless Steel Wire (RR-W-410)
Covering:	Vinyl (MIL-I-631) with UV protector
Covered Wire Sizes:	3/64" Wire – Covering to 1/16" 1/16" Wire – Covering to 1/8"
Rated Strength with Tabs:	3/64" Wire = 270 lbs. 1/16" Wire = 480 lbs.
Rated Strength with Eyelets:	30 lbs.
Sleeves:	Copper - Zinc Plated (MIL-51844) Stainless Steel (MIL-51844)
Tabs: R20, R28, T13, T20, T28	300 Series Stainless Steel (ASTM AA240/A666)
Tabs: RA13, RA20	2024 T3/T4 Aluminum, Clear Anodized Finish
Eyelets: E20	300 Series Stainless Steel

Wire rope lanyard assemblies are used to attach quick release pins to a fixture or frame, to prevent the pins from being misplaced while they are not in use. All of the wire rope lanyard assemblies listed below are supplied with 7 x 7 stainless steel wire and are available either uncovered (bare cable) or covered. The vinyl covered assemblies are available in either clear, black, or green and have a temperature range of -30°/+180°F. Tabs are available in both 300 series stainless steel and aluminum. The eyelets are manufactured from 300 series stainless steel. The assemblies are available with either zinc-plated or stainless sleeves. For specific application requirements, custom modifications are available for this product line. To order loop-tab parts, add desired tab style to part number. Sample LCL-3-06-R20.

Loop | Tab



ZINC-PLATED SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length	Tab
LCL-3-06-*	LBK-3-06-*	LGR-3-06-*	LNC-3-06-*	3/64	6	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-3-08-*	LBK-3-08-*	LGR-3-08-*	LNC-3-08-*	3/64	8	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-3-10-*	LBK-3-10-*	LGR-3-10-*	LNC-3-10-*	3/64	10	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-3-12-*	LBK-3-12-*	LGR-3-12-*	LNC-3-12-*	3/64	12	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-1-06-*	LBK-1-06-*	LGR-1-06-*	LNC-1-06-*	1/16	6	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-1-08-*	LBK-1-08-*	LGR-1-08-*	LNC-1-08-*	1/16	8	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-1-10-*	LBK-1-10-*	LGR-1-10-*	LNC-1-10-*	1/16	10	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCL-1-12-*	LBK-1-12-*	LGR-1-12-*	LNC-1-12-*	1/16	12	R20 / R28 / RA13 / RA20 / T13 / T20 / T28

* Add the desired tab style.

STAINLESS STEEL SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length	Tab
LCLC3-06*	LBKC3-06*	LGRC3-06*	LNCC3-06*	3/64	6	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC3-08*	LBKC3-08*	LGRC3-08*	LNCC3-08*	3/64	8	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC3-10*	LBKC3-10*	LGRC3-10*	LNCC3-10*	3/64	10	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC3-12*	LBKC3-12*	LGRC3-12*	LNCC3-12*	3/64	12	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC1-06*	LBKC1-06*	LGRC1-06*	LNCC1-06*	1/16	6	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC1-08*	LBKC1-08*	LGRC1-08*	LNCC1-08*	1/16	8	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC1-10*	LBKC1-10*	LGRC1-10*	LNCC1-10*	1/16	10	R20 / R28 / RA13 / RA20 / T13 / T20 / T28
LCLC1-12*	LBKC1-12*	LGRC1-12*	LNCC1-12*	1/16	12	R20 / R28 / RA13 / RA20 / T13 / T20 / T28

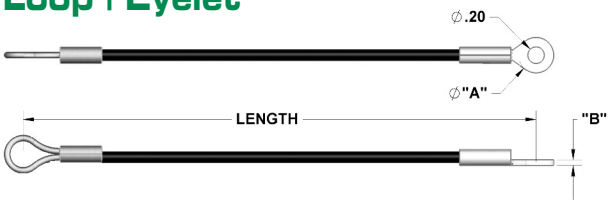
* Add the desired tab style.

Fairlane®

WIRE ROPE LANYARD ASSEMBLIES (continued)

Loop | Eyelet

MA MODIFICATIONS AVAILABLE



ZINC-PLATED SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length	Wire A	B	Eyelet Hole Size
LCL-3-06-E20	LBK-3-06-E20	LGR-3-06-E20	LNC-3-06-E20	3/64	6	.33	.04	.20
LCL-3-08-E20	LBK-3-08-E20	LGR-3-08-E20	LNC-3-08-E20	3/64	8	.33	.04	.20
LCL-3-10-E20	LBK-3-10-E20	LGR-3-10-E20	LNC-3-10-E20	3/64	10	.33	.04	.20
LCL-3-12-E20	LBK-3-12-E20	LGR-3-12-E20	LNC-3-12-E20	3/64	12	.33	.04	.20
LCL-1-06-E20	LBK-1-06-E20	LGR-1-06-E20	LNC-1-06-E20	1/16	6	.41	.06	.20
LCL-1-08-E20	LBK-1-08-E20	LGR-1-08-E20	LNC-1-08-E20	1/16	8	.41	.06	.20
LCL-1-10-E20	LBK-1-10-E20	LGR-1-10-E20	LNC-1-10-E20	1/16	10	.41	.06	.20
LCL-1-12-E20	LBK-1-12-E20	LGR-1-12-E20	LNC-1-12-E20	1/16	12	.41	.06	.20

STAINLESS STEEL SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length	Wire A	B	Eyelet Hole Size
LCLC3-06E20	LBKC3-06E20	LGRC3-06E20	LNCC3-06E20	3/64	6	.33	.04	.20
LCLC3-08E20	LBKC3-08E20	LGRC3-08E20	LNCC3-08E20	3/64	8	.33	.04	.20
LCLC3-10E20	LBKC3-10E20	LGRC3-10E20	LNCC3-10E20	3/64	10	.33	.04	.20
LCLC3-12E20	LBKC3-12E20	LGRC3-12E20	LNCC3-12E20	3/64	12	.33	.04	.20
LCLC1-06E20	LBKC1-06E20	LGRC1-06E20	LNCC1-06E20	1/16	6	.41	.06	.20
LCLC1-08E20	LBKC1-08E20	LGRC1-08E20	LNCC1-08E20	1/16	8	.41	.06	.20
LCLC1-10E20	LBKC1-10E20	LGRC1-10E20	LNCC1-10E20	1/16	10	.41	.06	.20
LCLC1-12E20	LBKC1-12E20	LGRC1-12E20	LNCC1-12E20	1/16	12	.41	.06	.20

Loop | Loop

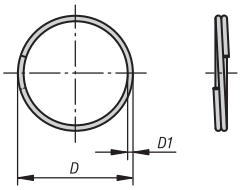
ZINC-PLATED SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length
LCL-3-06	LBK-3-06	LGR-3-06	LNC-3-06	3/64	6
LCL-3-08	LBK-3-08	LGR-3-08	LNC-3-08	3/64	8
LCL-3-10	LBK-3-10	LGR-3-10	LNC-3-10	3/64	10
LCL-3-12	LBK-3-12	LGR-3-12	LNC-3-12	3/64	12
LCL-1-06	LBK-1-06	LGR-1-06	LNC-1-06	1/16	6
LCL-1-08	LBK-1-08	LGR-1-08	LNC-1-08	1/16	8
LCL-1-10	LBK-1-10	LGR-1-10	LNC-1-10	1/16	10
LCL-1-12	LBK-1-12	LGR-1-12	LNC-1-12	1/16	12

STAINLESS STEEL SLEEVES

Clear Part #	Black Part #	Green Part #	Uncovered Part #	Wire Diameter	Wire Length
LCLC3-06	LBKC3-06	LGRC3-06	LNCC3-06	3/64	6
LCLC3-08	LBKC3-08	LGRC3-08	LNCC3-08	3/64	8
LCLC3-10	LBKC3-10	LGRC3-10	LNCC3-10	3/64	10
LCLC3-12	LBKC3-12	LGRC3-12	LNCC3-12	3/64	12
LCLC1-06	LBKC1-06	LGRC1-06	LNCC1-06	1/16	6
LCLC1-08	LBKC1-08	LGRC1-08	LNCC1-08	1/16	8
LCLC1-10	LBKC1-10	LGRC1-10	LNCC1-10	1/16	10
LCLC1-12	LBKC1-12	LGRC1-12	LNCC1-12	1/16	12

Split Rings



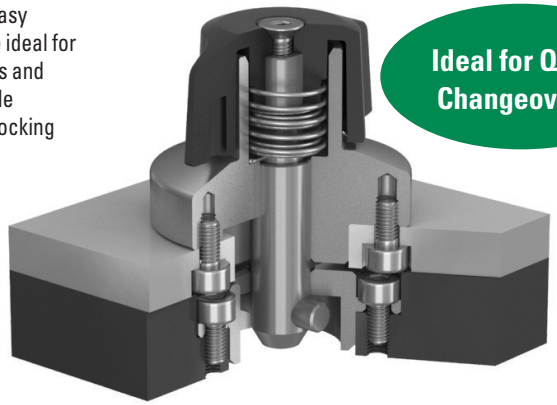
Used for attaching ball lock pins to a lanyard. Prevents the pin from being lost when not in use. Made from 302 stainless steel.

Part #	D	D1
RSC-37	.962	.072

IMAO

INNOVATION IN FASTENING

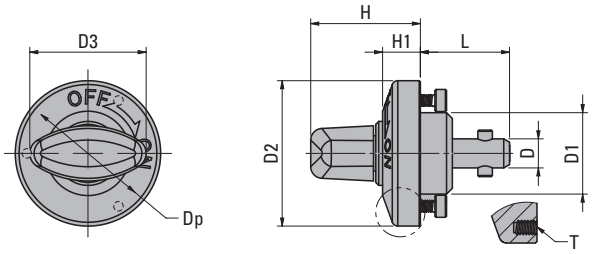
One Touch Fasteners are designed for reliable production use and provide quick-and-easy locking and unlocking. The fasteners are ideal for applications that require frequent set ups and quick changeover. Fastener styles include Magnetic Clamping, Quarter-Turn, Ball Locking and Locking Receptacle.



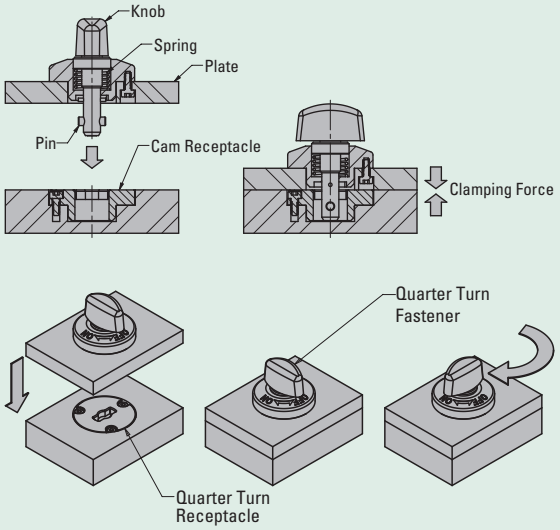
- RELIABLE
- EASY TO USE
- ERGONOMIC DESIGNS
- WIDE RANGE OF USES
- STEEL & STAINLESS STEEL

Quarter-Turn | Plastic and Stainless Knob | QCTH Series

ONE-TOUCH Fasteners



How To Use



Positive locking in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. They are designed to be used with the cam receptacles referenced on the table. The fastener is mounted to the fixture and the receptacle is mounted to the base. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. The spring in the fastener allow for a range of fixture thicknesses. Turning the knob one quarter turn aligns and locks the fastener into place. The fasteners are marked with "ON" and "OFF" indicators to show the position of the fastening pins. They can be used with locating pins to provide highly accurate positioning. The bodies are SAE-1045 alloy steel with an electroless nickel plating finish or from SCS24 Stainless steel with a natural finish. The pins are made from 300 series stainless steel. The knob is made from black plastic or stainless steel. Three socket head cap screws for mounting are included. (M3X0.5 - 6mm long) The receptacles are available in two mounting styles – thin plate and embedded. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Plastic Knob Part #	Metal Knob Part #	Stainless Part #	Plate Thickness mm	T Thread	-.04/-.08 D mm	h9 D1 mm	D2 mm	D3 mm	Dp mm	L mm	H mm	H1 mm	Clamping Force Lbs.	Use with Receptacle
QCTH0525-10	QCTH0525-10-S	QCTH0525-10-SUS	6 to 10	M2x0.4, 3 deep	5	14	25	20	21	15.5	19	6.5	13.5	QCTH0525-N, QCTH0525-N-SUS, QCTH0525-B, QCTH0525-B-SUS
QCTH0834-14	QCTH0834-14-S	QCTH0834-14-SUS	6 to 14	M3x0.5, 4 deep	8	18	34	32	28	17	26	10	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS
QCTH0834-20	QCTH0834-20-S	QCTH0834-20-SUS	12 to 20	M3x0.5, 4 deep	8	18	34	32	28	23	26	10	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS

See page 561 for h9 tolerance specifications.

IMAO

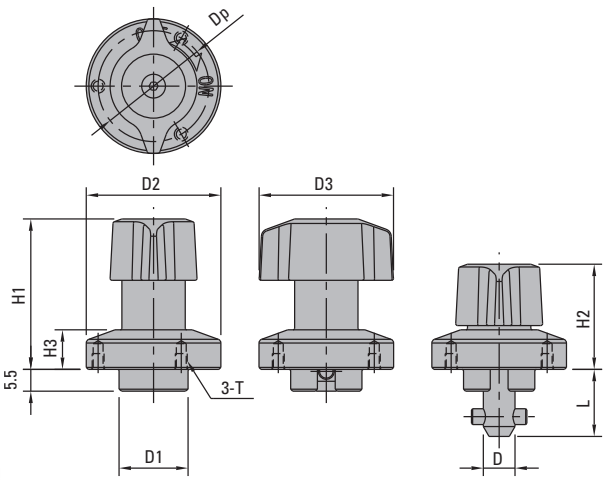
ONE-TOUCH FASTENERS

Quarter-Turn | Retractable | QCTHA Series

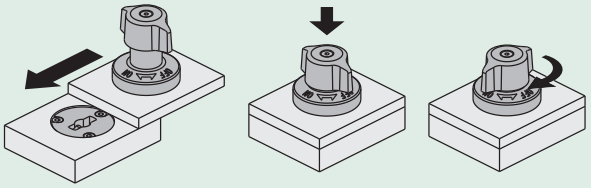
ONE-TOUCH Fasteners

QCTHA

QCTHA-S



How To Use

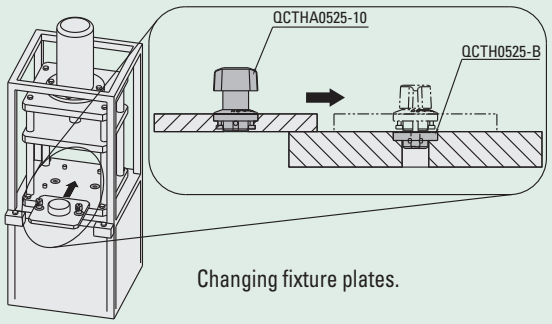


1. Position the fastener over the receptacle.

2. Press the knob down to extend the shank.

2.Rotate the knob to the ON position to clamp the plates together.

Application



Changing fixture plates.

These retractable fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fixture. They allow for consistent fastening force eliminating the chance for under or over tightening by the operator. They are designed to be used with the cam receptacles shown on page 364. The fastener is mounted to the fixture and the receptacle is mounted to the base. Pulling up on the handle allows the plate or fixture to slide on the base without interference from the fastener. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. Turning the knob one quarter turn aligns and locks the fastener into place. The fasteners are marked with "ON" and "OFF" indicators to show the position of the fastening pins. Three socket head cap screws for mounting are included. The bodies are SAE-1045 alloy steel with an electroless nickel plated finish. The pins are made from 300-series stainless steel. The knob is made from black plastic or stainless steel. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Plastic Knob Part #	Metal Knob Part #	Plate Thickness mm	T mm	-.04 -.08 D mm	(h9) D1 mm	D2 mm	D3 mm	Dp mm	L mm	H1 mm	H2 mm	H3 mm	Clamping Force Lbs.	Use with Cam Receptacle
QCTHA0525-10	QCTHA0525-10S	6 to 10	M2X0.4X3	5	14	25	25	21	15.5	30	20	6.5	13.5	QCTH0525-N, QCTH0525-B, QCTH0525-N-SUS, QCTH0525-B-SUS
QCTHA0834-14	QCTHA0834-14S	6 to 14	M3X0.5X4	8	18	34	34	28	17	38	26.5	10	20.2	QCTH0834-N, QCTH0834-B, QCTH0834-N-SUS, QCTH0834-B-SUS

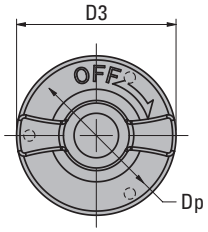
See page 561 for h9 tolerance specifications.

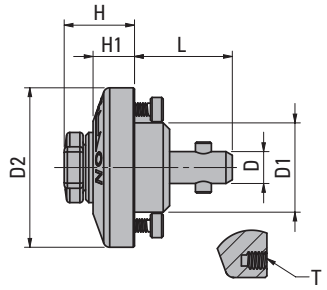
IMAO

ONE-TOUCH FASTENERS

Quarter-Turn | Low-Profile | QCTHL Series

ONE-TOUCH Fasteners





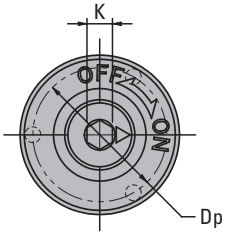
Provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. They are designed to be used with the cam receptacles referenced on the table. The fastener is mounted to the fixture and the receptacle is mounted to the base. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. The spring in the fastener allow for a range of fixture thicknesses. Turning the knob one quarter turn aligns and locks the fastener into place. The fasteners are marked with "ON" and "OFF" indicators to show the position of the fastening pins. They can be used with locating pins to provide highly accurate positioning. The bodies are SAE-1045 alloy steel with an electroless nickel plating finish. The pins are made from 300 series stainless steel. The knob is made from stainless steel. Three socket head cap screws for mounting are included. (M3X0.5 - 6mm long) The receptacles are available (ordered separately) in two mounting styles – thin plate and embedded. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

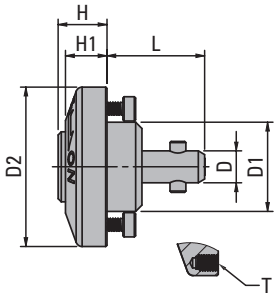
Part #	Plate Thickness mm	T Thread	-0.04/-0.08 D mm	h9 D1 mm	D2 mm	D3 mm	Dp mm	L mm	H mm	H1 mm	Clamping Force Lbs.	Use with Receptacle
QCTHL0525-10S	6 to 10	M2x0.4, 3 deep	5	14	25	25	21	15.5	11.5	6.5	13.5	QCTH0525-N, QCTH0525-N-SUS, QCTH0525-B, QCTH0525-B-SUS
QCTHL0834-14S	6 to 14	M3x0.5, 4 deep	8	18	34	34	28	17	15.5	10	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS
QCTHL0834-20S	12 to 20	M3x0.5, 4 deep	8	18	34	34	28	23	15.5	10	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS

See page 561 for h9 tolerance specifications.

Quarter-Turn | Low-Profile Hex | QCTHH Series

ONE-TOUCH Fasteners





Provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. They are designed to be used with the cam receptacles referenced on the table. The fastener is mounted to the fixture and the receptacle is mounted to the base. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. The spring in the fastener allow for a range of fixture thicknesses. Using a hex driver to make a quarter turn aligns and locks the fastener into place. The fasteners are marked with "ON" and "OFF" indicators to show the position of the fastening pins. They can be used with locating pins to provide highly accurate positioning. The bodies are SAE-1045 alloy steel with an electroless nickel plating finish. The pins are made from 300 series stainless steel. Three socket head cap screws for mounting are included. (M3X0.5 - 6mm long) The receptacles are available (ordered separately) in two mounting styles – thin plate and embedded. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Plate Thickness mm	T Thread	-0.04/-0.08 D mm	h9 D1 mm	D2 mm	Dp mm	L mm	H mm	H1 mm	K mm	Clamping Force Lbs.	Use with Receptacle
QCTHH0525-10	6 to 10	M2x0.4, 3 deep	5	14	25	21	15.5	8	6.5	4	13.5	QCTH0525-N, QCTH0525-N-SUS, QCTH0525-B, QCTH0525-B-SUS
QCTHH0834-14	6 to 14	M3x0.5, 4 deep	8	18	34	28	17	11	10	5	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS
QCTHH0834-20	12 to 20	M3x0.5, 4 deep	8	18	34	28	23	11	10	5	20.2	QCTH0834-N, QCTH0834-N-SUS, QCTH0834-B, QCTH0834-B-SUS

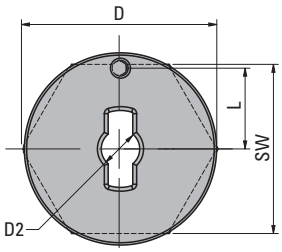
See page 561 for h9 tolerance specifications.

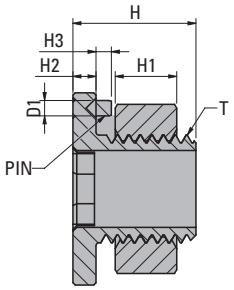
IMAO

ONE-TOUCH FASTENERS

Quarter Turn Receptacles | Thin Plate Mount | QCTH-N Series

ONE-TOUCH Fasteners



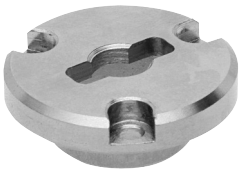


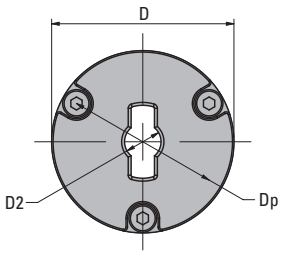
Used with the quarter-turn fasteners. The thin plate style allows back side mounting with the provided hex nut and includes a locating pin to prevent the receptacle from turning. Made from SAE-4140 alloy steel with an electroless nickel plate finish or from SCS24 Stainless steel with a natural finish. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

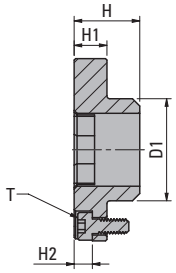
Steel Part #	Stainless Part #	Plate Thickness mm	T Thread	-.04/-.08 D mm	D1 mm	+.08/+.04 D2 mm	+/-0.1 L mm	H mm	H1 mm	H2 mm	H3 mm	SW mm
QCTH0525-N	QCTH0525-N-SUS	6 to 10	M14 X 1.5 (fine thread)	25	2	5	10.5	16	8	3	2	22
QCTH0834-N	QCTH0834-N-SUS	6 to 10	M20X 1.5 (fine thread)	32	2	8	13	18	10	3	2	30

Quarter Turn Receptacles | Embedded | QCTH-B Series

ONE-TOUCH Fasteners







Designed to be used with the quarter-turn fasteners. The embedded style allows for blind hole installation and is mounted with three M3x0.5 - 6mm long socket head cap screws. (Included). Made from SAE-4140 alloy steel with an electroless nickel plate finish or from SCS24 Stainless steel with a natural finish. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Steel Part #	Stainless Part #	Plate Thickness mm	T Thread	D mm	-.04/.08 D1 mm	+.08/+.04 D2 mm	Dp mm	H mm	H1 mm	H2 mm
QCTH0525-B	QCTH0525-B-SUS	Over 10	M2	25	14	5	21	9	4.5	2.5
QCTH0834-B	QCTH0834-B-SUS	Over 12	M3	32	20	8	26	11	5.5	3.5

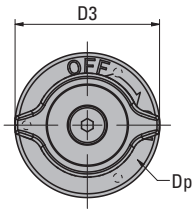
IMAO

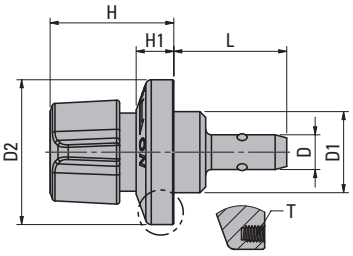
ONE-TOUCH FASTENERS

Knob Ball Locking Pins | QCWE Series

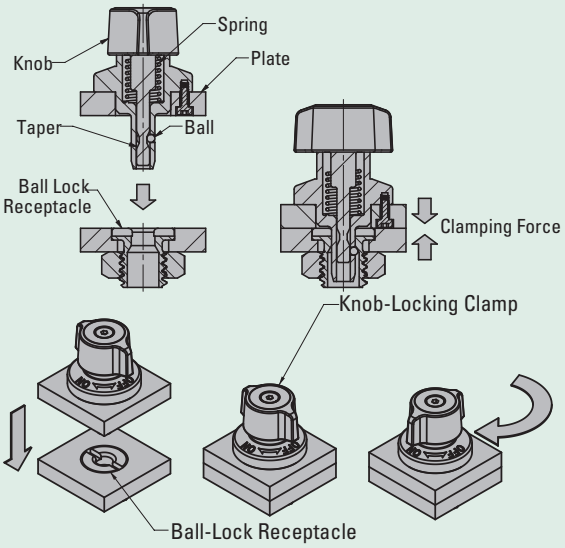
QCWE

ONE-TOUCH Fasteners





How To Use



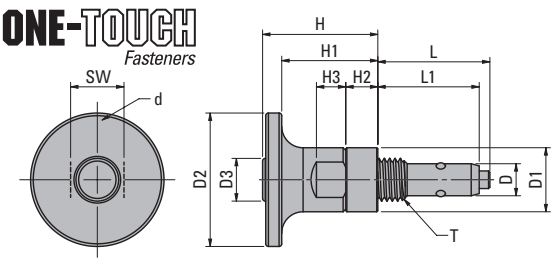
These quick release fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They are designed to be used with the ball-locking receptacles referenced on the table. The pin can be threaded into the fixture and the receptacle is mounted to the base. When the knob is rotated, the balls on the pin expand and lock the fixture in place. These positive-locking pins will not release until the button on the handle is depressed, allowing the balls to retract into the shank so that the pin can be removed from the receptacle without the use of tools. The end of the pin is tapered to make alignment of the pin easy. They can be used with locating pins to provide highly accurate positioning. The knob is made from black plastic or from SCS13 stainless steel. The pin is made from SAE-1045 alloy steel with an electroless nickel plating finish or SUS303 stainless steel with a natural finish. The balls are made from hardened SUS440C stainless steel. The receptacles are designed to be threaded into a base with the stainless lock nut or in blind hole installation. Receptacles and lock nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net..

Plastic Knob Part #	SS Knob Part #	SS Knob and Shank Part #	Plate Thickness mm	T Thread	-.05/-.10 D mm	h9 D1 mm	D2 mm	D3 mm	Dp mm	L mm	H mm	H1 mm	Clamping Force Lbs.	Use with Receptacle
QCWE0625-10	QCWE0625-10S	QCWE0625-10-SUS	6 to 10	M2x0.4, 3 deep	6	14	25	25	21	19.5	24.5	6.5	6.7	QCBU0608-M12, QCBU0608-M12SUS
QCWE1034-14	QCWE1034-14S	QCWE1034-14-SUS	6 to 14	M3x0.5, 4 deep	10	18	34	34	28	21.5	31	10	11.2	QCBU1012-M16, QCBU1012-M16SUS
QCWE1034-20	QCWE1034-20S	QCWE1034-20-SUS	12 to 20	M3x0.5, 4 deep	10	18	34	34	28	27.5	31	10	11.2	QCBU1012-M16, QCBU1012-M16SUS

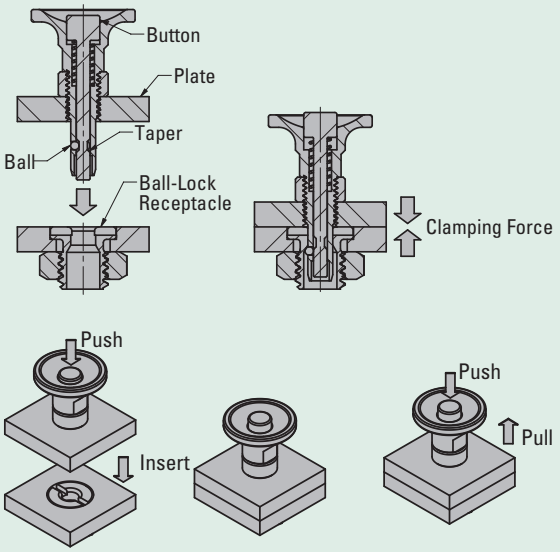
See page 561 for h9 tolerance specifications.

ONE-TOUCH FASTENERS

Recessed Ball Locking Pins | QCBU Series



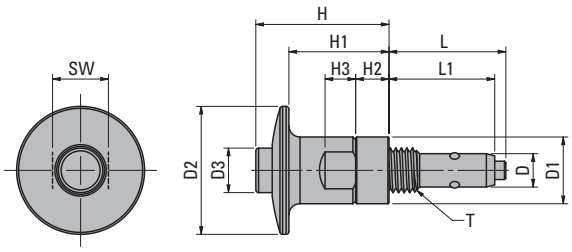
How To Use



These quick release fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They are designed to be used with the ball-locking receptacles referenced on the table. The pin can be threaded into the fixture and the receptacle is mounted to the base. As the pin is inserted into the receptacle, the balls on the pin expand and lock the fixture in place. The pin will not release until the button on the handle is depressed, allowing the balls to retract into the shank so that the pin can be inserted or removed from the receptacle without the use of tools. The end of the pin is tapered to make alignment of the pin easy. They can be used with locating pins to provide highly accurate positioning. The pin is made from SAE-1045 alloy steel with an electroless nickel plating finish. The balls are made from hardened stainless steel. The receptacles are designed to be threaded into a base with the stainless lock nut or in blind hole installation. They are made from SAE-1045 alloy steel with an electroless nickel plate finish. Lock nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Plate Thickness mm	T Thread	-.05/-.10 D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	H mm	H1 mm	H2 mm	H3 mm	SW mm	d mm	Clamping Force Lbs.	Use with Receptacle
QCBU0608-10	6 to 10	M8x1.25	6	12	25	8	21	19	22	18	6	5.5	10	–	6.7	QCBU0608-M12, QCBU0608-M12SUS
QCBU1012-16	6 to 16	M12x1.5 (fine thread)	10	16	35	11	23.5	21.5	34.5	29	12	7	13	3	11.2	QCBU1012-M16, QCBU1012-M16SUS

SS Ball Locking Pins | QCBU-SUS Series

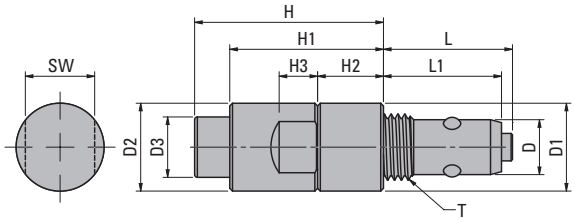


These quick release fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They are designed to be used with the ball-locking receptacles referenced on the table. The pin can be threaded into the fixture and the receptacle is mounted to the base. As the pin is inserted into the receptacle, the balls on the pin expand and lock the fixture in place. The pin will not release until the button on the handle is depressed, allowing the balls to retract into the shank so that the pin can be inserted or removed from the receptacle without the use of tools. The end of the pin is tapered to make alignment of the pin easy. They can be used with locating pins to provide highly accurate positioning. The pin is made from stainless steel with a natural finish. The balls are made from hardened stainless steel. The receptacles are designed to be threaded into a base with the stainless lock nut or in blind hole installation. They are made from stainless steel with a natural finish. Lock nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Plate Thickness mm	T Thread	-.05/-.10 D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	H mm	H1 mm	H2 mm	H3 mm	SW mm	Clamping Force Lbs.	Use with Receptacle
QCBU0608-10-SUS	6 to 10	M8x1.25	6	12	23	8	21	19	26	18	6	5.5	10	6.7	QCBU0608-M12, QCBU0608-M12SUS
QCBU1012-16-SUS	6 to 16	M12x1.5 (fine thread)	10	16	32	12	23.5	21.5	39.4	29	12	7	13	11.2	QCBU1012-M16, QCBU1012-M16SUS

Cylindrical Ball-Locking Pins | QCBU Series

ONE-TOUCH Fasteners

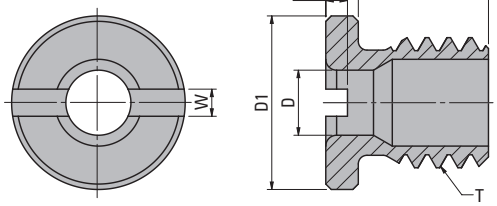


These quick release fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They are designed to be used with the ball-locking receptacles referenced on the table. The pin can be threaded into the fixture and the receptacle is mounted to the base. As the pin is inserted into the receptacle, the balls on the pin expand and lock the fixture in place. The pin will not release until the button on the handle is depressed, allowing the balls to retract into the shank so that the pin can be inserted or removed from the receptacle without the use of tools. The end of the pin is tapered to make alignment of the pin easy. They can be used with locating pins to provide highly accurate positioning. The pin is made from SAE-1045 alloy steel with an electroless nickel plating finish or from SCS24 Stainless steel with a natural finish. The balls are made from hardened stainless steel. The receptacles are designed to be threaded into a base with the stainless lock nut or in blind hole installation. Lock nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Steel Part #	SS Part #	Plate Thickness mm	T Thread	-.05/-.10 D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	H mm	H1 mm	H2 mm	H3 mm	SW mm	Clamping Force Lbs.	Use with Receptacle
QCBUS0608-10	QCBUS0608-10-SUS	6 to 10	M8x1.25	6	12	12	8	21	19	22	17.5	6	5.5	10	6.7	QCBU0608-M12, QCBU0608-M12SUS
QCBUS1012-16	QCBUS1012-16-SUS	6 to 16	M12x1.5 (fine thread)	10	16	16	11	23.5	21.5	34.4	28	12	7	13	11.2	QCBU1012-M16, QCBU1012-M16SUS

Ball-Locking Receptacles | QCBU Series

ONE-TOUCH Fasteners



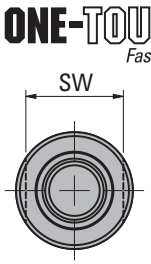
RECEPTACLE	USE WITH FASTENER					
	Cylindrical	Cylindrical SS	Ball-Locking	Knob Locking - Plastic Knob	Knob Locking - SS Knob	Knob Locking - SS
QCBU0608-M12, QCBU0608-M12SUS	QCBUS0608-10	QCBUS0608-10-SUS	QCBU0608-10-SUS	QCWE0625-10	QCWE0625-10S	QCWE0625-10-SUS
QCBU1012-M16, QCBU1012-M16SUS	QCBUS1012-16	QCBUS1012-16-SUS	QCBU1012-16-SUS	QCWE1034-14, QCWE1034-20	QCWE1034-14S, QCWE1034-20S	QCWE1034-14-SUS, QCWE1034-20-SUS

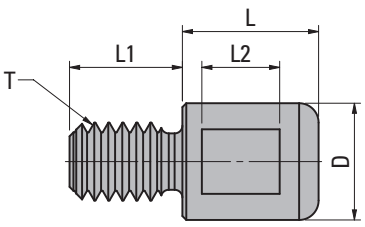
These quick release fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fastener. They are designed to be used with the fasteners referenced on the table. A pin can be threaded into the fixture and the receptacle is mounted to the base. As the pin is inserted into the receptacle, the balls on the pin expand and lock the fixture in place. The end of the pin is tapered to make alignment of the pin easy. They can be used with locating pins to provide highly accurate positioning. The receptacles are designed to be threaded into a base with the stainless lock nut or in blind hole installation. Made from SAE-1045 alloy steel with an electroless nickel plate finish or stainless steel with a natural finish. Lock nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Steel Part #	Stainless Part #	Plate Thickness mm	T Thread	+.4/+.2 D mm	h9 D1 mm	H mm	H1 mm	H2 mm	W mm	Use with Locknut
QCBU0608-M12	QCBU0608-M12SUS	Over 6	M12x1.5 (fine thread)	6	16	15	3	2	2.5	RBN-M12X150X006SS
QCBU1012-M16	QCBU1012-M16SUS	Over 6	M16x1.5 (fine thread)	10	20	17	3	2	2.5	RBN-M16X150X008SS

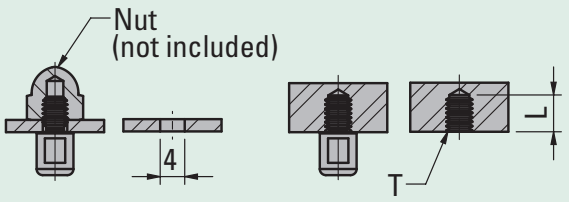
See page 561 for h9 tolerance specifications.

Magnet-Lock Clamping Pins | QCMA Series





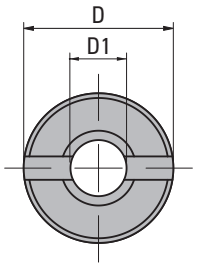
How To Use

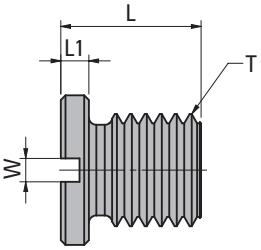


The magnetic locking pin is designed to be used with the magnet-lock receptacles below. It is designed for light duty holding in quick change applications where there is frequent insertion and removal of a fastener. As the pin is inserted into the receptacle, the magnet in the receptacle holds the pin in place. They can be used with locating pins to provide highly accurate positioning. The pin is threaded into the fixture. The pins are made from SAE-1045 alloy steel with an electroless nickel plate finish. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	T Thread	-.2/-.4 D mm	L mm	L1 mm	L2 mm	SW mm
QCMA0612-M4	M4x.7	6	7	5.8	4	5

Magnet-Lock Receptacles | QCMA Series





The magnetic receptacle is to be used with the magnet-lock clamping pin above. It is designed for light duty holding in quick change applications where there is frequent insertion and removal of a fixture. As the pin is inserted into the receptacle, the magnet in the receptacle holds the pin in place. They can be fastened into a base with the stainless lock nut or used in blind hole installation. They can be used with locating pins to provide highly accurate positioning. The receptacle is made from SAE-1045 alloy steel with a neodymium magnet and has an electroless nickel plate finish. The nut must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	T Thread	h9 D mm	+.10/+.05 D1 mm	L mm	L1 mm	W mm	Clamping Force Lbs.	Use with Nut
QCMA0612A	M12x1.5 (fine thread)	16	6	15	3	2.5	1.6	RBN-M12X150X006SS

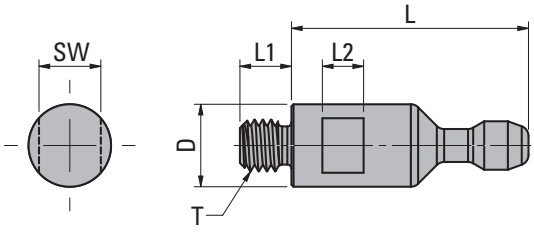
See page 561 for h9 tolerance specifications.

IMAO

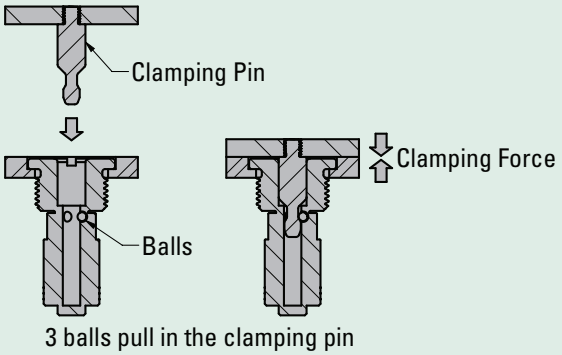
ONE-TOUCH FASTENERS

Ball Lock Clamping Pins | QCBA Series

ONE-TOUCH Fasteners



How To Use

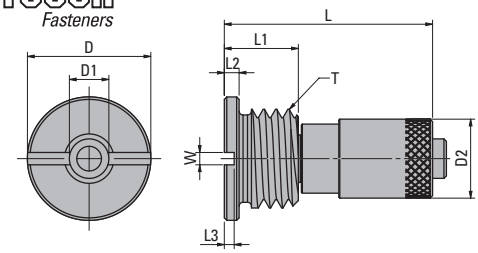


These ball lock clamping pins are designed to be used in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. These clamping pins are used with the receptacles (standard or safety lock style) referenced on the table. The standard style allows the pin to be inserted or removed in one operation, and the safety lock style allows the balls to be locked in place preventing accidental release. As the pin is inserted into the receptacles, the three balls secure the clamping pin in place. They can be used with locating pins to provide highly accurate positioning. The ball lock clamping pins are made from hardened SAE-1045 alloy steel with an electroless nickel plating finish. Stainless steel nuts for fastening the receptacles must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

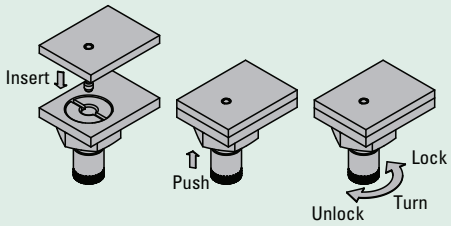
Part #	T Thread	-0.2/-0.4 D mm	L mm	L1 mm	L2 mm	SW mm	Use With Locking Receptacle	Use With Standard Receptacle
QCBA0816-M5	M5x.8	8	23	5	4	6	QCBAS0820A, QCBAS0820B	QCBA0816A, QCBA0816B

Ball Lock Clamping Receptacles | with Safety Lock | QCBAS Series

ONE-TOUCH Fasteners



How To Use



These ball lock clamping receptacles are designed to be used in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. These receptacles are used with the clamping pin QCBA0816-M. As the pin is inserted into the receptacle, the three balls secure the clamping pin in place. The safety lock style allows the balls to be locked in place preventing accidental release. To operate the safety lock feature, the user pushes up on the locking knob and turns it one quarter turn. They can be used with locating pins to provide highly accurate positioning. The bodies are SAE-1045 alloy steel with an electroless nickel plating finish. Stainless steel nuts for fastening the receptacles must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

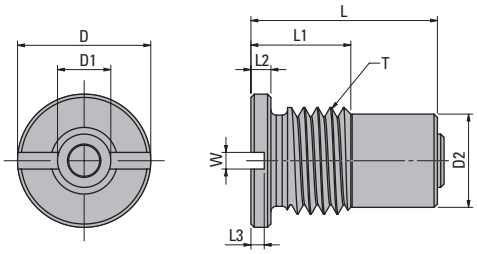
Part #	T Thread	h9 D mm	+0.10/+0.05 D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	W mm	Clamping Force Lbs. *	Use with Nut
QCBAS0820A	M20x1.5 (fine thread)	25	8	16	45	15	3	2	2.5	1.6	RBN-M20X150X006SS
QCBAS0820B	M20x1.5 (fine thread)	25	8	16	45	15	3	2	2.5	3.4	RBN-M20X150X006SS

See page 561 for h9 tolerance specifications.

* With safety lock active.

Ball Lock Clamping Receptacles | Standard | QCBA Series

ONE-TOUCH Fasteners

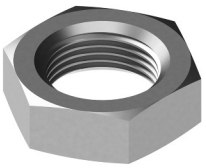


Used in quick change applications where there is frequent insertion and removal of a fastener. They allow for consistent fastening force, eliminating the chance for under or over tightening by the operator. These receptacles are used with clamping pin QCBA0816-M. As the pin is inserted into the receptacle, the three balls secure the clamping pin in place. The standard style allows the pin to be inserted or removed in one operation. They can be used with locating pins to provide highly accurate positioning. The bodies are SAE-1045 alloy steel with an electroless nickel plating finish. Stainless steel nuts for fastening the receptacles must be ordered separately. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

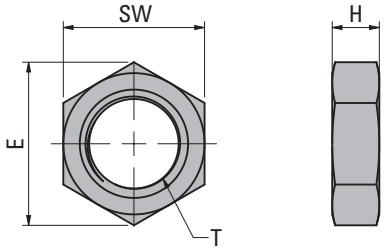
Part #	T Thread	h9 D mm	+.10/+.05 D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	W mm	Clamping Force Lbs.	Use with Nut
QCBA0816A	M16x1.5 (fine thread)	20	8	14	29	15	3	2	2.5	1.6	RBN-M16X150X008SS
QCBA0816B	M16x1.5 (fine thread)	20	8	14	29	15	3	2	2.5	3.4	RBN-M16X150X008SS

See page 561 for h9 tolerance specifications.

Lock Nuts | RBN Series



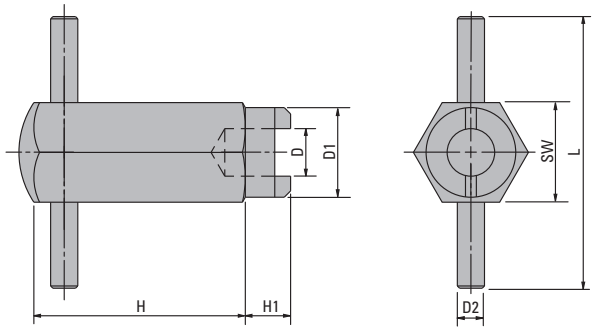
ONE-TOUCH Fasteners



Lock nuts with fine threads. Made from steel.

Part #	T mm	H mm	SW mm	E mm	Use With
RBN-M12X150X006SS	M12 (fine thread)	6	19	21.93	QCMA0612A, QCBU0608-M12, QCBU0608-M12SUS
RBN-M16X150X008SS	M16 (fine thread)	8	24	27.71	QCBU0608-M16, QCBU0608-M16SUS
RBN-M20X150X010SS	M20 (fine thread)	10	30	34.64	QCBAS0820A, QCBAS0820B

Installation Tool for Slotted Receptacles



For use with receptacles with a 2.5 mm wrench slot. Made from S45C steel with a black oxide finish.

Part #	D mm	D1 mm	D2 mm	L mm	H mm	H1 mm	SW mm	Use with Receptacle Series
PW16	5.6	15	4.8	47.6	44.7	9.5	19.1	QCBU-M, QCBA, QCBAS, QCMA

IMAO

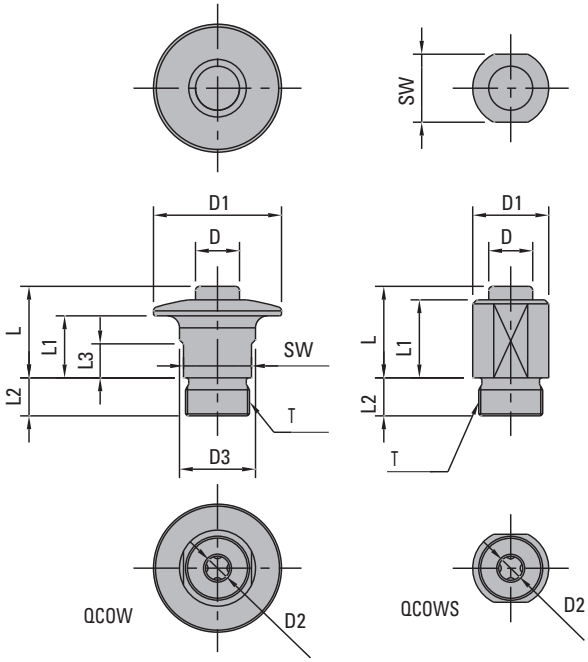
ONE-TOUCH FASTENERS

Snap-In | QCOW Series

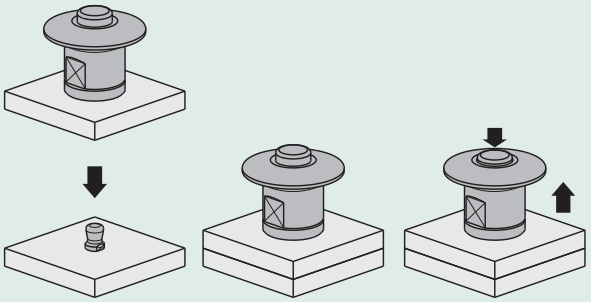
ONE-TOUCH Fasteners

QCOW

QCOWS



How To Use

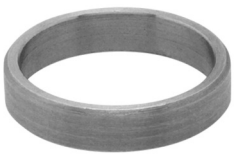


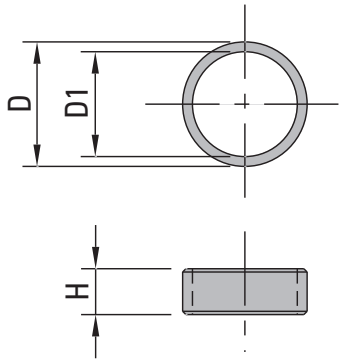
1. Press the fastener onto the pin.
2. The plates are locked together.
3. Press the button to unclamp the plates.

These snap-in clamp fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fixture. They allow for consistent fastening force eliminating the chance for under or over tightening by the operator. They are designed to be used with the clamping pins shown on page 372. The fastener is mounted to the fixture and the pin is mounted to the base. Simply press the fastener on to the pin to lock in place with four balls. Pressing the button releases the balls and allows the fastener to be removed. Two different head styles are available to meet a wide range of application needs. The body and button are made from SUS303 stainless steel. The balls are made from SUS440C stainless steel. The spring is made from SUS304WPD. The O-ring is made from fluororubber. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Plate Thickness mm	T mm	D mm	D1 mm	+0.4 +0.2 D2 mm	D3 mm	L mm	L1 mm	L2 mm	L3 mm	SW mm	Clamping Force Lbs.	Use with Pin
QCOW 0616-10SUS	3 to 10	M16X1	11	32	6	19	23	15.5	9.5	8.5	17	1.3	QCPC0625-M4-SUS
QCOWS0616-10SUS	3 to 27	M16X1	11	19	6	-	23	19.5	9.5	-	17	1.3	QCPC0834-M5-SUS

Snap-In Spacers | QCOW Series





These spacers are for use with Snap-In Clamps QCOW0616-10SUS and QCOWS0616-10SUS shown above. Designed to adjust the height of the fasteners to meet application needs. Made from SUS303 stainless steel. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	Plate Thickness mm	D mm	+0.4 +0.2 D1 mm	+/-0.05 H mm
QCOW0616-04-SUS	6	19	16	4
QCOW0616-05-SUS	5	19	16	5
QCOW0616-06-SUS	4	19	16	6
QCOW0616-07-SUS	3	19	16	7

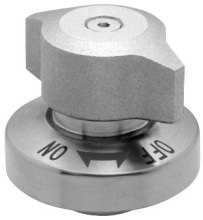
IMAO

ONE-TOUCH FASTENERS

Quarter Turn | Pin Holding | QCPC Series

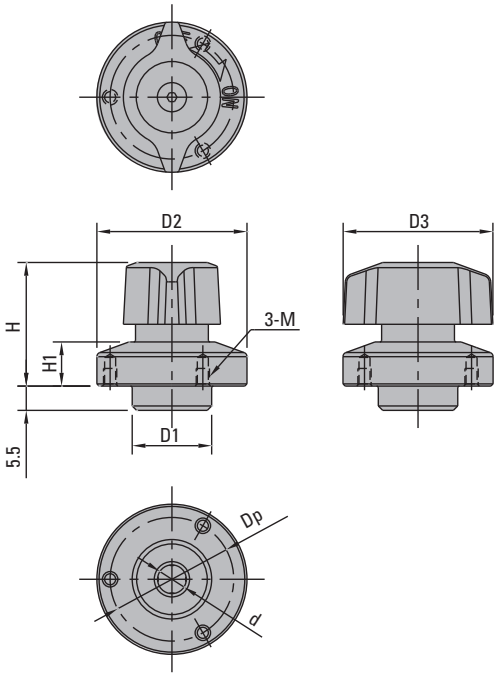
ONE-TOUCH Fasteners

QCPC

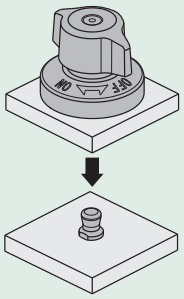


QCPC-S

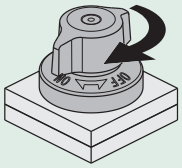
QCPC-SUS



How To Use



1. Rotate knob to the OFF position while locating.



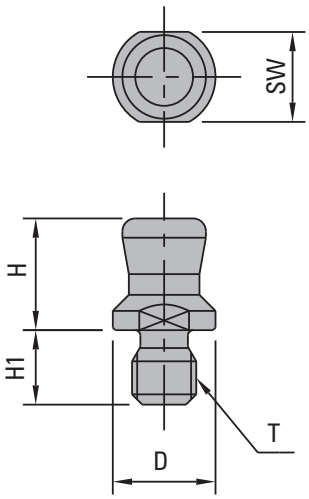
2. Rotate knob to the ON position to lock the fastener.

These quarter turn fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fixture. They allow for consistent fastening force eliminating the chance for under or over tightening by the operator. They are designed to be used with the clamping pins below. The fastener is mounted to the fixture and the pin is mounted to the base. After placing the fastener on the pin, turning the knob one quarter turn locks the fastener into place with four balls. The fasteners are marked with "ON" and "OFF" indicators to show the position of the fastening pins. They can be used with locating pins to provide highly accurate positioning. The body is made from nickel-plated S45C steel or SUS303 stainless steel. The knob is made from black plastic or SCS13 stainless steel. The balls are made from SUS440C. The spring is made from SUS304WPB stainless steel. Three socket head cap screws for mounting are included. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Plastic Knob Part #	Nickel Plated Steel Part #	SS Part #	Plate Thickness mm	+.4 +.2 d mm	(h9) D1 mm	D2 mm	D3 mm	Dp mm	H mm	H1 mm	M mm	Clamping Force Lbs.	Use with Pin
QCPC0625-10	QCPC0625-10S	QCPC0625-10-SUS	6 to 10	6	14	25	25	21	23	6.5	M2X0.4	1.6	QCPC0625-M4-SUS
QCPC0834-14	QCPC0834-14S	QCPC0834-14-SUS	6 to 14	8	18	34	34	28	28	10	M3X0.5	2.0	QCPC0834-M5-SUS

See page 561 for h9 tolerance specifications.

Pin Style Receptacles | QCPC Series



These clamping pins are used with pin holding fasteners (QCPC series) or snap-in fasteners (QCOW series). Quickly mounts in a single tapped hole. Made from SUS630 stainless steel. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

Part #	-0.05 -0.10 D mm	T mm	H mm	H1 mm	SW mm	Use with Pin Holding Fastener	Use with Snap-In Clamp
QCPC0625-M4-SUS	6	M4X0.7	7.6	5.8	5	QCPC0625-10, QCPC0625-10S, QCPC0625-10-SUS	QCOW0616-10SUS, QCOWS0616-10SUS
QCPC0834-M5-SUS	8	M5X0.8	8.7	5.8	7	QCPC0834-14, QCPC0834-14S, QCPC0834-14-SUS	–

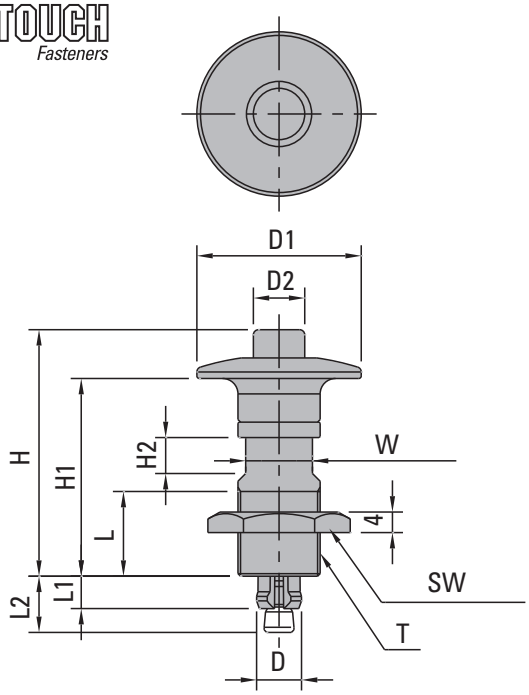
ONE-TOUCH FASTENERS

Expanding Pin | QCHC Series

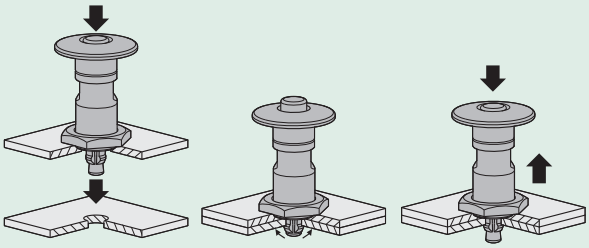
QCHC-03

QCHC-06

ONE-TOUCH Fasteners



How To Use



1. Press the button and insert the shank through the hole.
2. Release the button to fasten the plates together.
3. Press the button to unlock.

These expanding pin fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fixture. They allow for consistent fastening force eliminating the chance for under or over tightening by the operator. These fasteners only require a tapped hole in the plate or panel to be mounted and a through hole in the base plate. They are designed to be used without receptacles. Pressing the button allows the pin to be inserted into the hole. Releasing the button expands the shaft to hold the fastener firmly in place. The body and nut are made from SUS303 stainless steel. The spacer is made from SUS303 stainless steel. The spring and snap ring are made from SUS304WPB stainless steel. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

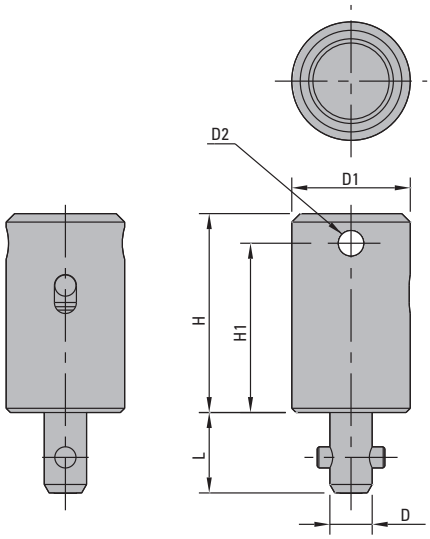
Part #	Base Thickness mm	Plate Thickness mm	T mm	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	W mm	H mm	H1 mm	H2 mm	SW mm	Clamping Force Lbs.
QCHC0612-03-SUS	3	3 to 8	M12X1	6.5	23	8	12.5	6.5	10.5	10	37	29	5.5	19	.67
QCHC0612-06-SUS	6	3 to 8	M12X1	6.5	23	8	12.5	9.5	13.5	10	34	26	5.5	19	.67
QCHC0816-03-SUS	3	3 to 12	M16X1	8.5	32	10	16.5	6.5	11	13	48	38.5	7	24	1.35
QCHC0816-06-SUS	6	3 to 12	M16X1	8.5	32	10	16.5	9.5	14	13	45	35.5	7	24	1.35

IMAO

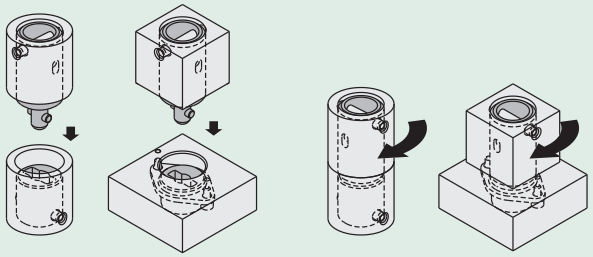
ONE-TOUCH FASTENERS

Shaft Mount | QCSJ Series

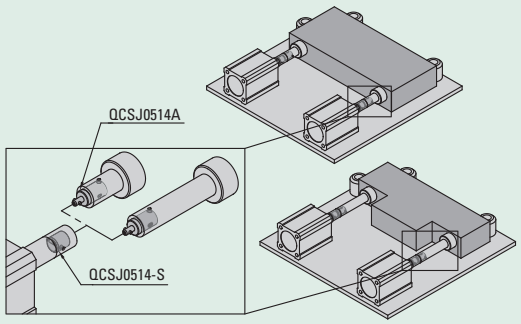
ONE-TOUCH Fasteners



How To Use



Application



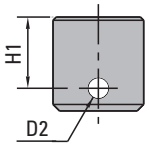
These shaft-mount fasteners provide positive locking in quick change applications where there is frequent insertion and removal of a fixture. They allow for consistent fastening force eliminating the chance for under or over tightening by the operator. They are designed to be used with the cam receptacles shown below. The fastener is designed to be mounted to a shaft for extended reach and the receptacle is mounted to the base. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. As the fastener is inserted into the receptacle, the pins on the fastener align with the grooves in the receptacle. Rotating the fastener one quarter turn aligns and locks the fastener into place. The body is made from S45C with an electroless nickel plated finish. The pin is made from SUS304 stainless steel. The spring is made from SUS304-CSP stainless steel. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

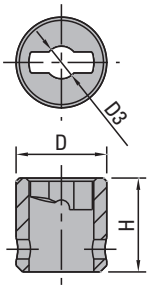
Part #	-.04 -.08 D mm	D1 mm	D2 mm	L mm	H mm	H1 mm	Clamping Force Lbs.	Use with Receptacle
QCSJ0514A	5	14	3	9.5	23.5	20	13.5	QCSJ0514-S, QCSJ0514-B

Shaft Mount Receptacles | QCSJ Series

ONE-TOUCH Fasteners

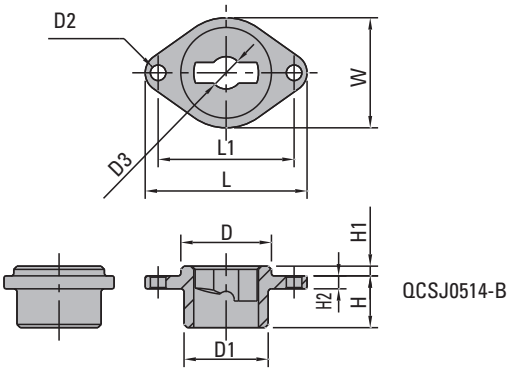
QCSJ-S





QCSJ0514-S

QCSJ-B



QCSJ0514-B

These receptacles are used with the quarter turn shaft mount fasteners shown on page above. Available in plate mount and shaft mount configurations. Made from SCM440 steel with an electroless plated finish. For complete installation instructions and dimensions, search for the part number at www.fixtureworks.net.

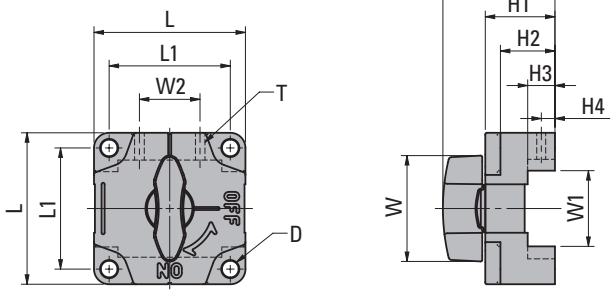
Part #	h9 D mm	D1 mm	D2 mm	+0.08 +0.04 D3 mm	L mm	L1 mm	H mm	H1 mm	H2 mm	W mm	Use with Shaft Coupling Clamp
QCSJ0514-S	14	–	3	5	–	–	14.5	11	–	–	QCSJ0514A
QCSJ0514-B	14	13	2.4	5	25	21	8	1.5	2	17	QCSJ0514A

IMAO

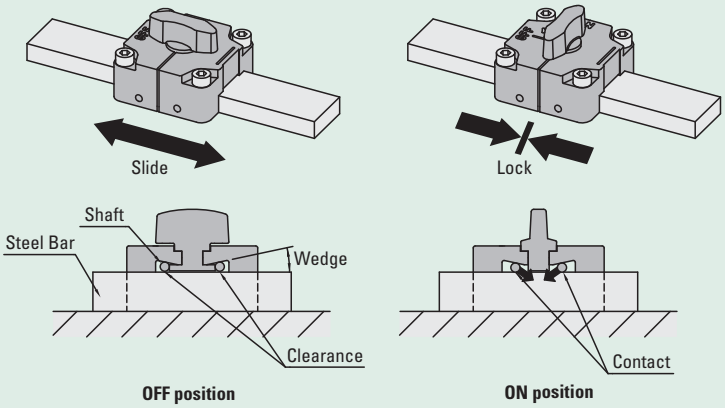
SLIDING FASTENERS

Square Bar | QCSQ Series

ONE-TOUCH Fasteners



How To Use



OFF position

Slide the steel bar right or left when the knob is at OFF position.

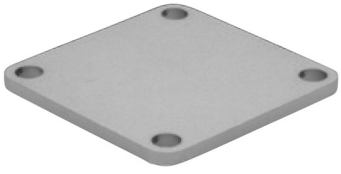
ON position

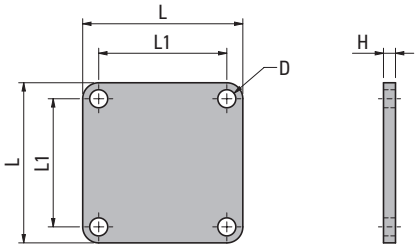
The steel bar is locked when the knob is at ON position.

The sliding lock is mounted to a plate or table surface. A steel bar travels through the lock and can be locked in place with a quarter turn of the knob. The steel bar is locked in place when the knob is in the ON position; the steel bar can slide freely when the knob is in the OFF position. The locking mechanism consists of a wedge that forces a shaft against the surface of the steel bar. The body is made from die-cast zinc with a plated chrome finish. The plastic knobs are made from either orange or black glass-fiber reinforced polyamide. The metal knobs are made from SCS13 stainless steel. The shaft/wedge is made from stainless steel, and the flat spring is made from C519P phosphor bronze. For the steel bar, use JIS H14 grade steel made from SS400, S45C, SUS304, etc. The bar should be at least 30 mm wide. For complete technical information, search for the part number at www.fixtureworks.net.

Black Part #	Orange Part #	Metal Knob Part #	D mm	T mm	L mm	L1 mm	W mm	W1 +0.05/-0.0 mm	W2 mm	H mm	H1 mm	H2 mm	H3 +0.2/-0.0 mm	H4 mm	Max Rated Load Lbs.
QCSQ1212-BK	QCSQ1212-OG	QCSQ1212-S	4.5	M3X0.5X6	40	32	28	12	20	36	22	18.5	12	6	112
QCSQ1616-BK	QCSQ1616-OG	QCSQ1616-S	4.5	M3X0.5X7	40	32	28	16	20	40	26	22.5	16	8	112
QCSQ2509-BK	QCSQ2509-OG	QCSQ2509-S	5.5	M3X0.5X8	50	40	35	25	20	37	23	18.5	9	4.5	179
QCSQ2512-BK	QCSQ2512-OG	QCSQ2512-S	5.5	M3X0.5X9	50	40	35	25	20	40	26	21.5	12	6	179
QCSQ3212-BK	QCSQ3212-OG	QCSQ3212-S	5.5	M3X0.5X10	50	40	35	32	20	40	26	21.5	12	6	179
QCSQ3216-BK	QCSQ3216-OG	QCSQ3216-S	5.5	M3X0.5X11	50	40	35	32	20	44	30	25.5	16	8	179

Riser Plates For Sliding Fastener - Square Bar





These riser plates are used with square bar locks (QCSQ series) to provide 3 mm clearance under the steel bar. The riser plate is made from SUS304 stainless steel.

Part #	D mm	L mm	L1 mm	H mm	Use With Fastener
QCSQSP4003	4.5	40	32	3	QCSQ1212, QCSQ1616
QCSQSP5003	5.5	50	40	3	QCSQ2509, QCSQ2512, QCSQ3212, QCSQ3216

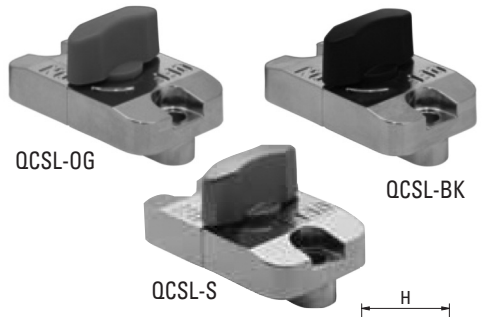
See page 561 for h9 tolerance specifications.

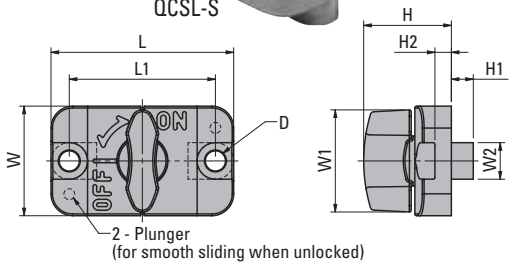
IMAO

SLIDING FASTENERS

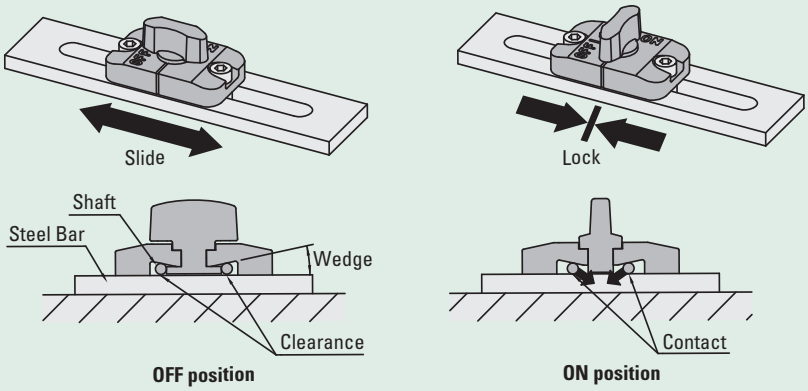
Slotted Hole | QCSL Series

ONE-TOUCH Fasteners





How To Use



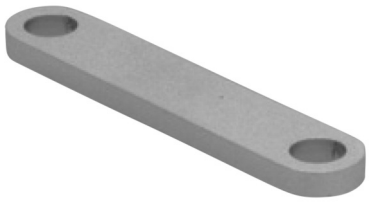
Slide the steel bar right or left when the knob is at OFF position.

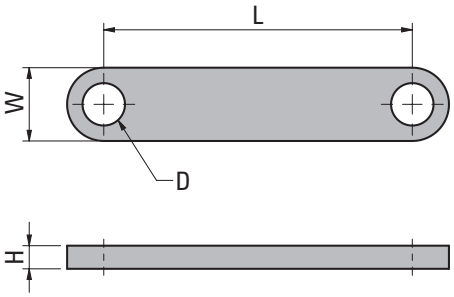
The steel bar is locked when the knob is at ON position.

The sliding lock travels in a slotted hole and locks in place with a quarter turn of the knob. If the lock is mounted to a plate or table surface, the user can lock a slotted metal bar or plate at varying distances. Alternately, the lock can be attached to a plate or another object below a slotted bar to be locked into position anywhere along the slot travel. The knob is locked in the ON position and unlocked in the OFF position. The locking mechanism consists of a wedge that forces a shaft against the plate surface. The rated load is up to 112 lbs. The body is made from die-cast zinc with a plated chrome finish. The plastic knobs are made from either orange or black glass-fiber reinforced polyamide. The metal knobs are made from SCS13 stainless steel. The shaft/wedge is made from stainless steel, and the plunger is made from polyacetal. For the slotted steel bar, use JIS H14 grade flat bar made from SS400, S45C, SUS304, etc. The bar should be at least 30 mm wide. The slot width is 10 (+0.2/0) mm with a chamfer of about C0.3. The thickness of the bar is indicated on the grid. For complete technical information, search for the part number at www.fixtureworks.net.

Black Part #	Orange Part #	Metal Knob Part #	D mm	L mm	L1 mm	W mm	W1 mm	W2 mm (+0.0/-0.05)	H mm	H1 mm	H2 mm	Slot Width mm
QCSL1003-BK	QCSL1003-OG	QCSL1003-S	5.5	50	40	30	28	10	24	3	4.5	10 (+0.2/0)
QCSL1006-BK	QCSL1006-OG	QCSL1006-S	5.5	50	40	30	28	10	24	6	4.5	10 (+0.2/0)

Riser Plates For Sliding Fastener – Slotted Hole





These riser plates are used with slotted hole sliding locks (QCSL series) to accommodate slotted steel bars or plates of greater thickness. The riser plate is made from SUS304 stainless steel.

Part #	D mm	L mm	W mm	H mm (±0.1)	Use With Fastener
QCSLSP1002	5.5	40	9.5	2	QCSL1003, QCSL1006
QCSLSP1003	5.5	40	9.5	3	QCSL1006

SPRING & BALL PLUNGERS

PIN STYLE

BALL STYLE

SLOTTED END

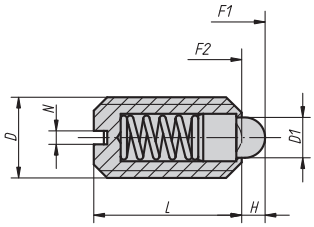
HEX END

NON-THREADED

DOUBLE ENDED

SPRING PLUNGERS

Pin Type | Slotted End | Steel and Stainless Steel | Inch and Metric



Pin type plunger with slotted end. The steel version has a steel sleeve, pin plunger and spring. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, pin plunger and spring. The stainless sleeves have a natural finish and the pin plunger is hardened.

Light End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03020-1AG	03025-1AG	8-36	.071 (1.8mm)	.35	.06	.02	.45	1.57
03020-1AE	03025-1AE	8-32	.071 (1.8mm)	.35	.06	.02	.67	2.25
03020-1A1	03025-1A1	10-32	.094 (2.4mm)	.47	.08	.03	.67	2.25
03020-1AJ	03025-1AJ	1/4-28	.106 (2.7mm)	.55	.08	.04	.67	2.02
03020-1A2	03025-1A2	1/4-20	.106 (2.7mm)	.55	.08	.04	.90	2.25
03020-1A3	03025-1A3	5/16-18	.157 (4.0mm)	.63	.08	.05	1.57	3.37
03020-1A4	03025-1A4	3/8-16	.177 (4.5mm)	.75	.10	.06	2.02	3.60
03020-1A5	03025-1A5	1/2-13	.236 (6.0mm)	.87	.14	.08	3.15	5.84
03020-1A6	03025-1A6	5/8-11	.335 (8.5mm)	.94	.18	.10	4.95	11.24

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03020-104	03025-104	M4	1.8	9	1.5	0.6	.67	2.25
03020-105	03025-105	M5	2.4	12	2	0.8	.67	2.25
03020-106	03025-106	M6	2.7	14	2	1	.90	2.25
03020-108	03025-108	M8	4	16	2	1.2	1.57	3.37
03020-110	03025-110	M10	4.5	19	2.5	1.6	2.02	3.60
03020-112	03025-112	M12	6	22	3.5	2	3.15	5.84
03020-116	03025-116	M16	8.5	24	4.5	2.5	4.95	11.24
03020-120	03025-120	M20	10	30	6.5	2.5	6.74	13.49

Standard End Force

INCH

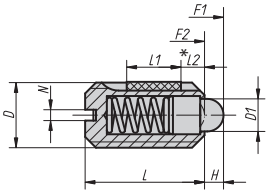
Part # Steel	Part # Stainless	D	D1	L	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03020-AG	03025-AG	8-36	.071 (1.8mm)	.35	.06	.02	1.35	4.50
03020-AE	03025-AE	8-32	.071 (1.8mm)	.35	.06	.02	1.35	4.50
03020-A1	03025-A1	10-32	.094 (2.4mm)	.47	.08	.03	1.35	4.50
03020-AJ	03025-AJ	1/4-28	.106 (2.7mm)	.55	.08	.04	1.57	4.50
03020-A2	03025-A2	1/4-20	.106 (2.7mm)	.55	.08	.04	1.57	4.50
03020-A3	03025-A3	5/16-18	.157 (4.0mm)	.63	.08	.05	3.37	6.74
03020-A4	03025-A4	3/8-16	.177 (4.5mm)	.75	.10	.06	4.50	7.87
03020-A5	03025-A5	1/2-13	.236 (6.0mm)	.87	.14	.08	6.74	12.36
03020-A6	03025-A6	5/8-11	.335 (8.5mm)	.94	.18	.10	10.12	22.48

METRIC

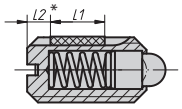
Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03020-04	03025-04	M4	1.8	9	1.5	0.6	1.35	4.50
03020-05	03025-05	M5	2.4	12	2	0.8	1.35	4.50
03020-06	03025-06	M6	2.7	14	2	1	1.57	4.50
03020-08	03025-08	M8	4	16	2	1.2	3.37	6.74
03020-10	03025-10	M10	4.5	19	2.5	1.6	4.50	7.87
03020-12	03025-12	M12	6	22	3.5	2	6.74	12.36
03020-16	03025-16	M16	8.5	24	4.5	2.5	10.12	22.48
03020-20	03025-20	M20	10	30	6.5	2.5	13.49	26.98

SPRING PLUNGERS

Pin Type with Nylon Locking | Slotted End | Steel and Stainless Steel | Inch and Metric



*L2 = Approx. two thread turns.



Applies to plungers where D = M4, M5 & M6, 8-36, 8-32, 10-32, 1/4-28 & 1/4-20

Pin type plunger with slotted end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve, spring and pin plunger. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, spring and pin plunger. The stainless sleeves have a natural finish and the pin plunger is hardened.

Light End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03021-1AG	03026-1AG	8-36	.071 (1.8mm)	.35	.20	.06	.02	.45	1.57
03021-1AE	03026-1AE	8-32	.071 (1.8mm)	.35	.20	.06	.02	.67	2.25
03021-1A1	03026-1A1	10-32	.094 (2.4mm)	.47	.24	.08	.03	.67	2.25
03021-1AJ	03026-1AJ	1/4-28	.106 (2.7mm)	.55	.28	.08	.04	.67	2.02
03021-1A2	03026-1A2	1/4-20	.106 (2.7mm)	.55	.28	.08	.04	.90	2.25
03021-1A3	03026-1A3	5/16-18	.157 (4.0mm)	.63	.31	.08	.05	1.57	3.37
03021-1A4	03026-1A4	3/8-16	.177 (4.5mm)	.75	.35	.10	.06	2.02	3.60
03021-1A5	03026-1A5	1/2-13	.236 (6.0mm)	.87	.39	.14	.08	3.15	5.84
03021-1A6	03026-1A6	5/8-11	.335 (8.5mm)	.94	.55	.18	.10	4.95	11.24

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03021-104	03026-104	M4	1.8	9	5	1.5	0.6	.67	2.25
03021-105	03026-105	M5	2.4	12	6	2	0.8	.67	2.25
03021-106	03026-106	M6	2.7	14	7	2	1	.90	2.25
03021-108	03026-108	M8	4	16	8	2	1.2	1.57	3.37
03021-110	03026-110	M10	4.5	19	9	2.5	1.6	2.02	3.60
03021-112	03026-112	M12	6	22	10	3.5	2	3.15	5.84
03021-116	03026-116	M16	8.5	24	14	4.5	2.5	4.95	11.24

Standard End Force

INCH

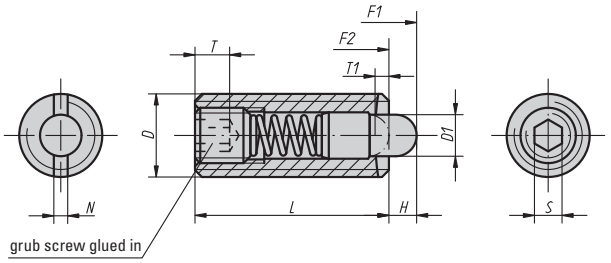
Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03021-AG	03026-AG	8-36	.071 (1.8mm)	.35	.20	.06	.02	1.35	4.50
03021-AE	03026-AE	8-32	.071 (1.8mm)	.35	.20	.06	.02	1.35	4.50
03021-A1	03026-A1	10-32	.094 (2.4mm)	.47	.24	.08	.03	1.35	4.50
03021-AJ	03026-AJ	1/4-28	.106 (2.7mm)	.55	.28	.08	.04	1.57	4.50
03021-A2	03026-A2	1/4-20	.106 (2.7mm)	.55	.28	.08	.04	1.57	4.50
03021-A3	03026-A3	5/16-18	.157 (4.0mm)	.63	.31	.08	.05	3.37	6.74
03021-A4	03026-A4	3/8-16	.177 (4.5mm)	.75	.35	.10	.06	4.50	7.87
03021-A5	03026-A5	1/2-13	.236 (6.0mm)	.87	.39	.14	.08	6.74	12.36
03021-A6	03026-A6	5/8-11	.335 (8.5mm)	.94	.55	.18	.10	10.12	22.48

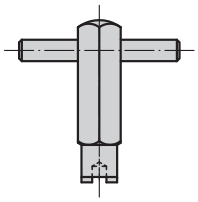
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03021-04	03026-04	M4	1.8	9	5	1.5	0.6	1.35	4.50
03021-05	03026-05	M5	2.4	12	6	2	0.8	1.35	4.50
03021-06	03026-06	M6	2.7	14	7	2	1	1.57	4.50
03021-08	03026-08	M8	4	16	8	2	1.2	3.37	6.74
03021-10	03026-10	M10	4.5	19	9	2.5	1.6	4.50	7.87
03021-12	03026-12	M12	6	22	10	3.5	2	6.74	12.36
03021-16	03026-16	M16	8.5	24	14	4.5	2.5	10.12	22.48

SPRING PLUNGERS

Pin Type | Hex End | Top Slots | Steel and Stainless Steel | Inch





Assembly Tool

Pin type plunger with hex end. The steel version has a steel sleeve, pin plunger and spring. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, pin plunger and spring. The stainless sleeves have a natural finish and the pin plunger is hardened. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

Part # Steel	D	D1	L	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03040-1AG	8-36	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	.45	1.57	03040-904
03040-1AE	8-32	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	.45	1.57	03040-904
03040-1A1	10-32	.094 (2.4mm)	.71	.09	.08	.03	.03	1/16	.67	2.25	03040-905
03040-1AJ	1/4-28	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03040-1A2	1/4-20	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03040-1A3	5/16-18	.138 (3.5mm)	.87	.12	.12	.06	.05	3/32	.90	3.60	03040-908
03040-1A4	3/8-16	.157 (4.0mm)	.87	.12	.14	.06	.06	1/8	.90	3.60	03040-910
03040-1A5	1/2-13	.236 (6.0mm)	1.10	.16	.20	.08	.08	5/32	1.12	6.07	03040-912
03040-1A6	5/8-11	.295 (7.5mm)	1.26	.20	.24	.10	.10	3/16	4.50	10.12	03040-916

Standard End Force

Part # Steel	Part # Stainless	D	D1	L	H	T	T1	N	S	SPRING FORCE F1* Initial Lbs.	SPRING FORCE F2* Final Lbs.	Assembly Tool
03040-AD	—	6-32	.039 (1.0mm)	.39	.06	.06	.04	.02	.035	.67	.67	03040-903
03040-AG	03055-AG	8-36	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	1.12	3.60	03040-904
03040-AE	03055-AE	8-32	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	1.12	3.60	03040-904
03040-A1	03055-A1	10-32	.094 (2.4mm)	.71	.09	.08	.03	.03	1/16	1.35	4.50	03040-905
03040-AJ	03055-AJ	1/4-28	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03040-A2	03055-A2	1/4-20	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03040-A3	03055-A3	5/16-18	.138 (3.5mm)	.87	.12	.12	.06	.05	3/32	2.02	7.87	03040-908
03040-A4	03055-A4	3/8-16	.157 (4.0mm)	.87	.12	.14	.06	.06	1/8	2.02	7.87	03040-910
03040-A5	03055-A5	1/2-13	.236 (6.0mm)	1.10	.16	.20	.08	.08	5/32	2.25	12.36	03040-912
03040-A6	03055-A6	5/8-11	.295 (7.5mm)	1.26	.20	.24	.10	.10	3/16	10.12	22.48	03040-916

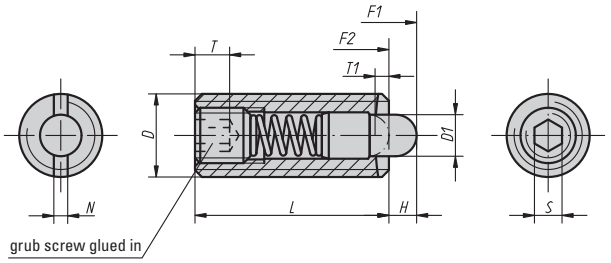
* Spring Forces may be slightly lower for the stainless steel versions.

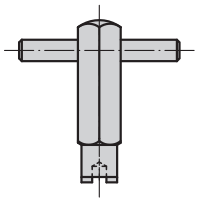
Heavy End Force

Part # Steel	D	D1	L	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03040-2A1	10-32	.094 (2.4mm)	.71	.09	.08	.03	.03	1/16	2.47	6.52	03040-905
03040-2AJ	1/4-28	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	3.15	8.32	03040-906
03040-2A2	1/4-20	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	3.15	8.32	03040-906
03040-2A3	5/16-18	.138 (3.5mm)	.87	.12	.12	.06	.05	3/32	4.95	14.61	03040-908
03040-2A4	3/8-16	.157 (4.0mm)	.87	.12	.14	.06	.06	1/8	4.27	15.74	03040-910
03040-2A5	1/2-13	.236 (6.0mm)	1.10	.16	.20	.08	.08	5/32	5.62	19.11	03040-912
03040-2A6	5/8-11	.295 (7.5mm)	1.26	.20	.24	.10	.10	3/16	13.49	33.72	03040-916

SPRING PLUNGERS

Pin Type | Hex End | Top Slots | Steel and Stainless Steel | Metric





Assembly Tool

Pin type plunger with hex end. The steel version has a steel sleeve, pin plunger and spring. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, pin plunger and spring. The stainless sleeves have a natural finish and the pin plunger is hardened. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

Part # Steel	D mm	D1 mm	L mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03040-104	M4	1.5	15	1.5	2	0.6	0.6	1.3	.45	1.57	03040-904
03040-105	M5	2.4	18	2.3	2	0.8	0.8	1.5	.67	2.25	03040-905
03040-106	M6	2.7	20	2.5	2.5	1	1	2	.67	2.02	03040-906
03040-108	M8	3.5	22	3	3	1.4	1.2	2.5	.90	3.60	03040-908
03040-110	M10	4	22	3	3.5	1.4	1.6	3	.90	3.60	03040-910
03040-112	M12	6	28	4	5	2	2	4	1.12	6.07	03040-912
03040-116	M16	7.5	32	5	6	2.5	2.5	5	4.50	10.12	03040-916

Standard End Force

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1* Initial Lbs.	SPRING FORCE F2* Final Lbs.	Assembly Tool
03040-03	–	M3	1	10	1.5	1.5	1	0.4	0.7	.11	.67	03040-903
03040-04	03055-04	M4	1.5	15	1.5	2	0.6	0.6	1.3	1.12	3.60	03040-904
03040-05	03055-05	M5	2.4	18	2.3	2	0.8	0.8	1.5	1.35	4.50	03040-905
03040-06	03055-06	M6	2.7	20	2.5	2.5	1	1	2	1.57	4.50	03040-906
03040-08	03055-08	M8	3.5	22	3	3	1.4	1.2	2.5	2.02	7.87	03040-908
03040-10	03055-10	M10	4	22	3	3.5	1.4	1.6	3	2.02	7.87	03040-910
03040-12	03055-12	M12	6	28	4	5	2	2	4	2.25	12.36	03040-912
03040-16	03055-16	M16	7.5	32	5	6	2.5	2.5	5	10.12	22.48	03040-916
03040-20	–	M20	10	40	7	8	3	2.5	6	13.49	26.98	–
03040-24	–	M24	12	52	10	10	3	2.5	8	17.98	35.97	–

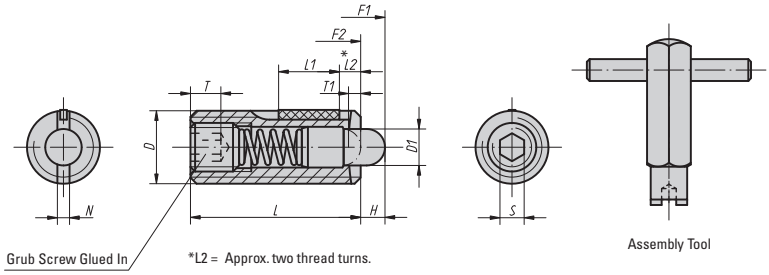
* Spring Forces may be slightly lower for the stainless steel versions.

Heavy End Force

Part # Steel	D mm	D1 mm	L mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03040-205	M5	2.4	18	2.3	2	0.8	0.8	1.5	2.47	6.52	03040-905
03040-206	M6	2.7	20	2.5	2.5	1	1	2	3.15	8.32	03040-906
03040-208	M8	3.5	22	3	3	1.4	1.2	2.5	4.95	14.61	03040-908
03040-210	M10	4	22	3	3.5	1.4	1.6	3	4.27	15.74	03040-910
03040-212	M12	6	28	4	5	2	2	4	5.62	19.11	03040-912
03040-216	M16	7.5	32	5	6	2.5	2.5	5	13.49	33.72	03040-916
03040-220	M20	10	40	7	8	3	2.5	6	16.86	42.71	–
03040-224	M24	12	52	10	10	3	2.5	8	21.36	53.95	–

SPRING PLUNGERS

Pin Type with Nylon Locking | Hex End | Top Slots | Steel and Stainless Steel | Inch



Pin type plunger with hex end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve, pin plunger and spring. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, pin plunger and spring. The stainless sleeves have a natural finish and the pin plunger is hardened. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

Part # Steel	D	D1	L	+/-.02 L1	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	F2 Final Lbs.	Assembly Tool
03041-1A1	10-32	.094 (2.4mm)	.71	.28	.09	.08	.03	.03	1/16	.67	2.25	03040-905
03041-1AJ	1/4-28	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03041-1A2	1/4-20	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03041-1A3	5/16-18	.138 (3.5mm)	.87	.31	.12	.12	.06	.05	3/32	.90	3.60	03040-908
03041-1A4	3/8-16	.157 (4.0mm)	.87	.35	.12	.14	.06	.06	1/8	.90	3.60	03040-910
03041-1A5	1/2-13	.236 (6.0mm)	1.10	.39	.16	.20	.08	.08	5/32	1.12	6.07	03040-912
03041-1A6	5/8-11	.295 (7.5mm)	1.26	.55	.20	.24	.10	.10	3/16	4.50	10.12	03040-916

Standard End Force

Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	T	T1	N	S	SPRING FORCE F1* Initial Lbs.	F2* Final Lbs.	Assembly Tool
03041-A1	03056-A1	10-32	.094 (2.4mm)	.71	.28	.09	.08	.03	.03	1/16	1.35	4.50	03040-905
03041-AJ	03056-AJ	1/4-28	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03041-A2	03056-A2	1/4-20	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03041-A3	03056-A3	5/16-18	.138 (3.5mm)	.87	.31	.12	.12	.06	.05	3/32	2.02	7.87	03040-908
03041-A4	03056-A4	3/8-16	.157 (4.0mm)	.87	.35	.12	.14	.06	.06	1/8	2.02	7.87	03040-910
03041-A5	03056-A5	1/2-13	.236 (6.0mm)	1.10	.39	.16	.20	.08	.08	5/32	2.25	12.36	03040-912
03041-A6	03056-A6	5/8-11	.295 (7.5mm)	1.26	.55	.20	.24	.10	.10	3/16	10.12	22.48	03040-916

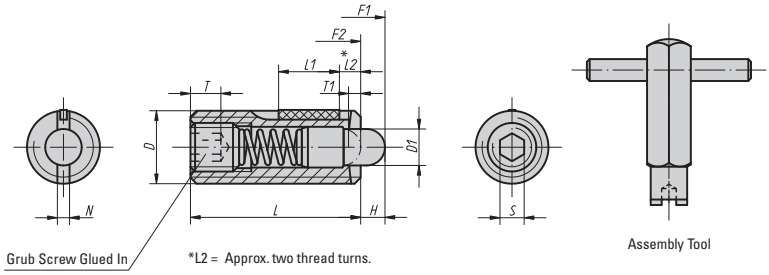
* Spring Forces may be slightly lower for the stainless steel versions.

Heavy End Force

Part # Steel	D	D1	L	+/-.02 L1	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	F2 Final Lbs.	Assembly Tool
03041-2A1	10-32	.094 (2.4mm)	.71	.28	.09	.08	.03	.03	1/16	2.47	6.52	03040-905
03041-2AJ	1/4-28	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	3.15	8.32	03040-906
03041-2A2	1/4-20	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	3.15	8.32	03040-906
03041-2A3	5/16-18	.138 (3.5mm)	.87	.31	.12	.12	.06	.05	3/32	4.95	14.61	03040-908
03041-2A4	3/8-16	.157 (4.0mm)	.87	.35	.12	.14	.06	.06	1/8	4.27	15.74	03040-910
03041-2A5	1/2-13	.236 (6.0mm)	1.10	.39	.16	.20	.08	.08	5/32	5.62	19.11	03040-912
03041-2A6	5/8-11	.295 (7.5mm)	1.26	.55	.20	.24	.10	.10	3/16	13.49	34.00	03040-916

SPRING PLUNGERS

Pin Type with Nylon Locking | Hex End | Top Slots | Steel and Stainless Steel | Metric



Pin type plunger with hex end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve, pin plunger and spring. The sleeve has a black oxide finish and the pin plunger is hardened. The stainless version has a stainless sleeve, pin plunger and spring. The stainless sleeves have a natural finish and the pin plunger is hardened. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

Part # Steel	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03041-105	M5	2.4	18	7	2.3	2	0.8	0.8	1.5	.67	2.25	03040-905
03041-106	M6	2.7	20	7	2.5	2.5	1	1	2	.67	2.02	03040-906
03041-108	M8	3.5	22	8	3	3	1.4	1.2	2.5	.90	3.60	03040-908
03041-110	M10	4	22	9	3	3.5	1.4	1.6	3	.90	3.60	03040-910
03041-112	M12	6	28	10	4	5	2	2	4	1.12	6.07	03040-912
03041-116	M16	7.5	32	14	5	6	2.5	2.5	5	4.50	10.12	03040-916

Standard End Force

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1* Initial Lbs.	SPRING FORCE F2* Final Lbs.	Assembly Tool
03041-05	03056-05	M5	2.4	18	7	2.3	2	0.8	0.8	1.5	1.35	4.50	03040-905
03041-06	03056-06	M6	2.7	20	7	2.5	2.5	1	1	2	1.57	4.50	03040-906
03041-08	03056-08	M8	3.5	22	8	3	3	1.4	1.2	2.5	2.02	7.87	03040-908
03041-10	03056-10	M10	4	22	9	3	3.5	1.4	1.6	3	2.02	7.87	03040-910
03041-12	03056-12	M12	6	28	10	4	5	2	2	4	2.25	12.36	03040-912
03041-16	03056-16	M16	7.5	32	14	5	6	2.5	2.5	5	10.12	22.48	03040-916

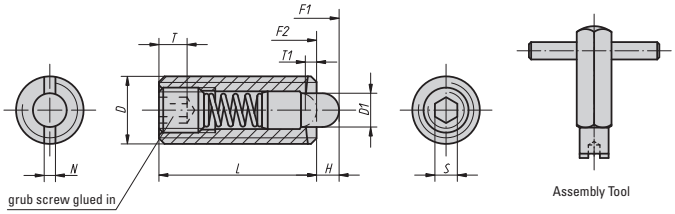
* Spring Forces may be slightly lower for the stainless steel versions.

Heavy End Force

Part # Steel	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03041-205	M5	2.4	18	7	2.3	2	0.8	0.8	1.5	2.47	6.52	03040-905
03041-206	M6	2.7	20	7	2.5	2.5	1	1	2	3.15	8.32	03040-906
03041-208	M8	3.5	22	8	3	3	1.4	1.2	2.5	4.95	14.61	03040-908
03041-210	M10	4	22	9	3	3.5	1.4	1.6	3	4.27	15.47	03040-910
03041-212	M12	6	28	10	4	5	2	2	4	5.62	19.11	03040-912
03041-216	M16	7.5	32	14	5	6	2.5	2.5	5	13.49	33.72	03040-916

SPRING PLUNGERS

Pin Type | Hex End | Top Slots | Steel and Stainless Steel with Plastic Plunger | Inch and Metric



Pin type plunger with hex end. The steel version has a steel sleeve and spring with a plastic pin plunger. The sleeve has a black oxide finish. The stainless version has a stainless sleeve and spring with a plastic pin plunger. The stainless sleeves have a natural finish. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

INCH

Part # Steel	D	D1	L	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03050-1AG	8-36	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	.45	1.57	03040-904
03050-1AE	8-32	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	.45	1.57	03040-904
03050-1A1	10-32	.094 (2.4mm)	.71	.09	.08	.03	.03	1/16	.67	2.25	03040-905
03050-1AJ	1/4-28	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03050-1A2	1/4-20	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03050-1A3	5/16-18	.138 (3.5mm)	.87	.12	.12	.06	.05	3/32	.90	3.60	03040-908
03050-1A4	3/8-16	.157 (4.0mm)	.87	.12	.14	.06	.06	1/8	.90	3.60	03040-910
03050-1A5	1/2-13	.236 (6.0mm)	1.10	.16	.20	.08	.08	5/32	1.12	6.07	03040-912
03050-1A6	5/8-11	.295 (7.5mm)	1.26	.20	.24	.10	.10	3/16	4.50	10.12	03040-916

METRIC

Part # Steel	D mm	D1 mm	L mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Assembly Tool
03050-104	M4	1.5	15	1.5	2	0.6	0.6	1.3	.45	1.57	03040-904
03050-105	M5	2.4	18	2.3	2	0.8	0.8	1.5	.67	2.25	03040-905
03050-106	M6	2.7	20	2.5	2.5	1	1	2	.67	2.02	03040-906
03050-108	M8	3.5	22	3	3	1.4	1.2	2.5	.90	3.60	03040-908
03050-110	M10	4	22	3	3.5	1.4	1.6	3	.90	3.60	03040-910
03050-112	M12	6	28	4	5	2	2	4	1.12	6.07	03040-912
03050-116	M16	7.5	32	5	6	2.5	2.5	5	4.50	10.12	03040-916

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	H	T	T1	N	S	SPRING FORCE F1* Initial Lbs.	SPRING FORCE F2* Final Lbs.	Assembly Tool
03050-AG	03058-AG	8-36	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	1.12	3.60	03040-904
03050-AE	03058-AE	8-32	.059 (1.5mm)	.59	.06	.08	.02	.02	.050	1.12	3.60	03040-904
03050-A1	03058-A1	10-32	.094 (2.4mm)	.71	.09	.08	.03	.03	1/16	1.35	4.50	03040-905
03050-AJ	03058-AJ	1/4-28	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03050-A2	03058-A2	1/4-20	.106 (2.7mm)	.79	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03050-A3	03058-A3	5/16-18	.138 (3.5mm)	.87	.12	.12	.06	.05	3/32	2.02	7.87	03040-908
03050-A4	03058-A4	3/8-16	.157 (4.0mm)	.87	.12	.14	.06	.06	1/8	2.02	7.87	03040-910
03050-A5	03058-A5	1/2-13	.236 (6.0mm)	1.10	.16	.20	.08	.08	5/32	2.25	12.36	03040-912
03050-A6	03058-A6	5/8-11	.295 (7.5mm)	1.26	.20	.24	.10	.10	3/16	10.12	22.48	03040-916

* Spring Forces may be slightly lower for the stainless steel versions.

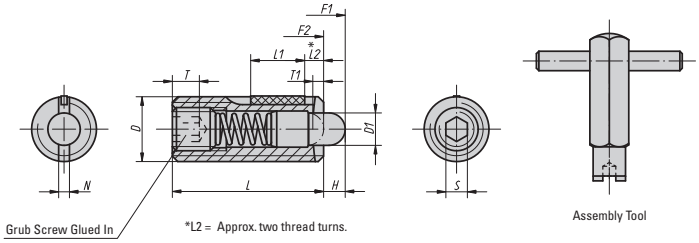
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1* Initial Lbs.	SPRING FORCE F2* Final Lbs.	Assembly Tool
03050-04	03058-04	M4	1.5	15	1.5	2	0.6	0.6	1.3	1.12	3.60	03040-904
03050-05	03058-05	M5	2.4	18	2.3	2	0.8	0.8	1.5	1.35	4.50	03040-905
03050-06	03058-06	M6	2.7	20	2.5	2.5	1	1	2	1.57	4.50	03040-906
03050-08	03058-08	M8	3.5	22	3	3	1.4	1.2	2.5	2.02	7.87	03040-908
03050-10	03058-10	M10	4	22	3	3.5	1.4	1.6	3	2.02	7.87	03040-910
03050-12	03058-12	M12	6	28	4	5	2	2	4	2.25	12.36	03040-912
03050-16	03058-16	M16	7.5	32	5	6	2.5	2.5	5	10.12	22.48	03040-916

* Spring Forces may be slightly lower for the stainless steel versions.

SPRING PLUNGERS

Pin Type with Nylon Locking | Hex End | Top Slots | Steel and Stainless Steel with Plastic Plunger | Inch and Metric



Pin type plunger with hex end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve and spring with a plastic pin plunger. The sleeve has a black oxide finish. The stainless version has a stainless sleeve and spring with a plastic pin plunger. The stainless sleeves have a natural finish and the pin plunger is hardened. Slots on top end allow for blind hole or top side fastening with assembly tool. Assembly tool must be ordered separately.

Light End Force

INCH

Part # Steel	D	D1	L	+/-.02 L1	H	T	T1	N	S	SPRING FORCE F1 Initial Lbs.	F2 Final Lbs.	Assembly Tool
03051-1A1	10-32	.094 (2.4mm)	.71	.28	.09	.08	.03	.03	1/16	.67	2.25	03040-905
03051-1AJ	1/4-28	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03051-1A2	1/4-20	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	.67	2.02	03040-906
03051-1A3	5/16-18	.138 (3.5mm)	.87	.31	.12	.12	.06	.05	3/32	.90	3.60	03040-908
03051-1A4	3/8-16	.157 (4.0mm)	.87	.35	.12	.14	.06	.06	1/8	.90	3.60	03040-910
03051-1A5	1/2-13	.236 (6.0mm)	1.10	.39	.16	.20	.08	.08	5/32	1.12	6.07	03040-912
03051-1A6	5/8-11	.295 (7.5mm)	1.26	.55	.20	.24	.10	.10	3/16	4.50	10.12	03040-916

METRIC

Part # Steel	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1 Initial Lbs.	F2 Final Lbs.	Assembly Tool
03051-105	M5	2.4	18	7	2.3	2	0.8	0.8	1.5	.67	2.25	03040-905
03051-106	M6	2.7	20	7	2.5	2.5	1	1	2	.67	2.02	03040-906
03051-108	M8	3.5	22	8	3	3	1.4	1.2	2.5	.90	3.60	03040-908
03051-110	M10	4	22	9	3	3.5	1.4	1.6	3	.90	3.60	03040-910
03051-112	M12	6	28	10	4	5	2	2	4	1.12	6.07	03040-912
03051-116	M16	7.5	32	14	5	6	2.5	2.5	5	4.50	10.12	03040-916

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	T	T1	N	S	SPRING FORCE F1* Initial Lbs.	F2* Final Lbs.	Assembly Tool
03051-A1	03059-A1	10-32	.094 (2.4mm)	.71	.28	.09	.08	.03	.03	1/16	1.35	4.50	03040-905
03051-AJ	03059-AJ	1/4-28	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03051-A2	03059-A2	1/4-20	.106 (2.7mm)	.79	.28	.10	.10	.04	.04	5/64	1.57	4.50	03040-906
03051-A3	03059-A3	5/16-18	.138 (3.5mm)	.87	.31	.12	.12	.06	.05	3/32	2.02	7.87	03040-908
03051-A4	03059-A4	3/8-16	.157 (4.0mm)	.87	.35	.12	.14	.06	.06	1/8	2.02	7.87	03040-910
03051-A5	03059-A5	1/2-13	.236 (6.0mm)	1.10	.39	.16	.20	.08	.08	5/32	2.25	12.36	03040-912
03051-A6	03059-A6	5/8-11	.295 (7.5mm)	1.26	.55	.20	.24	.10	.10	3/16	10.12	22.48	03040-916

* Spring Forces may be slightly lower for the stainless steel versions.

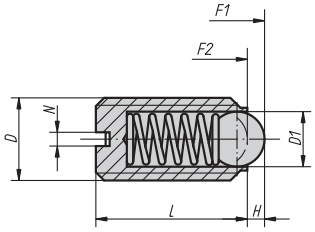
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	T mm	T1 mm	N mm	S mm	SPRING FORCE F1* Initial Lbs.	F2* Final Lbs.	Assembly Tool
03051-05	03059-05	M5	2.4	18	7	2.3	2	0.8	0.8	1.5	1.35	4.50	03040-905
03051-06	03059-06	M6	2.7	20	7	2.5	2.5	1	1	2	1.57	4.50	03040-906
03051-08	03059-08	M8	3.5	22	8	3	3	1.4	1.2	2.5	2.02	7.87	03040-908
03051-10	03059-10	M10	4	22	9	3	3.5	1.4	1.6	3	2.02	7.87	03040-910
03051-12	03059-12	M12	6	28	10	4	5	2	2	4	2.25	12.36	03040-912
03051-16	03059-16	M16	7.5	32	14	5	6	2.5	2.5	5	10.12	22.48	03040-916

* Spring Forces may be slightly lower for the stainless steel versions.

SPRING PLUNGERS

Ball Type | Slotted End | Steel and Stainless Steel | Inch and Metric



Ball type plunger with slotted end. The steel version has a steel sleeve, ball and spring. The sleeve has a black oxide finish and the ball is hardened. The stainless version has a stainless sleeve, ball and spring. The stainless sleeves have a natural finish and the ball is hardened.

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03000-AD	03010-AD	6-32	.059 (1.5mm)	.28	.02	.02	.34	.67
03000-AG	03010-AG	8-36	.098 (2.5mm)	.35	.03	.02	.90	2.25
03000-AE	03010-AE	8-32	.098 (2.5mm)	.35	.03	.02	.90	2.25
03000-A1	03010-A1	10-32	.118 (3.0mm)	.47	.04	.03	1.35	2.47
03000-AJ	03010-AJ	1/4-28	.138 (3.5mm)	.55	.04	.04	2.02	2.92
03000-A2	03010-A2	1/4-20	.138 (3.5mm)	.55	.04	.04	2.02	2.92
03000-A3	03010-A3	5/16-18	.197 (5.0mm)	.63	.06	.05	3.37	6.74
03000-A4	03010-A4	3/8-16	.236 (6.0mm)	.75	.08	.06	4.50	7.78
03000-A5	03010-A5	1/2-13	.315 (8.0mm)	.87	.10	.08	6.74	12.36
03000-A6	03010-A6	5/8-11	.394 (10.0mm)	.94	.14	.10	14.61	28.10

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03000-03	03010-03	M3	1.5	7	0.5	0.4	.34	.67
03000-04	03010-04	M4	2.5	9	0.8	0.6	.90	2.25
03000-05	03010-05	M5	3	12	0.9	0.8	1.35	2.47
03000-06	03010-06	M6	3.5	14	1	1	2.02	2.92
03000-08	03010-08	M8	5	16	1.5	1.2	3.37	6.74
03000-10	03010-10	M10	6	19	2	1.6	4.50	7.87
03000-12	03010-12	M12	8	22	2.5	2	6.74	12.36
03000-16	03010-16	M16	10	24	3.5	2.5	14.61	28.10
03000-20	03010-20	M20	12	30	4.5	2.5	17.98	35.97

Heavy End Force

INCH

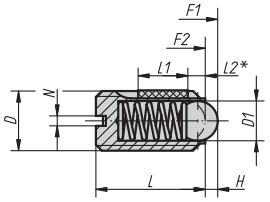
Part # Steel	Part # Stainless	D	D1	L	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03000-2A1	03010-2A1	10-32	.118 (3.0mm)	.47	.04	.03	4.27	6.74
03000-2AJ	03010-2AJ	1/4-28	.138 (3.5mm)	.55	.04	.04	6.29	8.99
03000-2A2	03010-2A2	1/4-20	.138 (3.5mm)	.55	.04	.04	6.29	8.99
03000-2A3	03010-2A3	5/16-18	.197 (5.0mm)	.63	.06	.05	10.57	16.41
03000-2A4	03010-2A4	3/8-16	.236 (6.0mm)	.75	.08	.06	14.84	22.48
03000-2A5	03010-2A5	1/2-13	.315 (8.0mm)	.87	.10	.08	14.84	26.98
03000-2A6	03010-2A6	5/8-11	.394 (10.0mm)	.94	.14	.10	20.23	40.46

METRIC

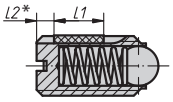
Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03000-205	03010-205	M5	3	12	0.9	0.8	4.27	6.74
03000-206	03010-206	M6	3.5	14	1	1	6.29	8.99
03000-208	03010-208	M8	5	16	1.5	1.2	10.57	16.41
03000-210	03010-210	M10	6	19	2	1.6	14.84	22.48
03000-212	03010-212	M12	8	22	2.5	2	14.84	26.98
03000-216	03010-216	M16	10	24	3.5	2.5	20.23	40.46
03000-220	03010-220	M20	12	30	4.5	2.5	25.85	53.95

SPRING PLUNGERS

Ball Type with Nylon Locking | Slotted End | Steel and Stainless Steel | Inch and Metric



*L2 = Approx. two thread turns.



Applies to plungers
where D =
M3, M4, M5 & M6, 6-32, 8-36, 8-32, 10-32
1/4-28 & 1/4-20

Ball type plunger with slotted end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve, ball and spring. The sleeve has a black oxide finish and the ball is hardened. The stainless version has a stainless sleeve, ball and spring. The stainless sleeves have a natural finish and the ball is hardened.

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03001-AD	03011-AD	6-32	.059 (1.5mm)	.28	.16	.02	.02	.34	.67
03001-AG	03011-AG	8-36	.098 (2.5mm)	.35	.20	.03	.02	.90	2.25
03001-AE	03011-AE	8-32	.098 (2.5mm)	.35	.20	.03	.02	.90	2.25
03001-A1	03011-A1	10-32	.118 (3.0mm)	.47	.24	.04	.03	1.35	2.47
03001-AJ	03011-AJ	1/4-28	.138 (3.5mm)	.55	.28	.04	.04	2.02	2.92
03001-A2	03011-A2	1/4-20	.138 (3.5mm)	.55	.28	.04	.04	2.02	2.92
03001-A3	03011-A3	5/16-18	.197 (5.0mm)	.63	.31	.06	.05	3.37	6.74
03001-A4	03011-A4	3/8-16	.236 (6.0mm)	.75	.35	.08	.06	4.50	7.87
03001-A5	03011-A5	1/2-13	.315 (8.0mm)	.87	.39	.10	.08	6.74	12.36
03001-A6	03011-A6	5/8-11	.394 (10.0mm)	.94	.55	.14	.10	14.61	28.10

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03001-03	03011-03	M3	1.5	7	4	0.5	0.4	.34	.67
03001-04	03011-04	M4	2.5	9	5	0.8	0.6	.90	2.25
03001-05	03011-05	M5	3	12	6	0.9	0.8	1.35	2.47
03001-06	03011-06	M6	3.5	14	7	1	1	2.02	2.92
03001-08	03011-08	M8	5	16	8	1.5	1.2	3.37	6.74
03001-10	03011-10	M10	6	19	9	2	1.6	4.50	7.87
03001-12	03011-12	M12	8	22	10	2.5	2	6.74	12.36
03001-16	03011-16	M16	10	24	14	3.5	2.5	14.61	28.10

Heavy End Force

INCH

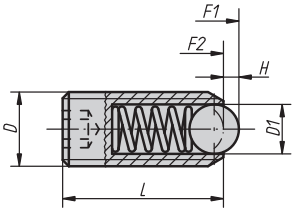
Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	N	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03001-2A1	03011-2A1	10-32	.118 (3.0mm)	.47	.24	.04	.03	4.27	6.74
03001-2AJ	03011-2AJ	1/4-28	.138 (3.5mm)	.55	.28	.04	.04	6.29	8.99
03001-2A2	03011-2A2	1/4-20	.138 (3.5mm)	.55	.28	.04	.04	6.29	8.99
03001-2A3	03011-2A3	5/16-18	.197 (5.0mm)	.63	.31	.06	.05	10.57	16.41
03001-2A4	03011-2A4	3/8-16	.236 (6.0mm)	.75	.35	.08	.06	14.84	22.48
03001-2A5	03011-2A5	1/2-13	.315 (8.0mm)	.87	.39	.10	.08	14.84	26.98
03001-2A6	03011-2A6	5/8-11	.394 (10.0mm)	.94	.55	.14	.10	20.23	40.46

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	N mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03001-205	03011-205	M5	3	12	6	0.9	0.8	4.27	6.74
03001-206	03011-206	M6	3.5	14	7	1	1	6.29	8.99
03001-208	03011-208	M8	5	16	8	1.5	1.2	10.57	16.41
03001-210	03011-210	M10	6	19	9	2	1.6	14.84	22.48
03001-212	03011-212	M12	8	22	10	2.5	2	14.84	26.98
03001-216	03011-216	M16	10	24	14	3.5	2.5	20.23	40.46

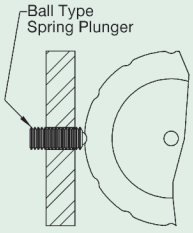
SPRING PLUNGERS

Ball Type | Hex End | Steel and Stainless Steel | Inch and Metric



Ball type plunger with hex end. The steel version has a steel sleeve, ball and spring. The sleeve has a black oxide finish and the ball is hardened. The stainless version has a stainless sleeve, ball and spring. The stainless sleeves have a natural finish and the ball is hardened.

How To Use



Ball plungers can be used in positioning and indexing operations

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	H	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03030-AJ	03035-AJ	1/4-28	.138 (3.5mm)	.59	.04	1/8	2.02	2.92
03030-A2	03035-A2	1/4-20	.138 (3.5mm)	.59	.04	1/8	2.02	2.92
03030-A3	03035-A3	5/16-18	.197 (5.0mm)	.71	.06	5/32	3.37	6.74
03030-A4	03035-A4	3/8-16	.236 (6.0mm)	.91	.08	3/16	4.50	7.87
03030-A5	03035-A5	1/2-13	.315 (8.0mm)	1.02	.10	7/32	6.74	12.36
03030-A6	03035-A6	5/8-11	.394 (10.0mm)	1.30	.14	5/16	14.61	28.10

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03030-03	03035-03	M3	1.5	9	0.5	1.5	.34	.67
03030-04	03035-04	M4	2.5	10	0.8	2	.90	2.25
03030-05	03035-05	M5	3	14	0.9	3	1.35	2.47
03030-06	03035-06	M6	3.5	15	1	3	2.02	2.92
03030-08	03035-08	M8	5	18	1.5	4	3.37	6.74
03030-10	03035-10	M10	6	23	2	5	4.50	7.87
03030-12	03035-12	M12	8	26	2.5	6	6.74	12.36
03030-16	03035-16	M16	10	33	3.5	8	14.61	28.10
03030-20	03035-20	M20	12	43	4.5	10	17.98	35.97
03030-24	03035-24	M24	15	48	5.5	12	20.23	40.46

Heavy End Force

INCH

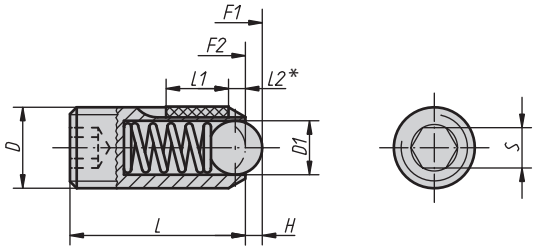
Part # Steel	Part # Stainless	D	D1	L	H	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03030-2AJ	03035-2AJ	1/4-28	.138 (3.5mm)	.59	.04	1/8	6.29	8.99
03030-2A2	03035-2A2	1/4-20	.138 (3.5mm)	.59	.04	1/8	6.28	8.99
03030-2A3	03035-2A3	5/16-18	.197 (5.0mm)	.71	.06	5/32	10.57	16.41
03030-2A4	03035-2A4	3/8-16	.236 (6.0mm)	.91	.08	3/16	14.84	22.48
03030-2A5	03035-2A5	1/2-13	.315 (8.0mm)	1.02	.10	7/32	14.84	26.98
03030-2A6	03035-2A6	5/8-11	.394 (10.0mm)	1.30	.14	5/16	20.23	40.46

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	H mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03030-203	03035-203	M3	1.5	9	0.5	1.5	1.12	1.57
03030-204	03035-204	M4	2.5	10	0.8	2	2.70	4.95
03030-205	03035-205	M5	3	14	0.9	3	4.27	6.74
03030-206	03035-206	M6	3.5	15	1	3	6.29	8.99
03030-208	03035-208	M8	5	18	1.5	4	10.57	16.41
03030-210	03035-210	M10	6	23	2	5	14.84	22.48
03030-212	03035-212	M12	8	26	2.5	6	14.84	26.98
03030-216	03035-216	M16	10	33	3.5	8	20.23	40.46
03030-220	03035-220	M20	12	43	4.5	10	25.85	53.95
03030-224	03035-224	M24	15	48	5.5	12	29.22	60.70

SPRING PLUNGERS

Ball Type with Nylon Locking | Hex End | Steel and Stainless Steel | Inch and Metric



*L2 = Approx. two thread turns.

Ball type plunger with hex end. The Long-Lok nylon locking system prevents loosening from impact or vibrations. The steel version has a steel sleeve, ball and spring. The sleeve has a black oxide finish and the ball is hardened. The stainless version has a stainless sleeve, ball and spring. The stainless sleeves have a natural finish and the ball is hardened.

Standard End Force

INCH

Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03031-AJ	03036-AJ	1/4-28	.138 (3.5mm)	.59	.28	.04	1/8	2.02	2.92
03031-A2	03036-A2	1/4-20	.138 (3.5mm)	.59	.28	.04	1/8	2.02	2.92
03031-A3	03036-A3	5/16-18	.197 (5.0mm)	.71	.31	.06	5/32	3.37	6.74
03031-A4	03036-A4	3/8-16	.236 (6.0mm)	.91	.35	.08	3/16	4.50	7.87
03031-A5	03036-A5	1/2-13	.315 (8.0mm)	1.02	.39	.10	7/32	6.74	12.36
03031-A6	03036-A6	5/8-11	.394 (10.0mm)	1.30	.55	.14	5/16	14.61	28.10

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03031-03	03036-03	M3	1.5	9	4	0.5	1.5	.34	.67
03031-04	03036-04	M4	2.5	10	5	0.8	2	.90	2.25
03031-05	03036-05	M5	3	14	6	0.9	3	1.35	2.47
03031-06	03036-06	M6	3.5	15	7	1	3	2.02	2.92
03031-08	03036-08	M8	5	18	8	1.5	4	3.37	6.74
03031-10	03036-10	M10	6	23	9	2	5	4.50	7.87
03031-12	03036-12	M12	8	26	10	2.5	6	6.74	12.36
03031-16	03036-16	M16	10	33	14	3.5	8	14.61	28.10

Heavy End Force

INCH

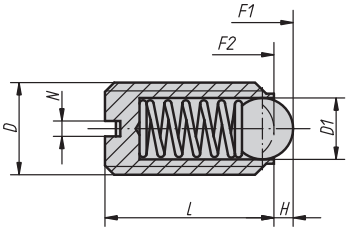
Part # Steel	Part # Stainless	D	D1	L	+/-.02 L1	H	S	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03031-2AJ	03036-2AJ	1/4-28	.138 (3.5mm)	.59	.28	.04	1/8	6.29	8.99
03031-2A2	03036-2A2	1/4-20	.138 (3.5mm)	.59	.28	.04	1/8	6.29	8.99
03031-2A3	03036-2A3	5/16-18	.197 (5.0mm)	.71	.31	.06	5/32	10.57	16.41
03031-2A4	03036-2A4	3/8-16	.236 (6.0mm)	.91	.35	.08	3/16	14.84	22.48
03031-2A5	03036-2A5	1/2-13	.315 (8.0mm)	1.02	.39	.10	7/32	14.84	26.98
03031-2A6	03036-2A6	5/8-11	.394 (10.0mm)	1.30	.55	.14	5/16	20.23	40.46

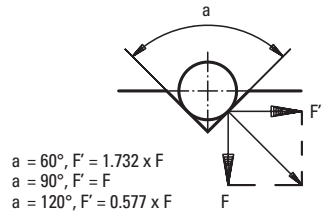
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	L mm	+/-0.5 L1 mm	H mm	S mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03031-203	03036-203	M3	1.5	9	4	0.5	1.5	1.12	1.57
03031-204	03036-204	M4	2.5	10	5	0.8	2	2.70	4.95
03031-205	03036-205	M5	3	14	6	0.9	3	4.27	6.74
03031-206	03036-206	M6	3.5	15	7	1	3	6.29	8.99
03031-208	03036-208	M8	5	18	8	1.5	4	10.57	16.41
03031-210	03036-210	M10	6	23	9	2	5	14.84	22.48
03031-212	03036-212	M12	8	26	10	2.5	6	14.84	26.98
03031-216	03036-216	M16	10	33	14	3.5	8	20.23	40.46

SPRING PLUNGERS

Ball Type | Slotted End | Ceramic Ball | Metric



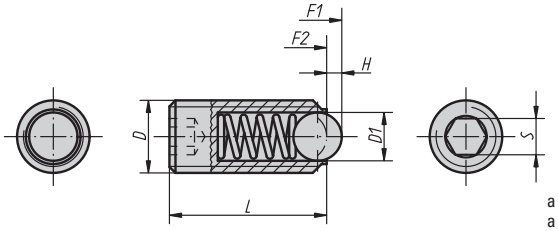


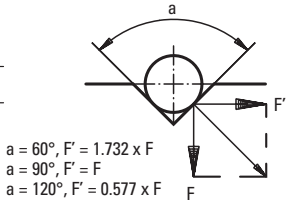
a = 60°, F' = 1.732 x F
a = 90°, F' = F
a = 120°, F' = 0.577 x F

Ball type plunger with slotted end. The ceramic ball provides excellent strength, wear and chemical resistance. The sleeve and spring are made from stainless steel with a natural finish.

Part #	D mm	D1 mm	L mm	H mm	N mm	SPRING FORCE Initial Lbs.	SPRING FORCE Final Lbs.
03008-05	M5	3	12	0.9	0.8	1.4	2.5
03008-06	M6	3.5	14	1	1	2.0	2.9
03008-08	M8	5	16	1.5	1.2	3.4	6.7
03008-10	M10	6	19	2	1.6	4.6	7.9
03008-12	M12	8	22	2.5	2	6.7	12.3
03008-16	M16	10	24	3.5	2.5	14.6	28.1

Ball Type | Hex End | Ceramic Ball | Metric





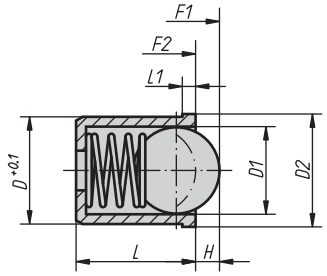
a = 60°, F' = 1.732 x F
a = 90°, F' = F
a = 120°, F' = 0.577 x F

Ball type plunger with hex end. The ceramic ball provides excellent strength, wear and chemical resistance. The sleeve and spring are made from stainless steel with a natural finish.

Part #	D mm	D1 mm	L mm	H mm	S mm	SPRING FORCE Initial Lbs.	SPRING FORCE Final Lbs.
03033-05	M5	3	14	0.9	2.5	1.4	2.5
03033-06	M6	3.5	15	1	3	2.0	2.9
03033-08	M8	5	18	1.5	4	3.4	6.7
03033-10	M10	6	23	2	5	4.6	7.9
03033-12	M12	8	26	2.5	6	6.7	12.3
03033-16	M16	10	33	3.5	8	14.6	28.1

SPRING PLUNGERS

Ball Type | Plastic Body | Non-Threaded | Metric



Black thermoplastic body with stainless spring. Available with either plastic or stainless steel ball. The stainless steel ball is hardened. Recommended hole tolerance is +0.10 to +0.15 mm.

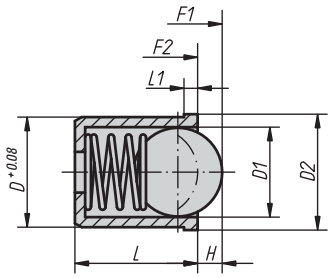
With Stainless Ball

Part #	+0.1 D mm	D1 mm	D2 mm	L mm	L1 mm	H mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03071-04	4	3	4.6	5	1	0.7	.67	1.57
03071-05	5	4	5.6	6	1	1	.90	1.57
03071-06	6	5	6.5	7	1	1.5	1.35	2.70
03071-08	8	6.5	8.5	9	1	1.8	1.35	2.70
03071-10	10	8	12	13.5	2.5	2.7	2.25	4.50
03071-12	12	10	14	16	2.5	3.5	3.37	5.62

With Plastic Ball

Part #	+0.1 D mm	D1 mm	D2 mm	L mm	L1 mm	H mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03071-204	4	3	4.6	5	1	0.9	.67	1.57
03071-205	5	4	5.6	6	1	1.2	.90	1.57
03071-206	6	5	6.5	7	1	1.5	1.35	2.70
03071-208	8	6.5	8.5	9	1	2	1.35	2.70
03071-210	10	8	12	13.5	2.5	2.7	2.25	4.50
03071-212	12	10	14	16	2.5	3.5	3.37	5.62

Ball Type | Stainless Steel Body | Non-Threaded | Metric



Stainless steel body with stainless spring. Available with either plastic or stainless steel ball. The stainless steel ball is hardened. Recommended hole tolerance is +0.08 to +0.13 mm.

With Stainless Ball

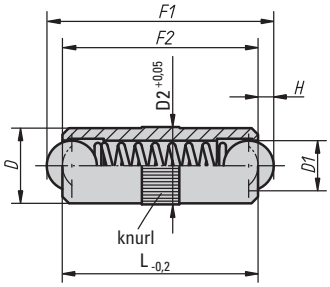
Part #	+.08 D mm	D1 mm	D2 mm	L mm	L1 mm	H mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03070-04	4	3	4.6	5	1	.8	.67	1.57
03070-104	4	3	4.6	9	1	.8	2.70	4.95
03070-05	5	4	5.6	6	1	1	.90	1.57
03070-105	5	4	5.6	12	1	1	4.27	6.74
03070-06	6	5	6.5	7	1	1.5	1.35	2.70
03070-106	6	5	6.5	14	1	1.5	4.95	8.99
03070-08	8	6.5	8.5	9	1	1.8	1.35	2.70
03070-108	8	6	8.5	16	1	1.8	9.44	16.41
03070-10	10	8	12	12.5	2.5	2.7	2.25	4.50
03070-110	10	8	12	22	2.5	2.7	12.14	22.48
03070-12	12	10	14	16	2.5	3.5	3.37	5.62
03070-112	12	10	14	24	2.5	3.5	12.14	27.43

With Plastic Ball

Part #	+.08 D mm	D1 mm	D2 mm	L mm	L1 mm	H mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03070-304	4	3	4.6	5	1	.5	.67	1.57
03070-404	4	3	4.6	9	1	.8	2.70	4.95
03070-305	5	4	5.6	6	1	0.6	.90	1.57
03070-405	5	4	5.6	12	1	1	4.27	6.74
03070-306	6	5	6.5	7	1	1.1	1.35	2.70
03070-406	6	5	6.5	14	1	1.5	4.95	8.99
03070-308	8	6.5	8.5	9	1	1.5	1.35	2.70
03070-408	8	6	8.5	16	1	1.8	9.44	16.41
03070-310	10	8	12	12.5	2.5	2.3	2.25	4.50
03070-410	10	8	12	22	2.5	2.7	12.14	22.48
03070-312	12	10	14	16	2.5	3.1	3.37	5.62
03070-412	12	10	14	24	2.5	3.5	12.14	27.43

SPRING PLUNGERS

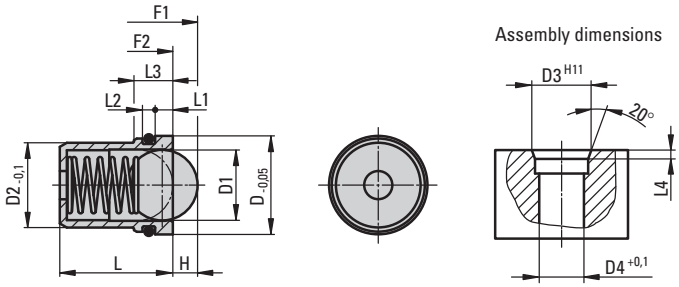
Ball Type | Brass Body | Non-Threaded | Double End | Metric



These ball type plungers feature a ball on both ends of the brass body. The balls and springs are made from stainless steel. The balls are hardened.

Part #	D mm	D1 mm	D2 mm	L mm	H mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03074-04	4	3	4.05	10	.9	.67	1.57
03074-05	5	4	5.05	12	1.2	.90	1.80
03074-06	6	5	6.05	16	1.6	1.35	2.25
03074-08	8	6	8.05	20	2	1.80	2.70
03074-10	10	8	10.05	24	2.9	2.25	3.60

Ball Type | Stainless Steel Body | Non-Threaded with O-Ring | Metric



The o-ring is designed to keep the plunger in place when used in vertical or overhead applications. The body, ball and spring are made from stainless steel. The ball is hardened. The o-ring is made from Buna-N.

Part #	D mm	D1 mm	D2 mm	D3 mm	D4 mm	H mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03065-05	4.95	3	4	5	4.1	.8	5	1	.7	2.3	.7	.67	1.57
03065-06	5.95	4	5	6	5.1	1	6	1	.7	2.3	.7	.90	1.57
03065-08	7.95	5	6	8	6.1	1.5	7	1.5	1.2	3.7	1	1.35	2.70
03065-10	9.95	6.5	8	10	8.1	1.8	9	2	1.2	4.2	1.5	1.35	2.70
03065-12	11.95	8	10	12	10.1	2.7	13.5	2.5	1.8	5.3	2	2.25	4.50
03065-14	13.95	10	12	14	12.1	3.5	16	2.5	1.8	5.5	2	3.37	5.62

INDEXING PLUNGERS

FULL STAINLESS

PLASTIC KNOB

WITHOUT COLLAR

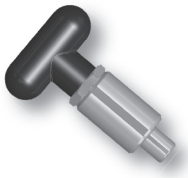
THREADED END

L HANDLE

CAM ACTION

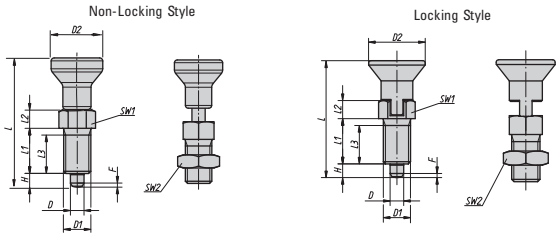
PALM GRIP

PULL PINS



HAND RETRACTABLE PLUNGERS

Stainless Pull Knob | Stainless Steel | Inch & Metric



These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The locking style allows the plunger to remain in the retracted position. The body and handle are made from stainless steel with natural finish. The plunger pin is ground and hardened. They are supplied with a jam nut. Plungers without jam nuts and non-hardened plungers are available.

Non-Locking Style

INCH

Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-002903AJ	.118 (3mm)	1/4-28	.55	1.36	.47	.20	.39	.14	.31	7/16	.031	1.0	2.2
03089-002004AK	.157 (4mm)	5/16-24	.71	1.69	.59	.24	.51	.16	.39	1/2	.039	1.3	2.7
03089-002105AL	.196 (5mm)	3/8-24	.83	1.97	.67	.28	.59	.20	.51	9/16	.051	1.0	2.7
03089-002206A5	.236 (6mm)	1/2-13	.98	2.32	.79	.31	.67	.24	.55	3/4	.071	1.3	3.1
03089-002308A6	.314 (8mm)	5/8-11	1.30	3.03	1.02	.39	.91	.31	.75	15/16	.091	3.4	7.9
03089-002410A7	.393 (10mm)	3/4-10	1.30	3.27	1.10	.47	.98	.39	.87	1-1/8	.102	3.4	7.6
03089-002412AO	.472 (12mm)	3/4-16	1.30	3.43	1.10	.55	.98	.47	.87	1-1/8	.110	3.4	8.8
03089-002516A8	.629 (16mm)	1"-8	1.57	4.17	1.26	.71	1.10	.63	1.06	1-1/2	.126	4.5	10.3

METRIC

Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-002903	3	M6X.75	14	34.5	12	5	10	3.5	8	10	0.8	4.5	10
03089-002004	4	M8X1	18	43	15	6	13	4	10	13	1	6	12
03089-002105	5	M10X1	21	50	17	7	15	5	13	17	1.3	4.5	12
03089-002206	6	M12X1.5	25	59	20	8	17	6	14	19	1.8	6	14
03089-002308	8	M16X1.5	33	77	26	10	23	8	19	24	2.3	15	35
03089-002410	10	M20X1.5	33	83	28	12	25	10	22	30	2.8	15	34
03089-002412	12	M20X1.5	33	87	28	14	25	12	22	30	2.8	15	39
03089-002516	16	M24X2	40	106	32	18	28	16	27	36	3.2	20	46

Locking Style

INCH

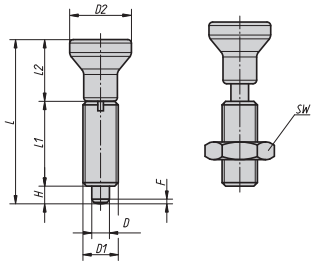
Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-004903AJ	.118 (3mm)	1/4-28	.55	1.24	.47	.20	.39	.14	.31	7/16	.031	1.0	2.2
03089-004004AK	.157 (4mm)	5/16-24	.71	1.52	.59	.24	.51	.16	.39	1/2	.039	1.3	2.7
03089-004105AL	.196 (5mm)	3/8-24	.83	1.71	.67	.28	.59	.20	.51	9/16	.051	1.0	2.7
03089-004206A5	.236 (6mm)	1/2-13	.98	2.05	.79	.31	.67	.24	.55	3/4	.071	1.3	3.1
03089-004308A6	.314 (8mm)	5/8-11	1.30	2.68	1.02	.39	.91	.31	.75	15/16	.091	3.4	7.9
03089-004410A7	.393 (10mm)	3/4-10	1.30	2.91	1.10	.47	.98	.39	.87	1-1/8	.102	3.4	7.6
03089-004412AO	.472 (12mm)	3/4-16	1.30	3.07	1.10	.55	.98	.47	.87	1-1/8	.110	3.4	8.8
03089-004516A8	.629 (16mm)	1"-8	1.57	3.78	1.26	.71	1.10	.63	1.06	1-1/2	.126	4.5	10.3

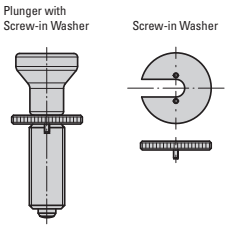
METRIC

Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-004903	3	M6X.75	14	31.5	12	5	10	3.5	8	10	0.8	4.5	10
03089-004004	4	M8X1	18	38.5	15	6	13	4	10	13	1	6	12
03089-004105	5	M10X1	21	43.5	17	7	15	5	13	17	1.3	4.5	12
03089-004206	6	M12X1.5	25	51.7	20	8	17	6	14	19	1.8	6	14
03089-004308	8	M16X1.5	33	68	26	10	23	8	19	24	2.3	15	35
03089-004410	10	M20X1.5	33	74	28	12	25	10	22	30	2.8	15	34
03089-004412	12	M20X1.5	33	78	28	14	25	12	22	30	2.8	15	39
03089-004516	16	M24X2	40	96	32	18	28	16	27	36	3.2	20	46

HAND RETRACTABLE PLUNGERS

Stainless Pull Knob without Collar | Stainless Steel | Inch & Metric





These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The handle and plunger pin are made from stainless steel with natural finish. The plunger pin is ground and hardened. Plungers without jam nuts and non-hardened plungers are available. Screw-in washers are available to easily install the plungers.

INCH

Part #	-.001/-.002 D	D1	D2	L	L1	L2	H	SW	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Screw-in Washer Part #
03093-002903AJ	.118 (3mm)	1/4-28	.55	1.36	.67	.55	.14	7/16	.031	1.0	2.2	03094-99
03093-002004AK	.157 (4mm)	5/16-24	.71	1.69	.83	.71	.16	1/2	.039	1.3	2.7	03094-99
03093-002105AL	.196 (5mm)	3/8-24	.83	1.97	.94	.83	.20	9/16	.051	1.1	2.7	03094-91
03093-002206A5	.236 (6mm)	1/2-13	.98	2.32	1.10	.98	.24	3/4	.071	1.3	3.1	03094-92
03093-002308A6	.314 (8mm)	5/8-11	1.30	3.03	1.42	1.30	.31	15/16	.091	3.4	7.9	03094-93
03093-002410A7	.393 (10mm)	3/4-10	1.30	3.27	1.57	1.30	.39	1-1/8	.102	3.4	7.6	03094-94
03093-002412AO	.472 (12mm)	3/4-16	1.30	3.43	1.65	1.30	.47	1-1/8	.110	3.4	8.8	03094-94
03093-002516A8	.629 (16mm)	1"-8	1.57	4.17	1.97	1.57	.63	1-1/2	.126	4.5	10.3	03094-95

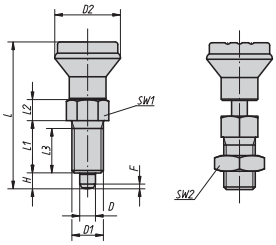
METRIC

Part #	-0.02/-0.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	H mm	SW mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Screw-in Washer Part #
03093-002903	3	M6X0.75	14	34.5	17	14	3.5	10	0.8	1.0	2.2	03094-99
03093-002004	4	M8X1	18	43	21	18	4	13	1	1.3	2.7	03094-99
03093-002105	5	M10X1	21	50	24	21	5	17	1.3	1.1	2.7	03094-91
03093-002206	6	M12X1.5	25	59	28	25	6	19	1.8	1.3	3.1	03094-92
03093-002308	8	M16X1.5	33	77	36	33	8	24	2.3	3.4	7.9	03094-93
03093-002410	10	M20X1.5	33	83	40	33	10	30	2.8	3.4	7.6	03094-94
03093-002412	12	M20X1.5	33	87	42	33	12	30	2.8	3.4	8.8	03094-94
03093-002516	16	M24X2	40	106	50	40	16	36	3.2	4.5	10.3	03094-95

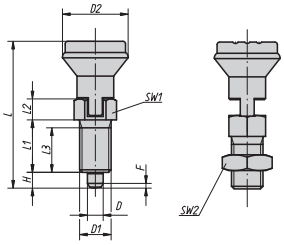
HAND RETRACTABLE PLUNGERS

Novo-Grip Pull Knob | Steel and Stainless | Inch & Metric

Non-Locking Style



Locking Style



These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The locking style allows the plunger to remain in the retracted position. The body is available in steel with black oxide finish or stainless steel with natural finish. The plunger pin is ground and hardened and are supplied with a jam nut. The Novo-Grip knob is made from black plastic. Plungers without jam nuts and non-hardened plungers are available.

Non-Locking Style

INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03090-2005A4	03090-02005A4	.197 (5mm)	3/8-16	.83	1.85	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03090-2105AL	03090-02105AL	.197 (5mm)	3/8-24	.83	1.85	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03090-2206A5	03090-02206A5	.236 (6mm)	1/2-13	.98	2.20	.79	.31	.67	.24	.55	3/4	.07	1.3	3.1
03090-2308A6	03090-02308A6	.315 (8mm)	5/8-11	1.30	2.91	1.02	.39	.91	.31	.75	15/16	.09	3.4	7.9
03090-2410A7	03090-02410A7	.394 (10mm)	3/4-10	1.30	3.15	1.10	.47	.98	.39	.87	1-1/8	.11	3.4	7.6

METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03090-2105	03090-02105	5	M10X1	21	47	17	7	15	5	13	17	1.3	1.1	2.7
03090-2206	03090-02206	6	M12X1.5	25	56	20	8	17	6	14	19	1.8	1.4	3.2
03090-2308	03090-02308	8	M16X1.5	33	74	26	10	23	8	19	24	2.3	3.4	7.9
03090-2410	03090-02410	10	M20X1.5	33	80	28	12	25	10	22	30	2.8	3.4	7.6

Locking Style

INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03090-4005A4	03090-04005A4	.197 (5mm)	3/8-16	.83	1.85	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03090-4105AL	03090-04105AL	.197 (5mm)	3/8-24	.83	1.85	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03090-4206A5	03090-04206A5	.236 (6mm)	1/2-13	.98	2.20	.79	.31	.67	.24	.55	3/4	.07	1.3	3.1
03090-4308A6	03090-04308A6	.315 (8mm)	5/8-11	1.30	2.91	1.02	.39	.91	.31	.75	15/16	.09	3.4	7.9
03090-4410A7	03090-04410A7	.394 (10mm)	3/4-10	1.30	3.15	1.10	.47	.98	.39	.87	1-1/8	.11	3.4	7.6

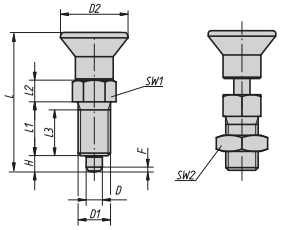
METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03090-4105	03090-04105	5	M10X1	21	47	17	7	15	5	13	17	1.3	1.1	2.7
03090-4206	03090-04206	6	M12X1.5	25	56	20	8	17	6	14	19	1.8	1.4	3.2
03090-4308	03090-04308	8	M16X1.5	33	74	26	10	23	8	19	24	2.3	3.4	7.9
03090-4410	03090-04410	10	M20X1.5	33	80	28	12	25	10	22	30	2.8	3.4	7.6

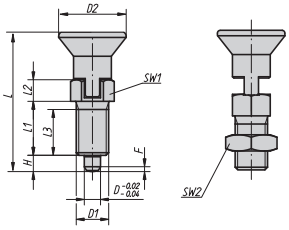
HAND RETRACTABLE PLUNGERS

Plastic Pull Knob | Steel and Stainless | Inch and Metric

Non-Locking Style



Locking Style



These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The locking style allows the plunger to remain in the retracted position. The body is available in steel with black oxide finish or stainless steel with natural finish. The plunger pin is ground and hardened and are supplied with a jam nut. The knob is made from black plastic. Plungers without jam nuts and non-hardened plungers are available.

Non-Locking Style

INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-2903AJ	03089-02903AJ	.118 (3mm)	1/4-28	.55	1.24	.47	.20	.39	.14	.31	7/16	.03	1.0	2.2
03089-2004AK	03089-02004AK	.157 (4mm)	5/16-24	.71	1.52	.59	.24	.51	.16	.39	1/2	.04	1.3	2.7
03089-2105AL	03089-02105AL	.197 (5mm)	3/8-24	.83	1.71	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03089-2206A5	03089-02206A5	.236 (6mm)	1/2-13	.98	2.04	.79	.31	.63	.24	.55	3/4	.07	1.3	3.1
03089-2308A6	03089-02308A6	.315 (8mm)	5/8-11	1.30	2.68	1.02	.39	.83	.31	.75	15/16	.09	3.4	7.9
03089-2410A7	03089-02410A7	.394 (10mm)	3/4-10	1.30	2.91	1.10	.47	.91	.39	.87	1-1/8	.11	3.4	9.0
03089-2412AO	03089-02412AO	.472 (12mm)	3/4-16	1.30	3.07	1.10	.55	.98	.47	.87	1-1/8	.11	3.4	8.8
03089-2516A8	03089-02516A8	.630 (16mm)	1"-8	1.57	3.78	1.26	.71	1.10	.63	1.06	1-1/2	.13	4.5	10.3

METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-2903	03089-02903	3	M6X0.75	14	31.5	12	5	10	3.5	8	10	0.8	1.0	2.5
03089-2004	03089-02004	4	M8X1	18	38.5	15	6	13	4	10	13	1	1.4	2.7
03089-2105	03089-02105	5	M10X1	21	43.5	17	7	15	5	13	17	1.3	1.1	2.7
03089-2206	03089-02206	6	M12X1.5	25	51.7	20	8	17	6	14	19	1.8	1.4	3.2
03089-2308	03089-02308	8	M16X1.5	33	68	26	10	23	8	19	24	2.3	3.4	7.9
03089-2410	03089-02410	10	M20X1.5	33	74	28	12	25	10	22	30	2.8	3.4	7.6
03089-2412	03089-02412	12	M20X1.5	33	78	28	14	25	12	22	30	2.8	3.4	8.8
03089-2516	03089-02516	16	M24X2	40	96	32	18	28	16	27	36	3.2	4.5	10.4

Locking Style

INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-4903AJ	03089-04903AJ	.118 (3mm)	1/4-28	.55	1.24	.47	.20	.39	.14	.31	7/16	.03	1.0	2.2
03089-4004AK	03089-04004AK	.157 (4mm)	5/16-24	.71	1.52	.59	.24	.51	.16	.39	1/2	.04	1.3	2.7
03089-4105AL	03089-04105AL	.197 (5mm)	3/8-24	.83	1.71	.67	.28	.59	.20	.51	9/16	.05	1.1	2.7
03089-4206A5	03089-04206A5	.236 (6mm)	1/2-13	.98	2.04	.79	.31	.63	.24	.55	3/4	.07	1.3	3.1
03089-4308A6	03089-04308A6	.315 (8mm)	5/8-11	1.30	2.68	1.02	.39	.83	.31	.75	15/16	.09	3.4	7.9
03089-4410A7	03089-04410A7	.394 (10mm)	3/4-10	1.30	2.91	1.10	.47	.91	.39	.87	1-1/8	.11	3.4	9.0
03089-4412AO	03089-04412AO	.472 (12mm)	3/4-16	1.30	3.07	1.10	.55	.98	.47	.87	1-1/8	.11	3.4	8.8
03089-4516A8	03089-04516A8	.630 (16mm)	1"-8	1.57	3.78	1.26	.71	1.10	.63	1.06	1-1/2	.13	4.5	10.3

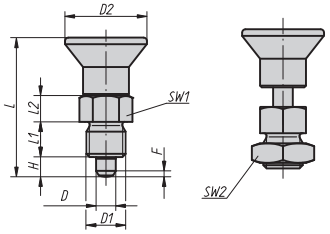
METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03089-4903	03089-04903	3	M6X0.75	14	31.5	12	5	10	3.5	8	10	0.8	1.0	2.5
03089-4004	03089-04004	4	M8X1	18	38.5	15	6	13	4	10	13	1	1.4	2.7
03089-4105	03089-04105	5	M10X1	21	43.5	17	7	15	5	13	17	1.3	1.1	2.7
03089-4206	03089-04206	6	M12X1.5	25	51.7	20	8	17	6	14	19	1.8	1.4	3.2
03089-4308	03089-04308	8	M16X1.5	33	68	26	10	23	8	19	24	2.3	3.4	7.9
03089-4410	03089-04410	10	M20X1.5	33	74	28	12	25	10	22	30	2.8	3.4	7.6
03089-4412	03089-04412	12	M20X1.5	33	78	28	14	25	12	22	30	2.8	3.4	8.8
03089-4516	03089-04516	16	M24X2	40	96	32	18	28	16	27	36	3.2	4.5	10.4

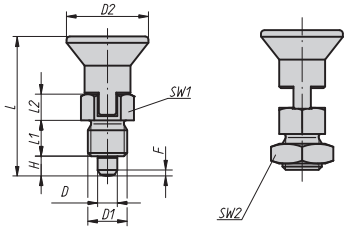
HAND RETRACTABLE PLUNGERS

Plastic Pull Knob | Short Body | Steel and Stainless | Inch and Metric

Non-Locking Style



Locking Style



These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The locking style allows the plunger to remain in the retracted position. The short body allows the plungers to be used in confined spaces. The body is available in steel with black oxide finish or stainless steel with natural finish. The plunger pin on the steel versions is ground and hardened. Plungers are supplied with a jam nut. The knob is made from black plastic. Plungers without jam nuts are available.

Non-Locking Style

INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	H	SW1	SW2	FX 30	Spring Force Initial Lbs.	Final Lbs.
03089-6004AK	03089-16004AK	.157 (4mm)	5/16-24	.71	1.16	.24	.24	.16	.39	1/2	.04	1.3	2.7
03089-6105AL	03089-16105AL	.197 (5mm)	3/8-24	.83	1.36	.31	.28	.20	.51	9/16	.05	1.1	2.7
03089-6206A5	03089-16206A5	.236 (6mm)	1/2-13	.98	1.64	.39	.31	.24	.55	3/4	.07	1.3	3.1
03089-6308A6	03089-16308A6	.315 (8mm)	5/8-11	1.30	2.13	.47	.39	.31	.75	15/16	.09	3.1	6.3
03089-6410A7	03089-16410A7	.394 (10mm)	3/4-10	1.30	2.40	.59	.47	.39	.87	1-1/8	.11	3.4	7.2

METRIC

Steel Part #	Stainless Part #	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	H mm	SW1 mm	SW2 mm	FX 30 mm	Spring Force Initial Lbs.	Final Lbs.
03089-6903	03089-16903	3	M6X0.75	14	25.5	6	5	3.5	8	10	0.8	0.9	2.2
03089-6004	03089-16004	4	M8X1	18	29.5	6	6	4	10	13	1	1.3	2.7
03089-6105	03089-16105	5	M10X1	21	34.5	8	7	5	13	17	1.3	1.1	2.7
03089-6206	03089-16206	6	M12X1.5	25	41.7	10	8	6	14	19	1.8	1.3	3.1
03089-6308	03089-16308	8	M16X1.5	33	54	12	10	8	19	24	2.3	3.1	6.3
03089-6410	03089-16410	10	M20X1.5	33	61	15	12	10	22	30	2.8	3.4	7.2

Locking Style

INCH

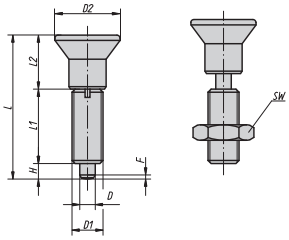
Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	H	SW1	SW2	FX 30	Spring Force Initial Lbs.	Final Lbs.
03089-8004AK	03089-18004AK	.157 (4mm)	5/16-24	.71	1.16	.24	.24	.16	.39	1/2	.04	1.3	2.7
03089-8105AL	03089-18105AL	.197 (5mm)	3/8-24	.83	1.36	.31	.28	.20	.51	9/16	.05	1.1	2.7
03089-8206A5	03089-18206A5	.236 (6mm)	1/2-13	.98	1.64	.39	.31	.24	.55	3/4	.07	1.3	3.1
03089-8308A6	03089-18308A6	.315 (8mm)	5/8-11	1.30	2.13	.47	.39	.31	.75	15/16	.09	3.1	6.3
03089-8410A7	03089-18410A7	.394 (10mm)	3/4-10	1.30	2.40	.59	.47	.39	.87	1-1/8	.11	3.4	7.2

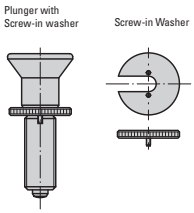
METRIC

Steel Part #	Stainless Part #	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	H mm	SW1 mm	SW2 mm	FX 30 mm	Spring Force Initial Lbs.	Final Lbs.
03089-8903	03089-18903	3	M6X0.75	14	25.5	6	5	3.5	8	10	0.8	0.9	2.2
03089-8004	03089-18004	4	M8X1	18	29.5	6	6	4	10	13	1	1.3	2.7
03089-8105	03089-18105	5	M10X1	21	34.5	8	7	5	13	17	1.3	1.1	2.7
03089-8206	03089-18206	6	M12X1.5	25	41.7	10	8	6	14	19	1.8	1.3	3.1
03089-8308	03089-18308	8	M16X1.5	33	54	12	10	8	19	24	2.3	3.1	6.3
03089-8410	03089-18410	10	M20X1.5	33	61	15	12	10	22	30	2.8	3.4	7.2

HAND RETRACTABLE PLUNGERS

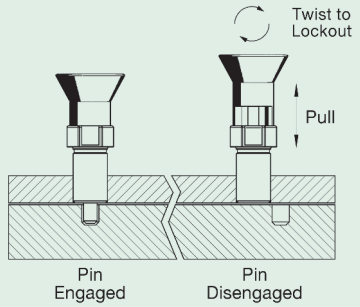
Plastic Pull Knob without Collar | Steel and Stainless | Inch & Metric





These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the handle retracts the plunger pin into the body. The body is available in steel with black oxide finish or stainless steel with natural finish. The plunger pin is ground and hardened and are supplied with a jam nut. Screw-in washers are available to easily install the plungers. The knob is made from black thermoplastic. Plungers without jam nuts and non-hardened plungers are available.

How To Use



To lockout the spring loaded hand retractable plunger the knob is pulled up and turned 90 degrees.

INCH

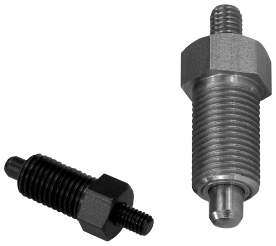
Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	H	SW	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Screw Washer Part #
03093-2903AJ	03093-02903AJ	.118 (3mm)	1/4-28	.55	1.24	.67	.43	.14	7/16	.031	1.0	2.2	03094-99
03093-2004AK	03093-02004AK	.157 (4mm)	5/16-24	.71	1.52	.83	.53	.16	1/2	.051	1.3	2.7	03094-99
03093-2105AL	03093-02105AL	.197 (5mm)	3/8-24	.83	1.71	.94	.57	.20	9/16	.051	1.1	2.7	03094-91
03093-2206A5	03093-02206A5	.236 (6mm)	1/2-13	.98	2.04	1.10	.70	.24	3/4	.071	1.3	3.1	03094-92
03093-2308A6	03093-02308A6	.315 (8mm)	5/8-11	1.30	2.68	1.42	.94	.31	15/16	.091	3.4	7.9	03094-93
03093-2410A7	03093-02410A7	.394 (10mm)	3/4-10	1.30	2.91	1.57	.94	.39	1-1/8	.110	3.4	7.6	03094-94
03093-2412AO	03093-02412AO	.472 (12mm)	3/4-16	1.30	3.07	1.65	.94	.47	1-1/8	.110	3.4	8.8	03094-94
03093-2516A8	03093-02516A8	.630 (16mm)	1"-8	1.57	3.78	1.97	1.18	.63	1-1/2	.126	4.5	10.3	03094-95

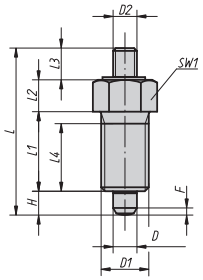
METRIC

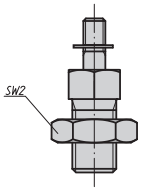
Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	H mm	SW mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Screw Washer Part #
03093-2903	03093-02903	3	M6X0.75	14	31.5	17	11	3.5	10	0.8	1.0	.2	03094-90
03093-2004	03093-02004	4	M8X1	18	38.5	21	13.5	4	13	1.3	1.4	2.7	03094-90
03093-2105	03093-02105	5	M10X1	21	43.5	24	14.5	5	17	1.3	1.1	2.7	03094-91
03093-2206	03093-02206	6	M12X1.5	25	51.7	28	17.7	6	19	1.8	1.4	3.2	03094-92
03093-2308	03093-02308	8	M16X1.5	33	68	36	24	8	24	2.3	3.4	7.9	03094-93
03093-2410	03093-02410	10	M20X1.5	33	74	40	24	10	30	2.8	3.4	7.6	03094-94
03093-2412	03093-02412	12	M20X1.5	33	78	42	24	12	30	2.8	3.4	8.8	03094-94
03093-2516	03093-02516	16	M24X2	40	96	50	30	16	36	3.2	4.5	10.4	03094-95

HAND RETRACTABLE PLUNGERS

Threaded End | Steel and Stainless | Inch and Metric







These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the threaded end retracts the plunger pin into the body. The handle end is threaded for users to attach their own grip or for use with air cylinders, cables, etc. The body is available in steel with black oxide finish or stainless steel with natural finish. The plunger pin is ground and hardened and are supplied with a jam nut. Plungers without jam nuts and non-hardened plungers are available.

INCH

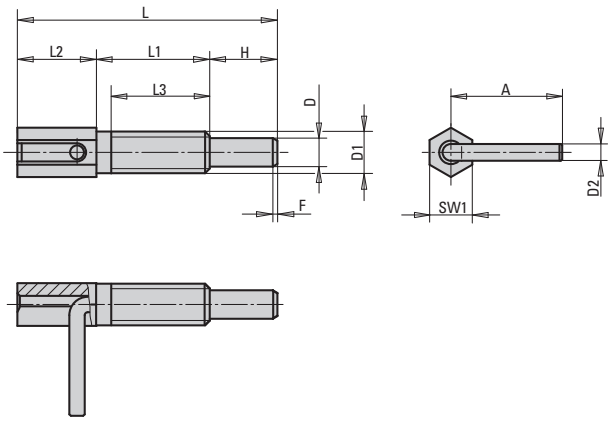
Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L1	L2	L3	L4	H	SW1	SW2	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03092-2903AJ	03092-02903AJ	.118 (3mm)	1/4-28	M2	.94	.47	.20	.14	.39	.14	.31	7/16	.031	1.0	2.2
03092-2004AK	03092-02004AK	.157 (4mm)	5/16-24	M3	1.26	.59	.24	.28	.51	.16	.39	1/2	.039	1.3	2.7
03092-2105AL	03092-02105AL	.197 (5mm)	3/8-24	M4	1.46	.67	.28	.31	.59	.20	.51	9/16	.051	1.1	2.7
03092-2206A5	03092-02206A5	.236 (6mm)	1/2-13	M6	1.65	.79	.31	.31	.67	.24	.55	3/4	.071	1.3	3.1
03092-2308A6	03092-02308A6	.315 (8mm)	5/8-11	M8	2.20	1.02	.39	.47	.91	.31	.75	15/16	.091	3.4	7.9
03092-2410A7	03092-02410A7	.394 (10mm)	3/4-10	M8	2.44	1.10	.47	.47	.98	.39	.87	1-1/8	.110	3.4	7.6
03092-2412AO	03092-02412AO	.472 (12mm)	3/4-16	M8	2.60	1.10	.55	.47	.98	.47	.87	1-1/8	.110	3.4	8.8
03092-2516A8	03092-02516A8	.630 (16mm)	1"-8	M10	3.15	1.26	.71	.55	1.10	.63	1.06	1-1/2	.126	4.5	10.3

METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	H mm	SW1 mm	SW2 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03092-2903	03092-02903	3	M6X0.75	M2	24	12	5	3.5	10	3.5	8	10	0.8	1.0	2.2
03092-2004	03092-02004	4	M8X1	M3	32	15	6	7	13	4	10	13	1	1.4	2.7
03092-2105	03092-02105	5	M10X1	M4	37	17	7	8	15	5	13	17	1.3	1.1	2.7
03092-2206	03092-02206	6	M12X1.5	M6	42	20	8	8	17	6	14	19	1.8	1.4	3.2
03092-2308	03092-02308	8	M16X1.5	M8	56	26	10	12	23	8	19	24	2.3	3.4	7.9
03092-2410	03092-02410	10	M20X1.5	M8	62	28	12	12	25	10	22	30	2.8	3.4	7.6
03092-2412	03092-02412	12	M20X1.5	M8	66	28	14	12	25	12	22	30	2.8	3.4	8.8
03092-2516	03092-02516	16	M24X2	M10	80	32	18	14	28	16	27	36	3.2	4.5	10.3

HAND RETRACTABLE PLUNGERS

L Handle | Steel | Inch and Metric



These spring loaded hand retractable plungers are used to prevent any change in locking position due to lateral force. Pulling up on the L handle retracts the plunger pin into the body. By turning the handle while in the retracted position, the plunger can be locked in the retracted position. The body and plunger are made from alloy steel with blue chromate finish.

INCH

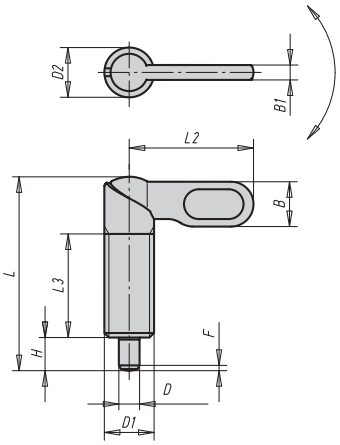
Part #	+/-.001 D	D1	D2	L	L1	L2	L3	H	A	SW1	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Max Torque Ft/Lbs.
03091-11CWA2	.157 (4mm)	1/4-20	.09	1.63	.79	.47	.67	.37	.61	.24	.03	.7	2.3	1.2
03091-12CMA4	.236 (6mm)	3/8-16	.14	2.56	1.32	.69	1.18	.55	.90	.39	.04	.9	3.6	7.4
03091-13CNA5	.315 (8mm)	1/2-13	.19	2.87	1.25	.87	1.10	.75	1.23	.47	.05	.9	5.0	9.6
03091-14COA6	.394 (10mm)	5/8-11	.19	4.04	1.99	1.06	1.75	.98	1.29	.63	.06	.9	5.2	31.1

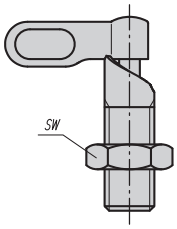
METRIC

Part #	+.01/-.03 D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	A mm	SW1 mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.	Max Torque Ft/Lbs.
03091-1104	4	M6	2.3	41.5	20	12	17	9.5	15.5	6	.7	.7	2.3	1.2
03091-1206	6	M10	3.5	65	33.5	17.5	30	14	22.9	10	1.1	.9	3.6	7.4
03091-1308	8	M12	4.7	73	31.8	22.2	28	19	31.2	12	1.3	.9	5.0	9.6
03091-1410	10	M16	4.7	102.5	50.5	27	44.5	25	32.7	16	1.6	.9	5.2	31.1

HAND RETRACTABLE PLUNGERS

Cam Action | Steel and Stainless | Inch and Metric





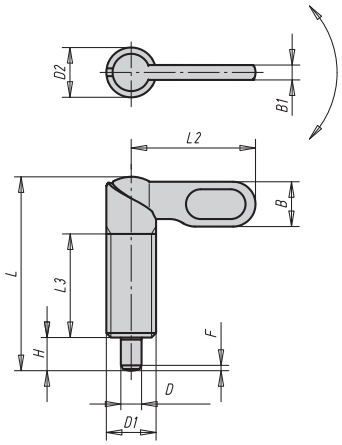
These hand retractable plungers are used for positioning, locating and fastening, without the use of tools, in a wide range of applications. As the handle is turned 180 degrees on the cam of the body, the plunger is retracted into the housing. There is a groove on the top of the cam that locks the plunger into the retracted position. They are available in steel or stainless steel. The steel style has a ground and hardened plunger with a black oxide finish and a powder coated handle. The stainless style has a ground and non-hardened plunger with a natural finish. The parts below are supplied with a jam nut. Parts can be ordered without the jam nut.

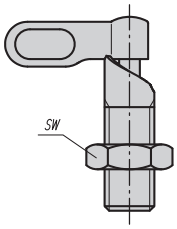
INCH

Steel Part #	Stainless Part #	-.001/-.002 D	D1	D2	L	L2	L3	B	B1	H	SW	F X 30°	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03099-0704A4	03099-10504A4	.157 (4mm)	3/8-16	.39	1.50	.98	.79	.35	.12	.24	9/16	.04	1.8	3.2
03099-0705A4	03099-10505A4	.197 (5mm)	3/8-16	.39	1.50	.98	.79	.35	.12	.24	9/16	.05	1.8	3.2
03099-0706A4	03099-10506A4	.236 (6mm)	3/8-16	.39	1.50	.98	.79	.35	.12	.24	9/16	.07	1.8	3.2
03099-0704AL	03099-10504AL	.157 (4mm)	3/8-24	.39	1.50	.98	.79	.35	.12	.24	9/16	.04	1.8	3.2
03099-0705AL	03099-10505AL	.197 (5mm)	3/8-24	.39	1.50	.98	.79	.35	.12	.24	9/16	.05	1.8	3.2
03099-0706AL	03099-10506AL	.236 (6mm)	3/8-24	.39	1.50	.98	.79	.35	.12	.24	9/16	.07	1.8	3.2
03099-0705A5	03099-10505A5	.197 (5mm)	1/2-13	.47	1.84	1.18	.98	.43	.14	.31	3/4	.05	1.8	3.4
03099-0706A5	03099-10506A5	.236 (6mm)	1/2-13	.47	1.84	1.18	.98	.43	.14	.31	3/4	.07	1.8	3.4
03099-0708A5	03099-10508A5	.315 (8mm)	1/2-13	.47	1.84	1.18	.98	.43	.14	.31	3/4	.09	1.8	3.4
03099-0705AM	03099-10505AM	.197 (5mm)	1/2-20	.47	1.84	1.18	.98	.43	.14	.31	3/4	.05	1.8	3.4
03099-0706AM	03099-10506AM	.236 (6mm)	1/2-20	.47	1.84	1.18	.98	.43	.14	.31	3/4	.07	1.8	3.4
03099-0708AM	03099-10508AM	.315 (8mm)	1/2-20	.63	2.38	1.57	1.26	.57	.19	.39	15/16	.09	3.4	7.9
03099-0706A6	03099-10506A6	.236 (6mm)	5/8-11	.63	2.38	1.57	1.26	.57	.19	.39	15/16	.07	3.4	7.9
03099-0708A6	03099-10508A6	.315 (8mm)	5/8-11	.63	2.38	1.57	1.26	.57	.19	.39	15/16	.09	3.4	7.9
03099-0710A6	03099-10510A6	.394 (10mm)	5/8-11	.63	2.38	1.57	1.26	.57	.19	.39	15/16	.11	3.4	7.9
03099-0706AN	03099-10506AN	.236 (6mm)	5/8-18	.63	2.38	1.57	1.26	.57	.19	.39	15/16	.07	3.4	7.9
03099-0708AN	03099-10508AN	.315 (8mm)	5/8-18	.47	1.84	1.18	.98	.43	.14	.31	15/16	.09	1.8	3.4
03099-0710AN	03099-10510AN	.394 (10mm)	5/8-18	.63	2.38	1.57	1.26	.57	.19	.39	1"-1/8	.11	3.4	7.9
03099-0708A7	03099-10508A7	.315 (8mm)	3/4-10	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.09	4.5	13.5
03099-0710A7	03099-10510A7	.394 (10mm)	3/4-10	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.11	4.5	13.5
03099-0712A7	03099-10512A7	.472 (12mm)	3/4-10	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.12	4.5	13.5
03099-0708AO	03099-10508AO	.315 (8mm)	3/4-16	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.09	4.5	13.5
03099-0710AO	03099-10510AO	.394 (10mm)	3/4-16	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.11	4.5	13.5
03099-0712AO	03099-10512AO	.472 (12mm)	3/4-16	.79	2.76	1.97	1.38	.71	.24	.47	1"-1/8	.12	4.5	13.5

HAND RETRACTABLE PLUNGERS

Cam Action | Steel and Stainless | Inch and Metric (continued)



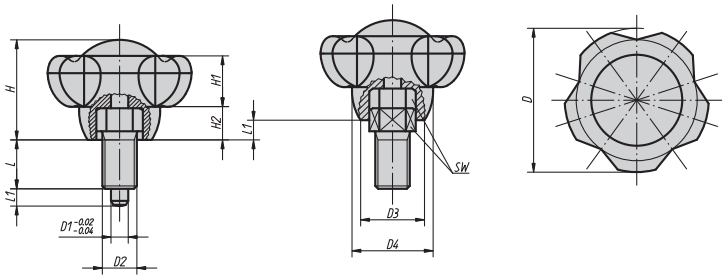


METRIC

Steel Part #	Stainless Part #	-.02/-.04 D mm	D1 mm	D2 mm	L mm	L2 mm	L3 mm	B mm	B1 mm	H mm	SW mm	F X 30° mm	SPRING FORCE F1 Initial Lbs.	SPRING FORCE F2 Final Lbs.
03099-070410	03099-1050410	4	M10X1.5	10	38	25	20	9	3	6	17	1	1.8	3.2
03099-070510	03099-1050510	5	M10X1.5	10	38	25	20	9	3	6	17	1.3	1.8	3.2
03099-070610	03099-1050610	6	M10X1.5	10	38	25	20	9	3	6	17	1.8	1.8	3.2
03099-0704101	03099-10504101	4	M10X1	10	38	25	20	9	3	6	17	1	1.8	3.2
03099-0705101	03099-10505101	5	M10X1	10	38	25	20	9	3	6	17	1.3	1.8	3.2
03099-0706101	03099-10506101	6	M10X1	10	38	25	20	9	3	6	17	1.8	1.8	3.2
03099-070512	03099-1050512	5	M12X1.75	12	46.8	30	25	10.8	3.6	8	19	1.3	1.8	3.4
03099-070612	03099-1050612	6	M12X1.75	12	46.8	30	25	10.8	3.6	8	19	1.8	1.8	3.4
03099-070812	03099-1050812	8	M12X1.75	12	46.8	30	25	10.8	3.6	8	19	2.3	1.8	3.4
03099-0705121	03099-10505121	5	M12X1.5	12	46.8	30	25	10.8	3.6	8	19	1.3	1.8	3.4
03099-0706121	03099-10506121	6	M12X1.5	12	46.8	30	25	10.8	3.6	8	19	1.8	1.8	3.4
03099-0708121	03099-10508121	8	M12X1.5	12	46.8	30	25	10.8	3.6	8	19	2.3	3.4	7.9
03099-070616	03099-1050616	6	M16X2	16	60.4	40	32	14.4	4.8	10	24	1.8	3.4	7.9
03099-070816	03099-1050816	8	M16X2	16	60.4	40	32	14.4	4.8	10	24	2.3	3.4	7.9
03099-071016	03099-1051016	10	M16X2	16	60.4	40	32	14.4	4.8	10	24	2.8	3.4	7.9
03099-0706161	03099-10506161	6	M16X1.5	16	60.4	40	32	14.4	4.8	10	24	1.8	3.4	7.9
03099-0708161	03099-10508161	8	M16X1.5	16	46.8	30	25	10.8	3.6	10	24	2.3	1.8	3.4
03099-0710161	03099-10510161	10	M16X1.5	16	60.4	40	32	14.4	4.8	10	24	2.8	3.4	7.9
03099-070820	03099-1050820	8	M20X2.5	20	70	50	35	18	6	12	30	2.3	4.5	13.5
03099-071020	03099-1051020	10	M20X2.5	20	70	50	35	18	6	12	30	2.8	4.5	13.5
03099-071220	03099-1051220	12	M20X2.5	20	70	50	35	18	6	12	30	3	4.5	13.5
03099-0708201	03099-10508201	8	M20X1.5	20	70	50	35	18	6	12	30	2.3	4.5	13.5
03099-0710201	03099-10510201	10	M20X1.5	20	70	50	35	18	6	12	30	2.8	4.5	13.5
03099-0712201	03099-10512201	12	M20X1.5	20	70	50	35	18	6	12	30	3	4.5	13.5

HAND RETRACTABLE PLUNGERS

Thermoplastic Palm Grip Handle | Inch and Metric



These spring loaded hand retractable plungers allow you to quickly retract and engage the plunger for locating, fastening and quick change operations. Pulling on the handle of the plunger assembly retracts the plunger into the housing. Releasing the handle allows the spring loaded plunger to extend. The handle is made from grey thermoplastic. The locking pin and threaded bolt have a black oxide finish. The locking pin is hardened and ground. They are available in dark grey, light grey, traffic red and bright yellow. See www.fixtureworks.net for colors.

INCH

Part #	D	-.001/-.002 D1	D2	D3	D4	H	H1	H2	L	L1	SW
03190-1105AL*	1.97	.197 (5mm)	3/8-24	.87	1.11	1.37	.70	.45	.51	.20	.51
03190-1206A5*	1.97	.236 (6mm)	1/2-13	.87	1.11	1.37	.70	.45	.67	.24	.55
03190-1308A6*	2.48	.315 (8mm)	5/8-11	1.10	1.40	1.73	.89	.57	.87	.31	.75
03190-1410A7*	2.48	.394 (10mm)	3/4-10	1.10	1.40	1.73	.89	.57	.94	.39	.87

* Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

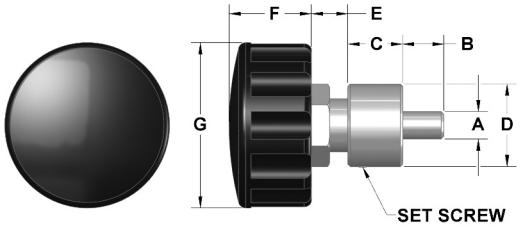
METRIC

Part #	D mm	-.02/-.04 D1 mm	D2 mm	D3 mm	D4 mm	H mm	H1 mm	H2 mm	L mm	L1 mm	SW mm
03190-1105*	50	5	M10 X 1	22.2	28.2	34.8	17.8	11.5	13	5	13
03190-1206*	50	6	M12 X 1.5	22.2	28.2	34.8	17.8	11.5	17	6	14
03190-1308*	63	8	M16 X 1.5	28	35.5	44	22.5	14.5	22	8	19
03190-1410*	63	10	M20 X 1.5	28	35.5	44	22.5	14.5	24	10	22

* Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

Fairlane®

ADJUSTABLE CLAMPING PINS

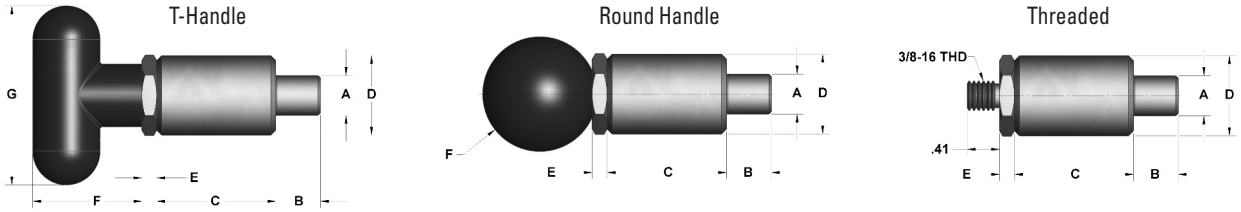


These spring loaded adjustable clamping pins allow for quick clamping and release. Once the pin is engaged, turning the knob allows the pin to tighten down on the work piece or further extend the plunger in the locating hole. Because it can be quickly adjusted, it is ideal for applications where there is variance in the part being held. Pulling up on the handle retracts the plunger fully into the housing. The set screw on the housing allows you to lock the plunger at a set depth for repeated operations and prevents the mechanism from coming out of the housing. Plunger is made from 1038 steel providing a tensile strength of 90 to 95 KSI. These can be heat treated for greater strength as specials. The housing is made from 12L15 steel for welding to fixture. The plunger and hex are zinc plated.

Part #	A	B	C	D	E	F	G	Adjustment
CP-C25P	1/4	9/16	7/8	1-1/8	1/2	1-1/8	2-1/4	5/8
CP-C100P	3/8	9/16	7/8	1-1/8	1/2	1-1/8	2-1/4	5/8
CP-C200P	1/2	9/16	7/8	1-1/8	1/2	1-1/8	2-1/4	5/8

Fairlane®

PULL PINS



These spring loaded pull pins allow you to quickly retract and engage the plunger for locating, fastening and quick change operations. They consist of two parts which include a housing (barrel) and a plunger assembly. The plunger assembly screws into the housing. The housing is designed to be welded into place for strength. Pulling on the handle of the plunger assembly retracts the plunger into the housing. Releasing the handle allows the spring loaded plunger to extend. The lockout style allows you to pull and rotate the handle 1/4 turn to hold the plunger in the retracted position. The style without handles feature a 3/8-16 threaded end so the user can add a different handle or other method of actuation. The zinc plated steel plunger assemblies are made from C1038 steel on all sizes except the 5/8 which is made from 12L15 steel. The steel housing is made from 12L15 steel for welding to the fixture and is not plated. The aluminum housings are made from 6061-T6. The stainless steel models (plunger assembly and housing) are made from 303 stainless steel. Pull up force is approximately 5 lbs. Handles are made from black plastic.

T-HANDLE - NON-LOCKING

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.015 D	E	F	G
CP-K25T	CP-K25TAL	—	1/4	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K100T	CP-K100TAL	CP-K100TSS	3/8	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K200T	CP-K200TAL	CP-K200TSS	1/2	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K320T	CP-K320TAL	CP-K320TSS	1/2	9/16	2-1/4	1.000	3/16	1-7/16	2-1/4
CP-K420T	CP-K420TAL	—	5/8	9/16	2-1/4	1.000	3/16	1-7/16	2-1/4

T-HANDLE - WITH LOCKOUT

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.015 D	E	F	G
CP-K25TLO	CP-K25TLOAL	—	1/4	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K100TLO	CP-K100TLOAL	CP-K100TLOSS	3/8	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K200TLO	CP-K200TLOAL	CP-K200TLOSS	1/2	9/16	1-1/2	1.000	3/16	1-7/16	2-1/4
CP-K320TLO	CP-K320TLOAL	CP-K320TLOSS	1/2	9/16	2-1/4	1.000	3/16	1-7/16	2-1/4
CP-K420TLO	CP-K420TLOAL	—	5/8	9/16	2-1/4	1.000	3/16	1-7/16	2-1/4

ROUND HANDLE - NON-LOCKING

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.015 D	E	F
CP-K25R	CP-K25RAL	—	1/4	9/16	1-1/2	1.000	3/16	1-3/8
CP-K100R	CP-K100RAL	CP-K100RSS	3/8	9/16	1-1/2	1.000	3/16	1-3/8
CP-K200R	CP-K200RAL	CP-K200RSS	1/2	9/16	1-1/2	1.000	3/16	1-3/8
CP-K320R	CP-K320RAL	CP-K320RSS	1/2	9/16	2-1/4	1.000	3/16	1-3/8
CP-K420R	CP-K420RAL	—	5/8	9/16	2-1/4	1.000	3/16	1-3/8

ROUND HANDLE - WITH LOCKOUT

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.015 D	E	F
CP-K25RLO	CP-K25RLOAL	—	1/4	9/16	1-1/2	1.000	3/16	1-3/8
CP-K100RLO	CP-K100RLOAL	CP-K100RLOSS	3/8	9/16	1-1/2	1.000	3/16	1-3/8
CP-K200RLO	CP-K200RLOAL	CP-K200RLOSS	1/2	9/16	1-1/2	1.000	3/16	1-3/8
CP-K320RLO	CP-K320RLOAL	CP-K320RLOSS	1/2	9/16	2-1/4	1.000	3/16	1-3/8
CP-K420RLO	CP-K420RLOAL	—	5/8	9/16	2-1/4	1.000	3/16	1-3/8

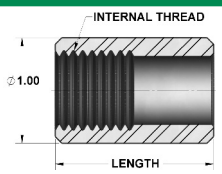
THREADED END - NON-LOCKING

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.005 D	E
CP-K25NK	CP-K25NKAL	—	1/4	9/16	1-1/2	1.000	3/16
CP-K100NK	CP-K100NKAL	CP-K100NKSS	3/8	9/16	1-1/2	1.000	3/16
CP-K200NK	CP-K200NKAL	CP-K200NKSS	1/2	9/16	1-1/2	1.000	3/16
CP-K320NK	CP-K320NKAL	CP-K320NKSS	1/2	9/16	2-1/4	1.000	3/16
CP-K420NK	CP-K420NKAL	—	5/8	9/16	2-1/4	1.000	3/16

THREADED END - WITH LOCKOUT

Steel Plunger Steel Housing Part #	Steel Plunger Alum Housing Part #	SS Plunger SS Housing Part #	+.012 -.010 A	B	C	+.000 -.015 D	E
CP-K25NKLO	CP-K25NKLOAL	—	1/4	9/16	1-1/2	1.000	3/16
CP-K100NKLO	CP-K100NKLOAL	CP-K100NKLOSS	3/8	9/16	1-1/2	1.000	3/16
CP-K200NKLO	CP-K200NKLOAL	CP-K200NKLOSS	1/2	9/16	1-1/2	1.000	3/16
CP-K320NKLO	CP-K320NKLOAL	CP-K320NKLOSS	1/2	9/16	2-1/4	1.000	3/16
CP-K420NKLO	CP-K420NKLOAL	—	5/8	9/16	2-1/4	1.000	3/16

HOUSINGS ONLY



Steel Housing Part #	Alum Housing Part #	SS Housing Part #	Internal Thread	Length
CP-K102-BO	CP-K102AL-BO	CP-K102SS-BO	3/4-10	1-1/2
CP-K102L-BO	CP-K102LAL-BO	CP-K102LSS-BO	3/4-10	2-1/4

ADJUSTABLE LEVERS & HANDLES

STEEL LEVERS

STAINLESS LEVERS

LOW PROFILE LEVERS

ZINC DIE CAST LEVERS

ZINC DIE CAST CLAMP HANDLES

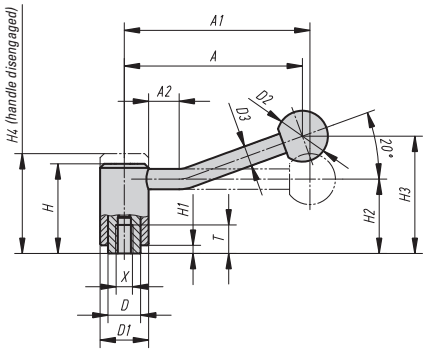
STAINLESS CLAMP HANDLES

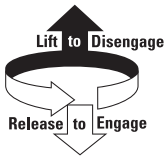
PLASTIC CLAMP HANDLES

CAM LEVERS

ADJUSTABLE TENSION LEVERS

Steel | Female Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from steel with black powder coat finish. Knob is plastic.

INCH

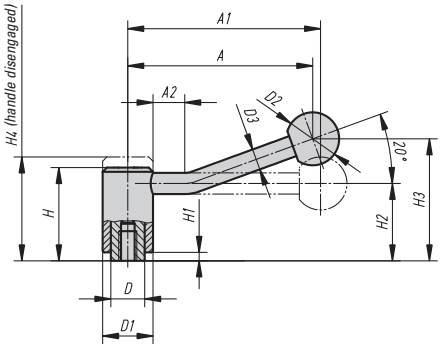
Part # Flat	Part # Angled	X Thread	T	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth
06370-1A32	06370-1A31	5/16-18	.55	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22
06370-1A42	06370-1A41	3/8-16	.55	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22
06370-2A42	06370-2A41	3/8-16	.67	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24
06370-2A52	06370-2A51	1/2-13	.67	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24
06370-3A52	06370-3A51	1/2-13	.91	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26
06370-3A62	06370-3A61	5/8-11	.91	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26
06370-4A62	06370-4A61	5/8-11	1.06	1.18	1.61	1.26	.51	2.70	.30	2.20	3.52	3.01	5.06	5.28	.59	36
06370-4A72	06370-4A71	3/4-10	1.06	1.18	1.61	1.26	.51	2.70	.30	2.20	3.52	3.01	5.06	5.28	.59	36

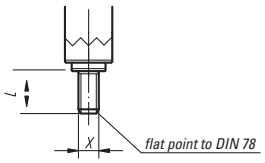
METRIC

Part # Flat	Part # Angled	X Thread	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth
06370-1082	06370-1081	M8	14	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22
06370-1102	06370-1101	M10	14	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22
06370-2102	06370-2101	M10	17	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24
06370-2122	06370-2121	M12	17	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24
06370-3122	06370-3121	M12	23	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26
06370-3162	06370-3161	M16	23	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26
06370-4162	06370-4161	M16	27	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36
06370-4202	06370-4201	M20	27	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36
06370-4242	06370-4241	M24	27	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36

ADJUSTABLE TENSION LEVERS

Steel | Male Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from steel with black powder coat finish. Knob is plastic. To order part, add desired thread length (++) to the part number. Sample 06380-1A32X20.

INCH

Part # Flat	Part # Angled	X Thread	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth	L ++ = Thread Length (mm)
06380-1A32X++	06380-1A31X++	5/16-18	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	20 / 25 / 30 / 40 / 50 / 60
06380-1A42X++	06380-1A41X++	3/8-16	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	20 / 25 / 30 / 40 / 50 / 60
06380-1A52X++	06380-1A51X++	1/2-13	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	20 / 25 / 30 / 40 / 50 / 60
06380-2A52X++	06380-2A51X++	1/2-13	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24	20 / 25 / 30 / 40 / 50 / 60
06380-3A52X++	06380-3A51X++	1/2-13	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26	20 / 25 / 30 / 40 / 50 / 60
06380-3A62X++	06380-3A61X++	5/8-11	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26	20 / 25 / 30 / 40 / 50 / 60
06380-4A62X++	06380-4A61X++	5/8-11	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.30	.59	36	30 /40 / 50 / 60
06380-4A72X++	06380-4A71X++	3/4-10	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.30	.59	36	30 /40 / 50 / 60

++ Add the desired thread length here. 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

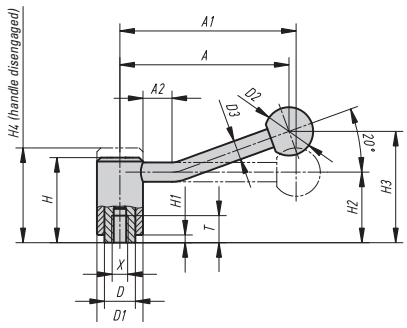
METRIC

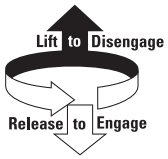
Part # Flat	Part # Angled	X Thread	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth	L ++ = Thread Length (mm)
06380-1082X++	06380-1081X++	M8	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06380-1102X++	06380-1101X++	M10	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06380-1122X++	06380-1121X++	M12	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06380-2122X++	06380-2121X++	M12	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24	20 / 25 / 30 / 40 / 50 / 60
06380-3122X++	06380-3121X++	M12	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06380-3162X++	06380-3161X++	M16	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06380-4162X++	06380-4161X++	M16	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134.5	15	36	30 / 40 / 50 / 60 / 70 / 80 / 90
06380-4202X++	06380-4201X++	M20	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134.5	15	36	30 / 40 / 50 / 60 / 70 / 80 / 90
06380-4242X++	06380-4241X++	M24	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134.5	15	36	30 / 40 / 50 / 60 / 70 / 80 / 90

++ Add the desired thread length here.

ADJUSTABLE TENSION LEVERS

Stainless | Female Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from stainless steel with a natural finish. Knob is plastic.

INCH

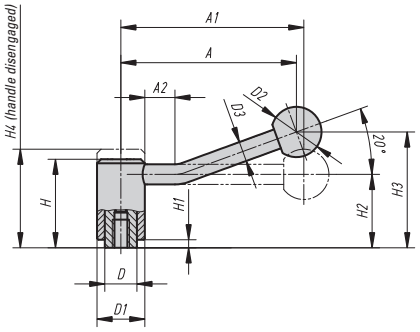
Part # Flat	Part # Angled	X Thread	T	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth
06371-1A32	06371-1A31	5/16-18	.55	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22
06371-1A42	06371-1A41	3/8-16	.55	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22
06371-2A42	06371-2A41	3/8-16	.67	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24
06371-2A52	06371-2A51	1/2-13	.67	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24
06371-3A52	06371-3A51	1/2-13	.91	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26
06371-3A62	06371-3A61	5/8-11	.91	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26
06371-4A62	06371-4A61	5/8-11	1.06	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.28	.59	36
06371-4A72	06371-4A71	3/4-10	1.06	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.28	.59	36

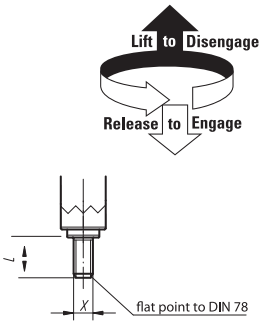
METRIC

Part # Flat	Part # Angled	X Thread	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth
06371-1082	06371-1081	M8	14	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22
06371-1102	06371-1101	M10	14	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22
06371-2102	06371-2101	M10	17	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24
06371-2122	06371-2121	M12	17	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24
06371-3122	06371-3121	M12	23	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26
06371-3162	06371-3161	M16	23	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26
06371-4162	06371-4161	M16	27	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36
06371-4202	06371-4201	M20	27	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36

ADJUSTABLE TENSION LEVERS

Stainless | Male Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from stainless steel with a natural finish. Knob is plastic. To order part, add desired thread length (++) to the part number. Sample 06381-1A32X15.

INCH

Part # Flat	Part # Angled	X Thread	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth	L ++ = Thread Length (mm)
06381-1A32X++	06381-1A31X++	5/16-18	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-1A42X++	06381-1A41X++	3/8-16	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-1A52X++	06381-1A51X++	1/2-13	.63	.94	.98	.39	1.75	.18	1.46	2.30	1.95	3.46	3.62	.59	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-2A52X++	06381-2A51X++	1/2-13	.75	1.10	1.26	.47	2.03	.22	1.65	2.70	2.26	4.17	4.37	.59	24	20 / 25 / 30 / 40 / 50 / 60
06381-3A52X++	06381-3A51X++	1/2-13	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06381-3A62X++	06381-3A61X++	5/8-11	.91	1.30	1.26	.51	2.28	.24	1.85	3.19	2.56	5.06	5.30	.59	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06381-4A62X++	06381-4A61X++	5/8-11	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.28	.59	36	30 / 40 / 50 / 60 / 70 / 80 / 90
06381-4A72X++	06381-4A71X++	3/4-10	1.18	1.61	1.26	.51	2.70	.30	2.22	3.52	3.01	5.06	5.28	.59	36	30 / 40 / 50 / 60 / 70 / 80 / 90

++ Add the desired thread length here. 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36" / 70 = 2.76" / 80 = 3.15" / 90 = 3.54"

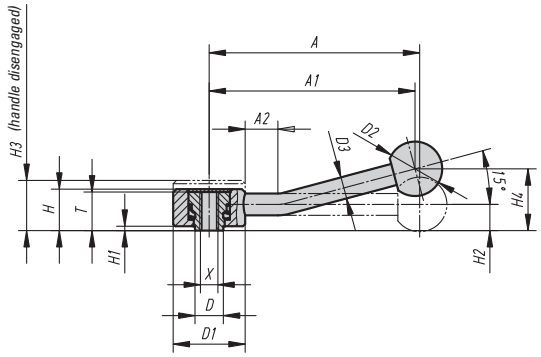
METRIC

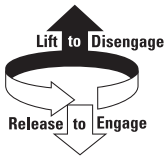
Part # Flat	Part # Angled	X Thread	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth	L ++ = Thread Length (mm)
06381-1082X++	06381-1081X++	M8	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-1102X++	06381-1101X++	M10	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-1122X++	06381-1121X++	M12	16	24	25	10	44.5	4.5	37	58.5	49.5	88	92	15	22	15 / 20 / 25 / 30 / 40 / 50 / 60
06381-2122X+	06381-2121X++	M12	19	28	32	12	51.5	5.5	42	68.5	57.5	106	111	15	24	20 / 25 / 30 / 40 / 50 / 60
06381-3122X++	06381-3121X++	M12	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06381-3162X++	06381-3161X++	M16	23	33	32	13	58	6	47	81	65	128.5	134.5	15	26	20 / 25 / 30 / 40 / 50 / 60 / 70 / 80 / 90
06381-4162X++	06381-4161X++	M16	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36	30 / 40 / 50 / 60 / 70 / 80 / 90
06381-4202X++	06381-4201X++	M20	30	41	32	13	68.5	7.5	56.5	89.5	76.5	128.5	134	15	36	30 / 40 / 50 / 60 / 70 / 80 / 90

++ Add the desired thread length here.

LOW PROFILE ADJUSTABLE TENSION LEVERS

Steel | Female Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from steel with black oxide finish. Knob is plastic. Low profile for use in tight spaces.

INCH

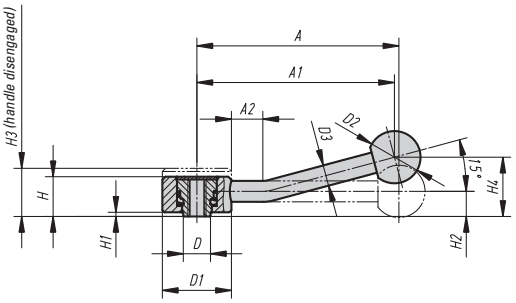
Part # Flat	Part # Angled	X Thread	T	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth
06390-1A21	06390-1A22	1/4-20	.71	.53	1.30	.98	.39	.75	.08	.47	.91	1.14	3.94	4.02	.59	26
06390-1A31	06390-1A32	5/16-18	.71	.53	1.30	.98	.39	.75	.08	.47	.91	1.14	3.94	4.02	.59	26
06390-2A41	06390-2A42	3/8-16	.83	.75	1.61	1.18	.47	.87	.08	.53	1.02	1.50	5.00	5.28	.59	26
06390-2A51	06390-2A52	1/2-13	.83	.75	1.61	1.18	.47	.87	.08	.53	1.02	1.50	5.00	5.28	.59	26
06390-3A51	06390-3A52	1/2-13	1.06	.91	1.77	1.46	.55	1.10	.08	.67	1.30	1.89	5.71	5.83	.59	26
06390-3A61	06390-3A62	5/8-11	1.06	.91	1.77	1.46	.55	1.10	.08	.67	1.30	1.89	5.71	5.83	.59	26

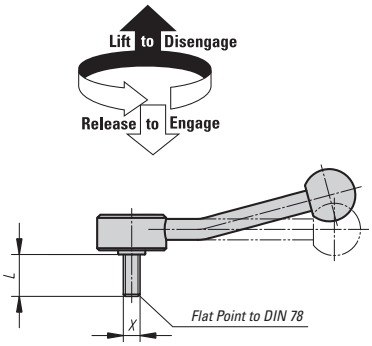
METRIC

Part # Flat	Part # Angled	X Thread	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth
06390-1061	06390-1062	M6	18	13.5	33	25	10	19	2	12	23	29	100	102	15	26
06390-1081	06390-1082	M8	18	13.5	33	25	10	19	2	12	23	29	100	102	15	26
06390-2101	06390-2102	M10	21	19	41	30	12	22	2	13.5	26	38	127	134	15	26
06390-2121	06390-2122	M12	21	19	41	30	12	22	2	13.5	26	38	127	134	15	26
06390-3121	06390-3122	M12	27	23	45	37	14	28	2	17	33	48	145	148	15	26
06390-3161	06390-3162	M16	27	23	45	37	14	28	2	17	33	48	145	148	15	26

LOW PROFILE ADJUSTABLE TENSION LEVERS

Steel | Male Threads | Flat and Angled | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. They are made from steel with black oxide finish. Knob is plastic. Low profile for use in tight spaces. To order part, add desired thread length (++) to the part number. Sample 06400-1A31X20.

INCH

Part # Flat	Part # Angled	X Thread	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	A2	No. Of Teeth	L ++ = Thread Length (mm)
06400-1A31X++	06400-1A32X++	5/16-18	.53	1.30	.98	.39	.75	.08	.47	.91	1.14	3.94	4.02	.59	26	20 / 25 / 30 / 40 / 50 / 60
06400-1A41X++	06400-1A42X++	3/8-16	.53	1.30	.98	.39	.75	.08	.47	.91	1.14	3.94	4.02	.59	26	20 / 25 / 30 / 40 / 50 / 60
06400-2A41X++	06400-2A42X++	3/8-16	.75	1.61	1.18	.47	.87	.08	.53	1.02	1.50	5.00	5.16	.59	26	20 / 25 / 30 / 40 / 50 / 60
06400-2A51X++	06400-2A52X++	1/2-13	.75	1.61	1.18	.47	.87	.08	.53	1.02	1.50	5.00	5.16	.59	26	20 / 25 / 30 / 40 / 50 / 60
06400-3A51X++	06400-3A52X++	1/2-13	.91	1.77	1.46	.55	1.10	.08	.67	1.30	1.89	5.71	5.83	.59	26	20 / 25 / 30 / 40 / 50 / 60
06400-3A61X++	06400-3A62X++	5/8-11	.91	1.77	1.46	.55	1.10	.08	.67	1.30	1.89	5.71	5.83	.59	26	20 / 25 / 30 / 40 / 50 / 60

++ Add the desired thread length here. 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

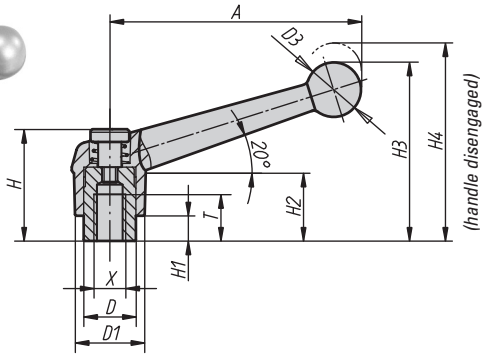
METRIC

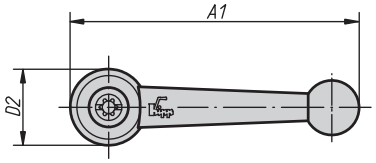
Part # Flat	Part # Angled	X Thread	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	A2 mm	No. Of Teeth	L ++ = Thread Length (mm)
06400-1081X++	06400-1082X++	M8	13.5	33	25	10	19	2	12	23	29	100	102	15	26	15 / 20 / 25 / 30 / 40 / 50 / 60
06400-1101X++	06400-1102X++	M10	13.5	33	25	10	19	2	12	23	29	100	102	15	26	15 / 20 / 25 / 30 / 40 / 50 / 60
06400-2101X++	06400-2102X++	M10	19	41	30	12	22	2	13.5	26	38	127	131	15	26	20 / 25 / 30 / 40 / 50 / 60
06400-2121X++	06400-2122X++	M12	19	41	30	12	22	2	13.5	26	38	127	131	15	26	20 / 25 / 30 / 40 / 50 / 60
06400-3121X++	06400-3122X++	M12	23	45	37	14	28	2	17	33	48	145	148	15	26	20 / 25 / 30 / 40 / 50 / 60
06400-3161X++	06400-3162X++	M16	23	45	37	14	28	2	17	33	48	145	148	15	26	20 / 25 / 30 / 40 / 50 / 60

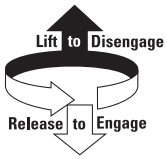
++ Add the desired thread length here.

ADJUSTABLE CLAMP LEVERS

Zinc Die Cast | Female Threads | Steel Inserts | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in either black satin or silver metallic finish. Internal parts are made from steel with black oxide finish.

INCH

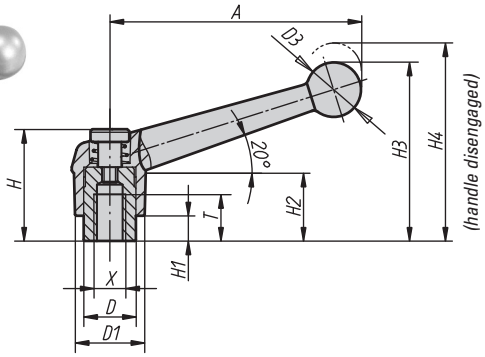
Part # Black	Part # Metallic	X Thread	T	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	No. Of Teeth
06410-1AE1	06410-1AE3	8-32	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06410-1A01	06410-1A03	10-24	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06410-1A11	06410-1A13	10-32	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06410-1A21	06410-1A23	1/4-20	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06410-2A21	06410-2A23	1/4-20	.47	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20
06410-2A31	06410-2A33	5/16-18	.47	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20
06410-3A31	06410-3A33	5/16-18	.55	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22
06410-3A41	06410-3A43	3/8-16	.55	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22
06410-4A41	06410-4A43	3/8-16	.67	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24
06410-4A51	06410-4A53	1/2-13	.67	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24
06410-5A51	06410-5A53	1/2-13	.91	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26
06410-5A61	06410-5A63	5/8-11	.91	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26

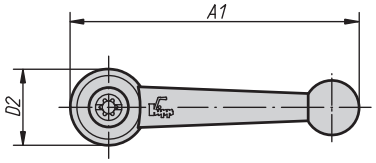
METRIC

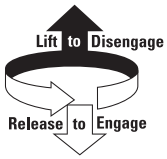
Part # Black	Part # Metallic	X Thread	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	No. Of Teeth
06410-1041	06410-1043	M4	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06410-1051	06410-1053	M5	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06410-1061	06410-1063	M6	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06410-2061	06410-2063	M6	12	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20
06410-2081	06410-2083	M8	12	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20
06410-3081	06410-3083	M8	14	16	21	22	17	37	10	23	57.5	61.5	79	90	22
06410-3101	06410-3103	M10	14	16	21	22	17	37	10	23	57.5	61.5	79	90	22
06410-4101	06410-4103	M10	17	19	25	26	19	42.5	10	26	67	72	95	108	24
06410-4121	06410-4123	M12	17	19	25	26	19	42.5	10	26	67	72	95	108	24
06410-5121	06410-5123	M12	23	23	30	31	22	49	12	32	79	84	110	126	26
06410-5161	06410-5163	M16	23	23	30	31	22	49	12	32	79	84	110	126	26

ADJUSTABLE CLAMP LEVERS

Zinc Die Cast | Female Threads | Stainless Steel Inserts | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in either black satin or silver metallic finish. Internal parts are made from stainless steel.

INCH

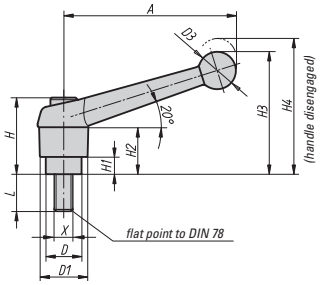
Part # Black	Part # Metallic	X Thread	T	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	No. Of Teeth
06411-1A01	06411-1A03	10-24	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06411-1A11	06411-1A13	10-32	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06411-1A21	06411-1A23	1/4-20	.35	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16
06411-2A21	06411-2A23	1/4-20	.47	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20
06411-2A31	06411-2A33	5/16-18	.47	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20
06411-3A31	06411-3A33	5/16-18	.55	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22
06411-3A41	06411-3A43	3/8-16	.55	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22
06411-4A41	06411-4A43	3/8-16	.67	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24
06411-4A51	06411-4A53	1/2-13	.67	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24
06411-5A51	06411-5A53	1/2-13	.91	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26
06411-5A61	06411-5A63	5/8-11	.91	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26

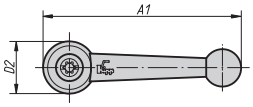
METRIC

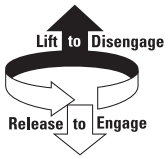
Part # Black	Part # Metallic	X Thread	T mm	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	No. Of Teeth
06411-1041	06411-1043	M4	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06411-1051	06411-1053	M5	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06411-1061	06411-1063	M6	9	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16
06411-2061	06411-2063	M6	12	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20
06411-2081	06411-2083	M8	12	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20
06411-3081	06411-3083	M8	14	16	21	22	17	37	10	23	57.5	61.5	79	90	22
06411-3101	06411-3103	M10	14	16	21	22	17	37	10	23	57.5	61.5	79	90	22
06411-4101	06411-4103	M10	17	19	25	26	19	42.5	10	26	67	72	95	108	24
06411-4121	06411-4123	M12	17	19	25	26	19	42.5	10	26	67	72	95	108	24
06411-5121	06411-5123	M12	23	23	30	31	22	49	12	32	79	84	110	126	26
06411-5161	06411-5163	M16	23	23	30	31	22	49	12	32	79	84	110	126	26

ADJUSTABLE CLAMP LEVERS

Zinc Die Cast | Male Threads | Steel Studs | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in either black satin or silver metallic finish. Internal parts and studs are made from steel with black oxide finish. To order part, add desired thread length (++) to the part number. Sample 06430-1A01X10.

INCH

Part # Black	Part # Metallic	X Thread	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	No. Of Teeth	L ++ = Thread Length (mm)
06430-1A01X++	06430-1A03X++	10-24	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06430-1A11X++	06430-1A13X++	10-32	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06430-1A21X++	06430-1A23X++	1/4-20	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06430-2A21X++	06430-2A23X++	1/4-20	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-2A31X++	06430-2A33X++	5/16-18	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-2A41X++	06430-2A43X++	3/8-16	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-3A31X++	06430-3A33X++	5/16-18	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-3A41X++	06430-3A43X++	3/8-16	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-4A41X++	06430-4A43X++	3/8-16	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-4A51X++	06430-4A53X++	1/2-13	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-5A51X++	06430-5A53X++	1/2-13	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-5A61X++	06430-5A63X++	5/8-11	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 35 = 1.38" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 55 = 2.17" / 60 = 2.36" / 70 = 2.76" / 80 = 3.15" / 90 = 3.54"

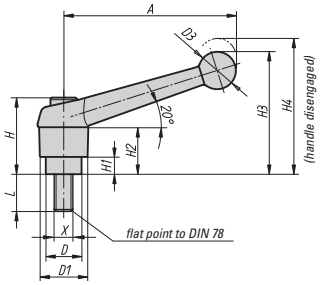
METRIC

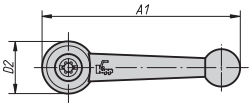
Part # Black	Part # Metallic	X Thread	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	No. Of Teeth	L ++ = Thread Length (mm)
06430-1051X++	06430-1053X++	M5	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06430-1061X++	06430-1063X++	M6	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06430-2061X++	06430-2063X++	M6	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-2081X++	06430-2083X++	M8	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-2101X++	06430-2103X++	M10	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-3081X++	06430-3083X++	M8	16	21	22	17	37	10	23	57.5	61.5	79	90	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-3101X++	06430-3103X++	M10	16	21	22	17	37	10	23	57.5	61.5	79	90	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06430-4101X++	06430-4103X++	M10	19	25	26	19	42.5	10	26	67	72	95	108	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-4121X++	06430-4123X++	M12	19	25	26	19	42.5	10	26	67	72	95	108	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-5121X++	06430-5123X++	M12	23	30	31	22	49	12	32	79	84	110	126	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06430-5161X++	06430-5163X++	M16	23	30	31	22	49	12	32	79	84	110	126	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

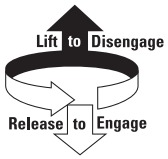
++ Add the desired thread length here.

ADJUSTABLE CLAMP LEVERS

Zinc Die Cast | Male Threads | Stainless Steel Studs | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in either black satin or silver metallic finish. Internal parts and studs are made from stainless steel. To order part, add desired thread length (++) to the part number. Sample 06431-1A01X15.

INCH

Part # Black	Part # Metallic	X Thread	D	D1	D2	D3	H	H1	H2	H3	H4	A	A1	No. Of Teeth	L ++ = Thread Length (mm)
06431-1A01X++	06431-1A03X++	10-24	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	15 / 20 / 25
06431-1A11X++	06431-1A13X++	10-32	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	15 / 20 / 25
06431-1A21X++	06431-1A23X++	1/4-20	.39	.51	.55	.41	.96	.16	.59	1.28	1.40	1.54	1.81	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06431-2A21X++	06431-2A23X++	1/4-20	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06431-2A31X++	06431-2A33X++	5/16-18	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06431-2A41X++	06431-2A43X++	3/8-16	.53	.71	.73	.61	1.12	.26	.65	1.79	1.95	2.52	2.87	20	20 / 25 / 30 / 40 / 50 / 60
06431-3A31X++	06431-3A33X++	5/16-18	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22	20 / 25 / 30 / 40 / 50 / 60
06431-3A41X++	06431-3A43X++	3/8-16	.63	.83	.87	.67	1.46	.39	.91	2.26	2.42	3.11	3.54	22	20 / 25 / 30 / 40 / 50 / 60
06431-4A51X++	06431-4A53X++	1/2-13	.75	.98	1.02	.75	1.67	.39	1.02	2.64	2.83	3.74	4.25	24	25 / 30 / 40 / 50 / 60
06431-5A61X++	06431-5A63X++	5/8-11	.91	1.18	1.22	.87	1.93	.47	1.26	3.11	3.31	4.33	4.96	26	30 / 40 / 50 / 60

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

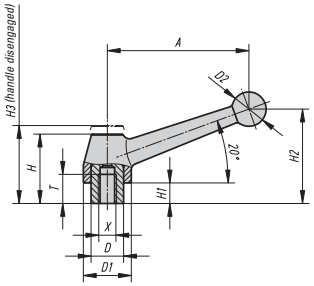
METRIC

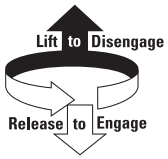
Part # Black	Part # Metallic	X Thread	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	No. Of Teeth	L ++ = Thread Length (mm)
06431-1051X++	06431-1053X++	M5	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16	10 / 15 / 20 / 25
06431-1061X++	06431-1063X++	M6	10	13	14	10.5	24.5	4	15	32.5	35.5	39	46	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06431-2061X++	06431-2063X++	M6	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06431-2081X++	06431-2083X++	M8	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06431-2101X++	06431-2103X++	M10	13.5	18	18.5	15.5	28.5	6.5	16.5	45.5	49.5	64	73	20	20 / 25 / 30 / 40 / 50 / 60
06431-3081X++	06431-3083X++	M8	16	21	22	17	37	10	23	57.5	61.5	79	90	22	20 / 25 / 30 / 40 / 50 / 60
06431-3101X++	06431-3103X++	M10	16	21	22	17	37	10	23	57.5	61.5	79	90	22	20 / 25 / 30 / 40 / 50 / 60
06431-4121X++	06431-4123X++	M12	19	25	26	19	42.5	10	26	67	72	95	108	24	25 / 30 / 40 / 50 / 60
06431-5161X++	06431-5163X++	M16	23	30	31	22	49	12	32	79	84	110	126	26	30 / 40 / 50 / 60

++ Add the desired thread length here.

ADJUSTABLE CLAMP LEVERS

Steel and Stainless Steel | Female Threads | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles are made from steel or stainless steel. The steel handles have a silver-grey hammertone powder coat finish and the internal steel parts are black oxided. The stainless handles are electro-polished and the internal parts are stainless.

INCH

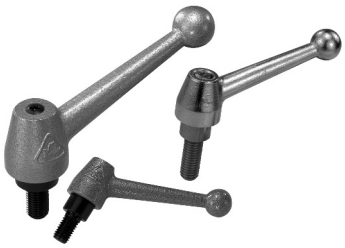
Part # Steel	Part # Stainless	X Thread	T	D	D1	D2	H	H1	H2	H3	A	No. Of Teeth
06440-1A3	06440-11A3	5/16-18	.67	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24
06440-1A4	06440-11A4	3/8-16	.67	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24
06440-1A5	06440-11A5	1/2-13	.67	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24
06440-2A5	—	1/2-13	.91	.91	1.38	.98	1.97	.47	2.72	2.20	4.25	26
06440-2A6	—	5/8-11	.91	.91	1.38	.98	1.97	.47	2.72	2.20	4.25	26
06440-3A6	—	5/8-11	1.06	1.18	1.69	1.18	2.30	.47	3.07	2.56	5.20	36
06440-3A7	—	3/4-10	1.06	1.18	1.69	1.18	2.30	.47	3.07	2.56	5.20	36

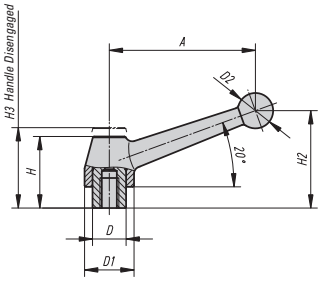
METRIC

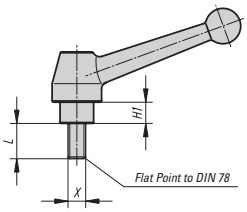
Part # Steel	Part # Stainless	X Thread	T mm	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	A mm	No. Of Teeth
06440-108	06440-1108	M8	17	19	28	20	41	12	54	49	83	24
06440-110	06440-1110	M10	17	19	28	20	41	12	54	49	83	24
06440-112	06440-1112	M12	17	19	28	20	41	12	54	49	83	24
06440-212	—	M12	23	23	35	25	50	12	69	56	108	26
06440-216	—	M16	23	23	35	25	50	12	69	56	108	26
06440-316	—	M16	27	30	43	30	58.5	12	78	65	132	36
06440-320	—	M20	27	30	43	30	58.5	12	78	65	132	36

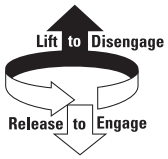
ADJUSTABLE CLAMP LEVERS

Steel and Stainless Steel | Male Threads | Inch and Metric









Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles are made from steel or stainless steel. The steel handles have a silver-grey hammertone powder coat finish and the internal steel parts and studs are black oxided. The stainless handles are electro-polished and the internal parts and studs are stainless. To order part, add desired thread length (++) to the part number. Sample 06441-1A4X20.

Steel

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	A	No. Of Teeth	L ++ = Thread Length (mm)
06441-1A4X++	3/8-16	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24	20 / 30 / 40 / 45 / 50 / 60
06441-1A5X++	1/2-13	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24	20 / 30 / 40 / 45 / 50 / 60
06441-2A5X++	1/2-13	.91	1.38	.98	1.97	.47	2.72	2.20	4.25	26	25 / 30 / 40 / 45 / 50 / 60
06441-2A6X++	5/8-11	.91	1.38	.98	1.97	.47	2.72	2.20	4.25	26	25 / 30 / 40 / 45 / 50 / 60
06441-3A6X++	5/8-11	1.18	1.69	1.18	2.30	.47	3.07	2.56	5.20	36	30 / 40 / 50 / 60
06441-3A7X++	3/4-10	1.18	1.69	1.18	2.30	.47	3.07	2.56	5.20	36	30 / 40 / 50 / 60

++ Add the desired thread length here. 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 60 = 2.36"

METRIC

Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	A mm	No. Of Teeth	L ++ = Thread Length (mm)
06441-110X++	M10	19	28	20	41	12	54	49	83	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06441-112X++	M12	19	28	20	41	12	54	49	83	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06441-212X++	M12	23	35	25	50	12	69	56	108	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06441-216X++	M16	23	35	25	50	12	69	56	108	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06441-316X++	M16	30	43	30	58.5	12	78	65	132	36	30 / 40 / 50 / 60 / 70 / 80 / 90
06441-320X++	M20	30	43	30	58.5	12	78	65	132	36	30 / 40 / 50 / 60 / 70 / 80 / 90

++ Add the desired thread length here.

Stainless Steel

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	A	No. Of Teeth	L ++ = Thread Length (mm)
06441-11A4X++	3/8-16	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24	20 / 30 / 40 / 45 / 50 / 60
06441-11A5X++	1/2-13	.75	1.10	.79	1.61	.47	2.13	1.93	3.27	24	20 / 30 / 40 / 45 / 50 / 60

++ Add the desired thread length here. 20 = .79" / 30 = 1.18" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 60 = 2.36"

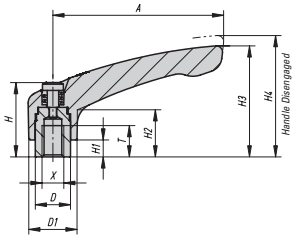
METRIC

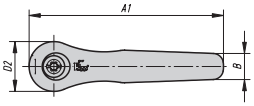
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	A mm	No. Of Teeth	L ++ = Thread Length (mm)
06441-1110X++	M10	19	28	20	41	12	54	49	83	24	25 / 30 / 40 / 50 / 60
06441-1112X++	M12	19	28	20	41	12	54	49	83	24	25 / 30 / 40 / 50 / 60

++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Zinc Die Cast | Female Threads | Steel and Stainless Inserts | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles are made from zinc die cast and powder coated in black satin, orange, ruby red and silver metallic. High polish chrome styles are plated. The internal steel parts are black oxided and the stainless have a natural finish. See www.fixtureworks.net for colors.

INCH

Steel Part #	Stainless Part #	X Thread	T	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth
06450-0AD*	06451-0AD*	6-32	.35	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16
06450-0AE*	06451-0AE*	8-32	.35	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16
06450-0A0*	06451-0A0*	10-24	.35	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16
06450-0A1*	06451-0A1*	10-32	.35	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16
06450-0A2*	06451-0A2*	1/4-20	.35	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16
06450-1AE*	—	8-32	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06450-1A0*	06451-1A0*	10-24	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06450-1A1*	06451-1A1*	10-32	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06450-1A2*	06451-1A2*	1/4-20	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06450-2A2*	06451-2A2*	1/4-20	.47	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20
06450-2A3*	06451-2A3*	5/16-18	.47	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20
06450-3A3*	06451-3A3*	5/16-18	.55	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22
06450-3A4*	06451-3A4*	3/8-16	.55	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22
06450-4A4*	06451-4A4*	3/8-16	.67	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24
06450-4A5*	06451-4A5*	1/2-13	.67	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24
06450-5A5*	06451-5A5*	1/2-13	.91	.91	1.22	1.26	1.93	.47	1.24	2.87	3.05	4.33	4.96	.59	26
06450-5A6*	06451-5A6*	5/8-11	.91	.91	1.22	1.26	1.93	.47	1.24	2.87	3.05	4.33	4.96	.59	26

* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

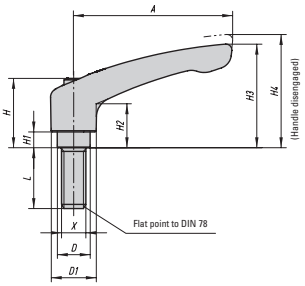
METRIC

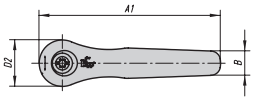
Steel Part #	Stainless Part #	X Thread	T mm	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth
06450-003*	06451-003*	M3	9	10	13	14	24.5	4	14.5	30	33	30	37	7	16
06450-004*	06451-004*	M4	9	10	13	14	24.5	4	14.5	30	33	30	37	7	16
06450-005*	06451-005*	M5	9	10	13	14	24.5	4	14.5	30	33	30	37	7	16
06450-104*	06451-104*	M4	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06450-105*	06451-105*	M5	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06450-106*	06451-106*	M6	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06450-206*	06451-206*	M6	12	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20
06450-208*	06451-208*	M8	12	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20
06450-308*	06451-308*	M8	14	16	21	22	37	10	24	54.5	58.5	80	91	11	22
06450-310*	06451-310*	M10	14	16	21	22	37	10	24	54.5	58.5	80	91	11	22
06450-410*	06451-410*	M10	17	19	27	27.5	43	10	27	63	67.5	95	109	13	24
06450-412*	06451-412*	M12	17	19	27	27.5	43	10	27	63	67.5	95	109	13	24
06450-512*	06451-512*	M12	23	23	31	32	49	12	31.5	73	77.5	110	126	15	26
06450-516*	06451-516*	M16	23	23	31	32	49	12	31.5	73	77.5	110	126	15	26

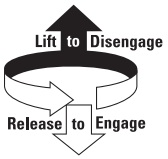
* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

ADJUSTABLE CLAMP HANDLES

Zinc Die Cast | Male Threads | Steel Studs | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in black satin, orange, ruby red and silver metallic. High polish chrome styles are plated. Internal parts and studs are made from steel with black oxide finish. See www.fixtureworks.net for colors. To order part, add color (*) and desired thread length (++) to the part number. Sample 06460-0AE1X10.

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth	L ++ = Thread Length (mm)
06460-0AE*X++	8-32	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-0A0*X++	10-24	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-0A1*X++	10-32	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-0A2*X++	1/4-20	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-1A0*X++	10-24	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-1A1*X++	10-32	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-1A2*X++	1/4-20	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-2A2*X++	1/4-20	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-2A3*X++	5/16-18	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-2A4*X++	3/8-16	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-3A3*X++	5/16-18	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-3A4*X++	3/8-16	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-4A4*X++	3/8-16	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-4A5*X++	1/2-13	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-5A5*X++	1/2-13	.91	1.22	1.26	1.93	.47	1.24	2.87	3.05	4.33	4.96	.59	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-5A6*X++	5/8-11	.91	1.22	1.26	1.93	.47	1.24	2.87	3.05	4.33	4.96	.59	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 35 = 1.38" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 55 = 2.17" / 60 = 2.36" / 70 = 2.76" / 80 = 3.15" / 90 = 3.54"

METRIC

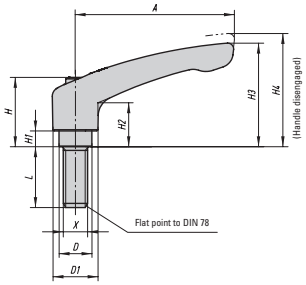
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth	L ++ = Thread Length (mm)
06460-004*X++	M4	10	13	14	24.5	4	14.5	30	33	30	37	7	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-005*X++	M5	10	13	14	24.5	4	14.5	30	33	30	37	7	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-105*X++	M5	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-106*X++	M6	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06460-206*X++	M6	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-208*X++	M8	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-210*X++	M10	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-308*X++	M8	16	21	22	37	10	24	54.5	58.5	80	91	11	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-310*X++	M10	16	21	22	37	10	24	54.5	58.5	80	91	11	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06460-410*X++	M10	19	27	27.5	43	10	27	63	67.5	95	109	13	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-412*X++	M12	19	27	27.5	43	10	27	63	67.5	95	109	13	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-512*X++	M12	23	31	32	49	12	31.5	73	77.5	110	126	15	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06460-516*X++	M16	23	31	32	49	12	31.5	73	77.5	110	126	15	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

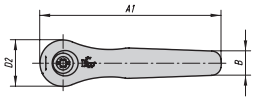
* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

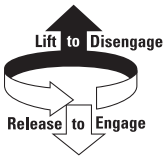
++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Zinc Die Cast | Male Threads | Stainless Steel Studs | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from zinc die cast and powder coated in black satin, orange, ruby red and silver metallic. High polish chrome styles are plated. Internal parts and studs are made from stainless steel. See www.fixtureworks.net for colors. To order part, add color (*) and desired thread length (++) to the part number. Sample 06461-0AE1X10.

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth	L ++ = Thread Length (mm)
06461-0AE*X++	8-32	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25
06461-0A0*X++	10-24	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25
06461-0A1*X++	10-32	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25
06461-0A2*X++	1/4-20	.39	.51	.55	.96	.16	.57	1.18	1.30	1.18	1.46	.28	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06461-1A0*X++	10-24	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	15 / 20 / 25
06461-1A1*X++	10-32	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	15 / 20 / 25
06461-1A2*X++	1/4-20	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06461-2A2*X++	1/4-20	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06461-2A3*X++	5/16-18	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06461-2A4*X++	3/8-16	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.37	20	20 / 25 / 30 / 40 / 50 / 60
06461-3A3*X++	5/16-18	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	20 / 25 / 30 / 40 / 50 / 60
06461-3A4*X++	3/8-16	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	20 / 25 / 30 / 40 / 50 / 60
06461-4A5*X++	1/2-13	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24	25 / 30 / 40 / 50 / 60
06461-5A6*X++	5/8-11	.91	1.22	1.26	1.93	.47	1.24	2.87	3.05	4.33	4.96	.59	26	30 / 40 / 50 / 60

* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 =.98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

METRIC

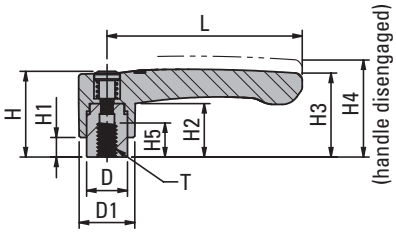
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth	L ++ = Thread Length (mm)
06461-004*X++	M4	10	13	14	24.5	4	14.5	30	33	30	37	7	16	10 / 15 / 20 / 25
06461-005*X++	M5	10	13	14	24.5	4	14.5	30	33	30	37	7	16	10 / 15 / 20 / 25
06461-105*X++	M5	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25
06461-106*X++	M6	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06461-206*X++	M6	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06461-208*X++	M8	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06461-210*X++	M10	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	9.5	20	20 / 25 / 30 / 40 / 50 / 60
06461-308*X++	M8	16	21	22	37	10	24	54.5	58.5	80	91	11	22	20 / 25 / 30 / 40 / 50 / 60
06461-310*X++	M10	16	21	22	37	10	24	54.5	58.5	80	91	11	22	20 / 25 / 30 / 40 / 50 / 60
06461-412*X++	M12	19	27	27.5	43	10	27	63	67.5	95	109	13	24	25 / 30 / 40 / 50 / 60
06461-516*X++	M16	23	31	32	49	12	31.5	73	77.5	110	126	15	26	30 / 40 / 50 / 60

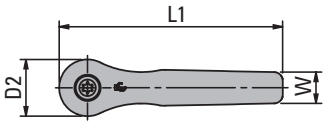
* Add the color to the end of the part number. Black Satin = 1, Orange = 2, Ruby Red = 27, Silver Metallic = 3, High Polish Chromium Plated = 6. See www.fixtureworks.net for colors.

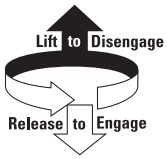
++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Straight | Female Threads | Steel and Stainless Inserts | Inch and Metric







These handles have a straight design that offers a low profile for limited spaces. Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles are made from zinc die cast and powder coated in black satin and orange. The internal parts are made from steel with a black oxide finish or stainless steel with a natural finish. To order part, add the color (*) to the part number. Sample 06448-2A21.

INCH

Steel Part #	Stainless Part #	T Thread	D	D1	D2	L	L1	W	H	H1	H2	H3	H4	H5	No. of Teeth
06448-2A2*	06449-2A2*	1/4-20	.53	.73	.75	2.56	2.94	.40	1.12	.26	.70	1.15	1.27	.47	20
06448-2A3*	06449-2A3*	5/16-18	.53	.73	.75	2.56	2.94	.40	1.12	.26	.70	1.15	1.27	.47	20
06448-3A3*	06449-3A3*	5/16-18	.63	.84	.87	3.15	3.59	.46	1.46	.39	.94	1.50	1.65	.55	22
06448-3A4*	06449-3A4*	3/8-16	.63	.84	.87	3.15	3.59	.46	1.46	.39	.94	1.50	1.65	.55	22

* Add the color to the part number here. Black = 1, Orange = 2. See www.fixtureworks.net for colors.

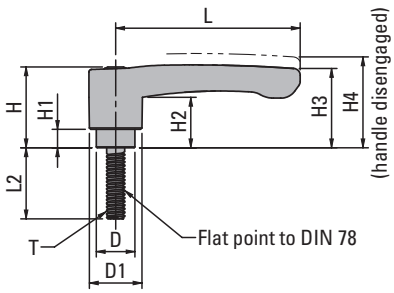
METRIC

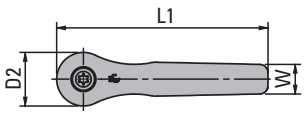
Steel Part #	Stainless Part #	T Thread	D mm	D1 mm	D2 mm	L mm	L1 mm	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	No. of Teeth
06448-206*	06449-206*	M6	13.5	18.5	19.1	65	74.5	10.1	28.5	6.5	17.8	29.2	32.2	12	20
06448-208*	06449-208*	M8	13.5	18.5	19.1	65	74.5	10.1	28.5	6.5	17.8	29.2	32.2	12	20
06448-308*	06449-308*	M8	16	21.2	22	80	91	11.7	37	10	23.8	38	42	14	22
06448-310*	06449-310*	M10	16	21.2	22	80	91	11.7	37	10	23.8	38	42	14	22

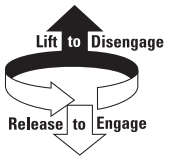
* Add the color to the part number here. Black = 1, Orange = 2. See www.fixtureworks.net for colors.

ADJUSTABLE CLAMP HANDLES

Straight | Male Threads | Steel and Stainless Studs | Inch and Metric







These handles have a straight design that offers a low profile for limited spaces. Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles are made from zinc die cast and powder coated in black satin and orange. The internal parts and studs are made from steel with a black oxide finish or from stainless steel with a natural finish. See www.fixtureworks.net for colors. To order part, add the color (*) and desired thread length (++) to the part number. Sample 06458-2A21X15.

INCH

Steel Part #	Stainless Part #	T	D	D1	D2	L	L1	L2 ++ = Thread Length (mm)	W	H	H1	H2	H3	H4	No. of Teeth
06458-2A2*X++	–	1/4-20	.53	.73	.75	2.56	2.94	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	.40	1.12	.26	.70	1.15	1.27	20
06458-2A3*X++	–	5/16-18	.53	.73	.75	2.56	2.94	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	.40	1.12	.26	.70	1.15	1.27	20
06458-2A4*X++	–	3/8-16	.53	.73	.75	2.56	2.94	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	.40	1.12	.26	.70	1.15	1.27	20
06458-3A3*X++	–	5/16-18	.63	.84	.87	3.15	3.59	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	.46	1.46	.39	.94	1.50	1.65	22
06458-3A4*X++	–	3/8-16	.63	.84	.87	3.15	3.59	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	.46	1.46	.39	.94	1.50	1.65	22
–	06459-2A2*X++	1/4-20	.53	.73	.75	2.56	2.94	15 / 20 / 25 / 30 / 40 / 50 / 60	.40	1.12	.26	.70	1.15	1.27	20
–	06459-2A3*X++	5/16-18	.53	.73	.75	2.56	2.94	15 / 20 / 25 / 30 / 40 / 50 / 60	.40	1.12	.26	.70	1.15	1.27	20
–	06459-2A4*X++	3/8-16	.53	.73	.75	2.56	2.94	20 / 25 / 30 / 40 / 50 / 60	.40	1.12	.26	.70	1.15	1.27	20
–	06459-3A3*X++	5/16-18	.63	.84	.87	3.15	3.59	20 / 25 / 30 / 40 / 50 / 60	.46	1.46	.39	.94	1.50	1.65	22
–	06459-3A4*X++	3/8-16	.63	.84	.87	3.15	3.59	20 / 25 / 30 / 40 / 50 / 60	.46	1.46	.39	.94	1.50	1.65	22

* Add the color to the part number here. Black = 1, Orange = 2. See www.fixtureworks.net for colors.

++ Add the desired thread length here. 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 35 = 1.38" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 55 = 2.17" / 60 = 2.36"

METRIC

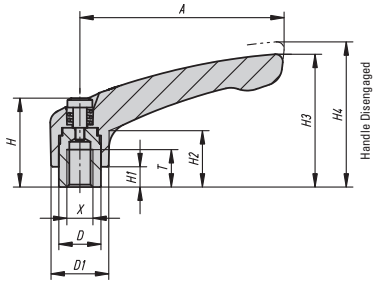
Steel Part #	Stainless Part #	T Thread	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 ++ = Thread Length (mm)	W mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	No. of Teeth
06458-206*X++	–	M6	13.5	18.5	19.1	65	74.5	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
06458-208*X++	–	M8	13.5	18.5	19.1	65	74.5	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
06458-210*X++	–	M10	13.5	18.5	19.1	65	74.5	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
06458-308*X++	–	M8	16	21.2	22	80	91	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	11.7	37	10	23.8	38	42	22
06458-310*X++	–	M10	16	21.2	22	80	91	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60	11.7	37	10	23.8	38	42	22
–	06459-206*X++	M6	13.5	18.5	19.1	65	74.5	15 / 20 / 25 / 30 / 40 / 50 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
–	06459-208*X++	M8	13.5	18.5	19.1	65	74.5	15 / 20 / 25 / 30 / 40 / 50 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
–	06459-210*X++	M10	13.5	18.5	19.1	65	74.5	20 / 25 / 30 / 40 / 50 / 60	10.1	28.5	6.5	17.8	29.2	32.2	20
–	06459-308*X++	M8	16	21.2	22	80	91	20 / 25 / 30 / 40 / 50 / 60	11.7	37	10	23.8	38	42	22
–	06459-310*X++	M10	16	21.2	22	80	91	20 / 25 / 30 / 40 / 50 / 60	11.7	37	10	23.8	38	42	22

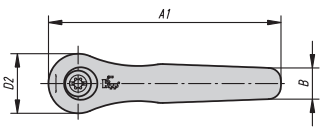
* Add the color to the part number here. Black = 1, Orange = 2. See www.fixtureworks.net for colors.

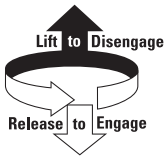
++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Stainless Steel | Female Threads | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles and all internal components are made from stainless steel. Designed for medical, food and marine applications.

INCH

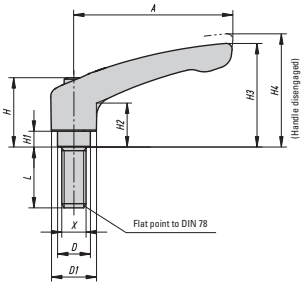
Part #	X Thread	T	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth
06454-1A0	10-24	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06454-1A1	10-32	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06454-1A2	1/4-20	.35	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16
06454-2A2	1/4-20	.47	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.39	20
06454-2A3	5/16-18	.47	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.39	20
06454-3A3	5/16-18	.55	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22
06454-3A4	3/8-16	.55	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22
06454-4A4	3/8-16	.67	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24
06454-4A5	1/2-13	.67	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24
06454-5A5	1/2-13	.91	.91	1.22	1.26	1.93	.47	1.24	2.88	3.05	4.33	4.96	.59	26
06454-5A6	5/8-11	.91	.91	1.22	1.26	1.93	.47	1.24	2.88	3.05	4.33	4.96	.59	26

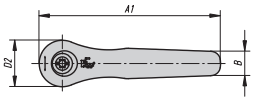
METRIC

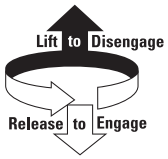
Part #	X Thread	T mm	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth
06454-104	M4	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06454-105	M5	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06454-106	M6	9	10	13	14	24.5	4	14.5	31	34	40	47	7	16
06454-206	M6	12	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	10	20
06454-208	M8	12	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	10	20
06454-308	M8	14	16	21	22	37	10	24	54.5	58.5	80	91	11	22
06454-310	M10	14	16	21	22	37	10	24	54.5	58.5	80	91	11	22
06454-410	M10	17	19	27	27.5	43	10	27	63	67.5	95	109	13	24
06454-412	M12	17	19	27	27.5	43	10	27	63	67.5	95	109	13	24
06454-512	M12	23	23	31	32	49	12	31.5	73	77.5	110	126	15	26
06454-516	M16	23	23	31	32	49	12	31.5	73	77.5	110	126	15	26

ADJUSTABLE CLAMP HANDLES

Stainless Steel | Male Threads | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handles, studs and all internal components are made from stainless steel. Designed for medical, food and marine applications. To order part, add desired thread length (++) to the part number. Sample 06464-1A0X10.

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth	L ++ = Thread Length (mm)
06464-1A0X++	10-24	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25
06464-1A1X++	10-32	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25
06464-1A2X++	1/4-20	.39	.51	.55	.96	.16	.57	1.22	1.34	1.57	1.85	.28	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06464-2A2X++	1/4-20	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.39	24	15 / 20 / 25 / 30 / 40 / 50 / 60
06464-2A3X++	5/16-18	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.39	24	15 / 20 / 25 / 30 / 40 / 50 / 60
06464-2A4X++	3/8-16	.53	.73	.75	1.12	.26	.69	1.67	1.79	2.56	2.93	.39	24	20 / 25 / 30 / 40 / 50 / 60
06464-3A3X++	5/16-18	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	20 / 25 / 30 / 40 / 50 / 60
06464-3A4X++	3/8-16	.63	.83	.87	1.46	.39	.94	2.15	2.30	3.15	3.58	.43	22	20 / 25 / 30 / 40 / 50 / 60
06464-4A5X++	1/2-13	.75	1.06	1.08	1.69	.39	1.06	2.48	2.66	3.74	4.29	.51	24	25 / 30 / 40 / 50 / 60
06464-5A6X++	5/8-11	.91	1.22	1.26	1.93	.47	1.24	2.88	3.05	4.33	4.96	0.59	26	30 / 40 / 50 / 60

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

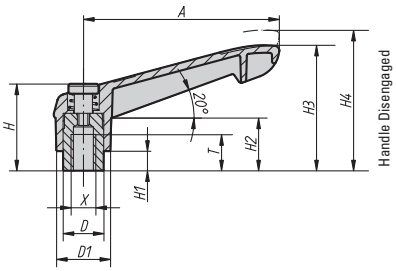
METRIC

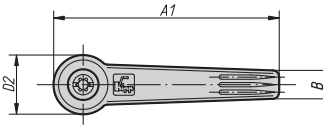
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth	L ++ = Thread Length (mm)
06464-105X++	M5	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25
06464-106X++	M6	10	13	14	24.5	4	14.5	31	34	40	47	7	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06464-206X++	M6	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	10	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06464-208X++	M8	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	10	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06464-210X++	M10	13.5	18.5	19	28.5	6.5	17.5	42.5	45.5	65	74.5	10	20	20 / 25 / 30 / 40 / 50 / 60
06464-308X++	M8	16	21	22	37	10	24	54.5	58.5	80	91	11	22	20 / 25 / 30 / 40 / 50 / 60
06464-310X++	M10	16	21	22	37	10	24	54.5	58.5	80	91	11	22	20 / 25 / 30 / 40 / 50 / 60
06464-412X++	M12	19	27	28	43	10	27	63	67.5	95	109	13	24	25 / 30 / 40 / 50 / 60
06464-516X++	M16	23	31	32	49	12	31.5	73	77.5	110	126	15	26	30 / 40 / 50 / 60

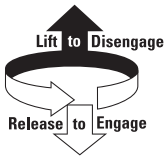
++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from glass fiber reinforced plastic. Internal parts are made from steel with black oxide finish or stainless steel. They are available in dark grey, orange, signal green, traffic red, bright yellow and traffic blue. See www.fixtureworks.net for colors.

INCH

Steel Part #	Stainless Part #	X Thread	T	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth
06600-1AE*	—	8-32	.35	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16
06600-1A0*	06601-1A0*	10-24	.35	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16
06600-1A1*	06601-1A1*	10-32	.35	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16
06600-1A2*	06601-1A2*	1/4-20	.35	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16
06600-2A2*	06601-2A2*	1/4-20	.47	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20
06600-2A3*	06601-2A3*	5/16-18	.47	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20
06600-3A3*	06601-3A3*	5/16-18	.55	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22
06600-3A4*	06601-3A4*	3/8-16	.55	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22
06600-4A4*	06601-4A4*	3/8-16	.67	.75	1.00	1.08	1.69	.39	1.02	2.40	2.60	3.74	4.29	.51	24
06600-4A5*	06601-4A5*	1/2-13	.67	.75	1.00	1.08	1.69	.39	1.02	2.40	2.60	3.74	4.29	.51	24
06600-5A5*	06601-5A5*	1/2-13	.91	.91	1.18	1.28	1.93	.47	1.30	2.83	3.03	4.33	4.96	.61	26
06600-5A6*	06601-5A6*	5/8-11	.91	.91	1.18	1.28	1.93	.47	1.30	2.83	3.03	4.33	4.96	.61	26

* Add the color to the end of the part number. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

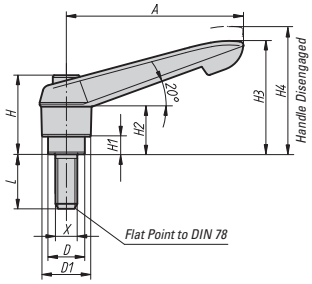
METRIC

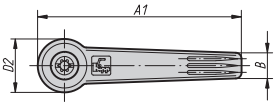
Steel Part #	Stainless Part #	X Thread	T mm	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth
06600-104*	06601-104*	M4	9	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16
06600-105*	06601-105*	M5	9	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16
06600-106*	06601-106*	M6	9	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16
06600-206*	06601-206*	M6	12	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20
06600-208*	06601-208*	M8	12	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20
06600-308*	06601-308*	M8	14	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22
06600-310*	06601-310*	M10	14	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22
06600-410*	06601-410*	M10	17	19	25.5	27.5	43	10	26	61	66	95	109	13	24
06600-412*	06601-412*	M12	17	19	25.5	27.5	43	10	26	61	66	95	109	13	24
06600-512*	06601-512*	M12	23	23	30	32.5	49	12	33	72	77	110	126	15.5	26
06600-516*	06601-516*	M16	23	23	30	32.5	49	12	33	72	77	110	126	15.5	26

* Add the color to the end of the part number. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

ADJUSTABLE CLAMP HANDLES

Plastic | Male Threads | Steel Studs | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from glass fiber reinforced plastic. Internal parts and studs are made from steel with black oxide finish. They are available in dark grey, orange, signal green, traffic red, bright yellow and traffic blue. See www.fixtureworks.net for colors. To order part, add color (*) and desired thread length (++) to the part number. Sample 06610-1A01X10.

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth	L ++ = Thread Length (mm)
06610-1A0*X++	10-24	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06610-1A1*X++	10-32	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06610-1A2*X++	1/4-20	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06610-2A2*X++	1/4-20	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60
06610-2A3*X++	5/16-18	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60
06610-2A4*X++	3/8-16	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60
06610-3A3*X++	5/16-18	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60
06610-3A4*X++	3/8-16	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60
06610-4A4*X++	3/8-16	.75	1.00	1.08	1.69	.39	1.02	2.40	2.60	3.74	4.29	.51	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-4A5*X++	1/2-13	.75	1.00	1.08	1.69	.39	1.02	2.40	2.60	3.74	4.29	.51	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-5A5*X++	1/2-13	.91	1.18	1.28	1.93	.47	1.30	2.83	3.03	4.33	4.96	.61	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-5A6*X++	5/8-11	.91	1.18	1.28	1.93	.47	1.30	2.83	3.03	4.33	4.96	.61	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

* Add the color to the part number here. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 35 = 1.38" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 55 = 2.16" / 60 = 2.36" / 70 = 2.76" / 80 = 3.15" / 90 = 3.54"

METRIC

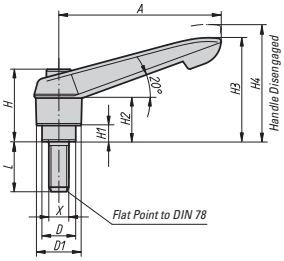
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth	L ++ = Thread Length (mm)
06610-105*X++	M5	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06610-106*X++	M6	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06610-206*X++	M6	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06610-208*X++	M8	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06610-210*X++	M10	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06610-308*X++	M8	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06610-310*X++	M10	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06610-410*X++	M10	19	25.5	27.5	43	10	26	61	66	95	109	13	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-412*X++	M12	19	25.5	27.5	43	10	26	61	66	95	109	13	24	20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-512*X++	M12	23	30	32.5	49	12	33	72	77	110	126	15.5	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90
06610-516*X++	M16	23	30	32.5	49	12	33	72	77	110	126	15.5	26	25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 70 / 80 / 90

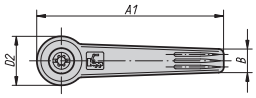
* Add the color to the part number here. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

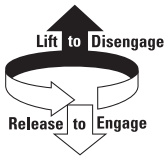
++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Plastic | Male Threads | Stainless Steel Studs | Inch and Metric







Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The handle is made from glass fiber reinforced plastic. Internal parts and studs are made from stainless steel. They are available in dark grey, orange, signal green, traffic red, bright yellow and traffic blue. See www.fixtureworks.net for colors. To order part, add color (*) and desired thread length (++) to the part number.
Sample 06611-1A01X15.

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. Of Teeth	L ++ = Thread Length (mm)
06611-1A0*X++	10-24	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	15 / 20 / 25
06611-1A1*X++	10-32	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	15 / 20 / 25
06611-1A2*X++	1/4-20	.39	.51	.57	.96	.16	.59	1.18	1.32	1.57	1.85	.30	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06611-2A2*X++	1/4-20	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06611-2A3*X++	5/16-18	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06611-2A4*X++	3/8-16	.53	.71	.77	1.12	.26	.69	1.63	1.79	2.56	2.95	.37	20	20 / 25 / 30 / 40 / 50 / 60
06611-3A3*X++	5/16-18	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22	20 / 25 / 30 / 40 / 50 / 60
06611-3A4*X++	3/8-16	.63	.85	.91	1.46	.39	.94	2.11	2.28	3.15	3.60	.43	22	20 / 25 / 30 / 40 / 50 / 60
06611-4A5*X++	1/2-13	.75	1.00	1.08	1.69	.39	1.02	2.40	2.60	3.74	4.29	.51	24	25 / 30 / 40 / 50 / 60
06611-5A6*X++	5/8-11	.91	1.18	1.28	1.93	.47	1.30	2.83	3.03	4.33	4.96	.61	26	30 / 40 / 50 / 60

* Add the color to the part number here. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 = .98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

METRIC

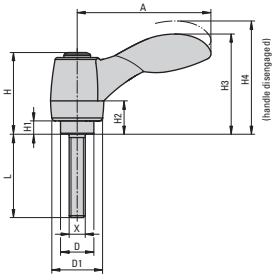
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. Of Teeth	L ++ = Thread Length (mm)
06611-105*X++	M5	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16	10 / 15 / 20 / 25
06611-106*X++	M6	10	13	14.5	24.5	4	15	30	33.5	40	47	7.5	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06611-206*X++	M6	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06611-208*X++	M8	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06611-210*X++	M10	13.5	18	19.5	28.5	6.5	17.5	41.5	45.5	65	75	9.5	20	20 / 25 / 30 / 40 / 50 / 60
06611-308*X++	M8	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22	20 / 25 / 30 / 40 / 50 / 60
06611-310*X++	M10	16	21.5	23	37	10	24	53.5	58	80	91.5	11	22	20 / 25 / 30 / 40 / 50 / 60
06611-412*X++	M12	19	25.5	27.5	43	10	26	61	66	95	109	13	24	25 / 30 / 40 / 50 / 60
06611-516*X++	M16	23	30	32.5	49	12	33	72	77	110	126	15.5	26	30 / 40 / 50 / 60

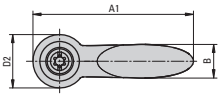
* Add the color to the part number here. Dark Grey = 1, Orange = 2, Signal Green = 86, Traffic Red = 84, Bright Yellow = 16 and Traffic Blue = 87. See www.fixtureworks.net for colors.

++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Soft-Touch Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The "cockatoo" shaped handle is made from hard glass fiber reinforced plastic with an over molded soft plastic. The soft plastic offers a unique look and comfortable feel. The color is dark grey. Internal parts and studs are made from steel with black oxide finish or stainless steel. Female thread version available online at www.fixtureworks.net.

Steel

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. of Teeth	L ++ = Thread Length (mm)
06614-1A001X++	10-24	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06614-1A101X++	10-32	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06614-1A201X++	1/4-20	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06614-2A201X++	1/4-20	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	15 / 20 / 25 / 30 / 35 / 40 / 45 /50 / 55 / 60
06614-2A301X++	5/16-18	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	15 / 20 / 25 / 30 / 35 / 40 / 45 /50 / 55 / 60
06614-2A401X++	3/8-16	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	15 / 20 / 25 / 30 / 35 / 40 / 45 /50 / 55 / 60
06614-3A301X++	5/16-18	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22	15 / 20 / 25 / 30 / 35 / 40 / 45 /50 / 55 / 60
06614-3A401X++	3/8-16	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22	15 / 20 / 25 / 30 / 35 / 40 / 45 /50 / 55 / 60

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 =.98" / 30 = 1.18" / 35 = 1.38" / 40 = 1.57" / 45 = 1.77" / 50 = 1.97" / 55 = 2.17" / 60 = 2.36"

METRIC

Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. of Teeth	L ++ = Thread Length (mm)
06614-10501X++	M5	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06614-10601X++	M6	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16	10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50
06614-20601X++	M6	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06614-20801X++	M8	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06614-21001X++	M10	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06614-30801X++	M8	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60
06614-31001X++	M10	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22	15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60

++ Add the desired thread length here.

Stainless

INCH

Part #	X Thread	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. of Teeth	L ++ = Thread Length (mm)
06615-1A001X++	10-24	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25
06615-1A101X++	10-32	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25
06615-1A201X++	1/4-20	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06615-2A201X++	1/4-20	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06615-2A301X++	5/16-18	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06615-2A401X++	3/8-16	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20	20 / 25 / 30 / 40 / 50 / 60
06615-3A301X++	5/16-18	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22	20 / 25 / 30 / 40 / 50 / 60
06615-3A401X++	3/8-16	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22	20 / 25 / 30 / 40 / 50 / 60

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 =.98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

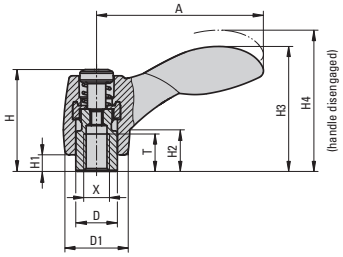
METRIC

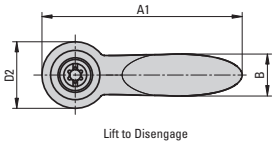
Part #	X Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. of Teeth	L ++ = Thread Length (mm)
06615-10501X++	M5	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16	10 / 15 / 20 / 25
06615-10601X++	M6	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16	10 / 15 / 20 / 25 / 30 / 40 / 50
06615-20601X++	M6	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06615-20801X++	M8	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	15 / 20 / 25 / 30 / 40 / 50 / 60
06615-21001X++	M10	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20	20 / 25 / 30 / 40 / 50 / 60
06615-30801X++	M8	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22	20 / 25 / 30 / 40 / 50 / 60
06615-31001X++	M10	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22	20 / 25 / 30 / 40 / 50 / 60

++ Add the desired thread length here.

ADJUSTABLE CLAMP HANDLES

Soft-Touch Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric





Pulling up on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The "cockatoo" shaped handle is made from hard glass fiber reinforced plastic with an over molded soft plastic. The soft plastic offers a unique look and comfortable feel. The color is dark grey. Internal parts are made from steel with black oxide finish or stainless steel.

INCH

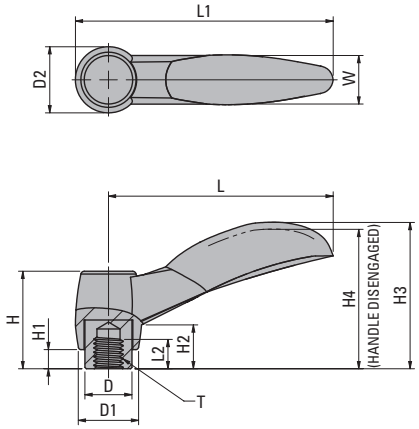
Steel Part #	Stainless Part #	X Thread	T	D	D1	D2	H	H1	H2	H3	H4	A	A1	B	No. of Teeth
06604-1AE01	-	8-32	.35	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16
06604-1A001	06605-1A001	10-24	.35	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16
06604-1A101	06605-1A101	10-32	.35	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16
06604-1A201	06605-1A201	1/4-20	.35	.39	.59	.63	.96	.16	.39	1.18	1.32	1.58	1.89	.40	16
06604-2A201	06605-2A201	1/4-20	.47	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20
06604-2A301	06605-2A301	5/16-18	.47	.53	.69	.75	1.12	.26	.49	1.62	1.78	2.56	2.93	.69	20
06604-3A301	06605-3A301	5/16-18	.55	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22
06604-3A401	06605-3A401	3/8-16	.55	.63	.83	.87	1.46	.39	.67	2.03	2.21	3.16	3.59	.81	22

METRIC

Steel Part #	Stainless Part #	X Thread	T mm	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	A mm	A1 mm	B mm	No. of Teeth
06604-10401	06605-10401	M4	9	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16
06604-10501	06605-10501	M5	9	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16
06604-10601	06605-10601	M6	9	10	15	16	24.5	4	10	30	33.5	40.1	48.1	10.1	16
06604-20601	06605-20601	M6	12	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20
06604-20801	06605-20801	M8	12	13.5	17.5	19	28.5	6.5	12.5	41.2	45.2	64.9	74.4	17.6	20
06604-30801	06605-30801	M8	14	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22
06604-31001	06605-31001	M10	14	16	21	22	37	10	17	51.6	56.1	80.2	91.2	20.7	22

ADJUSTABLE CLAMP HANDLES

Plastic | Female Threads | Brass or Steel Inserts | Inch and Metric



Pressing down on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The "toucan" shaped handle is made from hard glass fiber reinforced plastic for a comfortable feel. The color is dark grey. The inserts are made from brass or steel.

INCH

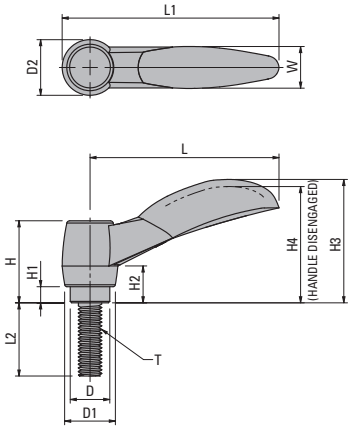
Part #	T Thread	D	D1	D2	H	H1	H2	H3	H4	L	L1	L2	W	No. of Teeth	Insert
0252.1AE1	8-32	.39	.50	.56	.85	.20	.44	1.26	1.15	1.89	2.17	.24	.51	12	Brass
0252.1A11	10-32	.39	.50	.56	.85	.20	.44	1.26	1.15	1.89	2.17	.24	.51	12	Brass
0252.2A11	10-32	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	.30	.69	12	Brass
0252.2A21	1/4-20	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	.35	.69	12	Brass
0252.2A31	5/16-18	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	.35	.69	12	Brass
0252.3A31	5/16-18	.67	.80	.94	1.6	.39	.91	2.29	2.10	3.19	3.66	.57	.87	12	Steel
0252.3A41	3/8-16	.67	.80	.94	1.6	.39	.91	2.29	2.10	3.19	3.66	.57	.87	12	Steel

METRIC

Part #	T Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	L mm	L1 mm	L2 mm	W mm	No. of Teeth	Insert
0252.1041	M4	10.0	12.6	14.1	21.7	5.0	11.3	32.0	29.1	47.9	55	6.0	13.0	12	Brass
0252.1051	M5	10.0	12.6	14.1	21.7	5.0	11.3	32.0	29.1	47.9	55	6.0	13.0	12	Brass
0252.2051	M5	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	7.5	17.5	12	Brass
0252.2061	M6	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	9.0	17.5	12	Brass
0252.2081	M8	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	9.0	17.5	12	Brass
0252.3081	M8	17.0	20.4	23.9	40.7	10.0	23.1	58.1	53.3	81.1	93	14.5	22.0	12	Steel
0252.3101	M10	17.0	20.4	23.9	40.7	10.0	23.1	58.1	53.3	81.1	93	14.5	22.0	12	Steel

ADJUSTABLE CLAMP HANDLES

Plastic | Male Threads | Steel Studs | Inch and Metric



Pressing down on the handle disengages it from the spline and allows it to rotate freely for adjustment. Releasing the handle engages it for tightening or adjusting. The "toucan" shaped handle is made from hard glass fiber reinforced plastic for a comfortable feel. The color is dark gray. Internal parts and studs are made from steel with blue chromate finish. To order part, add desired thread length (++) to the part number. Sample 0252.1AE1X10.

INCH

Part #	T Thread	D	D1	D2	H	H1	H2	H3	H4	L	L1	L2 ++ = Thread Length (mm)	W	No. of Teeth
0252.1AE1X++	8-32	.39	.50	.56	.85	.20	.44	1.26	1.15	1.89	2.17	10 / 20	.51	12
0252.1A11X++	10-32	.39	.50	.56	.85	.20	.44	1.26	1.15	1.89	2.17	10 / 20	.51	12
0252.2A11X++	10-32	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	20 / 30 / 40	.69	12
0252.2A21X++	1/4-20	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	20 / 30 / 40	.69	12
0252.2A31X++	5/16-18	.53	.67	.75	1.1	.22	.55	1.65	1.50	2.54	2.91	20 / 30 / 40	.69	12
0252.3A31X++	5/16-18	.67	.80	.94	1.6	.39	.91	2.29	2.10	3.19	3.66	20 / 30 / 60	.87	12
0252.3A41X++	3/8-16	.67	.80	.94	1.6	.39	.91	2.29	2.10	3.19	3.66	20 / 30 / 60	.87	12

++ Add the desired thread length here. 10 = .39" / 20 = .79" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97" / 60 = 2.36"

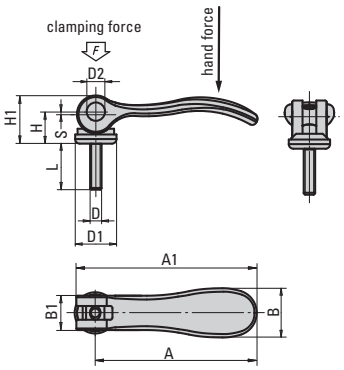
METRIC

Part #	T Thread	D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	L mm	L1 mm	L2 ++ = Thread Length (mm)	W mm	No. of Teeth mm
0252.1041X++	M4	10.0	12.6	14.1	21.7	5.0	11.3	32.0	29.1	47.9	55	10 / 15/ 20	13.0	12
0252.1051X++	M5	10.0	12.6	14.1	21.7	5.0	11.3	32.0	29.1	47.9	55	10 / 15 / 20 / 25	13.0	12
0252.2051X++	M5	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	10 / 15 / 20 / 25 / 30 / 40	17.5	12
0252.2061X++	M6	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	10 / 15 / 20 / 25 / 30 / 40	17.5	12
0252.2081X++	M8	13.5	17.0	19.0	28.0	5.5	14.0	41.9	38.0	64.5	74	10 / 15 / 20 / 25 / 30 / 40	17.5	12
0252.3081X++	M8	17.0	20.4	23.9	40.7	10.0	23.1	58.1	53.3	81.1	93	20 / 25 / 30 / 40 / 50 / 60	22.0	12
0252.3101X++	M10	17.0	20.4	23.9	40.7	10.0	23.1	58.1	53.3	81.1	93	20 / 25 / 30 / 40 / 50 / 60	22.0	12

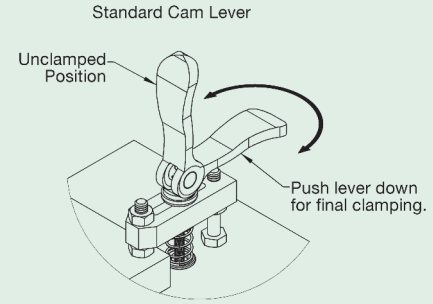
++ Add the desired thread length here.

STANDARD CAM LEVERS

Aluminum | Male Threads | Steel and Stainless Studs | Inch and Metric



How To Use



Standard cam levers are adjusted by rotating the handle in the unclamped position until threaded to the proper height, snug to work piece.

These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles are made from aluminum and have a black powder coat finish. The steel studs have a blue chromate finish. The stainless studs are made from 303 stainless steel with a natural finish. The thrust washers are made from fiberglass reinforced plastic. To order part, add desired thread length (++) to the part number. Sample 04232-95011ADX10.

INCH

Steel Part #	Stainless Part #	D Thread	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke	L ++ = Thread Length (mm)
04232-95011ADX++	04232-95111ADX++	6-32	.47	.24	.57	.45	.35	.51	1.43	1.64	337	20	.04	10 / 15 / 30
04232-95011AEX++	04232-95111AEX++	8-32	.47	.24	.57	.45	.35	.51	1.43	1.64	337	20	.04	10 / 15 / 30
04232-05011A0X++	04232-05111A0X++	10-24	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04	20 / 30 / 40 / 50
04232-05011A1X++	04232-05111A1X++	10-32	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04	20 / 30 / 40 / 50
04232-05011AEX++	04232-05111AEX++	8-32	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04	15 / 20 / 30
04232-1011A1X++	04232-1111A1X++	10-32	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05	20 / 30 / 40 / 50
04232-1011A2X++	04232-1111A2X++	1/4-20	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05	20 / 30 / 40 / 50
04232-2011A3X++	04232-2111A3X++	5/16-18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06	25 / 30 / 40 / 50
04232-2011A4X++	04232-2111A4X++	3/8-16	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06	25 / 30 / 40 / 50

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 =.98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97"

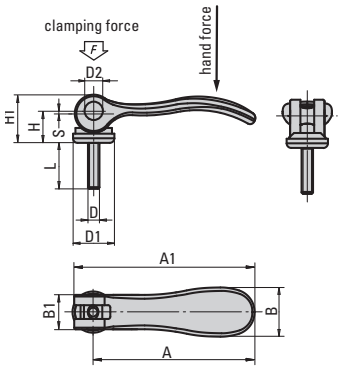
METRIC

Steel Part #	Stainless Part #	D Thread	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke mm	L ++ = Thread Length mm
04232-9501103X++	04232-9511103X++	M3	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1	10 / 15 / 30
04232-9501104X++	04232-9511104X++	M4	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1	10 / 15 / 30
04232-0501104X++	04232-0511104X++	M4	15.5	8	18	13	11.2	17	52.3	59	562	22	1	15 / 20 / 30
04232-0501105X++	04232-0511105X++	M5	15.5	8	18	13	11.2	17	52.3	59	562	22	1	20 / 30 / 40 / 50
04232-101105X++	04232-111105X++	M5	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2	20 / 30 / 40 / 50
04232-101106X++	04232-111106X++	M6	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2	20 / 30 / 40 / 50
04232-201108X++	04232-211108X++	M8	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5	25 / 30 / 40 / 50
04232-201110X++	04232-211110X++	M10	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5	25 / 30 / 40 / 50

++ Add the desired thread length here.

STANDARD CAM LEVERS

Stainless Steel | Male Threads | Stainless Studs | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles and studs are made from 300 series stainless steel. The handle has an electrolytic polished finish. The studs have a natural finish. The thrust washers are made from fiberglass reinforced plastic.

INCH

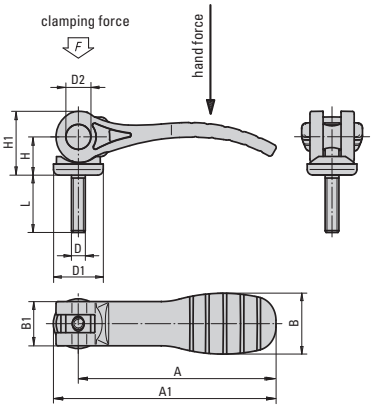
Part #	D Thread	L	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke
04232-1120A1X20	10-32	.79	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A1X30	10-32	1.18	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A1X40	10-32	1.57	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A1X50	10-32	1.97	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A2X20	1/4-20	.79	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A2X30	1/4-20	1.18	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A2X40	1/4-20	1.57	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A2X50	1/4-20	1.97	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-2120A3X25	5/16-18	.98	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A3X30	5/16-18	1.18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A3X40	5/16-18	1.57	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A3X50	5/16-18	1.97	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A4X25	3/8-16	.98	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A4X30	3/8-16	1.18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A4X40	3/8-16	1.57	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04232-2120A4X50	3/8-16	1.97	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06

METRIC

Part #	D Thread	L mm	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke mm
04232-112005X20	M5	20	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112005X30	M5	30	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112005X40	M5	40	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112005X50	M5	50	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112006X20	M6	20	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112006X30	M6	30	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112006X40	M6	40	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112006X50	M6	50	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-212008X25	M8	25	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212008X30	M8	30	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212008X40	M8	40	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212008X50	M8	50	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212010X25	M10	25	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212010X30	M10	30	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212010X40	M10	40	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04232-212010X50	M10	50	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5

STANDARD CAM LEVERS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles are made from glass-fiber reinforced plastic. The steel studs have a blue chromate finish. The stainless studs are made from 303 stainless steel with a natural finish. The thrust washers are made from fiberglass reinforced plastic.

INCH

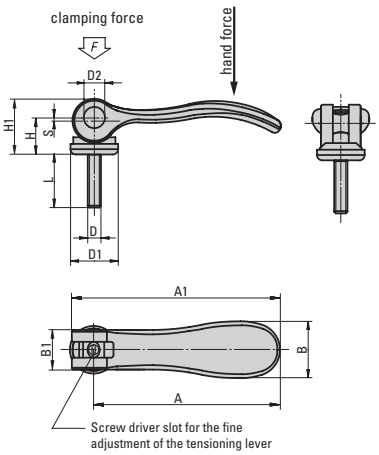
Steel Part #	Stainless Part #	D Thread	L	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke
04232-1211A1X20	04232-1311A1X20	10-32	.79	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A1X30	04232-1311A1X30	10-32	1.18	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A1X40	04232-1311A1X40	10-32	1.57	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A1X50	04232-1311A1X50	10-32	1.97	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A2X20	04232-1311A2X20	1/4-20	.79	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A2X30	04232-1311A2X30	1/4-20	1.18	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A2X40	04232-1311A2X40	1/4-20	1.57	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A2X50	04232-1311A2X50	1/4-20	1.97	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-2211A3X25	04232-2311A3X25	5/16-18	.98	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A3X30	04232-2311A3X30	5/16-18	1.18	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A3X40	04232-2311A3X40	5/16-18	1.57	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A3X50	04232-2311A3X50	5/16-18	1.97	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A4X25	04232-2311A4X25	3/8-16	.98	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A4X30	04232-2311A4X30	3/8-16	1.18	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A4X40	04232-2311A4X40	3/8-16	1.57	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04232-2211A4X50	04232-2311A4X50	3/8-16	1.97	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06

METRIC

Steel Part #	Stainless Part #	D Thread mm	L mm	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke mm
04232-121105X20	04232-131105X20	M5	20	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121105X30	04232-131105X30	M5	30	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121105X40	04232-131105X40	M5	40	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121105X50	04232-131105X50	M5	50	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121106X20	04232-131106X20	M6	20	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121106X30	04232-131106X30	M6	30	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121106X40	04232-131106X40	M6	40	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121106X50	04232-131106X50	M6	50	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-221108X25	04232-231108X25	M8	25	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221108X30	04232-231108X30	M8	30	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221108X40	04232-231108X40	M8	40	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221108X50	04232-231108X50	M8	50	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221110X25	04232-231110X25	M10	25	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221110X30	04232-231110X30	M10	30	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221110X40	04232-231110X40	M10	40	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04232-221110X50	04232-231110X50	M10	50	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5

ADJUSTABLE CAM LEVERS

Aluminum | Male Threads | Steel and Stainless Studs | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. These adjustable cam levers feature a slot on the top of the stud to allow for fine adjustments of the tensioning lever, without having to rotate the handle. They are ideal for quick change operations where space may be limited or precise tension has to be applied. The aluminum handles have a black powder coat finish. The steel studs have a blue chromate finish. The stainless studs are made from 303 stainless and have a natural finish. The thrust washers are made from fiberglass reinforced plastic.

INCH

Steel Part #	Stainless Part #	D Thread	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke	L
04233-95011ADX++	04233-95111ADX++	6-32	0.47	0.24	0.57	0.45	0.35	0.51	1.43	1.64	337	20	0.04	10/15/30
04233-95011AEX++	04233-95111AEX++	8-32	0.47	0.24	0.57	0.45	0.35	0.51	1.43	1.64	337	20	0.04	10/15/30
04233-05011AEX++	04233-05111AEX++	8-32	0.61	0.31	0.71	0.51	0.44	0.67	2.06	2.33	562	22	0.04	15/20/30
04233-05011A0X++	04233-05111A0X++	10-24	0.61	0.31	0.71	0.51	0.44	0.67	2.06	2.33	562	22	0.04	20/30/40/50
04233-05011A1X++	04233-05111A1X++	10-32	0.61	0.31	0.71	0.51	0.44	0.67	2.06	2.33	562	22	0.04	20/30/40/50
04233-1011A1X++	04233-1111A1X++	10-32	0.71	0.35	0.85	0.59	0.57	0.87	2.77	3.12	899	27	0.05	20/30/40/50
04233-1011A2X++	04233-1111A2X++	1/4-20	0.71	0.35	0.85	0.59	0.57	0.87	2.77	3.12	899	27	0.05	20/30/40/50
04233-2011A3X++	04233-2111A3X++	5/16-18	1.06	0.43	1.31	0.94	0.71	1.12	3.78	4.25	1798	78	0.06	25/30/40/50
04233-2011A4X++	04233-2111A4X++	3/8-16	1.06	0.43	1.31	0.94	0.71	1.12	3.78	4.25	1798	78	0.06	25/30/40/50

++ Add the desired thread length here. 10 = .39" / 15 = .59" / 20 = .79" / 25 =.98" / 30 = 1.18" / 40 = 1.57" / 50 = 1.97"

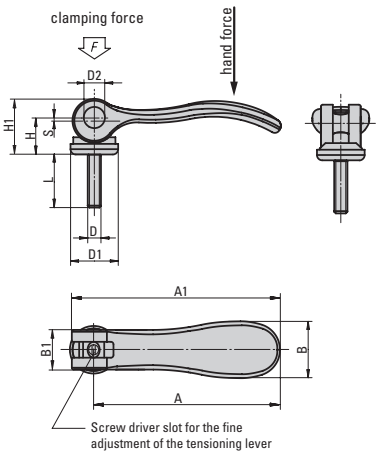
METRIC

Steel Part #	Stainless Part #	D Thread	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force mm	Hand Force Lbs.	S Clamping Stroke Lbs.	L mm
04233-9501103X++	04233-9511103X++	M3	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1	10/15/30
04233-9501104X++	04233-9511104X++	M4	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1	10/15/30
04233-0501104X++	04233-0511104X++	M4	15.4	8	18	13	11.2	17	52.3	59.1	562	22	1	15/20/30
04233-051105X++	04233-0511105X++	M5	15.4	8	18	13	11.2	17	52.3	59.1	562	22	1	20/30/40/50
04233-101105X++	04233-111105X++	M5	18.1	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2	20/30/40/50
04233-101106X++	04233-111106X++	M6	18.1	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2	20/30/40/50
04233-201108X++	04233-211108X++	M8	27.1	11	33.3	24	18	28.5	96	108	1798	78	1.5	25/30/40/50
04233-201110X++	04233-211110X++	M10	27.1	11	33.3	24	18	28.5	96	108	1798	78	1.5	25/30/40/50

++ Add the desired thread length here.

ADJUSTABLE CAM LEVERS

Stainless | Male Threads | Stainless Studs | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. These adjustable cam levers feature a slot on the top of the stud to allow for fine adjustments of the tensioning lever, without having to rotate the handle. They are ideal for quick change operations where space may be limited or precise tension has to be applied. The handles and studs are made from 300 series stainless steel. The handle has an electrolytic polished finish. The studs have a natural finish. The thrust washers are made from fiberglass reinforced plastic.

INCH

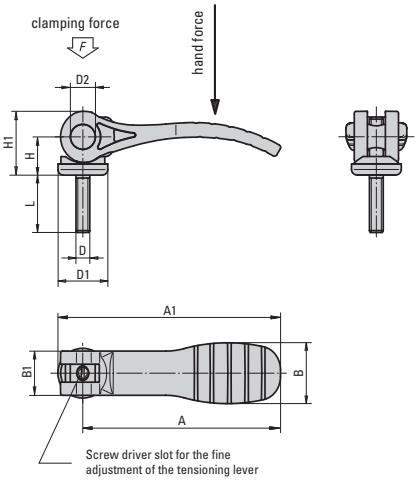
Part #	D Thread	L	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke
04233-1120A1X20	10-32	.79	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A1X30	10-32	1.18	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A1X40	10-32	1.57	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A1X50	10-32	1.97	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A2X20	1/4-20	.79	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A2X30	1/4-20	1.18	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A2X40	1/4-20	1.57	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-1120A2X50	1/4-20	1.97	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04233-2120A3X25	5/16-18	.98	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A3X30	5/16-18	1.18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A3X40	5/16-18	1.57	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A3X50	5/16-18	1.97	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A4X25	3/8-16	.98	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A4X30	3/8-16	1.18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A4X40	3/8-16	1.57	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06
04233-2120A4X50	3/8-16	1.97	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06

METRIC

Part #	D Thread	L mm	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke mm
04233-112005X20	M5	20	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112005X30	M5	30	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112005X40	M5	40	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112005X50	M5	50	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112006X20	M6	20	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112006X30	M6	30	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112006X40	M6	40	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-112006X50	M6	50	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04233-212008X25	M8	25	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212008X30	M8	30	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212008X40	M8	40	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212008X50	M8	50	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212010X25	M10	25	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212010X30	M10	30	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212010X40	M10	40	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5
04233-212010X50	M10	50	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5

ADJUSTABLE CAM LEVERS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



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INCH

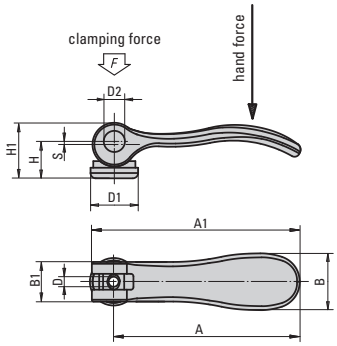
Steel Part #	Stainless Part #	D Thread	L	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke
04233-1211A1X20	04233-1311A1X20	10-32	.79	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A1X30	04233-1311A1X30	10-32	1.18	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A1X40	04233-1311A1X40	10-32	1.57	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A1X50	04233-1311A1X50	10-32	1.97	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A2X20	04233-1311A2X20	1/4-20	.79	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A2X30	04233-1311A2X30	1/4-20	1.18	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A2X40	04233-1311A2X40	1/4-20	1.57	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-1211A2X50	04233-1311A2X50	1/4-20	1.97	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04233-2211A3X25	04233-2311A3X25	5/16-18	.98	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A3X30	04233-2311A3X30	5/16-18	1.18	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A3X40	04233-2311A3X40	5/16-18	1.57	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A3X50	04233-2311A3X50	5/16-18	1.97	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A4X25	04233-2311A4X25	3/8-16	.98	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A4X30	04233-2311A4X30	3/8-16	1.18	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A4X40	04233-2311A4X40	3/8-16	1.57	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06
04233-2211A4X50	04233-2311A4X50	3/8-16	1.97	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06

METRIC

Steel Part #	Stainless Part #	D Thread mm	L mm	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke mm
04233-121105X20	04233-131105X20	M5	20	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121105X30	04233-131105X30	M5	30	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121105X40	04233-131105X40	M5	40	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121105X50	04233-131105X50	M5	50	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121106X20	04233-131106X20	M6	20	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121106X30	04233-131106X30	M6	30	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121106X40	04233-131106X40	M6	40	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-121106X50	04233-131106X50	M6	50	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04233-221108X25	04233-231108X25	M8	25	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221108X30	04233-231108X30	M8	30	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221108X40	04233-231108X40	M8	40	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221108X50	04233-231108X50	M8	50	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221110X25	04233-231110X25	M10	25	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221110X30	04233-231110X30	M10	30	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221110X40	04233-231110X40	M10	40	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5
04233-221110X50	04233-231110X50	M10	50	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5

STANDARD CAM LEVERS

Aluminum | Female Threads | Steel and Stainless Inserts | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener; however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles are made from aluminum and have a black powder coat finish. The female inserts are available in steel or stainless steel. The thrust washers are made from fiberglass reinforced plastic.

INCH

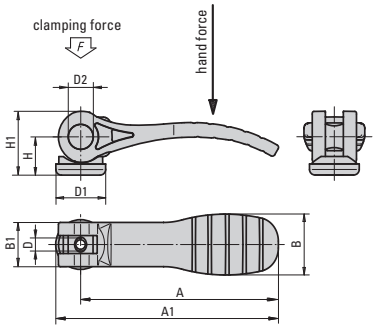
Steel Part #	Stainless Part #	D Thread	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke
04232-95011AD	04232-95111AD	6-32	.47	.24	.57	.45	.35	.51	1.43	1.64	337	20	.04
04232-95011AE	04232-95111AE	8-32	.47	.24	.57	.45	.35	.51	1.43	1.64	337	20	.04
04232-05011AE	04232-05111AE	8-32	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04
04232-05011A0	04232-05111A0	10-24	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04
04232-05011A1	04232-0511A11	10-32	.61	.31	.71	.51	.44	.67	2.06	2.32	562	22	.04
04232-1011A1	04232-1111A1	10-32	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1011A2	04232-1111A2	1/4-20	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-2011A3	04232-2111A3	5/16-18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06

METRIC

Steel Part #	Stainless Part #	D Thread	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke mm
04232-9501103	04232-9511103	M3	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1
04232-9501104	04232-9511104	M4	12	6	14.4	11.5	9	13	36.2	41.7	337	20	1
04232-0501104	04232-0511104	M4	15.5	8	18	13	11.2	17	52.3	59	562	22	1
04232-0501105	04232-0511105	M5	15.5	8	18	13	11.2	17	52.3	59	562	22	1
04232-101105	04232-111105	M5	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-101106	04232-111106	M6	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-201108	04232-211108	M8	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5

STANDARD CAM LEVERS

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener; however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles are made from glass-fiber reinforced plastic. The female inserts are available in steel or stainless steel. The thrust washers are made from fiberglass reinforced plastic.

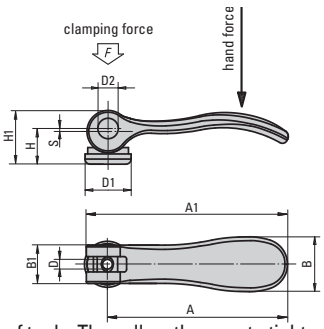
INCH

Steel Part #	Stainless Part #	D Thread	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke
04232-1211A1	04232-1311A1	10-32	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-1211A2	04232-1311A2	1/4-20	.71	.35	.87	.63	.54	.91	2.81	3.13	562	28	.05
04232-2211A3	04232-2311A3	5/16-18	1.06	.43	1.30	.94	.64	1.09	3.93	4.33	1,124	38	.06

METRIC

Steel Part #	Stainless Part #	D Thread mm	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	Clamping Stroke mm
04232-121105	04232-131105	M5	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-121106	04232-131106	M6	18	9	22	16	13.8	23.1	71.5	79.6	562	28	1.15
04232-221108	04232-231108	M8	27	11	33	24	16.2	27.7	99.9	110	1,124	38	1.5

Stainless | Female Threads | Stainless Inserts | Inch and Metric



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The handles and inserts are made from 300 series stainless steel. The handles have a electrolytic polished finish. The inserts have a natural finish. The thrust washers are made from fiberglass reinforced plastic.

INCH

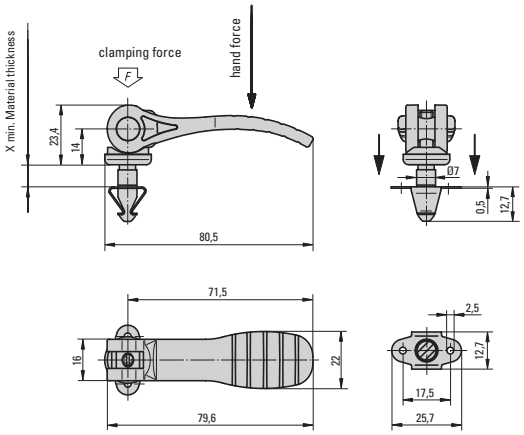
Part #	D Thread	D1	D2	B	B1	H	H1	A	A1	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke
04232-1120A1	10-32	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-1120A2	1/4-20	.71	.35	.85	.59	.57	.87	2.77	3.12	899	27	.05
04232-2120A3	5/16-18	1.06	.43	1.31	.94	.71	1.12	3.78	4.25	1,798	78	.06

METRIC

Part #	D Thread	D1 mm	D2 mm	B mm	B1 mm	H mm	H1 mm	A mm	A1 mm	Clamping Force Lbs.	Hand Force Lbs.	S Clamping Stroke mm
04232-112005	M5	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-112006	M6	18	9	21.5	15	14.5	22	70.4	79.2	899	27	1.2
04232-212008	M8	27	11	33.2	24	18	28.5	96	108	1,798	78	1.5

STANDARD CAM LEVERS

Plastic | Quick Lock Style | Metric



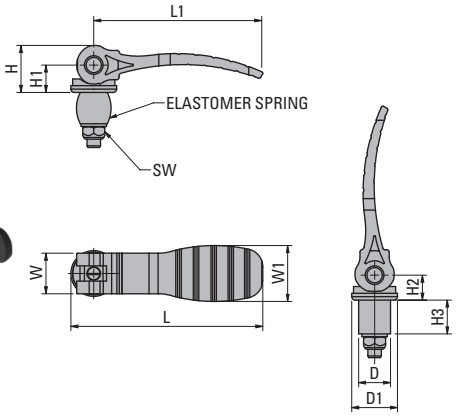
These cam action lever fasteners allow for quick fastening and unfastening without the use of tools in thin material. The spring clip is mounted to the base. The cam lever pin is inserted into the spring clip and turned 1/4 turn to engage the pin into the clip. As the lever is pushed downward, the pin is drawn up for secure fastening against the spring clip. Pulling the lever up releases the pressure to allow for adjustment or removal of the cam lever. The handles and thrust washers are made from glass fiber-reinforced plastic. The pin is made from steel. The spring clip is made from stainless steel. The holding force is 112 lbs.

Part #	X -Min Material Thickness
04234-121107X2	.08 (2mm)
04234-121107X4	.16 (4mm)

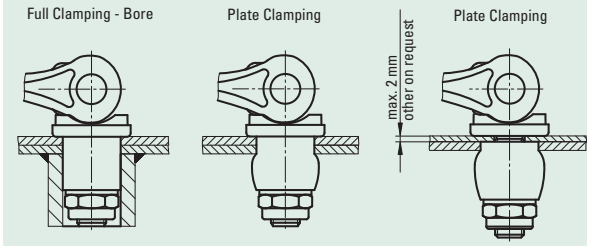
Part #	X -Min Material Thickness
04234-121107X6	.24 (6mm)
04234-121107X8	.31 (8mm)

CAM LEVERS – EXPANSION

Fiberglass Reinforced Plastic | Expansion | Metric



How To Use



These cam action lever fasteners allow for quick fastening and unfastening without the use of tools. Actuating the handle causes the elastomer spring to expand against the surrounding surface. The expansion of the spring can be adjusted using the nut, ensuring consistent clamping forces each time the cam lever is used. To unfasten, the handle is pulled up to contract the spring. These cam levers are ideal for quick change operations where plates or covers are secured. The handle and thrust washer are made from fiberglass reinforced black plastic. The hinge pin is made from stainless steel with a natural finish. The stud and washer are made from steel with a blue chromate finish. The spring is made from a PUR elastomer.

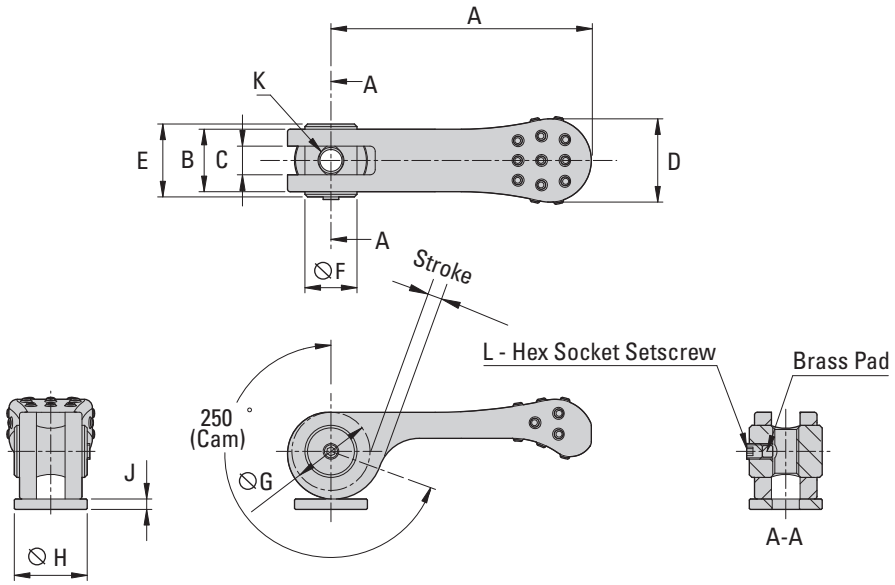
Part #	D mm	D1 mm	L mm	L1 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	H3 mm	SW mm	Clamping Force* Bore Clamping Lbs.	Clamping Force* Plate Clamping Lbs.
0118.121112X12	12	18	79.6	71.5	16	22	23.2	14.0	12.85	12	10	22.48	11.24
0118.121114X12	14	18	79.6	71.5	16	22	23.2	14.0	12.85	12	10	33.72	13.48
0118.221116X20	16	27	110	99.9	24	33	27.8	16.2	14.7	20	13	78.68	13.48
0118.221118X20	18	27	110	99.9	24	33	27.8	16.2	14.7	20	13	78.68	22.48
0118.221120X20	20	27	110	99.9	24	33	27.8	16.2	14.7	20	16	78.68	22.48

*With no permanent load.

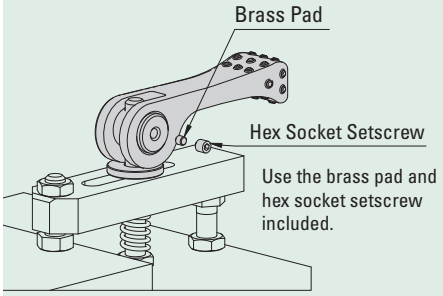
CAM LEVERS - LOW PROFILE

Black Oxide Finish

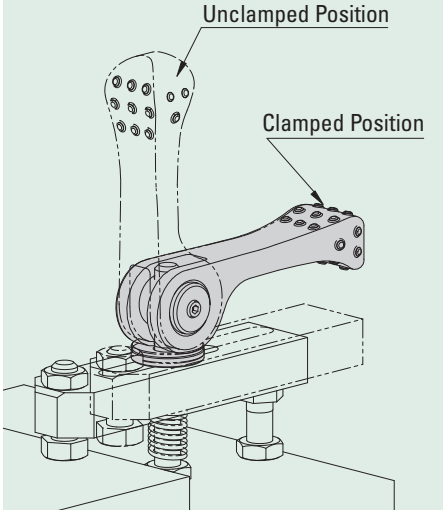
Electroless Nickel Plated



How To Use



Application Example



These cam handles allow for quick fastening and unfastening without the use of tools. They allow the user to tighten by threading like a traditional fastener however, for final tightening the cam lever is pushed downward. To unfasten, the cam lever is pulled up releasing clamping force and allowing the fastener to be unthreaded. They are ideal for quick change operations where parts only have to be loosened and not completely unassembled. The brass pad and hex socket set screw prevents the handle from backing off the thread. The lever is made from SAE-4140 alloy steel. The ring nut and washer is made from SAE-1045 alloy steel. Parts are heat treated and available with either a black oxide finish or with an electroless nickel plating finish. The electroless nickel plating provides improved corrosion and wear resistance to increase the life of the cam handle in harsh environments.

Black Oxide Part #	Nickel Plated Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	Clamping Stroke mm	Operating Load Lbs.*	Clamping Force Lbs.
QLCA-04	QLCA-04-NP	40	10	4.5	14	12	8	12	12	2	M4X0.7	M3X0.5X3	1.8	18	202
QLCA-05	QLCA-05-NP	50	12	5.5	16	14	10	15	14	2	M5X0.8	M3X0.5X3	2.3	22	292
QLCA-06	QLCA-06-NP	63	14	6.5	19	16	12	18	16	3	M6X1.0	M4X0.7X4	2.7	33	539
QLCA-08	QLCA-08-NP	80	18	9	24	20	15	22	20	3	M8X1.25	M4X0.7X4	3.3	45	809
QLCA-10	QLCA-10-NP	100	23	11	30	25	18	28	25	5	M10X1.5	M5X0.8X5	4.3	67	1,079

* Max allowable load to operate handle

KNOBS

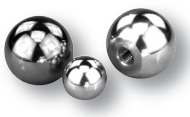
STAR GRIPS

PALM GRIPS

CLAMP GRIPS

GRIP BALLS

BALL KNOBS



WING GRIPS

MUSHROOM KNOBS

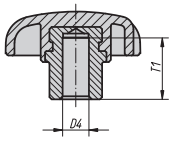
KNURLED KNOBS

KNURLED WHEELS

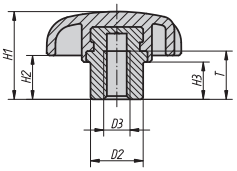
POSITIONING WHEELS

STAR GRIPS

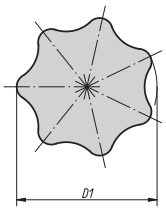
Plastic | Steel and Stainless Inserts | Inch and Metric



Form H
Reamed Blind Hole



Form K
Tapped Blind Hole



These black thermoplastic star grips have a projecting steel bushing for cross pin and set screw fastening. The steel parts have a blue chromate finish. The stainless steel have a natural finish.

INCH

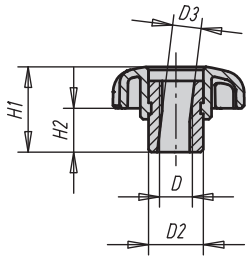
Steel Part # Form H	Steel Part # Form K	D3	D4	T	T1	D1	D2	H1	H2	H3
06210-1CL	06210-2A1	10-32	.188	.33	.37	.98	.39	.63	.31	.24
06210-1CM	06210-2A2	1/4-20	.250	.47	.47	1.26	.47	.79	.39	.33
06210-1CM1	06210-2A21	1/4-20	.250	.55	.55	1.57	.53	.98	.51	.39
06210-1CN	06210-2A3	5/16-18	.312	.55	.55	1.57	.53	.98	.51	.39
06210-1CN1	06210-2A31	5/16-18	.312	.71	.71	1.97	.75	1.26	.67	.47
06210-1CO	06210-2A4	3/8-16	.375	.71	.71	1.97	.75	1.26	.67	.47
06210-1CO1	06210-2A41	3/8-16	.375	.87	.87	2.48	.75	1.57	.83	.59
06210-1CP	06210-2A5	1/2-13	.500	.87	.87	2.48	.75	1.57	.83	.59
06210-1CQ	06210-2A6	5/8-11	.625	.87	.87	2.48	.91	1.57	.83	.59

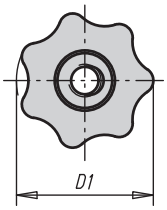
METRIC

Steel Part # Form H	Steel Part # Form K	SS Part # Form K	D3 mm	D4 mm	T mm	T1 mm	D1 mm	D2 mm	H1 mm	H2 mm	H3 mm
06210-105	06210-205	06210-305	M5	5	9	9.5	25	10	17	9	7
06210-106	06210-206	06210-306	M6	6	12	12	32	13.5	21	11	9.5
06210-1061	06210-2061	06210-3061	M6	6	12	14	40	13.5	25	13	10
06210-108	06210-208	06210-308	M8	8	12	14	40	13.5	25	13	10
06210-1081	06210-2081	06210-3081	M8	8	17	18	50	19	32	17	12
06210-110	06210-210	06210-310	M10	10	17	18	50	19	32	17	12
06210-1101	06210-2101	06210-3101	M10	10	17	22	63	19	40	21	15
06210-112	06210-212	06210-312	M12	12	17	22	63	19	40	21	15
06210-116	06210-216	06210-316	M16	16	23	22	63	23	40	21	15

STAR GRIPS - QUICK ACTING

Plastic | Steel Inserts | Metric





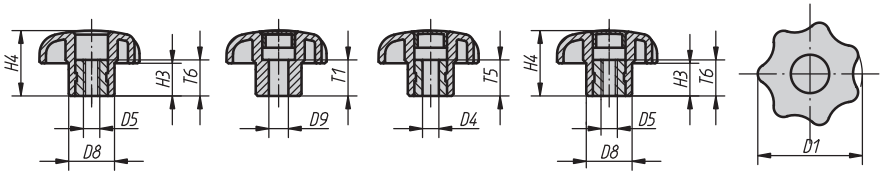
By loosening the knob about 1/2 turn, the knob can be tilted at an angle and disengaged from the threads so it can be pulled off a stud rather than unthreaded. They are ideal for quick changes in light duty applications. The stud must be several mm longer than H1 dimension. Made from black thermoplastic with steel bushing.

METRIC

Part #	D mm	D1 mm	D2 mm	D3 mm	H1 mm	H2 mm
06222-05	M5	25	10	5.2	15.5	8
06222-06	M6	32	12	6.2	19.5	10
06222-08	M8	40	13.5	8.3	24.5	13
06222-10	M10	50	19	10.3	31	17
06222-12	M12	63	19	12.3	39.5	21

STAR GRIPS

Plastic | Female Threads | Steel Inserts | Inch and Metric



Form D
Tapped Through Hole w/o Cap

Form G
Reamed Blind Hole - No Bushing

Form H
Through Hole Reamed w/ Counter Bore

Form K
Tapped Blind Hole

Firm sure ergonomic gripping with an attractive appearance. Made from black thermoplastic. The insert is made from steel. They are available with black, light grey, traffic red and bright yellow caps. Please specify. See www.fixtureworks.net for colors.

INCH

Part # Form D	Part # Form G	Part # Form H	Part # Form K	D1	D4	D5	D8	D9	H3	H4	T1	T5	T6
06220-5AE	–	–	06220-2AE*	.98	–	8-32	.47	–	.31	.63	–	–	.39
06220-5A1	06220-3CL*	06220-1CL*	06220-2A1*	.98	.188	10-32	.47	.188	.31	.63	.39	.39	.39
06220-5A21	–	–	06220-2A21*	.98	–	1/4-20	.47	–	.31	.63	–	–	.39
06220-5A11	–	–	06220-2A11*	1.26	–	10-32	.55	–	.39	.79	–	–	.39
06220-5A2	06220-3CM*	06220-1CM*	06220-2A2*	1.26	.250	1/4-20	.55	.250	.39	.79	.39	.39	.39
06220-5A3	06220-3CN*	06220-1CN*	06220-2A3*	1.57	.312	5/16-18	.71	.312	.51	.98	.55	.55	.55
06220-5A41	–	–	06220-2A41*	1.57	–	3/8-16	.71	–	.51	.98	–	–	.55
06220-5A31	–	–	06220-2A31*	1.97	–	5/16-18	.87	–	.67	1.26	–	–	.55
06220-5A4	06220-3CO*	06220-1CO*	06220-2A4*	1.97	.375	3/8-16	.87	.375	.67	1.26	.55	.55	.55
06220-5A51	–	–	06220-2A51*	1.97	–	1/2-13	.87	–	.67	1.26	–	–	.71
06220-5A42	–	06220-1CO1*	06220-2A42*	2.48	.375	3/8-16	1.02	–	.83	1.57	–	.55	.55
06220-5A5	06220-3CP*	06220-1CP*	06220-2A5*	2.48	.500	1/2-13	1.02	.500	.83	1.57	.71	.71	.71
06220-5A6	–	–	06220-2A6*	2.48	–	5/8-11	1.02	–	.83	1.57	–	–	.71

* Add the desired cap color to the end of the part number. No color code is required for black. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

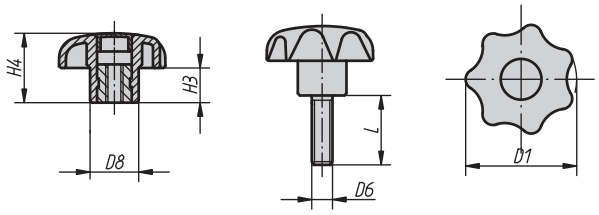
METRIC

Part # Form D	Part # Form G	Part # Form H	Part # Form K	D1 mm	D4 mm	D5 mm	D8 mm	D9 mm	H3 mm	H4 mm	T1 mm	T5 mm	T6 mm
06220-504	–	–	06220-204*	25	–	M4	12	–	8	16	–	–	10
06220-505	06220-305*	06220-105*	06220-205*	25	5	M5	12	5	8	16	10	10	10
06220-5061	–	–	06220-2061*	25	–	M6	12	–	8	16	–	–	10
06220-5051	–	–	06220-2051*	32	–	M5	14	–	10	20	–	–	10
06220-506	06220-306*	06220-106*	06220-206*	32	6	M6	14	6	10	20	10	10	10
06220-508	06220-308*	06220-108*	06220-208*	40	8	M8	18	8	13	25	14	14	14
06220-5101	–	–	06220-2101*	40	–	M10	18	–	13	25	–	–	14
06220-5081	–	–	06220-2081*	50	–	M8	22	–	17	32	–	–	14
06220-510	06220-310*	06220-110*	06220-210*	50	10	M10	22	10	17	32	14	14	14
06220-5121	–	–	06220-2121*	50	–	M12	22	–	17	32	–	–	18
06220-5102	–	06220-1101*	06220-2102*	63	10	M10	26	–	21	40	–	14	14
06220-512	06220-312*	06220-112*	06220-212*	63	12	M12	26	12	21	40	18	18	18
06220-516	–	–	06220-216*	63	–	M16	26	–	21	40	–	–	18

* Add the desired cap color to the end of the part number. No color code is required for black. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

STAR GRIPS

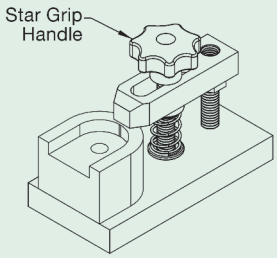
Plastic | Male Threads | Steel Studs | Inch



Form L External Threads

Firm sure ergonomic gripping with an attractive appearance. Made from black thermoplastic. The studs are made from steel. They are available with black, light grey, traffic red and bright yellow caps. Please specify. See www.fixtureworks.net for colors.

How To Use



Star grip handles can be used for quick assembly and disassembly without the need of tools.

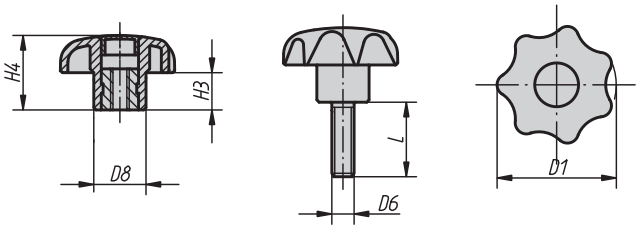
INCH

Part # Form L	D1	D6	L	D8	H3	H4
06220-4A1*X10	.98	10-32	.39	.47	.31	.63
06220-4A1*X20	.98	10-32	.79	.47	.31	.63
06220-4A2*X20	.98	1/4-20	.79	.47	.31	.63
06220-4A2*X30	.98	1/4-20	1.18	.47	.31	.63
06220-4A21*X20	1.26	1/4-20	.79	.55	.39	.79
06220-4A21*X30	1.26	1/4-20	1.18	.55	.39	.79
06220-4A3*X20	1.26	5/16-18	.79	.55	.39	.79
06220-4A3*X40	1.26	5/16-18	1.57	.55	.39	.79
06220-4A31*X20	1.57	5/16-18	.79	.71	.51	.98
06220-4A31*X40	1.57	5/16-18	1.57	.71	.51	.98
06220-4A4*X20	1.57	3/8-16	.79	.71	.51	.98
06220-4A4*X40	1.57	3/8-16	1.57	.71	.51	.98
06220-4A41*X20	1.97	3/8-16	.79	.87	.67	1.26
06220-4A41*X40	1.97	3/8-16	1.57	.87	.67	1.26
06220-4A5*X30	1.97	1/2-13	1.18	.87	.67	1.26
06220-4A5*X60	1.97	1/2-13	2.36	.87	.67	1.26
06220-4A42*X20	2.48	3/8-16	.79	1.02	.83	1.57
06220-4A42*X40	2.48	3/8-16	1.57	1.02	.83	1.57
06220-4A51*X30	2.48	1/2-13	1.18	1.02	.83	1.57
06220-4A51*X60	2.48	1/2-13	2.36	1.02	.83	1.57

* Add the desired cap color to the part number here. No color code is required for black. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

STAR GRIPS

Plastic | Male Threads | Steel Studs | Metric



Form L External Threads

Firm sure ergonomic gripping with an attractive appearance. Made from black thermoplastic. The studs are made from steel. They are available with black, light grey, traffic red and bright yellow caps. Please specify. See www.fixtureworks.net for colors.

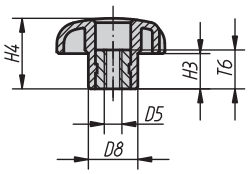
METRIC

Part # Form L	D1 mm	D6 mm	L mm	D8 mm	H3 mm	H4 mm
06220-405*X10	25	M5	10	12	8	16
06220-405*X15	25	M5	15	12	8	16
06220-405*X20	25	M5	20	12	8	16
06220-405*X25	25	M5	25	12	8	16
06220-405*X30	25	M5	30	12	8	16
06220-405*X35	25	M5	35	12	8	16
06220-405*X40	25	M5	40	12	8	16
06220-405*X45	25	M5	45	12	8	16
06220-405*X50	25	M5	50	12	8	16
06220-405*X60	25	M5	60	12	8	16
06220-406*X10	25	M6	10	12	8	16
06220-406*X15	25	M6	15	12	8	16
06220-406*X20	25	M6	20	12	8	16
06220-406*X25	25	M6	25	12	8	16
06220-406*X30	25	M6	30	12	8	16
06220-406*X35	25	M6	35	12	8	16
06220-406*X40	25	M6	40	12	8	16
06220-406*X45	25	M6	45	12	8	16
06220-406*X50	25	M6	50	12	8	16
06220-406*X60	25	M6	60	12	8	16
06220-4061*X10	32	M6	10	14	10	20
06220-4061*X15	32	M6	15	14	10	20
06220-4061*X20	32	M6	20	14	10	20
06220-4061*X25	32	M6	25	14	10	20
06220-4061*X30	32	M6	30	14	10	20
06220-4061*X35	32	M6	35	14	10	20
06220-4061*X40	32	M6	40	14	10	20
06220-4061*X45	32	M6	45	14	10	20
06220-4061*X50	32	M6	50	14	10	20
06220-4061*X60	32	M6	60	14	10	20
06220-408*X15	32	M8	15	14	10	20
06220-408*X20	32	M8	20	14	10	20
06220-408*X25	32	M8	25	14	10	20
06220-408*X30	32	M8	30	14	10	20
06220-408*X35	32	M8	35	14	10	20
06220-408*X40	32	M8	40	14	10	20
06220-408*X45	32	M8	45	14	10	20
06220-408*X50	32	M8	50	14	10	20
06220-408*X60	32	M8	60	14	10	20
06220-4081*X15	40	M8	15	18	13	25
06220-4081*X20	40	M8	20	18	13	25
06220-4081*X25	40	M8	25	18	13	25
06220-4081*X30	40	M8	30	18	13	25
06220-4081*X35	40	M8	35	18	13	25
06220-4081*X40	40	M8	40	18	13	25
06220-4081*X45	40	M8	45	18	13	25
06220-4081*X50	40	M8	50	18	13	25
06220-4081*X60	40	M8	60	18	13	25

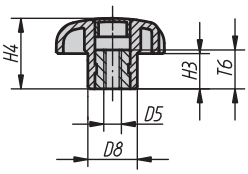
Part # Form L	D1 mm	D6 mm	L mm	D8 mm	H3 mm	H4 mm
06220-410*X15	40	M10	15	18	13	25
06220-410*X20	40	M10	20	18	13	25
06220-410*X25	40	M10	25	18	13	25
06220-410*X30	40	M10	30	18	13	25
06220-410*X35	40	M10	35	18	13	25
06220-410*X40	40	M10	40	18	13	25
06220-410*X45	40	M10	45	18	13	25
06220-410*X50	40	M10	50	18	13	25
06220-410*X60	40	M10	60	18	13	25
06220-4101*X15	50	M10	15	22	17	32
06220-4101*X20	50	M10	20	22	17	32
06220-4101*X25	50	M10	25	22	17	32
06220-4101*X30	50	M10	30	22	17	32
06220-4101*X35	50	M10	35	22	17	32
06220-4101*X40	50	M10	40	22	17	32
06220-4101*X45	50	M10	45	22	17	32
06220-4101*X50	50	M10	50	22	17	32
06220-4101*X60	50	M10	60	22	17	32
06220-412*X15	50	M12	15	22	17	32
06220-412*X20	50	M12	20	22	17	32
06220-412*X25	50	M12	25	22	17	32
06220-412*X30	50	M12	30	22	17	32
06220-412*X35	50	M12	35	22	17	32
06220-412*X40	50	M12	40	22	17	32
06220-412*X45	50	M12	45	22	17	32
06220-412*X50	50	M12	50	22	17	32
06220-412*X60	50	M12	60	22	17	32
06220-4102*X20	63	M10	20	26	21	40
06220-4102*X25	63	M10	25	26	21	40
06220-4102*X30	63	M10	30	26	21	40
06220-4102*X35	63	M10	35	26	21	40
06220-4102*X40	63	M10	40	26	21	40
06220-4102*X45	63	M10	45	26	21	40
06220-4102*X50	63	M10	50	26	21	40
06220-4102*X60	63	M10	60	26	21	40
06220-4121*X20	63	M12	20	26	21	40
06220-4121*X25	63	M12	25	26	21	40
06220-4121*X30	63	M12	30	26	21	40
06220-4121*X35	63	M12	35	26	21	40
06220-4121*X40	63	M12	40	26	21	40
06220-4121*X45	63	M12	45	26	21	40
06220-4121*X50	63	M12	50	26	21	40
06220-4121*X60	63	M12	60	26	21	40
06220-416*X30	63	M16	30	26	21	40
06220-416*X35	63	M16	35	26	21	40
06220-416*X40	63	M16	40	26	21	40
06220-416*X45	63	M16	45	26	21	40
06220-416*X50	63	M16	50	26	21	40
06220-416*X60	63	M16	60	26	21	40

STAR GRIPS

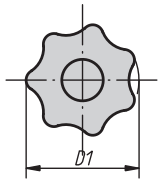
Plastic | Female Threads | Stainless Steel Inserts | Inch and Metric



Form D
Tapped Through
Hole w/o Cap



Form K
Tapped
Blind Hole



Firm sure ergonomic gripping with an attractive appearance. Made from black thermoplastic. The inserts are made from stainless steel. They are available with black, light grey, traffic red and bright yellow caps. Please specify. See www.fixtureworks.net for colors.

INCH

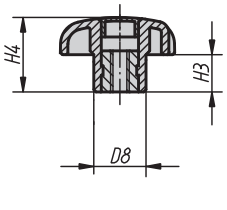
Part # Form D	Part # Form K	D1	D5	D8	H3	H4	T6
06212-5A1	06212-2A1*	.98	10-32	.47	.31	.63	.39
06212-5A2	06212-2A2*	1.26	1/4-20	.55	.39	.79	.39
06212-5A3	06212-2A3*	1.57	5/16-18	.71	.51	.98	.55
06212-5A4	06212-2A4*	1.97	3/8-16	.87	.67	1.26	.55
06212-5A5	06212-2A5*	2.48	1/2-13	1.02	.83	1.57	.71

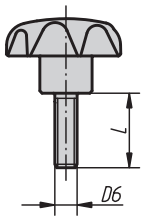
METRIC

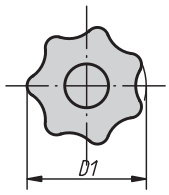
Part # Form D	Part # Form K	D1 mm	D5 mm	D8 mm	H3 mm	H4 mm	T6 mm
06212-505	06212-205*	25	M5	12	8	16	10
06212-506	06212-206*	32	M6	14	10	20	10
06212-508	06212-208*	40	M8	18	13	25	14
06212-510	06212-210*	50	M10	22	17	32	14
06212-512	06212-212*	63	M12	26	21	40	18

* Add the desired cap color to the end of the part number. No color code is required for black. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

Plastic | Male Threads | Stainless Steel Studs | Inch and Metric







Form L External Threads

Firm sure ergonomic gripping with an attractive appearance. Made from black thermoplastic. The studs are made from stainless steel. They are available with black, light grey, traffic red and bright yellow caps. Please specify. See www.fixtureworks.net for colors.

INCH

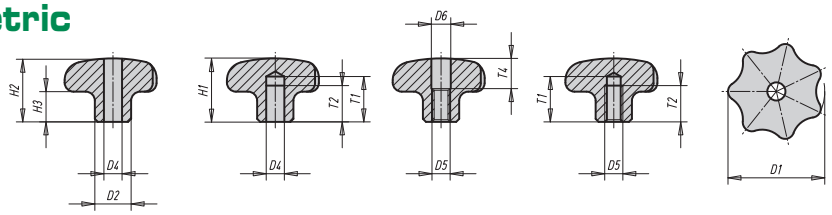
Part # Form L	D1	D6	L	D8	H3	H4
06212-4A1*X10	.98	10-32	.39	.47	.31	.63
06212-4A1*X20	.98	10-32	.79	.47	.31	.63
06212-4A2*X20	1.26	1/4-20	.79	.55	.39	.79
06212-4A2*X30	1.26	1/4-20	1.18	.55	.39	.79
06212-4A3*X20	1.57	5/16-18	.79	.71	.51	.98
06212-4A3*X40	1.57	5/16-18	1.57	.71	.51	.98
06212-4A4*X20	1.97	3/8-16	.79	.87	.67	1.26
06212-4A4*X40	1.97	3/8-16	1.57	.87	.67	1.26

METRIC

Part # Form L	D1 mm	D6 mm	L mm	D8 mm	H3 mm	H4 mm
06212-405*X15	25	M5	15	12	8	16
06212-405*X20	25	M5	20	12	8	16
06212-406*X20	32	M6	20	14	10	20
06212-406*X30	32	M6	30	14	10	20
06212-408*X15	40	M8	15	18	13	25
06212-408*X20	40	M8	20	18	13	25
06212-408*X25	40	M8	25	18	13	25
06212-408*X30	40	M8	30	18	13	25
06212-408*X40	40	M8	40	18	13	25
06212-408*X60	40	M8	60	18	13	25
06212-410*X25	50	M10	25	22	17	32
06212-410*X30	50	M10	30	22	17	32
06212-410*X40	50	M10	40	22	17	32
06212-410*X50	50	M10	50	22	17	32
06212-410*X60	50	M10	60	22	17	32

STAR GRIPS

Stainless Steel | Inch and Metric



Form B
Reamed Through Hole

Form C
Reamed Blind Hole

Form D
Through Hole Tapped w/ Counter Bore

Form E
Tapped Blind Hole

These stainless steel star grips offer ergonomic design, good gripping and attractive appearance. They are offered with four mounting configurations as shown. The finish is ground and polished.

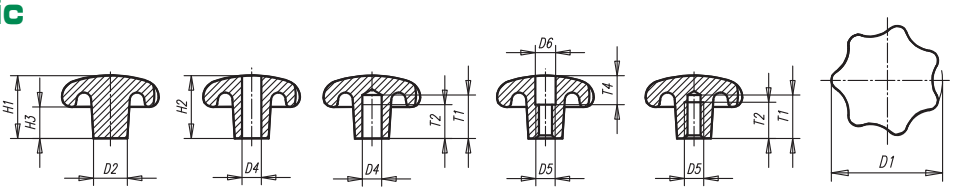
INCH

Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1	D2	D4	D5	D6	H1	H2	H3	T1	T2	T4
06194-232CM2	06194-332CM2	06194-432A22	06194-532A22	1.26	.47	.250	1/4-20	.25	.83	.79	.39	.59	.47	.39
06194-240CN2	06194-340CN2	06194-440A32	06194-540A32	1.57	.55	.312	5/16-18	.33	1.02	.98	.51	.71	.59	.47
06194-250CO2	06194-350CO2	06194-450A42	06194-550A42	1.97	.71	.375	3/8-16	.41	1.34	1.26	.67	.83	.71	.63
06194-263CP2	06194-363CP2	06194-463A52	06194-563A52	2.48	.79	.500	1/2-13	.51	1.65	1.57	.83	.98	.87	.79

METRIC

Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06194-232062	06194-332062	06194-432062	06194-532062	32	12	6	M6	6.4	21	20	10	15	12	10
06194-240082	06194-340082	06194-440082	06194-540082	40	14	8	M8	8.4	26	25	13	18	15	12
06194-250102	06194-350102	06194-450102	06194-550102	50	18	10	M10	10.5	34	32	17	21	18	16
06194-263122	06194-363122	06194-463122	06194-563122	63	20	12	M12	13	42	40	21	25	22	20

Cast Iron | Inch and Metric



Form A
Blank

Form B
Reamed Thru-Hole

Form C
Reamed Blind Hole

Form D
Through Hole Tapped with Counter Bore

Form E
Tapped Blind Hole

These grey cast iron star grips are offered with five mounting configurations as shown. All styles have a natural tumbled finish except form A, which is de-burred raw casting.

INCH

Part # Form A	Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1	D2	D4	D5	D6	H1	H2	H3	T1	T2	T4
06200-106	06200-2CM	06200-3CM	06200-4A2	06200-5A2	1.26	.47	.250	1/4-20	.25	.83	.79	.39	.59	.47	.39
06200-108	06200-2CN	06200-3CN	06200-4A3	06200-5A3	1.57	.55	.312	5/16-18	.33	1.02	.98	.55	.71	.59	.47
06200-110	06200-2CO	06200-3CO	06200-4A4	06200-5A4	1.97	.71	.375	3/8-16	.41	1.34	1.26	.79	.83	.71	.63
06200-112	06200-2CP	06200-3CP	06200-4A5	06200-5A5	2.48	.79	.500	1/2-13	.51	1.65	1.57	.98	.98	.87	.79
06200-116	06200-2CQ	06200-3CQ	06200-4A6	06200-5A6	3.15	.98	.625	5/8-11	.67	2.05	1.97	1.18	1.26	1.10	1.18

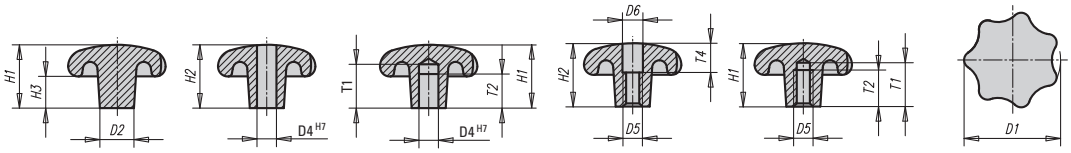
METRIC

Part # Form A	Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06200-106	06200-206	06200-306	06200-406	06200-506	32	12	6	M6	6.4	21	20	10	15	12	10
06200-108	06200-208	06200-308	06200-408	06200-508	40	14	8	M8	8.4	26	25	14	18	15	12
06200-110	06200-210	06200-310	06200-410	06200-510	50	18	10	M10	10.5	34	32	20	21	18	16
06200-112	06200-212	06200-312	06200-412	06200-512	63	20	12	M12	13	42	40	25	25	22	20
06200-116	06200-216	06200-316	06200-416	06200-516	80	25	16	M16	17	52	50	30	32	28	30

IMAO

STAR GRIPS

Aluminum | Metric



Form A
Blank

Form B
Drilled
Through Hole

Form C
Blind Hole

Form D
Through Hole
Tapped with
Counter Boae

Form E
Tapped
Blind Hole

These aluminum star grips offer ergonomic design, good gripping and attractive appearance. They are offered with five mounting configurations as shown in either a tumbled finish or a ground and polished finish.

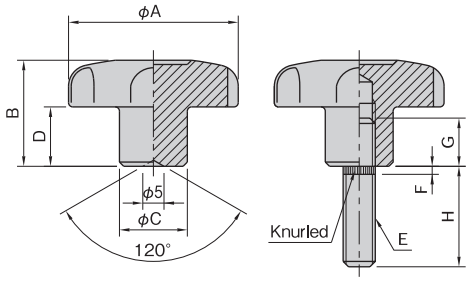
Tumbled Finish

Form A Part #	Form B Part #	Form C Part #	Form D Part #	Form E Part #	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06192-14008	06192-24008	06192-34008	06192-44008	06192-54008	40	14	8	M8	8.4	26	25	13	18	15	12
06192-15010	06192-25010	06192-35010	06192-45010	06192-55010	50	18	10	M10	10.5	34	32	17	21	18	16
06192-16312	06192-26312	06192-36312	06192-46312	06192-56312	63	20	12	M12	13	42	40	21	25	22	20
06192-18016	06192-28016	06192-38016	06192-48016	06192-58016	80	25	16	M16	17	52	50	25	32	28	30

Polished Finish

Form A Part #	Form B Part #	Form C Part #	Form D Part #	Form E Part #	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
–	06192-240082	06192-340082	06192-440082	06192-540082	40	14	8	M8	8.4	26	25	13	18	15	12
–	06192-250102	06192-350102	06192-450102	06192-550102	50	18	10	M10	10.5	34	32	17	21	18	16
–	06192-263122	06192-363122	06192-463122	06192-563122	63	20	12	M12	13	42	40	21	25	22	20
–	06192-280162	06192-380162	06192-480162	06192-580162	80	25	16	M16	17	52	50	25	32	28	30

Stainless Steel | Blank and Male Threads



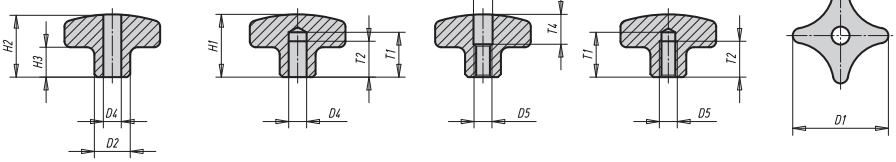
These all stainless steel star grips offer excellent corrosion resistance in harsh environments. They are ideal for use in the food, medical and marine industries. The blank style allow the user to customize the mounting. The knob is made from 304 stainless steel with an electropolished finish. The studs are made from 303 stainless steel.

METRIC

Blank Part #	With Stud Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
HK32-SUS	—	32	22	13	11	-	-	-	-
—	HK32X20-SUS	32	22	13	11	M6X1	1.5	9	20
—	HK32X30-SUS	32	22	13	11	M6X1	1.5	9	30
HK40-SUS	—	40	25	16	14	-	-	-	-
—	HK40X30-SUS	40	25	16	14	M8X1.25	1.5	12	30
—	HK40X40-SUS	40	25	16	14	M8X1.25	1.5	12	40
—	HK40X50-SUS	40	25	16	14	M8X1.25	1.5	12	50
HK50-SUS	—	50	32	20	18	-	-	-	-
—	HK50X30-SUS	50	32	20	18	M10X1.5	2	14	30
—	HK50X40-SUS	50	32	20	18	M10X1.5	2	14	40
—	HK50X50-SUS	50	32	20	18	M10X1.5	2	14	50
HK63-SUS	—	63	40	25	23	-	-	-	-
—	HK63X30-SUS	63	40	25	23	M12X1.75	2	17	30
—	HK63X40-SUS	63	40	25	23	M12X1.75	2	17	40
—	HK63X50-SUS	63	40	25	23	M12X1.75	2	17	50

PALM GRIPS

Stainless Steel | Inch and Metric



Form B
Reamed Through Hole

Form C
Reamed Blind Hole

Form D
Through Hole Tapped w/ Counter Bore

Form E
Tapped Blind Hole

These stainless steel palm grips offer ergonomic design, good gripping and attractive appearance. They are offered with four mounting configurations as shown. The finish is ground and polished.

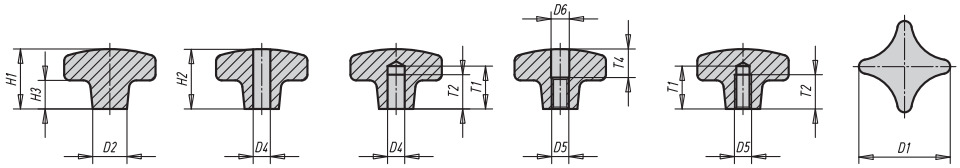
INCH

Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1	D2	D4	D5	D6	H1	H2	H3	T1	T2	T4
06158-2032CM2	06158-3032CM2	06158-4032A22	06158-5032A22	1.26	.47	.250	1/4-20	.25	.83	.79	.39	.59	.47	.39
06158-2040CN2	06158-3040CN2	06158-4040A32	06158-5040A32	1.57	.55	.312	5/16-18	.33	1.02	.98	.51	.71	.59	.47
06158-2050CO2	06158-3050CO2	06158-4050A42	06158-5050A42	1.97	.71	.375	3/8-16	.41	1.34	1.26	.67	.83	.71	.63
06158-2063CP2	06158-3063CP2	06158-4063A52	06158-5063A52	2.48	.79	.500	1/2-13	.51	1.65	1.57	.83	.98	.87	.79

METRIC

Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06158-2032062	06158-3032062	06158-4032062	06158-5032062	32	12	6	M6	6.4	21	20	10	15	12	10
06158-2040082	06158-3040082	06158-4040082	06158-5040082	40	14	8	M8	8.4	26	25	13	18	15	12
06158-2050102	06158-3050102	06158-4050102	06158-5050102	50	18	10	M10	10.5	34	32	17	21	18	16
06158-2063122	06158-3063122	06158-4063122	06158-5063122	63	20	12	M12	13	42	40	21	25	22	20

Cast Iron | Inch and Metric



Form A
Blank

Form B
Reamed Through Hole

Form C
Reamed Blind Hole

Form D
Tapped Counter Bore

Form E
Tapped Blind Hole

These grey cast iron palm grips are offered with five mounting configurations as shown. All styles have a natural tumbled finish except form A, which is de-burred raw casting.

INCH

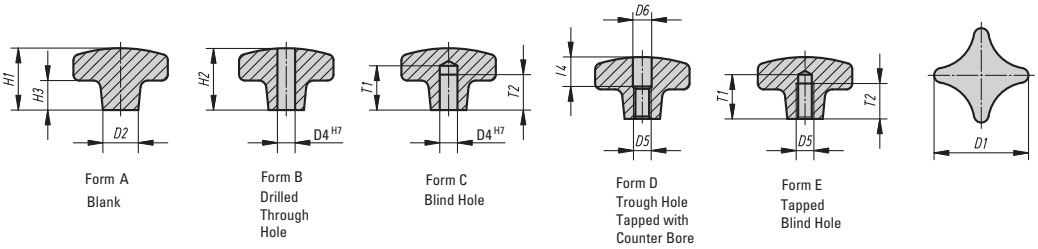
Part # Form A	Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1	D2	D4	D5	D6	H1	H2	H3	T1	T2	T4
06160-106	06160-2CM	06160-3CM	06160-4A2	06160-5A2	1.26	.47	.250	1/4-20	.25	.83	.79	.39	.59	.47	.39
06160-108	06160-2CN	06160-3CN	06160-4A3	06160-5A3	1.57	.55	.312	5/16-18	.33	1.02	.98	.55	.71	.59	.47
06160-110	06160-2CO	06160-3CO	06160-4A4	06160-5A4	1.97	.71	.375	3/8-16	.41	1.34	1.26	.79	.83	.71	.63
06160-112	06160-2CP	06160-3CP	06160-4A5	06160-5A5	2.48	.79	.500	1/2-13	.51	1.65	1.57	.98	.98	.87	.79
06160-116	06160-2CQ	06160-3CQ	06160-4A6	06160-5A6	3.15	.98	.625	5/8-11	.67	2.05	1.97	1.18	1.26	1.10	1.18
06160-120	06160-2CR	06160-3CR	06160-4A7	06160-5A7	3.94	1.26	.750	3/4-10	.83	2.56	2.48	1.50	1.57	1.42	1.50

METRIC

Part # Form A	Part # Form B	Part # Form C	Part # Form D	Part # Form E	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06160-106	06160-206	06160-306	06160-406	06160-506	32	12	6	M6	6.4	21	20	10	15	12	10
06160-108	06160-208	06160-308	06160-408	06160-508	40	14	8	M8	8.4	26	25	14	18	15	12
06160-110	06160-210	06160-310	06160-410	06160-510	50	18	10	M10	10.5	34	32	20	21	18	16
06160-112	06160-212	06160-312	06160-412	06160-512	63	20	12	M12	13	42	40	25	25	22	20
06160-116	06160-216	06160-316	06160-416	06160-516	80	25	16	M16	17	52	50	30	32	28	30
06160-120	06160-220	06160-320	06160-420	06160-520	100	32	20	M20	21	65	63	38	40	36	38

PALM GRIPS

Aluminum | Metric



Form A
Blank

Form B
Drilled
Through
Hole

Form C
Blind Hole

Form D
Trough Hole
Tapped with
Counter Bore

Form E
Tapped
Blind Hole

These aluminum palm grips offer ergonomic design, good gripping and attractive appearance. They are offered with five mounting configurations as shown in either a tumbled finish or a ground and polished finish.

Tumbled Finish

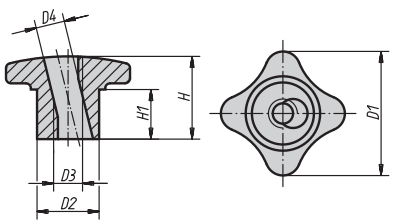
Form A Part #	Form B Part #	Form C Part #	Form D Part #	Form E Part #	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
06156-104008	06156-204008	06156-304008	06156-404008	06156-504008	40	14	8	M8	8.4	26	25	14	18	15	12
06156-105010	06156-205010	06156-305010	06156-405010	06156-505010	50	18	10	M10	10.5	34	32	20	21	18	16
06156-106312	06156-206312	06156-306312	06156-406312	06156-506312	63	25	12	M12	13	42	40	25	25	22	20
06156-108016	06156-208016	06156-308016	06156-408016	06156-508016	80	25	16	M16	17	52	50	30	32	28	30

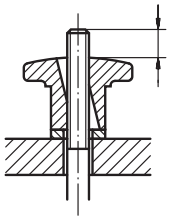
Polished Finish

Form A Part #	Form B Part #	Form C Part #	Form D Part #	Form E Part #	D1 mm	D2 mm	D4 mm	D5 mm	D6 mm	H1 mm	H2 mm	H3 mm	T1 mm	T2 mm	T4 mm
–	06156-2040082	06156-3040082	06156-4040082	06156-5040082	40	14	8	M8	8.4	26	25	14	18	15	12
–	06156-2050102	06156-3050102	06156-4050102	06156-5050102	50	18	10	M10	10.5	34	32	20	21	18	16
–	06156-2063122	06156-3063122	06156-4063122	06156-5063122	63	25	12	M12	13	42	40	25	25	22	20
–	06156-2080162	06156-3080162	06156-4080162	06156-5080162	80	25	16	M16	17	52	50	30	32	28	30

PALM GRIPS – QUICK ACTING

Cast Iron | Metric





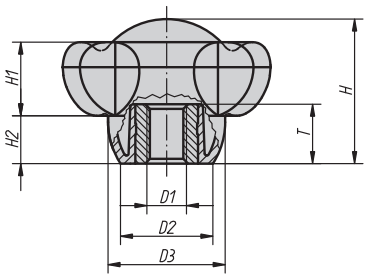
The stud should be several mm longer than height "H"

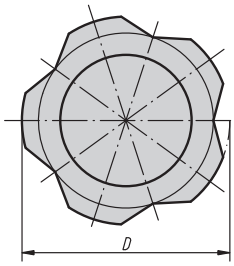
By loosening the knob about 1/2 turn, the knob can be tilted at an angle and disengaged from the threads so it can be pulled off a stud rather than unthreaded. They are ideal for quick changes in light duty applications. The stud must be several millimeters longer than H dimension. Made from cast iron with a tumbled finish.

Part #	D1 mm	D2 mm	D3 mm	D4 mm	H mm	H1 mm
06190-06	30	15	M6	7	20	10
06190-08	40	18	M8	9.4	25	14
06190-10	50	21	M10	11.3	30	16
06190-12	60	26	M12	13.1	35	19
06190-14	70	30	M14	15.6	40	22
06190-16	80	34	M16	17.6	45	25

CLAMP GRIPS

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric





Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The inserts are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	D1	D2	D3	H	H1	H2	T
06253-50A3*	06253-50A31*	1.97	5/16-18	.87	1.11	1.37	.70	.45	.55
06253-50A4*	06253-50A41*	1.97	3/8-16	.87	1.11	1.37	.70	.45	.55
06253-50A5*	06253-50A51*	1.97	1/2-13	.87	1.11	1.37	.70	.45	.71
06253-63A4*	06253-63A41*	2.48	3/8-16	1.10	1.40	1.73	.89	.57	.55
06253-63A5*	06253-63A51*	2.48	1/2-13	1.10	1.40	1.73	.89	.57	.71
06253-63A6*	—	2.48	5/8-11	1.10	1.40	1.73	.89	.57	.71

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

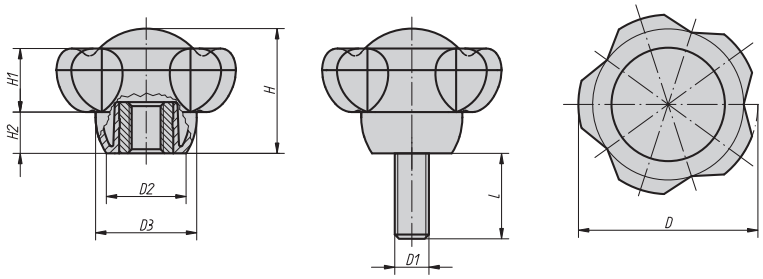
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	T mm
06253-5008*	06253-50081*	50	M8	22.2	28.2	34.8	17.8	11.5	14
06253-5010*	06253-50101*	50	M10	22.2	28.2	34.8	17.8	11.5	14
06253-5012*	06253-50121*	50	M12	22.2	28.2	34.8	17.8	11.5	18
06253-6310*	06253-63101*	63	M10	28	35.5	44	22.5	14.5	14
06253-6312*	06253-63121*	63	M12	28	35.5	44	22.5	14.5	18
06253-6316*	—	63	M16	28	35.5	44	22.5	14.5	18

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

CLAMP GRIPS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The studs are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D1	L	D	D2	D3	H	H1	H2
06253-50A4*X20	06253-50A41*X20	3/8-16	.79	1.97	.87	1.11	1.37	.70	.45
06253-50A4*X40	06253-50A41*X40	3/8-16	1.57	1.97	.87	1.11	1.37	.70	.45
06253-50A5*X30	—	1/2-13	1.18	1.97	.87	1.11	1.37	.70	.45
06253-50A5*X60	—	1/2-13	2.36	1.97	.87	1.11	1.37	.70	.45
06253-63A4*X20	06253-63A41*X20	3/8-16	.79	2.48	1.10	1.40	1.73	.89	.57
06253-63A4*X40	06253-63A41*X40	3/8-16	1.57	2.48	1.10	1.40	1.73	.89	.57
06253-63A5*X30	—	1/2-13	1.18	2.48	1.10	1.40	1.73	.89	.57
06253-63A5*X60	—	1/2-13	2.36	2.48	1.10	1.40	1.73	.89	.57

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

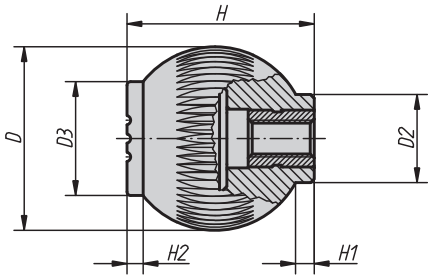
METRIC

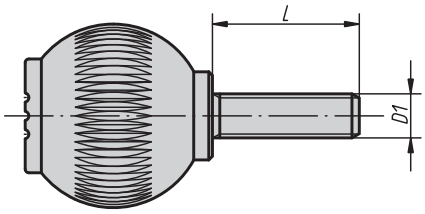
Part # Steel	Part # Stainless	D1 mm	L mm	D mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm
06253-5010*X15	—	M10	15	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X20	06253-50101*X20	M10	20	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X25	06253-50101*X25	M10	25	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X30	06253-50101*X30	M10	30	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X35	—	M10	35	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X40	06253-50101*X40	M10	40	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X45	—	M10	45	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X50	06253-50101*X50	M10	50	50	22.2	28.2	34.8	17.8	11.5
06253-5010*X60	06253-50101*X60	M10	60	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X15	—	M12	15	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X20	—	M12	20	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X25	—	M12	25	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X30	—	M12	30	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X35	—	M12	35	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X40	—	M12	40	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X45	—	M12	45	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X50	—	M12	50	50	22.2	28.2	34.8	17.8	11.5
06253-5012*X60	—	M12	60	50	22.2	28.2	34.8	17.8	11.5
06253-6310*X20	06253-63101*X20	M10	20	63	28	35.5	44	22.5	14.5
06253-6310*X25	06253-63101*X25	M10	25	63	28	35.5	44	22.5	14.5
06253-6310*X30	06253-63101*X30	M10	30	63	28	35.5	44	22.5	14.5
06253-6310*X35	-	M10	35	63	28	35.5	44	22.5	14.5
06253-6310*X40	06253-63101*X40	M10	40	63	28	35.5	44	22.5	14.5
06253-6310*X45	-	M10	45	63	28	35.5	44	22.5	14.5
06253-6310*X50	06253-63101*X50	M10	50	63	28	35.5	44	22.5	14.5
06253-6310*X60	06253-63101*X60	M10	60	63	28	35.5	44	22.5	14.5
06253-6312*X20	-	M12	20	63	28	35.5	44	22.5	14.5
06253-6312*X25	-	M12	25	63	28	35.5	44	22.5	14.5
06253-6312*X30	-	M12	30	63	28	35.5	44	22.5	14.5
06253-6312*X35	-	M12	35	63	28	35.5	44	22.5	14.5
06253-6312*X40	-	M12	40	63	28	35.5	44	22.5	14.5
06253-6312*X45	-	M12	45	63	28	35.5	44	22.5	14.5
06253-6312*X50	-	M12	50	63	28	35.5	44	22.5	14.5
06253-6312*X60	-	M12	60	63	28	35.5	44	22.5	14.5

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

GRIP BALLS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric





Firm sure ergonomic gripping with an attractive appearance. Made from grey thermoplastic. The studs are available in steel or stainless steel. They are available with dark grey, light grey traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D1	L	D	D2	D3	H	H1	H2
06245-1A2*X20	06245-01A2*X20	1/4-20	.79	.98	.47	.67	.98	.10	.09
06245-1A2*X30	06245-01A2*X30	1/4-20	1.18	.98	.47	.67	.98	.10	.09
06245-2A3*X20	06245-02A3*X20	5/16-18	.79	1.26	.61	.75	1.30	.13	.11
06245-2A3*X40	06245-02A3*X40	5/16-18	1.57	1.26	.61	.75	1.30	.13	.11
06245-3A4*X20	06245-03A4*X20	3/8-16	.79	1.57	.75	.91	1.63	.16	.14
06245-3A4*X40	06245-03A4*X40	3/8-16	1.57	1.57	.75	.91	1.63	.16	.14
06245-4A4*X20	06245-04A4*X20	3/8-16	.79	1.97	.94	1.22	2.01	.20	.17
06245-4A4*X40	06245-04A4*X40	3/8-16	1.57	1.97	.94	1.22	2.01	.20	.17
06245-4A5*X30	—	1/2-13	1.18	1.97	.94	1.22	2.01	.20	.17
06245-4A5*X60	—	1/2-13	2.36	1.97	.94	1.22	2.01	.20	.17

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

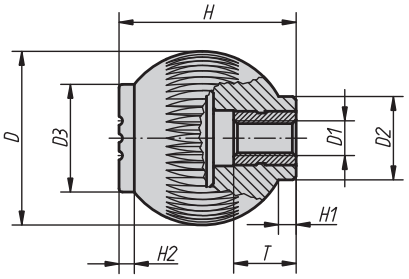
METRIC

Part # Steel	Part # Stainless	D1 mm	L mm	D mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm
06245-106*X15	06245-0106*X15	M6	15	25	12	17	25	2.5	2.2
06245-106*X20	06245-0106*X20	M6	20	25	12	17	25	2.5	2.2
06245-106*X25	06245-0106*X25	M6	25	25	12	17	25	2.5	2.2
06245-106*X30	06245-0106*X30	M6	30	25	12	17	25	2.5	2.2
06245-208*X20	06245-0208*X20	M8	20	32	15.5	19	33	3.2	2.8
06245-208*X25	06245-0208*X25	M8	25	32	15.5	19	33	3.2	2.8
06245-208*X30	06245-0208*X30	M8	30	32	15.5	19	33	3.2	2.8
06245-208*X40	06245-0208*X40	M8	40	32	15.5	19	33	3.2	2.8
06245-310*X20	06245-0310*X20	M10	20	40	19	23	41.5	4	3.5
06245-310*X30	06245-0310*X30	M10	30	40	19	23	41.5	4	3.5
06245-310*X40	06245-0310*X40	M10	40	40	19	23	41.5	4	3.5
06245-410*X20	06245-0410*X20	M10	20	50	24	31	51	5	4.4
06245-410*X30	06245-0410*X30	M10	30	50	24	31	51	5	4.4
06245-410*X40	06245-0410*X40	M10	40	50	24	31	51	5	4.4
06245-412*X20	06245-0412*X20	M12	20	50	24	31	51	5	4.4
06245-412*X30	06245-0412*X30	M12	30	50	24	31	51	5	4.4
06245-412*X40	06245-0412*X40	M12	40	50	24	31	51	5	4.4

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

GRIP BALLS

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The inserts are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	D1	D2	D3	H	H1	H2	T
06245-1A2*	06245-01A2*	.98	1/4-20	.47	.67	.98	.10	.09	.39
06245-2A3*	06245-02A3*	1.26	5/16-18	.61	.75	1.30	.13	.11	.55
06245-3A4*	06245-03A4*	1.57	3/8-16	.75	.91	1.63	.16	.14	.55
06245-4A4*	06245-04A4*	1.97	3/8-16	.94	1.22	2.01	.20	.17	.55
06245-4A5*	06245-04A5*	1.97	1/2-13	.94	1.22	2.01	.20	.17	.71

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

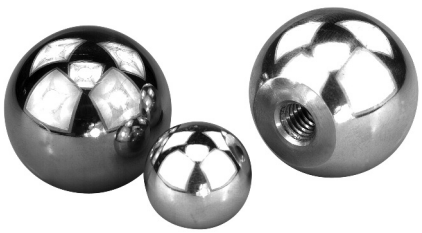
METRIC

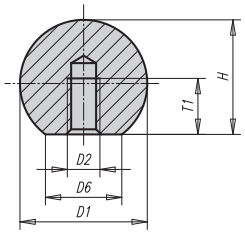
Part # Steel	Part # Stainless	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	H2 mm	T mm
06245-106*	06245-0106*	25	M6	12	17	25	2.5	2.2	10
06245-208*	06245-0208*	32	M8	15.5	19	33	3.2	2.8	14
06245-310*	06245-0310*	40	M10	19	23	41.5	4	3.5	14
06245-410*	06245-0410*	50	M10	24	31	51	5	4.4	14
06245-412*	06245-0412*	50	M12	24	31	51	5	4.4	18

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

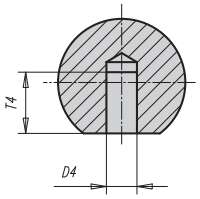
BALL KNOBS

Stainless Steel and Aluminum | Inch and Metric





Form C
Tapped Hole



Form K
Reamed Hole

These ball knobs are available in aluminum with inch threads and 303 stainless steel or aluminum in metric threads or metric reamed hole. Polished finish.

INCH

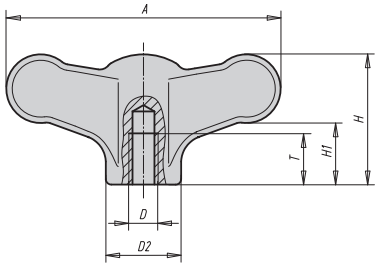
Part # Aluminum Form C	D1	D2	D6	H	Min T1
06247-116AE3	.63	8-32	.31	.59	.28
06247-120A13	.79	10-32	.47	.71	.36
06247-125A23	.98	1/4-20	.59	.89	.43
06247-132A33	1.26	5/16-18	.71	1.14	.57
06247-140A43	1.57	3/8-16	.87	1.46	.71
06247-150A53	1.97	1/2-13	1.10	1.81	.83

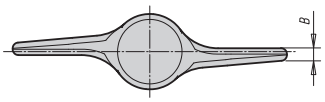
METRIC

Part # Stainless Form C	Part # Aluminum Form C	Part # Stainless Form K	Part # Aluminum Form K	D1 mm	D2 mm	D4 mm	D6 mm	H mm	Min T1 mm	Min T4 mm
06247-116042	06247-116043	06247-316042	06247-316043	16	M4	6	8	15	7.2	10
06247-120052	06247-120053	06247-320052	06247-320053	20	M5	8	12	18	9.1	12
06247-125062	06247-125063	06247-325062	06247-325063	25	M6	10	15	22.5	11	16
06247-132082	06247-132083	06247-332082	06247-332083	32	M8	12	18	29	14.5	20
06247-140102	06247-140103	06247-340102	06247-340103	40	M10	16	22	37	18	25
06247-150122	06247-150123	06247-350122	06247-350123	50	M12	20	28	46	21	32

WING GRIPS

Stainless Steel | Inch and Metric





Made from stainless steel. Ground and polished or blasted finish. Ideal for food or medical applications.

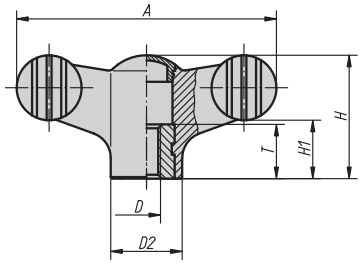
INCH

Polished Part #	Blasted Part #	D	D2	A	B	H	H1	T
06651-9AE	06651-9AE1	8-32	.41	1.50	.07	.71	.33	.35
06651-9A1	06651-9A11	10-32	.41	1.50	.07	.71	.33	.35
06651-9A2	06651-9A21	1/4-20	.41	1.50	.07	.71	.33	.35
06651-1A0	06651-1A01	10-24	.55	1.97	.09	.94	.45	.39
06651-1A1	06651-1A11	10-32	.55	1.97	.09	.94	.45	.47
06651-1A2	06651-1A21	1/4-20	.55	1.97	.09	.94	.45	.39
06651-2A3	06651-2A31	5/16-18	.83	2.95	.13	1.38	.65	.55
06651-2A4	06651-2A41	3/8-16	.83	2.95	.13	1.38	.65	.55

METRIC

Polished Part #	Blasted Part #	D mm	D2 mm	A mm	B mm	H mm	H1 mm	T mm
06651-904	06651-9041	M4	10.5	38	1.7	18	8.5	9
06651-905	06651-9051	M5	10.5	38	1.7	18	8.5	9
06651-906	06651-9061	M6	10.5	38	1.7	18	8.5	9
06651-105	06651-1051	M5	14	50	2.3	24	11.5	12
06651-106	06651-1061	M6	14	50	2.3	24	11.5	12
06651-208	06651-2081	M8	21	75	3.4	35	16.5	15
06651-210	06651-2101	M10	21	75	3.4	35	16.5	15

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Inserts are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	D2	A	B	H	H1	T
06652-9AE*	06652-09AE*	8-32	.47	1.50	.18	.71	.33	.39
06652-9A1*	06652-09A1*	10-32	.47	1.50	.18	.71	.33	.39
06652-9A2*	06652-09A2*	1/4-20	.47	1.50	.18	.71	.33	.39
06652-1A1*	06652-01A1*	10-32	.55	1.97	.20	.94	.45	.39
06652-1A2*	06652-01A2*	1/4-20	.55	1.97	.20	.94	.45	.39
06652-2A3*	06652-02A3*	5/16-18	.83	2.95	.28	1.38	.65	.55
06652-2A4*	06652-02A4*	3/8-16	.83	2.95	.28	1.38	.65	.55

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

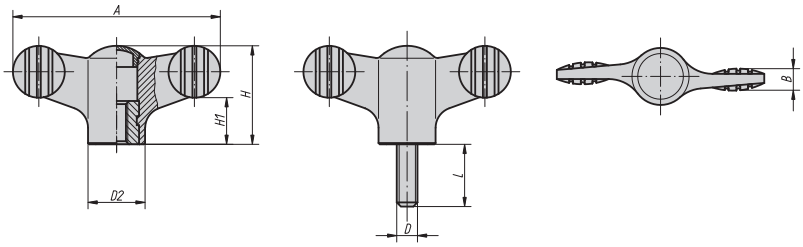
METRIC

Part # Steel	Part # Stainless	D mm	D2 mm	A mm	B mm	H mm	H1 mm	T mm
06652-904*	06652-0904*	M4	12	38	4.5	18	8.5	10
06652-905*	06652-0905*	M5	12	38	4.5	18	8.5	10
06652-906*	06652-0906*	M6	12	38	4.5	18	8.5	10
06652-105*	06652-0105*	M5	14	50	5	24	11.5	10
06652-106*	06652-0106*	M6	14	50	5	24	11.5	10
06652-208*	06652-0208*	M8	21	75	7	35	16.5	14
06652-210*	06652-0210*	M10	21	75	7	35	16.5	14

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

WING GRIPS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Studs are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors. To order part, add color (*) and desired thread length (++) to the part number. Sample 06652-9AE5X10.

INCH

Part # Steel	Part # Stainless	D	A	B	D2	H	H1	L ++ = Thread Length (mm)
06652-9AE*X++	06652-09AE*X++	8-32	1.50	0.18	0.47	0.71	0.33	10 /20
06652-9A1*X++	06652-09A1*X++	10-32	1.50	0.18	0.47	0.71	0.33	10 /20
06652-9A2*X++	06652-09A2*X++	1/4-20	1.50	0.18	0.47	0.71	0.33	20 / 30 / 40
06652-1A1*X++	06652-01A1*X++	10-32	1.97	0.20	0.55	0.94	0.45	10 /20
06652-1A2*X++	06652-01A2*X++	1/4-20	1.97	0.20	0.55	0.94	0.45	20 / 30 / 40
06652-1A3*X++	06652-01A3*X++	5/16-18	1.97	0.20	0.55	0.94	0.45	20 / 40
06652-2A3*X++	06652-02A3*X++	5/16-18	2.95	0.28	0.83	1.40	0.65	20 40
06652-2A4*X++	06652-02A4*X++	3/8-16	2.95	0.28	0.83	1.40	0.65	20 40

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

++ Add the desired thread length here. 10 = .39" / 20 = .79" / 30 = 1.18" / 40 = 1.57"

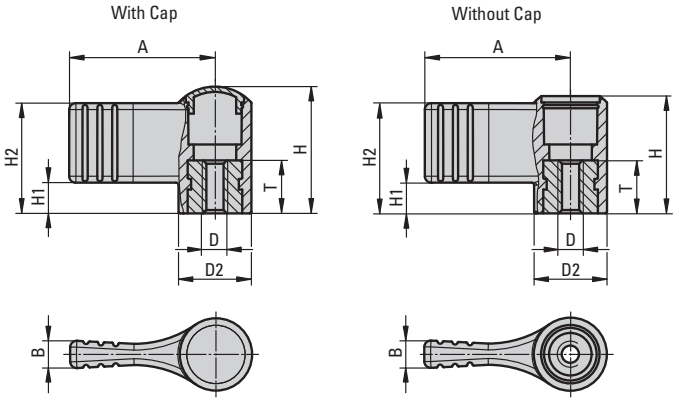
METRIC

Part # Steel	Part # Stainless	D mm	A mm	B mm	D2 mm	H mm	H1 mm	L ++ = Thread Length (mm)
06652-904*X++	06652-0904*X++	M4	38	4.5	12	18	8.5	10 /15
06652-905*X++	06652-0905*X++	M5	38	4.5	12	18	8.5	15 / 20 / 30
06652-906*X++	06652-0906*X++	M6	38	4.5	12	18	8.5	20 / 30 / 40
06652-105*X++	06652-0105*X++	M5	50	5	14	24	11.5	15 / 20
06652-106*X++	06652-0106*X++	M6	50	5	14	24	11.5	20 / 30 / 40
06652-108*X++	06652-0108*X++	M8	50	5	14	24	11.5	20 / 30 / 40
06652-208*X++	06652-0208*X++	M8	75	7	21	35.6	16.5	20 / 30 / 40
06652-210*X++	06652-0210*X++	M10	75	7	21	35.6	16.5	20 / 30 / 40 / 50

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

L-HANDLE WING GRIPS

Plastic | Female Threads | Steel and Stainless Inserts | Metric



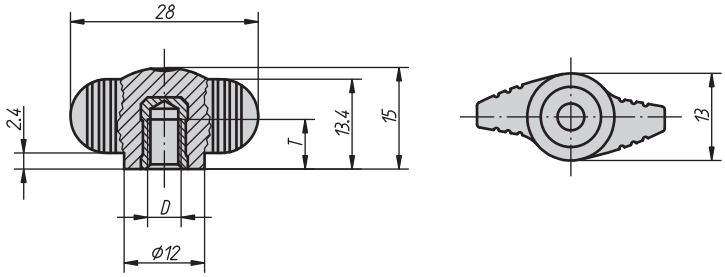
Firm, ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Inserts are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps or without caps for through hole applications. See www.fixtureworks.net for colors.

Part # Steel With Cap	Part # Stainless With Cap	Part # Steel w/o Cap	Part # Stainless w/o Cap	D mm	D2 mm	A mm	B mm	With Cap H mm	w/o Cap H mm	H1 mm	H2 mm	T mm
06660-904*	06660-0904*	06660-1904	06660-10904	M4	12	22	4.4	18	16.1	4.5	15.5	10
06660-905*	06660-0905*	06660-1905	06660-10905	M5	12	22	4.4	18	16.1	4.5	15.5	10
06660-906*	06660-0906*	06660-1906	06660-10906	M6	12	22	4.4	18	16.1	4.5	15.5	10
06660-105*	06660-0105*	06660-1105	06660-10105	M5	14	27.5	5.1	24	22.1	5.8	20.8	10
06660-106*	06660-0106*	06660-1106	06660-10106	M6	14	27.5	5.1	24	22.1	5.8	20.8	10
06660-208*	06660-0208*	06660-1208	06660-10208	M8	21	37.5	6.3	36	33.3	8.5	30.5	14
06660-210*	06660-0210*	06660-1210	06660-10210	M10	21	37.5	6.3	36	33.3	8.5	30.5	14

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

MINI-WING GRIPS

Plastic | Female Threads | Brass and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Inserts are available in brass or stainless steel.

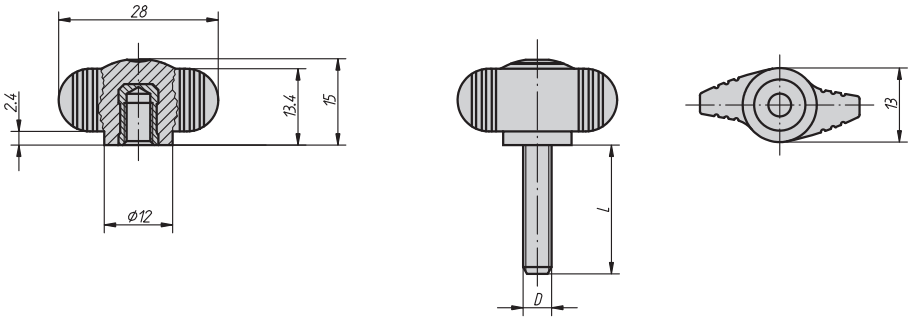
INCH

Part # Brass	Part # Stainless	D	T
06652-0AE	06652-00AE	8-32	.24
06652-0A1	06652-00A1	10-32	.30
06652-0A2	06652-00A2	1/4-20	.35

METRIC

Part # Brass	Part # Stainless	D mm	T mm
06652-004	06652-0004	M4	6
06652-005	06652-0005	M5	7.5
06652-006	06652-0006	M6	9

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Studs are available in steel or stainless steel.

INCH

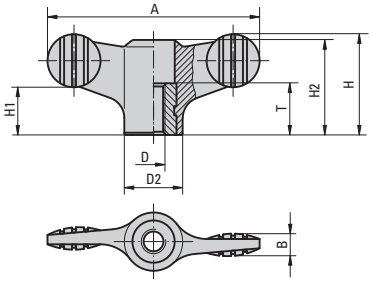
Part # Steel	Part # Stainless	D	L
06652-0AEX10	06652-00AEX10	8-32	.39
06652-0AEX20	06652-00AEX20	8-32	.79
06652-0A1X10	06652-00A1X10	10-32	.39
06652-0A1X20	06652-00A1X20	10-32	.79
06652-0A2X20	06652-00A2X20	1/4-20	.79
06652-0A2X30	06652-00A2X30	1/4-20	1.18
06652-0A3X20	06652-00A3X20	5/16-18	.79
06652-0A3X40	06652-00A3X40	5/16-18	1.57

METRIC

Part # Steel	Part # Stainless	D mm	L mm
06652-004X8	06652-0004X8	M4	8
06652-005X10	06652-0005X10	M5	10
06652-005X15	06652-0005X15	M5	15
06652-005X20	06652-0005X20	M5	20
06652-006X10	06652-0006X10	M6	10
06652-006X15	06652-0006X15	M6	15
06652-006X20	06652-0006X20	M6	20
06652-006X25	06652-0006X25	M6	25
06652-006X30	06652-0006X30	M6	30
06652-008X20	06652-0008X20	M8	20
06652-008X25	06652-0008X25	M8	25
06652-008X30	06652-0008X30	M8	30
06652-008X40	06652-0008X40	M8	40

WING GRIPS

Plastic | Female Thru-Hole | Steel and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The thru-hole thread inserts are available in steel or stainless steel.

INCH

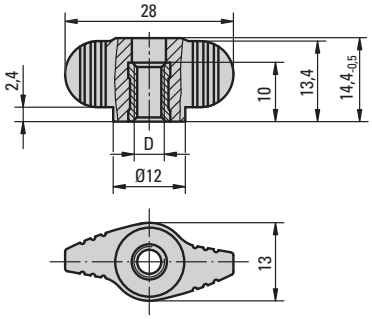
Part # Steel	Part # Stainless	D	D2	A	B	H	H1	H2	T
06652-19AE	06652-109AE	8-32	.47	1.50	.18	.71	.33	.63	.39
06652-19A1	06652-109A1	10-32	.47	1.50	.18	.71	.33	.63	.39
06652-19A2	06652-109A2	1/4-20	.47	1.50	.18	.71	.33	.63	.39
06652-11A1	06652-101A1	10-32	.55	1.97	.20	.94	.45	.87	.39
06652-11A2	06652-101A2	1/4-20	.55	1.97	.20	.94	.45	.87	.39
06652-12A3	06652-102A3	5/16-18	.83	2.95	.28	1.40	.67	1.31	.55
06652-12A4	06652-102A4	3/8-16	.83	2.95	.28	1.40	.67	1.31	.55

METRIC

Part # Steel	Part # Stainless	D mm	D2 mm	A mm	B mm	H mm	H1 mm	H2 mm	T mm
06652-1904	06652-10904	M4	12	38	4.5	18	8.5	16.1	10
06652-1905	06652-10905	M5	12	38	4.5	18	8.5	16.1	10
06652-1906	06652-10906	M6	12	38	4.5	18	8.5	16.1	10
06652-1105	06652-10105	M5	14	50	5	24	11.5	22	10
06652-1106	06652-10106	M6	14	50	5	24	11.5	22	10
06652-1208	06652-10208	M8	21	75	7	35.6	17	33.3	14
06652-1210	06652-10210	M10	21	75	7	35.6	17	33.3	14

MINI-WING GRIPS

Plastic | Female Thru-Hole | Steel and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The thru-hole thread inserts are available in steel or stainless steel.

INCH

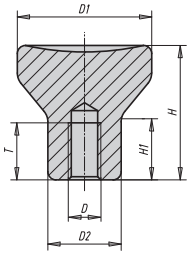
Part # Steel	Part # Stainless	D
06652-10AE	06652-100AE	8-32
06652-10A1	06652-100A1	10-32
06652-10A2	06652-100A2	1/4-20

METRIC

Part # Steel	Part # Stainless	D mm
06652-1004	06652-10004	M4
06652-1005	06652-10005	M5
06652-1006	06652-10006	M6

MUSHROOM KNOBS

Stainless Steel | Inch and Metric



Made from stainless steel with an electrolytic-polish finish. Ideal for food or medical applications.

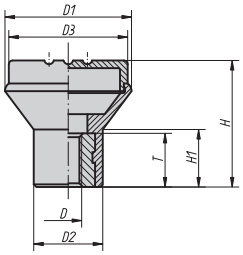
INCH

Part #	D	D1	D2	H	H1	T
06240-9AC	2-56	.55	.31	.55	.26	.16
06240-0AD	6-32	.71	.39	.71	.34	.30
06240-1AE	8-32	.83	.47	.83	.39	.39
06240-1A0	10-24	.83	.47	.83	.39	.49
06240-1A1	10-32	.83	.47	.83	.39	.49
06240-2A2	1/4-20	.98	.55	.98	.47	.47
06240-3A3	5/16-18	1.30	.71	1.30	.59	.63
06240-4A4	3/8-16	1.57	.94	1.57	.74	.79

METRIC

Part #	D mm	D1 mm	D2 mm	H mm	H1 mm	T mm
06240-902	M2	14	8	14	6.7	4
06240-003	M3	18	10	18	8,6	7.5
06240-104	M4	21	12	21	10	10
06240-105	M5	21	12	21	10	10
06240-206	M6	25	14	25	12	10
06240-308	M8	33	18	33	15	14
06240-410	M10	40	24	40	18.7	20

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The inserts are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	D1	D2	D3	H	H1	T
06241-AE*	06241-0AE*	8-32	.83	.51	.75	.83	.39	.39
06241-A1*	06241-0A1*	10-32	.83	.51	.75	.83	.39	.39
06241-A2*	06241-0A2*	1/4-20	.98	.55	.91	.98	.47	.39
06241-A3*	06241-0A3*	5/16-18	1.30	.75	1.22	1.30	.59	.55

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

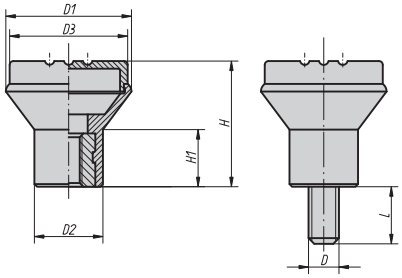
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	T mm
06241-04*	06241-004*	M4	21	13	19	21	10	10
06241-05*	06241-005*	M5	21	13	19	21	10	10
06241-06*	06241-006*	M6	25	14	23	25	12	10
06241-08*	06241-008*	M8	33	19	31	33	15	14

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

MUSHROOM KNOBS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The studs are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	L	D1	D2	D3	H	H1
06242-AE*X10	06242-0AE*X10	8-32	.39	.83	.51	.75	.83	.39
06242-AE*X20	06242-0AE*X20	8-32	.79	.83	.51	.75	.83	.39
06242-A1*X10	06242-0A1*X10	10-32	.39	.83	.51	.75	.83	.39
06242-A1*X20	06242-0A1*X20	10-32	.79	.83	.51	.75	.83	.39
06242-A2*X20	06242-0A2*X20	1/4-20	.79	.98	.55	.91	.98	.47
06242-A2*X30	06242-0A2*X30	1/4-20	1.18	.98	.55	.91	.98	.47
06242-A3*X20	06242-0A3*X20	5/16-18	.79	1.30	.75	1.22	1.30	.59
06242-A3*X40	06242-0A3*X40	5/16-18	1.57	1.30	.75	1.22	1.30	.59

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

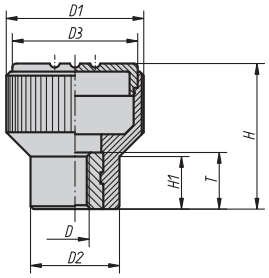
METRIC

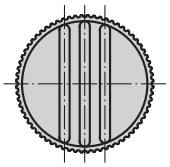
Part # Steel	Part # Stainless	D mm	L mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm
06242-04*X10	06242-004*X10	M4	10	21	13	19	21	10
06242-05*X10	06242-005*X10	M5	10	21	13	19	21	10
06242-06*X15	06242-006*X15	M6	15	25	14	23	25	12
06242-08*X15	06242-008*X15	M8	15	33	19	31	33	15

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

KNURLED KNOBS

Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric





Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The insert is available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	D1	D2	D3	H	H1	T
06092-1AE*	06092-01AE*	8-32	.83	.55	.75	.87	.31	.39
06092-1A1*	06092-01A1*	10-32	.83	.55	.75	.87	.31	.39
06092-1A2*	06092-01A2*	1/4-20	.83	.55	.75	.87	.31	.39
06092-2A3*	06092-02A3*	5/16-18	1.02	.71	.91	1.02	.37	.55
06092-3A3*	06092-03A3*	5/16-18	1.34	.87	1.22	1.42	.51	.55
06092-3A4*	06092-03A4*	3/8-16	1.34	.87	1.22	1.42	.51	.55

* Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

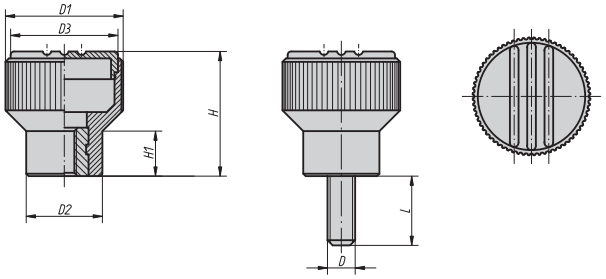
METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	T mm
06092-104*	06092-0104*	M4	21	14	19	22	8	10
06092-105*	06092-0105*	M5	21	14	19	22	8	10
06092-106*	06092-0106*	M6	21	14	19	22	8	10
06092-208*	06092-0208*	M8	26	18	23	26	9.5	14
06092-308*	06092-0308*	M8	34	22	31	36	13	14
06092-310*	06092-0310*	M10	34	22	31	36	13	14

*Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

KNURLED KNOBS

Plastic | Male Threads | Steel and Stainless Studs | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. The studs are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Part # Steel	Part # Stainless	D	L	D1	D2	D3	H	H1
06092-1A1*X10	06092-01A1*X10	10-32	.39	.83	.55	.75	.87	.31
06092-1A1*X20	06092-01A1*X20	10-32	.79	.83	.55	.75	.87	.31
06092-1A2*X20	06092-01A2*X20	1/4-20	.79	.83	.55	.75	.87	.31
06092-1A2*X30	06092-01A2*X30	1/4-20	1.18	.83	.55	.75	.87	.31
06092-2A3*X20	06092-02A3*X20	5/16-18	.79	1.02	.71	.91	1.02	.37
06092-2A3*X40	06092-02A3*X40	5/16-18	1.57	1.02	.71	.91	1.02	.37
06092-3A4*X20	06092-03A4*X20	3/8-16	.79	1.34	.87	1.22	1.42	.51
06092-3A4*X40	06092-03A4*X40	3/8-16	1.57	1.34	.87	1.22	1.42	.51

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

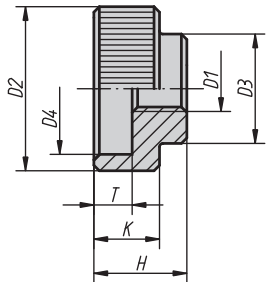
METRIC

Part # Steel	Part # Stainless	D mm	L mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm
06092-105*X10	06092-0105*X10	M5	10	21	14	19	22	8
06092-105*X12	06092-0105*X12	M5	12	21	14	19	22	8
06092-105*X15	06092-0105*X15	M5	15	21	14	19	22	8
06092-105*X20	06092-0105*X20	M5	20	21	14	19	22	8
06092-105*X25	06092-0105*X25	M5	25	21	14	19	22	8
06092-106*X15	06092-0106*X15	M6	15	21	14	19	22	8
06092-106*X20	06092-0106*X20	M6	20	21	14	19	22	8
06092-106*X25	06092-0106*X25	M6	25	21	14	19	22	8
06092-106*X30	06092-0106*X30	M6	30	21	14	19	22	8
06092-208*X20	06092-0208*X20	M8	20	26	18	23	26	9.5
06092-208*X25	06092-0208*X25	M8	25	26	18	23	26	9.5
06092-208*X30	06092-0208*X30	M8	30	26	18	23	26	9.5
06092-208*X40	06092-0208*X40	M8	40	26	18	23	26	9.5
06092-310*X20	06092-0310*X20	M10	20	34	22	31	36	13
06092-310*X30	06092-0310*X30	M10	30	34	22	31	36	13
06092-310*X40	06092-0310*X40	M10	40	34	22	31	36	13

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

KNURLED KNOBS

Steel and Stainless Steel | Inch and Metric



Knurled for easy gripping. Steel parts have a black oxide finish. Stainless is natural finish. Inch threads are only available in stainless. Thread through hole mounting.

INCH

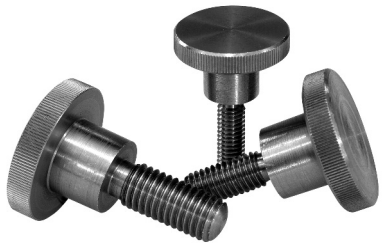
Part # Stainless	D1 Thread	D2	D3	D4	H	K	T
06010-1A02	10-24	.79	.55	.59	.47	.31	.20
06010-1A22	1/4-20	.94	.63	.71	.55	.39	.24
06010-1A32	5/16-18	1.18	.79	.94	.67	.47	.28
06010-1A42	3/8-16	1.42	1.10	1.18	.79	.55	.31
06010-1A52	1/2-13	1.57	1.26	1.34	.94	.63	.39

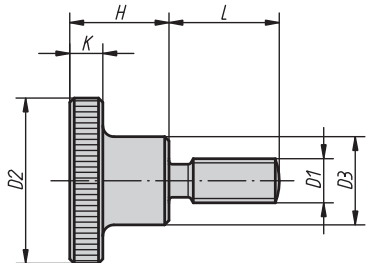
METRIC

Part # Steel	Part # Stainless	D1 Thread	D2 mm	D3 mm	D4 mm	H mm	K mm	T mm
06010-105	06010-1052	M5	20	14	15	12	8	5
06010-106	06010-1062	M6	24	16	18	14	10	6
06010-108	06010-1082	M8	30	20	24	17	12	7
06010-110	06010-1102	M10	36	28	30	20	14	8
06010-112	06010-1122	M12	40	32	34	24	16	10

KNURLED THUMB SCREWS

Steel and Stainless Steel | Inch and Metric





Knurled for easy gripping. Steel parts have a black oxide finish. Stainless is natural finish. Inch threads are only available in stainless.

INCH

Part # Stainless	D1 Thread	D2	D3	L	H	K
06090-AE2X10	8-32	.63	.31	.39	.37	.14
06090-AE2X16	8-32	.63	.31	.63	.37	.14
06090-AE2X20*	8-32	.63	.31	.79	.37	.14
06090-A02X10	10-24	.79	.39	.39	.45	.16
06090-A02X16	10-24	.79	.39	.63	.45	.16
06090-A02X20*	10-24	.79	.39	.79	.45	.16
06090-A22X10	1/4-20	.94	.47	.39	.59	.20
06090-A22X16	1/4-20	.94	.47	.63	.59	.20
06090-A22X20	1/4-20	.94	.47	.79	.59	.20
06090-A22X25*	1/4-20	.94	.47	.98	.59	.20
06090-A32X16	5/16-18	1.18	.63	.63	.71	.24
06090-A32X20	5/16-18	1.18	.63	.79	.71	.24
06090-A32X25	5/16-18	1.18	.63	.98	.71	.24
06090-A42X20	3/8-16	1.42	.79	.79	.91	.31
06090-A42X25	3/8-16	1.42	.79	.98	.91	.31

* The screw does not have an undercut.

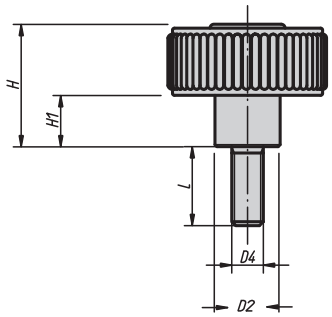
METRIC

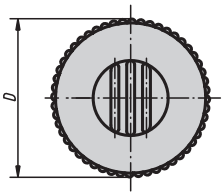
Part # Steel	Part # Stainless	D1 Thread	D2 mm	D3 mm	L mm	H mm	K mm
06090-04X10	06090-042X10	M4	16	8	10	9.5	3.5
06090-04X16	06090-042X16	M4	16	8	16	9.5	3.5
06090-04X20*	06090-042X20*	M4	16	8	20	9.5	3.5
06090-05X10	06090-052X10	M5	20	10	10	11.5	4
06090-05X16	06090-052X16	M5	20	10	16	11.5	4
06090-05X20*	06090-052X20*	M5	20	10	20	11.5	4
06090-06X10	06090-062X10	M6	24	12	10	15	5
06090-06X16	06090-062X16	M6	24	12	16	15	5
06090-06X20	06090-062X20	M6	24	12	20	15	5
06090-06X25*	06090-062X25*	M6	24	12	25	15	5
06090-08X16	06090-082X16	M8	30	16	16	18	6
06090-08X20	06090-082X20	M8	30	16	20	18	6
06090-08X25	06090-082X25	M8	30	16	25	18	6
06090-08X30*	06090-082X30*	M8	30	16	30	18	6
06090-10X20	06090-102X20	M10	36	20	20	23	8
06090-10X25	06090-102X25	M10	36	20	25	23	8
06090-10X30	06090-102X30	M10	36	20	30	23	8
06090-10X40*	06090-102X40*	M10	36	20	40	23	8

* The screw does not have an undercut.

KNURLED WHEELS

Plastic | Male Threads | Steel and Stainless Steel Studs | Inch and Metric





Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Studs are available in steel or stainless steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors.

INCH

Steel Part #	Stainless Part #	D4	L	D	D2	H	H1
06266-51A1*X10	06267-51A1*X10	10-32	.39	1.57	.65	1.22	.51
06266-51A1*X20	06267-51A1*X20	10-32	.79	1.57	.65	1.22	.51
06266-51A2*X20	06267-51A2*X20	1/4-20	.79	1.57	.65	1.22	.51
06266-51A2*X30	06267-51A2*X30	1/4-20	1.18	1.57	.65	1.22	.51
06266-51A3*X20	06267-51A3*X20	5/16-18	.79	1.57	.65	1.22	.51
06266-51A3*X40	06267-51A3*X40	5/16-18	1.57	1.57	.65	1.22	.51
06266-52A3*X20	06267-52A3*X20	5/16-18	.79	1.97	.71	1.42	.59
06266-52A3*X40	06267-52A3*X40	5/16-18	1.57	1.97	.71	1.42	.59
06266-52A4*X20	06267-52A4*X20	3/8-16	.79	1.97	.71	1.42	.59
06266-52A4*X40	06267-52A4*X40	3/8-16	1.57	1.97	.71	1.42	.59
06266-53A4*X20	06267-53A4*X20	3/8-16	.79	2.48	.87	1.61	.67
06266-53A4*X40	06267-53A4*X40	3/8-16	1.57	2.48	.87	1.61	.67
06266-53A5*X30	—	1/2-13	1.18	2.48	.87	1.61	.67
06266-53A5*X60	—	1/2-13	2.36	2.48	.87	1.61	.67

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

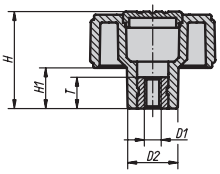
METRIC

Steel Part #	Stainless Part #	D4 mm	L mm	D mm	D2 mm	H mm	H1 mm
06266-5105*X10	06267-5105*X10	M5	10	40	16.5	31	13
06266-5105*X20	06267-5105*X20	M5	20	40	16.5	31	13
06266-5105*X40	—	M5	40	40	16.5	31	13
06266-5106*X10	06267-5106*X10	M6	10	40	16.5	31	13
06266-5106*X20	06267-5106*X20	M6	20	40	16.5	31	13
06266-5106*X40	06267-5106*X40	M6	40	40	16.5	31	13
06266-5108*X15	06267-5108*X15	M8	15	40	16.5	31	13
06266-5108*X30	06267-5108*X30	M8	30	40	16.5	31	13
06266-5108*X60	06267-5108*X60	M8	60	40	16.5	31	13
06266-5208*X15	06267-5208*X15	M8	15	50	18	36	15
06266-5208*X30	06267-5208*X30	M8	30	50	18	36	15
06266-5208*X60	06267-5208*X60	M8	60	50	18	36	15
06266-5210*X20	06267-5210*X20	M10	20	50	18	36	15
06266-5210*X30	06267-5210*X30	M10	30	50	18	36	15
06266-5210*X60	06267-5210*X60	M10	60	50	18	36	15
06266-5310*X20	06267-5310*X20	M10	20	63	22	41	17
06266-5310*X30	06267-5310*X30	M10	30	63	22	41	17
06266-5310*X60	06267-5310*X60	M10	60	63	22	41	17
06266-5312*X30	—	M12	30	63	22	41	17
06266-5312*X60	—	M12	60	63	22	41	17

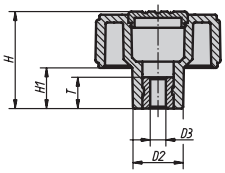
* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

KNURLED WHEELS

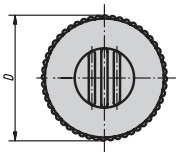
Plastic | Female Threads | Steel and Stainless Inserts | Inch and Metric



Form D
Tapped Through
Hole Without Cap
Form K
Tapped Through
Hole With Cap



Form E
Reamed Through
Hole Without Cap
Form H
Reamed Through
Hole With Cap



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INCH

Steel Part # Form D	Steel Part # Form E	Steel Part # Form H	Steel Part # Form K	Stainless Part # Form D	Stainless Part # Form K	D	D1	D2	D3	H	H1	T
06266-11A1	—	—	06266-21A1*	06267-11A1	06267-21A1*	1.57	10-32	.65	–	1.22	.51	.39
06266-11A2	06266-31CM	06266-41CM*	06266-21A2*	06267-11A2	06267-21A2*	1.57	1/4-20	.65	.250	1.22	.51	.39
06266-11A3	—	—	06266-21A3*	06267-11A3	06267-21A3*	1.57	5/16-18	.65	–	1.22	.51	.55
06266-12A3	06266-32CN	06266-42CN*	06266-22A3*	06267-12A3	06267-22A3*	1.97	5/16-18	.71	.312	1.42	.59	.55
06266-12A4	—	—	06266-22A4*	06267-12A4	06267-22A4*	1.97	3/8-16	.71	–	1.42	.59	.55
06266-13A4	06266-33CO	06266-43CO*	06266-23A4*	06267-13A4	06267-23A4*	2.48	3/8-16	.87	.375	1.61	.67	.55
06266-13A5	—	—	06266-23A5*	06267-13A5	06267-23A5*	2.48	1/2-13	.87	–	1.61	.67	.71

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

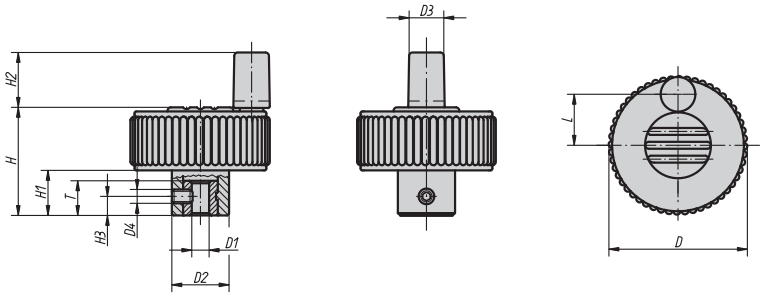
METRIC

Steel Part # Form D	Steel Part # Form E	Steel Part # Form H	Steel Part # Form K	Stainless Part # Form D	Stainless Part # Form K	D mm	D1 mm	D2 mm	D3 mm	H mm	H1 mm	T mm
06266-1105	—	—	06266-2105*	06267-1105	06267-2105*	40	M5	16.5	–	31	13	10
06266-1106	06266-3106	06266-4106*	06266-2106*	06267-1106	06267-2106*	40	M6	16.5	6	31	13	10
06266-1108	—	—	06266-2108*	06267-1108	06267-2108*	40	M8	16.5	–	31	13	14
06266-1208	06266-3208	06266-4208*	06266-2208*	06267-1208	06267-2208*	50	M8	18	8	36	15	14
06266-1210	—	—	06266-2210*	06267-1210	06267-2210*	50	M10	18	–	36	15	14
06266-1310	06266-3310	06266-4310*	06266-2310*	06267-1310	06267-2310*	63	M10	22	10	41	17	14
06266-1312	—	—	06266-2312*	06267-1312	06267-2312*	63	M12	22	–	41	17	18

* Add the desired cap color here. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

POSITIONING WHEELS

Plastic | Inch and Metric



The attractive design and ergonomic features offer firm safe gripping. Made from dark grey thermoplastic. The insert is made from steel. They are available with dark grey, light grey, traffic red and bright yellow caps. See www.fixtureworks.net for colors. The set screw style has a crossed tapped hole and set screw for tightening onto a shaft.

INCH

Part # w/o Set Screw	Part # w/ Set Screw	D	D1	D2	D3	D4	H	H1	H2	H3	L	T
06268-21CM*	06268-11CM*	1.57	.250	.65	.39	M4	1.22	.51	.63	.22	.59	.39
06268-22CM*	06268-12CM*	1.97	.250	.71	.39	M4	1.42	.59	.63	.22	.73	.39
06268-23CN*	06268-13CN*	2.48	.312	.87	.39	M4	1.61	.67	.63	.31	.98	.55

* Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

METRIC

Part # w/o Set Screw	Part # w/ Set Screw	D mm	D1 mm	D2 mm	D3 mm	D4 mm	H mm	H1 mm	H2 mm	H3 mm	L mm	T mm
06268-2106*	06268-1106*	40	6	16.5	10	M4	31	13	16	5.5	15	10
06268-2206*	06268-1206*	50	6	18	10	M4	36	15	16	5.5	18.5	10
06268-2308*	06268-1308*	63	8	22	10	M4	41	17	16	8	25	14

* Add the desired cap color to the end of the part number. No color code is required for dark grey. Light Grey = 5, Traffic Red = 6, Bright Yellow = 7

PULL HANDLES

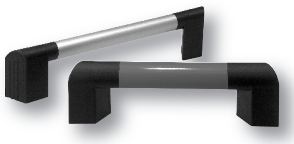
THERMOPLASTIC

CAST IRON

ALUMINUM

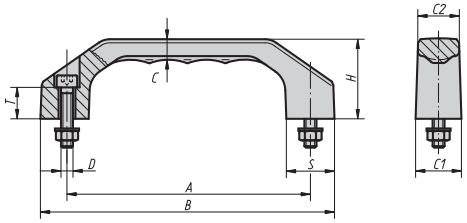
STAINLESS STEEL

BIG HAND STYLE



STIRRUP-SHAPED PULL HANDLES

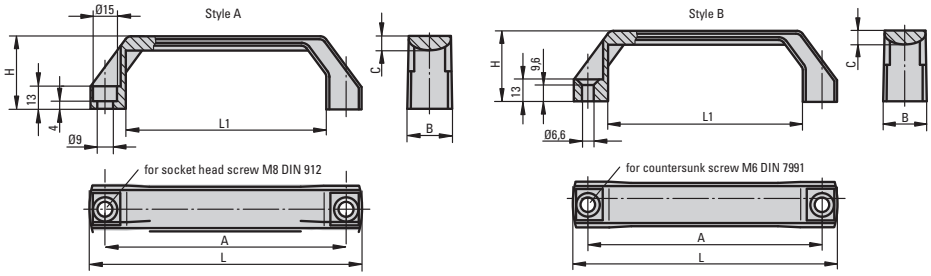
Thermoplastic | Metric



Made from glass reinforced thermoplastic with a black matte finish. Top mounting. Fastening screws, nuts and flat washers are included and are available in either steel or stainless steel.

Part # Steel	Part # Stainless Steel	A mm	B mm	C mm	C1 mm	C2 mm	D mm	H mm	S mm	T mm	Max Load Lbs.
06916-100051	06916-100052	100	122	8.5	19	17	M5X22	33	20	13	225
06916-120061	06916-120062	120	146	10.5	23	20.5	M6X25	39	24	15	225
06916-140081	06916-140082	140	170	12	27	24	M8X30	45	28	16	225
06916-160081	06916-160082	160	194	13.5	31	27.5	M8X35	52	32	20	225
06916-180081	06916-180082	180	218	15.5	35	31	M10X40	58	36	20	225

Thermoplastic | Metric

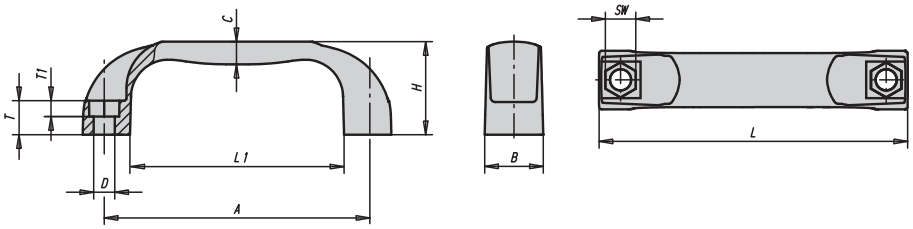


Made from glass reinforced thermoplastic. Designed to be fastened from the top with M8 socket head caps screws (Style A) or with M6 countersunk screws (Style B). Available in either black or orange color.

Part # Black	Part # Orange	Style	A mm	B mm	C mm	H mm	L mm	L1 mm	Max Load Lbs.
06904-1120081	06904-1120082	A	120	26	8	42	138	96	225
06904-1140081	06904-1140082	A	140	26	8	42	158	116	225
06904-1160081	06904-1160082	A	160	28	9	45	178	136	225
06904-2120061	06904-2120062	B	120	26	8	42	138	96	225
06904-2140061	06904-2140062	B	140	26	8	42	158	116	225
06904-2160061	06904-2160062	B	160	28	9	45	178	136	225

STIRRUP-SHAPED PULL HANDLES

Thermoplastic | Metric

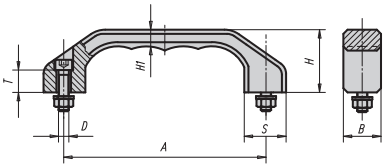


Made from polyamide or glass reinforced polypropylene thermoplastic. The fastening holes are designed so the handles can be secured from the top side with socket head screw or with a hex nut.

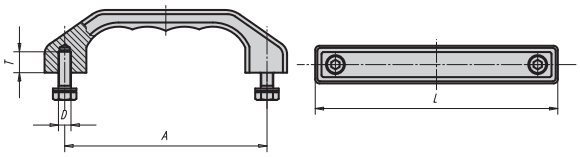
Polyamide Part #	Polypropylene Part #	+/-0.5 A mm	B mm	C mm	D mm	H mm	L mm	L1 mm	T mm	T1 mm	SW mm	Polyamide Max Load Lbs.	Polypropylene Max Load Lbs.
06903-109406	06903-209406	94	21	8	6.6	36	109	76	13	6	10	224	112
06903-111708	06903-211708	117	26	10	9	41	136	94	15	8	13	337	180
06903-113208	06903-213208	132	27	11	9	44	154	112	16	8	13	337	180
06903-117908*	06903-217908*	179	28	11	9	50	197	156	17	8	13	337	180

* A tolerance is +/-1.0

Stainless Steel | Metric



Form A
Front Mounting



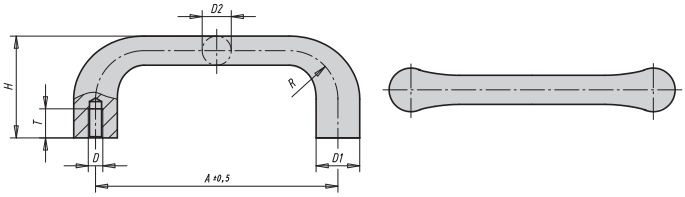
Form B
Rear Mounting

Made from precision cast stainless steel. Blasted and electro-polished with matte gloss finish. Front or rear mounting styles.

Part # Form A	Part # Form B	A mm	B mm	Form A D mm	Form B D mm	H mm	H1 mm	L mm	S mm	T mm	Max Load Lbs.
06914-140081	06914-140082	140	25	M8X30	M8X18	45	12	170	28	15	224
06914-180101	06914-180102	180	32	M10X40	M10X20	58	15	218	36	18	224

STIRRUP-SHAPED PULL HANDLES

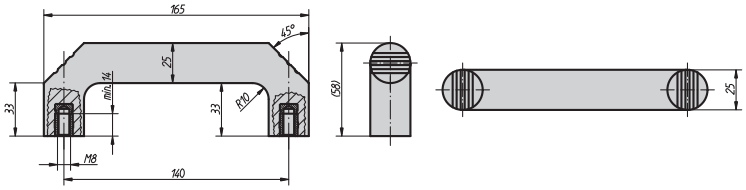
Cast Iron | Metric



Made from cast iron. Available in natural tumbled finish or black powder coating.

Part # Tumbled	Part # Black	A mm	D mm	D1 mm	D2 mm	H mm	R mm	T mm	Max Load Lbs.
06895-10006	06895-100061	100	M6	18	12	42	20	12	224
06895-11208	06895-112081	112	M8	20	14	47	22	15	224
06895-12510	06895-125101	125	M10	22	16	53	24	18	224
06895-14012	06895-140121	140	M12	25	18	59	26	20	224

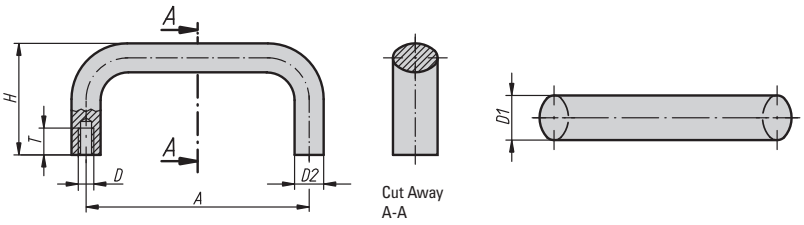
Plastic | Brass and Steel Bushings | Metric



Made from black duroplast plastic. High polish finish. Bushings in brass or galvanized steel.

Part #	Bushing Type
06901-114008	Brass
06901-214008	Steel

Aluminum | Metric

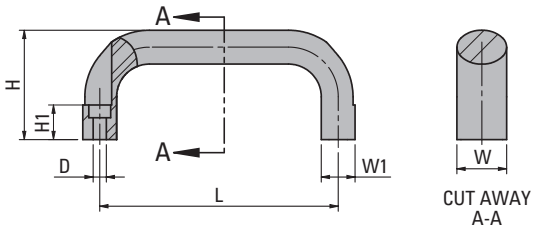


Made from aluminum with matte finish. Available with either natural anodized or black powder coat finish.

Part # Black	Part # Natural	A mm	D mm	D1 mm	D2 mm	H mm	T mm	Max Load Lbs.
06920-10001	06920-10003	100	M6	20	13	50	12	224
06920-11201	06920-11203	112	M6	20	13	50	12	224
06920-12001	06920-12003	120	M6	20	13	50	12	224
06920-12801	06920-12803	128	M6	20	13	50	12	224
06920-1600106	06920-1600306	160	M6	20	13	50	12	224
06920-1120108	06920-1120308	112	M8	26	17	55	14	224
06920-1200108	06920-1200308	120	M8	26	17	55	14	224
06920-1280108	06920-1280308	128	M8	26	17	55	14	224
06920-16001	06920-16003	160	M8	26	17	55	14	224
06920-18001	06920-18003	180	M8	26	17	55	14	224
06920-19201	06920-19203	192	M8	26	17	55	14	224
06920-35001	06920-35003	350	M8	26	17	55	14	224

STIRRUP-SHAPED PULL HANDLES

Aluminum | Thru Hole | Metric

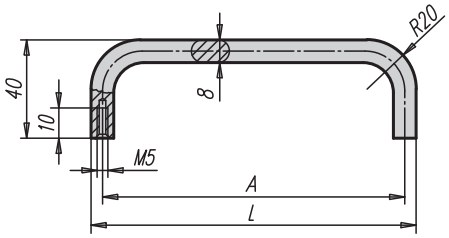


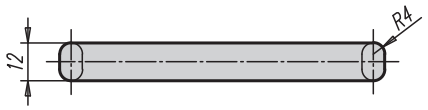
Made from aluminum. Mounts with socket head cap screws. Available in black or red powder coat finish.

Part # Black	Part # Red	D mm	L mm	W mm	W1 mm	H mm	H1 mm	Load Capacity Lbs.
06920-11000105	06920-11002705	5.5	100	21	13	50	13.6	224
06920-11120105	06920-11122705	5.5	112	21	13	50	13.6	224
06920-11200105	06920-11202705	5.5	120	21	13	50	13.6	224
06920-11280105	06920-11282705	5.5	128	21	13	50	13.6	224
06920-11600105	06920-11602705	5.5	160	21	13	50	13.6	224
06920-11120106	06920-11122706	6.6	112	25	17	55	11.0	224
06920-11200106	06920-11202706	6.6	120	25	17	55	11.0	224
06920-11280106	06920-11282706	6.6	128	25	17	55	11.0	224
06920-11600106	06920-11602706	6.6	160	25	17	55	11.0	224
06920-11800106	06920-11802706	6.6	180	25	17	55	11.0	224

STIRRUP-SHAPED PULL HANDLES

Aluminum | Metric

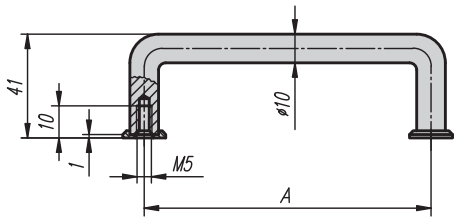




Made from aluminum with matte finish. Available with either natural or black anodized finish.

Part # Black	Part # Natural	A mm	L mm	Max Load Lbs.
06918-055051	06918-055053	55	63	112
06918-088051	06918-088053	88	96	112
06918-100051	06918-100053	100	108	112
06918-120051	06918-120053	120	128	112
06918-180051	06918-180053	180	188	112
06918-200051	06918-200053	200	208	112
06918-235051	06918-235053	235	243	112
06918-250051	06918-250053	250	258	112

Aluminum | Metric

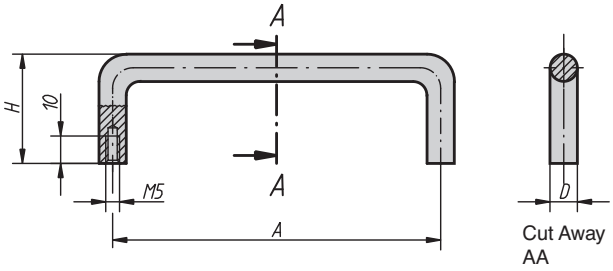


The round pull handles are made from aluminum. Available with either a natural or black anodized matte finish. The flange washers provide a finished look. Flange washers are not included with the handle and must be purchased separately. Suitable for 19" technology.

Part # Black	Part # Natural	A mm	Max Load Lbs.	Flange Washer Part # Black	Flange Washer Part # Natural
06917-055051	06917-055053	55	110	06917-1	06917-3
06917-088051	06917-088053	88	110	06917-1	06917-3
06917-100051	06917-100053	100	110	06917-1	06917-3
06917-120051	06917-120053	120	110	06917-1	06917-3
06917-180051	06917-180053	180	110	06917-1	06917-3
06917-200051	06917-200053	200	110	06917-1	06917-3
06917-235051	06917-235053	235	110	06917-1	06917-3
06917-250051	06917-250053	250	110	06917-1	06917-3

STIRRUP-SHAPED PULL HANDLES

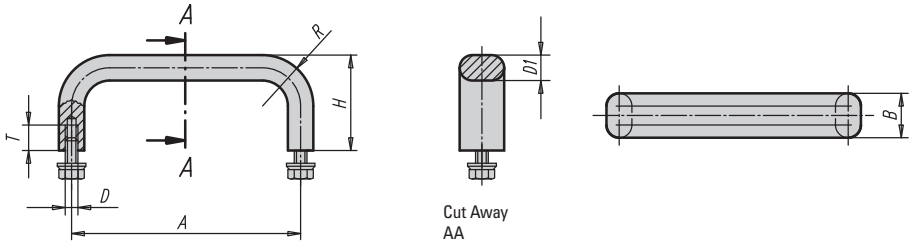
Stainless Steel | Metric



Made from stainless steel with an electrolytic-polish finish. Ideal for food or medical applications.

Part #	A mm	D mm	H mm	Max Load Lbs.
06922-100	100	8	35	224
06922-120	120	10	40	224
06922-250	250	10	40	224
06922-350	350	10	40	224

Stainless Steel | Metric

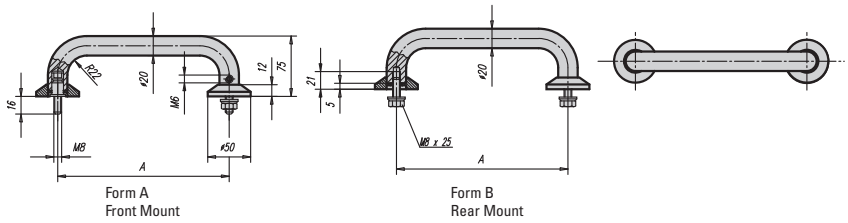


Made from stainless steel with semi-matte finish. Back side mounting. Stainless mounting hardware included.

Part #	A mm	B mm	D mm	D1 mm	H mm	R mm	T mm	Max Load Lbs.
06924-10005	100	12	M5X10	8	40	22	10	224
06924-12005	120	12	M5X10	8	40	22	10	224
06924-15005	150	12	M5X10	8	40	22	10	224
06924-18005	180	12	M5X10	8	40	22	10	224
06924-25005	250	12	M5X10	8	40	22	10	224
06924-10006	100	19.5	M6X12	10	45	24	12	224
06924-12006	120	19.5	M6X12	10	45	24	12	224
06924-15006	150	19.5	M6X12	10	45	24	12	224
06924-18006	180	19.5	M6X12	10	45	24	12	224
06924-25006	250	19.5	M6X12	10	45	24	12	224

STIRRUP-SHAPED PULL HANDLES

Stainless Steel | Metric

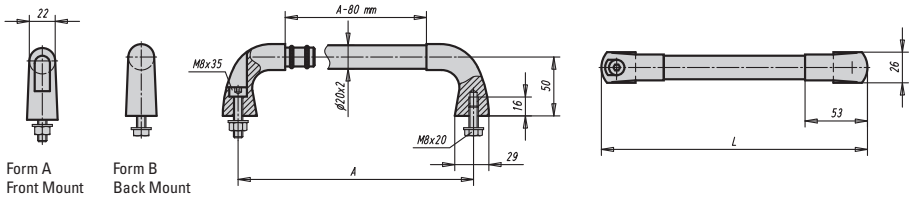


Made from stainless steel with matte-polish brush finish. Flange provides finished look. Front or back side mounting. Stainless mounting hardware included.

Part # Form A	Part # Form B	A mm	Max Load Lbs.
06931-2001	06931-2002	200	224
06931-2501	06931-2502	250	224

TUBE PULL HANDLES

Stainless Steel | Metric

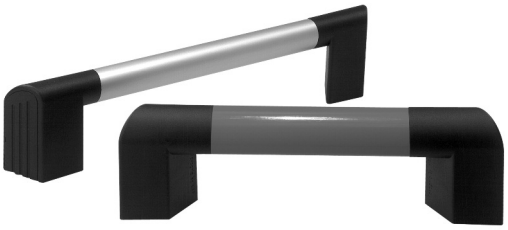


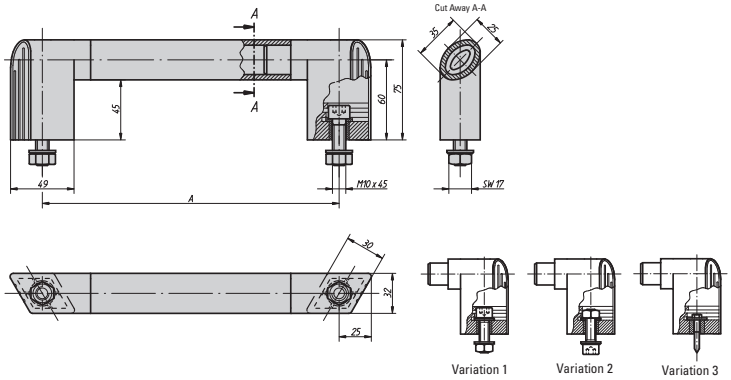
The connecting tubes and mounting hardware are made from stainless steel. The connecting tube is available with ground finish or with a plastic cover. The mounting legs have a matte-finish. Front or back mounting options available. Hardware included.

Part # Form A Uncovered	Part # Form A Plastic Cover	Part # Form B Uncovered	Part # Form B Plastic Cover	A mm	L mm	Max Load Lbs.
06943-200081	06943-200082	06943-200083	06943-200084	200	226	224
06943-300081	06943-300082	06943-300083	06943-300084	300	326	224
06943-400081	06943-400082	06943-400083	06943-400084	400	426	224

BIG HAND TUBE PULL HANDLES

Aluminum | Metric





Durable and attractive appearance. The corner covers are made from grey thermoplastic. The oval tube is aluminum and available either coated or anodized. The corner covers are supplied unassembled. M10 bolts supplied with variations 1 and 2. 5mm wood screws, dowels, drill template and assembly tool are supplied with variation 3. Available in dark grey, ruby red, raspberry red and ocean blue coating. The black and natural colors are anodized. See www.fixtureworks.net for colors.

Grey Variations 1 & 2	Grey Variation 3	Black Variations 1 & 2	Black Variation 3	Natural Variations 1 & 2	Natural Variation 3	A mm
06948-1180	06948-118011	06948-118001	06948-11801101	06948-118003	06948-11801103	180
06948-1200	06948-120011	06948-120001	06948-12001101	06948-120003	06948-12001103	200
06948-1250	06948-125011	06948-125001	06948-12501101	06948-125003	06948-12501103	250
06948-1300	06948-130011	06948-130001	06948-13001101	06948-130003	06948-13001103	300
06948-1350	06948-135011	06948-135001	06948-13501101	06948-135003	06948-13501103	350
06948-1400	06948-140011	06948-140001	06948-14001101	06948-140003	06948-14001103	400
06948-1500	06948-150011	06948-150001	06948-15001101	06948-150003	06948-15001103	500
06948-1600	06948-160011	06948-160001	06948-16001101	06948-160003	06948-16001103	600

Ruby Variations 1 & 2	Ruby Variation 3	Raspberry Variations 1 & 2	Raspberry Variation 3	Blue Variations 1 & 2	Blue Variation 3	A mm
06948-118027	06948-11801127	06948-118070	06948-11801170	06948-118073	06948-11801173	180
06948-120027	06948-12001127	06948-120070	06948-12001170	06948-120073	06948-12001173	200
06948-125027	06948-12501127	06948-125070	06948-12501170	06948-125073	06948-12501173	250
06948-130027	06948-13001127	06948-130070	06948-13001170	06948-130073	06948-13001173	300
06948-135027	06948-13501127	06948-135070	06948-13501170	06948-135073	06948-13501173	350
06948-140027	06948-14001127	06948-140070	06948-14001170	06948-140073	06948-14001173	400
06948-150027	06948-15001127	06948-150070	06948-15001170	06948-150073	06948-15001173	500
06948-160027	06948-16001127	06948-160070	06948-16001170	06948-160073	06948-16001173	600

HAND WHEELS & CRANK HANDLES

3-SPOKE

2-SPOKE

SOLID DISC

ALUMINUM

CAST IRON

PLASTIC

STAINLESS STEEL

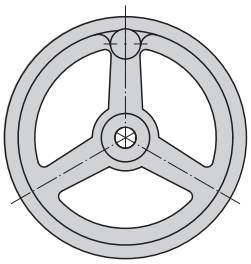
MACHINE HANDLES

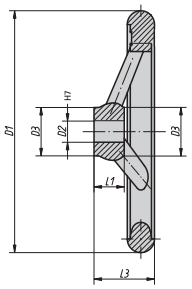
CRANK HANDLES

GEAR LEVERS

SPOKED HAND WHEELS

Cast Iron | Without Machine Handle | Inch and Metric





These hand wheels are made from grey cast iron. The wheel rim is turned and polished.

INCH

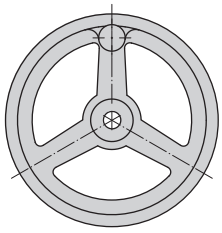
Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes
06271-0080XCN	.312	06271-0080XCO	.375	3.15	.94	.63	1.14	3
06271-0100XCO	.375	06271-0100XCP	.500	3.94	1.02	.67	1.30	3
06271-0125XCO	.375	06271-0125XCP	.500	4.92	1.10	.71	1.42	3
06271-0140XCP	.500	06271-0140XCQ	.625	5.51	1.18	.75	1.54	3
06271-0160XCP	.500	06271-0160XCQ	.625	6.30	1.26	.79	1.57	3
06271-0180XCP	.500	06271-0180XCQ	.625	7.09	1.38	.87	1.69	3
06271-0200XCQ	.625	06271-0200XCR	.750	7.87	1.50	.94	1.77	3
06271-0250XCR	.750	06271-0250XCV	.875	9.84	1.77	1.10	1.97	5
06271-0315XCV	.875	06271-0315XCS	1.00	12.40	2.09	1.30	2.20	5
06271-0400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5
06271-0500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5

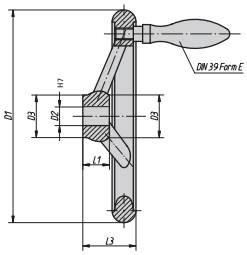
METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes
06271-0080X10	10	06271-0080X12	12	80	24	16	29	3
06271-0100X10	10	06271-0100X12	12	100	26	17	33	3
06271-0125X12	12	06271-0125X14	14	125	28	18	36	3
06271-0140X14	14	06271-0140X16	16	140	30	19	39	3
06271-0160X14	14	06271-0160X16	16	160	32	20	40	3
06271-0180X16	16	06271-0180X18	18	180	35	22	43	3
06271-0200X18	18	06271-0200X22	22	200	38	24	45	3
06271-0250X22	22	06271-0250X26	26	250	45	28	50	5
06271-0315X26	26	06271-0315X30	30	315	53	33	56	5
06271-0400X30	30	06271-0400X34	34	400	65	38	63	5
06271-0500X34	34	06271-0500X40	40	500	78	45	72	5

SPOKED HAND WHEELS

Cast Iron | Fixed and Revolving Machine Handle | Inch and Metric





These hand wheels are made from grey cast iron. The wheel rim is turned and polished. The handle is made from steel.

Fixed Handle

INCH

Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes	Handle Dia.	Handle Length
06271-2080XCN	.312	06271-2080XCO	.375	3.15	.94	.63	1.14	3	.63	1.97
06271-2100XCO	.375	06271-2100XCP	.500	3.94	1.02	.67	1.30	3	.63	1.97
06271-2125XCO	.375	06271-2125XCP	.500	4.92	1.10	.71	1.42	3	.79	2.52
06271-2140XCP	.500	06271-2140XCQ	.625	5.51	1.18	.75	1.54	3	.79	2.52
06271-2160XCP	.500	06271-2160XCQ	.625	6.30	1.26	.79	1.57	3	.98	3.15
06271-2180XCP	.500	06271-2180XCQ	.625	7.09	1.38	.87	1.69	3	.98	3.15
06271-2200XCQ	.625	06271-2200XCR	.750	7.87	1.50	.94	1.77	3	.98	3.15
06271-2250XCR	.750	06271-2250XCV	.875	9.84	1.77	1.10	1.97	5	1.26	3.94
06271-2315XCV	.875	06271-2315XCS	1.00	12.40	2.09	1.30	2.20	5	1.26	3.94
06271-2400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5	1.42	4.41
06271-2500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5	1.42	4.41

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes	Handle Dia. mm	Handle Length mm
06271-2080X10	10	06271-2080X12	12	80	24	16	29	3	16	50
06271-2100X10	10	06271-2100X12	12	100	26	17	33	3	16	50
06271-2125X12	12	06271-2125X14	14	125	28	18	36	3	20	64
06271-2140X14	14	06271-2140X16	16	140	30	19	39	3	20	64
06271-2160X14	14	06271-2160X16	16	160	32	20	40	3	25	80
06271-2180X16	16	06271-2180X18	18	180	35	22	43	3	25	80
06271-2200X18	18	06271-2200X22	22	200	38	24	45	3	25	80
06271-2250X22	22	06271-2250X26	26	250	45	28	50	5	32	100
06271-2315X26	26	06271-2315X30	30	315	53	33	56	5	32	100
06271-2400X30	30	06271-2400X34	34	400	65	38	63	5	36	112
06271-2500X34	34	06271-2500X40	40	500	78	45	72	5	36	112

Revolving Handle

INCH

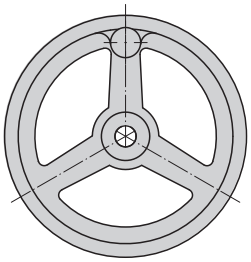
Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes	Handle Dia.	Handle Length
06271-4080XCN	.312	06271-4080XCO	.375	3.15	.94	.63	1.14	3	.63	2.15
06271-4100XCO	.375	06271-4100XCP	.500	3.94	1.02	.67	1.30	3	.63	2.15
06271-4125XCO	.375	06271-4125XCP	.500	4.92	1.10	.71	1.42	3	.79	2.64
06271-4140XCP	.500	06271-4140XCQ	.625	5.51	1.18	.75	1.54	3	.79	2.64
06271-4160XCP	.500	06271-4160XCQ	.625	6.30	1.26	.79	1.57	3	.98	3.27
06271-4180XCP	.500	06271-4180XCQ	.625	7.09	1.38	.87	1.69	3	.98	3.27
06271-4200XCQ	.625	06271-4200XCR	.750	7.87	1.50	.94	1.77	3	.98	3.27
06271-4250XCR	.750	06271-4250XCV	.875	9.84	1.77	1.10	1.97	5	1.26	4.15
06271-4315XCV	.875	06271-4315XCS	1.00	12.40	2.09	1.30	2.20	5	1.26	4.15
06271-4400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5	1.42	4.61
06271-4500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5	1.42	4.61

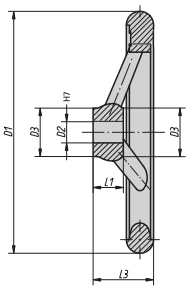
METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes	Handle Dia. mm	Handle Length mm
06271-4080X10	10	06271-4080X12	12	80	24	16	29	3	16	54.5
06271-4100X10	10	06271-4100X12	12	100	26	17	33	3	16	54.5
06271-4125X12	12	06271-4125X14	14	125	28	18	36	3	20	67
06271-4140X14	14	06271-4140X16	16	140	30	19	39	3	20	67
06271-4160X14	14	06271-4160X16	16	160	32	20	40	3	25	83
06271-4180X16	16	06271-4180X18	18	180	35	22	43	3	25	83
06271-4200X18	18	06271-4200X22	22	200	38	24	45	3	25	83
06271-4250X22	22	06271-4250X26	26	250	45	28	50	5	32	105.5
06271-4315X26	26	06271-4315X30	30	315	53	33	56	5	32	105.5
06271-4400X30	30	06271-4400X34	34	400	65	38	63	5	36	117
06271-4500X34	34	06271-4500X40	40	500	78	45	72	5	36	117

SPOKED HAND WHEELS

Aluminum | Without Machine Handle | Inch and Metric





These hand wheels are made from aluminum. The wheel rim is turned and polished.

INCH

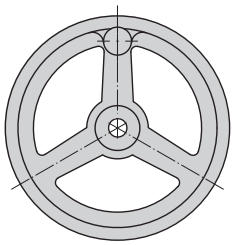
Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes
06273-0080XCN	.312	06273-0080XCO	.375	3.15	.94	.63	1.14	3
06273-0100XCO	.375	06273-0100XCP	.500	3.94	1.02	.67	1.30	3
06273-0125XCO	.375	06273-0125XCP	.500	4.92	1.10	.71	1.42	3
06273-0140XCP	.500	06273-0140XCQ	.625	5.51	1.18	.75	1.54	3
06273-0160XCP	.500	06273-0160XCQ	.625	6.30	1.26	.79	1.57	3
06273-0180XCP	.500	06273-0180XCQ	.625	7.09	1.38	.87	1.69	3
06273-0200XCQ	.625	06273-0200XCR	.750	7.87	1.50	.94	1.77	3
06273-0250XCR	.750	06273-0250XCV	.875	9.84	1.77	1.10	1.97	5
06273-0315XCV	.875	06273-0315XCS	1.00	12.40	2.09	1.30	2.20	5
06273-0400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5
06273-0500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5

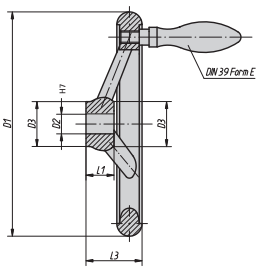
METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes
06273-0080X10	10	06273-0080X12	12	80	24	16	29	3
06273-0100X10	10	06273-0100X12	12	100	26	17	33	3
06273-0125X12	12	06273-0125X14	14	125	28	18	36	3
06273-0140X14	14	06273-0140X16	16	140	30	19	39	3
06273-0160X14	14	06273-0160X16	16	160	32	20	40	3
06273-0180X16	16	06273-0180X18	18	180	35	22	43	3
06273-0200X18	18	06273-0200X22	22	200	38	24	45	3
06273-0250X22	22	06273-0250X26	26	250	45	28	50	5
06273-0315X26	26	06273-0315X30	30	315	53	33	56	5
06273-0400X30	30	06273-0400X34	34	400	65	38	63	5
06273-0500X34	34	06273-0500X40	40	500	78	45	72	5

SPOKED HAND WHEELS

Aluminum | Fixed and Revolving Machine Handle | Inch and Metric





These hand wheels and handles are made from aluminum. The wheel rim is turned and polished. The axle part of the handle is steel with black oxide finish.

Fixed Handle

INCH

Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes	Handle Dia.	Handle Length
06273-2080XCN	.312	06273-2080XCO	.375	3.15	.94	.63	1.14	3	.63	1.97
06273-2100XCO	.375	06273-2100XCP	.500	3.94	1.02	.67	1.30	3	.63	1.97
06273-2125XCO	.375	06273-2125XCP	.500	4.92	1.10	.71	1.42	3	.79	2.52
06273-2140XCP	.500	06273-2140XCQ	.625	5.51	1.18	.75	1.54	3	.79	2.52
06273-2160XCP	.500	06273-2160XCQ	.625	6.30	1.26	.79	1.57	3	.98	3.15
06273-2180XCP	.500	06273-2180XCQ	.625	7.09	1.38	.87	1.69	3	.98	3.15
06273-2200XCQ	.625	06273-2200XCR	.750	7.87	1.50	.94	1.77	3	.98	3.15
06273-2250XCR	.750	06273-2250XCV	.875	9.84	1.77	1.10	1.97	5	1.26	3.94
06273-2315XCV	.875	06273-2315XCS	1.00	12.40	2.09	1.30	2.20	5	1.26	3.94
06273-2400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5	1.42	4.41
06273-2500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5	1.42	4.41

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes	Handle Dia. mm	Handle Length mm
06273-2080X10	10	06273-2080X12	12	80	24	16	29	3	16	50
06273-2100X10	10	06273-2100X12	12	100	26	17	33	3	16	50
06273-2125X12	12	06273-2125X14	14	125	28	18	36	3	20	64
06273-2140X14	14	06273-2140X16	16	140	30	19	39	3	20	64
06273-2160X14	14	06273-2160X16	16	160	32	20	40	3	25	80
06273-2180X16	16	06273-2180X18	18	180	35	22	43	3	25	80
06273-2200X18	18	06273-2200X22	22	200	38	24	45	3	25	80
06273-2250X22	22	06273-2250X26	26	250	45	28	50	5	32	100
06273-2315X26	26	06273-2315X30	30	315	53	33	56	5	32	100
06273-2400X30	30	06273-2400X34	34	400	65	38	63	5	36	112
06273-2500X34	34	06273-2500X40	40	500	78	45	72	5	36	112

Revolving Handle

INCH

Part #	D2	Part #	D2	D1	D3	L1	L3	No. of Spokes	Handle Dia.	Handle Length
06273-4080XCN	.312	06273-4080XCO	.375	3.15	0.94	0.63	1.14	3	.63	2.15
06273-4100XCO	.375	06273-4100XCP	.500	3.94	1.02	0.67	1.30	3	.63	2.15
06273-4125XCO	.375	06273-4125XCP	.500	4.92	1.10	0.71	1.42	3	.79	2.64
06273-4140XCP	.500	06273-4140XCQ	.625	5.51	1.18	0.75	1.54	3	.79	2.64
06273-4160XCP	.500	06273-4160XCQ	.625	6.30	1.26	0.79	1.57	3	.98	3.27
06273-4180XCP	.500	06273-4180XCQ	.625	7.09	1.38	0.87	1.69	3	.98	3.27
06273-4200XCQ	.625	06273-4200XCR	.750	7.87	1.50	0.94	1.77	3	.98	3.27
06273-4250XCR	.750	06273-4250XCV	.875	9.84	1.77	1.10	1.97	5	1.26	4.15
06273-4315XCV	.875	06273-4315XCS	1.00	12.40	2.09	1.30	2.20	5	1.26	4.15
06273-4400XCS	1.00	—	—	15.75	2.56	1.50	2.48	5	1.42	4.61
06273-4500XCS	1.00	—	—	19.69	3.07	1.77	2.83	5	1.42	4.61

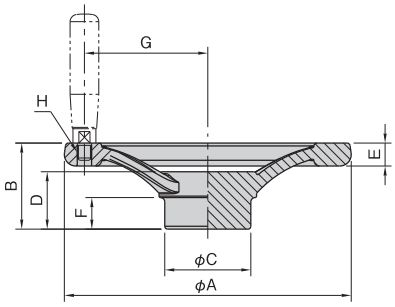
METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	No. of Spokes	Handle Dia. mm	Handle Length mm
06273-4080X10	10	06273-4080X12	12	80	24	16	29	3	16	54.5
06273-4100X10	10	06273-4100X12	12	100	26	17	33	3	16	54.5
06273-4125X12	12	06273-4125X14	14	125	28	18	36	3	20	67
06273-4140X14	14	06273-4140X16	16	140	30	19	39	3	20	67
06273-4160X14	14	06273-4160X16	16	160	32	20	40	3	25	83
06273-4180X16	16	06273-4180X18	18	180	35	22	43	3	25	83
06273-4200X18	18	06273-4200X22	22	200	38	24	45	3	25	83
06273-4250X22	22	06273-4250X26	26	250	45	28	50	5	32	105.5
06273-4315X26	26	06273-4315X30	30	315	53	33	56	5	32	105.5
06273-4400X30	30	06273-4400X34	34	400	65	38	63	5	36	117
06273-4500X34	34	06273-4500X40	40	500	78	45	72	5	36	117

IMAO

SPOKED HAND WHEELS

Stainless Steel | With or Without Handle Mounting Holes | Metric



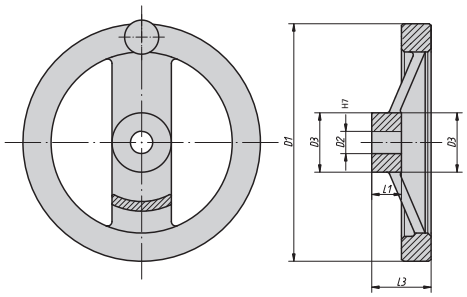
These all stainless steel hand wheels offer excellent corrosion resistance in harsh environments. Ideal for use in the food, medical and marine industries. The parts with a mounting hole have a tapped hole for attaching a revolving handle. The revolving handles are sold separately. Made from 304 stainless steel with an electropolished finish.

Without Mounting Hole Part #	With Mounting Hole Part #	A mm	B mm	C mm	D mm	E mm	F mm	G* mm	H* mm	Use Revolving Handle*
NSTH100	STH100	100	30	30	20	8	11	43	M5X0.8	SRG10
NSTH125	STH125	125	35	35	22	8	13	55	M6X1	SRG13
NSTH160	STH160	160	40	40	24	9	13	70	M8X1.25	SRG16
NSTH200	STH200	200	45	45	28	11	15	88	M10X1.5	SRG20

* For hand wheels with handle mounting holes only.

2-SPOKE HAND WHEELS

Aluminum | Without Machine Handle | Inch and Metric



These hand wheels are made from aluminum. The rim is turned and polished.

INCH

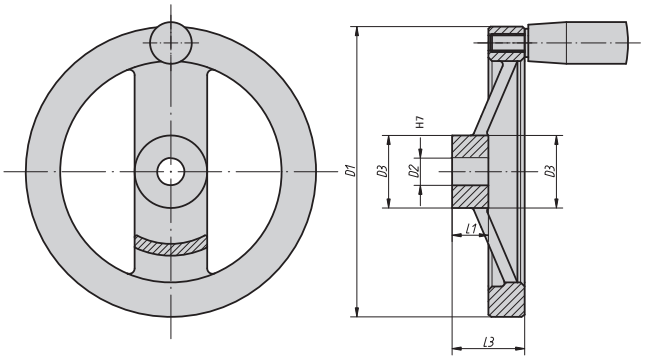
Part #	D2	Part #	D2	D1	D3	L1	L3
06277-0080XCN	.312	06277-0080XCO	.375	3.15	.94	.63	1.10
06277-0100XCO	.375	06277-0100XCP	.500	3.94	1.02	.67	1.30
06277-0125XCO	.375	06277-0125XCP	.500	4.92	1.22	.71	1.32
06277-0160XCP	.500	06277-0160XCQ	.625	6.30	1.42	.79	1.54
06277-0200XCQ	.625	06277-0200XCR	.750	7.87	1.65	.94	1.77
06277-0250XCR	.750	06277-0250XCV	.875	9.84	1.89	1.10	2.01

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm
06277-0080X10	10	06277-0080X12	12	80	24	16	28
06277-0100X10	10	06277-0100X12	12	100	26	17	33
06277-0125X12	12	06277-0125X14	14	125	31	18	33.5
06277-0160X14	14	06277-0160X16	16	160	36	20	39
06277-0200X18	18	06277-0200X20	20	200	42	24	45
06277-0250X22	22	06277-0250X26	26	250	48	28	51

2-SPOKE HAND WHEELS

Aluminum | Fixed Machine and Revolving Handle | Inch and Metric



These hand wheels are made from aluminum. The rim is turned and polished. The handle is made from duroplast plastic. The axle part of the handle is galvanized steel.

Fixed Handle

INCH

Part #	D2	Part #	D2	D1	D3	L1	L3	Handle Dia.	Handle Length
06277-2080XCN	.312	06277-2080XCO	.375	3.15	.94	.63	1.10	.71	1.57
06277-2100XCO	.375	06277-2100XCP	.500	3.94	1.02	.67	1.30	.71	1.57
06277-2125XCO	.375	06277-2125XCP	.500	4.92	1.22	.71	1.32	.83	1.97
06277-2160XCP	.500	06277-2160XCQ	.625	6.30	1.42	.79	1.54	1.02	3.15
06277-2200XCQ	.625	06277-2200XCR	.750	7.87	1.65	.94	1.77	1.02	3.15
06277-2250XCR	.750	06277-2250XCV	.875	9.84	1.89	1.10	2.01	1.10	3.54

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	Handle Dia. mm	Handle Length mm
06277-2080X10	10	06277-2080X12	12	80	24	16	28	18	40
06277-2100X10	10	06277-2100X12	12	100	26	17	33	18	40
06277-2125X12	12	06277-2125X14	14	125	31	18	33.5	21	50
06277-2160X14	14	06277-2160X16	16	160	36	20	39	26	80
06277-2200X18	18	06277-2200X20	20	200	42	24	45	26	80
06277-2250X22	22	06277-2250X26	26	250	48	28	51	28	90

Revolving Handle

INCH

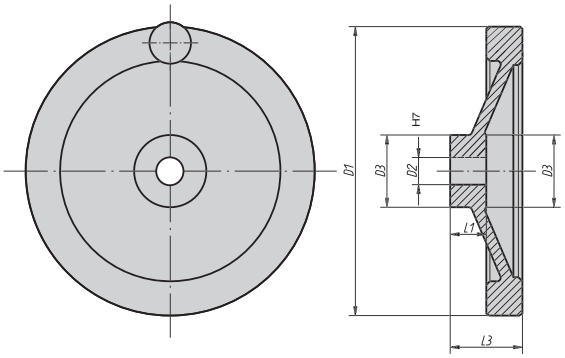
Part #	D2	Part #	D2	D1	D3	L1	L3	Handle Dia.	Handle Length
06277-4080XCN	.312	06277-4080XCO	.375	3.15	.94	.63	1.10	.71	1.57
06277-4100XCO	.375	06277-4100XCP	.500	3.94	1.02	.67	1.30	.71	1.57
06277-4125XCO	.375	06277-4125XCP	.500	4.92	1.22	.71	1.32	.87	2.20
06277-4160XCP	.500	06277-4160XCQ	.625	6.30	1.42	.79	1.54	1.02	3.15
06277-4200XCQ	.625	06277-4200XCR	.750	7.87	1.65	.94	1.77	1.02	3.15
06277-4250XCR	.750	06277-4250XCV	.875	9.84	1.89	1.10	2.01	1.22	4.02

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	Handle Dia. mm	Handle Length mm
06277-4080X10	10	06277-4080X12	12	80	24	16	28	18	40
06277-4100X10	10	06277-4100X12	12	100	26	17	33	18	40
06277-4125X12	12	06277-4125X14	14	125	31	18	33.5	22	56
06277-4160X14	14	06277-4160X16	16	160	36	20	39	26	80
06277-4200X18	18	06277-4200X20	20	200	42	24	45	26	80
06277-4250X22	22	06277-4250X26	26	250	48	28	51	31	102

DISC HAND WHEELS

Aluminum | Without Machine Handle | Inch and Metric



These hand wheels are made from aluminum. The rim is turned and polished.

INCH

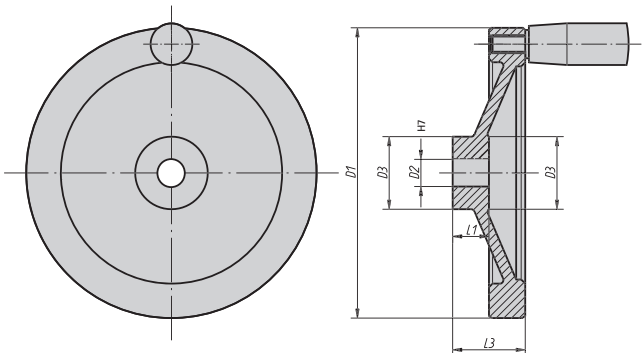
Part #	D2	Part #	D2	D1	D3	L1	L3
06275-0080XCN	.312	06275-0080XCO	.375	3.15	.98	.63	1.22
06275-0100XCO	.375	06275-0100XCP	.500	3.94	1.22	.67	1.34
06275-0125XCO	.375	06275-0125XCP	.500	4.92	1.18	.71	1.46
06275-0140XCP	.500	06275-0140XCQ	.625	5.51	1.34	.75	1.34
06275-0160XCP	.500	06275-0160XCQ	.625	6.30	1.57	.79	1.57
06275-0200XCQ	.625	06275-0200XCR	.750	7.87	1.97	.94	1.81
06275-0250XCR	.750	06275-0250XCV	.875	9.84	1.97	1.10	1.93

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm
06275-0080X10	10	06275-0080X12	12	80	25	16	31
06275-0100X10	10	06275-0100X12	12	100	31	17	34
06275-0125X12	12	06275-0125X14	14	125	30	18	37
06275-0140X14	14	06275-0140X15	15	140	34	19	34
06275-0160X15	15	06275-0160X16	16	160	40	20	40
06275-0200X18	18	06275-0200X20	20	200	50	24	46
06275-0250X22	22	06275-0250X24	24	250	50	28	49

DISC HAND WHEELS

Aluminum | Fixed Machine and Revolving Handle | Inch and Metric



These hand wheels are made from aluminum. The rim is turned and polished. The handle is made from duroplast plastic. The axle part of the handle is steel with black oxide finish.

Fixed Handle

INCH

Part #	D2	Part #	D2	D1	D3	L1	L3	Handle Dia.	Handle Length
06275-2080XCN	.312	06275-2080XCO	.375	3.15	.98	.63	1.22	.71	1.57
06275-2100XCO	.375	06275-2100XCP	.500	3.94	1.22	.67	1.34	.71	1.57
06275-2125XCO	.375	06275-2125XCP	.500	4.92	1.18	.71	1.46	.83	1.97
06275-2140XCP	.500	06275-2140XCQ	.625	5.51	1.34	.75	1.34	.83	1.97
06275-2160XCP	.500	06275-2160XCQ	.625	6.30	1.57	.79	1.57	1.02	3.15
06275-2200XCQ	.625	06275-2200XCR	.750	7.87	1.97	.94	1.81	1.02	3.15
06275-2250XCR	.750	06275-2250XCV	.875	9.84	1.97	1.10	1.93	1.10	3.54

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	Handle Dia. mm	Handle Length mm
06275-2080X10	10	06275-2080X12	12	80	25	16	31	18	40
06275-2100X10	10	06275-2100X12	12	100	31	17	34	18	40
06275-2125X12	12	06275-2125X14	14	125	30	18	37	21	50
06275-2140X14	14	06275-2140X15	15	140	34	19	34	21	50
06275-2160X15	15	06275-2160X16	16	160	40	20	40	26	80
06275-2200X18	18	06275-2200X20	20	200	50	24	46	26	80
06275-2250X22	22	06275-2250X24	24	250	50	28	49	28	90

Revolving Handle

INCH

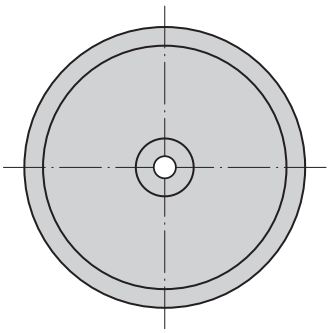
Part #	D2	Part #	D2	D1	D3	L1	L3	Handle Dia.	Handle Length
06275-4080XCN	.312	06275-4080XCO	.375	3.15	.98	.63	1.22	.71	1.57
06275-4100XCO	.375	06275-4100XCP	.500	3.94	1.22	.67	1.34	.71	1.57
06275-4125XCO	.375	06275-4125XCP	.500	4.92	1.18	.71	1.46	.87	2.20
06275-4140XCP	.500	06275-4140XCQ	.625	5.51	1.34	.75	1.34	.87	2.20
06275-4160XCP	.500	06275-4160XCQ	.625	6.30	1.57	.79	1.57	1.02	3.15
06275-4200XCQ	.625	06275-4200XCR	.750	7.87	1.97	.94	1.81	1.02	3.15
06275-4250XCR	.750	06275-4250XCV	.875	9.84	1.97	1.10	1.93	1.22	4.02

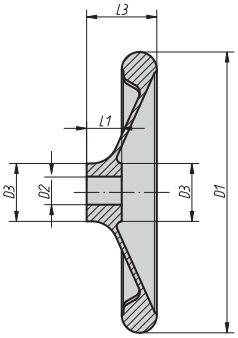
METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm	Handle Dia. mm	Handle Length mm
06275-4080X10	10	06275-4080X12	12	80	25	16	31	18	40
06275-4100X10	10	06275-4100X12	12	100	31	17	34	18	40
06275-4125X12	12	06275-4125X14	14	125	30	18	37	22	56
06275-4140X14	14	06275-4140X15	15	140	34	19	34	22	56
06275-4160X15	15	06275-4160X16	16	160	40	20	40	26	80
06275-4200X18	18	06275-4200X20	20	200	50	24	46	26	80
06275-4250X22	22	06275-4250X24	24	250	50	28	49	31	102

DISC HAND WHEELS

Aluminum | Without Machine Handle | Inch and Metric





These hand wheels are made from aluminum. The rim is turned and polished. The center bore is concentric and parallel with the outside of the handle.

INCH

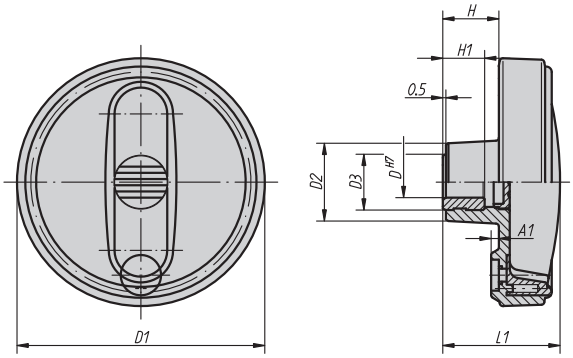
Part #	D2	Part #	D2	D1	D3	L1	L3
06279-0080XCN	.312	06279-0080XCO	.375	3.15	.94	.63	1.18
06279-0100XCO	.375	06279-0100XCP	.500	3.94	.98	.67	1.22
06279-0120XCO	.375	06279-0120XCP	.500	4.72	1.02	.71	1.26
06279-0160XCP	.500	06279-0160XCQ	.625	6.30	1.30	.79	1.57
06279-0200XCQ	.625	06279-0200XCR	.750	7.87	1.54	.94	1.65
06279-0250XCR	.750	06279-0250XCV	.875	9.84	1.89	1.10	2.36
06279-0280XCR	.750	06279-0280XCV	.875	11.02	1.93	1.18	2.52
06279-0360XCV	.875	06279-0360XCS	1.00	14.17	2.48	1.38	2.83

METRIC

Part #	D2 mm	Part #	D2 mm	D1 mm	D3 mm	L1 mm	L3 mm
06279-0080X10	10	06279-0080X12	12	80	24	16	30
06279-0100X10	10	06279-0100X12	12	100	25	17	31
06279-0120X12	12	06279-0120X14	14	120	26	18	32
06279-0160X14	14	06279-0160X16	16	160	33	20	40
06279-0200X18	18	06279-0200X22	22	200	39	24	42
06279-0250X22	22	06279-0250X26	26	250	48	28	60
06279-0280X24	24	06279-0280X28	28	280	49	30	64
06279-0360X28	28	06279-0360X32	32	360	63	35	72

HAND WHEELS

Plastic | Without Handle | Inch and Metric



Solid design with no spokes for safety. Firm, sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Steel parts have black oxide finish. Hub cover supplied to hide hub mounting.

INCH

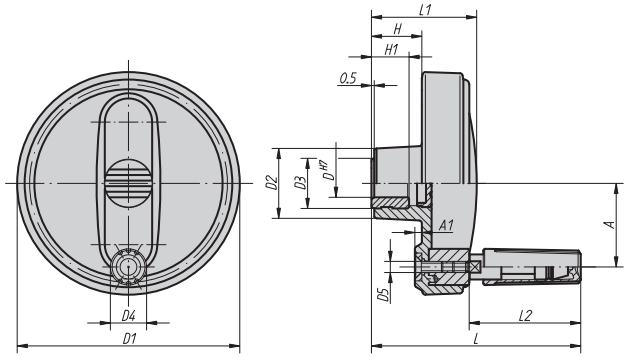
Part #	D	D1	D2	D3	A1	H	H1	L1
06262-1080CO	.375	3.15	.98	.75	.10	.69	.51	1.48
06262-2100CO	.375	3.94	1.10	.75	.12	.79	.51	1.73
06262-2100CP	.500	3.94	1.10	.75	.12	.79	.51	1.73
06262-3125CP	.500	4.92	1.38	.98	.16	.93	.73	2.09
06262-4160CP	.500	6.30	1.77	.98	.22	1.10	.73	2.54
06262-4160CQ	.625	6.30	1.77	.98	.22	1.10	.73	2.54

METRIC

Part #	D mm	D1 mm	D2 mm	D3 mm	A1 mm	H mm	H1 mm	L1 mm
06262-108008	8	80	25	19	2.5	17.5	13	37.5
06262-210010	10	100	28	19	3	20	13	44
06262-210012	12	100	28	19	3	20	13	44
06262-312512	12	125	35	25	4	23.5	18.5	53
06262-416014	14	160	45	25	5.6	28	18.5	64.5
06262-416016	16	160	45	25	5.6	28	18.5	64.5

HAND WHEELS

Plastic | With Revolving Handle | Inch and Metric



Solid design with no spokes for safety. Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Steel parts have black oxide finish. Hub cover supplied to hide hub mounting. The revolving handle comes unassembled.

INCH

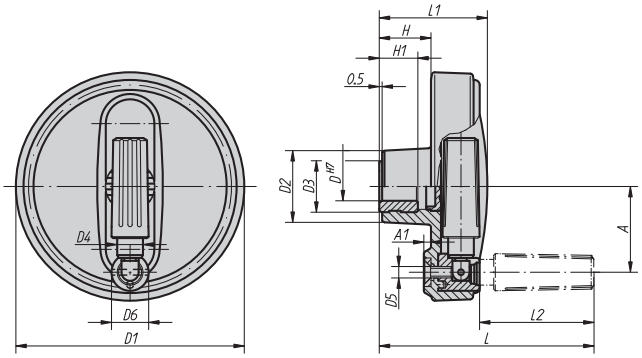
Part #	D	D1	D2	D3	D4	D5	A	A1	H	H1	L	L1	L2
06263-1080CO	.375	3.15	.98	.75	.51	M4	1.18	.10	.69	.51	2.95	1.48	1.57
06263-2100CO	.375	3.94	1.10	.75	.63	M5	1.50	.12	.79	.51	3.54	1.73	1.95
06263-2100CP	.500	3.94	1.10	.75	.63	M5	1.50	.12	.79	.51	3.54	1.73	1.95
06263-3125CP	.500	4.92	1.38	.98	.79	M6	1.87	.16	.93	.73	4.29	2.09	2.36
06263-4160CP	.500	6.30	1.77	.98	.98	M8	2.44	.22	1.10	.73	5.67	2.54	3.29
06263-4160CQ	.625	6.30	1.77	.98	.98	M8	2.44	.22	1.10	.73	5.67	2.54	3.29

METRIC

Part #	D mm	D1 mm	D2 mm	D3 mm	D4 mm	D5 mm	A mm	A1 mm	H mm	H1 mm	L mm	L1 mm	L2 mm
06263-108008	8	80	25	19	13	M4	30	2.5	17.5	13	75	37.5	40
06263-210010	10	100	28	19	16	M5	38	3	20	13	90	44	49.5
06263-210012	12	100	28	19	16	M5	38	3	20	13	90	44	49.5
06263-312512	12	125	35	25	20	M6	47.5	4	23.5	18.5	109	53	60
06263-416014	14	160	45	25	25	M8	62	5.6	28	18.5	144	64.5	83.5
06263-416016	16	160	45	25	25	M8	62	5.6	28	18.5	144	64.5	83.5

HAND WHEELS

Plastic | With Fold-Away Handle | Inch and Metric



Solid design with no spokes for safety. Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Steel parts have black oxide finish. Hub cover supplied to hide hub mounting. Handle folds away for safety.

INCH

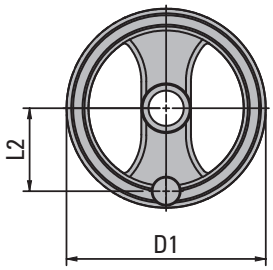
Part #	D	D1	D2	D3	D4	D5	D6	A	A1	H	H1	L	L1	L2
06264-1080CO	.375	3.15	.98	.75	.51	M4	.51	1.18	.10	.69	.51	2.95	1.48	1.57
06264-2100CO	.375	3.94	1.10	.75	.63	M5	.63	1.50	.12	.79	.51	3.54	1.73	1.93
06264-2100CP	.500	3.94	1.10	.75	.63	M5	.63	1.50	.12	.79	.51	3.54	1.73	1.93
06264-3125CP	.500	4.92	1.38	.98	.79	M6	.79	1.87	.16	.93	.73	4.29	2.09	2.34
06264-4160CP	.500	6.30	1.77	.98	.98	M8	1.02	2.44	.22	1.10	.73	5.67	2.54	3.29
06264-4160CQ	.625	6.30	1.77	.98	.98	M8	1.02	2.44	.22	1.10	.73	5.67	2.54	3.29

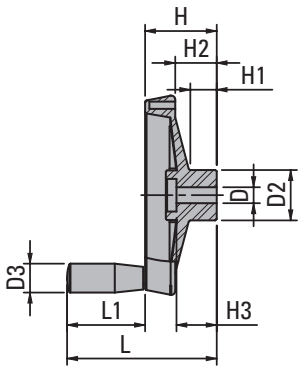
METRIC

Part #	D mm	D1 mm	D2 mm	D3 mm	D4 mm	D5 mm	D6 mm	A mm	A1 mm	H mm	H1 mm	L mm	L1 mm	L2 mm
06264-108008	8	80	25	19	13	M4	13	30	2.5	17.5	13	75	37.5	40
06264-210010	10	100	28	19	16	M5	16	38	3	20	13	90	44	49
06264-210012	12	100	28	19	16	M5	16	38	3	20	13	90	44	49
06264-312512	12	125	35	25	20	M6	20	47.5	4	23.5	18.5	109	53	59.5
06264-416014	14	160	45	25	25	M8	26	62	5.6	28	18.5	144	64.5	83.5
06264-416016	16	160	45	25	25	M8	26	62	5.6	28	18.5	144	64.5	83.5

HAND WHEELS

Plastic | 2-Spoke | Revolving Handle | Inch and Metric





Spoked design for firm, sure ergonomic gripping with an attractive appearance. Revolving handle for ease of use. Hub cover supplied to hide hub mounting. The plastic hand wheel is resistant to oil and grease. Hand wheel made from black thermosplastic with a satin finish. Hub cover made from gray thermoplastic. Bushings made from steel with a black oxide finish (metric) or galvanized finish (inch).

INCH

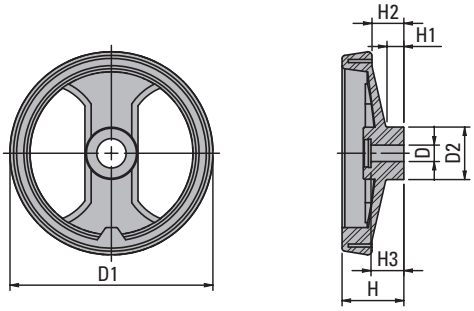
Item	H10 D	D1	D2	D3	L	L1	L2	H	H1	H2	H3
06255-4080XCN	.312	3.15	.97	.79	3.35	2.01	1.18	1.34	.63	.79	.79
06255-4100XCO	.375	3.90	1.10	.79	3.66	2.01	1.50	1.69	.79	1.00	.95
06255-4100XCP	.500	3.90	1.10	.79	3.66	2.01	1.50	1.69	.79	1.00	.95
06255-4130XCN	.312	5.08	1.26	.91	4.41	2.44	2.17	1.97	.83	1.18	.95
06255-4130XCO	.375	5.08	1.26	.91	4.41	2.44	2.17	1.97	.83	1.18	.95
06255-4160XCO	.375	6.26	1.58	.91	4.69	2.44	2.60	2.25	.87	1.30	1.26
06255-4160XCP	.500	6.26	1.58	.91	4.69	2.44	2.60	2.25	.87	1.30	1.26
06255-4160XCQ	.625	6.26	1.58	.91	4.69	2.44	2.60	2.25	.87	1.30	1.26
06255-4200XCQ	.625	7.80	2.01	1.02	5.56	3.19	3.23	2.36	.69	1.22	1.26
06255-4250XCR	.750	9.93	2.19	1.06	6.42	3.62	4.45	2.80	.95	1.56	1.42

METRIC

Item	H7 D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	L2 mm	H mm	H1 mm	H2 mm	H3 mm
06255-4080X08	8	80	24.5	20	85	51	30	34	16	20	20
06255-4080X10	10	80	24.5	20	85	51	30	34	16	20	20
06255-4100X10	10	99	28.0	20	93	51	38	43	20	25.5	24
06255-4100X12	12	99	28.0	20	93	51	38	43	20	25.5	24
06255-4130X12	12	129	32.0	23	112	62	55	50	21	30	24
06255-4130X14	14	129	32.0	23	112	62	55	50	21	30	24
06255-4160X14	14	159	40.0	23	119	62	66	57	22	33	32
06255-4160X16	16	159	40.0	23	119	62	66	57	22	33	32
06255-4200X16	16	198	51.0	26	141	81	82	60	17.5	31	32
06255-4200X20	20	198	51.0	26	141	81	82	60	17.5	31	32
06255-4250X20	20	252	55.5	27	163	92	113	71	24	39.5	36
06255-4250X24	24	252	55.5	27	163	92	113	71	24	39.5	36
06255-4345X20	20	346	67.5	27	171	92	146	79	24	42	32

HAND WHEELS

Plastic | 2-Spoke | No Handle | Inch and Metric



Spoked design for firm, sure ergonomic gripping with an attractive appearance. Hub cover supplied to hide hub mounting. The plastic hand wheel is resistant to oil and grease. Hand wheel made from black thermosplastic with a satin finish. Hub cover made from gray thermoplastic. Bushings made from steel with a black oxide finish (metric) or galvanized finish (inch).

INCH

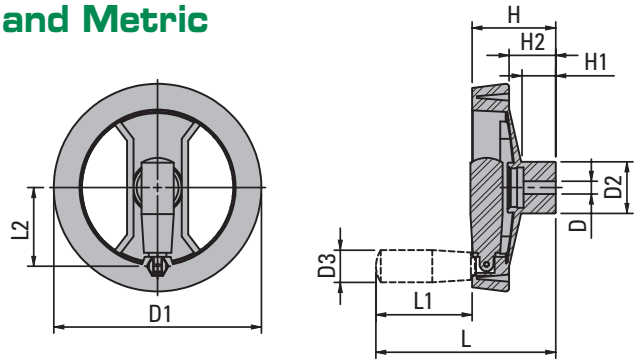
Part #	H10 D	D1	D2	H	H1	H2	H3
06255-0080XCN	.312	3.15	.97	1.34	.63	.79	.79
06255-0100XCO	.375	3.90	1.1	1.65	.79	.95	.95
06255-0100XCQ	.625	3.90	1.1	1.65	.79	.95	.95
06255-0130XCN	.312	5.08	1.26	1.97	.83	1.18	.95
06255-0130XCO	.375	5.08	1.26	1.97	.83	1.18	.95
06255-0160XCO	.375	6.26	1.58	2.25	.87	1.30	1.26
06255-0160XCP	.500	6.26	1.58	2.25	.87	1.30	1.26
06255-0160XCQ	.625	6.26	1.58	2.25	.87	1.30	1.26
06255-0200XCO	.375	7.80	2.01	2.36	.69	1.22	1.26
06255-0200XCQ	.625	7.80	2.01	2.36	.69	1.22	1.26
06255-0250XCQ	.625	9.93	2.19	2.80	.95	1.56	1.42

METRIC

Part #	H7 D mm	D1 mm	D2 mm	H mm	H1 mm	H2 mm	H3 mm
06255-0080X08	8	80	24.5	34	16	20	20
06255-0080X10	10	80	24.5	34	16	20	20
06255-0100X10	10	99	28	42	20	25.5	24
06255-0100X12	12	99	28	42	20	25.5	24
06255-0130X12	12	129	32	50	21	30	24
06255-0130X14	14	129	32	50	21	30	24
06255-0160X14	14	159	40	57	22	33	32
06255-0160X16	16	159	40	57	22	33	32
06255-0200X16	16	198	51	60	17.5	31	32
06255-0200X20	20	198	51	60	17.5	31	32
06255-0250X20	20	252	55.5	71	24	39.5	36
06255-0250X24	24	252	55.5	71	24	39.5	36
06255-0345X20	20	346	67.5	79	24	42	32

HAND WHEELS

Plastic | 2-Spoke | Fold-Away Handle | Inch and Metric



Spoked design for firm, sure ergonomic gripping with an attractive appearance. Hub cover supplied to hide hub mounting. The handle folds away for safety. The plastic hand wheel is resistant to oil and grease. Hand wheel made from black thermoplastic with a satin finish. Hub cover made from gray thermoplastic. Bushings made from steel with a black oxide finish (metric) or galvanized finish (inch).

INCH

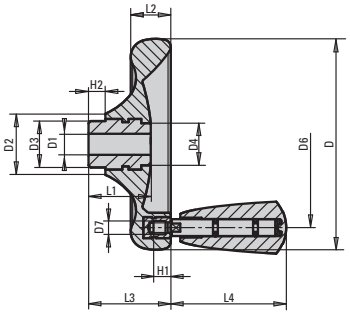
Part #	H10 D	D1	D2	D3	L	L1	L2	H	H1	H2
06255-6130XCN	.312	5.08	1.26	.79	4.37	2.32	2.01	2.09	.79	1.14
06255-6130XCO	.375	5.08	1.26	.79	4.37	2.32	2.01	2.09	.79	1.14
06255-6160XCO	.375	6.26	1.58	.99	4.96	2.80	2.56	2.32	.95	1.22
06255-6160XCP	.500	6.26	1.58	.99	4.96	2.80	2.56	2.32	.95	1.22
06255-6200XCP	.500	7.88	2.15	1.06	6.30	3.59	3.15	2.72	1.10	1.30

METRIC

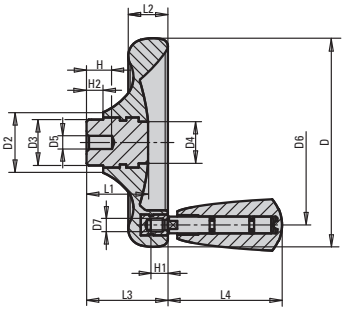
Part #	H7 D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	L2 mm	H mm	H1 mm	H2 mm
06255-6130X12	12	129	32	20	111	59	51	53	20	29
06255-6130X14	14	129	32	20	111	59	51	53	20	29
06255-6160X14	14	159	40	25	126	71	65	59	24	31
06255-6160X16	16	159	40	25	126	71	65	59	24	31
06255-6200X16	16	200	54.5	27	160	91	80	69	28	33
06255-6200X20	20	200	54.5	27	160	91	80	69	28	33
06255-6345X20	20	346	67.5	27	144	91	148	80	32	43.5

DISC HAND WHEELS

Duroplastic | With Revolving Machine Handle | Steel and Stainless Hubs | Inch and Metric



Through Hole Style



Pilot Hole Style

Made from black duroplastic, these solid disc hand wheels offer strength, durability and attractive appearance. The surface finish is deburred and has a high polish finish. They are furnished with a black duroplastic revolving machine handle. The hand wheels with steel hubs have a nickel plated finish on both the hand wheel and the machine handle. The stainless hub styles have a natural finish on both the hand wheel and machine handle. The pilot hole style provides a centered hole allowing the user to create different mountings configurations.

Through Hole Style

INCH

Part # Steel Hub	Part # Stainless Hub	D	D1	D2	D3	D4	D6	D7	H1	H2	L1	L2	L3	L4
06287-1100XCM	06287-3100XCM	3.94	.250	1.14	.87	.79	3.11	M6	0.35	.31	1.16	.75	1.54	2.15
06287-1125XCO	06287-3125XCO	4.92	.375	1.34	1.02	.83	3.98	M6	0.35	.31	1.34	.94	1.81	2.15
06287-1140XCP	06287-3140XCP	5.51	.500	1.54	1.18	.98	4.33	M8	0.47	.31	1.52	1.06	2.05	3.24
06287-1160XCQ	06287-3160XCQ	6.30	.625	1.69	1.30	1.18	5.04	M8	0.47	.31	1.63	1.19	2.24	3.24
06287-1160XCR	06287-3160XCR	6.30	.750	1.69	1.30	1.18	5.04	M8	0.47	.31	1.63	1.19	2.24	3.24

METRIC

Part # Steel Hub	Part # Stainless Hub	D mm	D1 mm	D2 mm	D3 mm	D4 mm	D6 mm	D7 mm	H1 mm	H2 mm	L1 mm	L2 mm	L3 mm	L4 mm
06287-1100X10	06287-3100X10	100	10	29	22	20	79	M6	9	8	29.5	19	39	54.7
06287-1125X12	06287-3125X12	125	12	34	26	21	101	M6	9	8	34	24	46	54.7
06287-1140X14	06287-3140X14	140	14	39	30	25	110	M8	12	8	38.5	27	52	82.2
06287-1160X16	06287-3160X16	160	16	43	33	30	128	M8	12	8	41.3	30.1	57	82.2
06287-1160X18	06287-3160X18	160	18	43	33	30	128	M8	12	8	41.3	30.1	57	82.2

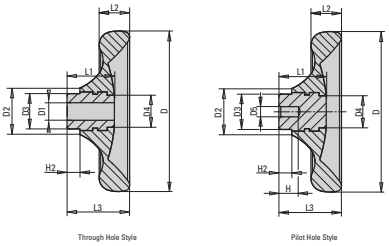
Pilot Hole Style

METRIC

Part # Steel Hub	Part # Stainless Hub	D mm	D2 mm	D3 mm	D4 mm	D5 mm	D6 mm	D7 mm	H mm	H1 mm	H2 mm	L1 mm	L2 mm	L3 mm	L4 mm
06287-0100X06	06287-2100X06	100	29	22	20	6	79	M6	12	9	8	29.5	19	39	54.7
06287-0125X08	06287-2125X08	125	34	26	21	8	101	M6	15	9	8	34	24	46	54.7
06287-0140X08	06287-2140X08	140	39	30	25	8	110	M8	16	12	8	38.5	27	52	82.2
06287-0160X10	06287-2160X10	160	43	33	30	10	128	M8	20	12	8	41.3	30.1	57	82.2

DISC HAND WHEELS

Duroplastic | Without Handle | Steel and Stainless Hubs | Inch and Metric



Made from black duroplastic, these solid disc hand wheels offer strength, durability and attractive appearance. The surface finish is deburred and has a high polish finish. The hand wheels with steel hubs have a nickel plated finish. The stainless hub styles have a natural finish. The pilot hole style provides a centered hole allowing the user to create different mountings configurations.

Through Hole Style

INCH

Part # Steel Hub	Part # Stainless Hub	D	D1	D2	D3	D4	H2	L1	L2	L3
06288-1100XCM	06288-3100XCM	3.94	.250	1.14	.87	.79	.31	1.16	.75	1.54
06288-1125XCO	06288-3125XCO	4.92	.375	1.34	1.02	.83	.31	1.34	.94	1.81
06288-1140XCP	06288-3140XCP	5.51	.500	1.54	1.18	.98	.31	1.52	1.06	2.05
06288-1160XCQ	06288-3160XCQ	6.30	.625	1.69	1.30	1.18	.31	1.63	1.19	2.24
06288-1160XCR	06288-3160XCR	6.30	.750	1.69	1.30	1.18	.31	1.63	1.19	2.24

METRIC

Part # Steel Hub	Part # Stainless Hub	D mm	D1 mm	D2 mm	D3 mm	D4 mm	H2 mm	L1 mm	L2 mm	L3 mm
06288-1100X10	06288-3100X10	100	10	29	22	20	8	29.5	19	39
06288-1125X12	06288-3125X12	125	12	34	26	21	8	34	24	46
06288-1140X14	06288-3140X14	140	14	39	30	25	8	38.5	27	52
06288-1160X16	06288-3160X16	160	16	43	33	30	8	41.3	30.1	57
06288-1160X18	06288-3160X18	160	18	43	33	30	8	41.3	30.1	57

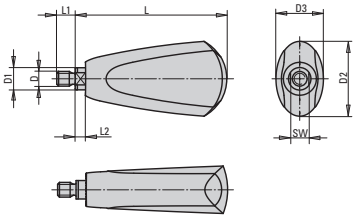
Pilot Hole Style

METRIC

Part # Steel Hub	Part # Stainless Hub	D mm	D2 mm	D3 mm	D4 mm	D5 mm	H mm	H2 mm	L1 mm	L2 mm	L3 mm
06288-0100X06	06288-2100X06	100	29	22	20	6	12	8	29.5	19	39
06288-0125X08	06288-2125X08	125	34	26	21	8	15	8	34	24	46
06288-0140X08	06288-2140X08	140	39	30	25	8	16	8	38.5	27	52
06288-0160X10	06288-2160X10	160	43	33	30	10	10	8	41.3	30.1	57

MACHINE HANDLES

Duroplastic | Revolving | Steel & Stainless Stud | Inch & Metric



Made from black duroplastic, these revolving machine handles offer strength, durability and attractive appearance. The surface finish is deburred and has a high polish finish. The steel style has a nickel plated alloy steel stud. The stainless style has a stainless stud with a natural finish.

INCH

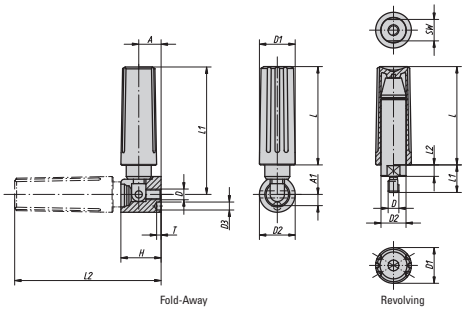
Part # Steel	Part # Stainless	D	D1	D2	D3	L	L1	L2	SW
06316-1A2009	06316-11A2009	1/4-20	.31	.98	.71	2.15	.35	.18	.28
06316-2A3010	06316-12A3010	5/16-18	.47	1.61	1.02	3.24	.39	.22	.39

METRIC

Part # Steel	Part # Stainless	D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm	L2 mm	SW mm
06316-106009	06316-1106009	M6	8	25	18	54.7	9	4.5	7
06316-208010	06316-1208010	M8	12	41	26	82.2	10	5.5	10

REVOLVING AND FOLD-AWAY HANDLES

Plastic | Steel Inserts | Inch and Metric



Firm sure ergonomic gripping with an attractive appearance. Made from dark grey thermoplastic. Steel parts have black oxide finish.

INCH

Part # Revolving	D	D1	D2	L	L1	L2	SW
06325-1AE	8-32	.51	.35	1.38	.43	.20	.31
06325-2A1	10-32	.63	.43	1.73	.51	.22	.39
06325-3A2	1/4-20	.79	.55	2.17	.55	.20	.47
06325-4A3	5/16-18	.98	.71	2.78	.98	.51	.59

Part # Fold-Away	D	D1	D2	D3	A	A1	H	L	L1	L2	T
06326-1AE	8-32	.51	.51	.10	.31	.17	.57	1.38	1.85	2.15	.18
06326-2A1	10-32	.63	.63	.14	.39	.21	.71	1.73	2.28	2.64	.18
06326-3A2	1/4-20	.79	.79	.18	.49	.26	.89	2.17	2.81	3.23	.24
06326-4A3	5/16-18	.98	1.02	.22	.63	.35	1.14	2.78	3.88	4.43	.26

METRIC

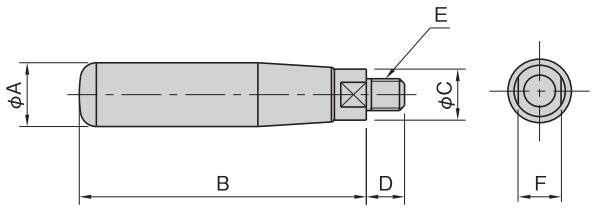
Part # Revolving	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	SW mm
06325-104	M4	13	9	35	11	5	8
06325-205	M5	16	11	44	13	5.5	10
06325-306	M6	20	14	55	14	5	12
06325-408	M8	25	18	70.5	25	13	15

Part # Fold-Away	D mm	D1 mm	D2 mm	D3 mm	A mm	A1 mm	H mm	L mm	L1 mm	L2 mm	T mm
06326-104	M4	13	13	2.5	8	4.3	14.5	35	47	54.5	4.5
06326-205	M5	16	16	3.5	10	5.3	18	44	58	67	4.5
06326-306	M6	20	20	4.5	12.5	6.5	22.5	55	71.5	82	6
06326-408	M8	25	26	5.5	16	9	29	70.5	98.5	112.5	6.5

IMAO

REVOLVING HANDLES

Stainless Steel | Metric

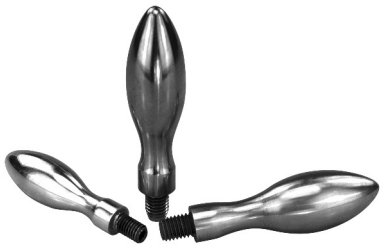


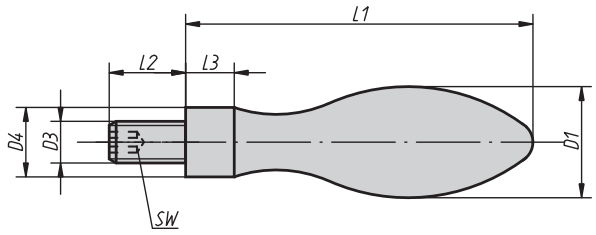
The all stainless steel revolving handles can be used with the stainless hand wheels . Made from 303 stainless steel.

Part #	A mm	B mm	C mm	D mm	E mm	F mm
SRG10	10	45	8	6	M5X0.8	7
SRG13	13	57	10	7	M6X1	8
SRG16	16	68	13	8	M8X1.25	10
SRG20	20	80	16	10	M10X1.5	13

MACHINE HANDLES

Steel and Aluminum | Fixed | Metric

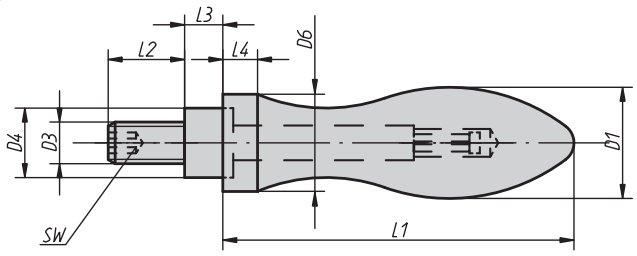




Machined in either steel or aluminum. Polished finish.

Part # Steel	Part # Aluminum	D1 mm	D3 mm	D4 mm	L1 mm	L2 mm	L3 mm	SW mm
06291-0616050	06292-0616050	16	M6	10	50	11	7	3
06291-0820064	06292-0820064	20	M8	13	64	13	8	4
06291-1025080	06292-1025080	25	M10	16	80	14	10	5
06291-1232100	06292-1232100	32	M12	20	100	21	13	6
06291-1636112	06292-1636112	36	M16	22	112	26	14	8

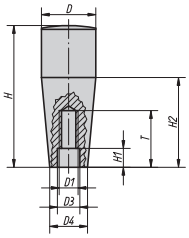
Steel and Aluminum | Revolving | Metric



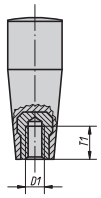
Machined in either steel or aluminum. Polished finish.

Part # Steel	Part # Aluminum	D1 mm	D3 mm	D4 mm	D6 mm	L1 mm	L2 mm	L3 mm	L4 mm	SW mm
06308-0616055	06309-0616055	16	M6	10	14	49	11	5.5	5	3
06308-0820067	06309-0820067	20	M8	13	18	61	13	6	6	4
06308-1025083	06309-1025083	25	M10	16	21	75	14	8	6.5	5
06308-1232105	06309-1232105	32	M12	20	26	95	21	10.5	8	6
06308-1636117	06309-1636117	36	M16	22	29	106	26	11	9	8

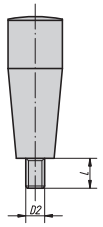
Plastic | Fixed | Press Fit | Female and Male Threads | Metric



Form C
Press Fit
Tapped Bushing



Form E
With Threaded
Bushing



Form F
With Male
Thread

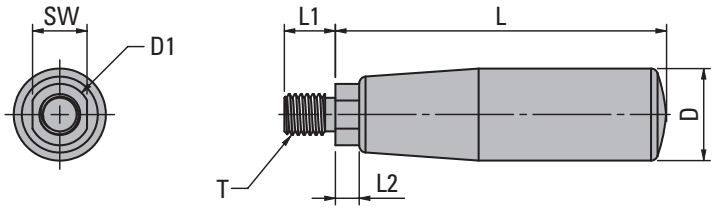
Made from black duroplast plastic. High polish finish. The collar and threads are galvanized steel.

Part # Form C	Part # Form E	Part # Form F	D mm	D1 mm	D2 mm	D3 mm	D4 mm	H mm	H1 mm	H2 mm	T mm	T1 mm	L mm
—	06320-205**	—	17	M5	—	—	15	45	—	26	—	10	—
06320-106	06320-206**	06320-306	17	M6	M6	6.2	15	45	2	26	14	9	18
06320-108	—	—	17	M8	—	8.2	13	45	2	26	16	—	—
06320-1081	06320-208*	06320-308	23	M8	M8	8.5	18	60	8	38	24	14	12
—	06320-2081*	—	28	M8	—	—	21	70	—	42	—	14	—
06320-110	—	06320-310	29	M10	M10	10.5	21	70	10	42	28	—	20

* Bushing is copper plated steel. ** Bushing is brass

MACHINE HANDLES

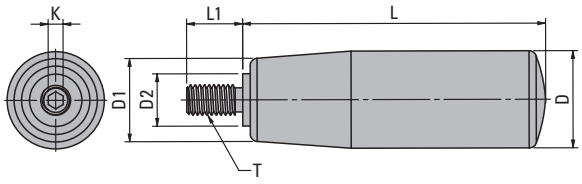
Plastic | Revolving | Male Threads | Metric



These revolving handles are designed for use on hand wheels, crank handles and other applications. The handle is made from plastic with a black satin finish. The stud and hub are made from galvanized steel.

Part #	T Thread	D mm	D1 mm	L mm	L1 mm	L2 mm	SW mm
06322-06200500	M6	20	12	55	12	5	10
06322-08230600	M8	23	14	67	15	7	13
06322-08250690	M8	25	14	77	15	7	13
06322-10250690	M10	25	14	77	15	7	13
06322-10250800	M10	26	18	86	15	7	16
06322-12250800	M12	26	18	86	15	7	16
06322-10270890	M10	27	18	97	15	7	16
06322-12270890	M12	27	18	97	15	7	16

Plastic | Revolving | Male Threads | Hex Socket | Metric

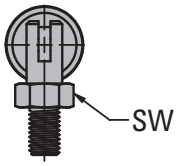


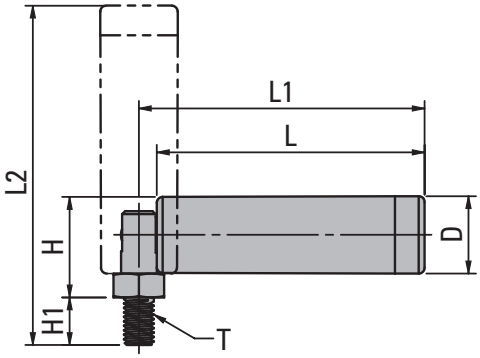
These revolving handles are designed for use on hand wheels, crank handles and other applications. The handle is made from plastic with a black satin finish. The stud and hub are made from galvanized steel.

Item	T mm	D mm	D1 mm	D2 mm	L mm	L1 mm	K mm
06321-06200520	M6	20	15	10	51	12	3
06321-06230620	M6	23	18	10	62	12	3
06321-08230620	M8	23	18	10	62	15	4
06321-08250720	M8	25	19	10	71	15	4
06321-08250810	M8	26	22	14	81	15	4
06321-10250720	M10	25	19	10	71	15	4
06321-10250810	M10	26	22	14	81	15	5
06321-10270930	M10	27	22	14	92	15	5
06321-12260820	M12	26	22	14	81	15	5
06321-12270930	M12	27	22	14	92	15	5

FOLD-AWAY HANDLES

Plastic | Cylindrical | Metric



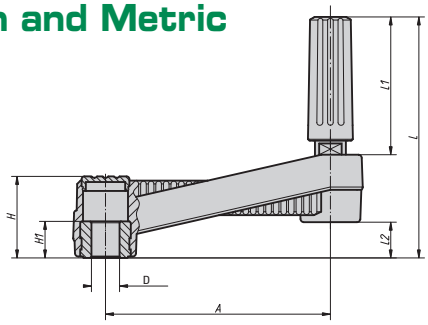


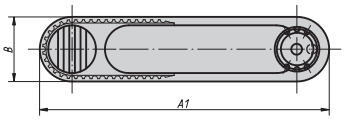
These fold-away handles are designed for use on hand wheels, crank handles and other applications. The handle is made from plastic with a black satin finish. The stud and hub are made from steel with a black oxide finish.

Part #	T Thread	D mm	L mm	L1 mm	L2 mm	H mm	H1 mm	SW mm
06323-06200490	M6	20	49	53	63.0	24.5	9	10
06323-08250690	M8	25	70	74	87.5	28.0	11	13
06323-10260890	M10	26	90	96	114.0	34.0	16	17

CRANK HANDLES

Plastic | Revolving Handle | Inch and Metric





Made from dark grey thermoplastic. Steel parts are black oxided. Hub cover is supplied to conceal shaft mounting.

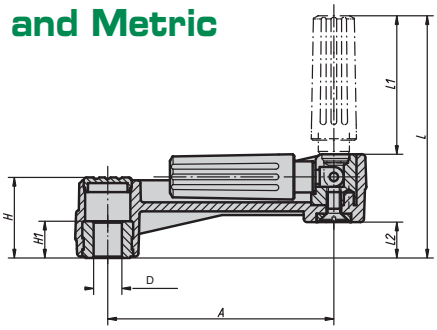
INCH

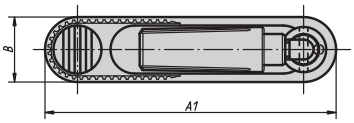
Part #	A	A1	B	D	H	H1	L	L1	L2
06500-31CO	3.15	4.09	.94	.375	1.14	.51	3.37	1.93	.51
06500-32CO	3.94	5.08	1.14	.375	1.42	.51	4.13	2.34	.63
06500-32CP	3.94	5.08	1.14	.500	1.42	.51	4.13	2.34	.63
06500-33CP	4.92	6.34	1.42	.500	1.73	.73	5.51	3.29	.77

METRIC

Part #	A mm	A1 mm	B mm	D mm	H mm	H1 mm	L mm	L1 mm	L2 mm
06500-3108	80	104	24	8	29	13	85.5	49	13
06500-3210	100	129	29	10	36	13	105	59.5	16
06500-3212	100	129	29	12	36	13	105	59.5	16
06500-3312	125	161	36	12	44	18.5	140	83.5	19.5

Plastic | Fold-Away Handle | Inch and Metric





Made from dark grey thermoplastic. Steel parts are black oxided. Hub cover is supplied to conceal shaft mounting.

INCH

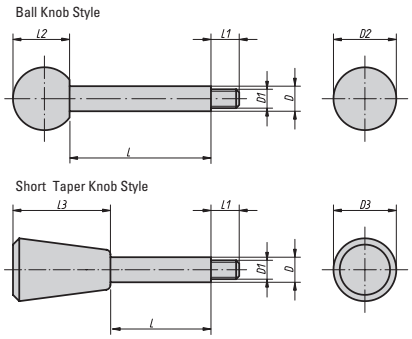
Part #	A	A1	B	D	H	H1	L	L1	L2
06500-11CO	3.15	4.09	.94	.375	1.14	.51	3.37	1.93	.51
06500-12CO	3.94	5.08	1.14	.375	1.42	.51	4.13	2.34	.63
06500-12CP	3.94	5.08	1.14	.500	1.42	.51	4.13	2.34	.63
06500-13CP	4.92	6.34	1.42	.500	1.73	.73	5.51	3.29	.77

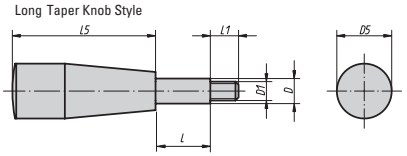
METRIC

Part #	A mm	A1 mm	B mm	D mm	H mm	H1 mm	L mm	L1 mm	L2 mm
06500-1108	80	104	24	8	29	13	85.5	49	13
06500-1210	100	129	29	10	36	13	105	59.5	16
06500-1212	100	129	29	12	36	13	105	59.5	16
06500-1312	125	161	36	12	44	18.5	140	83.5	19.5

GEAR LEVERS

Steel and Stainless Steel | Inch and Metric





These gear levers have a wide variety of uses on machines, fixtures and other equipment. They provide good gripping and leverage for positioning, tightening, adjusting, etc. The steel shafts have a black oxide finish. The stainless shafts have a natural finish. The knob is made from black plastic.

Steel

INCH

Ball Knob Part #	Short Taper Part #	Long Taper Part #	D	D1	D2	D3	D5	L	L1	L2	L3	L5
06360-2A2X35	06360-4A2X35	06360-6A2X35	.31	1/4-20	.79	.79	.67	1.38	.35	.71	1.18	1.77
06360-2A2X50	06360-4A2X50	06360-6A2X50	.31	1/4-20	.79	.79	.67	1.97	.35	.71	1.18	1.77
06360-2A2X65	06360-4A2X65	06360-6A2X65	.31	1/4-20	.79	.79	.67	2.56	.35	.71	1.18	1.77
06360-2A3X50	06360-4A3X50	06360-6A3X50	.39	5/16-18	.98	.98	.91	1.97	.51	.89	1.50	2.36
06360-2A3X65	06360-4A3X65	06360-6A3X65	.39	5/16-18	.98	.98	.91	2.56	.51	.89	1.50	2.36
06360-2A3X80	06360-4A3X80	06360-6A3X80	.39	5/16-18	.98	.98	.91	3.15	.51	.89	1.50	2.36
06360-2A3X100	06360-4A3X100	06360-6A3X100	.39	5/16-18	.98	.98	.91	3.94	.51	.89	1.50	2.36
06360-2A4X65	06360-4A4X65	06360-6A4X65	.47	3/8-16	1.26	1.18	1.10	2.56	.59	1.14	1.81	2.76
06360-2A4X80	06360-4A4X80	06360-6A4X80	.47	3/8-16	1.26	1.18	1.10	3.15	.59	1.14	1.81	2.76
06360-2A4X100	06360-4A4X100	06360-6A4X100	.47	3/8-16	1.26	1.18	1.10	3.94	.59	1.14	1.81	2.76
06360-2A4X125	06360-4A4X125	06360-6A4X125	.47	3/8-16	1.26	1.18	1.10	4.92	.59	1.14	1.81	2.76
06360-2A5X80	06360-4A5X80	06360-6A5X80	.55	1/2-13	1.38	1.38	1.10	3.15	.63	1.28	2.09	2.76
06360-2A5X100	06360-4A5X100	06360-6A5X100	.55	1/2-13	1.38	1.38	1.10	3.94	.63	1.28	2.09	2.76
06360-2A5X125	06360-4A5X125	06360-6A5X125	.55	1/2-13	1.38	1.38	1.10	4.92	.63	1.28	2.09	2.76
06360-2A5X160	06360-4A5X160	06360-6A5X160	.55	1/2-13	1.38	1.38	1.10	6.30	.63	1.28	2.09	2.76

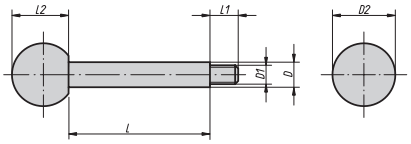
METRIC

Ball Knob Part #	Short Taper Part #	Long Taper Part #	D mm	D1 mm	D2 mm	D3 mm	D5 mm	L mm	L1 mm	L2 mm	L3 mm	L5 mm
06360-208X35	06360-408X35	06360-608X35	8	M6	20	20	17	35	9	18	30	45
06360-208X50	06360-408X50	06360-608X50	8	M6	20	20	17	50	9	18	30	45
06360-208X65	06360-408X65	06360-608X65	8	M6	20	20	17	65	9	18	30	45
06360-210X50	06360-410X50	06360-610X50	10	M8	25	25	23	50	13	22.5	38	60
06360-210X65	06360-410X65	06360-610X65	10	M8	25	25	23	65	13	22.5	38	60
06360-210X80	06360-410X80	06360-610X80	10	M8	25	25	23	80	13	22.5	38	60
06360-210X100	06360-410X100	06360-610X100	10	M8	25	25	23	100	13	22.5	38	60
06360-212X65	06360-412X65	06360-612X65	12	M10	32	30	28	65	15	29	46	70
06360-212X80	06360-412X80	06360-612X80	12	M10	32	30	28	80	15	29	46	70
06360-212X100	06360-412X100	06360-612X100	12	M10	32	30	28	100	15	29	46	70
06360-212X125	06360-412X125	06360-612X125	12	M10	32	30	28	125	15	29	46	70
06360-214X80	06360-414X80	06360-614X80	14	M12	35	35	28	80	16	32.5	53	70
06360-214X100	06360-414X100	06360-614X100	14	M12	35	35	28	100	16	32.5	53	70
06360-214X125	06360-414X125	06360-614X125	14	M12	35	35	28	125	16	32.5	53	70
06360-214X160	06360-414X160	06360-614X160	14	M12	35	35	28	160	16	32.5	53	70

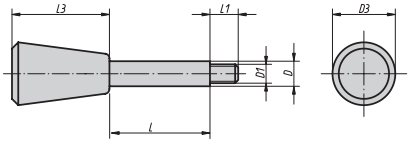
GEAR LEVERS

Steel and Stainless Steel | Inch and Metric (continued)

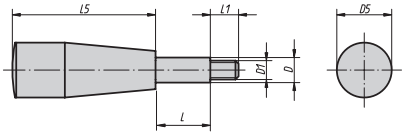
Ball Knob Style



Short Taper Knob Style



Long Taper Knob Style



Stainless Steel

INCH

Ball Knob Part #	Short Taper Part #	Long Taper Part #	D	D1	D2	D3	D5	L	L1	L2	L3	L5
06360-12A2X35	06360-14A2X35	06360-16A2X35	.31	1/4-20	.79	.79	.67	1.38	.35	.71	1.18	1.77
06360-12A2X50	06360-14A2X50	06360-16A2X50	.31	1/4-20	.79	.79	.67	1.97	.35	.71	1.18	1.77
06360-12A2X65	06360-14A2X65	06360-16A2X65	.31	1/4-20	.79	.79	.67	2.56	.35	.71	1.18	1.77
06360-12A3X50	06360-14A3X50	06360-16A3X50	.39	5/16-18	.98	.98	.91	1.97	.51	.89	1.50	2.36
06360-12A3X65	06360-14A3X65	06360-16A3X65	.39	5/16-18	.98	.98	.91	2.56	.51	.89	1.50	2.36
06360-12A3X80	06360-14A3X80	06360-16A3X80	.39	5/16-18	.98	.98	.91	3.15	.51	.89	1.50	2.36
06360-12A3X100	06360-14A3X100	06360-16A3X100	.39	5/16-18	.98	.98	.91	3.94	.51	.89	1.50	2.36
06360-12A4X65	06360-14A4X65	06360-16A4X65	.47	3/8-16	1.26	1.18	1.10	2.56	.59	1.14	1.81	2.76
06360-12A4X80	06360-14A4X80	06360-16A4X80	.47	3/8-16	1.26	1.18	1.10	3.15	.59	1.14	1.81	2.76
06360-12A4X100	06360-14A4X100	06360-16A4X100	.47	3/8-16	1.26	1.18	1.10	3.94	.59	1.14	1.81	2.76
06360-12A4X125	06360-14A4X125	06360-16A4X125	.47	3/8-16	1.26	1.18	1.10	4.92	.59	1.14	1.81	2.76
06360-12A5X80	06360-14A5X80	06360-16A5X80	.55	1/2-13	1.38	1.38	1.10	3.15	.63	1.28	2.09	2.76
06360-12A5X100	06360-14A5X100	06360-16A5X100	.55	1/2-13	1.38	1.38	1.10	3.94	.63	1.28	2.09	2.76
06360-12A5X125	06360-14A5X125	06360-16A5X125	.55	1/2-13	1.38	1.38	1.10	4.92	.63	1.28	2.09	2.76
06360-12A5X160	06360-14A5X160	06360-16A5X160	.55	1/2-13	1.38	1.38	1.10	6.30	.63	1.28	2.09	2.76

METRIC

Ball Knob Part #	Short Taper Part #	Long Taper Part #	D mm	D1 mm	D2 mm	D3 mm	D5 mm	L mm	L1 mm	L2 mm	L3 mm	L5 mm
06360-1208X35	06360-1408X35	06360-1608X35	8	M6	20	20	17	35	9	18	30	45
06360-1208X50	06360-1408X50	06360-1608X50	8	M6	20	20	17	50	9	18	30	45
06360-1208X65	06360-1408X65	06360-1608X65	8	M6	20	20	17	65	9	18	30	45
06360-1210X50	06360-1410X50	06360-1610X50	10	M8	25	25	23	50	13	22.5	38	60
06360-1210X65	06360-1410X65	06360-1610X65	10	M8	25	25	23	65	13	22.5	38	60
06360-1210X80	06360-1410X80	06360-1610X80	10	M8	25	25	23	80	13	22.5	38	60
06360-1210X100	06360-1410X100	06360-1610X100	10	M8	25	25	23	100	13	22.5	38	60
06360-1212X65	06360-1412X65	06360-1612X65	12	M10	32	30	28	65	15	29	46	70
06360-1212X80	06360-1412X80	06360-1612X80	12	M10	32	30	28	80	15	29	46	70
06360-1212X100	06360-1412X100	06360-1612X100	12	M10	32	30	28	100	15	29	46	70
06360-1212X125	06360-1412X125	06360-1612X125	12	M10	32	30	28	125	15	29	46	70
06360-1214X80	06360-1414X80	06360-1614X80	14	M12	35	35	28	80	16	32.5	53	70
06360-1214X100	06360-1414X100	06360-1614X100	14	M12	35	35	28	100	16	32.5	53	70
06360-1214X125	06360-1414X125	06360-1614X125	14	M12	35	35	28	125	16	32.5	53	70
06360-1214X160	06360-1414X160	06360-1614X160	14	M12	35	35	28	160	16	32.5	53	70

MACHINE ACCESSORIES

LEVELING FEET

LEVELING SUPPORTS

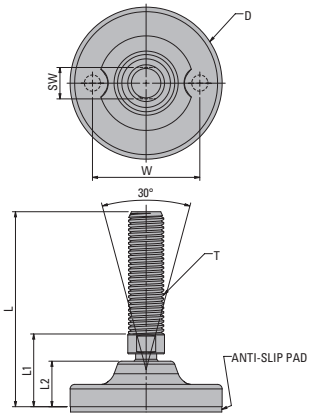
HINGES

LATCHES

fixtureworks Workholding Technologies

LEVELING FEET

Plastic Base | Steel & Stainless | Wrench Flats



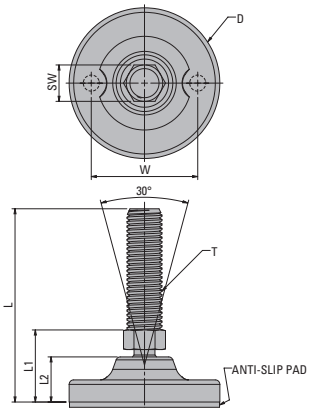
These economic leveling mounts are ideal for industrial machines, electronics, conveyors, benches, office equipment etc. The ball and socket articulation allows the stem to swivel 30 degrees to compensate for unlevel floors and mounting configurations. The wrench flats on the stem allow for easy height adjustment. The plastic base is corrosion resistant. The stems are made from steel with a zinc plated finish or 304 stainless steel. Black rubber anti-slip pads are available; configure the part number accordingly as noted below. Anti-slip pads add 1/16" to the height.

Steel Part #	SS Part #	D Base Dia	T	L	L1	L2	W	SW	Static Load Lbs.	Adjustment Type
LPS+-SF15X30-75X4-50	LPC+-SF15X30-75X4-50	1.57	3/4-10	5-3/8	1.47	.78	–	5/8	2248	Flat
LPS+-SF15X30-75X6-50	LPC+-SF15X30-75X6-50	1.57	3/4-10	7-3/8	1.47	.78	–	5/8	2248	Flat
LPS+-SF15X30-75X8-50	LPC+-SF15X30-75X8-50	1.57	3/4-10	9-3/8	1.47	.78	–	5/8	2248	Flat
LPS+-SF15X30-75X4-65	LPC+-SF15X30-75X4-65	1.97	3/4-10	5-7/16	1.59	.90	–	5/8	2473	Flat
LPS+-SF15X30-75X6-65	LPC+-SF15X30-75X6-65	1.97	3/4-10	7-7/16	1.59	.90	–	5/8	2473	Flat
LPS+-SF15X30-75X8-65	LPC+-SF15X30-75X8-65	1.97	3/4-10	9-7/16	1.59	.90	–	5/8	2473	Flat
LPS+-SF15X30-75X4-83	LPC+-SF15X30-75X4-83	3.27	3/4-10	5-9/16	1.74	1.06	2.16	5/8	4496	Flat
LPS+-SF15X30-75X6-83	LPC+-SF15X30-75X6-83	3.27	3/4-10	7-9/16	1.74	1.06	2.16	5/8	4496	Flat
LPS+-SF15X30-75X8-83	LPC+-SF15X30-75X8-83	3.27	3/4-10	9-9/16	1.74	1.06	2.16	5/8	4496	Flat
LPS+-SF24X30-62X3-103	LPC+-SF24X30-62X3-103	4.06	5/8-11	4-7/8	1.93	1.26	2.87	3/4	5620	Flat
LPS+-SF24X30-62X4-103	LPC+-SF24X30-62X4-103	4.06	5/8-11	5-7/8	1.93	1.26	2.87	3/4	5620	Flat
LPS+-SF24X30-62X6-103	LPC+-SF24X30-62X6-103	4.06	5/8-11	7-7/8	1.93	1.26	2.87	3/4	5620	Flat
LPS+-SF15X30-75X4-103	LPC+-SF15X30-75X4-103	4.06	3/4-10	5-5/8	1.83	1.26	2.87	5/8	4496	Flat
LPS+-SF24X30-75X4-103	LPC+-SF24X30-75X4-103	4.06	3/4-10	5-13/16	1.94	1.26	2.87	3/4	5620	Flat
LPS+-SF15X30-75X6-103	LPC+-SF15X30-75X6-103	4.06	3/4-10	7-5/8	1.83	1.26	2.87	5/8	4496	Flat
LPS+-SF24X30-75X6-103	LPC+-SF24X30-75X6-103	4.06	3/4-10	7-13/16	1.94	1.26	2.87	3/4	5620	Flat
LPS+-SF24X30-75X8-103	LPC+-SF15X30-75X8-103	4.06	3/4-10	9-5/8	1.83	1.26	2.87	5/8	4496	Flat
LPS+-SF15X30-75X8-103	LPC+-SF24X30-75X8-103	4.06	3/4-10	9-13/16	1.94	1.26	2.87	3/4	5620	Flat
LPS+-SF24X30-100X4-103	LPC+-SF24X30-100X4-103	4.06	1-8	5-15/16	2.03	1.26	2.87	7/8	5620	Flat
LPS+-SF24X30-100X6-103	LPC+-SF24X30-100X6-103	4.06	1-8	7-15/16	2.03	1.26	2.87	7/8	5620	Flat
LPS+-SF24X30-100X8-103	LPC+-SF24X30-100X8-103	4.06	1-8	9-15/16	2.03	1.26	2.87	7/8	5620	Flat
LPS+-SF24X30-112X4-103	LPC+-SF24X30-112X4-103	4.06	1-1/8-7	5-15/16	2.08	1.26	2.87	1	5620	Flat
LPS+-SF24X30-112X6-103	LPC+-SF24X30-112X6-103	4.06	1-1/8-7	7-15/16	2.08	1.26	2.87	1	5620	Flat
LPS+-SF24X30-112X8-103	LPC+-SF24X30-112X8-103	4.06	1-1/8-7	9-15/16	2.08	1.26	2.87	1	5620	Flat
LPS+-SF24X30-62X3-123	LPC+-SF24X30-62X3-123	4.84	5/8-11	5-1/8	2.17	1.45	3.42	3/4	7868	Flat
LPS+-SF24X30-62X4-123	LPC+-SF24X30-62X4-123	4.84	5/8-11	6-1/8	2.17	1.45	3.42	3/4	7868	Flat
LPS+-SF24X30-62X6-123	LPC+-SF24X30-62X6-123	4.84	5/8-11	8-1/8	2.17	1.45	3.42	3/4	7868	Flat
LPS+-SF15X30-75X4-123	LPC+-SF15X30-75X4-123	4.84	3/4-10	5-15/16	2.14	1.45	3.42	5/8	5620	Flat
LPS+-SF24X30-75X4-123	LPC+-SF24X30-75X4-123	4.84	3/4-10	6-1/16	2.18	1.45	3.42	3/4	7868	Flat
LPS+-SF15X30-75X6-123	LPC+-SF15X30-75X6-123	4.84	3/4-10	7-15/16	2.14	1.45	3.42	5/8	5620	Flat
LPS+-SF24X30-75X6-123	LPC+-SF24X30-75X6-123	4.84	3/4-10	8-1/16	2.18	1.45	3.42	3/4	7868	Flat
LPS+-SF15X30-75X8-123	LPC+-SF15X30-75X8-123	4.84	3/4-10	9-15/16	2.14	1.45	3.42	5/8	5620	Flat
LPS+-SF24X30-75X8-123	LPC+-SF24X30-75X8-123	4.84	3/4-10	10-1/16	2.18	1.45	3.42	3/4	7868	Flat
LPS+-SF24X30-100X4-123	LPC+-SF24X30-100X4-123	4.84	1-8	6-3/16	2.35	1.45	3.42	7/8	7868	Flat
LPS+-SF24X30-100X6-123	LPC+-SF24X30-100X6-123	4.84	1-8	8-3/16	2.35	1.45	3.42	7/8	7868	Flat
LPS+-SF24X30-100X8-123	LPC+-SF24X30-100X8-123	4.84	1-8	10-3/16	2.35	1.45	3.42	7/8	7868	Flat
LPS+-SF24X30-112X8-123	LPC+-SF24X30-112X4-123	4.84	1-1/8-7	6-1/4	2.32	1.45	3.42	1	7868	Flat
LPS+-SF24X30-112X4-123	LPC+-SF24X30-112X6-123	4.84	1-1/8-7	8-1/4	2.32	1.45	3.42	1	7868	Flat
LPS+-SF24X30-112X6-123	LPC+-SF24X30-112X8-123	4.84	1-1/8-7	10-1/4	2.32	1.45	3.42	1	7868	Flat

+ Add a "G" here to designate anti-slip pad. Example: LPCG-SF24X30-75X8-103.

LEVELING FEET

Plastic Base | Steel & Stainless | Hex



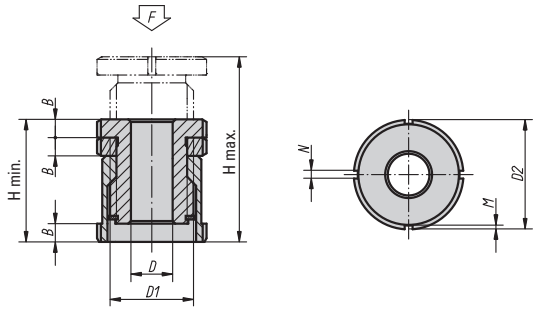
These economic leveling mounts are ideal for industrial machines, electronics, conveyors, benches, office equipment etc. The ball and socket articulation allows the stem to swivel 30 degrees to compensate for unlevel floors and mounting configurations. The hex nut on the stem allow for easy height adjustment. The plastic base is corrosion resistant. The stems are made from steel with a zinc plated finish or 304 stainless steel. Black rubber anti-slip pads are available; configure the part number accordingly as noted below. Anti-slip pads add 1/16" to the height.

Steel Part #	SS Part #	D Base Dia	T	L	L1	L2	W	SW	Static Load Lbs.	Adjustment Type
LPS+-SF12X30-25X2-40	LPC+-SF12X30-25X2-40	1.57	1/4-20	3-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-25X3-40	LPC+-SF12X30-25X3-40	1.57	1/4-20	3-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-37X2-40	LPC+-SF12X30-37X2-40	1.57	3/8-16	3-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-37X4-40	LPC+-SF12X30-37X4-40	1.57	3/8-16	5-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-50X2-40	LPC+-SF12X30-50X2-40	1.57	1/2-13	3-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-50X4-40	LPC+-SF12X30-50X4-40	1.57	1/2-13	5-1/16	1.09	.65	-	1/2	2248	Hex
LPS+-SF12X30-25X2-50	LPC+-SF12X30-25X2-50	1.97	1/4-20	3-1/16	1.13	.78	-	1/2	2473	Hex
LPS+-SF12X30-25X3-50	LPC+-SF12X30-25X3-50	1.97	1/4-20	4-1/16	1.13	.78	-	1/2	2473	Hex
LPS+-SF12X30-37X2-50	LPC+-SF12X30-37X2-50	1.97	3/8-16	3-1/16	1.13	.78	-	1/2	2473	Hex
LPS+-SF15X30-37X2-50	LPC+-SF15X30-37X2-50	1.97	3/8-16	3-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF12X30-37X4-50	LPC+-SF12X30-37X4-50	1.97	3/8-16	5-1/16	1.13	.78	-	1/2	2473	Hex
LPS+-SF15X30-37X4-50	LPC+-SF15X30-37X4-50	1.97	3/8-16	5-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF12X30-50X2-50	LPC+-SF12X30-50X2-50	1.97	1/2-13	3-1/8	1.13	.78	-	1/2	2473	Hex
LPS+-SF15X30-50X2-50	LPC+-SF15X30-50X2-50	1.97	1/2-13	3-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF12X30-50X4-50	LPC+-SF12X30-50X4-50	1.97	1/2-13	5-1/8	1.13	.78	-	1/2	2473	Hex
LPS+-SF15X30-50X4-50	LPC+-SF15X30-50X4-50	1.97	1/2-13	5-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF15X30-62X3-50	LPC+-SF15X30-62X3-50	1.97	5/8-11	4-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF15X30-62X4-50	LPC+-SF15X30-62X4-50	1.97	5/8-11	5-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF15X30-62X6-50	LPC+-SF15X30-62X6-50	1.97	5/8-11	7-3/16	1.25	.78	-	5/8	2473	Hex
LPS+-SF15X30-37X2-65	LPC+-SF15X30-37X2-65	2.56	3/8-16	3-1/4	1.35	.90	-	5/8	2473	Hex
LPS+-SF15X30-37X4-65	LPC+-SF15X30-37X4-65	2.56	3/8-16	5-1/4	1.35	.90	-	5/8	2473	Hex
LPS+-SF15X30-50X2-65	LPC+-SF15X30-50X2-65	2.56	1/2-13	3-1/4	1.35	.90	-	5/8	2473	Hex
LPS+-SF15X30-50X4-65	LPC+-SF15X30-50X4-65	2.56	1/2-13	5-1/4	1.35	.90	-	5/8	2473	Hex
LPS+-SF15X30-62X3-65	LPC+-SF15X30-62X3-65	2.56	5/8-11	4-1/4	1.35	.90	-	5/8	3372	Hex
LPS+-SF15X30-62X4-65	LPC+-SF15X30-62X4-65	2.56	5/8-11	5-1/4	1.35	.90	-	5/8	3372	Hex
LPS+-SF15X30-62X6-65	LPC+-SF15X30-62X6-65	2.56	5/8-11	7-1/4	1.35	.90	-	5/8	3372	Hex
LPS+-SF15X30-37X2-83	LPC+-SF15X30-37X2-83	3.27	3/8-16	3-7/16	1.51	1.06	2.16	5/8	3372	Hex
LPS+-SF15X30-37X4-83	LPC+-SF15X30-37X4-83	3.27	3/8-16	5-7/16	1.51	1.06	2.16	5/8	3372	Hex
LPS+-SF15X30-50X2-83	LPC+-SF15X30-50X2-83	3.27	1/2-13	3-7/16	1.51	1.06	2.16	5/8	3372	Hex
LPS+-SF15X30-50X4-83	LPC+-SF15X30-50X4-83	3.27	1/2-13	5-7/16	1.51	1.06	2.16	5/8	4496	Hex
LPS+-SF15X30-62X3-83	LPC+-SF15X30-62X3-83	3.27	5/8-11	4-7/16	1.51	1.06	2.16	5/8	4496	Hex
LPS+-SF15X30-62X4-83	LPC+-SF15X30-62X4-83	3.27	5/8-11	5-7/16	1.51	1.06	2.16	5/8	4496	Hex
LPS+-SF15X30-62X6-83	LPC+-SF15X30-62X6-83	3.27	5/8-11	7-7/16	1.51	1.06	2.16	5/8	4496	Hex
LPS+-SF15X30-37X2-103	LPC+-SF15X30-37X2-103	4.06	3/8-16	3-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-37X4-103	LPC+-SF15X30-37X4-103	4.06	3/8-16	5-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-50X2-103	LPC+-SF15X30-50X2-103	4.06	1/2-13	3-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-50X4-103	LPC+-SF15X30-50X4-103	4.06	1/2-13	5-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-62X3-103	LPC+-SF15X30-62X3-103	4.06	5/8-11	4-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-62X4-103	LPC+-SF15X30-62X4-103	4.06	5/8-11	5-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-62X6-103	LPC+-SF15X30-62X6-103	4.06	5/8-11	7-5/8	1.72	1.26	2.87	5/8	4496	Hex
LPS+-SF15X30-37X2-123	LPC+-SF15X30-37X2-123	4.84	3/8-16	3-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-37X4-123	LPC+-SF15X30-37X4-123	4.84	3/8-16	5-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-50X2-123	LPC+-SF15X30-50X2-123	4.84	1/2-13	3-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-50X4-123	LPC+-SF15X30-50X4-123	4.84	1/2-13	5-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-62X3-123	LPC+-SF15X30-62X3-123	4.84	5/8-11	4-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-62X4-123	LPC+-SF15X30-62X4-123	4.84	5/8-11	5-13/16	1.90	1.45	3.42	5/8	5620	Hex
LPS+-SF15X30-62X6-123	LPC+-SF15X30-62X6-123	4.84	5/8-11	7-13/16	1.90	1.45	3.42	5/8	5620	Hex

+ Add a "G" here to designate anti-slip pad. Example: LPCG-SF24X30-75X8-103.

ADJUSTABLE LEVELING SUPPORTS

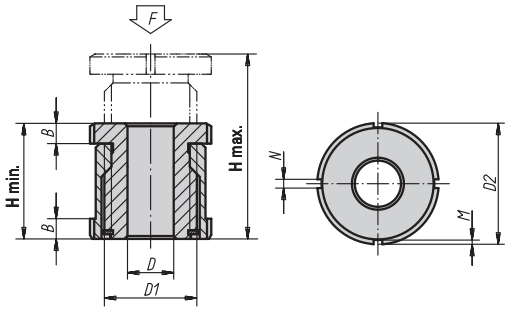
With Locknut | Steel and Stainless



These adjustable leveling supports are designed to provide accurate height support and alignment for motors, drives and other components where alignment is critical. The internal hole allows for the fastening bolt to pass through to the base of the fixture. The top piece or the base can be threaded to provide precise positioning and support. The lock nut allows the position of the support to be locked into place. The long travel makes them ideal for a wide range of applications. The steel version is zinc plated with blue chromate finish. The stainless version has a natural finish.

Steel Part #	Stainless Part #	D mm	For Screw	D1 mm	D2 mm	H Min mm	H Max mm	B mm	N mm	M mm	MAX FORCE LBS. Steel	MAX FORCE LBS. Stainless
27701-01004	27701-010041	4.5	#8 or M4	M15X1	25	33	43	5	4	2	9,000	6,000
27701-01005	27701-010051	5.5	#10 or M5	M15X1	25	33	43	5	4	2	9,000	6,000
27701-01006	27701-010061	6.6	#10 or M6	M15X1	25	33	43	5	4	2	9,000	6,000
27701-01406	27701-014061	6.6	#10 or M6	M20X1	32	41	55	6	4	2	14,600	9,700
27701-01408	27701-014081	9	5/16 or M8	M20X1	32	41	55	6	4	2	14,600	9,700
27701-01410	27701-014101	11	3/8 or M10	M20X1	32	41	55	6	4	2	14,600	9,700
27701-01810	27701-018101	11	3/8 or M10	M30X1.5	45	49	67	7	5	2	27,000	18,800
27701-01812	27701-018121	13.5	1/2 or M12	M30X1.5	45	49	67	7	5	2	27,000	18,800
27701-01816	27701-018161	17.5	5/8 or M16	M30X1.5	45	49	67	7	5	2	27,000	18,800
27701-02316	27701-023161	17.5	5/8 or M16	M40X1.5	58	63	86	9	6	2.5	47,200	33,200
27701-02320	27701-023201	22	3/4 or M20	M40X1.5	58	63	86	9	6	2.5	47,200	33,200
27701-02324	27701-023241	26	1" or M24	M40X1.5	58	63	86	9	6	2.5	47,200	33,200
27701-02920	27701-029201	22	3/4 or M20	M50X1.5	70	77	106	11	6	2.5	74,000	50,500
27701-02924	27701-029241	26	1" or M24	M50X1.5	70	77	106	11	6	2.5	74,000	50,500
27701-02930	27701-029301	33	1-1/4 or M30	M50X1.5	70	77	106	11	6	2.5	74,000	50,500

w/o Locknut | Steel and Stainless

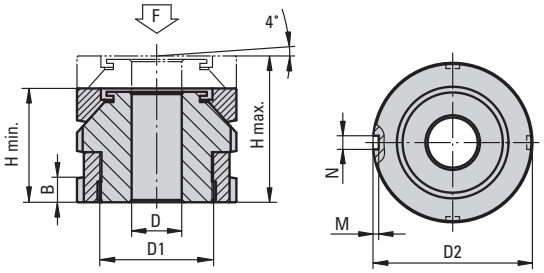


These adjustable leveling supports are designed to provide accurate height support and alignment for motors, drives and other components where alignment is critical. The internal hole allows for the fastening bolt to pass through to the base of the fixture. The top piece or the base can be threaded to provide precise positioning and support. The long travel makes them ideal for a wide range of applications. The steel version is zinc plated with blue chromate finish. The stainless version has a natural finish.

Steel Part #	Stainless Part #	D mm	For Screw	D1 mm	D2 mm	H Min mm	H Max mm	B mm	N mm	M mm	MAX FORCE LBS. Steel	MAX FORCE LBS. Stainless
27700-01504	27700-015041	4.5	#8 or M4	M15X1	25	28	43	5	4	2	9,000	6,000
27700-01505	27700-015051	5.5	#10 or M5	M15X1	25	28	43	5	4	2	9,000	6,000
27700-01506	27700-015061	6.6	#10 or M6	M15X1	25	28	43	5	4	2	9,000	6,000
27700-02006	27700-020061	6.6	#10 or M6	M20X1	32	35	55	6	4	2	14,600	9,700
27700-02008	27700-020081	9	5/16 or M8	M20X1	32	35	55	6	4	2	14,600	9,700
27700-02010	27700-020101	11	3/8 or M10	M20X1	32	35	55	6	4	2	14,600	9,700
27700-02510	27700-025101	11	3/8 or M10	M30X1.5	45	42	67	7	5	2	27,000	18,800
27700-02512	27700-025121	13.5	1/2 or M12	M30X1.5	45	42	67	7	5	2	27,000	18,800
27700-02516	27700-025161	17.5	5/8 or M16	M30X1.5	45	42	67	7	5	2	27,000	18,800
27700-03216	27700-032161	17.5	5/8 or M16	M40X1.5	58	54	86	9	6	2.5	47,200	33,200
27700-03220	27700-032201	22	3/4 or M20	M40X1.5	58	54	86	9	6	2.5	47,200	33,200
27700-03224	27700-032241	26	1" or M24	M40X1.5	58	54	86	9	6	2.5	47,200	33,200
27700-04020	27700-040201	22	3/4 or M20	M50X1.5	70	66	106	11	6	2.5	74,000	50,500
27700-04024	27700-040241	26	1" or M24	M50X1.5	70	66	106	11	6	2.5	74,000	50,500
27700-04030	27700-040301	33	1-1/4 or M30	M50X1.5	70	66	106	11	6	2.5	74,000	50,500

ADJUSTABLE LEVELING SUPPORTS

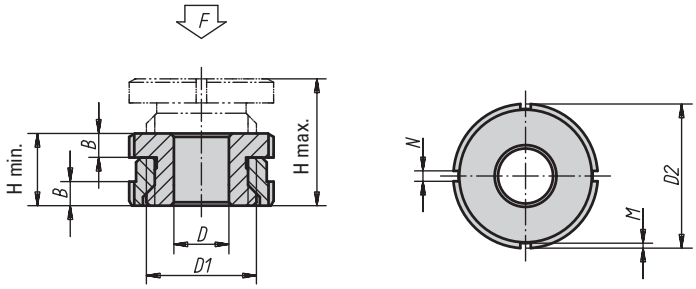
Spherical Self Compensating | Steel and Stainless Steel



These adjustable leveling supports are designed to provide accurate height support and alignment for motors, drives and other components where alignment is critical. The internal hole allows for the fastening bolt to pass through to the base of the fixture. The top piece or the base can be threaded to provide precise positioning and support. The top is spherical in shape, allowing for up to 4 degrees of swivel to account for any misalignment or curvature of the part being supported. The long travel makes them ideal for a wide range of applications. The steel version is zinc plated with blue chromate finish. The stainless version has a natural finish.

Steel Part #	Stainless Part #	D mm	For Screw	D1 mm	D2 mm	H Min mm	H Max mm	B mm	N mm	M mm	MAX FORCE LBS. Steel	MAX FORCE LBS. Stainless
27705-0406	27705-04061	6.6	#10 or M6	M15X1	25	22	26	5	4	2	9,000	6,000
27705-0506	27705-05061	6.6	#10 or M6	M20X1	32	26	31	6	4	2	14,600	9,700
27705-0508	27705-05081	9	5/16 or M8	M20X1	32	26	31	6	4	2	14,600	9,700
27705-0510	27705-05101	11	3/8 or M10	M20X1	32	26	31	6	4	2	14,600	9,700
27705-0710	27705-07101	11	3/8 or M10	M30X1.5	45	34	41	7	5	2	27,000	18,800
27705-0712	27705-07121	13.5	1/2 or M12	M30X1.5	45	34	41	7	5	2	27,000	18,800
27705-0716	27705-07161	17.5	5/8 or M16	M30X1.5	45	34	41	7	5	2	27,000	18,800
27705-0916	27705-09161	17.5	5/8 or M16	M40X1.5	58	44	53	9	6	2.5	47,200	33,200
27705-0920	27705-09201	22	3/4 or M20	M40X1.5	58	44	53	9	6	2.5	47,200	33,200
27705-0924	27705-09241	26	1" or M24	M40X1.5	58	44	53	9	6	2.5	47,200	33,200
27705-1020	27705-10201	22	3/4 or M20	M50X1.5	70	50	60	11	6	2.5	74,000	50,500
27705-1024	27705-10241	26	1" or M24	M50X1.5	70	50	60	11	6	2.5	74,000	50,500
27705-1030	27705-10301	33	1-1/4 or M30	M50X1.5	70	50	60	11	6	2.5	74,000	50,500
27705-1224	27705-12241	26	1" or M24	M60X2	80	56	68	11	7	3	111,200	72,600
27705-1230	27705-12301	33	1-1/4 or M30	M60X2	80	56	68	11	7	3	111,200	72,600

Low Profile | Steel and Stainless

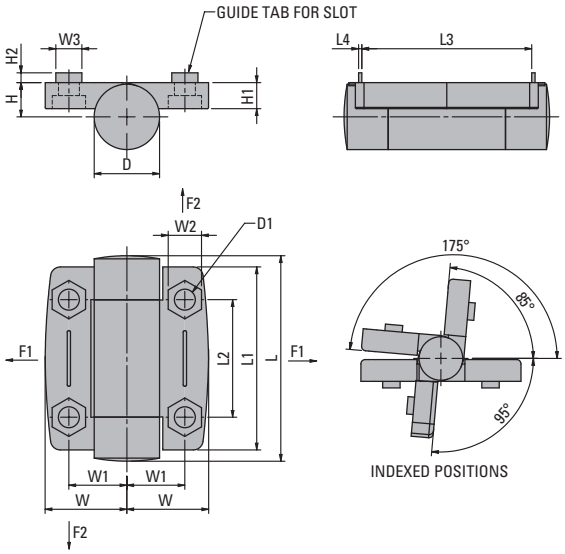


These adjustable leveling supports are designed to provide accurate height support and alignment for motors, drives and other components where alignment is critical. The internal hole allows for the fastening bolt to pass through to the base of the fixture. The top piece or the base can be threaded to provide precise positioning and support. The low profile allows for use in confined spaces or where less height adjustment is needed. The long travel makes them ideal for a wide range of applications. The steel version is zinc plated with blue chromate finish. The stainless version has a natural finish.

Steel Part #	Stainless Part #	D mm	For Screw	D1 mm	D2 mm	H Min mm	H Max mm	B mm	N mm	M mm	MAX FORCE LBS. Steel	MAX FORCE LBS. Stainless
27702-0404	27702-04041	4.5	#8 or M4	M15X1	25	15	19	5	4	2	9,000	6,000
27702-0405	27702-04051	5.5	#10 or M5	M15X1	25	15	19	5	4	2	9,000	6,000
27702-0406	27702-04061	6.6	#10 or M6	M15X1	25	15	19	5	4	2	9,000	6,000
27702-0506	27702-05061	6.6	#10 or M6	M20X1	32	18	23	6	4	2	14,600	9,700
27702-0508	27702-05081	9	5/16 or M8	M20X1	32	18	23	6	4	2	14,600	9,700
27702-0510	27702-05101	11	3/8 or M10	M20X1	32	18	23	6	4	2	14,600	9,700
27702-0710	27702-07101	11	3/8 or M10	M30X1.5	45	22	29	7	5	2	27,000	18,800
27702-0712	27702-07121	13.5	1/2 or M12	M30X1.5	45	22	29	7	5	2	27,000	18,800
27702-0716	27702-07161	17.5	5/8 or M16	M30X1.5	45	22	29	7	5	2	27,000	18,800
27702-0916	27702-09161	17.5	5/8 or M16	M40X1.5	58	28	37	9	6	2.5	47,200	33,200
27702-0920	27702-09201	22	3/4 or M20	M40X1.5	58	28	37	9	6	2.5	47,200	33,200
27702-0924	27702-09241	26	1" or M24	M40X1.5	58	28	37	9	6	2.5	47,200	33,200
27702-1020	27702-10201	22	3/4 or M20	M50X1.5	70	33	43	11	6	2.5	74,000	50,500
27702-1024	27702-10241	26	1" or M24	M50X1.5	70	33	43	11	6	2.5	74,000	50,500
27702-1030	27702-10301	33	1-1/4 or M30	M50X1.5	70	33	43	11	6	2.5	74,000	50,500

HINGES

Plastic | Detent

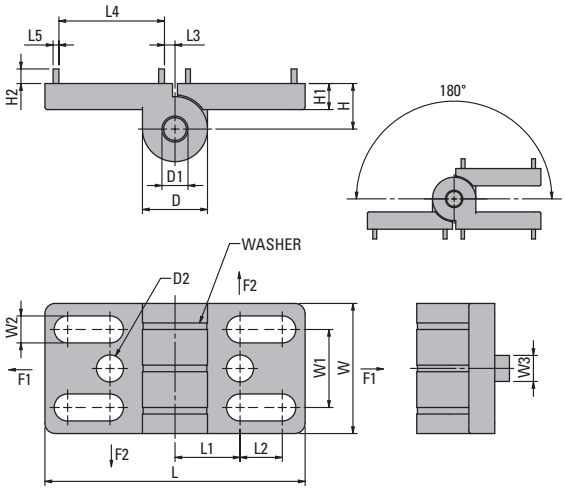


These plastic hinges have a detent mechanism to hold a door or lid open at three different angles or tightly closed. The hinges are available with or without guide tabs for aluminum profile slots. Hinge and caps made from black fiberglass reinforced plastic. Hinge pin made from stainless steel.

METRIC

Part #	D mm	D1 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	F1 max Lbs.	F2 max Lbs.
27857-56181800	20	6.4	63	56	36	53	1	27.00	17.75	10.2	–	10.5	8	3	89.9	78.6
27857-56181806	20	6.4	63	56	36	53	1	27.00	17.75	10.2	6	10.5	8	3	89.9	78.6
27857-56181808	20	6.4	63	56	36	53	1	27.00	17.75	10.2	8	10.5	8	3	89.9	78.6
27857-56232300	20	6.4	63	56	36	53	1	36.75	22.75	10.2	–	10.5	8	3	134.8	95.5
27857-56232308	20	6.4	63	56	36	53	1	36.75	22.75	10.2	8	10.5	8	3	134.8	95.5
27857-56232310	20	6.4	63	56	36	53	1	36.75	22.75	10.2	10	10.5	8	3	134.8	95.5

Die-Cast Zinc | Elongated Holes



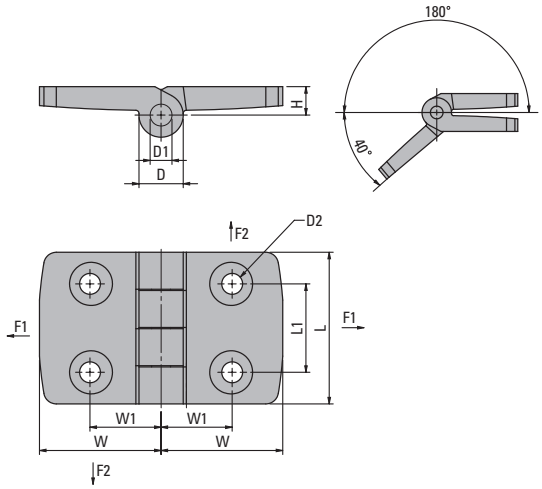
These hinges have elongated holes for easy horizontal adjustment. Hinge made from die-cast zinc with a black powder coat finish. Hinge pin made from stainless steel with a natural finish. Washer made from black plastic.

METRIC

Part #	D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	W mm	W1 mm	W2 mm	W3 mm	H mm	H1 mm	H2 mm	F1 Max. Lbs.	F2 Max. Lbs.
27865-402020	20	8	8.3	80	20	13	3.25	32.45	1.8	40	24	8.3	–	14	8	4.5	269.7	112.4
27865-40202008	20	8	8.3	80	20	13	3.25	32.45	1.8	40	24	8.3	8	14	8	4.5	269.7	112.4
27865-40202010	20	8	8.3	80	20	13	3.25	32.45	1.8	40	24	8.3	10	14	8	4.5	269.7	112.4

HINGES

Aluminum



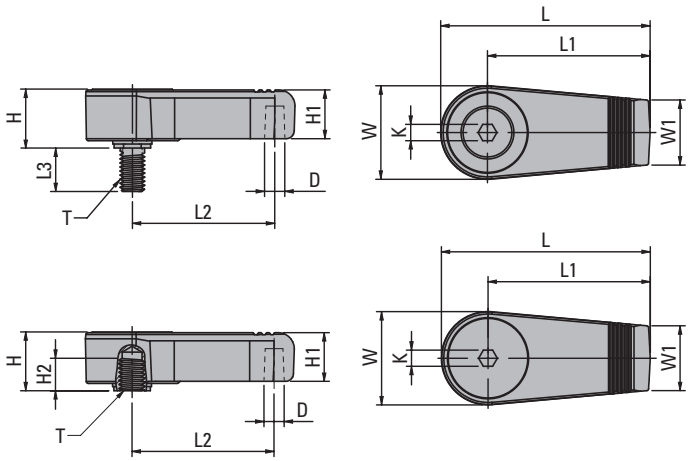
These non-liftoff hinges are designed for use with panel elements or aluminum profiles. The hinges are made from aluminum with a nickel-plated finish. Hinge pin made from stainless steel.

METRIC

Part #	D mm	D1 mm	D2 mm	L mm	L1 mm	W mm	W1 mm	H mm	F1 Max. Lbs.	F2 Max. Lbs.
27872-251515	14	6	6.6	48	28	26	15	9	61.8	48.3
27872-301818	14	6	6.6	48	28	29.5	17.5	9	73.1	50.6
27872-352020	14	6	6.6	48	28	36	20	9	73.1	50.6
27872-402323	14	6	6.6	48	28	38.5	22.5	9	89.9	56.2
27872-452525	14	6	6.6	48	28	43.5	25	9	89.9	56.2
27872-502828	14	6	6.6	48	28	48.5	27.5	9	89.9	56.2
27872-603333	14	6	6.6	48	28	57.5	32.5	9	89.9	22.5

STOP LATCHES

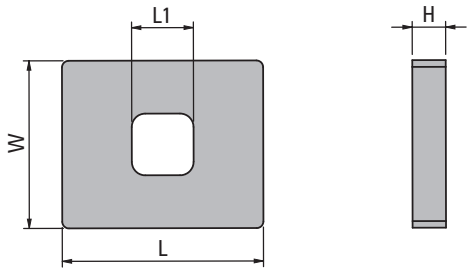
Die-Cast Zinc | Male & Female



These latches are designed to secure doors, lids, panels and more, or to serve as a stop. A detent mechanism holds the latch in position every 90 degrees of rotation. The housings are made from die-cast zinc with a red or black powder coat finish. The pin is made from steel with a blue chromate finish. The washer is made from plastic. The circlip spring is made from steel. The countersunk screw is made from steel. Adapter plates available separately.

Female Part #	Male Part #	Color	T Thread	D mm	L mm	L1 mm	L2 mm	L3 mm	W mm	W1 mm	H mm	H1 mm	H2 mm	K mm
0271.140061	0271.140061X10	Black	M6	5	51.5	40	35	10.7	23	16.2	14.5	12	8	4
0271.140062	0271.140062X10	Red	M6	5	51.5	40	35	10.7	23	16.2	14.5	12	8	4

Adapter Plate

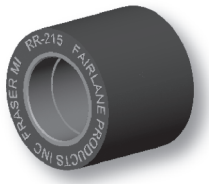


For use with the 0271-series latches. Made from steel with a natural finish.

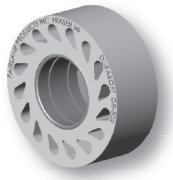
Part #	L mm	L1 mm	W mm	H mm
271.0930251	30	9	25	5

ROLLERS

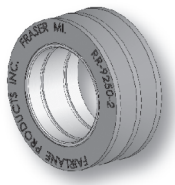
SOLID



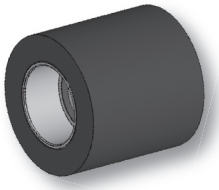
DURASOFT®



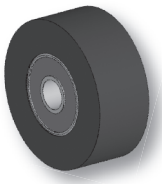
FINNED



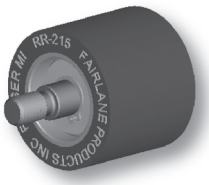
BEARING MOUNTED



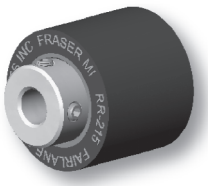
URETHANE COVERED BEARINGS



ONE DIRECTIONAL BEARING



SHAFT DRIVE MOUNT



ROLLERS

Fixtureworks® stocks a full-line of rollers from Fairlane® Products. No need to spec and wait for a custom roller to be tooled up and molded. Our lineup is stocked and ready to ship. A lineup that now includes urethane covered bearing and press fit rollers in addition to our solid, DuraSoft® and finned rollers. They are available in a variety of styles, mountings and durometers and can be custom modified to your specific application. And they're ready when you need them.

ROLLERS

STYLES

Solid Rollers have a smooth surface and a solid body.

DuraSoft® Rollers have a smooth contact surface with teardrop holes to allow greater roller compression under load.

Finned Rollers are grooved and provide self-cleaning as dirt, debris and liquid pass under the contact surface of the roller.

MOUNTING

Roller Only style features the roller permanently bonded to a steel insert with snap ring grooves or a precision press-fit I.D. We also offer rollers specifically designed to be pressed onto a cam follower.

Shaft Drive style features the roller permanently bonded to a steel hub that is designed to be mounted to a round shaft with set screws.

Bearing Mount style features one or two bearings held in place with snap rings or press-fit and bonded into place. Also available as urethane covered bearings.

Stud Mount style includes the roller with bearings and mounting hardware. In addition, we also offer a Clutch Bearing Stud Mount style which allows the roller to only spin in one direction.

MATERIALS

Rollers are available in three materials to meet a wide range of applications and environments. Polyurethane, White Nitrile and Black Neoprene offer different characteristics in terms of strength, chemical and environmental resistance and wear.

DUROMETERS

Rollers are available in different durometers (hardness) to meet a wide variety of applications. Hardness ranging from a stiff foam rubber to a hockey puck allow for use in light and heavy duty applications.

ROLLER AND BUMPER MATERIAL INFORMATION

Base Elastomer	Chemical Name	Advantages	Disadvantages	Max. Service Temp F°	Min. Service Temp F°
Neoprene Black	Chloroprene	Flame and weather resistant. Resists: gasoline, oil, ozone, high temp.	Affected by phosphate hydraulic fluids, aromatic hydrocarbons.	Continuous 200° Intermittent 250°	-40°
Urethane	Di-Isocyante Polyurethane	Highest abrasion resistance, strength & load bearing. High elongation, hardness. Resistant to ozone & oxygen.	Affected by ether, esters, acid, aromatics, alkalis.	Continuous 200° Intermittent 250°	-65°
Nitrile	Nitrile Butadiene	Resistant to gasoline, oil alcohol, abrasion.	Affected by degreaser solvents.	Continuous 175° Intermittent 225°	-60°

All durometer ratings are based on a Shore A rating.

Durometer Guide:
Durometer 20 = Stiff Foam Rubber
Durometer 35 = Pencil Eraser
Durometer 60 = Auto Tire
Durometer 80 = Skateboard Wheel
Durometer 95 = Hockey Puck

Urethane Color Guide:
Durometer 35 = Yellow
Durometer 60 = Blue
Durometer 80 = Red
Durometer 95 = Orange or Black

Urethane Covered Bearing and Press Fit Rollers in 95A are black in color. All other rollers in 95A are orange.
All Nitrile Rollers and Bumpers are white. Rubber gripper pads are made from black nitrile. All Neoprene Rollers and Bumpers are black.

Roller and Bumper Material Property Comparison Chart:

4 = Excellent 3 = Good 2 = Fair 1 = Poor

Property:	White Nitrile	Neoprene	Urethane
Tensile Strength	2	3.5	4
Ozone Resistance	1	2.5	4
Cut Resistance	2	3	4
Abrasion Resistance	2.5	3.5	4
Tear Strength	2	3	4

Resistance To:	White Nitrile	Neoprene	Urethane
Compression Set	2.5	3	3.5
ASTM #1 Oil	4	2.5	4
ASTM #2 Oil	4	2	4
Reference Fuel B	3.5	2	4
Ketones: MEK	1	2	1
Aromatics: Toluene	3.5	1.5	4
Aliphatics: Hexane	4	3	4
Ethyl Acetate	1.5	3	1.5
Cellosolve	2	4	1.5
Methylene Chloride	1	1	1
Trichloroethylene	1	1	1
DiethyleneGlycol	4	4	3
Isopropyl Alcohol	3.5	3.5	3
Caustics: 10% NaOH	3.5	3.5	1
Acids: H2S04	2	3	1

BEARING RATING CHARTS

Standard Bearing

The following table shows the maximum theoretical radial loads that can be applied to the respective bearings, at a specified RPM, yielding an average life of 2,500 hours.

BEARING TYPE A
Standard Double Row
Part # RRBG-D2268-3

I.D.	O.D.	WIDTH
.313/.317	.870/.875	.498/.502

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
120	50
80	100
52	250
44	500
32	1,000

BEARING TYPE B
Standard Single Row
Part # RRBG-SR-342-58

I.D.	O.D.	WIDTH
.500/.505	1.245/1.250	.370/.380

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
261	50
174	100
113	250
96	500
70	1,000

BEARING TYPE C
Standard Double Row
Part # RRBG-D2342-85DS

I.D.	O.D.	WIDTH
.500/.505	1.245/1.250	.745/.755

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
423	50
282	100
183	250
155	500
113	1,000

BEARING TYPE J
Standard Single Row
Part # RRBG-SR-268-DS

I.D.	O.D.	WIDTH
.313/.317	.870/.875	.247/.253

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
100	50
65	100
42	250
38	500
27	1,000

Clutch Bearing

The following table shows the maximum theoretical radial loads that can be applied to the respective bearings, at a specified RPM, yielding 1,000,000 revolutions or 500 hours of life. The bearings are shielded and pre-lubricated for life with grease.

BEARING TYPE H
Roller Clutch Bearing

I.D.	O.D.	WIDTH
.3745/.3750	.6245/.6255	.865/.875

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
367	33-1/3
321	50
254	100
187	250
149	500
118	1,000

BEARING TYPE I
Roller Clutch Bearing

I.D.	O.D.	WIDTH
.6245/.6250	.8745/.8755	.990/1.000

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
610	33-1/3
533	50
423	100
312	250
247	500
196	1,000

BEARING RATING CHARTS

Precision Bearing

The following table shows the maximum theoretical radial loads that can be applied to the respective bearings, at a specified RPM, yielding 1,000,000 revolutions or 500 hours of life. The bearings are shielded and pre-lubricated for life with grease.

BEARING TYPE D
Precision Single Row
Part # RRBG-1603-ZZ

I.D.	O.D.	WIDTH
.3122/.3125	.8747/.8750	.2766/.2813

DOUBLE (2) BEARINGS

Load (lbs)	Speed (rpm)
—	33-1/3
740	50
590	100
410	250
350	500
260	1,000

BEARING TYPE E
Precision Sealed Single Row
Part # RRBG-1603-2RS

I.D.	O.D.	WIDTH
.3122/.3125	.8747/.8750	.3383/.3430

DOUBLE (2) BEARINGS

Load (lbs)	Speed (rpm)
—	33-1/3
740	50
590	100
410	250
350	500
260	1,000

BEARING TYPE F
Precision Single Row
Part # RRBG-1616-ZZ

I.D.	O.D.	WIDTH
.4997/.5000	1.1247/1.1250	.3703/.3750

SINGLE (1) BEARING

Load (lbs)	Speed (rpm)
884	33-1/3
772	50
613	100
452	250
358	500
284	1,000

DOUBLE (2) BEARINGS

Load (lbs)	Speed (rpm)
1,768	33-1/3
1,544	50
1,226	100
904	250
716	500
568	1,000

BEARING TYPE G
Precision Sealed Single Row
Part # RRBG-1616-2RS

I.D.	O.D.	WIDTH
.4997/.5000	1.1247/1.1250	.3703/.3750

SINGLE (1) BEARING

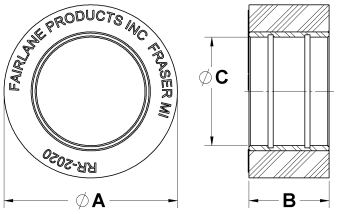
Load (lbs)	Speed (rpm)
884	33-1/3
772	50
613	100
452	250
358	500
284	1,000

DOUBLE (2) BEARINGS

Load (lbs)	Speed (rpm)
1,768	33-1/3
1,544	50
1,226	100
904	250
716	500
568	1,000

Fairlane®

ROLLER ONLY – SOLID ROLLERS



MA MODIFICATIONS AVAILABLE

Solid rollers have a smooth surface and are permanently bonded to a steel insert. The steel insert provides rigidity and allows the user to customize the mounting configuration based on the application. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample RR-215-20-R.

Part #	Material	A	B	C	xx = Durometer
RR-215-xx-R	Neoprene	1.50	1.25	.877/.880	20 / 35 / 60 / 80
RR-215-xxW-R	Nitrile	1.50	1.25	.877/.880	20 / 35 / 60 / 80
RR-215-xxUR-R	Urethane	1.50	1.25	.877/.880	35 / 60 / 80 / 95
RR-92020-xx-RP	Neoprene	2.00	.92	1.125/1.128	20 / 35 / 60 / 80
RR-92020-xxW-RP	Nitrile	2.00	.92	1.125/1.128	20 / 35 / 60 / 80
RR-92020-xxUR-RP	Urethane	2.00	.92	1.125/1.128	35 / 60 / 80 / 95
RR-92020-xx-R	Neoprene	2.00	.92	1.252/1.256	20 / 35 / 60 / 80
RR-92020-xxW-R	Nitrile	2.00	.92	1.252/1.256	20 / 35 / 60 / 80
RR-92020-xxUR-R	Urethane	2.00	.92	1.252/1.256	35 / 60 / 80 / 95
RR-2020-xx-RP	Neoprene	2.00	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-2020-xxW-RP	Nitrile	2.00	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-2020-xxUR-RP	Urethane	2.00	1.94	1.125/1.128	35 / 60 / 80 / 95
RR-2020-xx-R	Neoprene	2.00	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-2020-xxW-R	Nitrile	2.00	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-2020-35UR-R	Urethane	2.00	1.94	1.252/1.256	35 / 60 / 80 / 95
RR-9502-xx-RP	Neoprene	2.50	.92	1.125/1.128	20 / 35 / 60 / 80
RR-9502-xxW-RP	Nitrile	2.50	.92	1.125/1.128	20 / 35 / 60 / 80
RR-9502-xxUR-RP	Urethane	2.50	.92	1.125/1.128	35 / 60 / 80 / 95
RR-9502-xx-R	Neoprene	2.50	.92	1.252/1.256	20 / 35 / 60 / 80
RR-9502-xxW-R	Nitrile	2.50	.92	1.252/1.256	20 / 35 / 60 / 80
RR-9502-xxUR-R	Urethane	2.50	.92	1.252/1.256	35 / 60 / 80 / 95
RR-502-xx-RP	Neoprene	2.50	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-502-xxW-RP	Nitrile	2.50	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-502-xxUR-RP	Urethane	2.50	1.94	1.125/1.128	35 / 60 / 80 / 95
RR-502-xx-R	Neoprene	2.50	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-502-xxW-R	Nitrile	2.50	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-502-xxUR-R	Urethane	2.50	1.94	1.252/1.256	35 / 60 / 80 / 95
RR-9754-xx-RP	Neoprene	4.00	.92	1.125/1.128	20 / 35 / 60 / 80
RR-9754-xxW-RP	Nitrile	4.00	.92	1.125/1.128	20 / 35 / 60 / 80
RR-9754-xxUR-RP	Urethane	4.00	.92	1.125/1.128	35 / 60 / 80 / 95
RR-9754-xx-R	Neoprene	4.00	.92	1.252/1.256	20 / 35 / 60 / 80
RR-9754-xxW-R	Nitrile	4.00	.92	1.252/1.256	20 / 35 / 60 / 80
RR-9754-xxUR-R	Urethane	4.00	.92	1.252/1.256	35 / 60 / 80 / 95
RR-754-xx-RP	Neoprene	4.00	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-754-xxW-RP	Nitrile	4.00	1.94	1.125/1.128	20 / 35 / 60 / 80
RR-754-xxUR-RP	Urethane	4.00	1.94	1.125/1.128	35 / 60 / 80 / 95
RR-754-xx-R	Neoprene	4.00	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-754-xxW-R	Nitrile	4.00	1.94	1.252/1.256	20 / 35 / 60 / 80
RR-754-xxUR-R	Urethane	4.00	1.94	1.252/1.256	35 / 60 / 80 / 95
RR-5020-xxUR-RP	Urethane	5.00	1.94	1.125/1.128	35 / 60 / 80
RR-5020-xxUR-R	Urethane	5.00	1.94	1.252/1.256	35 / 60 / 80
RR-6020-xxUR-RP	Urethane	6.00	1.94	1.125/1.128	35 / 60 / 80
RR-6020-xxUR-R	Urethane	6.00	1.94	1.252/1.256	35 / 60 / 80

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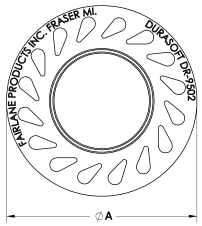
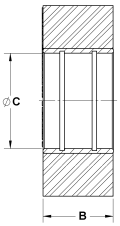
ROLLER ONLY – DURASOFT® ROLLERS





MA MODIFICATIONS AVAILABLE

DuraSoft rollers have a smooth surface and are permanently bonded to a steel insert. The steel insert provides rigidity and allows the user to customize the mounting configuration based on the application. The "teardrop" holes allow the roller to flex for firm yet non-damaging contact. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample DR-9502-35UR-RP.

Part #	Material	A	B	C	xx = Durometer
DR-9502-xxUR-RP	Urethane	2.50	.92	1.125/1.128	35 / 60 / 80 / 95
DR-9502-xxUR-R	Urethane	2.50	.92	1.252/1.256	35 / 60 / 80 / 95
DR-502-xxUR-RP	Urethane	2.50	1.94	1.125/1.128	35 / 60 / 80 / 95
DR-502-xxUR-R	Urethane	2.50	1.94	1.252/1.256	35 / 60 / 80 / 95
DR-9754-xx-RP	Neoprene	4.00	.92	1.125/1.128	20 / 35
DR-9754-xxW-RP	Nitrile	4.00	.92	1.125/1.128	20 / 35
DR-9754-xxUR-RP	Urethane	4.00	.92	1.125/1.128	35 / 60 / 80 / 95
DR-9754-xx-R	Neoprene	4.00	.92	1.252/1.256	20 / 35
DR-9754-xxW-R	Nitrile	4.00	.92	1.252/1.256	20 / 35
DR-9754-xxUR-R	Urethane	4.00	.92	1.252/1.256	35 / 60 / 80 / 95
DR-754-xx-RP	Neoprene	4.00	1.94	1.125/1.128	20 / 35
DR-754-xxW-RP	Nitrile	4.00	1.94	1.125/1.128	20 / 35
DR-754-xxUR-RP	Urethane	4.00	1.94	1.125/1.128	35 / 60 / 80 / 95
DR-754-xx-R	Neoprene	4.00	1.94	1.252/1.256	20 / 35
DR-754-xxW-R	Nitrile	4.00	1.94	1.252/1.256	20 / 35
DR-754-xxUR-R	Urethane	4.00	1.94	1.252/1.256	35 / 60 / 80 / 95

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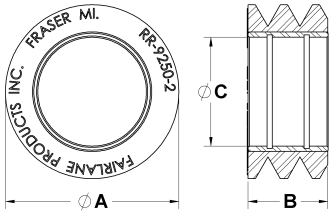
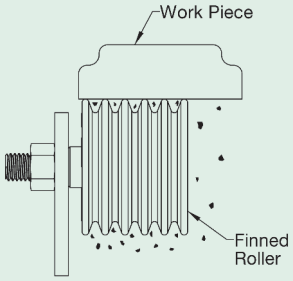
ROLLER ONLY – FINNED ROLLERS



MA MODIFICATIONS AVAILABLE

How To Use



Fins on rollers prevent dirt and debris from becoming embedded in the roller surface.

Finned rollers have grooves on the surface and are permanently bonded to a steel insert. The steel insert provides rigidity and allows the user to customize the mounting configuration based on the application. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 60 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample RR-9250-2-20-RP.

Material	Part #	A	B	C	# of Fins	xx = Durometer
RR-9250-2-xx-RP	Neoprene	2.00	.92	1.125/1.128	3	20 / 35 / 60
RR-9250-2-xxW-RP	Nitrile	2.00	.92	1.125/1.128	3	20 / 35 / 60
RR-9250-2-xxUR-RP	Urethane	2.00	.92	1.125/1.128	3	35 / 60
RR-9250-2-xx-R	Neoprene	2.00	.92	1.252/1.256	3	20 / 35 / 60
RR-9250-2-xxW-R	Nitrile	2.00	.92	1.252/1.256	3	20 / 35 / 60
RR-9250-2-xxUR-R	Urethane	2.00	.92	1.252/1.256	3	35 / 60
RR-250-2-xx-RP	Neoprene	2.00	1.94	1.125/1.128	6	20 / 35 / 60
RR-250-2-xxW-RP	Nitrile	2.00	1.94	1.125/1.128	6	20 / 35 / 60
RR-250-2-xxUR-RP	Urethane	2.00	1.94	1.125/1.128	6	35 / 60
RR-250-2-xx-R	Neoprene	2.00	1.94	1.252/1.256	6	20 / 35 / 60
RR-250-2-xxW-R	Nitrile	2.00	1.94	1.252/1.256	6	20 / 35 / 60
RR-250-2-xxUR-R	Urethane	2.00	1.94	1.252/1.256	6	35 / 60
RR-9250-xx-RP	Neoprene	2.50	.92	1.125/1.128	3	20 / 35 / 60
RR-9250-xxW-RP	Nitrile	2.50	.92	1.125/1.128	3	20 / 35 / 60
RR-9250-xxUR-RP	Urethane	2.50	.92	1.125/1.128	3	35 / 60
RR-9250-xx-R	Neoprene	2.50	.92	1.252/1.256	3	20 / 35 / 60
RR-9250-xxW-R	Nitrile	2.50	.92	1.252/1.256	3	20 / 35 / 60
RR-9250-xxUR-R	Urethane	2.50	.92	1.252/1.256	3	35 / 60
RR-250-xx-RP	Neoprene	2.50	1.94	1.125/1.128	6	20 / 35 / 60
RR-250-xxW-RP	Nitrile	2.50	1.94	1.125/1.128	6	20 / 35 / 60
RR-250-xxUR-RP	Urethane	2.50	1.94	1.125/1.128	6	35 / 60
RR-250-xx-R	Neoprene	2.50	1.94	1.252/1.256	6	20 / 35 / 60
RR-250-xxW-R	Nitrile	2.50	1.94	1.252/1.256	6	20 / 35 / 60
RR-250-xxUR-R	Urethane	2.50	1.94	1.252/1.256	6	35 / 60
RR-667-xx-RP	Neoprene	4.00	1.94	1.125/1.128	8	35 / 60
RR-667-xxW-RP	Nitrile	4.00	1.94	1.125/1.128	8	35 / 60
RR-667-xxUR-RP	Urethane	4.00	1.94	1.125/1.128	8	35 / 60
RR-667-xx-R	Neoprene	4.00	1.94	1.252/1.256	8	35 / 60
RR-667-xxW-R	Nitrile	4.00	1.94	1.252/1.256	8	35 / 60
RR-667-xxUR-R	Urethane	4.00	1.94	1.252/1.256	8	35 / 60

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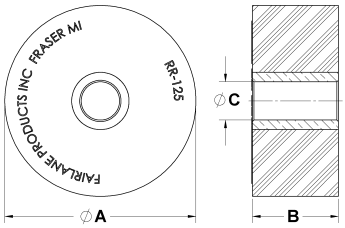
BRONZE BUSHING – SOLID ROLLERS

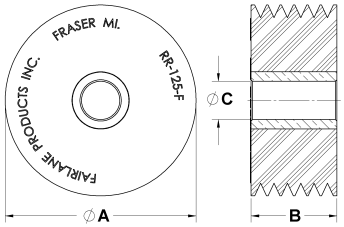


MA MODIFICATIONS AVAILABLE

Solid rollers have a smooth surface and are permanently bonded to a bronze insert. The SAE 660 bronze insert provides rigidity as well as self lubrication. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 60 to 80 durometer. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. To order part, add desired durometer (xx) to the part number.
Sample RR-125-60.

Part #	Material	A	B	C	xx = Durometer
RR-125-xx	Neoprene	2.50	1.125	.501/.504	60
RR-125-xxW	Nitrile	2.50	1.125	.501/.504	60
RR-125-xxUR	Urethane	2.50	1.125	.501/.504	60 / 80

BRONZE BUSHING – FINNED ROLLERS



MA MODIFICATIONS AVAILABLE

Finned rollers have grooves on the surface and are permanently bonded to a bronze bushing. The SAE 660 bronze insert provides rigidity as well as self lubrication. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene and nitrile materials with hardness of 60 durometer. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. To order part, add desired durometer (xx) to the part number. Sample RR-125-2F-60.

Part #	Material	A	B	C	# of Fins	xx = Durometer
RR-125-2F-xx	Neoprene	1.50	1.125	.501/.504	7	60
RR-125-2F-xxW	Nitrile	1.50	1.125	.501/.504	7	60
RR-125-F-xx	Neoprene	2.50	1.125	.501/.504	7	60
RR-125-F-xxW	Nitrile	2.50	1.125	.501/.504	7	60

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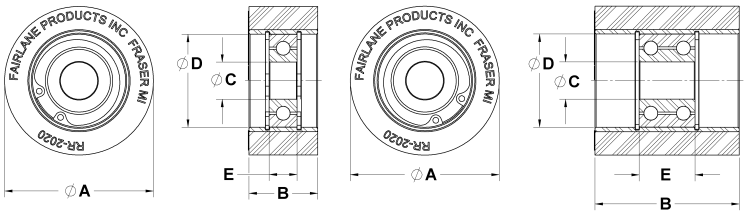
BEARING MOUNT – SOLID ROLLERS



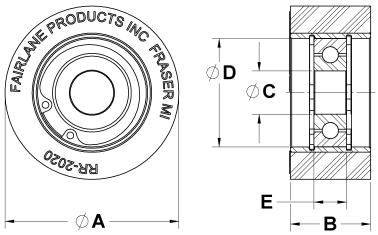
MA MODIFICATIONS AVAILABLE

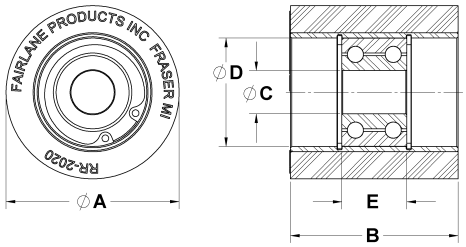
Solid rollers have a smooth surface and are permanently bonded to a steel insert with the bearings held into place with snap rings. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample RR-215-20-B.

Part #	Material	A	B	C	D	(Ref) E	# of Bearings	Bearing Type	xx = Durometer
RR-215-xx-B	Neoprene	1.50	1.25	.313/.317	.877/.880	1/2	1	A - Standard	20 / 35 / 60 / 80
RR-215-xxW-B	Nitrile	1.50	1.25	.313/.317	.877/.880	1/2	1	A - Standard	20 / 35 / 60 / 80
RR-215-xxUR-B	Urethane	1.50	1.25	.313/.317	.877/.880	1/2	1	A - Standard	35 / 60 / 80 / 95
RR-215-xx-BP	Neoprene	1.50	1.25	.3122/.3125	.877/.880	9/16	2	D - Precision	20 / 35 / 60 / 80
RR-215-xxW-BP	Nitrile	1.50	1.25	.3122/.3125	.877/.880	9/16	2	D - Precision	20 / 35 / 60 / 80
RR-215-xxUR-BP	Urethane	1.50	1.25	.3122/.3125	.877/.880	9/16	2	D - Precision	35 / 60 / 80 / 95
RR-215-xx-BPC	Neoprene	1.50	1.25	.3122/.3125	.877/.880	11/16	2	E - Precision Sealed	20 / 35 / 60 / 80
RR-215-xxW-BPC	Nitrile	1.50	1.25	.3122/.3125	.877/.880	11/16	2	E - Precision Sealed	20 / 35 / 60 / 80
RR-215-xxUR-BPC	Urethane	1.50	1.25	.3122/.3125	.877/.880	11/16	2	E - Precision Sealed	35 / 60 / 80 / 95
RR-92020-xx-B	Neoprene	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-92020-xxW-B	Nitrile	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-92020-xxUR-B	Urethane	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	35 / 60 / 80 / 95
RR-92020-xx-BP	Neoprene	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-92020-xxW-BP	Nitrile	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-92020-xxUR-BP	Urethane	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	35 / 60 / 80 / 95
RR-92020-xx-BPC	Neoprene	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-92020-xxW-BPC	Nitrile	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-92020-xxUR-BPC	Urethane	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-2020-xx-B	Neoprene	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-2020-xxW-B	Nitrile	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-2020-xxUR-B	Urethane	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80 / 95
RR-2020-xx-BP	Neoprene	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-2020-xxW-BP	Nitrile	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-2020-xxUR-BP	Urethane	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80 / 95
RR-2020-xx-BPC	Neoprene	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-2020-xxW-BPC	Nitrile	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-2020-xxUR-BPC	Urethane	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80 / 95
RR-9502-xx-B	Neoprene	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-9502-xxW-B	Nitrile	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-9502-xxUR-B	Urethane	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	35 / 60 / 80 / 95
RR-9502-xx-BP	Neoprene	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-9502-xxW-BP	Nitrile	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-9502-xxUR-BP	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	35 / 60 / 80 / 95
RR-9502-xx-BPC	Neoprene	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9502-xxW-BPC	Nitrile	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9502-xxUR-BPC	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-502-xx-B	Neoprene	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-502-xxW-B	Nitrile	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-502-xxUR-B	Urethane	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80 / 95
RR-502-xx-BP	Neoprene	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-502-xxW-BP	Nitrile	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-502-xxUR-BP	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80 / 95
RR-502-xx-BPC	Neoprene	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-502-xxW-BPC	Nitrile	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-502-xxUR-BPC	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80 / 95

Fairlane®

BEARING MOUNT – SOLID ROLLERS

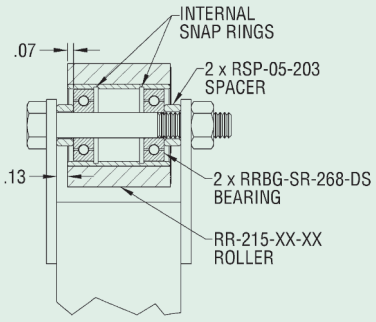




MA MODIFICATIONS AVAILABLE

Part #	Material	A	B	C	D	(Ref) E	# of Bearings	Bearing Type	xx = Durometer
RR-9754-xx-B	Neoprene	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-9754-xxW-B	Nitrile	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35 / 60 / 80
RR-9754-xxUR-B	Urethane	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	35 / 60 / 80 / 95
RR-9754-xx-BP	Neoprene	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-9754-xxW-BP	Nitrile	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35 / 60 / 80
RR-9754-xxUR-BP	Urethane	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	35 / 60 / 80 / 95
RR-9754-xx-BPC	Neoprene	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9754-xxW-BPC	Nitrile	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9754-xxUR-BPC	Urethane	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-754-xx-B	Neoprene	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-754-xxW-B	Nitrile	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35 / 60 / 80
RR-754-xxUR-B	Urethane	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80 / 95
RR-754-xx-BP	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-754-xxW-BP	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35 / 60 / 80
RR-754-xxUR-BP	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80 / 95
RR-754-xx-BPC	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-754-xxW-BPC	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-754-xxUR-BPC	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80 / 95
RR-5020-xxUR-B	Urethane	5.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80
RR-5020-xxUR-BP	Urethane	5.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80
RR-5020-xxUR-BPC	Urethane	5.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80
RR-6020-xxUR-B	Urethane	6.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80
RR-6020-xxUR-BP	Urethane	6.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80
RR-6020-xxUR-BPC	Urethane	6.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80

Application Example



Bearings can be mounted to the outside of the snap rings and with 2 spacers the roller can be held in a pocket.

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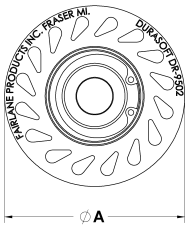
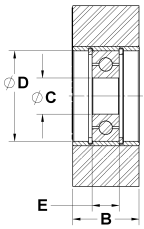
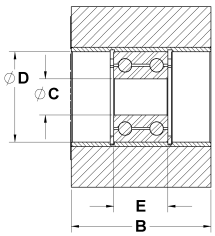
BEARING MOUNT – DURASOFT® ROLLERS







MA MODIFICATIONS AVAILABLE

DuraSoft rollers have a smooth surface and are permanently bonded to a steel insert with the bearings held into place with snap rings. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. The "teardrop" holes allow the roller to flex for firm yet non-damaging contact. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample DR-9502-35UR-B.

Part #	Material	A	B	C	D	(Ref) E	# of Bearings	Bearing Type	xx = Durometer
DR-9502-xxUR-B	Urethane	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	35 / 60 / 80 / 95
DR-9502-xxUR-BP	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	35 / 60 / 80 / 95
DR-9502-xxUR-BPC	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	35 / 60 / 80 / 95
DR-502-xxUR-B	Urethane	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80 / 95
DR-502-xxUR-BP	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80 / 95
DR-502-xxUR-BPC	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80 / 95
DR-9754-xx-B	Neoprene	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35
DR-9754-xxW-B	Nitrile	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	20 / 35
DR-9754-xxUR-B	Urethane	4.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	35 / 60 / 80 / 95
DR-9754-xx-BP	Neoprene	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35
DR-9754-xxW-BP	Nitrile	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	20 / 35
DR-9754-xxUR-BP	Urethane	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	35 / 60 / 80 / 95
DR-9754-xx-BPC	Neoprene	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35
DR-9754-xxW-BPC	Nitrile	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	20 / 35
DR-9754-xxUR-BPC	Urethane	4.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	35 / 60 / 80 / 95
DR-754-xx-B	Neoprene	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35
DR-754-xxW-B	Nitrile	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	20 / 35
DR-754-xxUR-B	Urethane	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	35 / 60 / 80 / 95
DR-754-xx-BP	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35
DR-754-xxW-BP	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	20 / 35
DR-754-xxUR-BP	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	35 / 60 / 80 / 95
DR-754-xx-BPC	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35
DR-754-xxW-BPC	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	20 / 35
DR-754-xxUR-BPC	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	35 / 60 / 80 / 95

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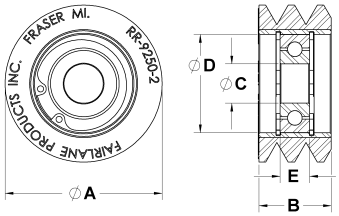
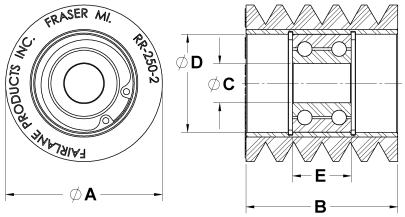
BEARING MOUNT – FINNED ROLLERS





MA MODIFICATIONS AVAILABLE

Finned rollers have grooves on the surface and are permanently bonded to a steel insert with the bearings held into place with snap rings. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 60 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample RR-9250-2-20-B.

Part #	Material	A	B	C	D	(Ref) E	# of Bearings	Bearing Type	# of Fins	xx = Durometer
RR-9250-2-xx-B	Neoprene	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	20 / 35 / 60
RR-9250-2-xxW-B	Nitrile	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	20 / 35 / 60
RR-9250-2-xxUR-B	Urethane	2.00	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	35 / 60
RR-9250-2-xx-BP	Neoprene	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	20 / 35 / 60
RR-9250-2-xxW-BP	Nitrile	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	20 / 35 / 60
RR-9250-2-xxUR-BP	Urethane	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	35 / 60
RR-9250-2-xx-BPC	Neoprene	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-2-xxW-BPC	Nitrile	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-2-xxUR-BPC	Urethane	2.00	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	35 / 60
RR-250-2-xx-B	Neoprene	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	20 / 35 / 60
RR-250-2-xxW-B	Nitrile	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	20 / 35 / 60
RR-250-2-xxUR-B	Urethane	2.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	35 / 60
RR-250-2-xx-BP	Neoprene	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	20 / 35 / 60
RR-250-2-xxW-BP	Nitrile	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	20 / 35 / 60
RR-250-2-xxUR-BP	Urethane	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	35 / 60
RR-250-2-xx-BPC	Neoprene	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-2-xxW-BPC	Nitrile	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-2-xxUR-BPC	Urethane	2.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	35 / 60
RR-9250-xx-B	Neoprene	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	20 / 35 / 60
RR-9250-xxW-B	Nitrile	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	20 / 35 / 60
RR-9250-xxUR-B	Urethane	2.50	.92	.500/.505	1.252/1.256	3/8	1	B - Standard	3	35 / 60
RR-9250-xx-BP	Neoprene	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	20 / 35 / 60
RR-9250-xxW-BP	Nitrile	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	20 / 35 / 60
RR-9250-xxUR-BP	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	F - Precision	3	35 / 60
RR-9250-xx-BPC	Neoprene	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-xxW-BPC	Nitrile	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-xxUR-BPC	Urethane	2.50	.92	.4997/.5000	1.125/1.128	3/8	1	G - Precision Sealed	3	35 / 60
RR-250-xx-B	Neoprene	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	20 / 35 / 60
RR-250-xxW-B	Nitrile	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	20 / 35 / 60
RR-250-xxUR-B	Urethane	2.50	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	6	35 / 60
RR-250-xx-BP	Neoprene	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	20 / 35 / 60
RR-250-xxW-BP	Nitrile	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	20 / 35 / 60
RR-250-xxUR-BP	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	6	35 / 60
RR-250-xx-BPC	Neoprene	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-xxW-BPC	Nitrile	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-xxUR-BPC	Urethane	2.50	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	6	35 / 60
RR-667-xx-B	Neoprene	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	8	35 / 60
RR-667-xxW-B	Nitrile	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	8	35 / 60
RR-667-xxUR-B	Urethane	4.00	1.94	.500/.505	1.252/1.256	3/4	1	C - Standard	8	35 / 60
RR-667-xx-BP	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	8	35 / 60
RR-667-xxW-BP	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	8	35 / 60
RR-667-xxUR-BP	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	F - Precision	8	35 / 60
RR-667-xx-BPC	Neoprene	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	8	35 / 60
RR-667-xxW-BPC	Nitrile	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	8	35 / 60
RR-667-xxUR-BPC	Urethane	4.00	1.94	.4997/.5000	1.125/1.128	3/4	2	G - Precision Sealed	8	35 / 60

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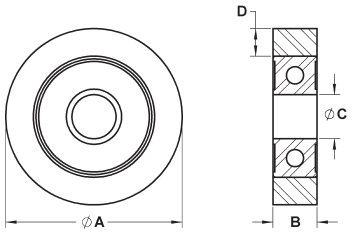
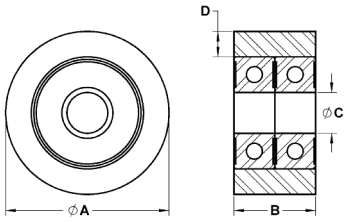
URETHANE COVERED BEARINGS

MA MODIFICATIONS AVAILABLE



Single Bearing



Double Bearing

These covered bearings have a smooth urethane surface that is cast directly to a precision sealed ball bearing. They provide smooth, quiet and non-marring operation. The urethane provides excellent abrasion resistance and durability. They are available with hardness ranging from 35 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.To order part, add desired durometer (xx) to the part number. Sample CB-041605-35UR.

Single Bearing Style

INCH

Part #	A	B	C	(Ref) D	Bearing Number	xx = Durometer
CB-03123.15-xxUR	.750	.196	.187	.12	R3-2RS	60 / 95
CB-04143.15-xxUR	.875	.196	.250	.12	R4-2RS	60 / 95
CB-041605-xxUR	1.00	.313	.250	.15	1602-2RS	60 / 95
CB-05205.5-xxUR	1.25	.343	.312	.18	1603-2RS	60 / 95
CB-05245.5-xxUR	1.50	.343	.312	.31	1603-2RS	60 / 95
CB-0618.505-xxUR	1.156	.312	.375	.12	1606-2RS	60 / 95
CB-06205.5-xxUR	1.25	.343	.375	.18	1604-2RS	60 / 95
CB-06245.5-xxUR	1.50	.343	.375	.31	1604-2RS	60 / 95
CB-082406-xxUR	1.50	.375	.500	.18	1616-2RS	60 / 95
CB-082806-xxUR	1.75	.375	.500	.31	1616-2RS	60 / 95
CB-083206-xxUR	2.00	.375	.500	.43	1616-2RS	60 / 95
CB-102807-xxUR	1.75	.438	.625	.18	1623-2RS	95
CB-123208-xxUR	2.00	.500	.750	.18	1630-2RS	95
CB-144009-xxUR	2.50	.563	.875	.25	1640-2RS	95
CB-164809-xxUR	3.00	.563	1.000	.50	1641-2RS	95

METRIC

Part #	A	B	C	(Ref) D	Bearing Number	xx = Durometer
MCB-052005-xxUR	20	5	5	3	605-2RS	60 / 95
MCB-062506-xxUR	25	6	6	3	606-2RS	60 / 95
MCB-083007-xxUR	30	7	8	4	608-2RS	60 / 95
MCB-093507-xxUR	35	7	9	6	609-2RS	60 / 95
MCB-103508-xxUR	35	8	10	5	6000-2RS	60 / 95
MCB-104008-xxUR	40	8	10	7	6000-2RS	60 / 95
MCB-124008-xxUR	40	8	12	6	6001-2RS	60 / 95
MCB-125008-xxUR	50	8	12	11	6001-2RS	60 / 95
MCB-154509-95UR	45	9	15	7	6002-2RS	95
MCB-175010-95UR	50	10	17	8	6003-2RS	95
MCB-206012-95UR	60	12	20	9	6004-2RS	95
MCB-257012-95UR	70	12	25	12	6005-2RS	95

Double Bearing Style

INCH

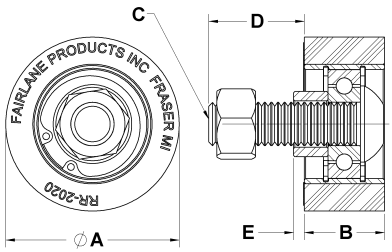
Part #	A	B	C	(Ref) D	Bearing Number	xx = Durometer
CBD-03126.3-xxUR	.750	.392	.187	.12	R3-2RS	60 / 95
CBD-04146.3-xxUR	.875	.392	.250	.12	R4-2RS	60 / 95
CBD-041610-xxUR	1.00	.625	.250	.15	1602-2RS	60 / 95
CBD-052011-xxUR	1.25	.688	.312	.18	1603-2RS	60 / 95
CBD-052411-xxUR	1.50	.688	.312	.31	1603-2RS	60 / 95
CBD-0618.510-xxUR	1.156	.625	.375	.12	1606-2RS	60 / 95
CBD-062011-xxUR	1.25	.688	.375	.18	1604-2RS	60 / 95
CBD-062411-xxUR	1.50	.688	.375	.31	1604-2RS	60 / 95
CBD-082412-xxUR	1.50	.750	.500	.18	1616-2RS	60 / 95
CBD-082812-xxUR	1.75	.750	.500	.31	1616-2RS	60 / 95
CBD-083212-xxUR	2.00	.750	.500	.43	1616-2RS	60 / 95
CBD-102814-xxUR	1.75	.875	.625	.18	1623-2RS	95
CBD-123216-xxUR	2.00	1.000	.750	.18	1630-2RS	95
CBD-144018-xxUR	2.50	1.125	.875	.25	1640-2RS	95
CBD-164818-xxUR	3.00	1.125	1.000	.50	1641-2RS	95

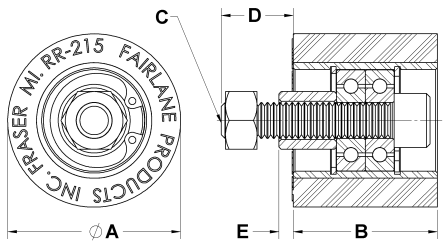
METRIC

Part #	A	B	C	(Ref) D	Bearing Number	xx = Durometer
MCBD-052010-xxUR	20	10	5	3	605-2RS	60 / 95
MCBD-062512-xxUR	25	12	6	3	606-2RS	60 / 95
MCBD-083014-xxUR	30	14	8	4	608-2RS	60 / 95
MCBD-093514-xxUR	35	14	9	6	609-2RS	60 / 95
MCBD-103516-xxUR	35	16	10	5	6000-2RS	60 / 95
MCBD-104016-xxUR	40	16	10	7	6000-2RS	60 / 95
MCBD-124016-xxUR	40	16	12	6	6001-2RS	60 / 95
MCBD-125016-xxUR	50	16	12	11	6001-2RS	60 / 95
MCBD-154518-95UR	45	18	15	7	6002-2RS	95
MCBD-175020-95UR	50	20	17	8	6003-2RS	95
MCBD-206024-95UR	60	24	20	9	6004-2RS	95
MCBD-257024-95UR	70	24	25	12	6005-2RS	95

Fairlane®

STUD MOUNT WITH BEARING – SOLID ROLLERS





MA MODIFICATIONS AVAILABLE

Solid rollers have a smooth surface and are permanently bonded to a steel insert with the bearings held in place with snap rings. They come assembled with a socket head cap screw, spacer and locknut for fast easy mounting. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample RR-215-20-C.

Part #	Material	A	B	C	D	E	# of Bearings	Bearing Type	xx = Durometer
RR-215-xx-C	Neoprene	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	1	A - Standard	20 / 35 / 60 / 80
RR-215-xxW-C	Nitrile	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	1	A - Standard	20 / 35 / 60 / 80
RR-215-xxUR-C	Urethane	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	1	A - Standard	35 / 60 / 80 / 95
RR-215-xx-CP	Neoprene	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	D - Precision	20 / 35 / 60 / 80
RR-215-xxW-CP	Nitrile	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	D - Precision	20 / 35 / 60 / 80
RR-215-xxUR-CP	Urethane	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	D - Precision	35 / 60 / 80 / 95
RR-215-xx-CPC	Neoprene	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	E - Precision Sealed	20 / 35 / 60 / 80
RR-215-xxW-CPC	Nitrile	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	E - Precision Sealed	20 / 35 / 60 / 80
RR-215-xxUR-CPC	Urethane	1.50	1.25	5/16-18x1.50 SHCS	.63	.12	2	E - Precision Sealed	35 / 60 / 80 / 95
RR-92020-xx-C	Neoprene	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-92020-xxW-C	Nitrile	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-92020-xxUR-C	Urethane	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	35 / 60 / 80 / 95
RR-92020-xx-CP	Neoprene	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-92020-xxW-CP	Nitrile	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-92020-xxUR-CP	Urethane	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	35 / 60 / 80 / 95
RR-92020-xx-CPC	Neoprene	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-92020-xxW-CPC	Nitrile	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-92020-xxUR-CPC	Urethane	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-2020-xx-C	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-2020-xxW-C	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-2020-xxUR-C	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80 / 95
RR-2020-xx-CP	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-2020-xxW-CP	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-2020-xxUR-CP	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80 / 95
RR-2020-xx-CPC	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-2020-xxW-CPC	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-2020-xxUR-CPC	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80 / 95
RR-9502-xx-C	Neoprene	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-9502-xxW-C	Nitrile	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-9502-xxUR-C	Urethane	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	35 / 60 / 80 / 95
RR-9502-xx-CP	Neoprene	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-9502-xxW-CP	Nitrile	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-9502-xxUR-CP	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	35 / 60 / 80 / 95
RR-9502-xx-CPC	Neoprene	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9502-xxW-CPC	Nitrile	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9502-xxUR-CPC	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-502-xx-C	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-502-xxW-C	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-502-xxUR-C	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80 / 95
RR-502-xx-CP	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-502-xxW-CP	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-502-xxUR-CP	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80 / 95
RR-502-xx-CPC	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-502-xxW-CPC	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-502-xxUR-CPC	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80 / 95

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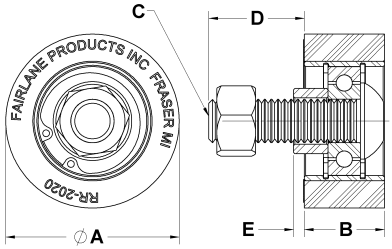
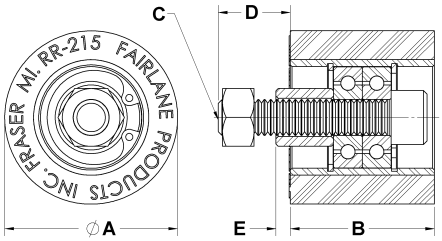
STUD MOUNT WITH BEARING – SOLID ROLLERS





MA MODIFICATIONS AVAILABLE

Part #	Material	A	B	C	D	E	# of Bearings	Bearing Type	xx = Durometer
RR-9754-xx-C	Neoprene	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-9754-xxW-C	Nitrile	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35 / 60 / 80
RR-9754-xxUR-C	Urethane	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	35 / 60 / 80 / 95
RR-9754-xx-CP	Neoprene	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-9754-xxW-CP	Nitrile	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35 / 60 / 80
RR-9754-xxUR-CP	Urethane	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	35 / 60 / 80 / 95
RR-9754-xx-CPC	Neoprene	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9754-xxW-CPC	Nitrile	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35 / 60 / 80
RR-9754-xxUR-CPC	Urethane	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	35 / 60 / 80 / 95
RR-754-xx-C	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-754-xxW-C	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35 / 60 / 80
RR-754-xxUR-C	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80 / 95
RR-754-xx-CP	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-754-xxW-CP	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35 / 60 / 80
RR-754-xxUR-CP	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80 / 95
RR-754-xx-CPC	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-754-xxW-CPC	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35 / 60 / 80
RR-754-xxUR-CPC	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80 / 95
RR-5020-xxUR-C	Urethane	5.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80
RR-5020-xxUR-CP	Urethane	5.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80
RR-5020-xxUR-CPC	Urethane	5.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80
RR-6020-xxUR-C	Urethane	6.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80
RR-6020-xxUR-CP	Urethane	6.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80
RR-6020-xxUR-CPC	Urethane	6.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80

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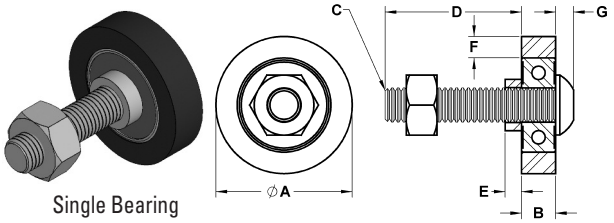
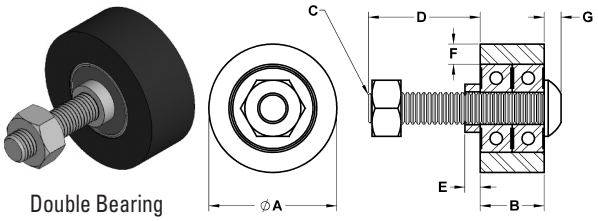
STUD MOUNT URETHANE COVERED BEARINGS

MA MODIFICATIONS AVAILABLE



Single Bearing



Double Bearing

These covered bearings have a smooth urethane surface that is cast to the precision sealed ball bearing. They provide smooth, quiet and non-marring operation. The urethane provides excellent abrasion resistance and durability. They are available with hardness ranging from 35 to 95 durometer. They come assembled with a button head cap screw, spacer and locknut for fast easy mounting. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. Urethane diameter can be turned down to meet specific application requirements. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample CB-041605-35UR-C.

Single Bearing Style

INCH

Part #	A	B	C	D	E	(Ref) F	G	Bearing Number	xx = Durometer	Spacer Part #	Bolt Part #
CB-04143.15-xxUR-C	.875	.196	1/4-20	1.054	.12	.12	.132	R4-2RS	60 / 95	RSP-04-120	RCSB-1420-1250
CB-041605-xxUR-C	1.00	.313	1/4-20	.938	.12	.15	.132	1602-2RS	60 / 95	RSP-04-120	RCSB-1420-1250
CB-05205.5-xxUR-C	1.25	.343	5/16-18	1.157	.12	.18	.166	1603-2RS	60 / 95	RSP-05-120	RCSB-51618-1500
CB-05245.5-xxUR-C	1.50	.343	5/16-18	1.157	.12	.31	.166	1603-2RS	60 / 95	RSP-05-120	RCSB-51618-1500
CB-0618.505-xxUR-C	1.15	.312	3/8-16	1.188	.12	.12	.199	1606-2RS	60 / 95	RSP-06-120	RCSB-3816-1500
CB-06205.5-xxUR-C	1.25	.343	3/8-16	1.157	.12	.18	.199	1604-2RS	60 / 95	RSP-06-120	RCSB-3816-1500
CB-06245.5-xxUR-C	1.50	.343	3/8-16	1.157	.12	.31	.199	1604-2RS	60 / 95	RSP-06-120	RCSB-3816-1500
CB-082406-xxUR-C	1.50	.375	1/2-13	1.625	.12	.18	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CB-082806-xxUR-C	1.75	.375	1/2-13	1.625	.12	.31	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CB-083206-xxUR-C	2.00	.375	1/2-13	1.625	.12	.43	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CB-102807-xxUR-C	1.75	.438	5/8-11	1.813	.12	.18	.331	1623-2RS	95	RSP-10-120	RCSB-5811-2250

METRIC

Part #	A	B	C	D	E	(Ref) F	G	Bearing Number	xx = Durometer	Spacer Part #	Bolt Part #
MCB-052005-xxUR-C	20	5	M5X0.8	30	3	3	2.75	605-2RS	60 / 95	RSPA-M5-3	RCSB-M508-035
MCB-062506-xxUR-C	25	6	M6X1.0	34	3	3	3.3	606-2RS	60 / 95	RSPA-M6-3	RCSB-M610-040
MCB-083007-xxUR-C	30	7	M8X1.25	33	3	4	4.4	608-2RS	60 / 95	RSPA-M8-3	RCSB-M8125-040
MCB-103508-xxUR-C	35	8	M10X1.5	37	3	4.5	5.5	6000-2RS	60 / 95	RSPA-M10-3	RCSB-M10150-045
MCB-104008-xxUR-C	40	8	M10X1.5	37	3	7	5.5	6000-2RS	60 / 95	RSPA-M10-3	RCSB-M10150-045
MCB-124008-xxUR-C	40	8	M12X1.75	37	3	6	6.6	6001-2RS	60 / 95	RSPA-M12-3	RCSB-M12175-045
MCB-125008-xxUR-C	50	8	M12X1.75	37	3	11	6.6	6001-2RS	60 / 95	RSPA-M12-3	RCSB-M12175-045

Double Bearing Style

INCH

Part #	A	B	C	D	E	(Ref) F	G	Bearing Number	xx = Durometer	Spacer Part #	Bolt Part #
CBD-04146.3-xxUR-C	.875	.392	1/4-20	1.108	.12	.12	.132	R4-2RS	60 / 95	RSP-04-120	RCSB-1420-1500
CBD-041610-xxUR-C	1.00	.625	1/4-20	.875	.12	.15	.132	1602-2RS	60 / 95	RSP-04-120	RCSB-1420-1500
CBD-052011-xxUR-C	1.25	.688	5/16-18	1.062	.12	.18	.166	1603-2RS	60 / 95	RSP-05-120	RCSB-51618-1750
CBD-052411-xxUR-C	1.50	.688	5/16-18	1.062	.12	.31	.166	1603-2RS	60 / 95	RSP-05-120	RCSB-51618-1750
CBD-0618.510-xxUR-C	1.15	.625	3/8-16	1.125	.12	.12	.199	1606-2RS	60 / 95	RSP-06-120	RCSB-3816-1750
CBD-062011-xxUR-C	1.25	.688	3/8-16	1.062	.12	.18	.199	1604-2RS	60 / 95	RSP-06-120	RCSB-3816-1750
CBD-062411-xxUR-C	1.50	.688	3/8-16	1.062	.12	.31	.199	1604-2RS	60 / 95	RSP-06-120	RCSB-3816-1750
CBD-082412-xxUR-C	1.50	.750	1/2-13	1.250	.12	.18	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CBD-082812-xxUR-C	1.75	.750	1/2-13	1.250	.12	.31	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CBD-083212-xxUR-C	2.00	.750	1/2-13	1.250	.12	.43	.266	1616-2RS	60 / 95	RSP-08-120	RCSB-1213-2000
CBD-102814-xxUR-C	1.75	.875	5/8-11	1.375	.12	.18	.331	1623-2RS	95	RSP-10-120	RCSB-5811-2250

METRIC

Part #	A	B	C	D	E	(Ref) F	G	Bearing Number	xx = Durometer	Spacer Part #	Bolt Part #
MCBD-052010-xxUR-C	20	10	M5X0.8	25	3	3	2.75	605-2RS	60 / 95	RSPA-M5-3	RCSB-M508-035
MCBD-062512-xxUR-C	25	12	M6X1.0	28	3	3	3.3	606-2RS	60 / 95	RSPA-M6-3	RCSB-M610-040
MCBD-083014-xxUR-C	30	14	M8X1.25	26	3	4	4.4	608-2RS	60 / 95	RSPA-M8-3	RCSB-M8125-040
MCBD-103516-xxUR-C	35	16	M10X1.5	29	3	4.5	5.5	6000-2RS	60 / 95	RSPA-M10-3	RCSB-M10150-045
MCBD-104016-xxUR-C	40	16	M10X1.5	29	3	7	5.5	6000-2RS	60 / 95	RSPA-M10-3	RCSB-M10150-045
MCBD-124016-xxUR-C	40	16	M12X1.75	29	3	6	6.6	6001-2RS	60 / 95	RSPA-M12-3	RCSB-M12175-045
MCBD-125016-xxUR-C	50	16	M12X1.75	29	3	11	6.6	6001-2RS	60 / 95	RSPA-M12-3	RCSB-M12175-045

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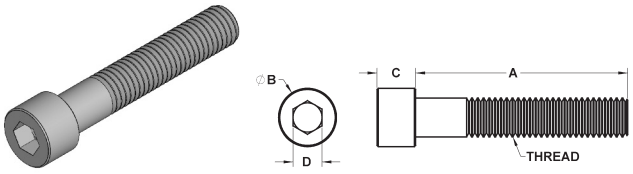
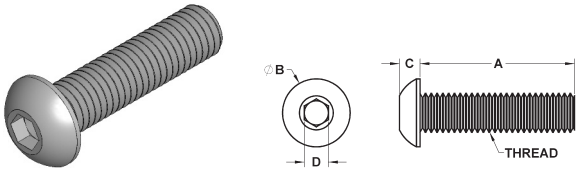
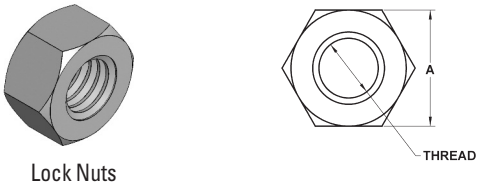
BOLTS, SPACERS AND LOCK NUTS FOR COVERED BEARINGS



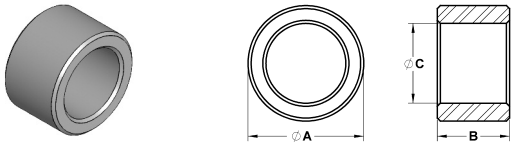
Socket Head Cap Screws



Button Head Cap Screws



Lock Nuts



Spacers

These bolts, nuts and spacers are used with the Stud Mount Covered Bearings shown on pages 533.

Socket Head Cap Screws

INCH

Part #	A	B	C	D	Thread
RCSS-51618-2500	2-1/2	15/32	5/16	1/4	5/16-18
RCSS-3816-2750	2-3/4	9/16	3/8	5/16	3/8-16
RCSS-1213-2750	2-3/4	3/4	1/2	3/8	1/2-13

Button Head Cap Screws

INCH

Part #	A	B	C	D	Thread
RCSB-1420-1250	1-1/4	7/16	.132	5/32	1/4-20
RCSB-1420-1500	1-1/2	7/16	.132	5/32	1/4-20
RCSB-51618-1500	1-1/2	35/64	.166	3/16	5/16-18
RCSB-51618-1750	1-3/4	35/64	.166	3/16	5/16-18
RCSB-3816-1500	1-1/2	21/32	.199	7/32	3/8-16
RCSB-3816-1750	1-3/4	21/32	.199	7/32	3/8-16
RCSB-1213-2000	2	7/8	.266	5/16	1/2-13
RCSB-5811-2250	2-1/4	1	.331	3/8	5/8-11
RCSB-5811-3000	3	1	.331	3/8	5/8-11

METRIC

Part #	A	B	C	D	Thread
RCSB-M508-035	35	9.5	2.75	3	M5X0.8
RCSB-M610-040	40	10.5	3.3	4	M6X1.00
RCSB-M8125-040	40	14	4.4	5	M8X1.25
RCSB-M10150-045	45	18	5.5	6	M10X1.50
RCSB-M12175-045	45	21	6.6	8	M12X1.75

Lock Nuts

INCH

Part #	A	Thread
RRN-1420	7/16	1/4-20
RRN-51618	1/2	5/16-18
RRN-3816	1/2	3/8-16
RRN-1213	3/4	1/2-13
RRN-5811	1	5/8-11

METRIC

Part #	A	Thread
RRN-M508	8	M5X0.8
RRN-M610	10	M6X1.00
RRN-M8125	13	M8X1.25
RRN-M10150	17	M10X1.50
RRN-M12175	19	M12X1.75

Spacers - Steel

INCH

Part #	A	B	C
RSP-04-120	3/8	.12	1/4
RSP-04-189	3/8	.19	1/4
RSP-04-234	3/8	.23	1/4
RSP-05-120	1/2	.12	5/16
RSP-05-203	1/2	.20	5/16
RSP-05-875	1/2	.87	5/16
RSP-06-120	5/8	.12	3/8
RSP-06-203	5/8	.20	3/8
RSP-06-247	5/8	.25	3/8
RSP-06-845	5/8	.84	3/8
RSP-06-875	5/8	.87	3/8
RSP-08-120	3/4	.12	1/2
RSP-08-372	3/4	.37	1/2
RSP-08-406	3/4	.41	1/2
RSP-08-782	3/4	.78	1/2
RSP-500	3/4	.84	1/2
RSP-10-120	7/8	.12	5/8
RSP-10-406	7/8	.41	5/8
RSP-10-500	7/8	.50	5/8
RSP-10-720	7/8	.72	5/8
RSP-10-782	7/8	.78	5/8

Spacers - Aluminum

METRIC

Part #	A	B	C
RSPA-M5-3	9.5	3	5.6
RSPA-M6-3	9.5	3	6.5
RSPA-M8-3	12.7	3	8.1
RSPA-M10-3	15.9	3	10.2
RSPA-M12-3	19.1	3	12.9

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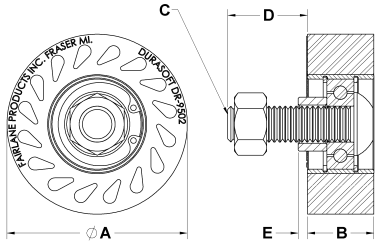
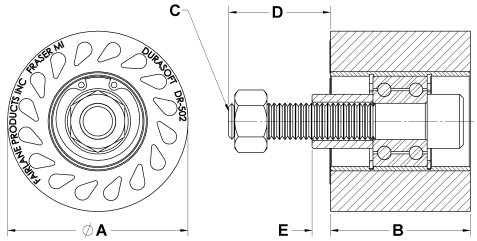
STUD MOUNT WITH BEARING – DURASOFT® ROLLERS





MA MODIFICATIONS AVAILABLE

DuraSoft rollers have a smooth surface and are permanently bonded to a steel insert with the bearings held in place with snap rings. They come assembled with a socket head cap screw, spacer and locknut for fast easy mounting. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. The "teardrop" holes allow the roller to flex for firm yet non-damaging contact. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample DR-9502-35UR-C.

Part #	Material	A	B	C	D	E	# Of Bearings	Bearing Type	xx = Durometer
DR-9502-xxUR-C	Urethane	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	35 / 60 / 80 / 95
DR-9502-xxUR-CP	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	35 / 60 / 80 / 95
DR-9502-xxUR-CPC	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	35 / 60 / 80 / 95
DR-502-xxUR-C	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80 / 95
DR-502-xxUR-CP	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80 / 95
DR-502-xxUR-CPC	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80 / 95
DR-9754-xx-C	Neoprene	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35
DR-9754-xxW-C	Nitrile	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	20 / 35
DR-9754-xxUR-C	Urethane	4.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	35 / 60 / 80 / 95
DR-9754-xx-CP	Neoprene	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35
DR-9754-xxW-CP	Nitrile	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	20 / 35
DR-9754-xxUR-CP	Urethane	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	35 / 60 / 80 / 95
DR-9754-xx-CPC	Neoprene	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35
DR-9754-xxW-CPC	Nitrile	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	20 / 35
DR-9754-xxUR-CPC	Urethane	4.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	35 / 60 / 80 / 95
DR-754-xx-C	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35
DR-754-xxW-C	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	20 / 35
DR-754-xxUR-C	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	35 / 60 / 80 / 95
DR-754-xx-CP	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35
DR-754-xxW-CP	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	20 / 35
DR-754-xxUR-CP	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	35 / 60 / 80 / 95
DR-754-xx-CPC	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35
DR-754-xxW-CPC	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	20 / 35
DR-754-xxUR-CPC	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	35 / 60 / 80 / 95

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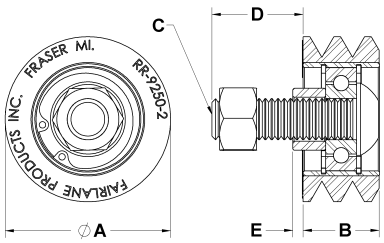
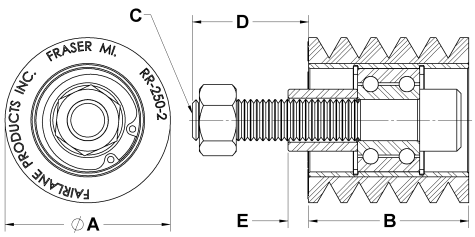
STUD MOUNT WITH BEARING – FINNED ROLLERS





MA MODIFICATIONS AVAILABLE

Finned rollers have grooves on the surface and are permanently bonded to a steel insert with the bearings held in place with snap rings. They come assembled with a socket head cap screw, spacer and locknut for fast easy mounting. They are available with standard bearings, precision bearings and sealed precision bearings based on your application and environment. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 60 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. See pages 520 and 521 for bearing type specifications. To order part, add desired durometer (xx) to the part number. Sample RR-9250-2-20-C.

Part #	Material	A	B	C	D	E	# Of Bearings	Bearing Type	# of Fins	xx = Durometer
RR-9250-2-xx-C	Neoprene	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	20 / 35 / 60
RR-9250-2-xxW-C	Nitrile	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	20 / 35 / 60
RR-9250-2-xxUR-C	Urethane	2.00	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	35 / 60
RR-9250-2-xx-CP	Neoprene	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	20 / 35 / 60
RR-9250-2-xxW-CP	Nitrile	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	20 / 35 / 60
RR-9250-2-xxUR-CP	Urethane	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	35 / 60
RR-9250-2-xx-CPC	Neoprene	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-2-xxW-CPC	Nitrile	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-2-xxUR-CPC	Urethane	2.00	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	35 / 60
RR-250-2-xx-C	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	20 / 35 / 60
RR-250-2-xxW-C	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	20 / 35 / 60
RR-250-2-xxUR-C	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	35 / 60
RR-250-2-xx-CP	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	20 / 35 / 60
RR-250-2-xxW-CP	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	20 / 35 / 60
RR-250-2-xxUR-CP	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	35 / 60
RR-250-2-xx-CPC	Neoprene	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-2-xxW-CPC	Nitrile	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-2-xxUR-CPC	Urethane	2.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	35 / 60
RR-9250-xx-C	Neoprene	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	20 / 35 / 60
RR-9250-xxW-C	Nitrile	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	20 / 35 / 60
RR-9250-xxUR-C	Urethane	2.50	.92	1/2-13x1.75 BHCS	1.10	.12	1	B - Standard	3	35 / 60
RR-9250-xx-CP	Neoprene	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	20 / 35 / 60
RR-9250-xxW-CP	Nitrile	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	20 / 35 / 60
RR-9250-xxUR-CP	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	F - Precision	3	35 / 60
RR-9250-xx-CPC	Neoprene	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-xxW-CPC	Nitrile	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	20 / 35 / 60
RR-9250-xxUR-CPC	Urethane	2.50	.92	1/2-13x1.75 LHCS	1.10	.12	1	G - Precision Sealed	3	35 / 60
RR-250-xx-C	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	20 / 35 / 60
RR-250-xxW-C	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	20 / 35 / 60
RR-250-xxUR-C	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	6	35 / 60
RR-250-xx-CP	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	20 / 35 / 60
RR-250-xxW-CP	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	20 / 35 / 60
RR-250-xxUR-CP	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	6	35 / 60
RR-250-xx-CPC	Neoprene	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-xxW-CPC	Nitrile	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	20 / 35 / 60
RR-250-xxUR-CPC	Urethane	2.50	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	6	35 / 60
RR-667-xx-C	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	8	35 / 60
RR-667-xxW-C	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	8	35 / 60
RR-667-xxUR-C	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	1	C - Standard	8	35 / 60
RR-667-xx-CP	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	8	35 / 60
RR-667-xxW-CP	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	8	35 / 60
RR-667-xxUR-CP	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	F - Precision	8	35 / 60
RR-667-xx-CPC	Neoprene	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	8	35 / 60
RR-667-xxW-CPC	Nitrile	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	8	35 / 60
RR-667-xxUR-CPC	Urethane	4.00	1.94	1/2-13x2.75 SHCS	1.41	.25	2	G - Precision Sealed	8	35 / 60

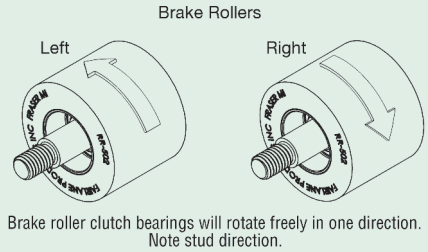
Fairlane®

STUD MOUNT – ONE DIRECTIONAL CLUTCH BEARING – SOLID

Solid rollers have a smooth surface and are permanently bonded to a steel insert with the bearing pack pressed in place. The clutch bearings allow the roller to only turn in one direction. They come assembled with a threaded stripper bolt and snap ring for fast easy mounting. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. All the rollers below have a type I bearing except the 1.50 Dia. x 1.25 Width rollers which are supplied with type H bearings. See pages 520 and 521 for bearing type specifications. Available in either right or left hand rotation. With the stud pointed upward, right hand rotation turns clockwise and left hand rotation turns counter-clockwise.

MA MODIFICATIONS AVAILABLE

How To Use

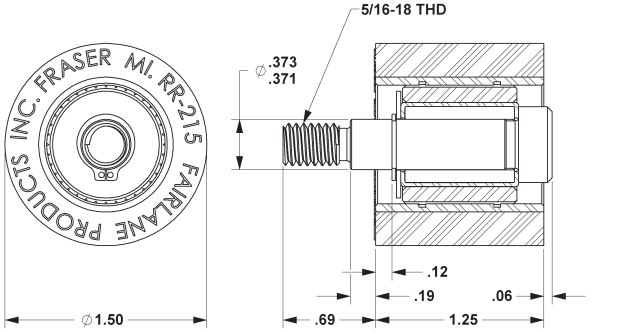


Brake roller clutch bearings will rotate freely in one direction. Note stud direction.

1.50" Dia. x 1.25" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-215-20-*	BR-215-20W-*	-
35	BR-215-35-*	BR-215-35W-*	BR-215-35UR-*
60	BR-215-60-*	BR-215-60W-*	BR-215-60UR-*
80	BR-215-80-*	BR-215-80W-*	BR-215-80UR-*
95	—	—	BR-215-95UR-*

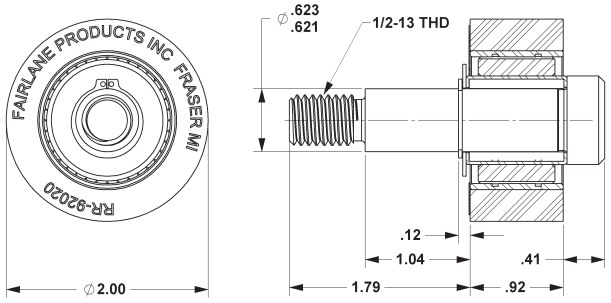
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction. Note: Supplied with type H bearing.



2.00" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-92020-20-*	BR-92020-20W-*	-
35	BR-92020-35-*	BR-92020-35W-*	BR-92020-35UR-*
60	BR-92020-60-*	BR-92020-60W-*	BR-92020-60UR-*
80	BR-92020-80-*	BR-92020-80W-*	BR-92020-80UR-*
95	—	—	BR-92020-95UR-*

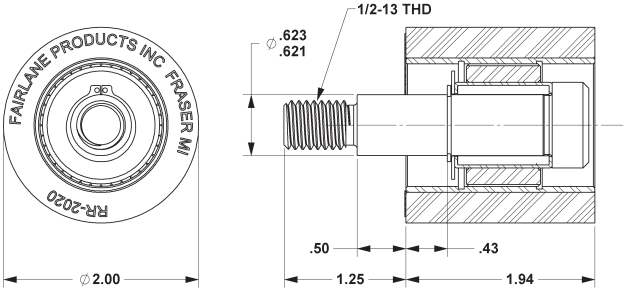
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



2.00" Dia. x 1.94" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-2020-20-*	BR-2020-20W-*	-
35	BR-2020-35-*	BR-2020-35W-*	BR-2020-35UR-*
60	BR-2020-60-*	BR-2020-60W-*	BR-2020-60UR-*
80	BR-2020-80-*	BR-2020-80W-*	BR-2020-80UR-*
95	—	—	BR-2020-95UR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



Fairlane®

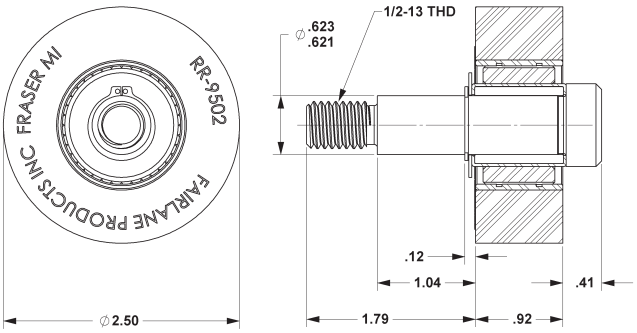
STUD MOUNT – ONE DIRECTIONAL CLUTCH BEARING – SOLID

MA MODIFICATIONS AVAILABLE

2.50" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-9502-20-*	BR-9502-20W-*	-
35	BR-9502-35-*	BR-9502-35W-*	BR-9502-35UR-*
60	BR-9502-60-*	BR-9502-60W-*	BR-9502-60UR-*
80	BR-9502-80-*	BR-9502-80W-*	BR-9502-80UR-*
95	—	—	BR-9502-95UR-*

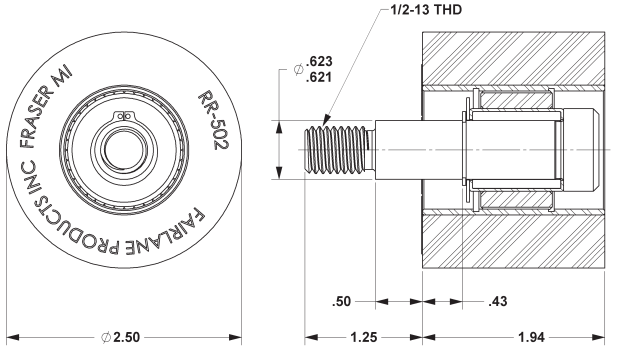
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



2.50" Dia. x 1.94" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-502-20-*	BR-502-20W-*	-
35	BR-502-35-*	BR-502-35W-*	BR-502-35UR-*
60	BR-502-60-*	BR-502-60W-*	BR-502-60UR-*
80	BR-502-80-*	BR-502-80W-*	BR-502-80UR-*
95	—	—	BR-502-95UR-*

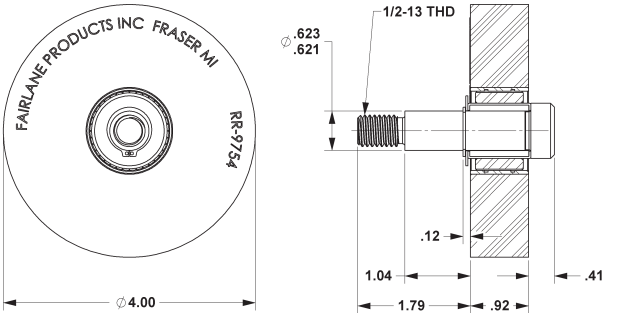
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



4.00" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-9754-20-*	BR-9754-20W-*	-
35	BR-9754-35-*	BR-9754-35W-*	BR-9754-35UR-*
60	BR-9754-60-*	BR-9754-60W-*	BR-9754-60UR-*
80	BR-9754-80-*	BR-9754-80W-*	BR-9754-80UR-*
95	—	—	BR-9754-95UR-*

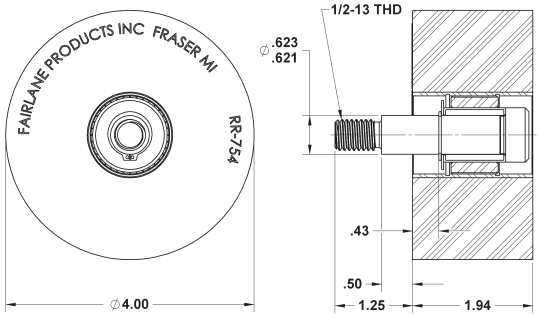
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



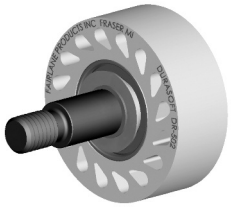
4.00" Dia. x 1.94" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-754-20-*	BR-754-20W-*	-
35	BR-754-35-*	BR-754-35W-*	BR-754-35UR-*
60	BR-754-60-*	BR-754-60W-*	BR-754-60UR-*
80	BR-754-80-*	BR-754-80W-*	BR-754-80UR-*
95	—	—	BR-754-95UR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



STUD MOUNT – ONE DIRECTIONAL CLUTCH BEARING – DURASOFT®



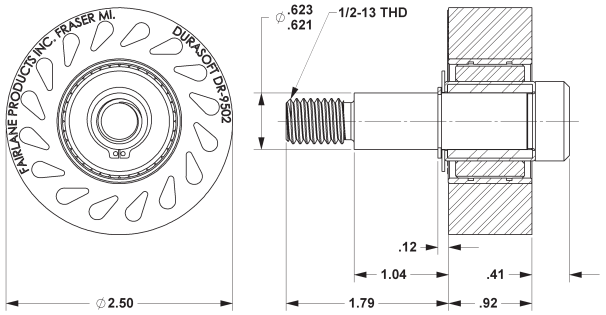
MA MODIFICATIONS AVAILABLE

DuraSoft rollers have a smooth surface and are permanently bonded to a steel insert with the bearing pack pressed in place. The clutch bearings allow the roller to only turn in one direction. They come assembled with a threaded stripper bolt and snap ring for fast easy mounting. The "teardrop" holes allow the roller to flex for firm yet non-damaging contact. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. All the rollers below have a type I bearing. See pages 520 and 521 for bearing type specifications. Available in either right or left hand rotation. With the stud pointed upward, right hand rotation turns clockwise and left hand rotation turns counter-clockwise.

2.50" Dia. x .92" Width

Durometer	Urethane Part #
35	DR-9502-35UR-BR-*
60	DR-9502-60UR-BR-*
80	DR-9502-80UR-BR-*
95	DR-9502-95UR-BR-*

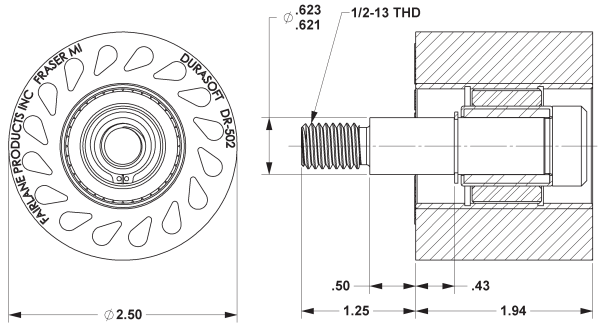
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



2.50" Dia. x 1.94" Width

Durometer	Urethane Part #
35	DR-502-35UR-BR-*
60	DR-502-60UR-BR-*
80	DR-502-80UR-BR-*
95	DR-502-95UR-BR-*

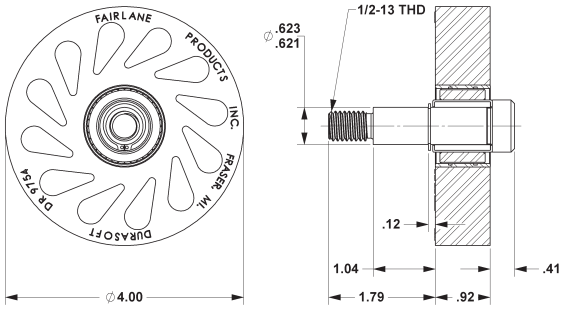
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



4.00" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	DR-9754-20-BR-*	DR-9754-20W-BR-*	-
35	DR-9754-35-BR-*	DR-9754-35W-BR-*	DR-9754-35UR-BR-*
60	—	—	DR-9754-60UR-BR-*
80	—	—	DR-9754-80UR-BR-*
95	—	—	DR-9754-95UR-BR-*

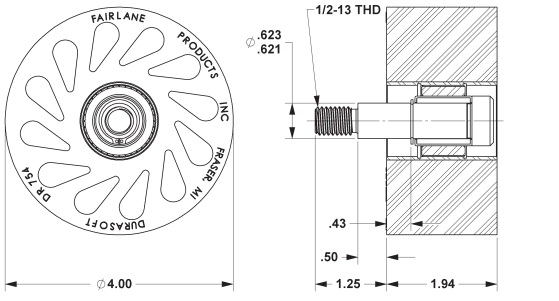
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



4.00" Dia. x 1.94" Width

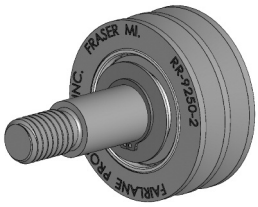
Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	DR-754-20-BR-*	DR-754-20W-BR-*	-
35	DR-754-35-BR-*	DR-754-35W-BR-*	DR-754-35UR-BR-*
60	—	—	DR-754-60UR-BR-*
80	—	—	DR-754-80UR-BR-*
95	—	—	DR-754-95UR-BR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.

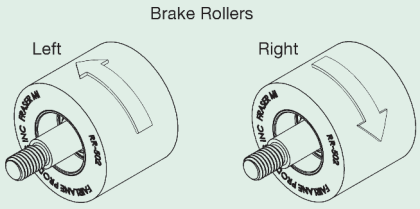


Fairlane®

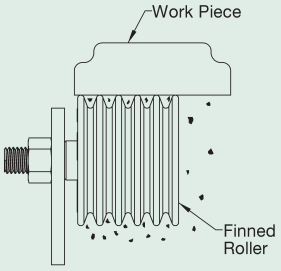
STUD MOUNT – ONE DIRECTIONAL CLUTCH BEARING – FINNED



How To Use



Brake roller clutch bearings will rotate freely in one direction. Note stud direction.



Fins on rollers prevent dirt and debris from becoming embedded in the roller surface.

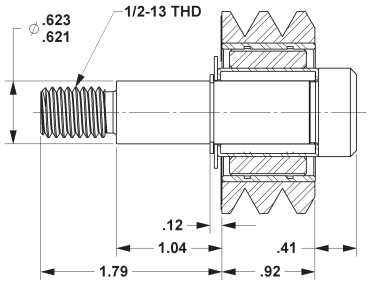
MA MODIFICATIONS AVAILABLE

Finned rollers have grooves on the surface and are permanently bonded to a steel insert with the bearing pack pressed in place. The clutch bearings allow the roller to only turn in one direction. They come assembled with a threaded stripper bolt and snap ring for fast easy mounting. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 60 durometer. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. All the rollers below have a type I bearing. See pages 520 and 521 for bearing type specifications. Available in either right or left hand rotation. With the stud pointed upward, right hand rotation turns clockwise and left hand rotation turns counter-clockwise.

2.00" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-9250-2-20-*	BR-9250-2-20W-*	-
35	BR-9250-2-35-*	BR-9250-2-35W-*	BR-9250-2-35UR-*
60	BR-9250-2-60-*	BR-9250-2-60W-*	BR-9250-2-60UR-*

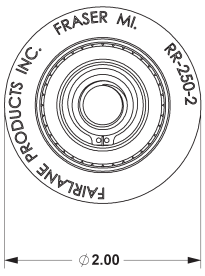
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.

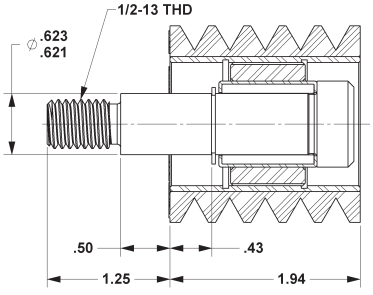


2.00" Dia. x 1.94" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-250-2-20-*	BR-250-2-20W-*	-
35	BR-250-2-35-*	BR-250-2-35W-*	BR-250-2-35UR-*
60	BR-250-2-60-*	BR-250-2-60W-*	BR-250-2-60UR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.

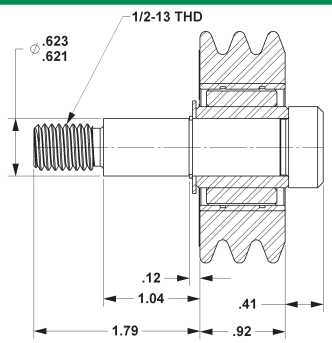




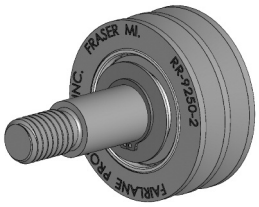
2.50" Dia. x .92" Width

Durometer	Neoprene Part #	Nitrile Part #	Urethane Part #
20	BR-9250-20-*	BR-9250-20W-*	-
35	BR-9250-35-*	BR-9250-35W-*	BR-9250-35UR-*
60	BR-9250-60-*	BR-9250-60W-*	BR-9250-60UR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



STUD MOUNT – ONE DIRECTIONAL CLUTCH BEARING – FINNED

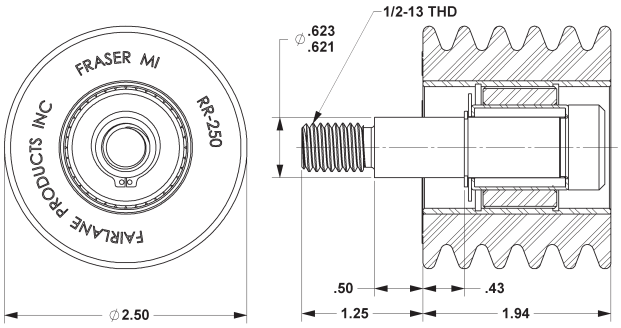


MA MODIFICATIONS AVAILABLE

2.50" Dia. x 1.94" Width

	Neoprene	Nitrile	Urethane
Durometer	Part #	Part #	Part #
20	BR-250-20-*	BR-250-20W-*	-
35	BR-250-35-*	BR-250-35W-*	BR-250-35UR-*
60	BR-250-60-*	BR-250-60W-*	BR-250-60UR-*

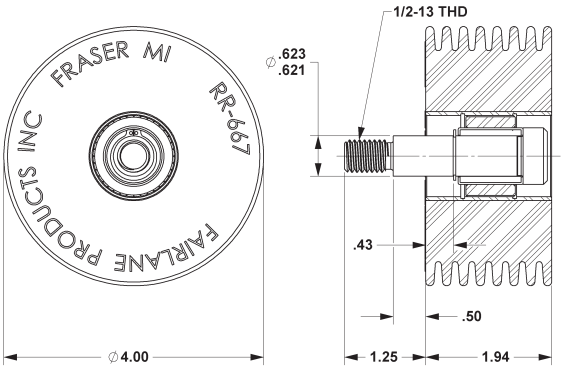
*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



4.00" Dia. x 1.94" Width

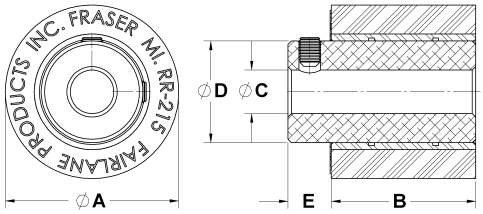
	Neoprene	Nitrile	Urethane
Durometer	Part #	Part #	Part #
35	BR-667-35-*	BR-667-35W-*	BR-667-35UR-*
60	BR-667-60-*	BR-667-60W-*	BR-667-60UR-*

*Add "R" to the end of the part number for right rolling direction. Add "L" to the end of the part number for left rolling direction.



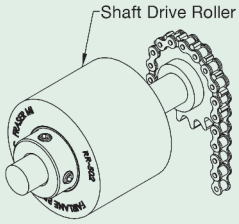
Fairlane®

SHAFT DRIVE MOUNT – SOLID ROLLERS



MA MODIFICATIONS AVAILABLE

How To Use



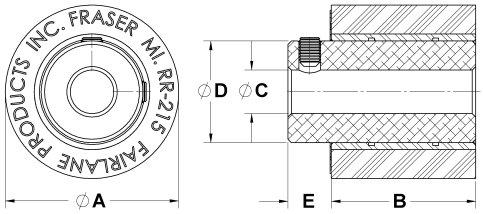
Use set screws to secure the roller to the shaft.

Solid rollers have a smooth surface and are permanently bonded to a steel insert. Designed to be mounted on a shaft. A hub extends past the roller and is supplied with two set screws (90 degrees apart) to fasten onto the shaft. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample RR-215-20-EX375.

Part #	Material	A	B	C	D	E	xx = Durometer
RR-215-xx-EX375	Neoprene	1.50	1.25	.376/.380	.88	.38	20 / 35 / 60 / 80
RR-215-xxW-EX375	Nitrile	1.50	1.25	.376/.380	.88	.38	20 / 35 / 60 / 80
RR-215-xxUR-EX375	Urethane	1.50	1.25	.376/.380	.88	.38	35 / 60 / 80 / 95
RR-215-xx-EX500	Neoprene	1.50	1.25	.501/.505	.88	.38	20 / 35 / 60 / 80
RR-215-xxW-EX500	Nitrile	1.50	1.25	.501/.505	.88	.38	20 / 35 / 60 / 80
RR-215-xxUR-EX500	Urethane	1.50	1.25	.501/.505	.88	.38	35 / 60 / 80 / 95
RR-92020-xx-EX500	Neoprene	2.00	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxW-EX500	Nitrile	2.00	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxUR-EX500	Urethane	2.00	.92	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-92020-xx-EX625	Neoprene	2.00	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxW-EX625	Nitrile	2.00	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxUR-EX625	Urethane	2.00	.92	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-92020-xx-EX750	Neoprene	2.00	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxW-EX750	Nitrile	2.00	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-92020-xxUR-EX750	Urethane	2.00	.92	.751/.756	1.25	.50	35 / 60 / 80 / 95
RR-92020-xx-EX10	Neoprene	2.00	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-92020-xxW-EX10	Nitrile	2.00	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-92020-xxUR-EX10	Urethane	2.00	.92	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-2020-xx-EX500	Neoprene	2.00	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxW-EX500	Nitrile	2.00	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxUR-EX500	Urethane	2.00	1.94	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-2020-xx-EX625	Neoprene	2.00	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxW-EX625	Nitrile	2.00	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxUR-EX625	Urethane	2.00	1.94	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-2020-xx-EX750	Neoprene	2.00	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxW-EX750	Nitrile	2.00	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-2020-xxUR-EX750	Urethane	2.00	1.94	.751/.756	1.25	.50	35 / 60 / 80 / 95
RR-2020-xx-EX10	Neoprene	2.00	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-2020-xxW-EX10	Nitrile	2.00	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-2020-xxUR-EX10	Urethane	2.00	1.94	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-9502-xx-EX500	Neoprene	2.50	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxW-EX500	Nitrile	2.50	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxUR-EX500	Urethane	2.50	.92	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-9502-xx-EX625	Neoprene	2.50	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxW-EX625	Nitrile	2.50	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxUR-EX625	Urethane	2.50	.92	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-9502-xx-EX750	Neoprene	2.50	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxW-EX750	Nitrile	2.50	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-9502-xxUR-EX750	Urethane	2.50	.92	.751/.756	1.25	.50	35 / 60 / 80 / 95
RR-9502-xx-EX10	Neoprene	2.50	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-9502-xxW-EX10	Nitrile	2.50	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-9502-xxUR-EX10	Urethane	2.50	.92	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-502-xx-EX500	Neoprene	2.50	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-502-xxW-EX500	Nitrile	2.50	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-502-xxUR-EX500	Urethane	2.50	1.94	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-502-xx-EX625	Neoprene	2.50	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-502-xxW-EX625	Nitrile	2.50	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-502-xxUR-EX625	Urethane	2.50	1.94	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-502-xx-EX750	Neoprene	2.50	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-502-xxW-EX750	Nitrile	2.50	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-502-xxUR-EX750	Urethane	2.50	1.94	.751/.756	1.25	.50	35 / 60 / 80 / 95

Fairlane®

SHAFT DRIVE MOUNT – SOLID ROLLERS

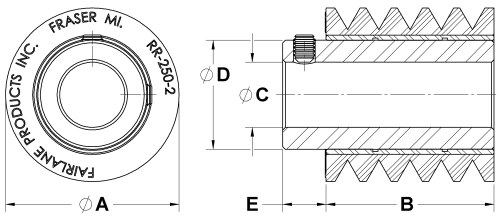


MA MODIFICATIONS AVAILABLE

Part #	Material	A	B	C	D	E	xx = Durometer
RR-502-xx-EX10	Neoprene	2.50	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-502-xxW-EX10	Nitrile	2.50	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-502-xxUR-EX10	Urethane	2.50	1.94	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-502-xx-EX12	Neoprene	2.50	1.94	1.251/1.256	1.63	.50	60
RR-502-xxUR-EX12	Urethane	2.50	1.94	1.251/1.256	1.63	.50	60 / 80 / 95
RR-9754-xx-EX500	Neoprene	4.00	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxW-EX500	Nitrile	4.00	.92	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxUR-EX500	Urethane	4.00	.92	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-9754-xx-EX625	Neoprene	4.00	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxW-EX625	Nitrile	4.00	.92	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxUR-EX625	Urethane	4.00	.92	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-9754-xx-EX750	Neoprene	4.00	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxW-EX750	Nitrile	4.00	.92	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-9754-xxUR-EX750	Urethane	4.00	.92	.751/.756	1.25	.50	35 / 60 / 80 / 95
RR-9754-xx-EX10	Neoprene	4.00	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-9754-xxW-EX10	Nitrile	4.00	.92	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-9754-xxUR-EX10	Urethane	4.00	.92	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-754-xx-EX500	Neoprene	4.00	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-754-xxW-EX500	Nitrile	4.00	1.94	.501/.505	1.25	.50	20 / 35 / 60 / 80
RR-754-xxUR-EX500	Urethane	4.00	1.94	.501/.505	1.25	.50	35 / 60 / 80 / 95
RR-754-xx-EX625	Neoprene	4.00	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-754-xxW-EX625	Nitrile	4.00	1.94	.626/.631	1.25	.50	20 / 35 / 60 / 80
RR-754-xxUR-EX625	Urethane	4.00	1.94	.626/.631	1.25	.50	35 / 60 / 80 / 95
RR-754-xx-EX750	Neoprene	4.00	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-754-xxW-EX750	Nitrile	4.00	1.94	.751/.756	1.25	.50	20 / 35 / 60 / 80
RR-754-xxUR-EX750	Urethane	4.00	1.94	.751/.756	1.25	.50	35 / 60 / 80 / 95
RR-754-xx-EX10	Neoprene	4.00	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-754-xxW-EX10	Nitrile	4.00	1.94	1.001/1.006	1.37	.50	20 / 35 / 60 / 80
RR-754-xxUR-EX10	Urethane	4.00	1.94	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
RR-754-xx-EX12	Neoprene	4.00	1.94	1.251/1.256	1.63	.50	35 / 60
RR-754-xxW-EX12	Nitrile	4.00	1.94	1.251/1.256	1.63	.50	60
RR-754-xxUR-EX12	Urethane	4.00	1.94	1.251/1.256	1.63	.50	60 / 80 / 95
RR-5020-xxUR-EX500	Urethane	5.00	1.94	.501/.505	1.25	.50	35 / 60 / 80
RR-5020-xxUR-EX625	Urethane	5.00	1.94	.626/.631	1.25	.50	35 / 60 / 80
RR-5020-xxUR-EX750	Urethane	5.00	1.94	.751/.756	1.25	.50	35 / 60 / 80
RR-5020-xxUR-EX10	Urethane	5.00	1.94	1.001/1.006	1.37	.50	35 / 60 / 80
RR-5020-xxUR-EX12	Urethane	5.00	1.94	1.251/1.256	1.63	.50	35 / 60 / 80
RR-6020-xxUR-EX500	Urethane	6.00	1.94	.501/.505	1.25	.50	35 / 60 / 80
RR-6020-xxUR-EX625	Urethane	6.00	1.94	.626/.631	1.25	.50	35 / 60 / 80
RR-6020-xxUR-EX750	Urethane	6.00	1.94	.751/.756	1.25	.50	35 / 60 / 80
RR-6020-xxUR-EX10	Urethane	6.00	1.94	1.001/1.006	1.37	.50	35 / 60 / 80
RR-6020-xxUR-EX12	Urethane	6.00	1.94	1.251/1.256	1.63	.50	35 / 60 / 80

Fairlane®

SHAFT DRIVE MOUNT – FINNED ROLLERS



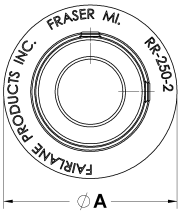
MA MODIFICATIONS AVAILABLE

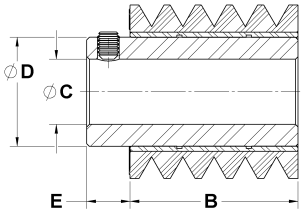
Finned rollers have grooves on the surface and are permanently bonded to a steel insert. Designed to be mounted on a shaft. A hub extends past the roller and is supplied with two set screws (90 degrees apart) to fasten onto the shaft. The grooves create less surface contact on the work piece and allow dirt, debris and liquids to pass. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 60 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample RR-9250-2-20-EX500.

Part #	Material	A	B	C	D	E	# of Fins	xx = Durometer
RR-9250-2-xx-EX500	Neoprene	2.00	.92	.501/.505	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxW-EX500	Nitrile	2.00	.92	.501/.505	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxUR-EX500	Urethane	2.00	.92	.501/.505	1.25	.50	3	35 / 60
RR-9250-2-xx-EX625	Neoprene	2.00	.92	.626/.631	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxW-EX625	Nitrile	2.00	.92	.626/.631	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxUR-EX625	Urethane	2.00	.92	.626/.631	1.25	.50	3	35 / 60
RR-9250-2-xx-EX750	Neoprene	2.00	.92	.751/.756	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxW-EX750	Nitrile	2.00	.92	.751/.756	1.25	.50	3	20 / 35 / 60
RR-9250-2-xxUR-EX750	Urethane	2.00	.92	.751/.756	1.25	.50	3	35 / 60
RR-9250-2-xx-EX10	Neoprene	2.00	.92	1.001/1.006	1.37	.50	3	20 / 35 / 60
RR-9250-2-xxW-EX10	Nitrile	2.00	.92	1.001/1.006	1.37	.50	3	20 / 35 / 60
RR-9250-2-xxUR-EX10	Urethane	2.00	.92	1.001/1.006	1.37	.50	3	35 / 60
RR-250-2-xx-EX500	Neoprene	2.00	1.94	.501/.505	1.25	.50	6	20 / 35 / 60
RR-250-2-xxW-EX500	Nitrile	2.00	1.94	.501/.505	1.25	.50	6	20 / 35 / 60
RR-250-2-xxUR-EX500	Urethane	2.00	1.94	.501/.505	1.25	.50	6	35 / 60
RR-250-2-xx-EX625	Neoprene	2.00	1.94	.626/.631	1.25	.50	6	20 / 35 / 60
RR-250-2-xxW-EX625	Nitrile	2.00	1.94	.626/.631	1.25	.50	6	20 / 35 / 60
RR-250-2-xxUR-EX625	Urethane	2.00	1.94	.626/.631	1.25	.50	6	35 / 60
RR-250-2-xx-EX750	Neoprene	2.00	1.94	.751/.756	1.25	.50	6	20 / 35 / 60
RR-250-2-xxW-EX750	Nitrile	2.00	1.94	.751/.756	1.25	.50	6	20 / 35 / 60
RR-250-2-xxUR-EX750	Urethane	2.00	1.94	.751/.756	1.25	.50	6	35 / 60
RR-250-2-xx-EX10	Neoprene	2.00	1.94	1.001/1.006	1.37	.50	6	20 / 35 / 60
RR-250-2-xxW-EX10	Nitrile	2.00	1.94	1.001/1.006	1.37	.50	6	20 / 35 / 60
RR-250-2-xxUR-EX10	Urethane	2.00	1.94	1.001/1.006	1.37	.50	6	35 / 60
RR-9250-xx-EX500	Neoprene	2.50	.92	.501/.505	1.25	.50	3	20 / 35 / 60
RR-9250-xxW-EX500	Nitrile	2.50	.92	.501/.505	1.25	.50	3	20 / 35 / 60
RR-9250-xxUR-EX500	Urethane	2.50	.92	.501/.505	1.25	.50	3	35 / 60
RR-9250-xx-EX625	Neoprene	2.50	.92	.626/.631	1.25	.50	3	20 / 35 / 60
RR-9250-xxW-EX625	Nitrile	2.50	.92	.626/.631	1.25	.50	3	20 / 35 / 60
RR-9250-xxUR-EX625	Urethane	2.50	.92	.626/.631	1.25	.50	3	35 / 60
RR-9250-xx-EX750	Neoprene	2.50	.92	.751/.756	1.25	.50	3	20 / 35 / 60
RR-9250-xxW-EX750	Nitrile	2.50	.92	.751/.756	1.25	.50	3	20 / 35 / 60
RR-9250-xxUR-EX750	Urethane	2.50	.92	.751/.756	1.25	.50	3	35 / 60
RR-9250-xx-EX10	Neoprene	2.50	.92	1.001/1.006	1.37	.50	3	20 / 35 / 60
RR-9250-xxW-EX10	Nitrile	2.50	.92	1.001/1.006	1.37	.50	3	20 / 35 / 60
RR-9250-xxUR-EX10	Urethane	2.50	.92	1.001/1.006	1.37	.50	3	35 / 60
RR-250-xx-EX500	Neoprene	2.50	1.94	.501/.505	1.25	.50	6	20 / 35 / 60
RR-250-xxW-EX500	Nitrile	2.50	1.94	.501/.505	1.25	.50	6	20 / 35 / 60
RR-250-xxUR-EX500	Urethane	2.50	1.94	.501/.505	1.25	.50	6	35 / 60
RR-250-xx-EX625	Neoprene	2.50	1.94	.626/.631	1.25	.50	6	20 / 35 / 60
RR-250-xxW-EX625	Nitrile	2.50	1.94	.626/.631	1.25	.50	6	20 / 35 / 60
RR-250-xxUR-EX625	Urethane	2.50	1.94	.626/.631	1.25	.50	6	35 / 60
RR-250-xx-EX750	Neoprene	2.50	1.94	.751/.756	1.25	.50	6	20 / 35 / 60
RR-250-xxW-EX750	Nitrile	2.50	1.94	.751/.756	1.25	.50	6	20 / 35 / 60
RR-250-xxUR-EX750	Urethane	2.50	1.94	.751/.756	1.25	.50	6	35 / 60
RR-250-xx-EX10	Neoprene	2.50	1.94	1.001/1.006	1.37	.50	6	20 / 35 / 60
RR-250-xxW-EX10	Nitrile	2.50	1.94	1.001/1.006	1.37	.50	6	20 / 35 / 60
RR-250-xxUR-EX10	Urethane	2.50	1.94	1.001/1.006	1.37	.50	6	35 / 60
RR-250-xx-EX12	Neoprene	2.50	1.94	1.251/1.256	1.63	.50	6	35

Fairlane®

SHAFT DRIVE MOUNT – FINNED ROLLERS



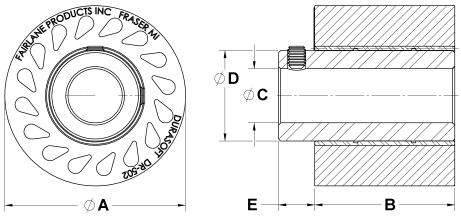


MA MODIFICATIONS AVAILABLE

Part #	Material	A	B	C	D	E	# of Fins	xx = Durometer
RR-667-xx-EX500	Neoprene	4.00	1.94	.501/.505	1.25	.50	8	35 / 60
RR-667-xxW-EX500	Nitrile	4.00	1.94	.501/.505	1.25	.50	8	35 / 60
RR-667-xxUR-EX500	Urethane	4.00	1.94	.501/.505	1.25	.50	8	35 / 60
RR-667-xx-EX625	Neoprene	4.00	1.94	.626/.631	1.25	.50	8	35 / 60
RR-667-xxW-EX625	Nitrile	4.00	1.94	.626/.631	1.25	.50	8	35 / 60
RR-667-xxUR-EX625	Urethane	4.00	1.94	.626/.631	1.25	.50	8	35 / 60
RR-667-xx-EX750	Neoprene	4.00	1.94	.751/.756	1.25	.50	8	35 / 60
RR-667-xxW-EX750	Nitrile	4.00	1.94	.751/.756	1.25	.50	8	35 / 60
RR-667-xxUR-EX750	Urethane	4.00	1.94	.751/.756	1.25	.50	8	35 / 60
RR-667-xx-EX10	Neoprene	4.00	1.94	1.001/1.006	1.37	.50	8	35 / 60
RR-667-xxW-EX10	Nitrile	4.00	1.94	1.001/1.006	1.37	.50	8	35 / 60
RR-667-xxUR-EX10	Urethane	4.00	1.94	1.001/1.006	1.37	.50	8	35 / 60
RR-667-xx-EX12	Neoprene	4.00	1.94	1.251/1.256	1.63	.50	8	35

Fairlane®

SHAFT DRIVE MOUNT – DURASOFT® ROLLERS

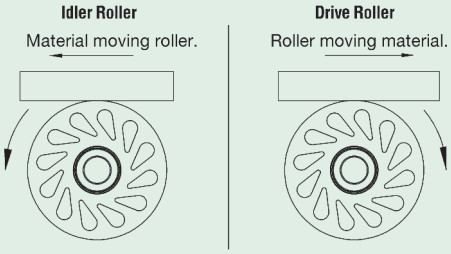


MA MODIFICATIONS AVAILABLE

DuraSoft rollers have a smooth surface and are permanently bonded to a steel insert. Designed to be mounted on a shaft. A hub extends past the roller and is supplied with two set screws (90 degrees apart) to fasten onto the shaft. The "teardrop" holes allow the roller to flex for firm yet non-damaging contact. Rollers are available in neoprene, nitrile and urethane materials with hardness ranging from 20 to 95 durometer. See page 519 for material and durometer specifications. Line drawings shown are not proportional for all parts. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net. To order part, add desired durometer (xx) to the part number. Sample DR-9502-35UR-EX500.

How To Use

Proper Durasoft Roller Installation

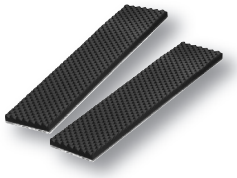


Note teardrop shape compared to material direction.

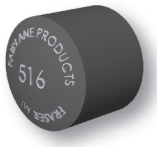
Part #	Material	A	B	C	D	E	xx = Durometer
DR-9502-xxUR-EX500	Urethane	2.50	.92	.501/.505	1.25	.50	35 / 60 / 80 / 95
DR-9502-xxUR-EX625	Urethane	2.50	.92	.626/.631	1.25	.50	35 / 60 / 80 / 95
DR-9502-xxUR-EX750	Urethane	2.50	.92	.751/.756	1.25	.50	35 / 60 / 80 / 95
DR-9502-xxUR-EX10	Urethane	2.50	.92	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
DR-502-xxUR-EX500	Urethane	2.50	1.94	.501/.505	1.25	.50	35 / 60 / 80 / 95
DR-502-xxUR-EX625	Urethane	2.50	1.94	.626/.631	1.25	.50	35 / 60 / 80 / 95
DR-502-xxUR-EX750	Urethane	2.50	1.94	.751/.756	1.25	.50	35 / 60 / 80 / 95
DR-502-xxUR-EX10	Urethane	2.50	1.94	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
DR-9754-xx-EX500	Neoprene	4.00	.92	.501/.505	1.25	.50	20 / 35
DR-9754-xxW-EX500	Nitrile	4.00	.92	.501/.505	1.25	.50	20 / 35
DR-9754-xxUR-EX500	Urethane	4.00	.92	.501/.505	1.25	.50	35 / 60 / 80 / 95
DR-9754-xx-EX625	Neoprene	4.00	.92	.626/.631	1.25	.50	20 / 35
DR-9754-xxW-EX625	Nitrile	4.00	.92	.626/.631	1.25	.50	20 / 35
DR-9754-xxUR-EX625	Urethane	4.00	.92	.626/.631	1.25	.50	35 / 60 / 80 / 95
DR-9754-xx-EX750	Neoprene	4.00	.92	.751/.756	1.25	.50	20 / 35
DR-9754-xxW-EX750	Nitrile	4.00	.92	.751/.756	1.25	.50	20 / 35
DR-9754-xxUR-EX750	Urethane	4.00	.92	.751/.756	1.25	.50	35 / 60 / 80 / 95
DR-9754-xx-EX10	Neoprene	4.00	.92	1.001/1.006	1.37	.50	20 / 35
DR-9754-xxW-EX10	Nitrile	4.00	.92	1.001/1.006	1.37	.50	20 / 35
DR-9754-xxUR-EX10	Urethane	4.00	.92	1.001/1.006	1.37	.50	35 / 60 / 80 / 95
DR-754-xx-EX500	Neoprene	4.00	1.94	.501/.505	1.25	.50	20 / 35
DR-754-xxW-EX500	Nitrile	4.00	1.94	.501/.505	1.25	.50	20 / 35
DR-754-xxUR-EX500	Urethane	4.00	1.94	.501/.505	1.25	.50	35 / 60 / 80 / 95
DR-754-xx-EX625	Neoprene	4.00	1.94	.626/.631	1.25	.50	20 / 35
DR-754-xxW-EX625	Nitrile	4.00	1.94	.626/.631	1.25	.50	20 / 35
DR-754-xxUR-EX625	Urethane	4.00	1.94	.626/.631	1.25	.50	35 / 60 / 80 / 95
DR-754-xx-EX750	Neoprene	4.00	1.94	.751/.756	1.25	.50	20 / 35
DR-754-xxW-EX750	Nitrile	4.00	1.94	.751/.756	1.25	.50	20 / 35
DR-754-xxUR-EX750	Urethane	4.00	1.94	.751/.756	1.25	.50	35 / 60 / 80 / 95
DR-754-xx-EX10	Neoprene	4.00	1.94	1.001/1.006	1.37	.50	20 / 35
DR-754-xxW-EX10	Nitrile	4.00	1.94	1.001/1.006	1.37	.50	20 / 35
DR-754-xxUR-EX10	Urethane	4.00	1.94	1.001/1.006	1.37	.50	35 / 60 / 80 / 95

BUMPERS

RUBBER GRIPPER PADS

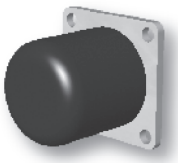


ROUND BUMPER FEMALE TAP

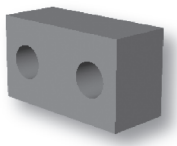


ROUND BUMPER MALE STUD

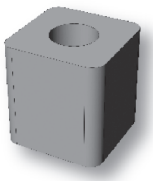
ROUND BUMPER PLATE MOUNT



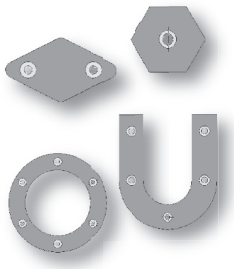
RECTANGULAR BUMPERS



SQUARE BUMPERS



CUSTOM CUT BUMPERS



Fixtureworks® stocks a full-line of bumpers from Fairlane® Products that is ready to ship. Choose from round, square or rectangular styles and from polyurethane, neoprene or nitrile materials with a variety of mounting options. And they're ready when you need them.

BUMPERS

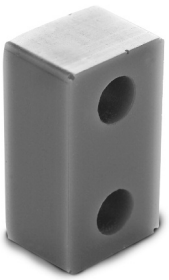
STYLES & MOUNTING

Round Styles are permanently bonded to a steel core and are available in male, female, and plate mounted styles. They range in diameters from 3/8" up to 4". Female mounting styles come in either flush mount or hex standoff and are available in both inch and metric sizes. Male thread mount styles are available with a variety of stud threads and lengths in inch and metric sizes. They are available in a flush mount or with a hex standoff. The plate mount style allows for the bumper to be bolted in place form the top.

Rectangular and Square Bumpers are available either with or without a metal plate backing. Without plate backing offers the benefit of no metal parts to rust or corrode. With plate backing, there is greater rigidity and stronger mounting. Rectangular and square bumpers are drilled and counter bored for top side mounting with a socket head cap screw. Custom modifications of standard parts are available.

Custom Cut Bumpers

Custom cut bumpers are available in various dimensions, shapes and sizes to meet your specific needs. Custom bumpers have a 1/8" aluminum plate backing. Contact Fixtureworks for your quote.

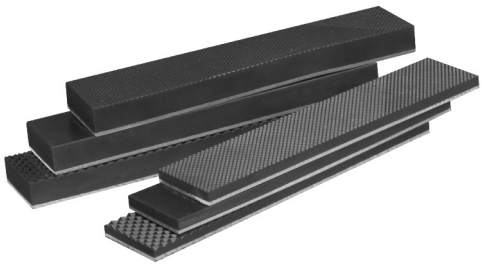


MATERIALS

Bumpers are available in three materials to meet a wide range of application needs. Polyurethane, nitrile and black neoprene offer different characteristics in terms of strength, chemical and environmental resistances and wear.

DUROMETERS

Bumpers are available in different durometers (hardness) to meet a wide variety of applications. Hardness ranging from a pencil eraser to a hockey puck allows for use in light and heavy duty applications. See page 561 for material and durometer specifications.



GP SERIES RUBBER GRIPPER PADS

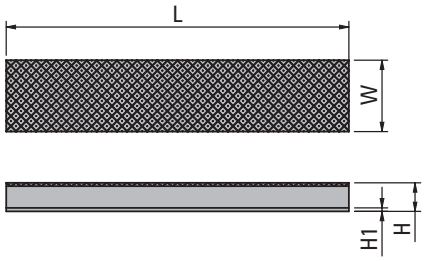
Grippers pads are ideal for industrial grade contact wear points in automation and positioning applications. Black nitrile rubber is molded to a malleable aluminum backing that can be formed to round or sharp corners. Standard sizes available off-the-shelf for designers and end users to make final size and mounting preparation, or custom sizes made to order.

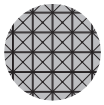
Fairlane®

RUBBER GRIPPER PADS – GP SERIES

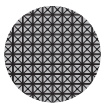
Strips

MA MODIFICATIONS AVAILABLE





Hatch Surface
Least surface contact; Increased surface pressure; forces applied over reduced contact area



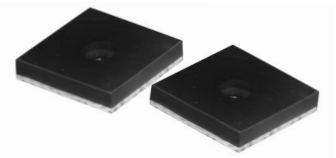
Fine Hatch Surface
Medium surface contact; Medium surface pressure; forces applied over reduced contact area

Smooth Surface
Greatest surface contact; Gripping forces evenly distributed

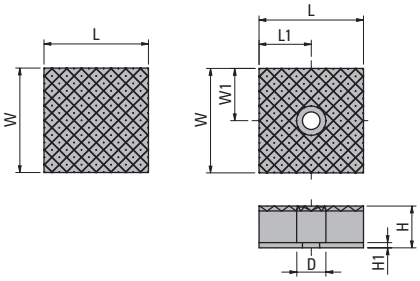
Rubber gripper pads are ideal for industrial grade contact wear points in automation and positioning applications. Black nitrile rubber (60A durometer) is molded to a malleable aluminum backing that can be formed to round or sharp corners. The aluminum backing is 1/16" thick. Select the smooth surface for the greatest contact area to evenly distribute the gripping forces. Select the fine hatch or hatch surface to increase surface pressure and apply the force over a reduced contact area. Adhesive backing (.045" thick) available for mounting and is provided separately, not affixed. Highly customizable and easily replaceable for a wide variety of uses. Standard sizes available off-the-shelf for designers and end users to make final size and mounting preparation, or custom sizes made to order. See nitrile material specifications on page 519.

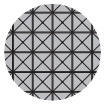
					-.000/+.030	
Part #	Plate	Surface	L	W	H	H1
GP-604H	Aluminum	Hatch	6	1-1/4	1/4	1/16
GP-604F	Aluminum	Fine Hatch	6	1-1/4	1/4	1/16
GP-604S	Aluminum	Smooth	6	1-1/4	1/4	1/16
GP-608H	Aluminum	Hatch	6	1-1/4	1/2	1/16
GP-608F	Aluminum	Fine Hatch	6	1-1/4	1/2	1/16
GP-608S	Aluminum	Smooth	6	1-1/4	1/2	1/16
GPA-604H	Aluminum w/ Adhesive Backing	Hatch	6	1-1/4	1/4	1/16
GPA-604F	Aluminum w/ Adhesive Backing	Fine Hatch	6	1-1/4	1/4	1/16
GPA-604S	Aluminum w/ Adhesive Backing	Smooth	6	1-1/4	1/4	1/16
GPA-608H	Aluminum w/ Adhesive Backing	Hatch	6	1-1/4	1/2	1/16
GPA-608F	Aluminum w/ Adhesive Backing	Fine Hatch	6	1-1/4	1/2	1/16
GPA-608S	Aluminum w/ Adhesive Backing	Smooth	6	1-1/4	1/2	1/16

Squares

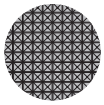


MA MODIFICATIONS AVAILABLE





Hatch Surface
Least surface contact; Increased surface pressure; forces applied over reduced contact area



Fine Hatch Surface
Medium surface contact; Medium surface pressure; forces applied over reduced contact area

Smooth Surface
Greatest surface contact; Gripping forces evenly distributed

Rubber gripper pads are ideal for industrial grade contact wear points in automation and positioning applications. Black nitrile rubber (60A durometer) is molded to a malleable aluminum backing that can be formed to round or sharp corners. The aluminum backing is 1/16" thick. Select the smooth surface for the greatest contact area to evenly distribute the gripping forces. Select the fine hatch or hatch surface to increase surface pressure and apply the force over a reduced contact area. Offered with a c'bore hole or adhesive backing or mounting. The adhesive backing is .045" thick and affixed to the aluminum backing. Highly customizable and easily replaceable for a wide variety of uses. Custom sizes available. See nitrile material specifications on page 519.

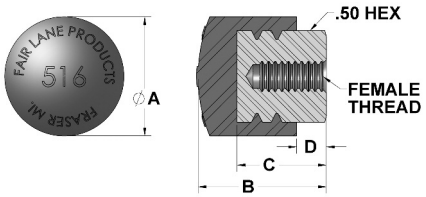
			D					-.000/+.030	
Part #	Plate	Surface	For BHCS Screw	L	L1	W	W1	H	H1
GP-124H	Aluminum	Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-124F	Aluminum	Fine Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-124S	Aluminum	Smooth	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GP-128H	Aluminum	Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GP-128F	Aluminum	Fine Hatch	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GP-128S	Aluminum	Smooth	#8 or M4	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-124H	Aluminum w/ Adhesive Backing	Hatch	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-124F	Aluminum w/ Adhesive Backing	Fine Hatch	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-124S	Aluminum w/ Adhesive Backing	Smooth	–	1-1/4	5/8	1-1/4	5/8	1/4	1/16
GPA-128H	Aluminum w/ Adhesive Backing	Hatch	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-128F	Aluminum w/ Adhesive Backing	Fine Hatch	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16
GPA-128S	Aluminum w/ Adhesive Backing	Smooth	–	1-1/4	5/8	1-1/4	5/8	1/2	1/16

Fairlane®

BUMPERS – ROUND

Inch | Female Thread | Hex Shoulder | Steel Core | 3/4" Diameter

MA MODIFICATIONS AVAILABLE

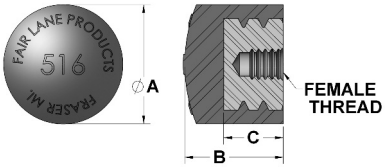


Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	C	D	Durometer	Thread	Thread Depth	Hex	Material
RBH-516-024UR	3/4	13/16	9/16	3/16	80	#10-24	7/16	1/2	Urethane
RBH-516-032UR	3/4	13/16	9/16	3/16	80	#10-32	7/16	1/2	Urethane
RBH-516-120UR	3/4	13/16	9/16	3/16	80	1/4-20	7/16	1/2	Urethane
RBH-516-128UR	3/4	13/16	9/16	3/16	80	1/4-28	7/16	1/2	Urethane
RBH-516-518UR	3/4	13/16	9/16	3/16	80	5/16-18	7/16	1/2	Urethane
RBH-516-524UR	3/4	13/16	9/16	3/16	80	5/16-24	7/16	1/2	Urethane

Inch | Female Thread | Flush Mount | Steel Core | 3/4" Diameter

MA MODIFICATIONS AVAILABLE



Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

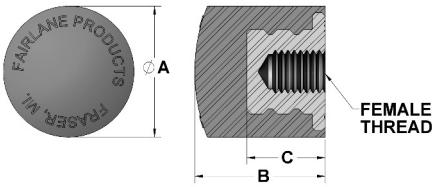
Part #	A Dia	B Length	C	Durometer	Thread	Thread Depth	Material
RB-516-024-40	3/4	5/8	3/8	40	#10-24	1/4	Neoprene
RB-516-024	3/4	5/8	3/8	70	#10-24	1/4	Neoprene
RB-516-032-40	3/4	5/8	3/8	40	#10-32	1/4	Neoprene
RB-516-032	3/4	5/8	3/8	70	#10-32	1/4	Neoprene
RB-516-120-40	3/4	5/8	3/8	40	1/4-20	1/4	Neoprene
RB-516-120	3/4	5/8	3/8	70	1/4-20	1/4	Neoprene
RB-516-128-40	3/4	5/8	3/8	40	1/4-28	1/4	Neoprene
RB-516-128	3/4	5/8	3/8	70	1/4-28	1/4	Neoprene
RB-516-518-40	3/4	5/8	3/8	40	5/16-18	1/4	Neoprene
RB-516-45	3/4	5/8	3/8	45	5/16-18	1/4	Neoprene
RB-516-518	3/4	5/8	3/8	70	5/16-18	1/4	Neoprene
RB-516-524-40	3/4	5/8	3/8	40	5/16-24	1/4	Neoprene
RB-516-524	3/4	5/8	3/8	70	5/16-24	1/4	Neoprene
RB-516-024UR	3/4	5/8	3/8	80	#10-24	1/4	Urethane
RB-516-032UR	3/4	5/8	3/8	80	#10-32	1/4	Urethane
RB-516-120UR	3/4	5/8	3/8	80	1/4-20	1/4	Urethane
RB-516-128UR	3/4	5/8	3/8	80	1/4-28	1/4	Urethane
RB-516-60UR	3/4	5/8	3/8	60	5/16-18	1/4	Urethane
RB-516-518UR	3/4	5/8	3/8	80	5/16-18	1/4	Urethane
RB-516-524UR	3/4	5/8	3/8	80	5/16-24	1/4	Urethane
RB-516-70W	3/4	5/8	3/8	70	5/16-18	1/4	Nitrile

Fairlane®

BUMPERS – ROUND

Inch | Female Thread | Flush Mount | Steel Core | 1-1/4" to 2-1/4" Diameter

MA MODIFICATIONS AVAILABLE



Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

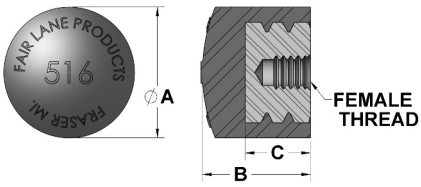
Part #	A Dia	B Length	C	Durometer	Thread	Thread Depth	Material
RB-3	1-1/4	1-1/4	3/4	40	3/8-16	1/2	Neoprene
RB-4	1-1/4	1-1/4	3/4	40	3/8-24	1/2	Neoprene
RB-5	1-1/4	1-1/4	3/4	40	1/2-13	1/2	Neoprene
RB-6	1-1/4	1-1/4	3/4	40	1/2-20	1/2	Neoprene
RB-7	1-1/4	1-1/4	3/4	40	7/16-20	1/2	Neoprene
RB-8	1-1/4	1-1/4	3/4	40	5/8-18	1/2	Neoprene
RB-9	1-3/4	1-5/8	7/8	40	5/8-11	5/8	Neoprene
RB-10	1-3/4	1-5/8	7/8	40	5/8-18	5/8	Neoprene
RB-12	2-1/4	2-1/4	1-3/8	40	3/4-10	1"	Neoprene
RB-13	2-1/4	2-1/4	1-3/8	40	3/4-16	1"	Neoprene
RB-14	2-1/4	2-1/4	1-3/8	40	1"-8	1"	Neoprene
RB-3W	1-1/4	1-1/4	3/4	40	3/8-16	1/2	Nitrile
RB-4W	1-1/4	1-1/4	3/4	40	3/8-24	1/2	Nitrile
RB-5W	1-1/4	1-1/4	3/4	40	1/2-13	1/2	Nitrile
RB-6W	1-1/4	1-1/4	3/4	40	1/2-20	1/2	Nitrile
RB-7W	1-1/4	1-1/4	3/4	40	7/16-20	1/2	Nitrile
RB-8W	1-1/4	1-1/4	3/4	40	5/8-18	1/2	Nitrile
RB-9W	1-3/4	1-5/8	7/8	40	5/8-11	5/8	Nitrile
RB-10W	1-3/4	1-5/8	7/8	40	5/8-18	5/8	Nitrile
RB-12W	2-1/4	2-1/4	1-3/8	40	3/4-10	1"	Nitrile
RB-13W	2-1/4	2-1/4	1-3/8	40	3/4-16	1"	Nitrile
RB-14W	2-1/4	2-1/4	1-3/8	40	1"-8	1"	Nitrile
RB-3-60UR	1-1/4	1-1/4	3/4	60	3/8-16	1/2	Urethane
RB-3UR	1-1/4	1-1/4	3/4	80	3/8-16	1/2	Urethane
RB-4-60UR	1-1/4	1-1/4	3/4	60	3/8-24	1/2	Urethane
RB-4UR	1-1/4	1-1/4	3/4	80	3/8-24	1/2	Urethane
RB-5-60UR	1-1/4	1-1/4	3/4	60	1/2-13	1/2	Urethane
RB-5UR	1-1/4	1-1/4	3/4	80	1/2-13	1/2	Urethane
RB-6-60UR	1-1/4	1-1/4	3/4	60	1/2-20	1/2	Urethane
RB-6UR	1-1/4	1-1/4	3/4	80	1/2-20	1/2	Urethane
RB-7-60UR	1-1/4	1-1/4	3/4	60	7/16-20	1/2	Urethane
RB-7UR	1-1/4	1-1/4	3/4	80	7/16-20	1/2	Urethane
RB-8-60UR	1-1/4	1-1/4	3/4	60	5/8-18	1/2	Urethane
RB-8UR	1-1/4	1-1/4	3/4	80	5/8-18	1/2	Urethane
RB-9-60UR	1-3/4	1-5/8	7/8	60	5/8-11	5/8	Urethane
RB-9UR	1-3/4	1-5/8	7/8	80	5/8-11	5/8	Urethane
RB-10-60UR	1-3/4	1-5/8	7/8	60	5/8-18	5/8	Urethane
RB-10UR	1-3/4	1-5/8	7/8	80	5/8-18	5/8	Urethane
RB-12-60UR	2-1/4	2-1/4	1-3/8	60	3/4-10	1"	Urethane
RB-12UR	2-1/4	2-1/4	1-3/8	80	3/4-10	1"	Urethane
RB-13-60UR	2-1/4	2-1/4	1-3/8	60	3/4-16	1"	Urethane
RB-13UR	2-1/4	2-1/4	1-3/8	80	3/4-16	1"	Urethane
RB-14-60UR	2-1/4	2-1/4	1-3/8	60	1"-8	1"	Urethane
RB-14UR	2-1/4	2-1/4	1-3/8	80	1"-8	1"	Urethane

Fairlane®

BUMPERS – ROUND

Metric | Female Thread | Flush Mount | Steel Core | 19mm to 57mm Diameter

MA MODIFICATIONS AVAILABLE

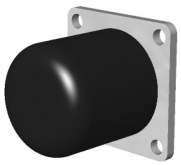


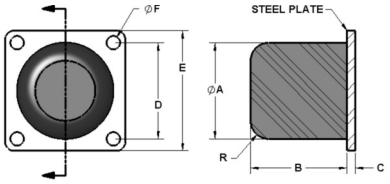
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	C	Durometer	Thread	Thread Depth	Material
MRB-5166	19	16	9.0	70	M6X1.0	6	Neoprene
MRB-5168	19	16	9.0	70	M8X1.25	6	Neoprene
MRB-3	32	32	19.0	40	M10X1.5	13	Neoprene
MRB-4	32	32	19.0	40	M10X1.25	13	Neoprene
MRB-5	32	32	19.0	40	M12X1.75	13	Neoprene
MRB-6	32	32	19.0	40	M12X1.25	13	Neoprene
MRB-8	32	32	19.0	40	M16X2.0	13	Neoprene
MRB-9	45	42	22.5	40	M16X2.0	16	Neoprene
MRB-12	57	57	35.0	40	M20X2.5	25	Neoprene
MRB-14	57	57	35.0	40	M24X3.0	25	Neoprene
MRB-5166-80UR	19	16	9.0	80	M6X1.0	6	Urethane
MRB-5168-80UR	19	16	9.0	80	M8X1.25	6	Urethane
MRB-3UR	32	32	19.0	80	M10X1.5	13	Urethane
MRB-4UR	32	32	19.0	80	M10X1.25	13	Urethane
MRB-5UR	32	32	19.0	80	M12X1.75	13	Urethane
MRB-6UR	32	32	19.0	80	M12X1.25	13	Urethane
MRB-8UR	32	32	19.0	80	M16X2.0	13	Urethane
MRB-9UR	45	42	22.5	80	M16X2.0	16	Urethane
MRB-12UR	57	57	35.0	80	M20X2.5	25	Urethane
MRB-14UR	57	57	35.0	80	M24X3.0	25	Urethane

Inch | Steel Plate Mount | 2" to 4" Diameter

MA MODIFICATIONS AVAILABLE





Used for stops, guides, bumpers and protection. Molded urethane bonded to steel plate. Urethane offers highest resistance, strength and load bearing. High elongation hardness and resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

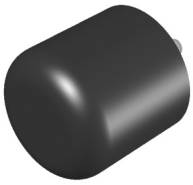
Part #	A Dia	B Length	C	D	Durometer	E	F	R	Material
RB-2020-P-60UR	2	2	3/16	2	60	2-1/2	9/32	3/8	Urethane
RB-2525-P-60UR	2-1/2	2-1/2	3/16	2-1/2	60	3-1/4	9/32	1/2	Urethane
RB-3030-P-60UR	3	3	1/4	3	60	4	13/32	5/8	Urethane
RB-4040-P-60UR	4	4	1/4	4	60	5	13/32	3/4	Urethane
RB-2020-P-80UR	2	2	3/16	2	80	2-1/2	9/32	3/8	Urethane
RB-2525-P-80UR	2-1/2	2-1/2	3/16	2-1/2	80	3-1/4	9/32	1/2	Urethane
RB-3030-P-80UR	3	3	1/4	3	80	4	13/32	5/8	Urethane
RB-4040-P-80UR	4	4	1/4	4	80	5	13/32	3/4	Urethane

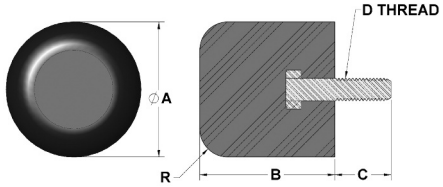
Fairlane®

BUMPERS – ROUND

Inch | Male Thread | Flush Mount | 1" to 4" Diameter

MA MODIFICATIONS AVAILABLE



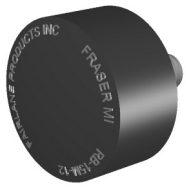


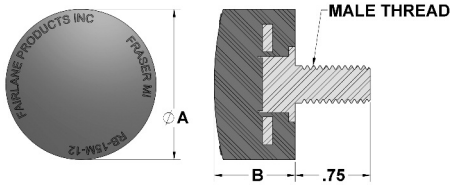
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel stud. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	C Thread Length	D Thread	R	Durometer	Material
RB-1010-M14-60UR	1	1	7/8	5/16-18	1/4	60	Urethane
RB-1010-M14-80UR	1	1	7/8	5/16-18	1/4	80	Urethane
RB-1515-M14-60UR	1-1/2	1-1/2	7/8	5/16-18	5/16	60	Urethane
RB-1515-M14-80UR	1-1/2	1-1/2	7/8	5/16-18	5/16	80	Urethane
RB-2020-M14-60UR	2	2	7/8	5/16-18	3/8	60	Urethane
RB-2020-M14-80UR	2	2	7/8	5/16-18	3/8	80	Urethane
RB-2525-M14-60UR	2-1/2	2-1/2	7/8	3/8-16	1/2	60	Urethane
RB-2525-M14-80UR	2-1/2	2-1/2	7/8	3/8-16	1/2	80	Urethane
RB-3030-M20-60UR	3	3	1-1/4	1/2-13	5/8	60	Urethane
RB-3030-M20-80UR	3	3	1-1/4	1/2-13	5/8	80	Urethane
RB-4040-M21-60UR	4	4	1-5/16	1/2-13	3/4	60	Urethane
RB-4040-M21-80UR	4	4	1-5/16	1/2-13	3/4	80	Urethane

Inch | Male Thread | Low Profile | Flush Mount | 1-1/2" Diameter

MA MODIFICATIONS AVAILABLE



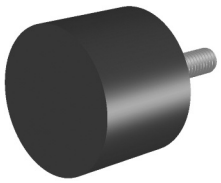


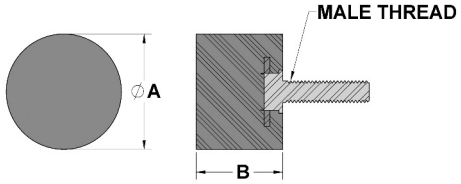
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel stud. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	Durometer	Thread	Thread Length	Material
RB-15M-12	1-1/2	13/16	40	3/8-16	3/4	Neoprene
RB-15URM-12	1-1/2	13/16	80	3/8-16	3/4	Urethane

Inch | Male Thread | Flat Top | Flush Mount | 2" Diameter

MA MODIFICATIONS AVAILABLE





Used for stops, guides, bumpers and protection. Molded bumper bonded to steel stud. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

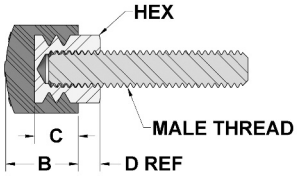
Part #	A Dia	B Length	Durometer	Thread	Stud Length	Thread Length	Material
RB-2015M-8	2	1-1/2	60	3/8-16	3/4	3/4	Neoprene
RB-2015M-24	2	1-1/2	60	3/8-16	1-1/2	1	Neoprene

Fairlane®

BUMPERS – ROUND

Inch | Male Thread | Hex Shoulder | Steel Core | 3/4" Diameter

MA MODIFICATIONS AVAILABLE



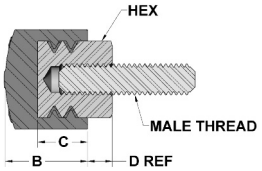
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

40 Durometer Part #	70 Durometer Part #	A Dia	B Length	C	D	Hex	Thread	Thread Length	Material
RB-516-024-40M-8	RB-516-024M-8	3/4	5/8	3/8	.13	3/8	#10-24	1/2	Neoprene
RB-516-024-40M-20	RB-516-024M-20	3/4	5/8	3/8	.13	3/8	#10-24	1-1/4	Neoprene
RB-516-032-40M-8	RB-516-032M-8	3/4	5/8	3/8	.13	3/8	#10-32	1/2	Neoprene
RB-516-032-40M-20	RB-516-032M-20	3/4	5/8	3/8	.13	3/8	#10-32	1-1/4	Neoprene
RB-516-120-40M-8	RB-516-120M-8	3/4	5/8	3/8	.16	7/16	1/4-20	1/2	Neoprene
RB-516-120-40M-20	RB-516-120M-20	3/4	5/8	3/8	.16	7/16	1/4-20	1-1/4	Neoprene
RB-516-128-40M-8	RB-516-128M-8	3/4	5/8	3/8	.16	7/16	1/4-28	1/2	Neoprene
RB-516-128-40M-20	RB-516-128M-20	3/4	5/8	3/8	.16	7/16	1/4-28	1-1/4	Neoprene
RB-516-518-40M-8	RB-516-M-8	3/4	5/8	3/8	.19	1/2	5/16-18	1/2	Neoprene
RB-516-518-40M-20	RB-516-M-20	3/4	5/8	3/8	.19	1/2	5/16-18	1-1/4	Neoprene
RB-516-524-40M-8	RB-516-524M-8	3/4	5/8	3/8	.19	1/2	5/16-24	1/2	Neoprene
RB-516-524-40M-20	RB-516-524M-20	3/4	5/8	3/8	.19	1/2	5/16-24	1-1/4	Neoprene

Part #	A Dia	B Length	C	D	Hex	Thread	Thread Length	Material	Durometer
RB-516-024URM-8	3/4	5/8	3/8	.19	1/2	#10-24	1/2	Urethane	80
RB-516-024URM-20	3/4	5/8	3/8	.19	1/2	#10-24	1-1/4	Urethane	80
RB-516-032URM-8	3/4	5/8	3/8	.19	1/2	#10-32	1/2	Urethane	80
RB-516-032URM-20	3/4	5/8	3/8	.19	1/2	#10-32	1-1/4	Urethane	80
RB-516-120URM-8	3/4	5/8	3/8	.19	1/2	1/4-20	1/2	Urethane	80
RB-516-120URM-20	3/4	5/8	3/8	.19	1/2	1/4-20	1-1/4	Urethane	80
RB-516-128URM-8	3/4	5/8	3/8	.19	1/2	1/4-28	1/2	Urethane	80
RB-516-128URM-20	3/4	5/8	3/8	.19	1/2	1/4-28	1-1/4	Urethane	80
RB-516-URM-8	3/4	5/8	3/8	.19	1/2	5/16-18	1/2	Urethane	80
RB-516-URM-20	3/4	5/8	3/8	.19	1/2	5/16-18	1-1/4	Urethane	80
RB-516-524URM-8	3/4	5/8	3/8	.19	1/2	5/16-24	1/2	Urethane	80
RB-516-524URM-20	3/4	5/8	3/8	.19	1/2	5/16-24	1-1/4	Urethane	80
RB-516-WM-8	3/4	5/8	3/8	.19	1/2	5/16-18	1/2	Nitrile	70
RB-516-WM-20	3/4	5/8	3/8	.19	1/2	5/16-18	1-1/4	Nitrile	70

Metric | Male Thread | Hex Shoulder | Steel Core | 19mm Diameter

MA MODIFICATIONS AVAILABLE



Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core with hex shoulder. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

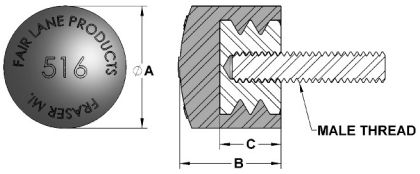
Part #	A Dia	B Length	C	D	Durometer	Thread	Thread Length	Material
MRB-5166X15	19	16	9	3.2	70	M6X1.0	15	Neoprene
MRB-5166X30	19	16	9	3.2	70	M6X1.0	30	Neoprene
MRB-5168X15	19	16	9	4.0	70	M8X1.25	15	Neoprene
MRB-5168X30	19	16	9	4.0	70	M8X1.25	30	Neoprene
MRB-5166URX15	19	16	9	3.2	80	M6X1.0	15	Urethane
MRB-5166URX30	19	16	9	3.2	80	M6X1.0	30	Urethane
MRB-5168URX15	19	16	9	4.0	80	M8X1.25	15	Urethane
MRB-5168URX30	19	16	9	4.0	80	M8X1.25	30	Urethane

Fairlane®

BUMPERS - ROUND

Inch | Male Thread | Flush Mount | Steel Core | 3/4" Diameter

MA MODIFICATIONS AVAILABLE



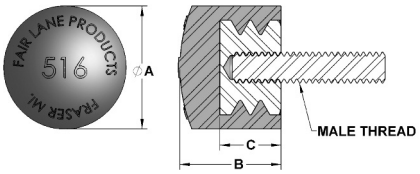
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Supplied with a mounting nut. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

40 Durometer Part#	70 Durometer Part#	A Dia	B Length	C	Thread	Thread Length	Material
RB-516-024-40M-8NH	RB-516-024M-8NH	3/4	5/8	3/8	#10-24	5/8	Neoprene
RB-516-024-40M-20NH	RB-516-024M-20NH	3/4	5/8	3/8	#10-24	1-3/8	Neoprene
RB-516-032-40M-8NH	RB-516-032M-8NH	3/4	5/8	3/8	#10-32	5/8	Neoprene
RB-516-032-40M-20NH	RB-516-032M-20NH	3/4	5/8	3/8	#10-32	1-3/8	Neoprene
RB-516-120-40M-8NH	RB-516-120M-8NH	3/4	5/8	3/8	1/4-20	11/16	Neoprene
RB-516-120-40M-20NH	RB-516-120M-20NH	3/4	5/8	3/8	1/4-20	1-7/16	Neoprene
RB-516-128-40M-8NH	RB-516-128M-8NH	3/4	5/8	3/8	1/4-28	11/16	Neoprene
RB-516-128-40M-20NH	RB-516-128M-20NH	3/4	5/8	3/8	1/4-28	1-7/16	Neoprene
RB-516-518-40M-8NH	RB-516-M-8NH	3/4	5/8	3/8	5/16-18	11/16	Neoprene
RB-516-518-40M-20NH	RB-516-M-20NH	3/4	5/8	3/8	5/16-18	1-7/16	Neoprene
RB-516-524-40M-8NH	RB-516-524M-8NH	3/4	5/8	3/8	5/16-24	11/16	Neoprene
RB-516-524-40M-20NH	RB-516-524M-20NH	3/4	5/8	3/8	5/16-24	1-7/16	Neoprene

Part #	A Dia	B Length	C	Thread	Thread Length	Material	Durometer
RB-516-024URM-8NH	3/4	5/8	3/8	#10-24	5/8	Urethane	80
RB-516-024URM-20NH	3/4	5/8	3/8	#10-24	1-3/8	Urethane	80
RB-516-032URM-8NH	3/4	5/8	3/8	#10-32	5/8	Urethane	80
RB-516-032URM-20NH	3/4	5/8	3/8	#10-32	1-3/8	Urethane	80
RB-516-120URM-8NH	3/4	5/8	3/8	1/4-20	11/16	Urethane	80
RB-516-120URM-20NH	3/4	5/8	3/8	1/4-20	1-7/16	Urethane	80
RB-516-128URM-8NH	3/4	5/8	3/8	1/4-28	11/16	Urethane	80
RB-516-128URM-20NH	3/4	5/8	3/8	1/4-28	1-7/16	Urethane	80
RB-516-URM-8NH	3/4	5/8	3/8	5/16-18	11/16	Urethane	80
RB-516-URM-20NH	3/4	5/8	3/8	5/16-18	1-7/16	Urethane	80
RB-516-524URM-8NH	3/4	5/8	3/8	5/16-24	11/16	Urethane	80
RB-516-524URM-20NH	3/4	5/8	3/8	5/16-24	1-7/16	Urethane	80
RB-516-WM-8NH	3/4	5/8	3/8	5/16-18	11/16	Nitrile	70
RB-516-WM-20NH	3/4	5/8	3/8	5/16-18	1-7/16	Nitrile	70

Metric | Male Thread | Flush Mount | Steel Core | 19mm Diameter

MA MODIFICATIONS AVAILABLE



Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Supplied with a mounting nut. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

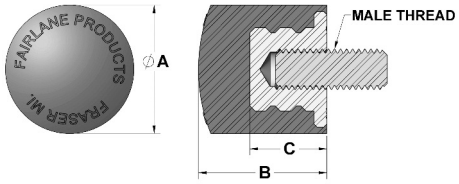
Part #	A Dia	B Length	C	Durometer	Thread	Thread Length	Material
MRB-5166X15NH	19	16	9	70	M6X1.0	18	Neoprene
MRB-5166X30NH	19	16	9	70	M6X1.0	33	Neoprene
MRB-5168X15NH	19	16	9	70	M8X1.25	19	Neoprene
MRB-5168X30NH	19	16	9	70	M8X1.25	34	Neoprene
MRB-5166URX15NH	19	16	9	80	M6X1.0	18	Urethane
MRB-5166URX30NH	19	16	9	80	M6X1.0	33	Urethane
MRB-5168URX15NH	19	16	9	80	M8X1.25	19	Urethane
MRB-5168URX30NH	19	16	9	80	M8X1.25	34	Urethane

Fairlane®

BUMPERS – ROUND

Inch | Male Thread | Flush Mount | Steel Core | 1-1/4" Diameter

MA MODIFICATIONS AVAILABLE

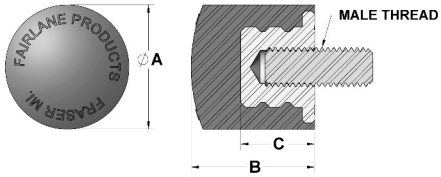


Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness and is resistant to ozone and oxygen. Nitrile is chemical resistant and non-marring. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	C	Durometer	Thread	Thread Length	Material
RB-3M-10	1-1/4	1-1/4	3/4	40	3/8-16	5/8	Neoprene
RB-3M-16	1-1/4	1-1/4	3/4	40	3/8-16	1"	Neoprene
RB-3M-20	1-1/4	1-1/4	3/4	40	3/8-16	1-1/4	Neoprene
RB-8M-16	1-1/4	1-1/4	3/4	40	5/8-18	1"	Neoprene
RB-14M-13	1-1/4	1-1/4	3/4	40	1/2-13	3/4	Neoprene
RB-3WM-10	1-1/4	1-1/4	3/4	40	3/8-16	5/8	Nitrile
RB-3WM-16	1-1/4	1-1/4	3/4	40	3/8-16	1"	Nitrile
RB-3WM-20	1-1/4	1-1/4	3/4	40	3/8-16	1-1/4	Nitrile
RB-8WM-16	1-1/4	1-1/4	3/4	40	5/8-18	1"	Nitrile
RB-14WM-13	1-1/4	1-1/4	3/4	40	1/2-13	3/4	Nitrile
RB-3URM-10	1-1/4	1-1/4	3/4	80	3/8-16	5/8	Urethane
RB-3URM-16	1-1/4	1-1/4	3/4	80	3/8-16	1"	Urethane
RB-3URM-20	1-1/4	1-1/4	3/4	80	3/8-16	1-1/4	Urethane
RB-8URM-16	1-1/4	1-1/4	3/4	80	5/8-18	1"	Urethane
RB-14URM-13	1-1/4	1-1/4	3/4	80	1/2-13	3/4	Urethane

Metric | Male Thread | Flush Mount | Steel Core | 32mm to 45mm Diameter

MA MODIFICATIONS AVAILABLE

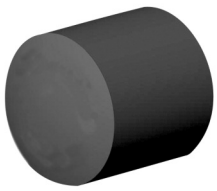


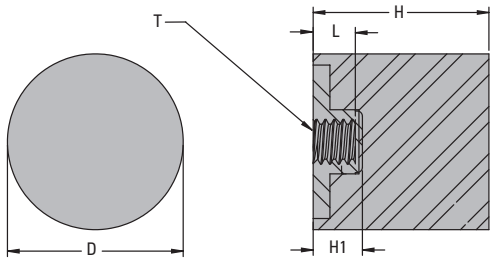
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A Dia	B Length	C	Durometer	Thread	Thread Length	Material
MRB-3X15	32	32	19.0	40	M10X1.5	15	Neoprene
MRB-3X30	32	32	19.0	40	M10X1.5	30	Neoprene
MRB-5X15	32	32	19.0	40	M12X1.75	15	Neoprene
MRB-5X30	32	32	19.0	40	M12X1.75	30	Neoprene
MRB-8X15	32	32	19.0	40	M16X2.0	15	Neoprene
MRB-8X30	32	32	19.0	40	M16X2.0	30	Neoprene
MRB-9X15	45	42	22.5	40	M16X2.0	15	Neoprene
MRB-9X30	45	42	22.5	40	M16X2.0	30	Neoprene
MRB-3URX15	32	32	19.0	80	M10X1.5	15	Urethane
MRB-3URX30	32	32	19.0	80	M10X1.5	30	Urethane
MRB-5URX15	32	32	19.0	80	M12X1.75	15	Urethane
MRB-5URX30	32	32	19.0	80	M12X1.75	30	Urethane
MRB-8URX15	32	32	19.0	80	M16X2.0	15	Urethane
MRB-8URX30	32	32	19.0	80	M16X2.0	30	Urethane
MRB-9URX15	45	42	22.5	80	M16X2.0	15	Urethane
MRB-9URX30	45	42	22.5	80	M16X2.0	30	Urethane

BUMPERS - ROUND

Inch | Female Thread | Flush Mount | Miniature Round

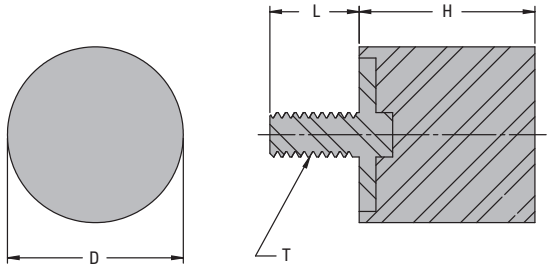




Used for stops, guides, bumpers and protection. Black neoprene bumper bonded to zinc-plated steel insert. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Compact bumper sizes less than 1" diameter for small spaces. See page 519 for material and durometer specifications. View and download part CAD models at www.fixtureworks.net.

Part #	T Thread	L	D	H	H1	Durometer	Material
RBE-0606	6-32	.12	.38	.31	.16	55	Neoprene
RBE-0909	8-32	.16	.59	.59	.18	55	Neoprene
RBE-1212	1/4-20	.24	.79	.79	.26	55	Neoprene
RBE-1616	1/4-20	.24	.98	.98	.26	55	Neoprene

Inch | Male Thread | Flush Mount | Miniature Round



Used for stops, guides, bumpers and protection. Black neoprene bumper bonded to zinc-plated steel core for durability. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Compact bumper sizes less than 1" diameter for small spaces. See page 519 for material and durometer specifications. View and download part CAD models at www.fixtureworks.net.

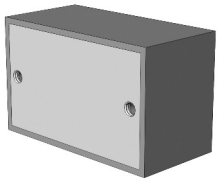
Part #	T Thread	L	D	H	Durometer	Material
RBE-0909X6	8-32	.38	.59	.59	55	Neoprene
RBE-1616X8	1/4-20	.50	.98	.98	55	Neoprene

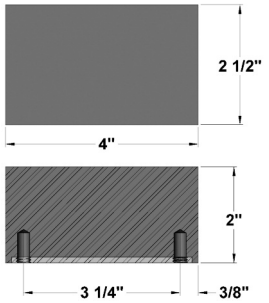
Fairlane®

BUMPERS – RECTANGULAR

Tapped Steel Plate | Backside Mounting | 4" Wide

MA MODIFICATIONS AVAILABLE



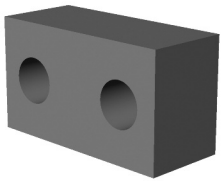


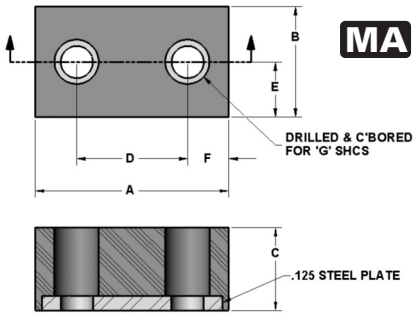
Used for stops, guides, bumpers and protection. 1/8" steel plate has two holes for backside mounting. The steel plate is tapped. The holes in the rubber are 1/4" diameter, 1/2" deep. Neoprene offers good resistance against weather, gasoline, ozone and temperature. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	Tap	Durometer	Material
RB-2540-T	5/16-18	80	Neoprene

Counter Bored | Steel Plate | 1-3/4" to 2-1/2"

MA MODIFICATIONS AVAILABLE



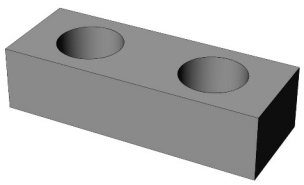


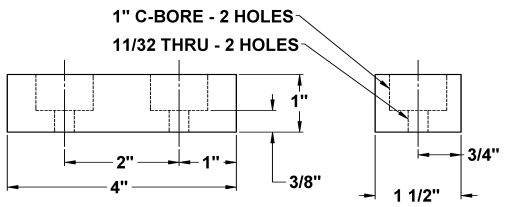
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel plate. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A	B	C	D	E	F	G For SHCS	Durometer	Material
RB-7525	2-1/2	5/8	5/8	1-1/2	5/16	1/2	1/4 (6MM)	80	Neoprene
RB-1175	1-3/4	1	3/4	1	1/2	3/8	1/4 (6MM)	80	Neoprene
RB-1175-35	1-3/4	1	3/4	1	1/2	3/8	1/4 (6MM)	35	Neoprene
RB-2025-C	2-1/2	2	2	1-1/2	1	1/2	5/16	80	Neoprene
RB-7525-UR	2-1/2	5/8	5/8	1-1/2	5/16	1/2	1/4 (6MM)	80	Urethane
RB-1137-UR	1-3/4	1	3/8	1	1/2	3/8	1/4 (6MM)	80	Urethane
RB-1150-UR	1-3/4	1	1/2	1	1/2	3/8	1/4 (6MM)	80	Urethane
RB-1175-UR	1-3/4	1	3/4	1	1/2	3/8	1/4 (6MM)	80	Urethane
RB-2025-C-UR	2-1/2	2	2	1-1/2	1	1/2	5/16	80	Urethane
RB-7525-60UR	2-1/2	5/8	5/8	1-1/2	5/16	1/2	1/4 (6MM)	60	Urethane
RB-1137-60UR	1-3/4	1	3/8	1	1/2	3/8	1/4 (6MM)	60	Urethane
RB-1150-60UR	1-3/4	1	1/2	1	1/2	3/8	1/4 (6MM)	60	Urethane
RB-1175-60UR	1-3/4	1	3/4	1	1/2	3/8	1/4 (6MM)	60	Urethane

Counter Bored | Without Plate | 4" Wide

MA MODIFICATIONS AVAILABLE





Used for stops, guides, bumpers and protection. They do not have a plate backing so there is no metal to rust or corrode. Neoprene offers good resistance against weather, gasoline, ozone and temperature. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

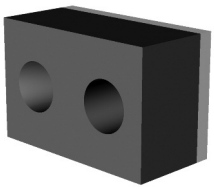
Part #	Durometer	Material
RB-1540	60	Neoprene

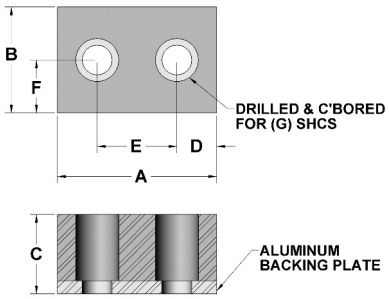
Fairlane®

BUMPERS – RECTANGULAR

Counter Bored | Neoprene and Urethane | Aluminum Plate | 1" to 4" Wide

MA MODIFICATIONS AVAILABLE

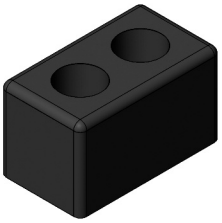


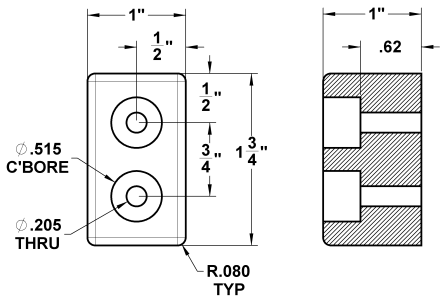


Used for stops, guides, bumpers and protection. Molded neoprene or urethane bumper bonded to 1/8 in aluminum plate. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. Urethane offers highest abrasion resistance, strength and load bearing, with high elongation hardness and resistance to ozone and oxygen. For specific application requirements, custom modifications are available to this product line. View and download CAD models at www.fixtureworks.net.

Part #	A in	B in	C in	D in	E in	F in	G in	Number of Holes	Durometer	Material
RB-241612-142	1-1/2	1	3/4	3/8	3/4	1/2	1/4	2	80	Neoprene
RB-281628-142	1-3/4	1	1-3/4	3/8	1	1/2	1/4	2	80	Neoprene
RB-481628-382	3	1	1-3/4	5/8	1-3/4	1/2	3/8	2	80	Neoprene
RB-482416-5162	3	1-1/2	1	1/2	2	3/4	5/16	2	80	Neoprene
RB-641612-142	4	1	3/4	1-1/2	1	1/2	1/4	2	80	Neoprene
RB-161612-141UR	1	1	3/4	1/2	-	1/2	9/32	1	80	Urethane
RB-241612-142UR	1-1/2	1	3/4	3/8	3/4	1/2	9/32	2	80	Urethane
RB-242416-142UR	1-1/2	1-1/2	1	3/8	3/4	3/4	9/32	2	80	Urethane
RB-281628-142UR	1-3/4	1	1-3/4	3/8	1	1/2	9/32	2	80	Urethane
RB-321608-142UR	2	1	1/2	3/8	1-1/4	1/2	9/32	2	80	Urethane
RB-321612-142UR	2	1	3/4	3/8	1-1/4	1/2	9/32	2	80	Urethane
RB-321616-142UR	2	1	1	3/8	1-1/4	1/2	9/32	2	80	Urethane
RB-321624-142UR	2	1	1-1/2	3/8	1-1/4	1/2	9/32	2	80	Urethane
RB-323216-142UR	2	2	1	3/8	1-1/4	1	9/32	2	80	Urethane
RB-402012-142UR	2-1/2	1-1/4	3/4	3/8	1-1/4	5/8	9/32	2	80	Urethane
RB-402016-142UR	2-1/2	1-1/4	1	3/8	1-1/4	5/8	9/32	2	80	Urethane
RB-402024-142UR	2-1/2	1-1/4	1-1/2	3/8	1-1/4	5/8	9/32	2	80	Urethane
RB-404016-144UR	2-1/2	2-1/2	1	3/8	2	1/2	9/32	4	80	Urethane
RB-481628-382UR	3	1	1-3/4	3/8	2	1/2	9/32	2	80	Urethane
RB-482412-142UR	3	1-1/2	3/4	3/8	2	3/4	13/32	2	80	Urethane
RB-482416-142UR	3	1-1/2	1	3/8	2	3/4	9/32	2	80	Urethane
RB-482416-5162UR	3	1-1/2	1	3/8	2	3/4	11/32	2	80	Urethane
RB-482424-142UR	3	1-1/2	1-1/2	3/8	2	3/4	9/32	2	80	Urethane
RB-484824-144UR	3	3	1-1/2	3/8	2	1/2	9/32	2	80	Urethane
RB-641612-142UR	4	1	3/4	3/8	1	1/2	9/32	4	80	Urethane
RB-646424-144UR	4	4	1-1/2	3/8	1-1/4	1/2	9/32	4	80	Urethane

Counter Bored | Without Plate | 1" Wide





Used for stops, guides, bumpers and protection. They do not have a plate backing so there is no metal to rust or corrode. The corners are rounded for more finished appearance. The bumper has clearance holes for a #10 or 5mm screw. Made from black neoprene which offers good resistance against weather, gasoline, ozone and temperature. See page 519 for material and durometer specifications. View and download part CAD models at www.fixtureworks.net.

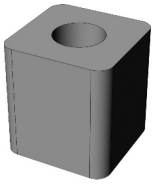
Part #	Durometer	Material
RB-1171-35	35	Neoprene
RB-1171-60	60	Neoprene
RB-1171	80	Neoprene

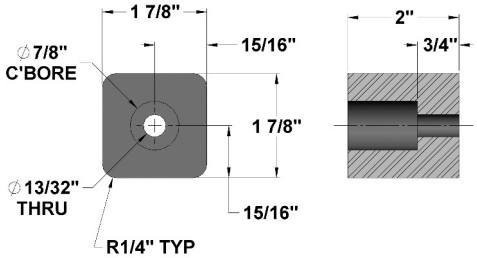
Fairlane®

BUMPERS – SQUARE

Counter Bored | Without Plate | 1-7/8" Wide

MA MODIFICATIONS AVAILABLE



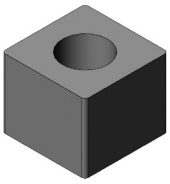


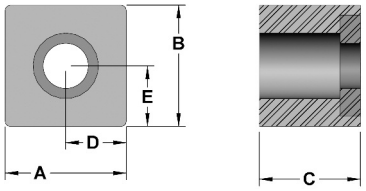
Used for stops, guides, bumpers and protection. They do not have a plate backing so there is no metal to rust or corrode. Neoprene offers good resistance against weather, gasoline, ozone and temperature. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	Durometer	Material
RB-2020-C	80	Neoprene

Counter Bored | Steel Plate | 3/4" Wide

MA MODIFICATIONS AVAILABLE



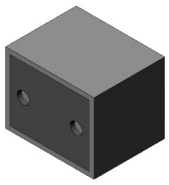


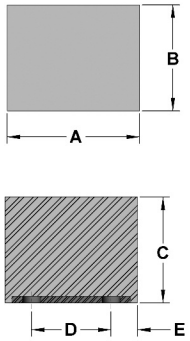
Used for stops, guides, bumpers and protection. Molded bumper bonded to steel plate. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. The Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A	B	C	D	E	For SHCS	Durometer	Material
RB-7575	3/4	3/4	5/8	3/8	3/8	1/4 (6MM)	80	Neoprene
RB-7575-60UR	3/4	3/4	5/8	3/8	3/8	1/4 (6MM)	60	Urethane
RB-7575-UR	3/4	3/4	5/8	3/8	3/8	1/4 (6MM)	80	Urethane

Solid Rubber | Steel Plate | 2-1/2" Wide

MA MODIFICATIONS AVAILABLE

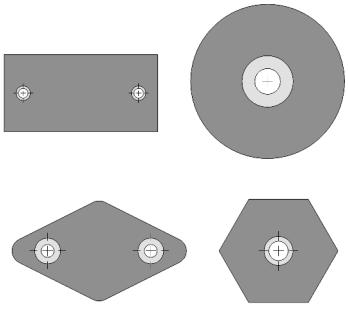




Used for stops, guides, bumpers and protection. Molded bumper bonded to steel plate. Neoprene offers good resistance against weather, gasoline, oil, ozone and high temperature. The Urethane offers highest resistance, strength and load bearing. High elongation hardness. Resistant to ozone and oxygen. Holes are only through the 1/8" steel plate and not into the rubber. The holes are 11/32" diameter. See page 519 for material and durometer specifications. For specific application requirements, custom modifications are available for this product line. View and download part CAD models at www.fixtureworks.net.

Part #	A	B	C	D	E	Durometer	Material
RB-2025	2-1/2	2	2	1-1/2	1/2	80	Neoprene
RB-2025-UR	2-1/2	2	2	1-1/2	1/2	80	Urethane

Custom Bumpers | Aluminum Plate



In addition to the standard bumpers shown in our catalog, we are equipped to provide a wide variety of custom bumpers using 80 durometer neoprene material with 1/8" aluminum plate backing. These custom bumpers are available in three standard thicknesses including 3/4", 1" and 1-3/4" but can be cut down to other thicknesses.

We can provide simple squares and rectangles up to nearly 24" in length depending on the thickness. We can also provide complex shapes. If your application requires a specific shape that includes contours, custom bumpers can be made from a CAD drawing. In addition to different shapes, these bumpers can be bored to accommodate a wide variety of fastening options.

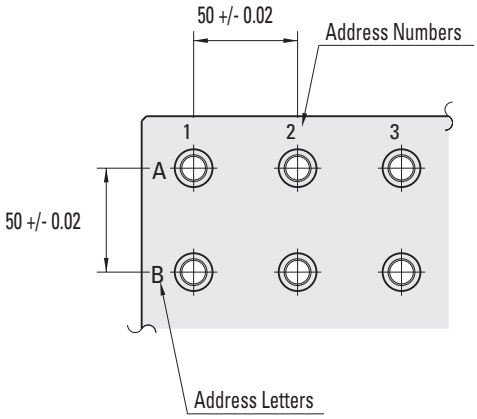
For additional information or a quote, contact a Fixtureworks engineer at: 586-294-1188 or email engineering@fixtureworks.net

TECHNICAL INFORMATION

TOLERANCE CHART														
Basic Sizes		Hole Tolerance Grade						Shaft Tolerance Grade						
Over	Up To and Including	F7	F8	G6	G7	H7	H8	f7	g6	g7	h6	h7	h9	p6
0	3	+.016	+.020	+.008	+.012	+.010	+.014	-.006	-.002	-.002	0	0	0	-.002
		+.006	+.006	+.002	+.002	0	0	-.016	-.008	-.12	-.006	-.010	-.025	-012
3	6	+.022	+.028	+.012	+.016	+.012	+.018	-.010	-.004	-.004	0	0	0	-.004
		+.010	+.010	+.004	+.004	0	0	-.022	-.012	-.016	-.008	-.012	-.03	-.016
6	10	+.028	+.035	+.014	+.020	+.015	+.022	-.013	-.005	-.005	0	0	0	-.005
		+.013	+.013	+.005	+.005	0	0	-.028	-.014	-.02	-.009	-.015	-.036	-.02
10	14	+.034	+.043	+.017	+.024	+.018	+.027	-.016	-.006	-.006	0	0	0	-.006
		+.016	+.016	+.006	+.006	0	0	-.034	-.017	-.024	-.011	-.018	-.043	-.024
14	18	+.034	+.043	+.017	+.024	+.018	+.027	-.016	-.006	-.006	0	0	0	-.006
		+.016	+.016	+.006	+.006	0	0	-.034	-.017	-.024	-.011	-.018	-.043	-.024
18	24	+.041	+.053	+.020	+.028	+.021	+.033	-.020	-.007	-.007	0	0	0	-.007
		+.020	+.020	+.007	+.007	0	0	-.041	-.020	-.028	-.013	-.021	-.052	-.028
24	30	+.041	+.053	+.020	+.028	+.021	+.033	-.020	-.007	-.007	0	0	0	-.007
		+.020	+.020	+.007	+.007	0	0	-.041	-.020	-.028	-.013	-.021	-.052	-.028
30	40	+.050	+.064	+.025	+.034	+.025	+.039	-.025	-.009	-.009	0	0	0	-.009
		+.025	+.025	+.009	+.009	0	0	-.050	-.025	-.034	-.016	-.025	-.062	-.034
40	50	+.050	+.064	+.025	+.034	+.025	+.039	-.025	-.009	-.009	0	0	0	-.009
		+.025	+.025	+.009	+.009	0	0	-.050	-.025	-.034	-.016	-.025	-.062	-.034

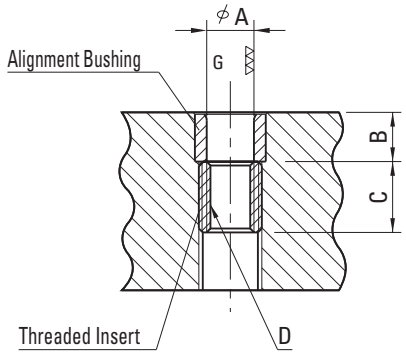
HOLE SPACING AND GRID ADDRESS

MTP holes (Multipurpose Holes) are spaced every 50mm (+/-0.02). Every hole is numbered in one direction and lettered in the perpendicular direction to assign a grid address to every MTP hole. This allows for easy recording of component locations for fixturing documentation.



MTP HOLE INFORMATION
(Multipurpose Hole)

Double construction for locating and fastening in one operation. Alignment bushing on top and threaded insert on bottom below the alignment bushing.



Thread	(f7) A	B	C	D
M12	12	12.5	15	M12x1.75
M16	16	16.5	18	M16X2

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DOING BUSINESS WITH FIXTUREWORKS...

Customer Comments Everyone at Fixtureworks takes great pride in their work and truly strives for complete customer satisfaction. If you ever have any comments or suggestions on our products or service, please let us know. They are appreciated and taken seriously.

Website Our website has been created to allow the user easy access to a full array of services including part search, CAD drawings, pricing and online ordering. Please visit www.fixtureworks.net

Minimum Order We have none. One piece plus – you can get it.

Business Hours Representatives are available from 8:00 a.m. to 5:00 p.m. Eastern time, Monday through Friday.

Pricing Quantity discounts are available for many parts and applies to the quantity of each specific part. Prices on scheduled shipments will be based on the total quantity ordered. We do our best to hold pricing, however, published prices are subject to change without notice. Quoted prices will be valid for 30 days.

Payment Terms Net 30 to all customers with approved credit rating on open account. Visa, MasterCard and American Express are accepted.

Shipments All items in this catalog are normally stocked and available for same day shipment. Backordered parts are always given a high priority and will ship as soon as they become available. Normal shipment is UPS – FOB Fraser Michigan unless otherwise noted. Shipping charges are prepaid and added to the invoice. Special charges and guidelines apply to shipment outside the United States. Buyer is responsible for all applicable taxes and duties on international shipments.

Returns Most standard catalog items may be returned within 30 days from date of sale with a valid RMA number. Products cannot be used and must be in resalable condition. Full credit less freight will be issued. Any return due to our error will receive full credit including freight. A restocking charge may be applied. All returns must be shipped via UPS and reference the RMA number on the outside of the box. Custom made and special order products may not be returned.

Custom Products Some product may be modified to meet your exact specifications. Please inquire for pricing. Once a custom made product is in process it may not be cancelled. Custom made products cannot be returned.

Material Data Safety Sheets Material Data Safety Sheets are available upon request.

Specifications We do our best to represent our products as accurately as possible in both our catalogs and website, however, all specifications are subject to change without notice.

Choice of Law The terms of sale for purchases from this catalog shall be governed by and construed in accordance with the laws of the State of Michigan as applied to contracts made and to be performed in Michigan. Any action arising out of such purchases must be brought in courts in Michigan. Purchasers consent to the jurisdiction of the courts in Michigan and to service of process by registered mail, return receipt requested, or by other manner proved by law.

Entire Agreement By placement of an order or by acceptance of goods ordered, buyer signifies agreement that no terms, conditions or warranties other than those stated here, and no agreement or understanding, oral or written, in any way purporting to modify these terms, conditions and or warranties, whether contained in buyer's purchase order or elsewhere, shall be binding on Fixtureworks.

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