

ID Xpansion™ Clamp



The ID Xpansion™ clamp is the ideal solution to hold parts on an inside diameter for high density machining on vertical or horizontal machining centers. It can also be used as an expanding mandrel on a lathe.

These machinable clamps are produced in 12L14 steel with black oxide coating in 12 sizes and can hold internal diameters from under 3/16 to almost 10 inches (4.1 to 254mm). #10 manufactured using 7075-T6 aluminum.

The flange diameter of the clamp is held to a close tolerance for precision locating in a machined pocket on work cubes and fixture plates.

The customer machines the mild steel clamp to match the bore of the part ensuring a proper fit. Often times the clamps can be remachined for different size jobs.

The low profile ID Xpansion™ Clamp can hold several parts in one compact area for secondary operations without any clamping interference. They are quickly tightened with a hex key, torque driver or can be mated to hydraulic pull cylinders for automation.



- ▶ Low profile
- ▶ Ideal for secondary operations on lathe parts
- ▶ Easily machined to size on lathe or mill
- ▶ Excellent for palletized setups
- ▶ Allows more parts per workcube or fixture plates
- ▶ Heat-treated and coated screw for long life
- ▶ Clamp body made of mild steel for machinability
- ▶ Tighten with hex key or hydraulic pull cylinders
- ▶ Longer screws available for hydraulic applications



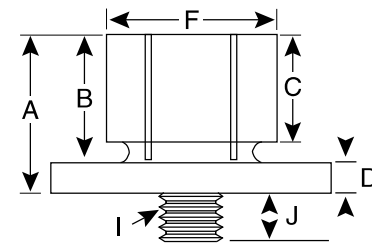
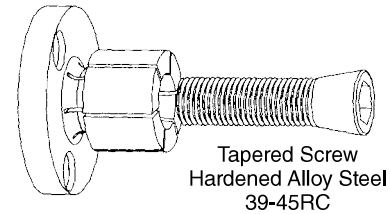
Hard milling



Innovative 4th axis solution

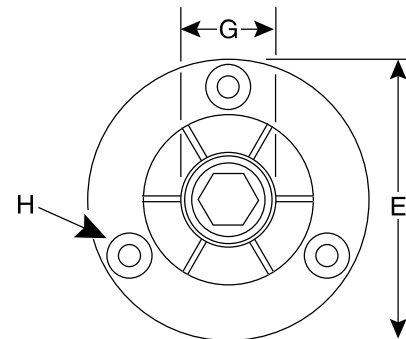
Model #00 - #6 ID Xpansion™ Clamps

- ▶ Expand clamp approximately .002 to .003 (.1mm) over relaxed diameter and machine to fit workpiece bore, either on lathe or mill.
- ▶ If machining the clamp on a lathe use the nut provided, on the back of the clamp, to tighten the tapered screw. This nut is used only while machining the clamp.
- ▶ Machine a pocket in the fixture, for the close tolerance “E” dimension and drill and tap mounting holes per “H” column. Drill and tap a hole from the “I” column in the center of the pocket for the tapered screw.
- ▶ A recessed dowel pin may be installed into the flange for additional rigidity if required.
- ▶ Custom screws available for blind hole applications.
- ▶ Range of expansion .005 to .025 (.13 to .64mm) depending upon size. See MiteeBite.com for individual clamp expansion range.



Model #7 - #10 ID Xpansion™ Clamps

- ▶ Locking ring provided to ensure segments remain rigid while machining clamps to size. #10 ID ships with 2 rings.
- ▶ Insert ring(s) and tighten drive screw, machine clamp to bore size. Remove ring(s) to clamp workpiece.
- ▶ Expand mandrel then machine to size.
- ▶ Aggressive material removal is not recommended when machining clamps to size.



Longer tapered screws are available for each ID size.

	Part No.	Model No.	A	B	C	D	E ^{+.000} _{-.002}	F	G†	H*	I	J	Max. Torque (Ft/Lbs)	Holding Force (Lbs)	Replacement Tapered Screw
INCH	31000	#00	.42	.30	.24	.12	.787	.29	.16	2-56 on .540 BHC	2-56 x 1/2	.16	0.5	250	31001
	31050	#0	.86	.63	.59	.23	1.170	.49	.28	6-32 on .825 BHC	8-32 x 1	.30	3.6	950	31002
	31100	#1	.98	.75	.59	.23	1.240	.56	.48	6-32 on .910 BHC	1/4-20 x 1 1/4	.50	13.3	1,900	31010
	31150	#2	.98	.75	.59	.23	1.476	.79	.53	6-32 on 1.140 BHC	5/16-18 x 1 1/4	.56	27.6	2,500	31020
	31200	#3	1.13	.88	.69	.25	1.968	1.06	.71	8-32 on 1.550 BHC	3/8-16 x 1 1/2	.71	49.3	4,500	31032
	31250	#4	1.25	1.00	.81	.25	2.205	1.39	.90	8-32 on 1.790 BHC	1/2-13 x 1 1/2	.71	120.0	5,900	31042
	31300	#5	1.56	1.25	1.06	.31	2.736	1.65	1.15	10-32 on 2.200 BHC	5/8-11 x 1 3/4	.79	224.0	10,000	31052
	31350	#6	1.56	1.25	1.06	.31	2.972	2.03	1.15	10-32 on 2.515 BHC	5/8-11 x 1 3/4	.79	224.0	10,000	31052
	31400	#7	1.79	1.48	1.27	.31	4.232	3.06	1.15	1/4-20 on 3.646 BHC	5/8-11 x 2	.79	224.0	10,000	31072
	31450	#8	1.79	1.48	1.27	.31	5.232	4.06	1.15	1/4-20 on 4.648 BHC	5/8-11 x 2	.79	224.0	10,000	31072
	31500	#9	1.79	1.48	1.27	.31	5.232	6.89	1.15	1/4-20 on 4.648 BHC	5/8-11 x 2	.79	224.0	10,000	31072
	31550	#10**	1.79	1.48	1.27	.31	6.000	9.85	1.15	1/4-20 on 5.250 BHC	5/8-11 x 2	.79	125.0	6,000	31072

	Part No.	Model No.	A	B	C	D	E ^{+.000} _{-.050}	F	G†	H*	I	J	Max. Torque (N.m.)	Holding Force (N)	Replacement Tapered Screw
METRIC	38000	#00	10.7	7.6	6.1	3.0	20.00	7.4	4.1	M2 on 13.7 BHC	M2x12	4.1	.70	1113	38001
	38050	#0	21.8	16.0	15.0	5.9	29.72	12.4	7.1	M3 on 20.95 BHC	M4x25	7.2	5.00	4228	38002
	38100	#1	24.9	19.0	15.0	5.9	31.50	14.2	12.2	M3 on 23.1 BHC	M6x30	11.2	17.00	8455	38010
	38150	#2	24.9	19.0	15.0	5.9	37.50	20.0	13.5	M3 on 29.0 BHC	M8x30	13.2	34.00	11125	38020
	38200	#3	28.6	22.2	17.5	6.4	50.00	27.0	18.0	M4 on 39.4 BHC	M10x35	16.3	60.00	20025	38032
	38250	#4	31.8	25.4	20.6	6.4	56.00	35.3	23.0	M4 on 45.5 BHC	M12x40	20.3	150.00	26255	38042
	38300	#5	39.6	31.8	27.0	7.9	69.50	42.0	29.3	M5 on 55.9 BHC	M16x45	21.4	280.00	44500	38052
	38350	#6	39.6	31.8	27.0	7.9	75.50	51.5	29.3	M5 on 63.9 BHC	M16x45	21.4	280.00	44500	38052
	38400	#7	45.5	37.6	32.3	7.9	107.50	77.7	29.3	M6 on 92.6 BHC	M16x50	19.3	280.00	44500	38072
	38450	#8	45.5	37.6	32.3	7.9	132.90	103.0	29.3	M6 on 118.06 BHC	M16x50	19.3	280.00	44500	38072
	38500	#9	45.5	37.6	32.3	7.9	132.90	175.0	29.3	M6 on 118.06 BHC	M16x50	19.3	280.00	44500	38072
	38550	#10**	45.5	37.6	32.3	7.9	152.40	250.2	29.3	M6 on 133.35 BHC	M16x50	19.3	170.00	26000	38072

† - Minimum diameter the “F” dimension can be machined or turned down to. H* - (3) Mounting Screws included - (4) for model numbers #9 and #10.
 **Model #10 Made from 7075-T6 aluminum.