

## Modular XYZ Xpansion® Pin Instructions

### THREADED PINS - in 17-4PH

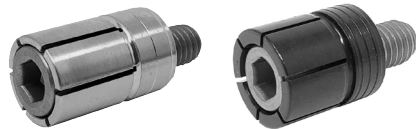


Threaded XYZ Pins have an internal hex for installation and removal. Above the fixture's threaded hole for the Threaded XYZ Pins, they may be installed in a precision bore for more accurate location. Drill/tap accordingly and ream/interpolate the precision bore over the measured nominal "F" diameter of the XYZ Pin a minimum of  $+0.0001"$  [ $+0.003$ ] for this purpose.

	Part Number	External Thread	A	B	C	D	F (+/-) .000/.001" (.000/.025mm)	G*	H	Repl. Tapered Screw	Tapered Screw Thread x Length
INCH	31850	1/2"-13	1.625"	0.60"	0.53"	0.50"	.500"	0.413"	3/16"	31010	1/4-20 x 1 1/4
	31860	5/8"-11	1.875"	0.62"	0.62"	0.62"	.625"	0.472"	1/4"	31020	5/16-18 x 1 1/4
METRIC	38850	M12-1.75	40mm	15mm	13mm	12.00mm	12.00mm	10.5mm	5mm	38010	M6-1 x 30mm
	38860	M16-2	45mm	16mm	13mm	16.00mm	16.00mm	12mm	6mm	38020	M8-1.25 x 30mm

\*G minimum diameter pin can be machined or turned down to \*\*Torque of XYZ Pin body needs to exceed torque of Tapered screw. Tapered screw is included with XYZ Pin.

### PRESS FIT PINS - in 17-4PH and Mild Steel



Press Fit XYZ Pins are intended for either press fit, or close sliding fit applications. Install in a precision bore with an internal thread for the Tapered Screw. If precise positional location is unnecessary, Press Fit XYZ Pins may be surface mounted. An accessory kit is available to make Installation and Removal (I/R) of the Press Fit XYZ Pins quick and easy. **NOTE:** If installing a Press Fit XYZ Pin into a bore deeper than the relief groove be sure to provide additional clearance for the clamping segments to expand unrestricted.

	17-4PH Part Number*	12L14 Part Number	Description	A	B	C	D	F (+/-) .000/.001" (.000/.025mm)	G**	Repl. Tapered Screw	Tapered Screw Thread x Length	Installation/Removal (I/R) Kit**	ID (Pullout) Thread
INCH	31730	31630	Press Fit 1/4"	.500"	0.27"	.29"	.23"	0.250"	.219"	31731S	5-40 x 5/8	31720	6-32
	31740	31640	Press Fit 3/8"	.750"	0.50"	.33"	0.25"	0.375"	0.281"	31002S	8-32 x 7/8	31721	10-32
	31750	31650	Press Fit 1/2"	.750"	0.50"	.45"	0.25"	.500"	0.413"	31010S	1/4-20 x 7/8	31722	5/16-18
	31760	31660	Press Fit 5/8"	.750"	0.50"	.52"	0.25"	.625"	0.472"	31020S	5/16-18 x 7/8	31723	3/8-16
	-	31670	Press Fit 3/4"	.875"	.562"	0.56"	0.31"	.750"	.625"	31032S	3/8-16 x 1	31724	7/16-14
METRIC	38730	38630	Press Fit 6mm	13mm	7mm	7.3mm	5.8mm	6.00mm	5.5mm	38731S	M3-0.5 x 16mm	38720	M3.5 X .6
	38740	38640	Press Fit 10mm	19mm	12.7mm	8.4mm	6.35mm	10.00mm	7.5mm	38002S	M4-0.7 x 22mm	38721	M5 X .8
	38750	38650	Press Fit 12mm	19mm	12.7mm	11.1mm	6.35mm	12.00mm	10.5mm	38010S	M6-1 x 22mm	38722	M8 X 1.25
	38760	38660	Press Fit 16mm	19mm	12.7mm	13mm	6.35mm	16.00mm	12mm	38020S	M8-1.25 x 22mm	38723	M10 X 1.5
	-	38670	Press Fit 20mm	22mm	14mm	13mm	8mm	20.00mm	16mm	38032S	M10-1.5 x 25mm	38724	M12 X 1.75

\*\*G minimum diameter pin can be machined or turned down to \*\*\*Kit includes (2) SHCS Tapered screw is included with XYZ Pin.

\*The Stainless Steel Press Fit Pins no longer have internal threads. If you use our I/R Kit to remove the XYZ Pin, tap through the XYZ Pin with the thread size listed in the ID (Pullout) Thread column above before installation into a fixture. Using the I/R tool for installation does not require the ID thread.

### MACHINING INSTRUCTIONS

Measuring an XYZ Pin as opposed to screw torque is the proper method for pre-loading (expanding) the clamping segments prior to machining down to as far as our published dimension "G":

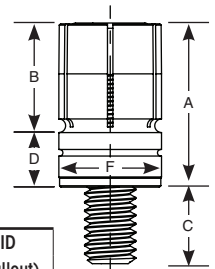
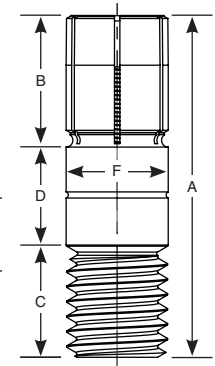
XYZ Pins are manufactured with a slight taper, so that out of the box the size measured across the clamping segments at the top face of the pin will measure approximately  $\varnothing.003"$  [ $\varnothing 0.075$ ] smaller than the size measured just above the relief groove when the Tapered Screw is fully relaxed.

Expand the XYZ Pin by the amount desired for it to relax back once the Tapered Screw is loosened so that when expanded the closest "line-to-

line" contact between the Pin and the hole/bore will be achieved. XYZ Pin's expansion characteristic is tapered, so the greater the expansion the more resultant taper.

For example, if you expand the XYZ Pin so that it measures  $\varnothing.500"$  [ $\varnothing 12.70$ ] from the relief groove to the top face, there will be  $\varnothing.003"$  [ $\varnothing 0.075$ ] of "preload" on the clamping elements prior to machining.

Once machined to the low limit size of the workpiece's bore there will now be  $\varnothing.003"$  of clearance for loading/unloading the workpiece from the XYZ Pin from the preload once the Tapered Screw is relaxed.



For additional data on the Modular XYZ Xpansion™ Pins, scan QR code

