SPX HYTEC®

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Form No. 102969

Operating Instructions for:

110069	110074
110070	110075
110071	110076
110072	110077
110073	110078

CARTRIDGE PULL CYLINDER

Max. Capacity: 5,000 PSI (For 110069, 110071, 110073, 110075, & 110079)
2,500 PSI (For 110070, 110072, 110074, 110076, & 110078)

SAFETY PRECAUTIONS

⚠ WARNING

To help prevent personal injury:

- **Do not exceed the rated capacity of the pull cylinder.**
- **Clamping must take place within the specified stroke range to ensure that full force is applied to the workpiece.**
- **The cylinder and clamp should never be subjected to side-loading. Side-loading may cause damage to product.**
- **Fastener must be secured to piston to prevent it from backing out during cycling.**
- **Some clamps are provided with spring pins to prevent the piston from turning during cycling and bolt adjustments. Spring pins will NOT take maximum torque of bolt.**

The buyer of these Hytec pull cylinders must be responsible for the safety of its users. These cylinders are only a component of a larger system that is purchased or designed by the buyer. These cylinders are rated at either 2,500 or 5,000 PSI maximum. Installation of these cylinders will require user supplied mounting cavities and oil supply passages which can safely withstand the highest hydraulic working pressure expected in the application. These cavities must be designed with an appropriated safety factor to resist the fatigue of repeated hydraulic pressurization and release. In addition, forces generated by the cylinder against the cavity must be considered.

It is critical that the threaded fastener used to connect to this cylinder be capable of withstanding the load applied for the number of cycles expected in the life of the installation. Any side-loading of the fastener will increase its stress levels and must also be considered. Standard, commercially available fasteners may not be sufficient in high-cycle, high hydraulic pressure applications. Consult with a qualified design professional for assistance if required.

These cylinders are designed to be used in applications that "capture" the cylinder to prevent cylinder body movement and to stop the piston when fully retracted. Do not pressurize the installation cavity unless the cylinder body and piston rod are securely fastened and cannot be ejected from the application.

Only the system designer can know all application specific details affecting operator safety. Systems using these cylinders must be designed only by persons qualified to ensure safety.

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INSTALLATION INSTRUCTIONS

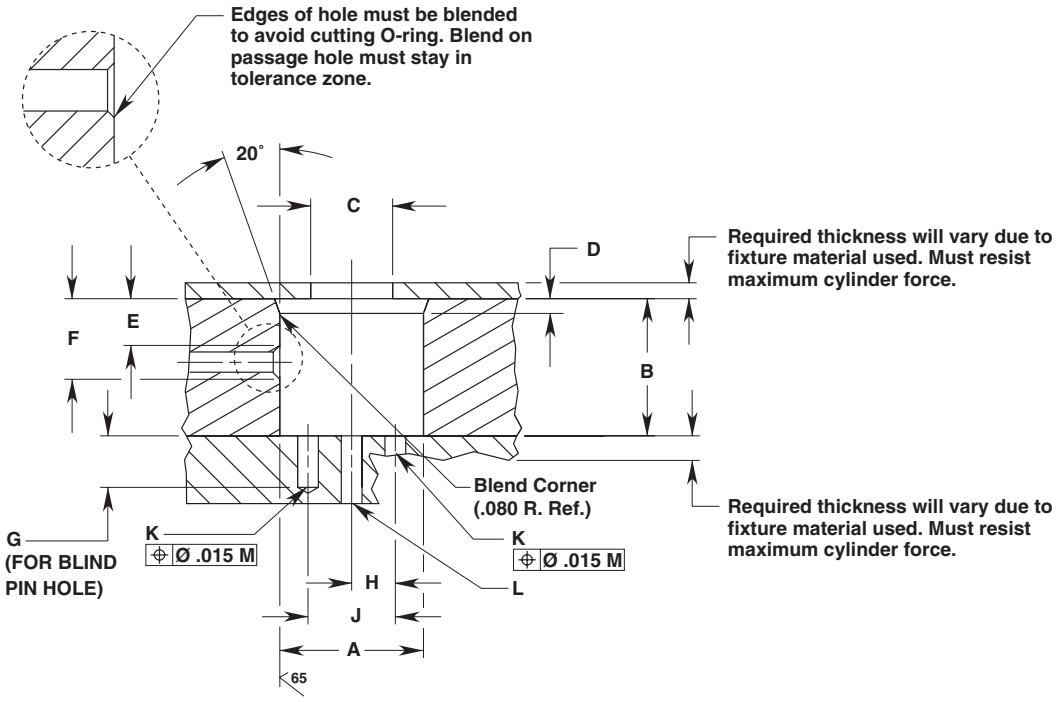
Note: In most cases, the cylinders are mounted deep within the fixture and are not directly exposed to the machining environment. However, the designer should take steps to prevent contaminant buildup around the piston.

For longest life of the cylinder and the fastener connecting the piston rod in you application, the cylinder must pull straight. Do not off-center load the cylinder by allowing it to defect radially.

For longest seal life, the bore containing these cylinders must be smooth. We recommend a 65 micro-inch finish maximum. The specified chamfer and the intersecting oil passage must also be properly deburred and blended to prevent seal damage as the cylinder is inserted into the bore.

These installation instructions and the following illustrations describe the area where the intersecting oil passage hole(s) must be located. Any chamfering, deburring or blending of this hole must be completely within this range.

CAVITY DIMENSIONS



Cat. No.	Cavity Dimensions (In Inches)				Oil Passage Location (In Inches)		Cavity Dimensions (In Inches)				
	A Dia.	B Cyl. Body Length Max.	C Dia.	†D	E Min.	F Max.	G Min.	H	J	K Dia.	*L Vent Dia. Min.
110059	.812 .815	1.120 1.130	.387 .577	.125 .145	.475	.728	—	—	—	—	.125
110060	1.187 1.190		.572 .911		.427	.710					
110061		1.245 1.255			.437	.787					
110062	1.312 1.315		.572 1.000		.476	.734					
110063											
110064	1.750 1.753	1.370 1.380	.760 1.437		.531	.819					
110065											
110066	2.125 2.128	1.495 1.505	.885 1.812		.526	.943	.510	.550	1.100	.270 .280	
110067											
110068	2.875 2.878	1.620 1.630	1.074 2.500			1.001	.650	.785	1.570		

Note: * Cavity must be vented
† Chamfer to be located at end of bore "A" from which the cylinder will be assembled.

TYPICAL APPLICATIONS