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Form No. 102819

Operating Instructions for:

100876  
100877  
100876V  
100877V

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AIR ADVANCE  
**HYDRAULIC WORK SUPPORT**  
1,300 Lbs. Load Capacity at 5,000 PSI Max.

## SAFETY PRECAUTIONS

 **WARNING**

To help avoid personal injury:

- The buyer of this product must be responsible for safety. This product is only a component of a larger system that is designed, purchased, or manufactured by the buyer. The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections.
- All hardware must be tightened using the proper tools and procedures before applying hydraulic pressure.
- Do not exceed the rated capacity of the work support.

## GENERAL INFORMATION

Hytec's threaded body work supports are available in three versions: spring advance, air advanced, and fluid advanced. All feature fully corrosion resistant construction. This instruction sheet will refer only to the air advanced version.

The work support operates through the use of a spring loaded plunger which extends to contact the workpiece. To support any externally applied loads, the sleeve surrounding the plunger grips the poppet and holds it, regardless of where it is in its stroke.

This air advanced work support allows the plunger to be retracted out of the way during workpiece load/unload operations. With no hydraulic or air pressure applied, a spring retracts the plunger into the work support body. Applying air pressure to the work support raises the plunger until it contacts the workpiece. Workpiece contact force may be adjusted by varying air pressure.

When hydraulically pressurized, the sleeve grips the plunger and provides the locking action.

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Sheet No. 1 of 2

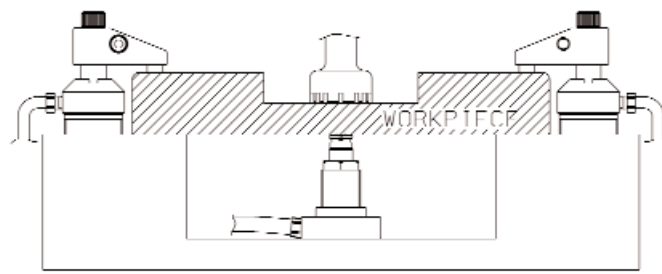
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Rev. 1 Date: 19 Mar 2002

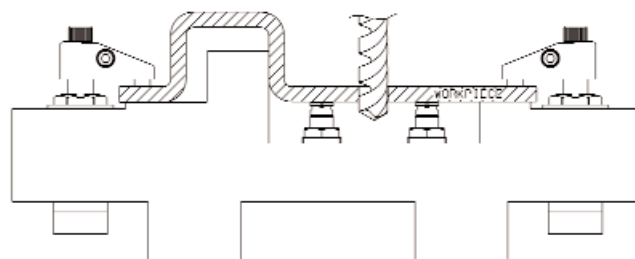
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## TYPICAL APPLICATIONS

In a typical application, the workpiece would be loaded into the fixture while the work support is retracted. Hydraulic pressure would then be applied to some or all of the positioning cylinders and clamps in the system. Applying air to the work support will extend the plunger until it has contacted the workpiece. A separate hydraulic sequence valve would then automatically lock work supports into place. After locking, the support will resist the applied force from the cutter. See Figure 1.



Conventional Mount

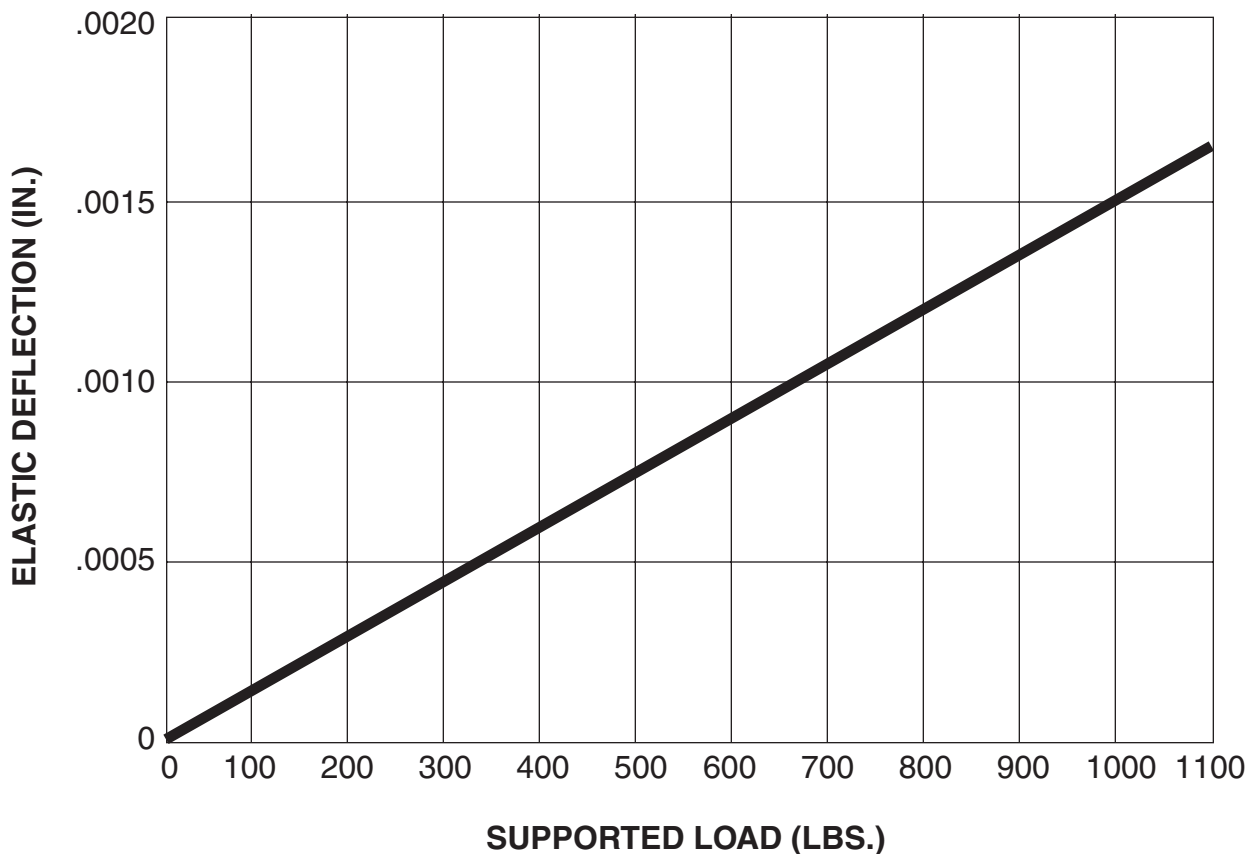


Manifold Mount

Figure 1

## ELASTIC DEFLECTION

Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminates inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to 0.00015" per 100 lbs. of load. See chart below.



## MOUNTING THE WORK SUPPORT

The work support can be manifold mounted in your fixture or conventionally plumbed and mounted on a flat surface using the optional mounting base.

### Conventional Mounting

To conventionally mount this product with fittings and tubing, refer to Figure 2 at right for bolt pattern information.

**When installing work support into optional mounting base 85/95 ft. lbs. of torque is required.**

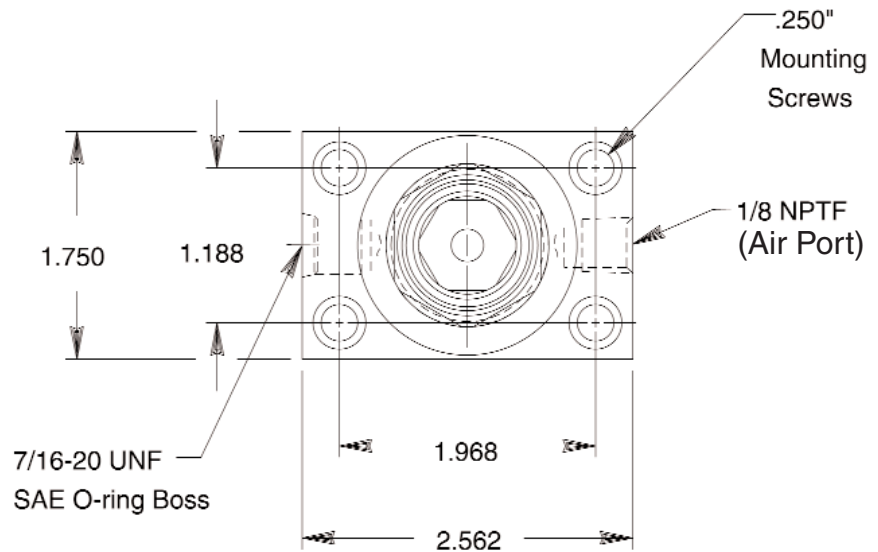


Figure 2

### Manifold Mounting

To manifold mount the work support, refer to Figure 3 at right for dimensional data.

**When installing work support into mounting cavity, 85/95 ft. lbs. of torque is required.**

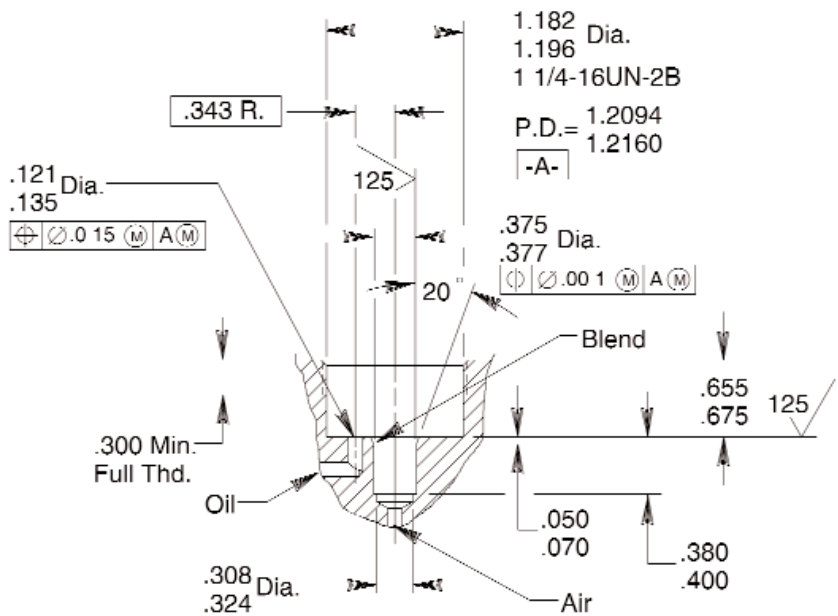


Figure 3

### WARNING

The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections.

All mechanical joints must be designed with proper safety requirements.

## PLUNGER CONTACT FORCE

The plunger contacts the workpiece with spring and air pressure. Hydraulic operating pressure does not affect contact force. See chart at right for contact forces.

AIR ADVANCE WORK SUPPORTS		
Catalog No.	Approximate Plunger Extension Force	
	*Air Pressure (PSI)	Force (Lbs.)
100876 100877	20	1.4
	** 25	3.7
	30	5.9

Note: \*Min. Air Pressure 15 PSI  
Max. Air Pressure 30 PSI

\*\*Minor air leakage may occur at or above this pressure

## MINIMUM OPERATING PRESSURE

While the sleeve begins to grip the plunger at lower pressures, a 1000 PSI minimum operating pressure is recommended to insure consistent, repeatable operation. See chart below for performance values.

