

WORK SUPPORTS

Hytec offers two designs of work supports: Block style and Threaded Body style. Both styles have the features that give them numerous advantages over typical makeshift supporting methods. Fixturing is faster, more accurate, and more consistent because shimming and screw jacks are totally unnecessary. Any manual intervention is completely eliminated.

All of Hytec's work support models provide the stability that prevents deflection and vibration of the workpiece during machining. Automatically adjusting to varying sizes or locations of the workpiece, they can also be used as adjustable rest pads under clamps.

All Hytec work supports are rated at 5,000 psi maximum. Minimum pressures vary with the style.

A work support is typically used with a sequence valve in the hydraulic system, although it is not always required.

When used to prevent vibration/deflection of the workpiece, the clamps in the system are usually actuated first to position the part. The work support is then sequenced to lock the plunger in place.

When used as a support under a clamp, the work support must be actuated first to lock its plunger in position. The clamps are then sequenced to secure the workpiece.

Block Style Work Supports

Spring and Air Advance

The block style work supports use a built-in hydraulic cylinder and internal mechanisms to lock the plunger that contacts the workpiece. They are particularly well suited to applications with lower hydraulic pressures. A 500 psi minimum system pressure will yield consistent supporting. The spring advance versions feature a unique diaphragm breather system to allow the plunger to be cycled in and out without changing the work support's internal pressure. This means that when the plunger extends, a vacuum will not be developed internally, so there is no tendency for coolant or contaminant's to be drawn inside.

Threaded Body Work Supports

Fluid, Spring, and Air Advance

These work supports also use a plunger that extends to contact the workpiece. To support any externally supplied loads, the sleeve surrounding the plunger grips the plunger and holds it, regardless of where it is in its stroke. Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminate inaccuracies due to plunger movement during lock-up. Made of 100% corrosion resistant materials, this



accuracy is easily maintained throughout the life of the work support.

This simple, co-axial design minimizes the number of moving parts and makes these work supports very compact. They are easily threaded into your fixture or can be surface mounted using the available base.

Filtered breathers, where required, keep solid contaminant's out of the work support. No external breather lines are necessary.

Fluid Advance/Single Acting

This fluid advanced work support allows the plunger to be retracted out of the way during workpiece load/unload operations. With no hydraulic pressure applied, a spring retracts the plunger into the work support body. The work support provides its own internal sequencing of a piston which raises the plunger until it contacts the workpiece. Maximum flow rates must be observed to ensure proper sequencing. A spring between the piston and the plunger limits the workpiece contact force. The full force generated by this piston cannot be transmitted to the plunger.

As pressure builds, the automatic sequencing action causes the sleeve to grip the plunger and provide the locking action.

- A typical operating sequence is as follows:
1. Plunger normally retracted by spring.
 2. Hydraulic pressure extends small cylinder causing spring loaded plunger to advance.

3. When plunger contacts the workpiece, the spring begins to compress as the cylinder continues to extend.
4. When the cylinder reaches the end of its stroke, pressure builds high enough to cause the sleeve to grip the plunger.
5. Removal of hydraulic pressure releases the sleeves grip on the plunger and an internal return spring retracts the plunger away from the workpiece.

Spring Advance/Single Acting

Spring advance work supports are the simplest version of hydraulic work supports. As the workpiece is loaded into the fixture, the plunger contacts it, and the weight of the workpiece or the design of the fixture holds the plunger depressed until the work support is hydraulically locked. The typical operation sequence is as follows:

1. Plunger normally extended by spring.
2. Workpiece forces plunger down to supporting position.
3. Hydraulic pressure locks plunger.
4. Removal of hyd. pressure releases plunger.

Air Advance/Single Acting

Air advance work supports may be specified in applications where:

- A. The workpiece is loaded from the side and the extended plunger from a spring advance work support would be in the way.
- B. The workpiece is not heavy enough to depress a spring advance work support plunger.
- C. The plunger contact force must be precisely adjusted and controlled. Adjusting the air supply pressure will vary the workpiece contact force.
- D. Fine contaminants or heavy coolant floods are present. (Especially during work support actuation.)

A typical operating sequence is as follows:

1. Plunger normally retracted by spring.
2. Air pressure applied under plunger overcomes retracting spring force and extends plunger to workpiece.
3. Hydraulic pressure is then sequenced to lock plunger.
4. Air and hydraulic pressure must both be removed for plunger retraction.

As an added benefit of air advance work supports, pressurized air in the work support body prevents coolant or other contaminants from entering, eliminating the need for breathers, diaphragms, etc. For longest service life, always release the air pressure before releasing hydraulic pressure.



Hytec's fluid advance work supports have a spring loaded plunger which hydraulically extends to contact the workpiece. To support any externally applied loads, the sleeve surrounding the plunger grips the plunger and holds it in place.

Fluid advance work supports allow the plunger to be retracted out of the way during workpiece load/unload operations. The work support provides its own internal sequencing of a piston which gently raises the plunger until it contacts the workpiece. A spring between the piston and the plunger limits the workpiece contact force.

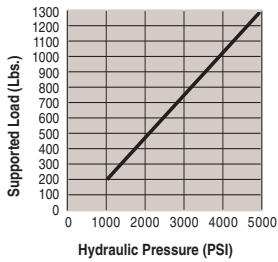
The 100872's threaded body may be compactly manifold mounted in your fixture or choose the 100873 which includes the 100872 work support and a mounting base for installation on a flat surface for conventionally

plumbed circuits. Both feature fully corrosion resistant construction.

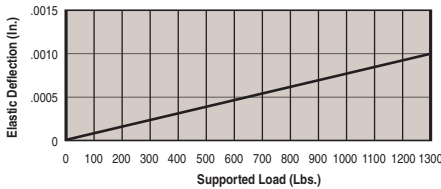
Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminates inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to .00007" per 100 lbs. of load. For base only, order number 500035.

Features:

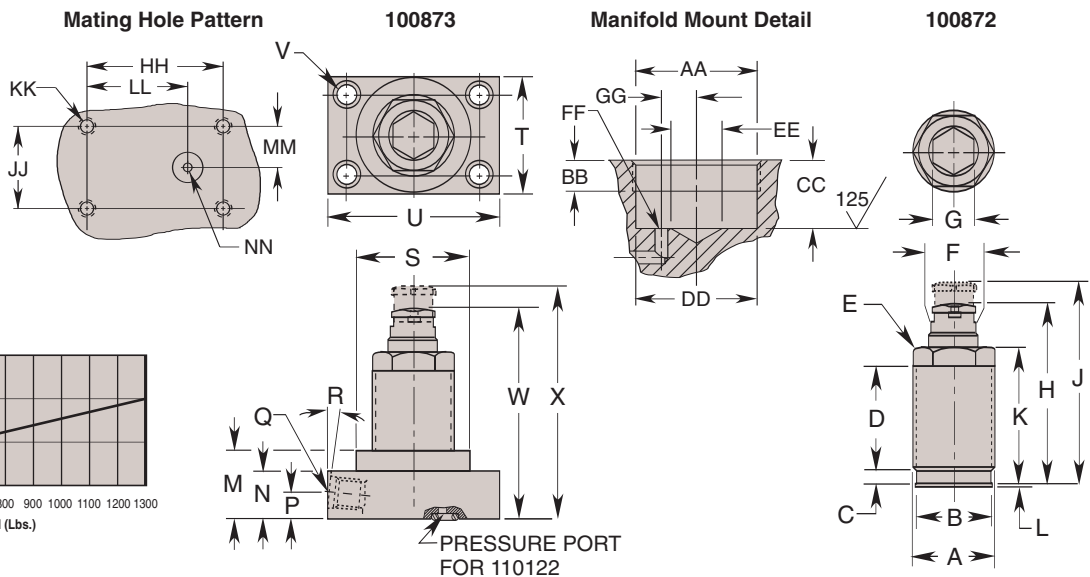
- 1,300 lbs. capacity @ 5,000 psi max.
- Fully corrosion resistant construction
- Manifold or conventional base mounting
- Filtered breather/rest button
- 1,000 psi minimum recommended pressure



Avg. Performance
100872, 100873, 110122



Avg. Performance
100872, 100873, 110122



Cat. No.	Specifications				Dimensions (In Inches)								Operating Range	
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Max. Flow Rate (Cu. In./Min.)	Advance System	Mounting Configuration	A	†B Seal Dia.	C	D	E Hex.	F Dia.	G Hex.	H	J
	100872	1,300	.04	47	Fluid	Cartridge Manifold	1.171	.334	1.531	1.125	.735	.688	2.850	3.162
100873					Base Conventional	1 1/4-16 UN								
110122					Base Manifold									

Cat. No.	Dimensions (In Inches)											Operating Range	
	K	L Seal	M	N	P	Q Pressure Port Thd. Size	R Port Angle	††S Dia.	T	U	V Dia.	W Retracted	X Advanced
	100872	2.180	.040	—	—	—	—	—	—	—	—	—	—
100873	—	—	1.000	.700	.385	7/16-20 UNF SAE-4	5°	1.688	1.750	2.562	.281	3.162	3.474
110122	—	—	—	—	—	—	—	—	—	—	—	—	—

Cat. No.	Mounting Dimensions (In Inches)												
	AA Thd. Size	BB Min. Thd.	CC	DD Dia.	EE Drill Point Dia. Max.	FF Dia.	GG Max.	HH	JJ	KK Thd. Size	LL	MM	NN Pressure Port Dia. Max.
	100872	1 1/4-16 UN	.300	.655	1.182	1.196	.500	.121	.135	.343	—	—	—
100873	—	—	—	—	—	—	—	—	1.968	1.188	1/2-20 UNC	—	—
110122	—	—	—	—	—	—	—	—	—	—	1.456	.594	†††.126

FLUID ADVANCE WORK SUPPORT		
Cat. No.	Approximate Forces Required To Depress Plunger (Lbs.)	
	Fully Extended	Fully Depressed
100872	2.3	2.9
100873	2.3	2.9

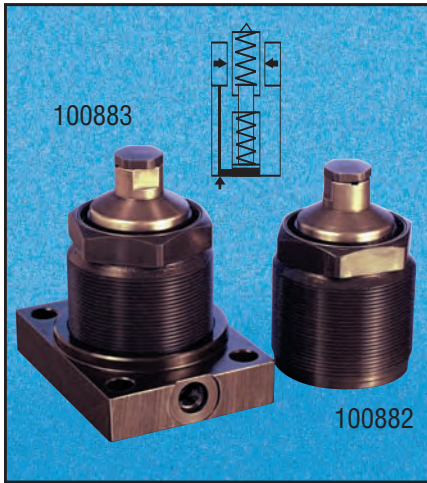
NOTE: *Based on 5,000 psi max. operating pressure.
For optional jam nut see page 60.
For additional flow control valves see pages 105 & 123.
For optional accessories see page 73.

† Seal included.
†† 1.768 dia. min. clearance required.
††† Surface finish to be 63. Finish of 125 acceptable with concentric tool marks only.
Finish area to be .438 dia. min. centered on .126 dia. port hole.
See operating instructions for additional details.

Fluid Adv. Work Supports-4,000 lb. Cap.



Fluid Advance Work Supports - 4,000 lb. Capacity



Hytec's fluid advance work supports have a spring loaded plunger which hydraulically extends to contact the workpiece. To support any externally applied loads, the sleeve surrounding the plunger grips the plunger and holds it in place.

Fluid advance work supports allow the plunger to be retracted out of the way during workpiece load/unload operations. The work support provides its own internal sequencing of a piston which gently raises the plunger until it contacts the workpiece. A spring between the piston and the plunger limits the workpiece contact force.

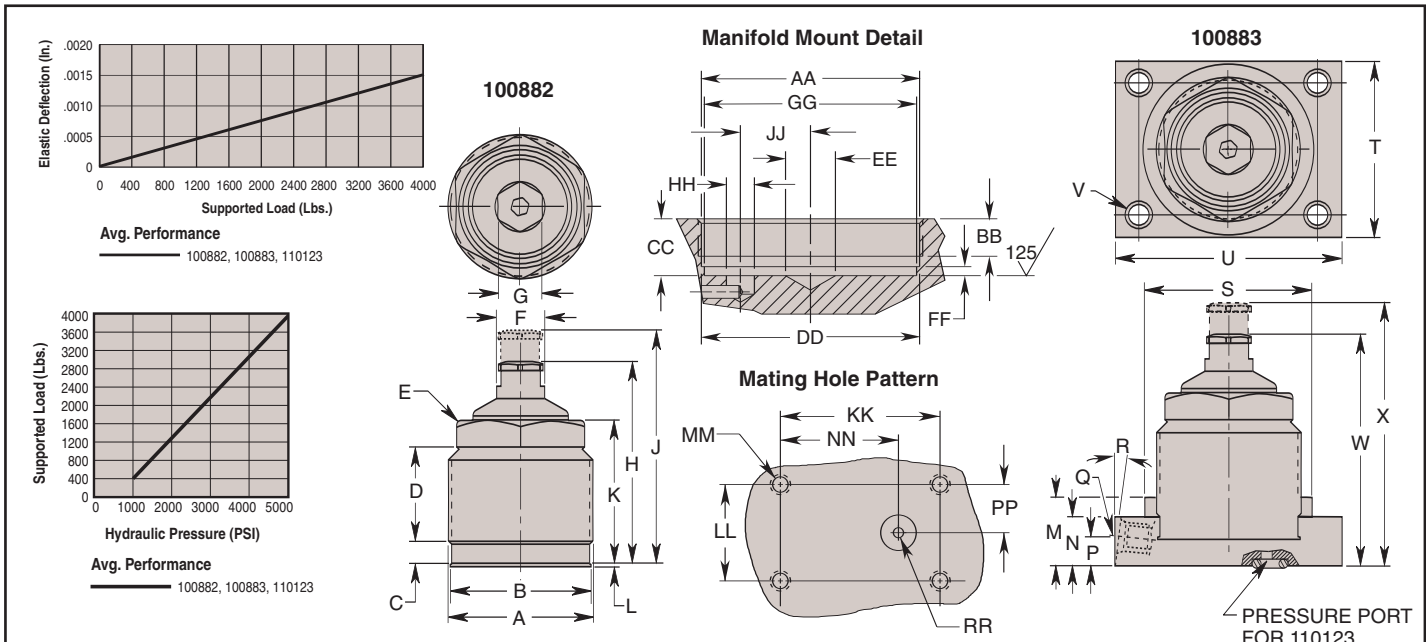
The 100882's threaded body may be compactly manifold mounted in your fixture or choose the No. 100883 which includes the 100882 work support and a mounting base for installation on a flat surface for conventionally plumbed circuits.

Both feature fully corrosion resistant construction.

Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminate inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to .00004" per 100 lbs. of load. For base only, order number 500028 for conventional mounting, and 421728 for manifold mounting.

Features:

- 4,000 lbs. capacity @ 5,000 psi max.
- Fully corrosion resistant construction
- Manifold mount or conventional base mounting
- Small, filtered breather/rest button to accommodate intricate workpieces
- 1,000 psi minimum recommended pressure



Cat. No.	Specifications				Dimensions (In Inches)													
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Max. Flow Rate (Cu. In./Min.)	Advance System	Mounting Configuration	A	†B Seal Dia.	C	D	E Hex.	F Dia.	G Hex	Operating Range		K			
													H	J				
100882					Cartridge Manifold	2¼-16 UN	2.140	.250	1.625	2.000	.735	.688	3.265	3.765	2.312			
100883	4,000	.12	10	Fluid	Base Conventional		—	—	—				—	—	—	—	—	—
110123					Base Manifold													

Cat. No.	Dimensions (In Inches)										Operating range	
	L Seal	M	N	P	Q Press. Port Thd. Size	R Port Angle	††S Dia.	T	U	V	W Retracted	X Advanced
100882	.040	—	—	—	—	—	—	—	—	—	—	—
100883	—	.945	.735	.420	¼-20 UNF SAE-4	5°	2.688	2.750	3.562	.281	3.680	4.180
110123	—	—	—	—	—	—	—	—	—	—	—	—

Cat. No.	FLUID ADVANCE WORK SUPPORT	
	Approximate Forces Required To Depress Plunger (Lbs.)	
	Fully Extended	Fully Depressed
100882	4	8
100883	4	8

Cat. No.	Mounting Dimensions (In Inches)														
	AA Thd. Size	BB Min. Thd.	CC	DD Dia.	EE Drill Point Max.	FF	GG Dia.	HH Dia.	JJ Max.	KK	LL	MM Thd. Size	NN	PP	RR Pressure Port Dia. Max.
100882	2¼-16 UN	.380	.560	2.182	.500	.080	2.145	.121	.700	—	—	—	—	—	—
100883	—	—	.580	2.196	—	.100	2.155	.293	—	—	—	—	—	—	—
110123	—	—	—	—	—	—	—	—	—	2.843	2.063	¼-20 UNC	2.122	1.032	†††.126

NOTE: * Based on 5,000 psi max. operating pressure
 † Seal included.
 †† 2.768 dia. min. clearance required.
 ††† Surface finish to be 63. Finish of 125 acceptable with concentric tool marks only. Finish area to be .438 dia. min. centered on .126 dia. port hole. See operating instructions for additional port details.



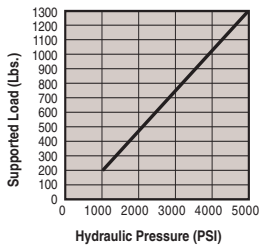
Hytec's spring advance work supports have a spring loaded plunger which contacts the workpiece as it is loaded into the fixture. The spring keeps the plunger in contact with the workpiece, allowing for variations between workpieces. To support any externally supplied loads, the sleeve surrounding the poppet grips the plunger and holds it in place.

The 100874 and 110124's threaded body may be compactly manifold mounted in your fixture or choose the 100875 or metric version 110134 which includes the 100874 work support and a mounting base for installation on a flat surface for conventionally plumbed circuits. Both feature fully corrosion resistant construction.

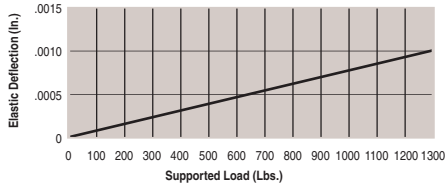
Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminates inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to .00007" per 100 lbs. of load. For base only, order number 500035 for conventional mounting, and 421727 for manifold mounting.

Features:

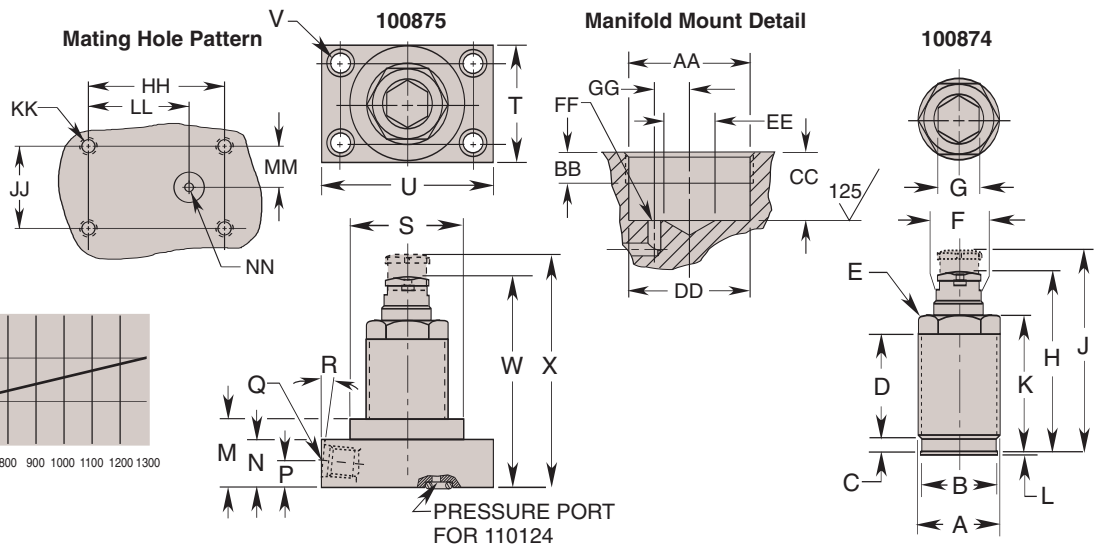
- 1,300 lbs. capacity @ 5,000 psi max.
- Fully corrosion resistant construction
- Manifold mount or conventional base mounting
- Filtered breather/rest button
- 1,000 psi minimum recommended pressure



Avg. Performance
100874, 100875, 110124



Avg. Performance
100874, 100875, 110124



Cat. No.	Specifications				Dimensions (In Inches)							Operating Range	
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting Configuration	A	†B Seal Dia.	C	D	E Hex.	F Dia.	G Hex.	H	J
100874	1,300	.01	Spring	Cartridge Manifold	1½-16 UN	—	—	—	1.125	.735	.688	2.850	3.162
100875				Base Conventional								—	—
110134				Base Manifold								—	—
110124				Base Manifold								—	—

Cat. No.	Dimensions (In Inches)											Operating Range	
	K	L Seal	M	N	P	Q Pressure Port Thd. Size	R Port Angle	††S Dia.	T	U	V Dia.	W Retracted	X Advanced
100874	2.180	.040	—	—	—	—	—	—	—	—	—	—	—
100875	—	—	—	—	.385	½"-20 UNF SAE-4	5°	—	—	—	—	—	—
110134	—	—	1.000	.700	—	**M12 x 1.5 6H	—	1.688	1.750	2.562	.281	3.162	3.474
110124	—	—	—	—	—	—	—	—	—	—	—	—	—

Cat. No.	Mounting Dimensions (In Inches)												
	AA Thd. Size	BB Min. Thd.	CC	DD Dia.	EE Drill Port Max.	FF Dia.	GG Max.	HH	JJ	KK Thd. Size	LL	MM	†††NN Pressure Port Dia. Max.
100874	1½-16 UN	.300	.655 .675	1.182 1.196	.500	.121 .135	.343	—	—	—	—	—	—
100875	—	—	—	—	—	—	—	1.968	1.188	½"-20 UNC	—	—	—
110134	—	—	—	—	—	—	—	—	—	—	—	—	—
110124	—	—	—	—	—	—	—	—	—	—	1.456	.594	.126

Cat. No.	Approximate Forces Required To Depress Plunger (Lbs.)	
	Fully Extended	Fully Depressed
100874	2.3	2.9
100875		
110134		
110124		

NOTE: *Based on 5,000 psi max. operating pressure.
 **Per ISO 6149-1
 For optional jam nut see page 60.
 For additional flow control valves see pages 105 & 123.

For optional accessories see page 73.
 † Seal included.
 †† 1.768 dia. min. clearance required.

††† Surface finish to be 63. Finish of 125 acceptable with concentric tool marks only.
 Finish area to be .438 dia. min. centered on .126 dia. port hole.
 See operating instructions for additional details.

Spring Adv. Work Supports-4,000 lb. Cap.



Spring Advance Work Supports - 4,000 lb. Capacity



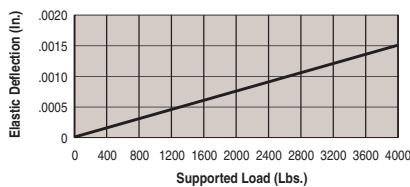
Hytec's spring advance work supports have a spring loaded plunger which contacts the workpiece as it is loaded into the fixture. The spring keeps the plunger in contact with the workpiece, allowing for variations between workpieces. To support any externally applied loads, the sleeve surrounding the plunger grips the plunger and holds it in place.

The 100884's threaded body may be compactly manifold mounted in your fixture or choose the 100885 which includes the 100884 work support and a mounting base for installation on a flat surface for conventionally plumbed circuits. Both feature fully corrosion resistant construction. Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and

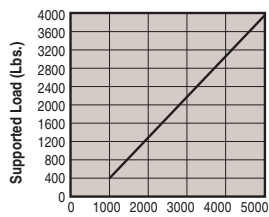
eliminate inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to .00004" per 100 lbs. of load. For base only, order number 500028 for conventional mounting, and 421728 for manifold mounting.

Features:

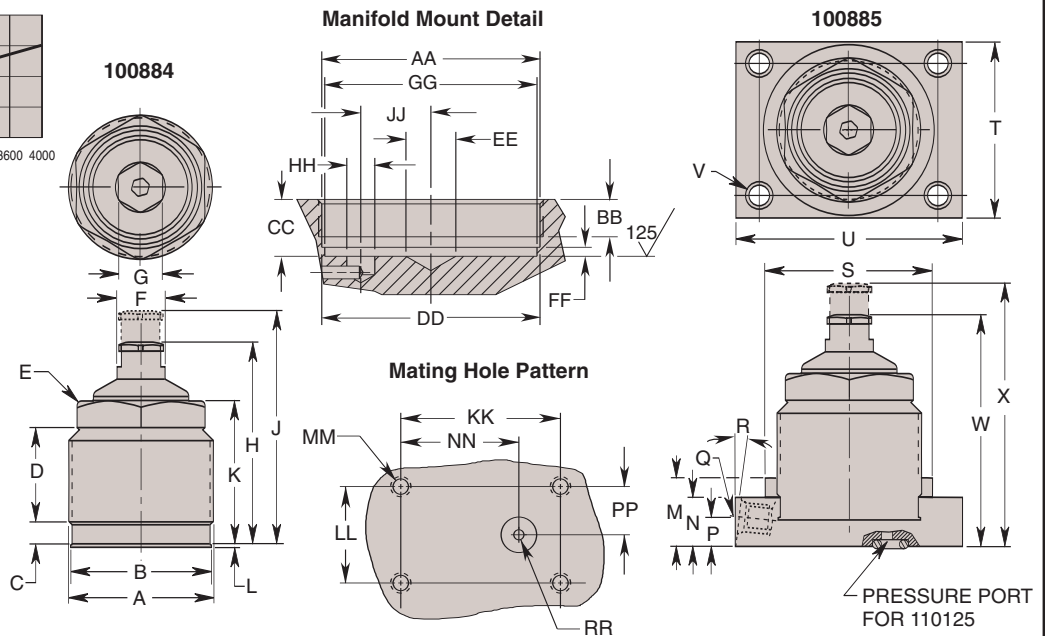
- 4,000 lbs. capacity @ 5,000 psi max.
- Fully corrosion resistant construction
- Manifold mount or conventional base mounting
- Small filtered breather/rest button to accommodate intricate workpieces
- 1,000 psi minimum recommended pressure



Avg. Performance
100884, 100885, 110125



Avg. Performance
100884, 100885, 110125



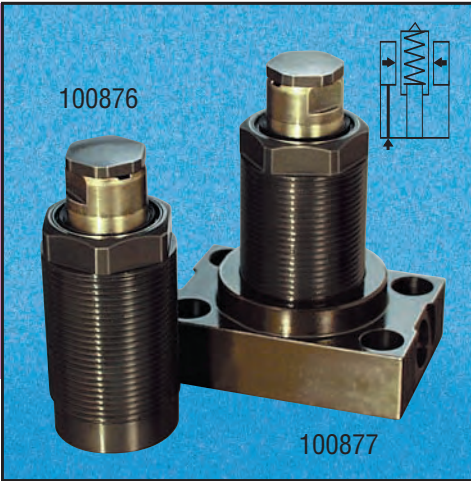
Cat. No.	Specifications			Mounting Configuration	Dimensions (In Inches)								Operating Range				
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System		A	†B Seal Dia.	C	D	E Hex	F Dia.	G Hex	H	J	K			
100884			Spring	Cartridge Manifold	2 1/4-16 UN	2.140	.250	1.625	2.000	.735	.688	3.265	3.765	2.312			
100885	4,000	.02		Base Conventional		—	—	—				—	—	—	—	—	—
110125				Base Manifold													

Cat. No.	Dimensions (In Inches)										Operating Range	
	L Seal	M	N	P	Q Pressure Port Thd. Size	R Port Angle	††S Dia.	T	U	V Dia.	W Retracted	X Advanced
	100884	.040	—	—	—	—	—	—	—	—	—	—
100885	—	.945	.735	.420	1/16-20 UNF SAE-4	5°	2.688	2.750	3.562	.281	3.680	4.180
110125	—	—	—	—	—	—	—	—	—	—	—	—

Cat. No.	Approximate Forces Required To Depress Plunger (Lbs.)	
	Fully Extended	Fully Depressed
	100884	4
100885		

Cat. No.	Mounting Dimensions (In Inches)														
	AA Thd. Size	BB Min. Thd.	CC	DD Dia.	EE Drill Point Max.	FF	GG Dia.	HH Dia.	JJ Max.	KK	LL	MM Thd. Size	NN	PP	RR Pressure Port Dia. Max.
100884	2 1/4-16 UN	.380	.560 .580	2.182 2.196	.500	.080 .100	2.145 2.155	.121 .293	.700	—	—	—	—	—	—
100885	—	—	—	—	—	—	—	—	—	2.843	2.063	1/4-20 UNC	—	—	—
110125	—	—	—	—	—	—	—	—	—	—	—	1/4-20 UNC	2.122	1.032	†††.126

NOTE: * Based on 5,000 psi max. operating pressure. † Seal included. †† 2.768 dia. min. clearance required. ††† Surface finish to be 63. Finish of 125 acceptable with concentric tool marks only. Finish area to be .438 dia. min. centered on .126 dia. port hole. See operating instructions for additional port details.



Hytec's air advance work supports have a spring return plunger which uses air pressure to extend it to contact the workpiece. To support any externally applied loads, the sleeve surrounding the plunger grips the plunger and holds it in place.

Air advance work supports allow the plunger to be retracted out of the way during workpiece load/unload operations. Applying air pressure to the work support gently raises the plunger until it contacts the workpiece. Adjusting the air pressure will vary the plunger contact force. The air pressure within the work support also serves to keep contaminants out.

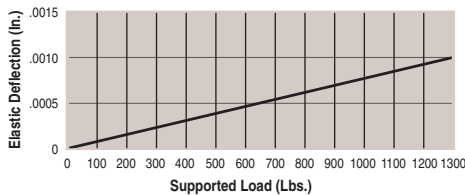
The No. 100876's threaded body may be compactly manifold mounted in your fixture or choose the No. 100877 which includes the

100876 work support and a mounting base for installation on a flat surface for conventionally plumbed circuits. Both feature fully corrosion resistant construction.

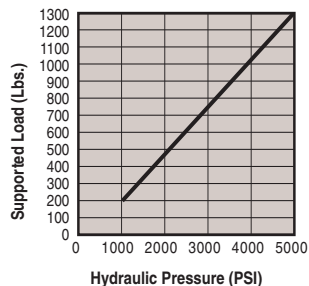
Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminates inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to .00007" per 100 lbs. of load. For base only, order number 500036.

Features:

- 1,300 lbs. capacity @ 5,000 psi max.
- Fully corrosion resistant construction
- Manifold mount or conventional base mounting
- 1,000 psi minimum recommended pressure

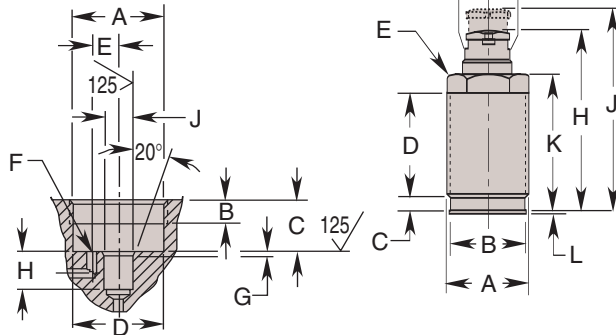


Avg. Performance
100876, 100877

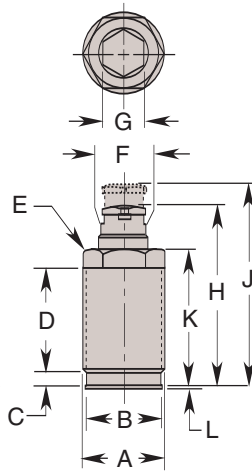


Avg. Performance
100876, 100877

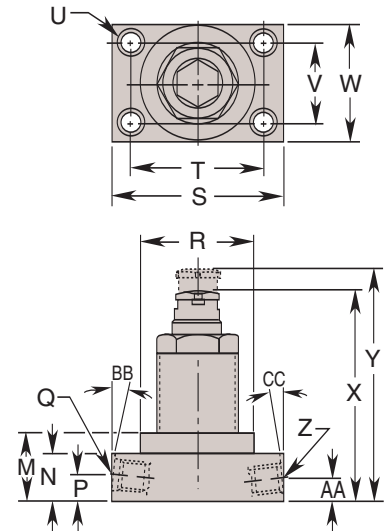
Manifold Mount Detail



100876



100877



Cat. No.	Specifications				Dimensions (In Inches)									
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting	A Thread Size	††B Seal Dia.	C	D	E Hex	F Dia.	G Hex	Operating Range		K
												H Retracted	J Advanced	
100876	1,300	.01	Air	Manifold	1 1/4-16 UN	1.171	.334	1.531	1.125	.735	.688	2.850	3.162	2.180
100877		.01	Air	Base								—	—	

Cat. No.	Dimensions (In Inches)																
	L Seal	M	N	P	Q Thread Size	†R Dia.	S	T	U Dia.	V	W	Operating Range		Z Thread Size	AA	BB Port Angle	CC Port Angle
												X Retracted	Y Advanced				
100876	.040	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
100877		1.000	.700	.385	7/16-20 UNF SAE-4	1.688	2.562	1.968	.281	1.188	1.750	3.162	3.474	1/8 NPTF	.330	5°	5°

NOTE: * Based on 5,000 psi max. operating pressure. (Optional: Jam nut - pg. 59)
See page 73 for optional accessories.

† 1.768 dia. min. clearance required.
†† Seal Included.

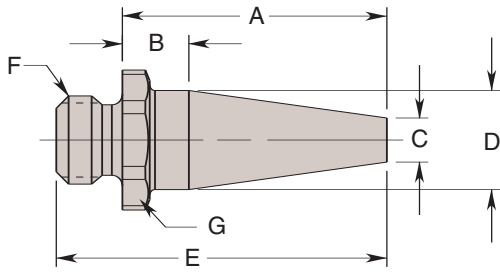
MANIFOLD MOUNT DETAIL									
Cat. No.	Cavity Dimensions				Fluid Passage Dimensions		†Air Passage Dimensions		
	A Thread Size	B Min. Thread	C Dia.	D Dia.	E	F Dia.	G	H	J Dia.
100876	1 1/4-16UN	.300	.665 .675	1.182 1.196	.343	.121 .135	.060	.380 .400	.375 .377

† Connector bushing supplied but not shown.

AIR ADVANCE WORK SUPPORT		
Cat. No.	Approximate Plunger Extension Force	
	*Air Pressure (PSI)	Force (Lbs.)
100876	15	1.4
100877	20**	3.7
	30	5.9

NOTE: * Min. air press. 15 psi, max. air press. 30 psi
** Minor air leakage may occur at or above this pressure.

500176



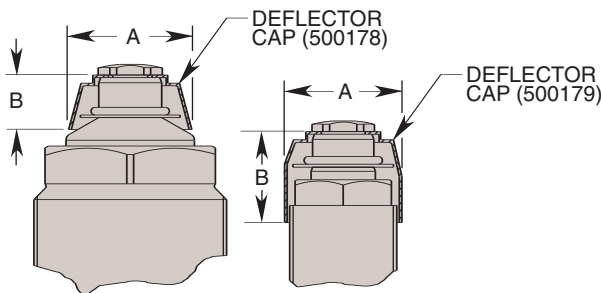
Cat. No.	Dimensions (In Inches)						
	A	B	C Dia.	D Dia.	E	F Thd. Size	G Hex
500176	1.500	.376	.250	.562	1.875	1/2-20 UNF	.688
500176	1.500	.376	.250	.562	1.875	1/2-20 UNF	.688

Rest Button

This Rest Button is designed to extend the reach of all Hytec threaded body work supports. All of Hytec's fluid-advanced and air-advanced threaded body work supports must be able to "breathe" air for proper operation. Proper filtration as it breathes is also critical for maximum service life. This button contains the same filtered breather port as the standard rest button. It is easily modified above the hex to fit your exact requirements. Its tapered design minimizes weight and off-center loading.

- Fits 1,300 and 4,000 lb, Work Supports
- Built-in filter element
- Provides 1.375" additional reach beyond standard button
- Easily modified for your application

Additional end effectors will add weight and may affect performance. If neither the standard nor the optional 500176 rest buttons are appropriate for your application, contact Hytec for more design information.



Cat. No.	Dimensions (In Inches)		Work Support Capacity
	A	B	
500178	1.435	.635	4,000 lbs.
500179	1.410	1.060	1,300 lbs.

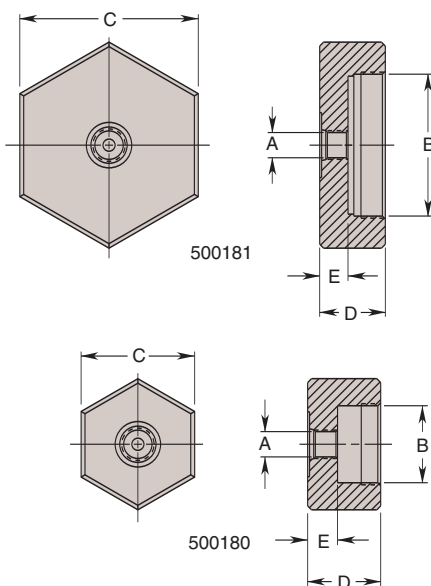
Coolant Deflector Caps

These Coolant Deflector Caps are designed to reduced exposure of the work support's breather/filter to coolant and contaminants. They are designed for applications where the work support is actuated either during or soon after exposure to coolant floods. Used in conjunction with careful aiming of coolant jets, they can prevent the breather port from filling with coolant that is later drawn inside the work support as it is actuated.

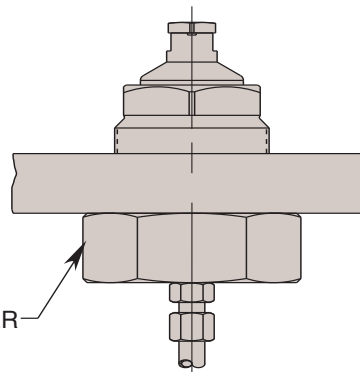
The caps are assembled between the work support plunger and the rest button and serve as an "umbrella" for the breather port. (This increases the height of the assembled work support by .030")

The caps are designed for vertical-up and horizontal applications where coolant jets are not directly aimed at the gap between the cap and work support plunger.

These caps are not appropriate for submerged or vertical-down applications.



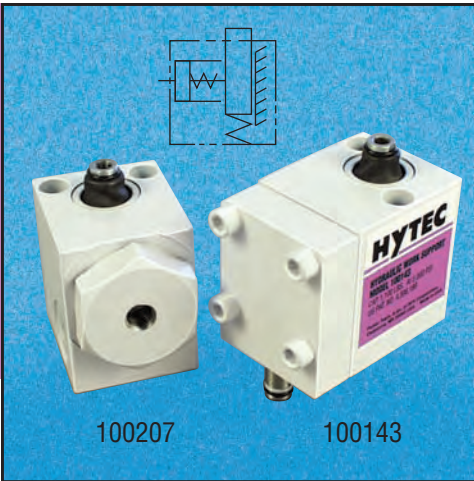
Cat. No.	Work Support Cap. (Lbs.)	Use With
500180	1,300	100872, 100874
500181	4,000	100882, 100884



Feeder Caps

These Feeder Caps are designed to allow bulkhead mounting Hytec's fluid advanced and spring advanced threaded body work supports. Bulkhead mounting allows the work support to be mounted in a threaded hole in a plate. The feeder cap connects the work support to the hydraulic system via a SAE-4 port. The feeder cap saves space over the standard base and provides a connection at the end of the work support. The work support should be locked to the bulkhead plate using a jam nut or by the feeder cap itself.

Cat. No.	Dimensions (In Inches)				
	A	B	C Hex	D	E
500180	1/2-20 UNF SAE-4	1 1/4-16	1.750	1.125	.460
500181		2 1/4-16	2.750	1.010	.435



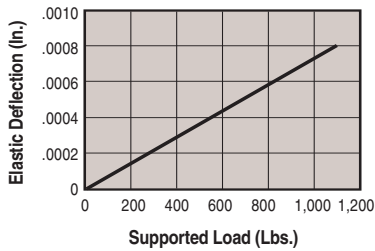
Hytec's 1,100 lb. capacity work supports use a boot attached between the body and plunger to effectively seal out contaminants. A diaphragm breather system further protects internal components, and the block style design requires only a flat surface for mounting rather than the large threaded hole needed with threaded body designs. Two mounting styles are available for plumbing convenience: manifold and conventional mount.

These work supports use a spring-loaded plunger to minimize deflection and vibration: As the workpiece is loaded into the fixture, it contacts the plunger, and its weight or the

design of the fixture holds the plunger depressed. When the work support is hydraulically pressurized, the plunger is locked into position.

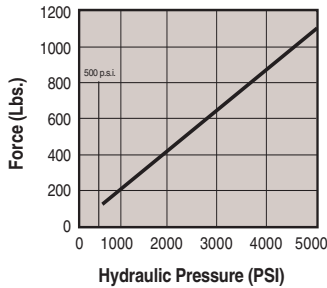
Features:

- Spring advance
- 1,100 lb. rated capacity at 5,000 psi max.
- Single-acting
- Manifold or conventionally mounted styles
- Sealed against contamination



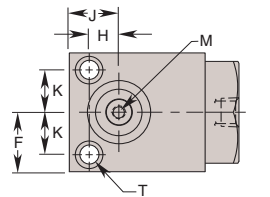
Supported Load (Lbs.)

Avg. Performance
Nos. 100207, 100143

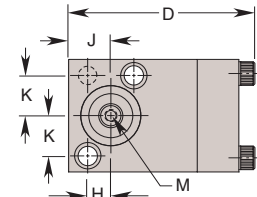


Hydraulic Pressure (PSI)

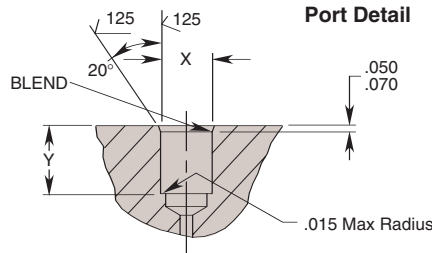
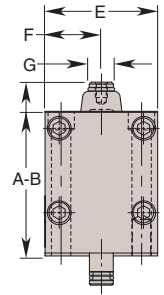
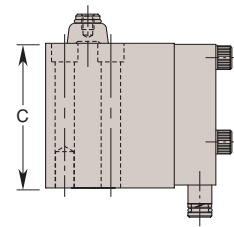
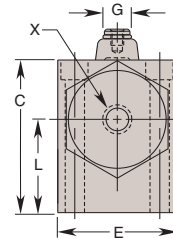
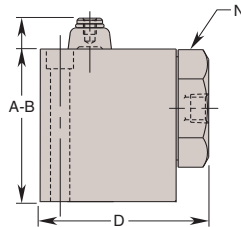
Performance
Work Support Nos. 100207, 100143



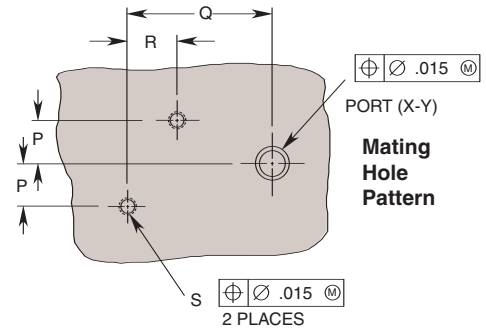
100207



100143



Port Detail



Mating Hole Pattern

Cat. No.	Specifications				Dimensions (In Inches)										
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting	A Retract Oper. Range	B Advance Oper. Range	C	D	E	F	G Dia.	H	J	K	L
100207	1,100	.07	Spring	Conventional	2.375	2.670	2.250	2.500	1.750	.875	.375	.438	.730	.625	1.375
100143				Manifold				2.895				.359	.655		-

Cat. No.	Dimensions (In Inches)									
	M Thread Size	N Hex. Depth	P Mounting	Q Mounting	R Mounting	S Thread Size	T Dia.	X		Y
							Thread Size	Dia.		
100207	10-24 UNC	.250	1.500	-	-	-	.281	1/8 NPTF	-	-
100143	10-24 UNC	.250	-	.625	2.102	.718	1/4-20UNC	-	.375	.515
									.377	.535

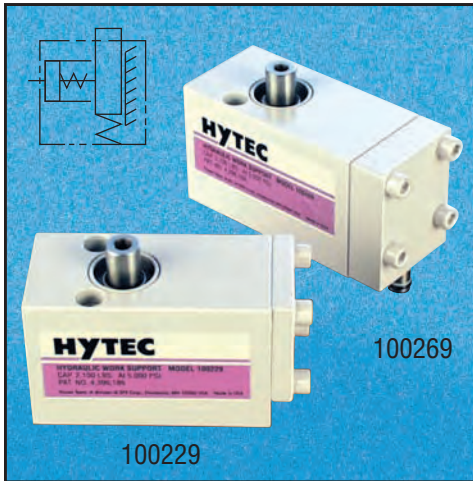
Cat. No.	Approximate Forces Required to Depress Plunger (Lbs.)		
	Fully Extended	Extended 50%	Fully Depressed
	100207 100143	1.0	1.4

NOTE: * Based on 5,000 psi max. operating pressure.

Spring Adv. Work Supports-2,100 lb. Cap.



Spring Advance Work Supports - 2,100 lb. Capacity



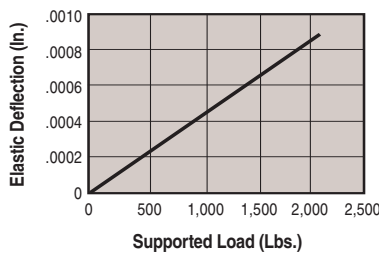
Work supports provide the stability that prevents deflection and vibration of the workpiece during machining. Automatically adjustable to varying sizes or positions of the workpieces, they are also usable as adjustable rest pads under clamps.

These 2,100 lb. work supports are available in three different spring advanced models with either conventional or manifold mounting. All use plunger seals to protect against contamination. The spring advance models use Hytec's diaphragm breather system.

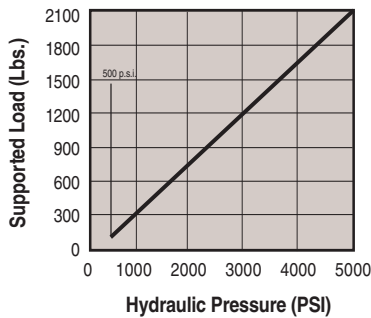
The block style design requires only a flat surface for mounting rather than the large threaded hole necessary with threaded body designs.

Features:

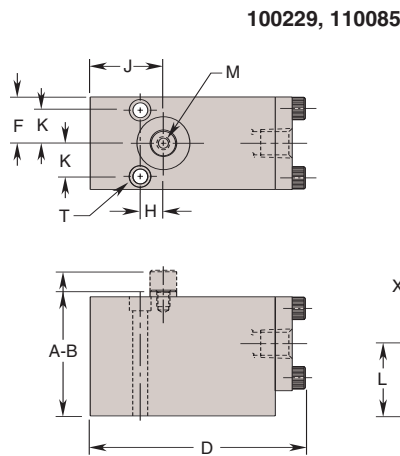
- Spring advance models
- 2,100 lb. rated capacity at 5,000 psi max.
- Single-acting
- Manifold or conventionally mounted styles
- Sealed against contamination



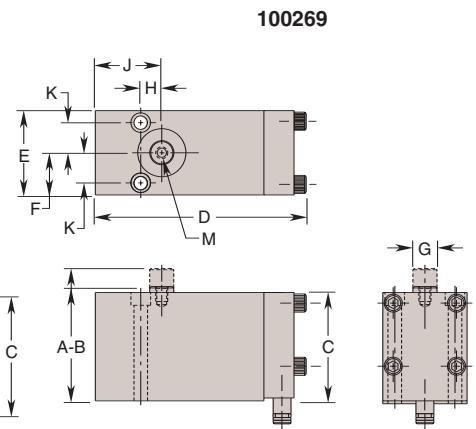
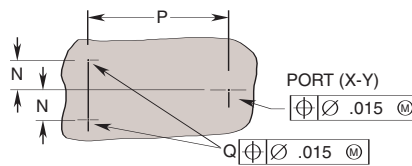
Avg. Performance
— Nos. 100229, 100269



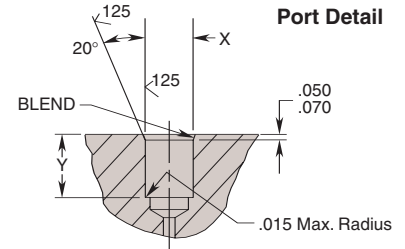
Performance
— Work Support Nos. 100229, 100269



Mating Hole Pattern



Port Detail



Cat. No.	Specifications			Dimensions (In Inches)										
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting Configuration	A Retract Oper. Range	B Advance Oper. Range	C	D	E	F	G Dia.	H	J	K
100229	2,100	.100	Spring	Conventional	2.375	2.750	2.250	4.062	1.750	.875	.500	.438	1.380	.625
110085				Manifold										
100269				Manifold										

Cat. No.	Dimensions (In Inches)								
	L	M Thread		N Mtng	P Mtng	Q Thread Size	T Dia.	X	
		Size	Depth					Thd. Size	Dia.
100229	1.375	1/4-20 UNC	.312	—	—	—	.281	1/4 NPTF	—
110085								3/16-20 UNF SAE-4	
100269	—	—	—	.625	2.937	1/4-20 UNC	—	.375 .377	.515 .535

Cat. No.	Approximate Forces Required to Depress Plunger (Lbs.)		
	Fully Extended	Extended 50%	Fully Depressed
	100229 100269	1.0	2.0



100226

100141

Work supports provide the stability that prevents deflection and vibration of the workpiece during machining. Automatically adjustable to varying sizes or positions of the workpieces, they are also usable as adjustable rest pads under clamps.

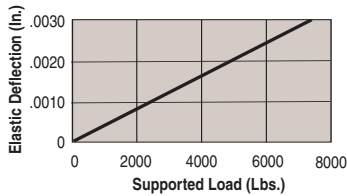
These 7,500 lb. work supports are available in four different spring advanced models with either conventional or manifold mounting. All use plunger seals to protect against contamination. The spring advance models use Hytec's diaphragm breather system.

The block style design requires only a flat surface for mounting rather than the large threaded hole necessary with threaded body designs.

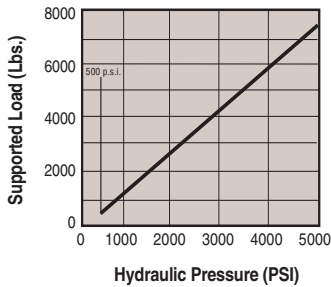
Features:

- Spring advance models
- 7,500 lb. rated capacity at 5,000 psi max.
- Single-acting
- Manifold or conventionally mounted styles
- Sealed against contamination

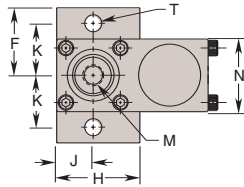
Note: See Page 23 for crowned threaded insert.



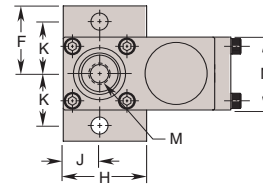
Avg. Performance
— 100141, 100226, 100926



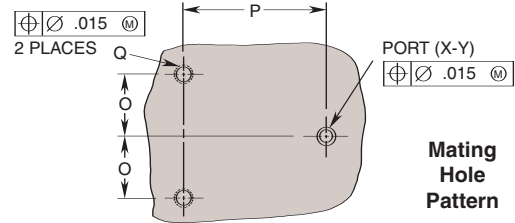
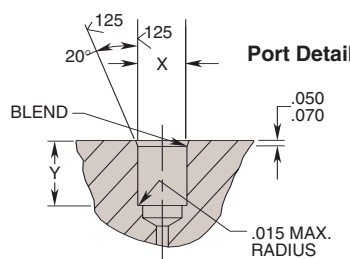
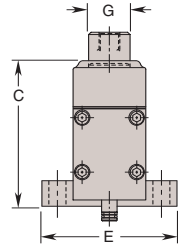
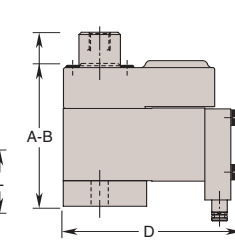
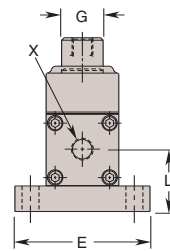
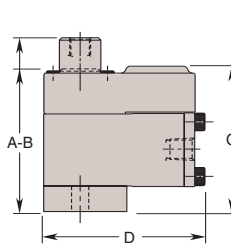
Performance
— Work Support Nos.



100226
100926
100998



100141



Cat. No.	Specifications				Dimensions (In Inches)										
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting	A Retract Oper. Range	B Advance Oper. Range	C	D	E	F	G Dia.	H	J	K	L
100226	7,500	.25	Spring	Conventional	3.435	4.185	3.500	3.875	3.250	1.625	1.000	2.000	.875	1.250	1.500
100926				Manifold											—
100141				Conventional											1.500
100998							3.875								1.500

Cat. No.	Dimensions (In Inches)									
	M Thread		N	O Mounting	P Mounting	Q Thread Size	T Dia.	X		Y
	Size	Depth						Thread Size	Dia.	
100226	½-13UNC	.875	1.750	—	—	—	.406	¼ NPTF	—	—
100926				—	—	—	—	7/16-20 SAE-4	—	—
100141				1.250	2.878	¾-16UNC	—	—	.375	.515
100998	**M12x1.5 6H	.866	—	—	—	.406	**M12x1.5 6H	—	—	—

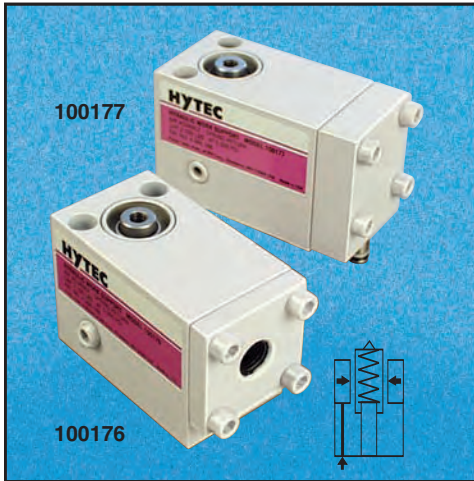
Cat. No.	Approximate Forces Required to Depress Plunger (Lbs.)		
	Fully Extended	Extended 50%	Fully Depressed
100226			
100926			
100141			
100998			

NOTE: * Based on 5,000 psi max. operating pressure.
**Per ISO 6149-1.

Air Adv. Work Supports - 2,100 lb. Cap.



Air Advance Work Supports - 2,100 lb. Capacity



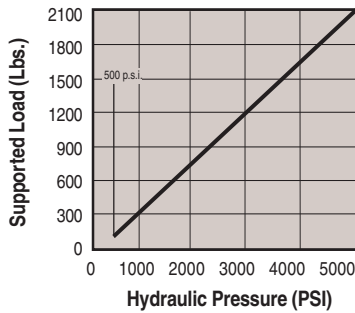
Work supports provide the stability that prevents deflection and vibration of the workpiece during machining. Automatically adjustable to varying sizes or positions of the workpieces, they are also usable as adjustable rest pads under clamps.

These 2,100 lb. air advanced work supports are available in three different models with either conventional or manifold mounting. All use plunger seals to protect against contamination.

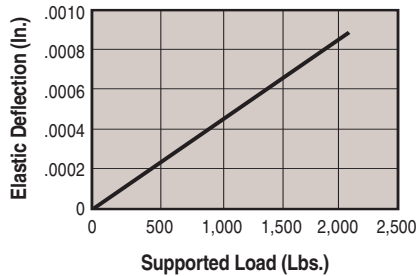
The block style design requires only a flat surface for mounting rather than the large threaded hole necessary with threaded body designs.

Features:

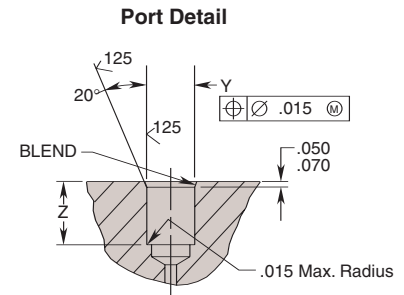
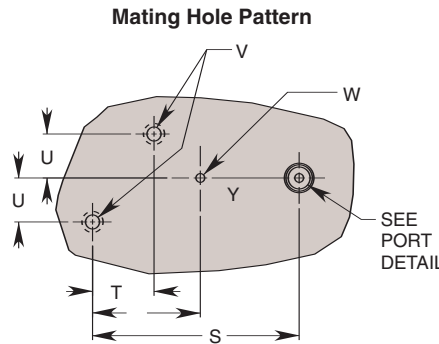
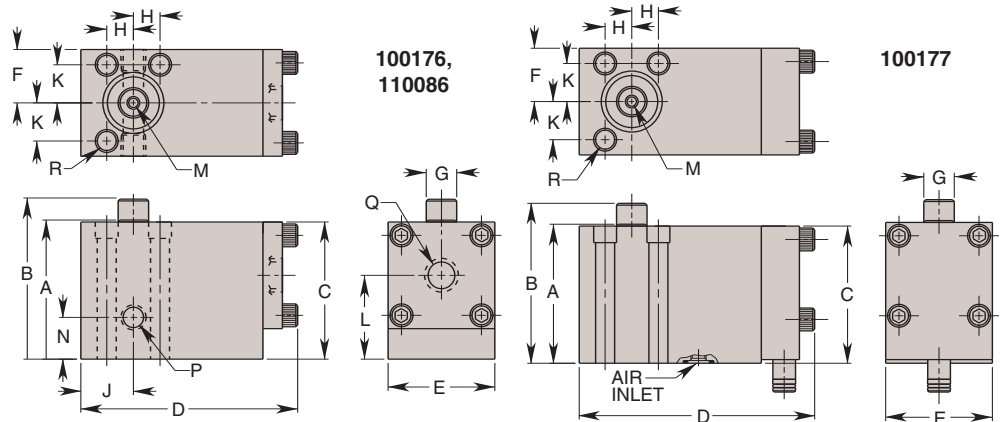
- Air advance
- 2,100 lb. rated capacity at 5,000 psi max.
- Single-acting
- Manifold or conventionally mounted styles
- Sealed against contamination



Performance
Work Support Nos. 100176, 100177



Avg. Performance
Nos. 100176, 100177



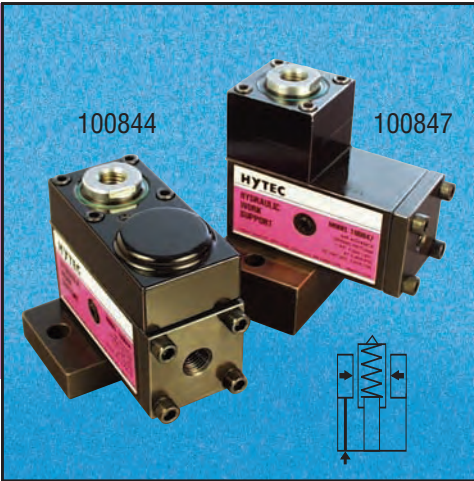
Cat. No.	Specifications				Dimensions (In Inches)										
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting Configuration	A Retract Oper. Range	B Advance Oper. Range	C	D	E	F	G Dia.	H	J	K	L
100176	2,100	.100	Air	Conventional	2.250	2.625	2.250	3.542	1.750	.875	.500	.438	.875	.625	1.375
110086				Manifold											
100177				Manifold											

Cat. No.	Dimensions (In Inches)					Mounting Dimensions (In Inches)						
	M Thread Size	N Thread Depth	P Air Inlet Port	Q Port	R Dia.	S	T	U	V Thread Size	W Dia. Air Inlet	X	Y Dia. Mtng.
100176	1/4-20 UNC	.312	.685	1/8 NPTF	.281	2.937	.876	.625	1/4-20 UNC	.125	.515	.375
110086				3/16-20 UNF SAE-4								
100177				—								

AIR ADVANCE WORK SUPPORTS		
Cat. No.	Approximate Plunger Extension Force	
	*Air Press. (PSI)	Force (Lbs.)
100176	30	2.2
100177	40	4.5
110086	50	7.1

NOTE: * Based on 5,000 psi max. operating pressure.

NOTE: * Min. air pressure 25 psi, max. air pressure 50 psi.



Similar in operation to our other air advance work supports, Hytec's 7,500 lb. work supports' unique interlocking pin design gives more holding capacity than other units of similar size.

The block style design requires only a flat surface for mounting rather than the large threaded hole necessary with threaded body designs.

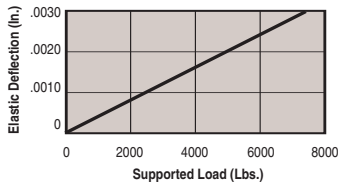
Air advance work supports may be specified in applications whenever the workpiece is loaded from the side and the extended plunger from a spring advance work support would be in the way, or the workpiece is not heavy enough to depress a spring advance work support plunger, or the plunger contact force must be precisely

adjusted and controlled. Adjusting the air supply pressure will vary the workpiece contact force.

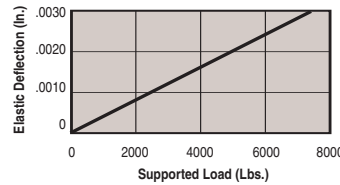
Features:

- Air advance
- 7,500 lb. rated capacity at 5,000 psi max.
- Single-acting
- Sealed against contamination
- Convenient dual air inlets allow easy connection and chaining of work supports

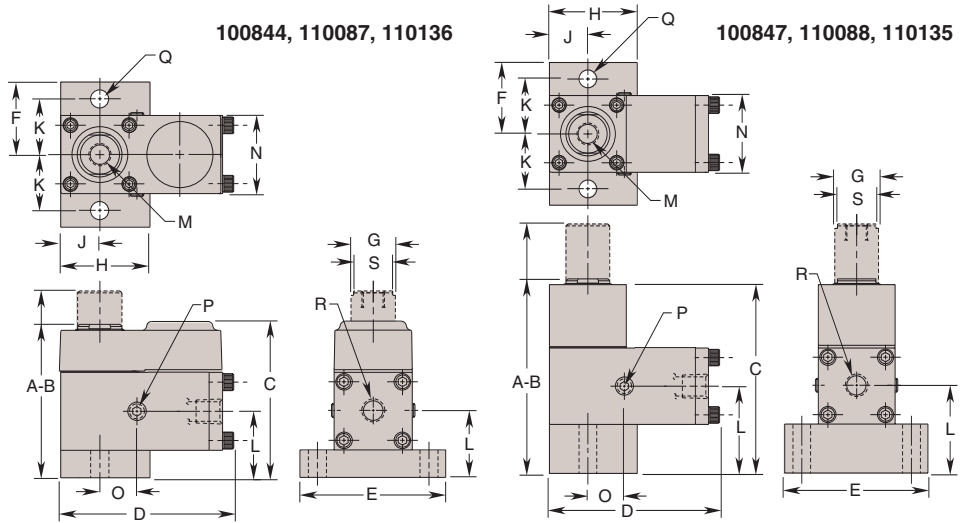
Note: See page 23 for crowned threaded insert. See page 124 for air inlet adapter fitting.



Avg. Performance
Nos. 100844, 100847



Avg. Performance
Nos. 100844, 100847



Cat. No.	Specifications				Dimensions (In Inches)										
	*Cap. (Lbs.)	Oil Cap. (Cu. In.)	Advance System	Mounting Configuration	A Retract Oper. Range	B Advance Oper. Range	C	D	E	F	G Dia.	H	J	K	L
100844	7,500	.250	Air	Conventional	3.435	4.185	3.500	3.875	3.250	1.625	1.000	2.000	.875	1.250	1.500
110087					4.435	5.615	4.227								2.000
100847					3.435	4.115	3.500	1.500							
110088															
110135															
110136															

Cat. No.	Dimensions (In Inches)							
	M Thread		N	O	P Air Inlet Port	Q Dia.	R Port	S Flats
	Size	Depth						
100844	½-13 UNC	.625	1.750	.830	⅙ NPTF	.406	¼ NPTF	.875
110087							⅝-20 UNF SAE-4	
100847							¼ NPTF	
110088							⅝-20 UNF SAE-4	
110135	***	.580						
110136	M12x1.5 6H							

AIR ADVANCE WORK SUPPORTS		
Cat. No.	Approximate Plunger Extension Force	
	*Air Pressure (PSI)	Force (Lbs.)
100844	30	8.0
100847		
110087	70	33.0
110088		
110135	100	49.0
110136		

NOTE: * Min. air pressure 25 psi, max. air pressure 100 psi.

NOTE: * Based on 5,000 psi max. operating pressure. **Per ISO 1179. ***Per ISO 6149-1.