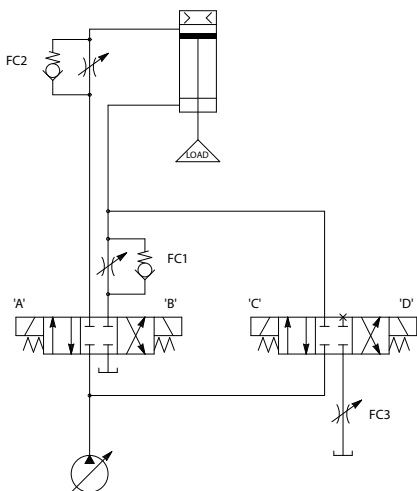


# DIMENSIONAL INFORMATION

(All Dimensions nominal and in inches)



NOTE: Application sketches are offered as suggestions only. Feasibility, testing and usage of the product is the responsibility of the user. The product may be used to increase safety, but should not replace positive stop safety mechanisms. No liability is expressed or intended on the part of PFA, Inc., it's employees or agents.

## SIMPLIFIED CIRCUIT/SEQUENCE - VERTICAL MOVEMENT

To support the vertical load and remove force on the lock prior to unlocking and lowering (with possible multiple speeds).

1. Valve "CD" is recommended in vertical applications to prevent uncontrolled dropping or movement of the load due to gravity when unlocked.
2. ENSURE LOAD IS GUIDED INDEPENDENTLY from the cylinder rod in vertical applications.
3. Energize solenoid (C) to lift/support the load off of the locking mechanism.
4. Leave (C) energized while energizing (A) to unlock the locking Mechanism (lock sensor off).
5. De-energize (C) to lower load at speed set at (FC1).
6. Energize (D) to lower load at higher speed based on parallel (combined) flow thru (FC1) and (FC3).
7. Energize (B) to lift the load with speed based on (FC2). At full retract the cylinder will lock (sensor on to verify lock).

## SIMPLIFIED CIRCUIT/SEQUENCE - HORIZONTAL MOVEMENT

To allow for more simple horizontal cylinder operation.

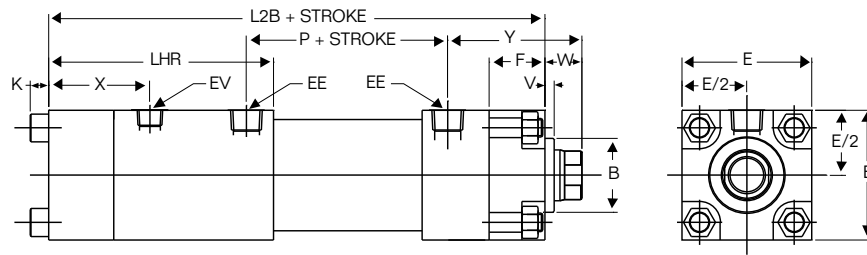
1. Valve "CD" is not needed in the horizontal application, IF the lock is NOT under load during unlocking. However, if the lock IS under load during unlocking, then follow use the Vertical application method above.
2. ENSURE LOAD IS SUPPORTED INDEPENDENTLY from the cylinder rod in a horizontal application.
3. With no load on the lock, Energize A to unlock and extend at speed set by (FC1).
4. Energize (B) to retract the load at speed set at (FC2).

## LOCK-ON-RETRACT (LOR) THEORETICAL PERFORMANCE DATA

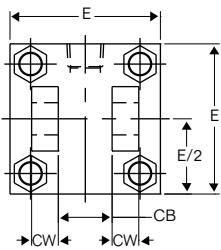
Lock-on-Retract Style Bore ø / Rod ø	Lock Holding Force** (Fully Retracted)	Moving Force - Extending (LBS) Air/Hydraulic Pressure (psi)				Moving Force - Returning (LBS) Air/Hydraulic Pressure (psi)			
		75	1000	1500	3000	75	1000	1500	3000
PVS-2.500 / 1.000	10,000 lbs.	365	Maximum Pressure 1000 psi			305	Maximum Pressure 1000 psi		
PVS-4.000 / 1.375	15,000 lbs.	940	Maximum Pressure 1000 psi			830	Maximum Pressure 1000 psi		
PVS-5.000 / 1.750	42,000 lbs.	1,470	Maximum Pressure 750 psi			1,290	Maximum Pressure 750 psi		
HYS-2.000 / 1.000	9,500 lbs.	235	3,140	4,700	9,400	170	2,350	3,500	7,050
HYS-2.500 / 1.375	14,000 lbs.	365	4,900	7,300	14,700	250	3,420	5,100	10,250
HYS-4.000 / 1.750	25,000 lbs.	940	12,500	18,800	37,600	760	10,150	15,200	30,400

\* Heavy Hydraulic Style may be operated pneumatically in some applications. Consult PFA for details.

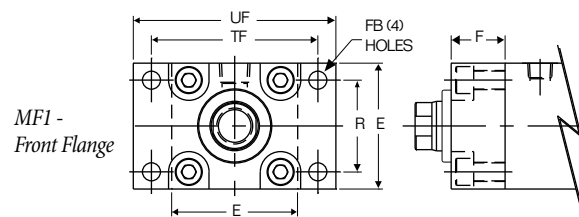
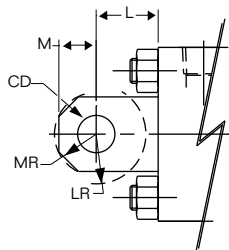
\*\* Cylinder locking / holding force is a function of rod column strength and depends on overall stroke length and proper load guidance/installation.



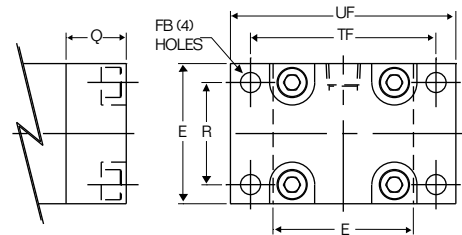
Style-Bore / Rod $\phi$	B	V	W	E	F	K	EE	EV	P	X	Y	LHR	L2B
PVS-2.500 / 1.000	1.499	0.25	0.75	3.00	1.00	0.31	3/8 NPT	1/4 NPT	2.74	2.58	2.62	5.75	9.87
PVS-4.000 / 1.375	1.998	0.25	1.00	4.50	1.50	0.06	1/2 NPT	3/8 NPT	3.25	2.40	3.44	5.75	10.94
PVS-5.000 / 1.750	2.375	0.25	1.00	5.50	1.75	0.63	1/2 NPT	#6 SAE	4.00	3.40	4.25	8.67	14.67
HYS-2.000 / 1.000	1.499	0.25	0.75	3.00	1.00	0.50	#8 SAE	#4 SAE	2.87	2.83	2.61	6.00	10.13
HYS-2.500 / 1.375	1.998	0.25	1.00	3.50	1.50	0.50	#8 SAE	#6 SAE	3.43	2.72	3.63	6.07	11.38
HYS-4.000 / 1.750	2.375	0.25	1.00	5.00	1.75	0.63	#12 SAE	#6 SAE	4.25	3.40	4.12	8.67	14.67



MP1 - Rear Clevis



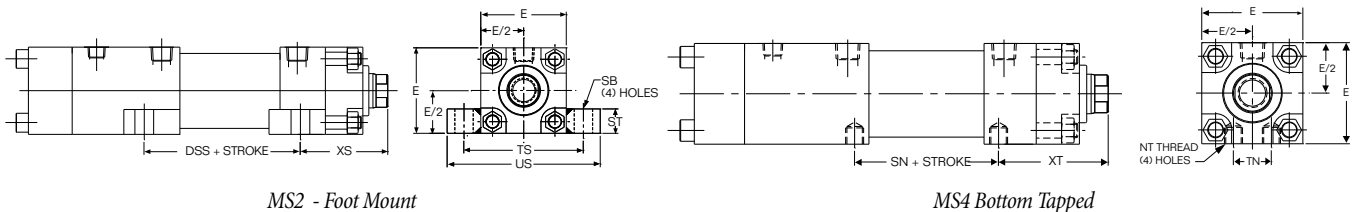
MF1 - Front Flange



MF2 - Rear Flange

Series-Bore/Rod $\phi$	CB	CD	CW	L	LR	M	MR	F	FB	R	TF	UF	Q*
PVS-2.500 / 1.000	0.75	0.50	0.50	0.75	0.63	0.50	0.63	1.000	0.438	2.192	3.875	4.625	1.000
PVS-4.000 / 1.375	1.25	0.75	0.63	1.25	1.00	0.75	0.85	1.500	0.438	3.320	5.440	6.250	1.500
PVS-5.000 / 1.750	1.25	0.75	0.63	1.25	1.00	0.75	0.94	1.750	0.560	4.100	6.625	7.630	1.750
HYS-2.000 / 1.000	1.25	0.75	0.63	1.25	1.00	0.75	0.88	1.000	0.500	2.050	4.125	5.125	1.000
HYS-2.500 / 1.375	1.25	0.75	0.63	1.25	1.00	0.75	0.88	1.500	0.500	2.550	4.625	5.625	1.500
HYS-4.000 / 1.750	2.00	1.38	1.00	2.13	1.75	1.38	1.63	1.750	0.656	3.818	6.375	7.625	1.750

\*Q dimension replaces K dimension for MF2-Rear Flange Mount only

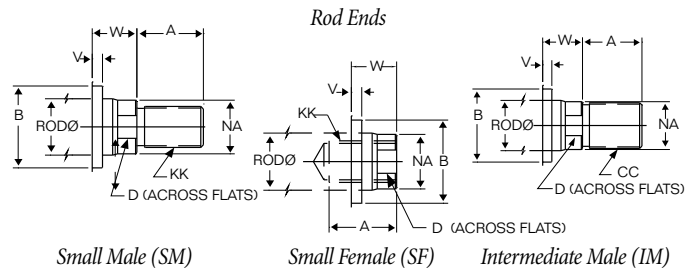


MS2 - Foot Mount

MS4 Bottom Tapped

Series-Bore/Rod $\phi$	MS2 - FOOT MOUNT						MS4-BOTTOM TAPPED			
	XS	DSS	SB	ST	TS	US	XT	SN	TN	NT
PVS-2.500 / 1.000	2.12	3.13	0.38	0.50	3.75	4.50	2.688	2.625	1.250	3/8 - 16
PVS-4.000 / 1.375	3.00	3.44	0.50	0.75	5.50	6.50	CONSULT FACTORY			
PVS-5.000 / 1.750	4.25	3.50	0.75	1.00	6.88	8.25	4.130	3.880	2.690	5/8 - 11
HYS-2.000 / 1.000	2.11	3.25	0.50	0.75	4.00	5.00	2.560	2.875	0.938	1/2 - 13
HYS-2.500 / 1.375	3.50	3.63	0.75	1.00	4.88	6.25	3.813	3.000	1.313	5/8 - 11
HYS-4.000 / 1.750	4.00	4.00	1.00	1.25	6.75	8.50	4.250	3.500	2.063	1 - 8

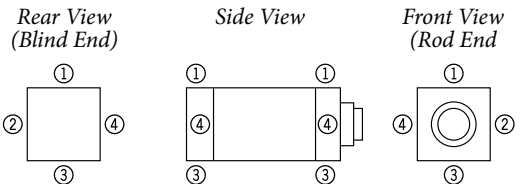
Rod End	SM or SF	IM			
Rod $\phi$	KK	CC	A	D	NA
0.625	7/16 - 20	1/2 - 20	0.75	0.50	0.56
1.000	3/4 - 16	7/8 - 14	1.13	0.88	0.94
1.375	1 - 14	1 1/4 - 12	1.63	1.19	1.31
1.750	1 1/4 - 12	1 1/2 - 12	2.00	1.53	1.72



**INSTRUCTIONS:**

Each end of the cylinder has four positions for ports (P), sensors (S), cushion adjustments (C), and mountings (MS2, MS4 use a position).

Catalog drawings show standard ports "on top" in position ① and standard mounts "on the bottom" in position ③. Mounts MF1, MF2, and MP1 are oriented as shown in the drawings relative to position ① "on top."



**NOTE: NO ADDITIONAL ORDER CODE IS REQUIRED TO OBTAIN THE STANDARD ORIENTATION.**

When an alternate orientation is desired, use Figure 1 above to select options and positions, remembering that each position can have only one option. Add the three character code(s) to the part number as required. Sensors are solid state 20-250 VAC/DC normally open switches. One sensor senses the locking slide as it engages and the other senses piston position.

**Note: Other mounting options and mating accessories are available. Please contact PFA for details on your specific application.**

LOE Style	Stroke	Lock Position	Mounting	Rod End	Non-Standard Optional Items
See Chart	Stroke in inches as desired	LOR=2	MF1, MF2, MP1, MS2, MS4	Small Male = SM Intermediate Male = IM Small Female = SF	Option: P, C, S Front Position: 0-4 Rear Position: 0-4
<b>PVS-2.500/1.000</b>	<b>12.5</b>	<b>2</b>	<b>MF1</b>	<b>IM</b>	<b>P22</b>

Part No: **PVS-2.500/1.000-12.5-2-MF1-IM-P22**