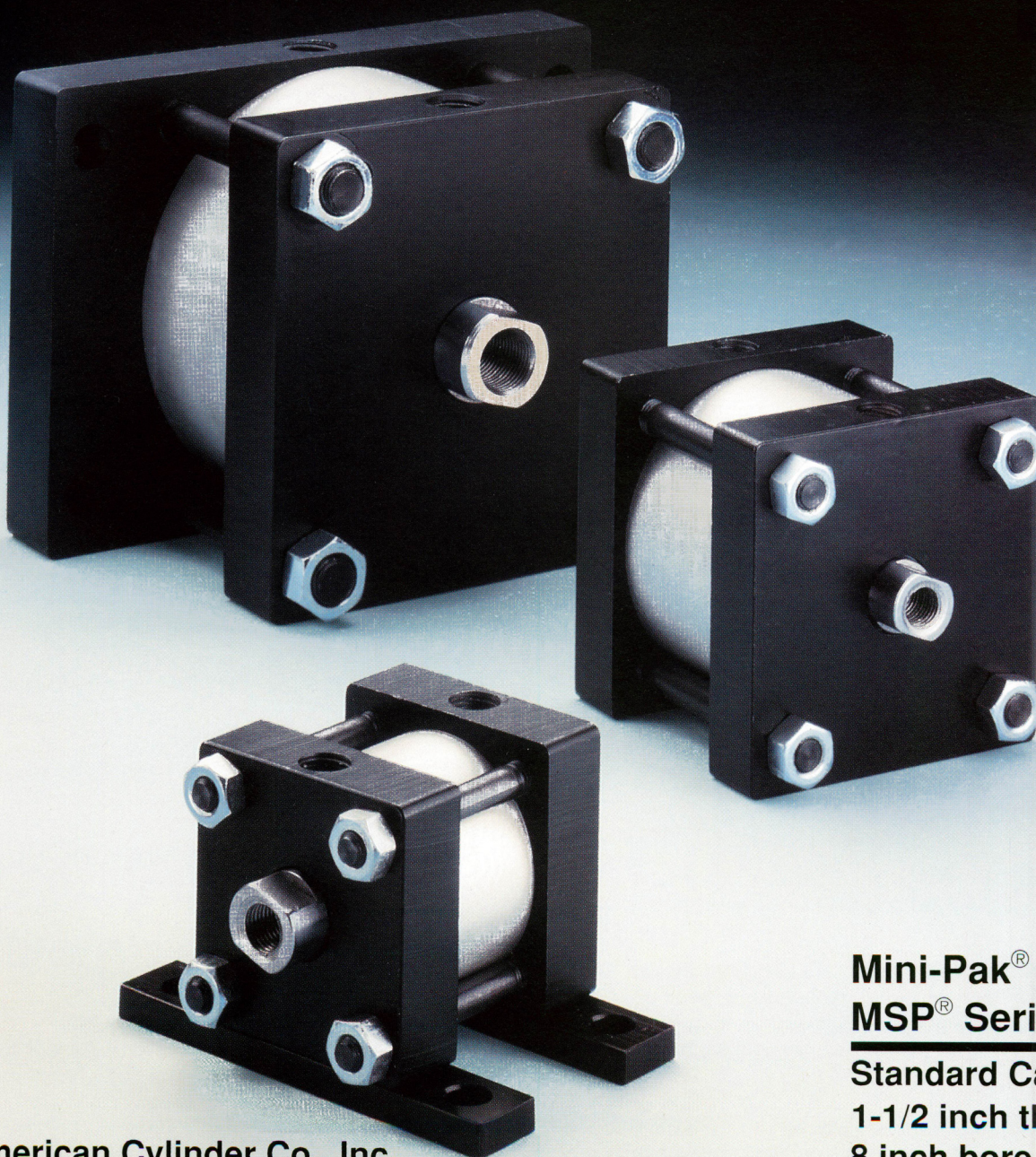


American[®]

Mini-Pak[®] Series Air Cylinders
Space Saving Air Cylinders

MSP[®] Series Air Cylinders
Multi-Stage Power Air Cylinders

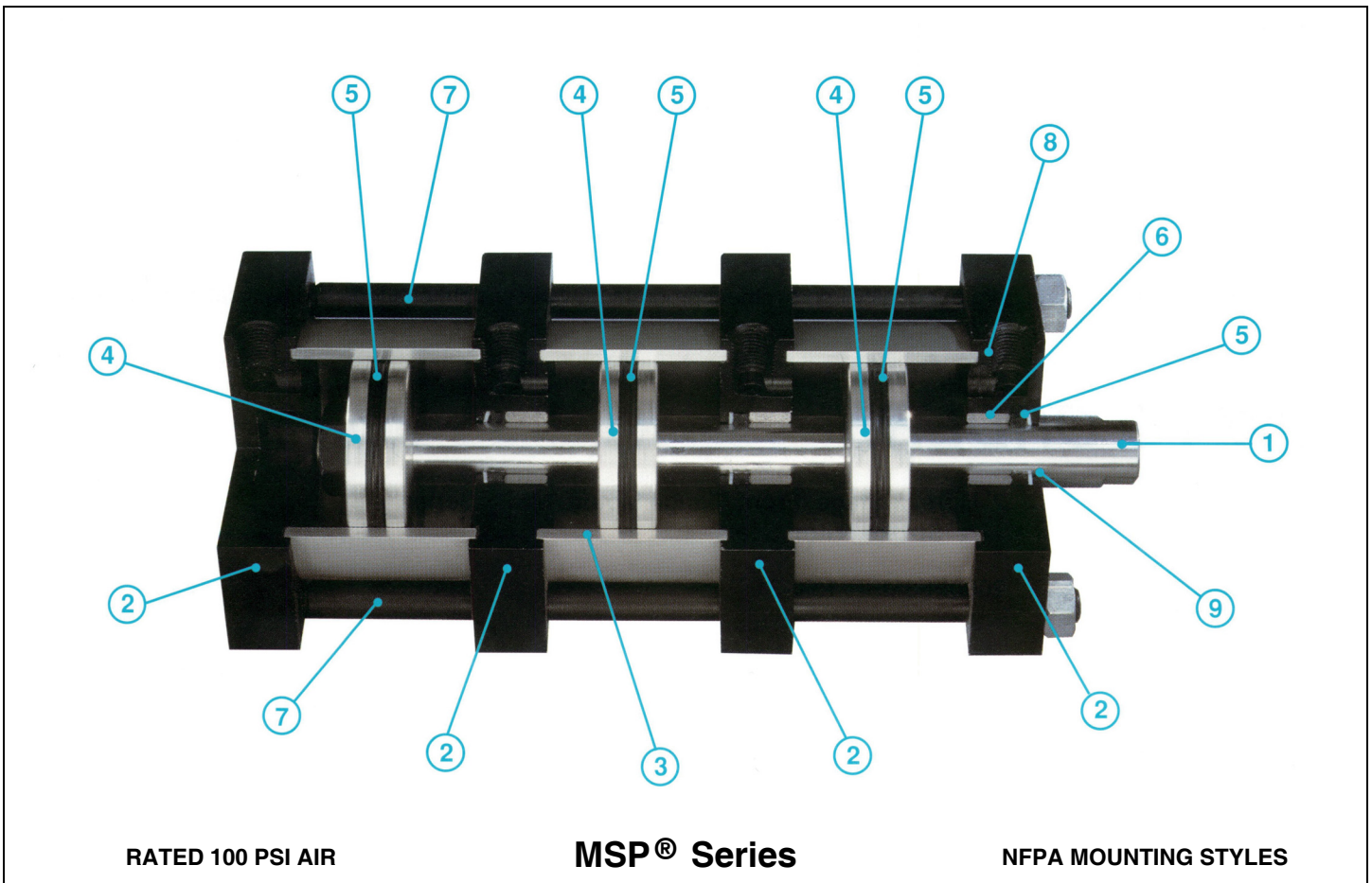


American Cylinder Co., Inc.

Mini-Pak[®] Series
MSP[®] Series

Standard Catalog
1-1/2 inch through
8 inch bore

STANDARD FEATURES & BENEFITS: MSP® Series



1 1/2 Inch through 8 Inch Bore

① Hard Chrome-Plated & Polished Piston Rod: Minimum yield of 100,000 PSI. High tensile strength steel provides for reliable performance and longer rod seal life.

② Solid Anodized Aluminum Alloy Heads: Designed for corrosion resistance and extra strength.

③ Aluminum Alloy Tube 6063-T832: PSI of 35,000. Hard coated I.D. resists scoring and wear.

④ Aluminum Alloy Piston: Provides excellent characteristics against the hard coated I.D. cylinder body.

⑤ Seals: Piston and rod seals are of Quad-Ring design to provide for low dynamic friction and positive sealing. O-Ring or U-Cup piston seals are available in 1 1/2" thru 5" bores. (6" & 8" bores are standard with U-Cup piston seals.)

⑥ Cast Iron Rod Bushing: Compatible with the hard chrome plated rod. Close grain cast iron bearing provides maximum wear resistance for long life.

⑦ Tie Rods: High strength steel to maintain compression on tube end seals.

⑧ Tube End Seals: Fiber and nitrile base elastomer acting as a binder for positive sealing.

⑨ Teflon Back-Up Washer: Wipes the rod clean and keeps out contamination.

⑩ Factory Lubricated: Cylinder bodies are lubricated with AC 2119 Teflon-based compound.

⑪ Pretested: The quality of each cylinder is assured by testing each unit for leakage prior to shipment. Quality control provides added value to American Cylinders.

American Cylinder Distributors are located in every major industrial market.

American's MSP® Multi-Stage Power Air Cylinders were designed for applications requiring an output force several times that of a single piston air cylinder at the same pressure and bore size.

MSP® Air Cylinders are constructed with multiple pistons, on a single rod, separated by aluminum ported block partitions. When air is pressurized simultaneously through each port, output force is increased.

Output force is determined by air line pressure times the power factor.

Return strokes, which require less power, can be completed by pressurizing one piston. All Multi-stage Power cylinders are assembled for push applications unless otherwise specified.

Product enhancements resulting from our quality improvement program may necessitate changes in specifications without notice.

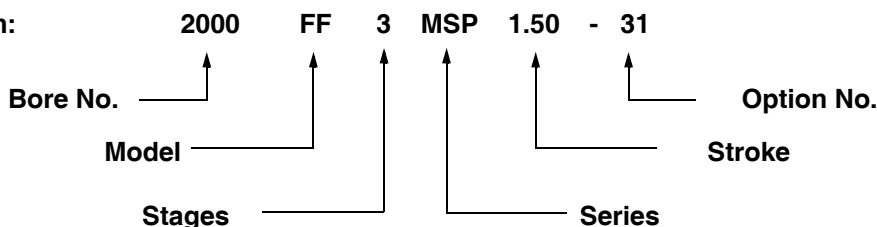
HOW TO ORDER:

Example: 2" Bore, 3 Stage, Front Flange Mount, MSP® Series
1 1/2" Stroke, Fluroelastomer Seals

Model No.: 2000FF3MSP-1.50-31

Model No.

Composition:



Bore	No.	Model Description	Model	Stages	Series	Standard Options	No.
1 1/2"	1500	Double End Rod*	DE*	2	MSP	Fluroelastomer Seals	31
2"	2000	Front Flange Mount	FF	3			
2 1/2"	2500	Rear Flange Mount	RF	4			
3 1/4"	3250	Bottom Tap Mount	BT**				
4"	4000	Detachable Clevis Mount	DC				
5"	5000	Fixed Clevis Mount	FC				
6"	6000	Extended Tie Rod Mount - Cap End	ETR				
8"	8000	Extended Tie Rod Mount - Rod End	ERE				

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*Must include mounting style with Double End. (Example: Double End Rod Front Flange Mount = DEFF)
** On selected bore sizes only. Please consult factory.

NOTE: All cylinders will be assembled for push applications unless specified for pull applications.

MULTI-STAGE POWER AIR CYLINDERS: All Models

OUTPUT FORCE IS DETERMINED BY AIR LINE PRESSURE TIMES THE POWER FACTOR.

Port Positions

1. All mounts have operational ports in position 1.
2. BT mounts have vents in position 2.
3. All other mounts have vents in position 3.

Bore	Stages			Dimension			Power Factor*
				A	B	C	
1 1/2"	2			2.87	2.00	.37	3.22
		3		4.00			4.68
			4	5.12			6.15
2"	2			2.87	2.50	.37	5.97
		3		4.00			8.81
			4	5.12			11.64
2 1/2"	2			2.87	3.00	.37	9.51
		3		4.00			14.11
			4	5.12			18.71
3 1/4"	2			4.12	3.75	.50	15.80
		3		5.75			23.31
			4	7.37			30.82
4"	2			4.12	4.50	.50	24.34
		3		5.75			36.12
			4	7.37			47.90
5"	2			4.50	5.50	.50	38.48
		3		6.25			57.33
			4	8.00			76.18
6"	2			6.75	6.50	.62	55.06
		3		9.62			81.85
			4	12.50			108.64
8"	2			6.75	8.50	.62	99.04
		3		9.62			147.82
			4	12.50			196.60

For detailed dimensions on MSP® mounting styles refer to corresponding Mini-Pak® mounting style.

*Output force is determined by air line pressure times the power factor.

Standard Stroke Lengths *ALL MODELS*

Bore	Standard Stroke Lengths (in.)
1 1/2"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
2"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
2 1/2"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
3 1/4"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
4"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
5"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6
6"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6 & 1/2" increments thru 30"
8"	1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6 & 1/2" increments thru 30"

NOTE: All cylinders will be assembled for push applications unless specified for pull applications.

LUBRICATION

American cylinders are prelubricated at the factory prior to shipment to provide millions of trouble free cycles. Most applications do not require additional lubrication, however, cylinder life can be maximized through periodic direct lubrication or continuous air line mist lubrication. Dow Corning Molykote 710G is recommended for cylinders with Buna-N or high temperature Fluroelastomer seals. Consult your American Cylinder distributor or the factory for special lubrication requirements.

TEMPERATURE RATINGS

Buna-N seals are supplied as standard in all American Cylinder models and are recommended for operating temperatures in the -20°F (-25°C) to 200°F (95°C) range. Fluroelastomer seals are recommended for high temperature cylinder applications having operating temperatures up to 400°F (204°C).

CONSULT YOUR AMERICAN CYLINDER CO. DISTRIBUTOR OR THE FACTORY FOR SPECIAL OPTIONS.



American Cylinder Co., Inc.

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708/258-3935
FAX 708/258-3980

ON THE INTERNET

<http://www.americancylinder.com>

<http://www.ameristore.biz>

E-MAIL: amcyl@americancylinder.com

Warranty

American Cylinder Co., Inc. warrants its products to be free from defects in material and workmanship under normal wear and service for a period of 3 years from date of shipment of the order. American Cylinder Company shall have no liability under this warranty if: 1) The product is used other than in accordance with specifications. 2) The product is subjected to abuse, negligence, accident, misapplication, or unintended use. 3) The product is manufactured to buyer's specifications.

Manufacturer's liability shall be limited to allowance of credit or replacement of defective product. American Cylinder Company shall not be liable or responsible for injuries or damages to persons or property arising out of the use or operation of American Cylinder products.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, LIABILITY FOR LOST PROFIT OR FOR INDIRECT, INCIDENTAL, CONSEQUENTIAL OR COMMERCIAL LOSSES, AND OF ALL OTHER OBLIGATIONS OR LIABILITIES.

These conditions subject to change without notice.