



Pneumoment™

The Bimba PneuMoment™ pneumatic actuator features a revolutionary, compact design that uses conventional pneumatic technology but has the capacity to carry high loads and moments.



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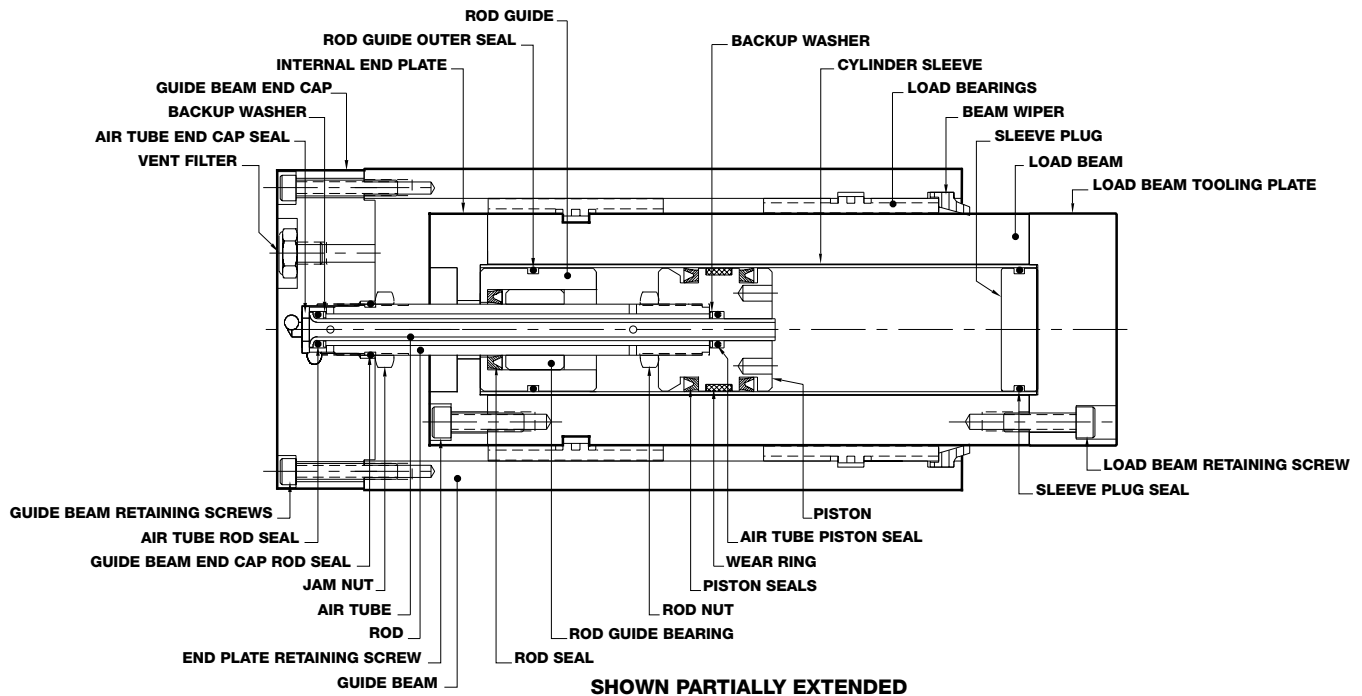
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Features and Benefits

- > Carries high moment loads
- > Compact design
- > Long life
- > Available in U.S. customary units (inches) or metric
- > Non-lube bearings
- > Built-in track for position sensing switches
- > Corrosion-resistant, hard coat anodized aluminum load and guide beams with PTFE impregnation
- > Guide beam end cap ports transmit air or vacuum through the actuator from the guide beam end cap to connect additional automation devices such as grippers.
- > Standard vacuum port for clean room applications
- > Standard side or end ports
- > Base, front or rear flange mounting

Options

- > Internal or external bumpers
- > External shock absorbers for retract and extend strokes
- > Internal stroke adjustment – full stroke, retract and extend (1-1/16" and 2" bores only)
- > Magnetic Position Sensing
- > Auxiliary ports to transmit air or vacuum through the actuator to operate automation devices.

How it Works

The PneuMoment™ guide beam provides the mounting surface and remains stationary, and the load beam provides the motion, extending and retracting. A stationary piston and rod assembly is attached to the guide beam end cap. The piston rod is a coaxial assembly of two hollow rods which convey air to and from each side of the piston. Air let into one hollow rod pressurizes the chamber at one end of the piston, causing the load beam to extend. Air let into the other rod pressurizes the other end of the piston and causes the load beam to retract.

The PneuMoment™ has eight flat bearings to support the load beam. These bearings ride on hard anodized, PTFE-impregnated surfaces to allow the PneuMoment™ to carry heavy loads and large moments. No lubrication is needed for the bearings, although standard air line lubrication should be used to enhance the actuator's seal life. The Bimba PneuMoment™ pneumatic actuator features a revolutionary, compact design that uses conventional pneumatic technology but has the capacity to carry high loads and moments.

Weights

Model/Option	Weights – Pounds (Kilograms)							
	1-1/16" (09)		1-1/2" (17)		2" Bore		2-1/2" Bore	
	At 0" Stroke	Adder per Inch (25mm) of Stroke	At 0" Stroke	Adder per Inch (25mm) of Stroke	At 0" Stroke	Adder per Inch of Stroke	At 0" Stroke	Adder per Inch of Stroke
Standard Model	2.75 (1.25)	0.37 (0.17)	3.30 (1.50)	.44 (.20)	17 lb.	.98 lb.	16.90	1.12 lb.
Adder for A Option	0.50 (0.23)	0.04 (0.02)	N/A	N/A	.59	.067	N/A	N/A
Adder for B Option	0.01 (0.004)	N/A	0.01 (0.004)	N/A	0.03	N/A	0.03	N/A
Adder for EB Option	1.75 (0.79)	0.06 (0.03)	1.75 (0.79)	0.06 (0.03)	5.47	0.17	5.47	0.17
Adder for R Option	0.15 (0.07)	0.06 (0.03)	0.15 (0.07)	0.06 (0.03)	0.15	0.02	0.15	0.02
Adder for S Option	3.62 (1.64)	0.06 (0.03)	3.62 (1.64)	0.06 (0.03)	9.67	0.17	9.67	0.17
Adder for S1 Option	3.43 (1.56)	0.06 (0.03)	3.43 (1.56)	0.06 (0.03)	8.50	0.17	8.50	0.17
Adder for S2 Option	3.43 (1.56)	0.06 (0.03)	3.43 (1.56)	0.06 (0.03)	8.50	0.17	8.50	0.17

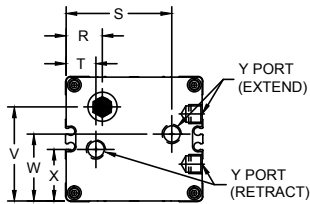
Engineering Specifications

Components	
Guide beam	PTFE-impregnated, hard-coat anodized extruded aluminum
Load beam	PTFE-impregnated, hard-coat anodized extruded aluminum
Guide beam end cap	Black anodized aluminum
Load beam tooling plate	Black anodized aluminum
Load bearings	PTFE-filled polymer
Beam wiper	Urethane
Rod	Welded DOM steel
Air tube	304 stainless steel
Internal end plate	6061 aluminum
Cylinder sleeve	304 stainless steel
Sleeve plug	2011 aluminum
Rod guide	2011 aluminum
Rod guide bearing	Phosphor bronze
Rod nut	Carbon steel-plated
Piston	2011 aluminum
Port plugs	Galvanized steel
Vent filter	Sintered bronze
Internal seals	Buna-N
Retaining screws	Grade 8 Alloy Steel
Options:	
Bumpers (internal and external)	Urethane
Stroke adjusters	303 stainless steel
Shock absorbers	Anodized aluminum end plates, 303 stainless steel guide rods
Auxiliary air tube	303 stainless steel
Magnet	Neodymium

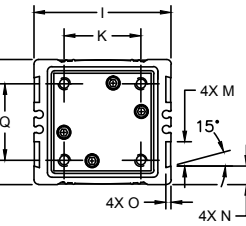
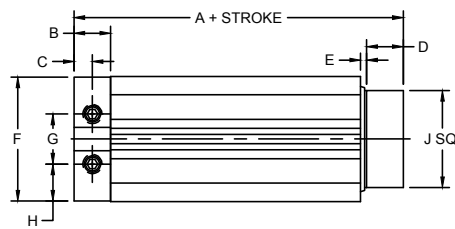
Rated Air Pressure	
150 PSI (10.34 bar)	
Power Factors	
1-1/16" bore	2" bore
Extend .888 x Air Pressure	Extend 3.1 x Air Pressure
Retract .734 x Air Pressure	Retract 2.65 x Air Pressure
1-1/2" bore	2-1/2" bore
Extend 1.7 x Air Pressure	Extend 5.0 x Air Pressure
Retract 1.5 x Air Pressure	Retract 4.42 x Air Pressure
Velocity @ 80 psi	
1-1/16" bore – 27mm-27 in/sec.	
1-1/2" bore – 38mm-27 in/sec.	
2" bore – 30 in/sec.	
2-1/2" bore – 26 in/sec.	
*Special units with increased velocity are available. Contact your Bimba distributor.	
Temperature Range:	
-20° F to 140° F (-29° C to 60° C)	
Breakaway:	
Less than 13 psi without external bumper or shock option.	
Less than 18 psi if external bumper or shock option is included.	
Lubrication:	
All Bimba PneuMoment actuators are pre-lubricated with our special HT-99 lubrication and sealed at the factory for extensive maintenance-free life. Actuator life can be extended by providing additional lubricant with an air line mist lubricator. Actuator life is also dependent upon operational temperature, velocity and load. The PTFE-filled plastic bearings require no additional lubrication for the life of the bearing.	

How to Specify

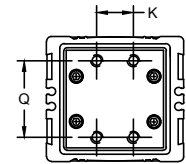
Dimensions



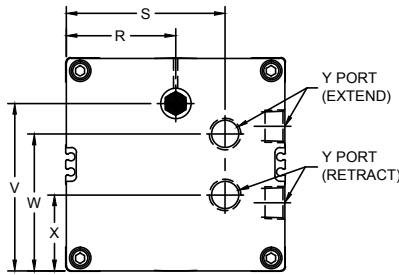
09 & 17 BORE GUIDE BEAM
PORT PLUG CONFIGURATION



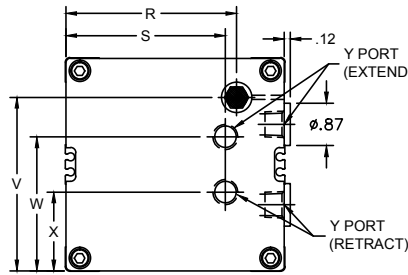
09 BORE TOOLING PLATE
BOLT HOLE PATTERN



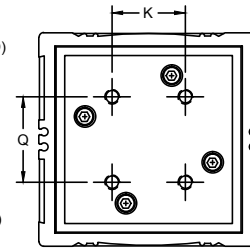
17 BORE TOOLING PLATE
BOLT HOLE PATTERN



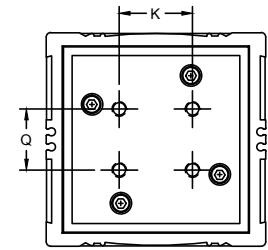
31 BORE GUIDE BEAM
PORT PLUG CONFIGURATION



50 BORE GUIDE BEAM
PORT PLUG CONFIGURATION



31 BORE TOOLING PLATE
BOLT HOLE PATTERN



50 BORE TOOLING PLATE
BOLT HOLE PATTERN

	Bore	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
(09)	1-1/16"	5.75	0.75	0.38	0.75	0.12	2.54	1.02	0.76	2.81	2.00	1.57	2.56	0.50	0.38	0.11
	27mm	146.00	19.00	9.50	19.00	3.20	64.60	26.00	19.30	71.40	50.70	39.90	65.00	12.70	9.50	2.80
(17)	1-1/2"	5.88	0.88	0.33	0.75	0.12	2.54	1.17	0.69	2.81	2.00	0.75	2.56	0.50	0.38	0.11
	38mm	149.40	22.40	8.40	19.00	3.20	64.60	29.70	17.40	71.40	50.70	19.00	65.00	12.70	9.50	2.80
(31)	2"	10.48	1.19	0.59	1.00	0.12	4.35	1.65	1.35	4.50	3.43	1.50	4.38	1.28	0.50	0.11
	50mm	266.20	30.10	15.10	25.40	3.20	110.60	41.90	34.40	114.30	87.10	38.10	111.10	32.60	12.70	2.80
(50)	2-1/2"	10.48	1.19	0.59	1.00	0.12	4.35	1.65	1.35	4.50	3.43	1.50	4.38	1.28	0.50	0.11
	63mm	266.20	30.10	15.10	25.40	3.20	110.60	41.90	34.40	114.30	87.10	38.10	111.10	32.60	12.70	2.80

	Bore	P	Q	R	S	T	U	V	W	X	Y
(09)	1-1/16"	1/4-20 UNC	1.57	2.17	0.74	0.61	#10-32	1.93	1.38	1.06	1/8 NPT
	27mm	M6 x 1.0	39.9	55.0	18.8	15.5	M5x0.8	49.0	35.0	26.9	G 1/8
(17)	1-1/2"	1/4-20 UNC	1.66	1.98	1.25	0.81	#10-32	1.93	1.76	0.88	1/4 NPT
	38mm	M6 x 1.0	42.1	50.4	31.8	20.5	M5x0.8	49.0	44.8	22.4	G 1/4
(31)	2"	5/16-18 UNC	1.75	3.50	2.24	N/A	1/8 NPT	3.43	2.74	1.61	3/8 NPT
	50mm	M8 x 1.25	44.5	88.8	56.9	N/A	G 1/8	87.1	69.7	40.9	G 1/4
(50)	2-1/2"	5/16-18 UNC	1.25	2.24	3.51	N/A	1/8 NPT	3.55	2.80	1.55	3/8 NPT
	63mm	M8 x 1.25	31.8	56.9	89.2	N/A	G 1/8	90.2	71.1	39.5	G 1/4

Ports

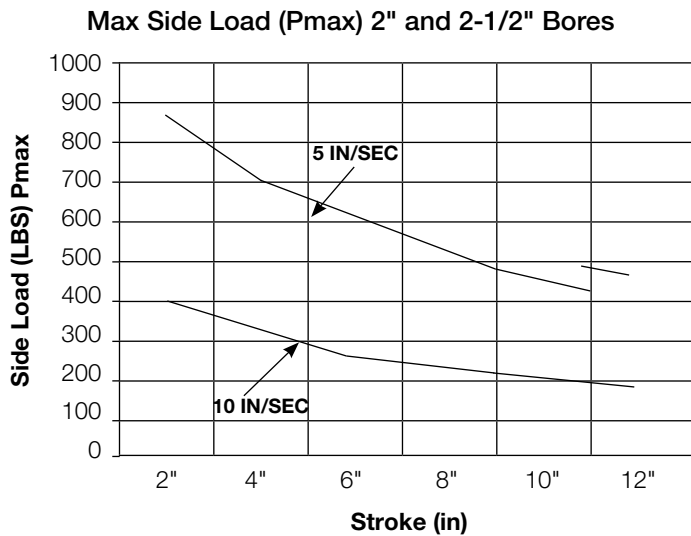
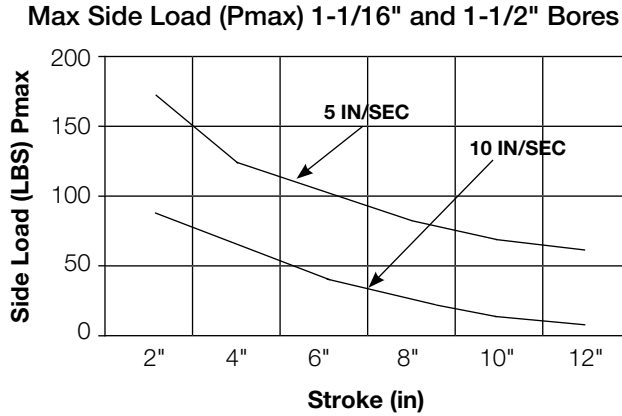
The basic unit offers both end and side ports in the guide beam end cap. The unit is supplied with flush surface plugs installed in the side ports unless the PneuMoment™ is ordered with the "Y" option. This no charge option has the plugs installed in the end ports.

Vent Filter – Vacuum Port

The vent port can be used to connect a vacuum line. Remove the vent filter and connect a vacuum line to this port for clean room applications.

Maximum Allowable Side Load (Pmax)

These graphs illustrate the PneuMoment's capability to carry large sides loads. Examples for all four bore sizes are shown. Use the formulas on page 343 to calculate the maximum allowable side load using your application parameters or visit our website and use the PneuMoment sizing program. 80° F temperature used for graph calculations.



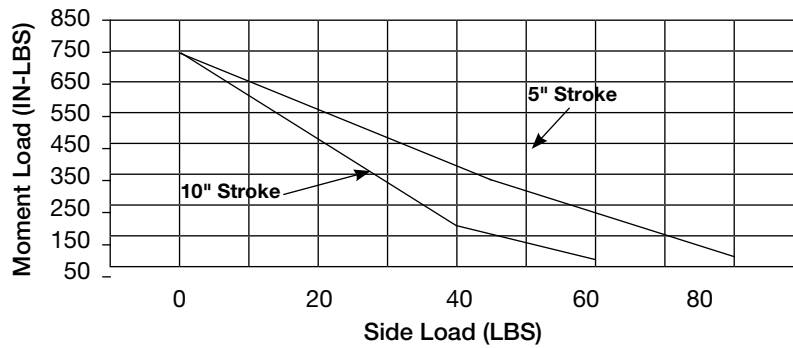
How to Specify

Combination Side and Moment Load

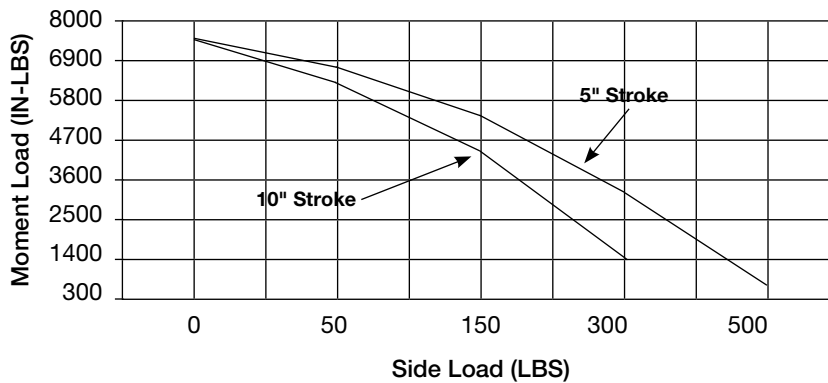
The following graphs illustrate the PneuMoment's capability to carry a combination of side and moment load. Examples for all 4 bore sizes are shown. Use the formulas on page 343 to calculate the maximum load carrying capabilities for your application or visit our web-site and use the PneuMoment sizing program. 80° F temperature used for graph calculations.

PNEUMOMENT™

Combination Side and Moment Load
1-1/16" and 1-1/2" Bore



Combination Side and Moment Load
2" and 2-1/2" Bore

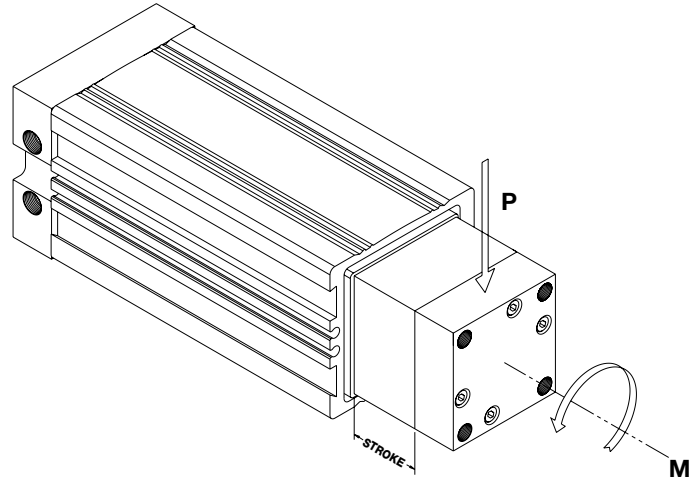


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Capability

Use the following formulas to calculate PneuMoment's capability to solve your application requirement.

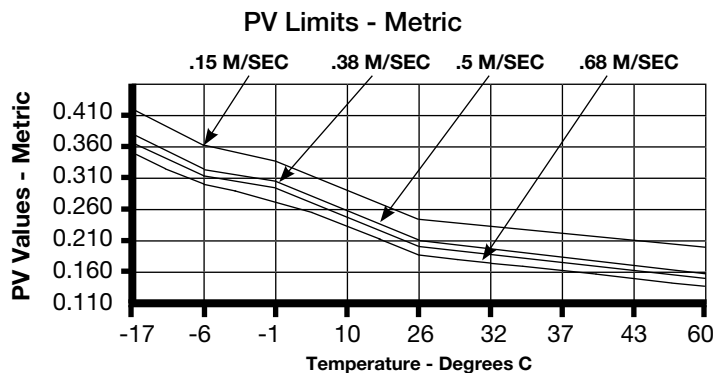
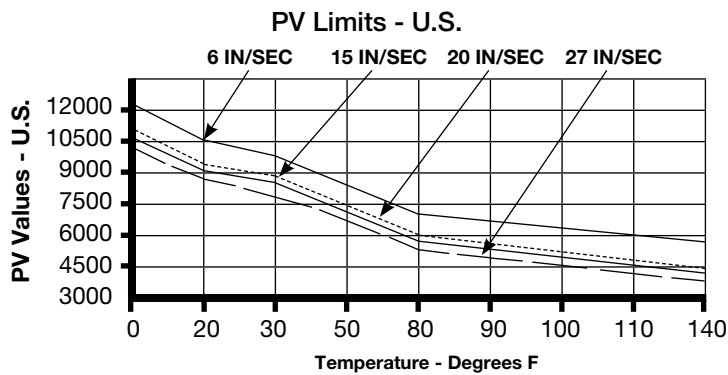
Smax	=	The maximum allowable stress in the bearing material in PSI (MPa)
PV	=	One of the limiting factors of the bearing depending on ambient temperature and cycle velocity.
V	=	Velocity in feet per minute (meters per second)
T	=	Ambient temperature in degrees F (degrees C)
Pmax	=	Maximum side load in pounds (Newtons)
Mmax	=	Maximum moment load in inch-pounds (Newton-meters)
P	=	Actual side load in pounds (Newtons)
M	=	Actual Moment Load in inch-pounds (Newton-meters)
W	=	Actual load weight in pounds (kilograms)



Please note that a sizing program located on our website can perform these calculations for you.

Step One: For all bore sizes - find the PV Value from the charts below or calculate it using the formula:

- > U.S. PV (PSI*ft/min.) = $0.044V^2 - 25.6V + 0.27T^2 - 87T + 12,970$
- > Metric PV (MPs*m/s) = $(1703V^2 - 5039.4V + 0.875T^2 - 125.5T + 10462.5) / 28550$ (T = Ambient temperature degrees - F or C)



How to Specify

Capability

Step Two: Calculate maximum bearing stress. All bore sizes use this calculation.

> $S_{max} = PV \text{ Limit (U.S. or Metric) / Velocity (ft./min. or m/m}^2$

Step Three: Calculate maximum Moment Load

- > 1-1/16" (27mm) or 1-1/2" (38mm) bore sizes:
 - » U.S. - $M_{max} \text{ (in/lbs.)} = 3.165 \times S_{max}$
 - » Metric - $M_{max} \text{ (nm)} = 51.79 \times S_{max}$
- > 2" (31mm) or 2-1/2" (50mm) bore sizes:
 - » U.S. - $M_{max} \text{ (in/lbs.)} = 31.841 \times S_{max}$
 - » Metric - $M_{max} \text{ (nm)} = 515.448 \times S_{max}$

Step Four: Calculate maximum Side Load

- > 1-1/16" (27mm) or 1-1/2" (38mm) bore sizes:
 - » U.S. - $P_{max} \text{ (lbs.)} = (3.281 \times S_{max}) / (3.5 + \text{stroke})$
 - » Metric - $P_{max} \text{ (n)} = (53,240 \times S_{max}) / (88.9 + \text{stroke})$
- > 2" (31mm) or 2-1/2" (50mm) bore sizes:
 - » U.S. - $P_{max} \text{ (lbs.)} = (26.416 \times S_{max}) / (6.720 + \text{stroke})$
 - » Metric - $P_{max} \text{ (n)} = (432,423 \times S_{max}) / (170.69 + \text{Stroke})$

Applications with Both Moment and Side Load

If you know the actual Moment load (M) in/lbs. or (nm), calculate the allowable Side Load:

- > 1-1/16"(27mm) or 1-1/2"(38mm) bore sizes:
 - » U.S. - $P_{max} \text{ (lbs.)} = (S_{max} - M / 3.165) \times 3.281 / (3.5 + \text{stroke})$
 - » Metric - $P_{max} \text{ (n)} = (S_{max} - M / 51.87) \times 53,240 / (88.9 + \text{stroke})$
- > 2"(31mm) or 2-1/2"(50mm) bore sizes:
 - » $P_{max} \text{ (lbs.)} = (S_{max} - M / 31.841) \times 26.416 / (6.720 + \text{stroke})$
 - » $P_{max} \text{ (n)} = (S_{max} - M / 515.448) \times 432,423 / (170.69 + \text{stroke})$

If you know the actual Side load (P) lbs. or (n), calculate the allowable Moment Load:

- > 1-1/16"(27mm) or 1-1/2"(38mm) bore sizes:
 - » $M_{max} \text{ (in/lbs.)} = 3.165 \times \{S_{max} - [P \times (3.5 + \text{stroke}) / 3.281]\}$
 - » $M_{max} \text{ (nm)} = 51.87 \times \{S_{max} - [P \times (88.9 + \text{stroke}) / 53,770]\}$
- > 2"(31mm) or 2-1/2"(50mm) bore sizes:
 - » $M_{max} \text{ (in/lbs.)} = 31.841 \times \{S_{max} - [P \times (6.720 + \text{stroke}) / 26.416]\}$
 - » $M_{max} \text{ (nm)} = 515.448 \times \{S_{max} - [P \times (170.69 + \text{stroke}) / 432,423]\}$

Kinetic Energy

PneuMoment maximum KE rating:

Bore	KE
1-1/16"(27mm) or 1-1/2"(38mm)	.135 (ft./lbs.) - 0.183 (nm)
2"(31mm) or 2-1/2"(63mm)	.270 (ft./lbs.) - 0.366 (nm)

Loads generating a KE factor above these KE values require - Shock Option (S) or other external deceleration devices. To calculate the applications KE rating use the formula $1/2mV^2$; where m is the mass of the load, V is the velocity in ft./sec. or m/s, i.e. 4 in/sec would be expressed as 4/12 or .33 ft./sec.

Additional KE information:

1-1/16" (27mm) or 1-1/2" (38mm)	U.S. $m = \{W + [0.162 \times (3.5 + \text{stroke} \{in\})]\} / 32.179 \text{ slugs}$ Metric $m = \{W + [0.028 \times (88.9 + \text{stroke} \{mm\})]\} / 9.81$
2" (31mm) or 2-1/2" (50mm)	U.S. $m = \{W + [0.916 \times (6.72 + \text{stroke} \{in\})]\} / 32.179 \text{ slugs}$ Metric $m = \{W + [1.1635 \times (170.69 + \text{stroke} \{mm\})]\} / 9.81$

W = actual side load being moved

Deflection and End Play

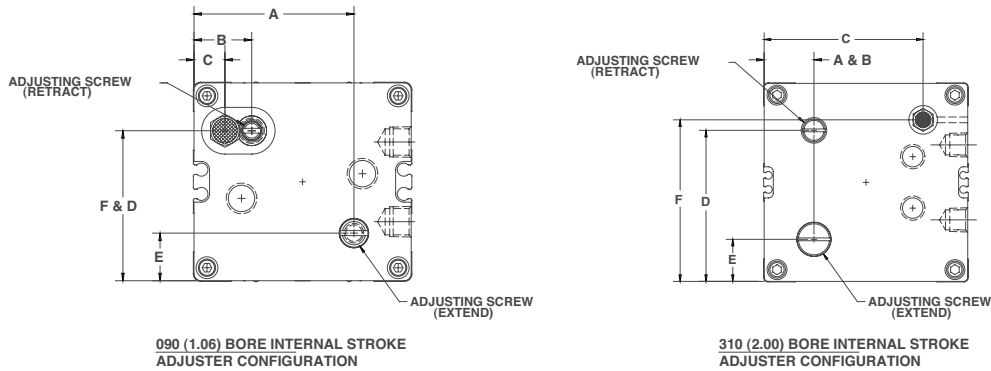
End play is defined as load beam movement in any one direction at full extension and 80 PSI, with a specified load applied. Refer to the table on the right. Measurements are taken off the face of the load beam tooling plate. End play numbers are double when load beam movement is measured in two opposite directions.

PneuMoment Stroke Length	1-1/16"(27mm) or 1-1/2"(38mm) 5 lbs. (1.86 kg) load applied	2"(31mm) or 2-1/2"(50mm) 35 lbs. (13.06 kg) load applied
1"	.0083" - (.210mm)	.0025" - (.064mm)
2"	.0110" - (.279mm)	.0040" - (.102mm)
3"	.0140" - (.355mm)	.0045" - (.114mm)
4"	.0174" - (.441mm)	.0055" - (.140mm)
5"	.0210" - (.533mm)	.0075" - (.190mm)
6"	.0251" - (.637mm)	.0095" - (.241mm)
7"	.0294" - (.746mm)	.0110" - (.279mm)
8"	.0341" - (.866mm)	.0125" - (.318mm)
9"	.0391" - (.993mm)	.0140" - (.356mm)
10"	.0444" - (1.12mm)	.0150" - (.381mm)

Options

Internal Stroke Adjustment – Option A

Optional internal stroke adjustment screws on the rear of the guide beam end cap limit the stroke in either direction. Each screw limits the stroke in one direction. Approximate adjustment per 1/4 turn – Extend .008", Retract .014" for 1-1/16 (27mm) bore. Extend .021", Retract .025" for 2" (31mm) bore. Note: Within the unit's stroke length there are no dimensional limitations for either extend or retract adjustments. Not compatible with shock absorbers, external bumpers or internal bumpers.



090 (1.06) BORE INTERNAL STROKE ADJUSTER CONFIGURATION

310 (2.00) BORE INTERNAL STROKE ADJUSTER CONFIGURATION

	Bore	A	B	C	D	E
(09)	1-1/16"	2.06	0.73	0.36	1.94	0.61
	(27mm)	52.2	18.5	9.1	49.3	15.5

Option A – is not available for 1-1/2" and 2-1/2" bore. Use External Bumper – Option EB to achieve stroke adjustment.

Internal Stroke Adjustment – Option B

Provides internal bumpers for end of stroke noise reduction in both directions.

Air Pressure Effect on Stroke

Air Pressure	20 psi	40 psi	60 psi	80 psi
1-1/16", 1-1/2"	-0.77	-0.047	-0.020	0
27mm, 38mm	-19.0mm	-1.2mm	-0.51mm	0
2"	-0.090	-0.080	-0.020	0
50mm	-2.3mm	-2mm	-0.5mm	0
2-1/2"	-0.027	-0.018	-0.010	0
63mm	-0.68mm	-.45mm	-.25mm	0

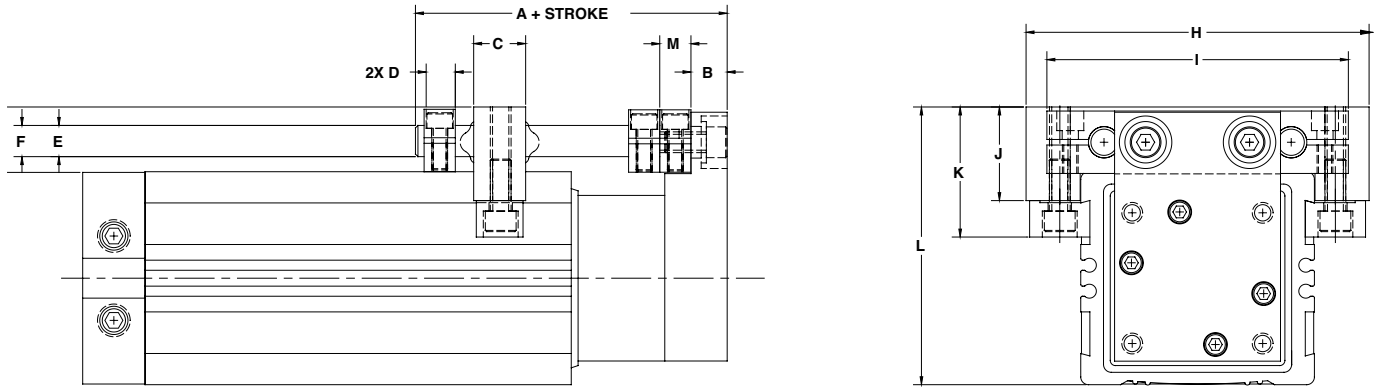
NOTE: not compatible with shock absorbers, end flange mounting on the guide beam end, internal stroke adjustment and internal bumpers.

How to Specify

Options

External Bumpers – Option EB

Optional external bumpers provide both end-of-stroke noise reduction and end-of-stroke adjustment. The external bumper assembly is mounted to the actuator with clamps that connect to the channel that runs along the length of the guide beam.

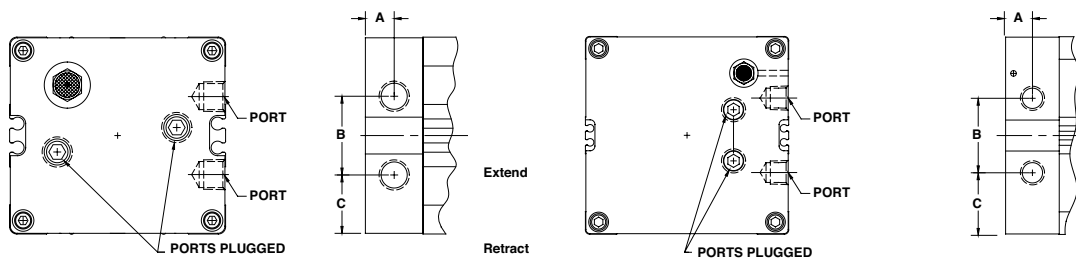


	Bore	A	B	C	D	E	F	G	H	I	J	K	L
(09), (17)	1-1/16", 1-1/2"	2.75	0.44	0.62	0.38	0.38	0.73	0.75	4.12	3.62	1.16	1.59	3.37
	(27mm), (38mm)	69.80	11.10	15.90	9.50	9.50	18.50	19.00	104.8	92.00	29.40	40.50	85.60

	Bore	A	B	C	D	E	F	G	H	I	J	K	L	M
(31)	2", 2-1/2"	4.44	0.68	1.54	0.50	0.62	1.56	1.57	6.25	5.69	1.75	2.30	5.95	0.75
(50)	50mm - 63mm	112.80	17.30	39.10	12.70	15.90	39.60	40.00	158.90	144.40	44.30	58.30	151.10	19.10

End and Side Ports – Option Y

All PneuMoments have both end and side ports in the guide beam end cap. Removable flush port plugs are installed at the factory in the side ports unless the "Y" option is specified. PneuMoments with this option are shipped with plugs installed in the end ports.



090 & 170 (1.06 & 1.50) BORE GUIDE BEAM END CAP
PORT PLUG CONFIGURATION

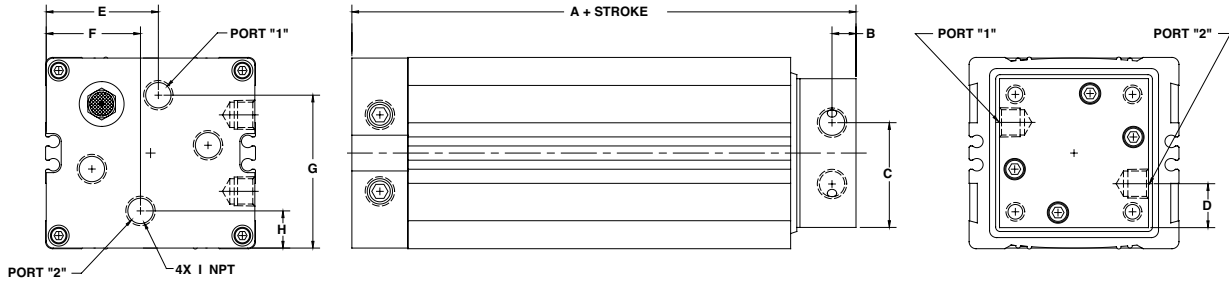
310 & 500 (2.00 & 2.50) BORE GUIDE BEAM END CAP
PORT PLUG CONFIGURATION

	Bore	A	B	C
(09)	1-1/16"	0.38	1.02	0.76
	(27mm)	9.5	26.0	19.3
(17)	1-1/2"	0.33	1.17	0.69
	(38mm)	8.4	29.7	17.4
(31)	2"	0.59	1.65	1.35
	(50mm)	15.1	41.9	34.4
(50)	2-1/2"	0.59	1.65	1.35
	(63mm)	15.1	41.9	34.4

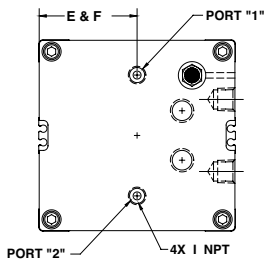
Options

Auxiliary Port-Air/Vacuum – Option R

Optional air/vacuum ports can be supplied to transmit air or vacuum through the actuator to the load beam tooling plate for use by other automation devices.



090 & 170 (1.06 & 1.50) BORE GUIDE BEAM END CAP
AUXILIARY PORT CONFIGURATION

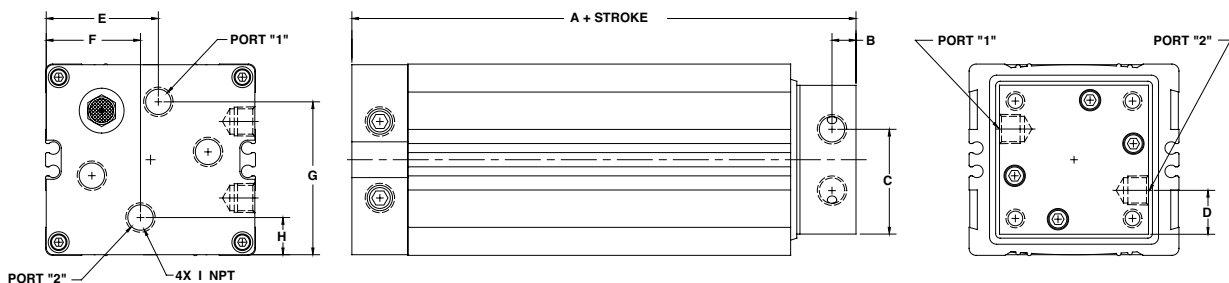


310 & 500 (2.00 & 2.50) BORE GUIDE BEAM END CAP
AUXILIARY PORT CONFIGURATION

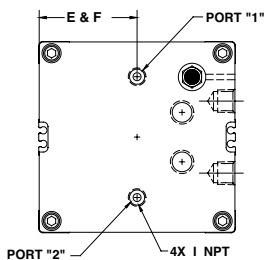
	Bore	A	B	C	D	E	F	G	H	I
(09)	1-1/16"	5.75	0.32	1.41	0.59	1.50	1.26	2.05	0.50	1/8 NPT
	(27mm)	146.00	8.20	35.80	14.90	38.10	32.10	52.00	12.60	G 1/8
(17)	1-1/2"	5.88	0.32	1.00	1.00	0.65	2.06	2.02	0.48	1/8 NPT
	(38mm)	149.40	8.20	25.30	25.30	16.50	52.20	51.30	12.20	G 1/8
(31)	2"	10.48	0.50	2.84	0.60	2.24	2.24	3.56	0.80	1/8 NPT
	50mm	266.20	12.70	72.10	15.20	56.90	56.90	90.40	20.20	G 1/8
(50)	2-1/2"	10.48	0.50	1.68	1.76	0.99	3.49	3.43	0.83	1/4 NPT
	63mm	266.20	12.70	42.60	44.70	25.10	88.70	87.10	21.00	G 1/4

Auxiliary Port-Air/Vacuum – Option R

Optional air/vacuum ports can be supplied to transmit air or vacuum through the actuator to the load beam tooling plate for use by other automation devices.



090 & 170 (1.06 & 1.50) BORE GUIDE BEAM END CAP
AUXILIARY PORT CONFIGURATION



310 & 500 (2.00 & 2.50) BORE GUIDE BEAM END CAP
AUXILIARY PORT CONFIGURATION

	Bore	A	B	C	D	E	F	G	H	I
(09)	1-1/16"	5.75	0.32	1.41	0.59	1.50	1.26	2.05	0.50	1/8 NPT
	(27mm)	146.00	8.20	35.80	14.90	38.10	32.10	52.00	12.60	G 1/8
(17)	1-1/2"	5.88	0.32	1.00	1.00	0.65	2.06	2.02	0.48	1/8 NPT
	(38mm)	149.40	8.20	25.30	25.30	16.50	52.20	51.30	12.20	G 1/8
(31)	2"	10.48	0.50	2.84	0.60	2.24	2.24	3.56	0.80	1/8 NPT
	50mm	266.20	12.70	72.10	15.20	56.90	56.90	90.40	20.20	G 1/8
(50)	2-1/2"	10.48	0.50	1.68	1.76	0.99	3.49	3.43	0.83	1/4 NPT
	63mm	266.20	12.70	42.60	44.70	25.10	88.70	87.10	21.00	G 1/4

How to Specify

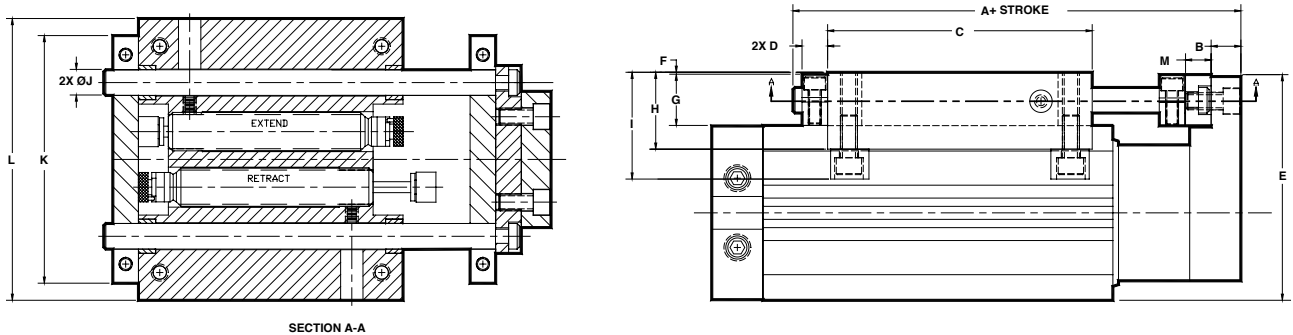
Options

Shock Absorbers – Option S, S1, S2

Optional adjustable shock absorbers are available to control the deceleration of heavier loads as well as limit the stroke of the actuator. The shock absorber assembly is mounted with clamps that connect to the channel that runs along the length of the guide beam. Option S includes two shocks to decelerate loads in both directions. Option S1 provides one shock in the extend direction. Option S2 provides one shock in the retract direction. See page 344 to select the proper shock absorber setting for your application.

The load-carrying capabilities of the PneuMoment can be enhanced by the use of external deceleration devices such as shock absorbers. Shocks, when used properly, can also increase actuator life. Use the following data to determine the requirements for your specific application. The shock allows multiple deceleration settings. Set the adjustable shock dial to the setting that meets your application.

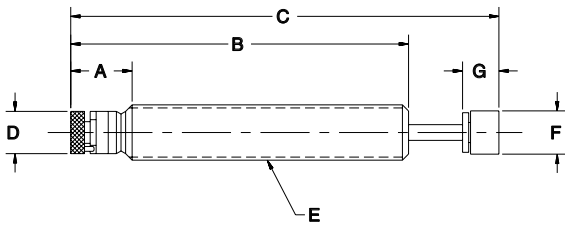
NOTE: not compatible with external bumpers, end flange mounting on either end, internal stroke adjustment and internal bumpers.



	Bore	A	B	C	D	E	F	G	H	I	J	K	L	M
(09)	1-1/16", 1-1/2"	5.56	0.44	3.88	0.38	3.37	0.02	0.73	1.16	1.59	0.38	3.62	4.12	N/A
(17)	(27mm), (38mm)	141.20	11.10	98.40	9.50	85.60	0.40	18.50	29.40	40.50	9.50	92.00	104.80	N/A
(31)	2", 2-1/2"	8.17	0.68	5.71	0.50	5.84	0.02	1.56	1.75	2.30	0.62	5.69	6.25	0.75
(50)	(50mm) - (63mm)	207.50	17.30	145.00	12.70	148.40	0.40	39.60	44.30	58.30	15.90	144.40	158.90	19.10

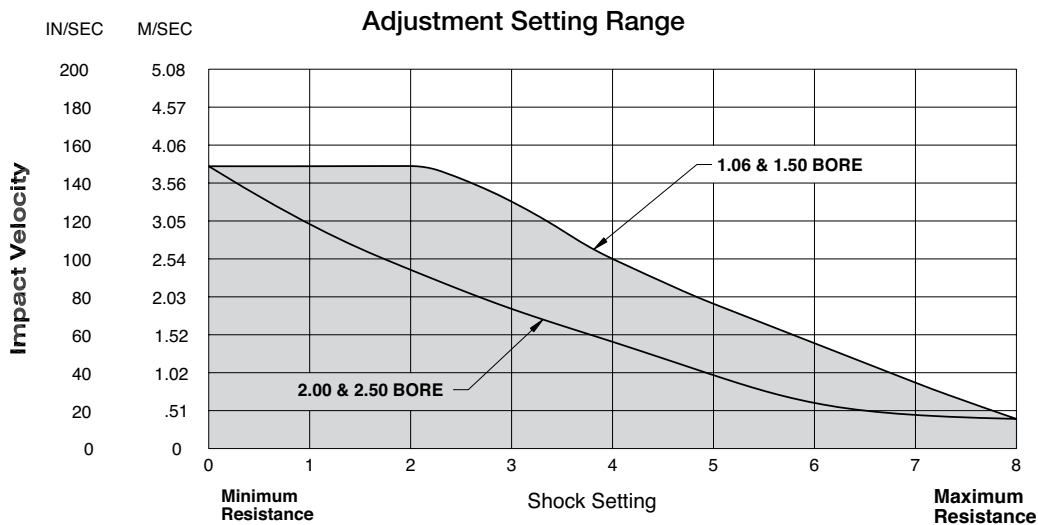
Options

Shock Absorbers – Option S, S1, S2



Bore	A	B	C	D	E	F	G
1-1/16" - 1-1/2"	0.69	3.31	4.36	0.59	9/16-18 UNF	0.50	0.47
27mm-38mm	17.40	84.10	110.70	15.10	M16 x 1.5	-	11.90
2" - 2-1/2"	0.58	4.45	6.52	0.88	1-3/8-12 UNF	1.22	N/A
50mm-63mm	14.70	113.00	165.60	22.40	N/C	31.00	N/A

The shock allows multiple deceleration settings. The blue area represents the range of settings to consider based on velocity. Set the adjustable shock dial to the setting that meets your application.



Use this charts to determine the shock absorber's maximum energy levels.

Shock Absorber Specifications						
Bore	Model	Shock Absorber Bore	(S) Stroke	Thread Type	(ET) Max. Per Cycle	(ET-C) Max. Per Hour
1-16" 1-1/2"	U.S.	.28 in	.5 in	3/4-16UNF-2A	250 in-lbs.	284,000 in-lbs.
27mm 38mm	Metric	(7.11mm)	(12.7mm)	M16 x 1.5	(16.95 Nm)	(33,900 Nm)
2"-2-1/2"	U.S.	.63"	1.00"	1-3/8-12UNF-2A	1100 in-lbs.	808,000 in-lbs.
*31mm 50mm	*Metric	(16.0mm)	(25.4mm)	_____	(124.5 Nm)	(91,291.7 Nm)

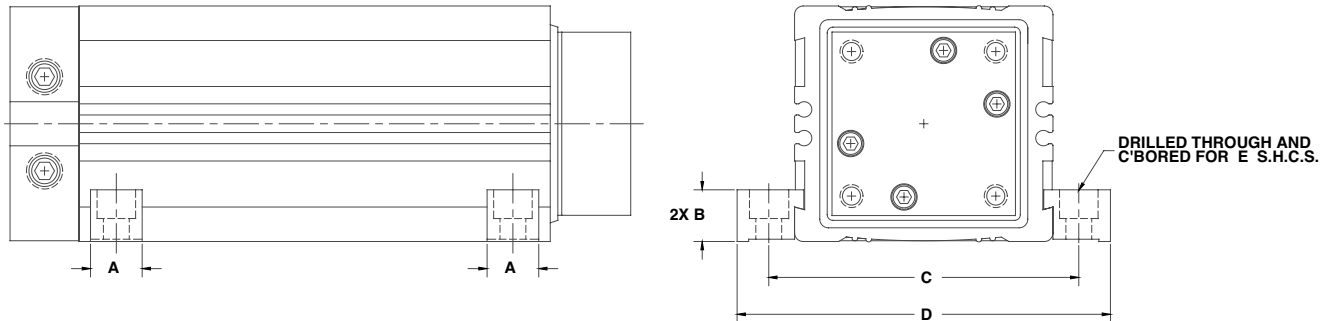
Shock Absorber Specifications						
Bore	Model	(Fp) Max. Shock Force	Normal Coil Spring Force		(FD) Max. Propelling Force	Weight
			Extension	Compression		
1-16" 1-1/2"	U.S.	775 lbs.	1.25 lbs.	2.75 lbs.	250 lbs.	5 oz.
27mm 38mm	Metric	(2 KN)	(4.44 N)	(9.77 N)	(534 N)	(85 g.)
2"-2-1/2"	U.S.	1700 lbs.	9.00"	13.00"	500 lbs.	20 oz.
*31mm 50mm	*Metric	(7.5 KN)	(40 N)	(57.8 N)	(2224.1 N)	(567 g.)

*Uses U.S. shock for 2" - 2-1/2".

How to Accessorize

Mounting Accessories

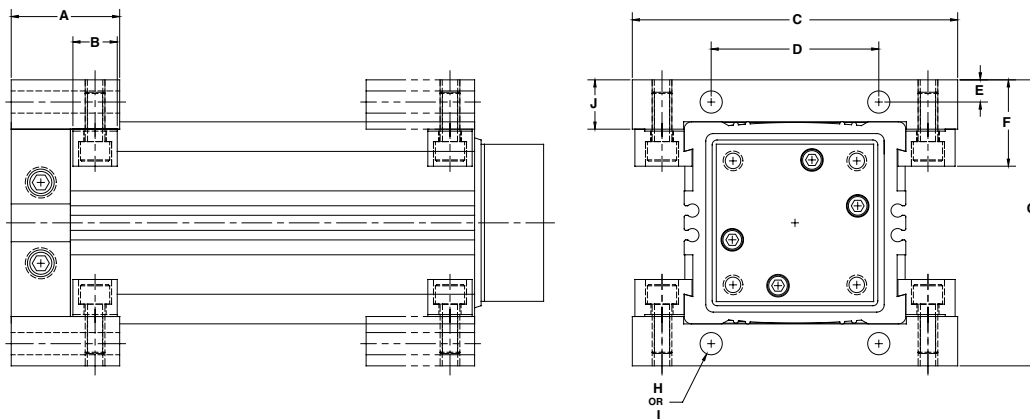
Mounting Clamps



	Bore	Part No.	A	B	C	D	E
(09)	1-1/16"-1-1/2"	PM-MC-09	0.56	0.56	3.37	4.06	1/4-20 UNC
	(27mm-38mm)		14.30	14.30	85.60	103.10	M6 x 1.0
(31)	2"-2-1/2"	PM-MC-31	1.50	.69	5.30	6.18	3/8-16 UNC
	(50mm-63mm)		38.10	17.50	134.50	156.90	M10 x 1.5

Mounting clamps can be used any time the PneuMoment™ is mounted to a flat surface. They are supplied with through holes for socket head cap screws. The clamps connect to the channel that runs along the length of the guide beam. Mounting clamps can be located anywhere along the length of the guide beam but we recommend they be as close to the ends as possible with the width of the clamp engaged into the guide beam channel. Mounting clamps are supplied in packets of four. The same clamp is used for U.S. customary unit and metric mountings.

End Flanges



End flanges can be used to mount the actuator at either end of the guide beam. The clamps connect to the flange bracket using screws and threaded holes. Two flange bracket styles are available; one with through holes and the other with threaded holes. End flanges are supplied in a kit containing two flange brackets and four clamps.

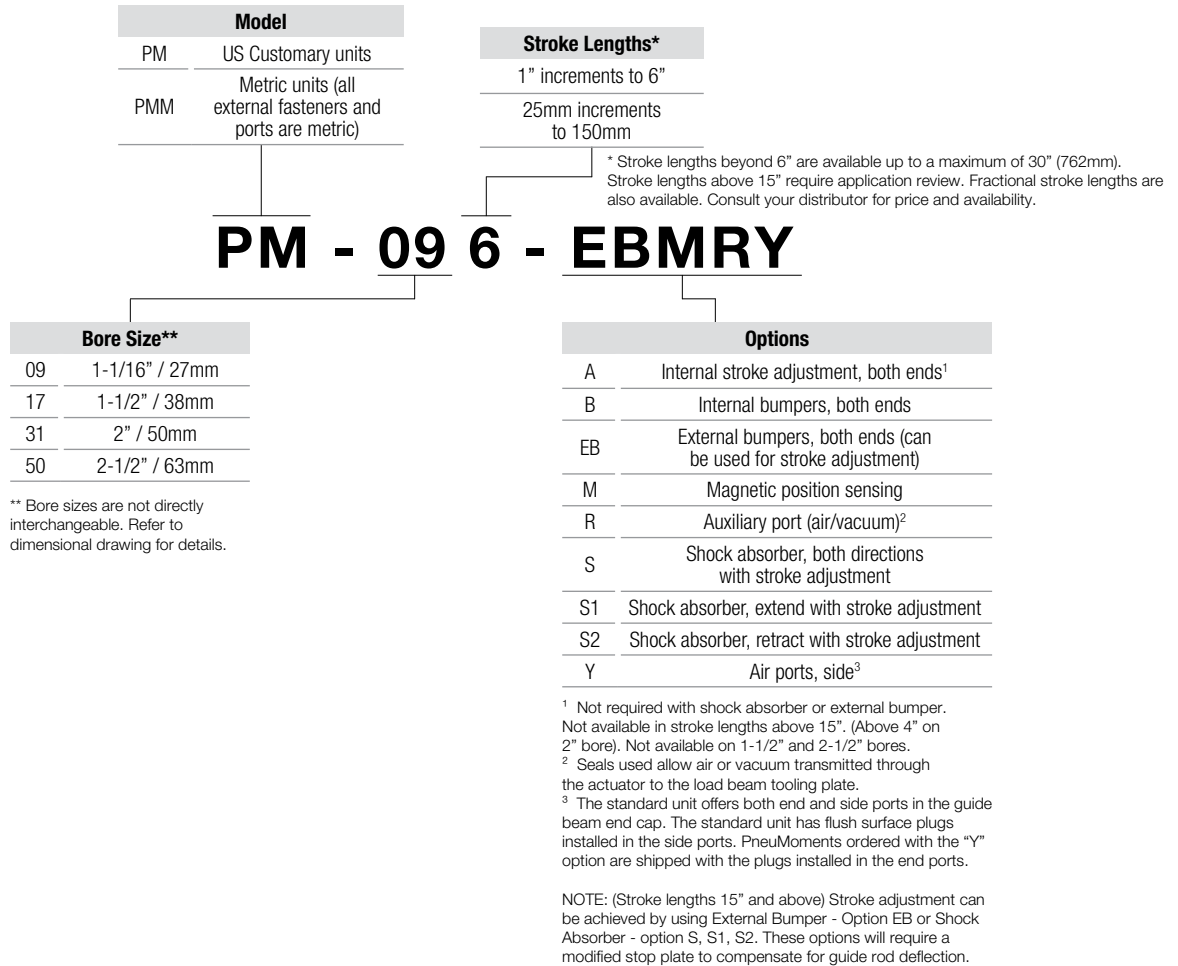
Threaded Holes (U.S. PM-EF-09, Metric PMM-EF-09*) U.S. PM-EF-31, Metric PMM-EF-31 Through Holes (U.S. PM-EFT-09, Metric PMM-EFT-09*) U.S. PM-EFT-31, Metric PMM-EFT-31

Bore	A	B	C	D	E	F	G	H	I	J
1-1/16", 1-1/2"	1.50	0.56	4.12	2.12	0.28	1.06	3.62	0.28	1/4-20 UNC	0.62
(27mm), (38mm)	38.30	14.30	104.80	53.90	7.10	27.00	92.00	7.10	M6 x 1.0	15.90
2" - 2-1/2"	2.74	1.50	6.25	3.82	0.38	1.47	5.88	0.41	3/8-16 UNC	0.92
(50mm), (63mm)	69.60	38.10	158.90	97.10	9.50	37.40	149.20	0.42	M10 x 1.5	23.40

*1-1/16" and 1-1/2" bore sizes use the same End Flange.
2" and 2-1/2" bore sizes use the same End Flange.

The model number of PneuMoment™ pneumatic actuators consists of an alphanumeric cluster designating product type, bore size, stroke length, and other optional components that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic PneuMoment™ unit with 1-1/16" bore, 6" stroke, and additional options is shown below.



Option/Combination Availability

Bore	A	B	EB	M	R	S	Y
1-1/16" (27mm)	M, R, Y	M, R, Y	M, R, Y	A, B, EB, R, S, Y	A, B, EB, M, S, Y	M, R, Y	A, B, EB, M, R, S
1-1/2" (38mm)	N/A	M, R, Y	M, R, Y	B, EB, R, S, Y	B, EB, M, S, Y	M, R, Y	B, EB, M, R, S
2" (50mm)	M, R, Y	M, R, Y	M, R, Y	A, B, EB, R, S, Y	A, B, EB, M, S, Y	M, R, Y	A, B, EB, M, R, S, Y
2-1/2" (63mm)	N/A	M, R, Y	M, R, Y	B, EB, R, S, Y	A, B, EB, M, S, Y	M, R, Y	A, B, EB, M, R, S, Y

How to Repair

PneuMoment™ actuators are repairable. A list of the individual components is given below that together make up the PneuMoment™ actuator.

Repair Kits

Order #	Part Description	Quantity	
	Piston Seals	2	
	Air Tube Piston Seal	2	
	Rod Guide Inner Seal	1	
	Rod Guide Outer Seal	1	
	Rod Seal	1	
	Sleeve Plug Seal	1	
	Beam Wiper	1	
	Tube Gasket	1	
	Wrench – For Piston Removal	1	
1-1/16" 1-1/2"	RD-76758 (U.S. Customary)	Replacement Shock	1
27mm 38mm	RD-68404-M (Metric)	Replacement Shock	1
2" 2-1/2"	RD-80179 (U.S. Customary)	Replacement Shock	1
31mm 50mm	RD-80179-M (Metric)	Replacement Shock	1

Seal Kits
 1-1/16" – PMKS-09
 1-1/2" – PMKS-17
 2" – PMKS-31
 2-1/2" – PMKS-50
 (US and Metric)

