



# 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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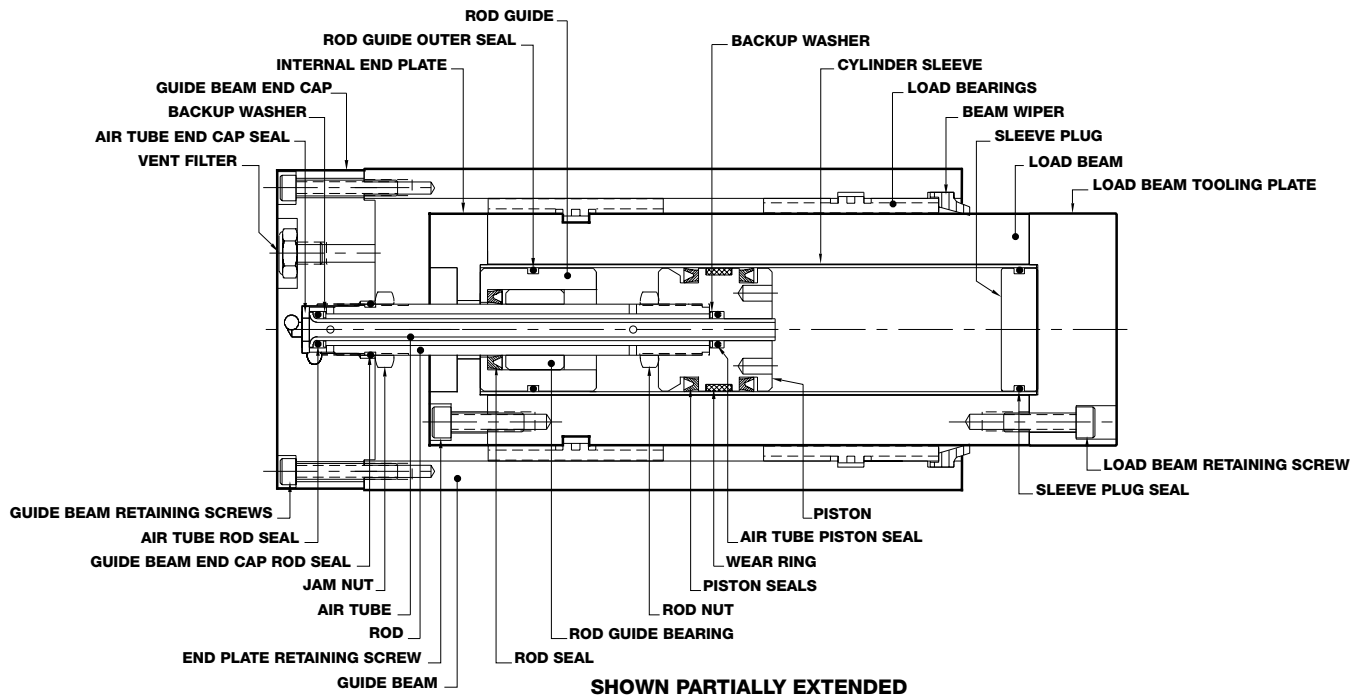
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## Features and Benefits

- 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.

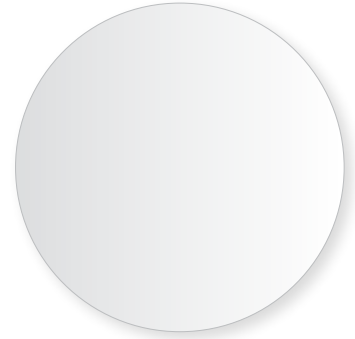
## Materials of construction

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Body Material:	Aluminum
End Caps:	Aluminum
Belt Cover:	Stainless Steel
Carriage:	Aluminum
Belt:	Steel Reinforced Polyurethane

## APPLICATION IDEAS

- Pick & Place
- Sorting
- Loading
- Stacking
- Insertion
- Clamping
- Parts Transfer
- Labeling
- Machine Tool
- Conveyor



## Target Applications

The B27 is intended for medium-duty industrial applications that require flexible, long distance, high speed motion with ample load and moment loading capacity. When your application calls for up to 3m (~10ft.) of stroke with up to 125 lbs (~556N) and speed capability in the 5m/sec (~200"/sec) range, the B27 offers you all this at an exceptional value.

For applications that call for an alternative solution to a traditional pneumatic application and that offers a more adaptable solution that can grow with your motion needs, Bimba electric actuators provide the interchangeable solution in an easy-to-use, long-lasting, and tough electric actuator that exceeds the competition.

## Drive options

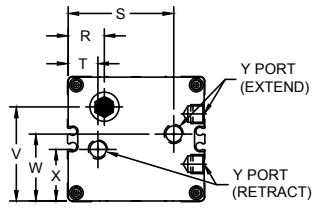
With numerous drive interfaces ranging from a single or double standard shaft input to our integral reducer drive, the choice is yours to select the option that works for you. There are many Bimba stepper and servo motors to choose from, so configuring an electric actuator that best meets the needs of even your most demanding application has never been easier.

## Advantages

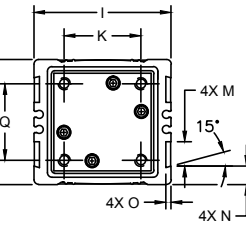
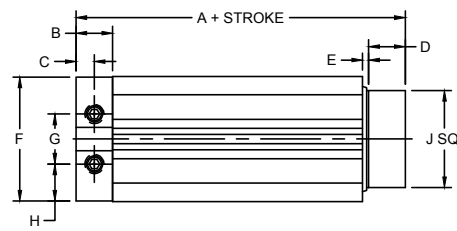
FEATURE	ADVANTAGE	BENEFIT
Carriage constructed of high-strength 7075 aluminum	Offers enhanced strength and robustness over the competitor	Less deflection and increased load and moment loading capability per carriage size
Self-lubricating linear guides	Minimized maintenance	Worry- and maintenance-free long life, even in applications that require 24/7 motion
Integral Reducer Drive (optional)	Offers increased performance using embedded gear reducer	Move larger loads and improve inertia matching, using an aesthetically pleasing, cost-effective solution

# How To Specify

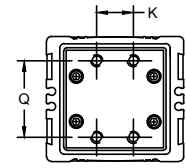
## Dimensions



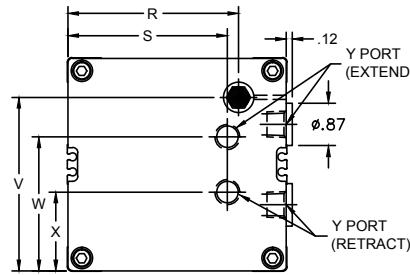
09 & 17 BORE GUIDE BEAM  
PORT PLUG CONFIGURATION



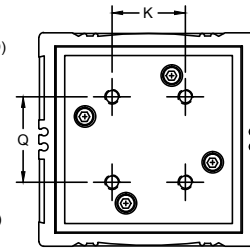
09 BORE TOOLING PLATE  
BOLT HOLE PATTERN



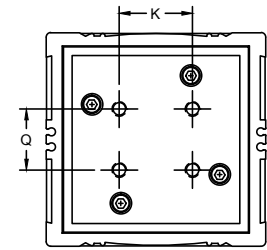
31 BORE GUIDE BEAM  
PORT PLUG CONFIGURATION



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.

## Engineering Specifications

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

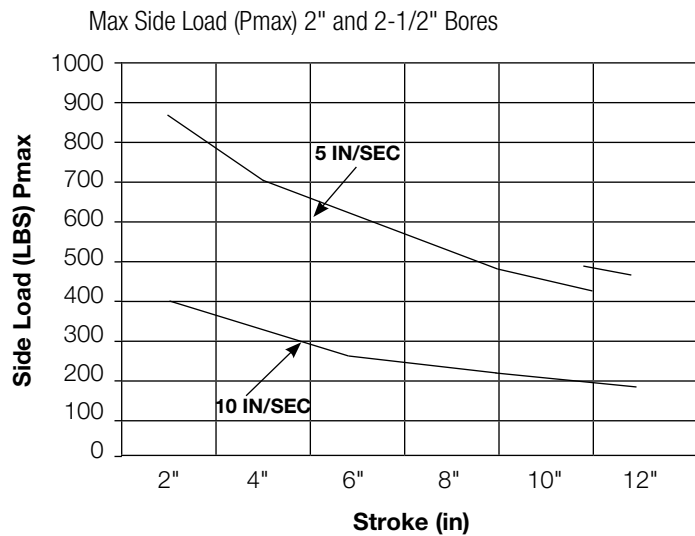
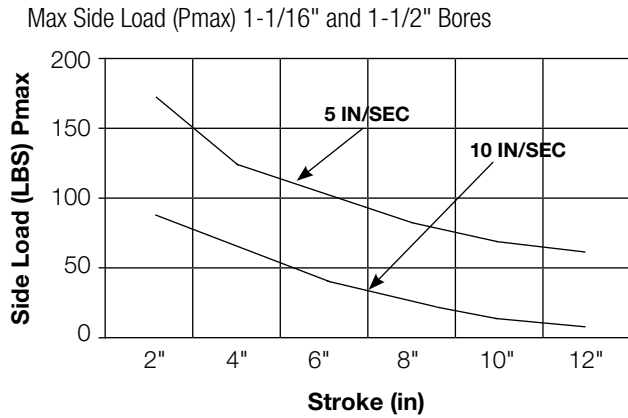
## Weights

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

# How To Specify

## 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 3.47 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.

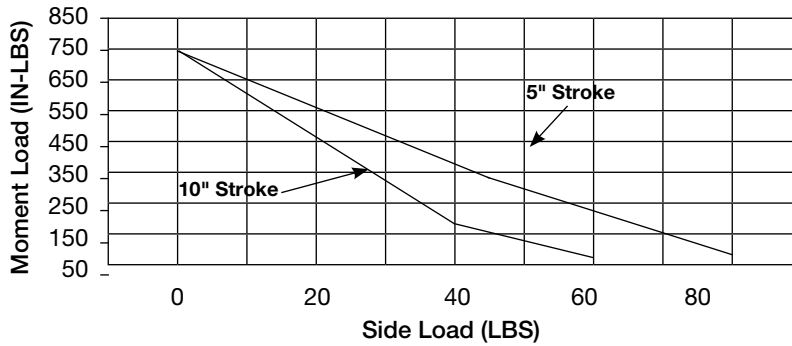




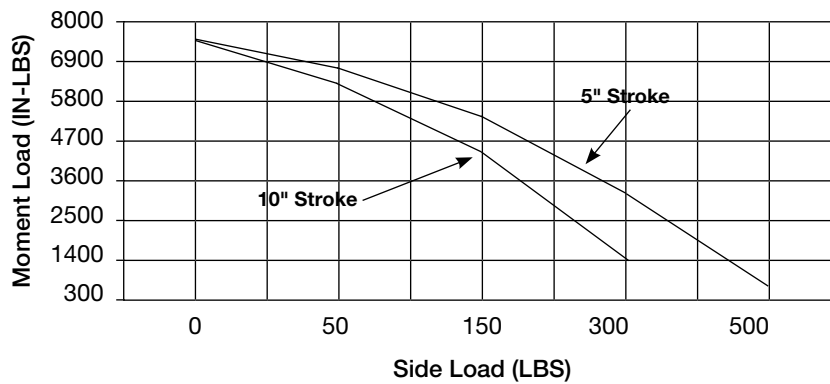
## Combination Side and Moment Load

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 3.47 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.

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



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

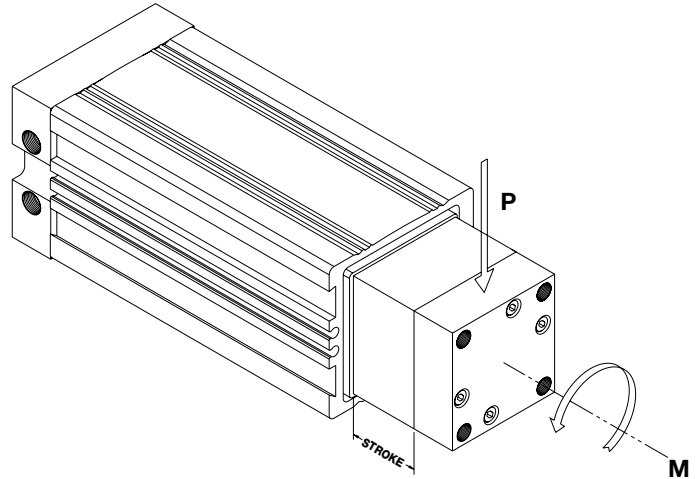


# How To Specify

## Capability

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

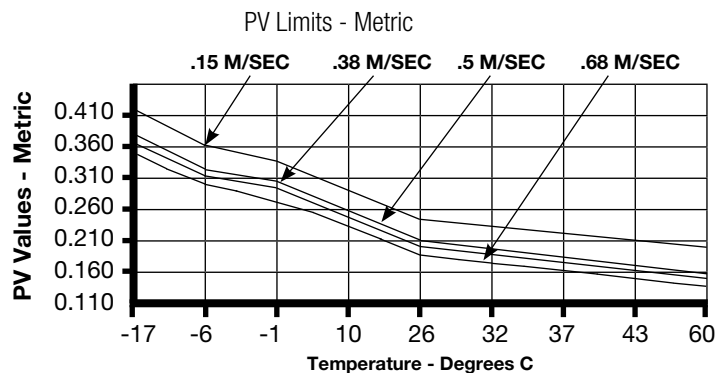
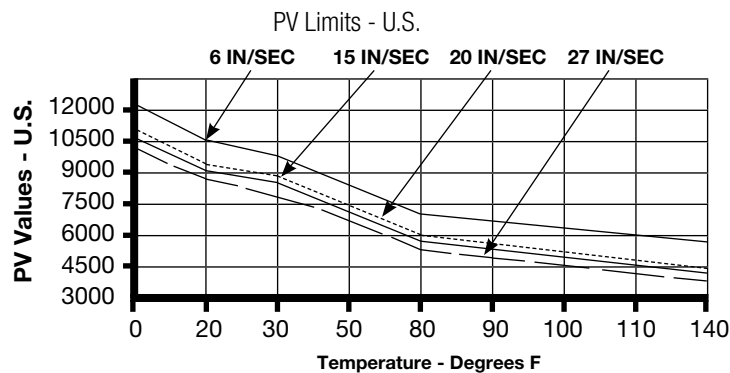
Smax	=	The maximum allowable stress in the bearing material in PSI (MPa)
PV	=	One of the limiting factors of the bearing depending on ambient temperature and cycle velocity.
V	=	Velocity in feet per minute (meters per second)
T	=	Ambient temperature in degrees F (degrees C)
Pmax	=	Maximum side load in 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)



## Capability

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

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

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:

<b>1-1/16" (27mm) or 1-1/2" (38mm)</b>	U.S. $m = \{W + [0.162 * (3.5 + \text{stroke} \{in\})]\} / 32.179 \text{ slugs}$ Metric $m = \{W + [0.028 * (88.9 + \text{stroke} \{mm\})]\} / 9.81$
<b>2" (31mm) or 2-1/2" (50mm)</b>	U.S. $m = \{W + [0.916 * (6.72 + \text{stroke} \{in\})]\} / 32.179 \text{ slugs}$ Metric $m = \{W + [1.635 * (170.69 + \text{stroke} \{mm\})]\} / 9.81$
W = actual side load being moved	

### Deflection and End Play

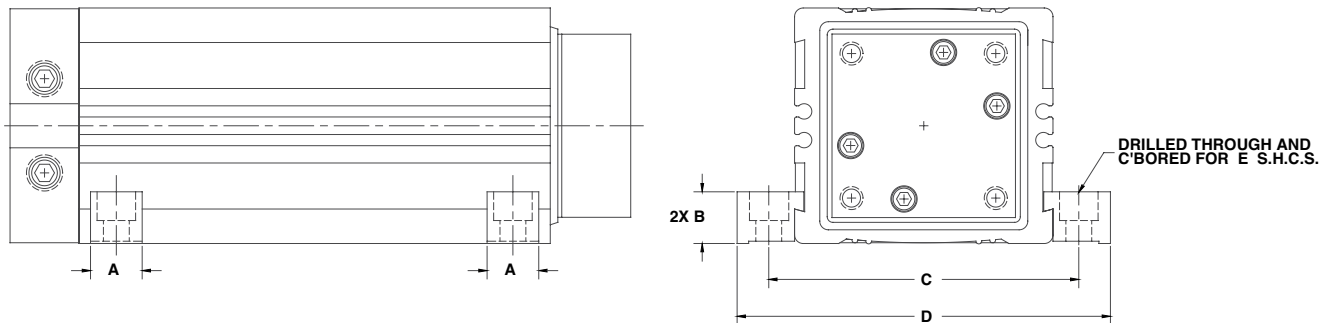
End play is defined as load beam movement in any one direction at full extension and 80 PSI, with a specified load applied. Refer to the table on the right. Measurements are taken off the face of the load beam tooling plate. End play numbers are double when load beam movement is measured in two opposing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

# How to Accessorize

## Mounting Accessories

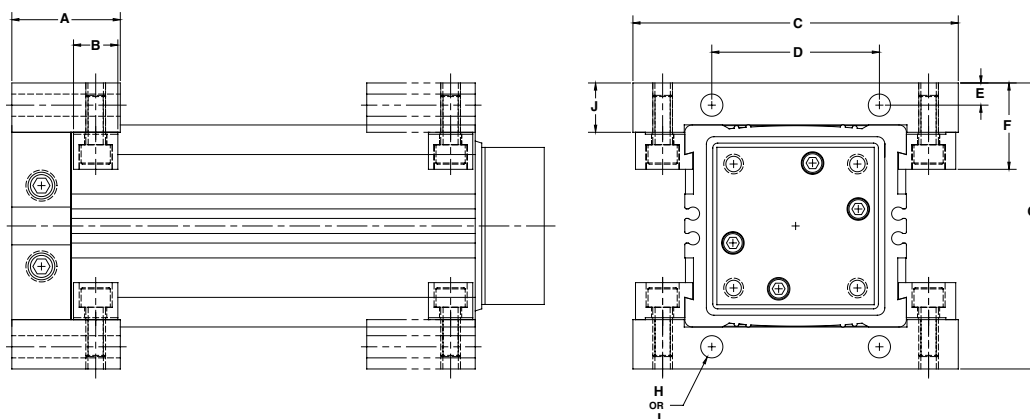
### Mounting Clamps



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

## Mounting Accessories

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

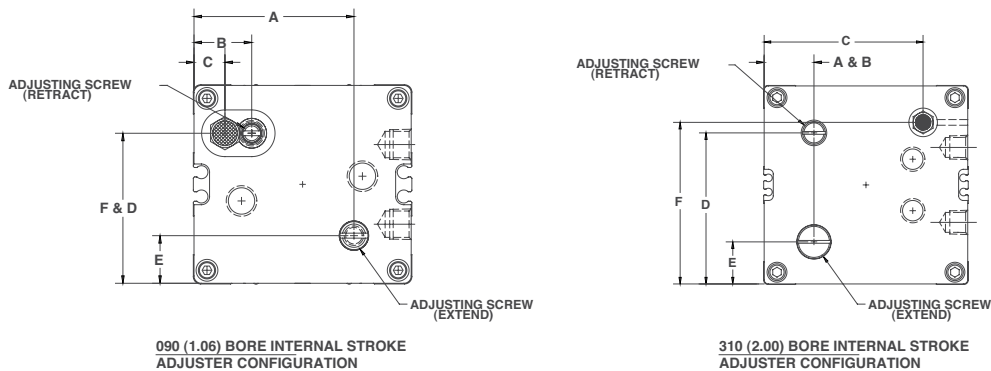
Bore	A	B	C	D	E	F	G	H	I	J
1-1/16", 1-1/2"	1.50	0.56	4.12	2.12	0.28	1.06	3.62	0.28	1/4-20 UNC	0.62
(27mm), (38mm)	38.30	14.30	104.80	53.90	7.10	27.00	92.00	7.10	M6 x 1.0	15.90
2" - 2-1/2"	2.74	1.50	6.25	3.82	0.38	1.47	5.88	0.41	3/8-16 UNC	0.92
(50mm), (63mm)	69.60	38.10	158.90	97.10	9.50	37.40	149.20	0.42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

## 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.



	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

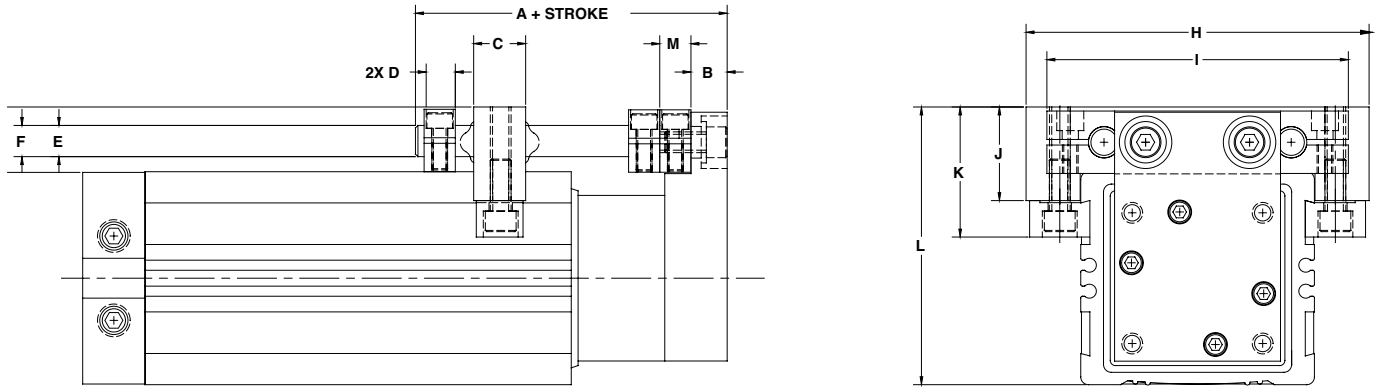
NOTE: not compatible with shock absorbers, end flange mounting on the guide beam end, internal stroke adjustment and internal bumpers.

# How to Accessorize

## 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.

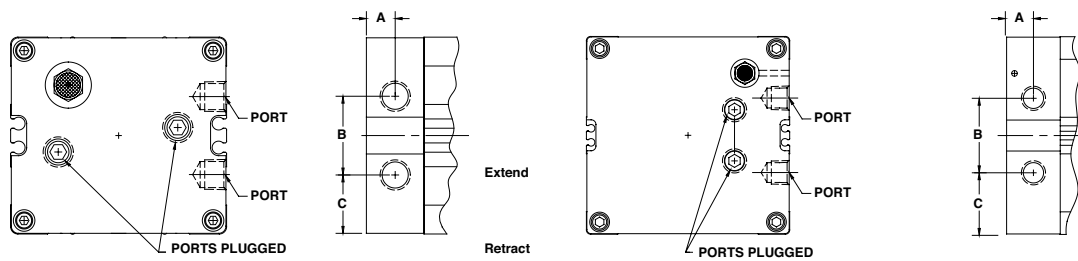


	Bore	A	B	C	D	E	F	G	H	I	J	K	L
(09), (17)	1-1/16", 1-1/2"	2.75	0.44	0.62	0.38	0.38	0.73	0.75	4.12	3.62	1.16	1.59	3.37
	(27mm), (38mm)	69.80	11.10	15.90	9.50	9.50	18.50	19.00	104.8	92.00	29.40	40.50	85.60

	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

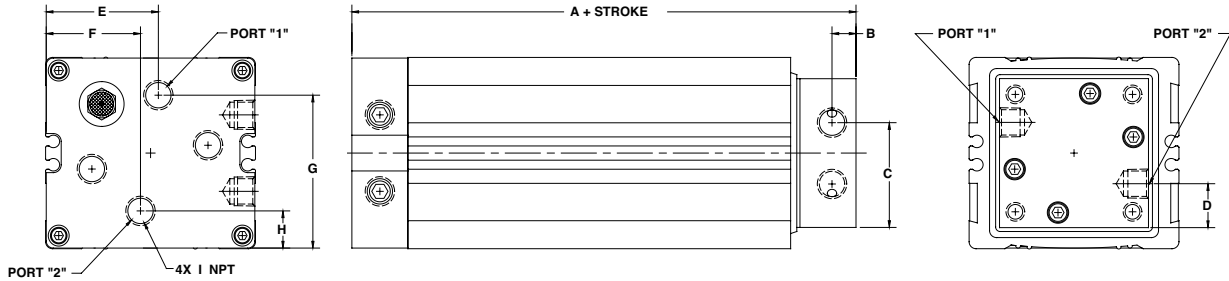
310 & 500 (2.00 & 2.50) BORE GUIDE BEAM END CAP  
PORT PLUG CONFIGURATION

	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

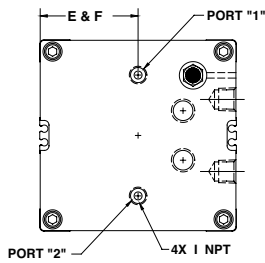
## Options

### 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

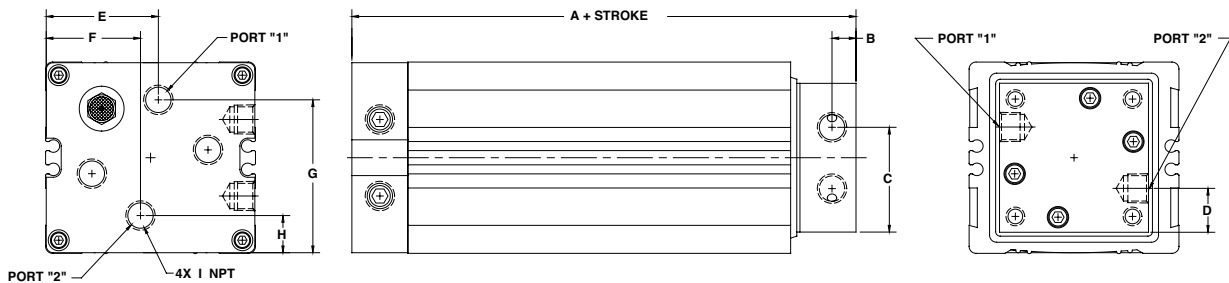


310 & 500 (2.00 & 2.50) BORE GUIDE BEAM END CAP  
AUXILIARY PORT CONFIGURATION

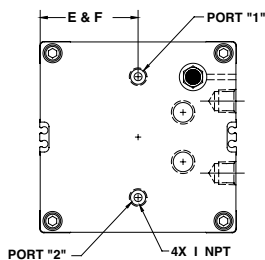
	Bore	A	B	C	D	E	F	G	H	I
(09)	1-1/16"	5.75	0.32	1.41	0.59	1.50	1.26	2.05	0.50	1/8 NPT
	(27mm)	146.00	8.20	35.80	14.90	38.10	32.10	52.00	12.60	G 1/8
(17)	1-1/2"	5.88	0.32	1.00	1.00	0.65	2.06	2.02	0.48	1/8 NPT
	(38mm)	149.40	8.20	25.30	25.30	16.50	52.20	51.30	12.20	G 1/8
(31)	2"	10.48	0.50	2.84	0.60	2.24	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 Accessorize

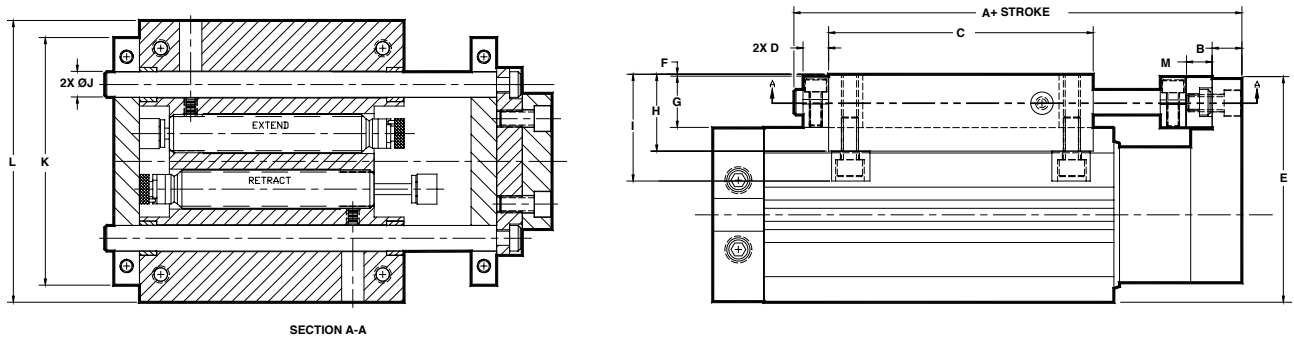
## Options

### 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 XXX 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.

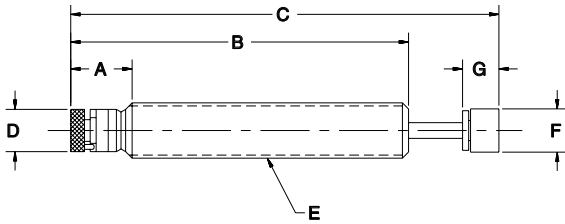


	Bore	A	B	C	D	E	F	G	H	I	J	K	L	M
(09)	1-1/16", 1-1/2"	5.56	0.44	3.88	0.38	3.37	0.02	0.73	1.16	1.59	0.38	3.62	4.12	N/A
(17)	(27mm), (38mm)	141.20	11.10	98.40	9.50	85.60	0.40	18.50	29.40	40.50	9.50	92.00	104.80	N/A
(31)	2", 2-1/2"	8.17	0.68	5.71	0.50	5.84	0.02	1.56	1.75	2.30	0.62	5.69	6.25	0.75
(50)	(50mm)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



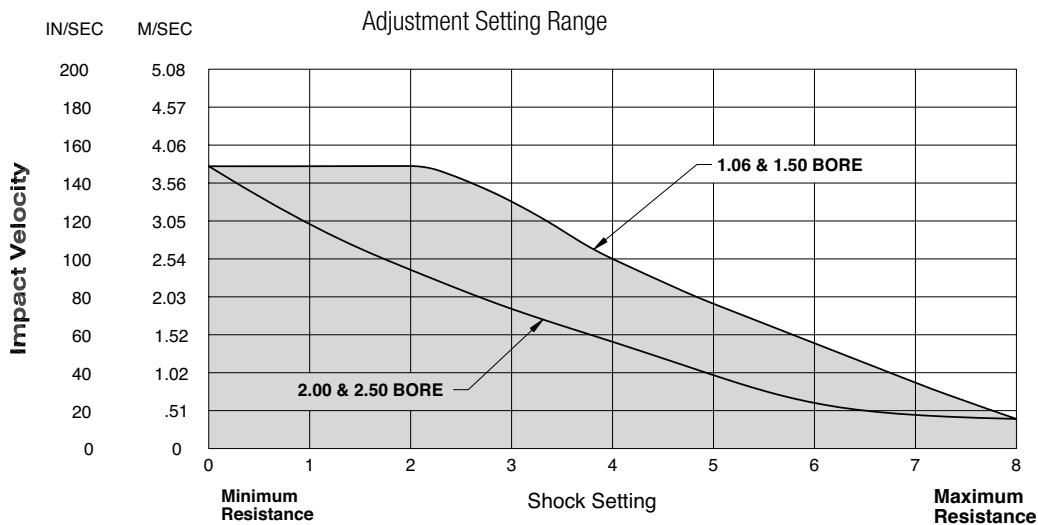
## Options

### 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	(E <sub>T</sub> ) Max. Per Cycle	(E <sub>T-C</sub> ) 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)

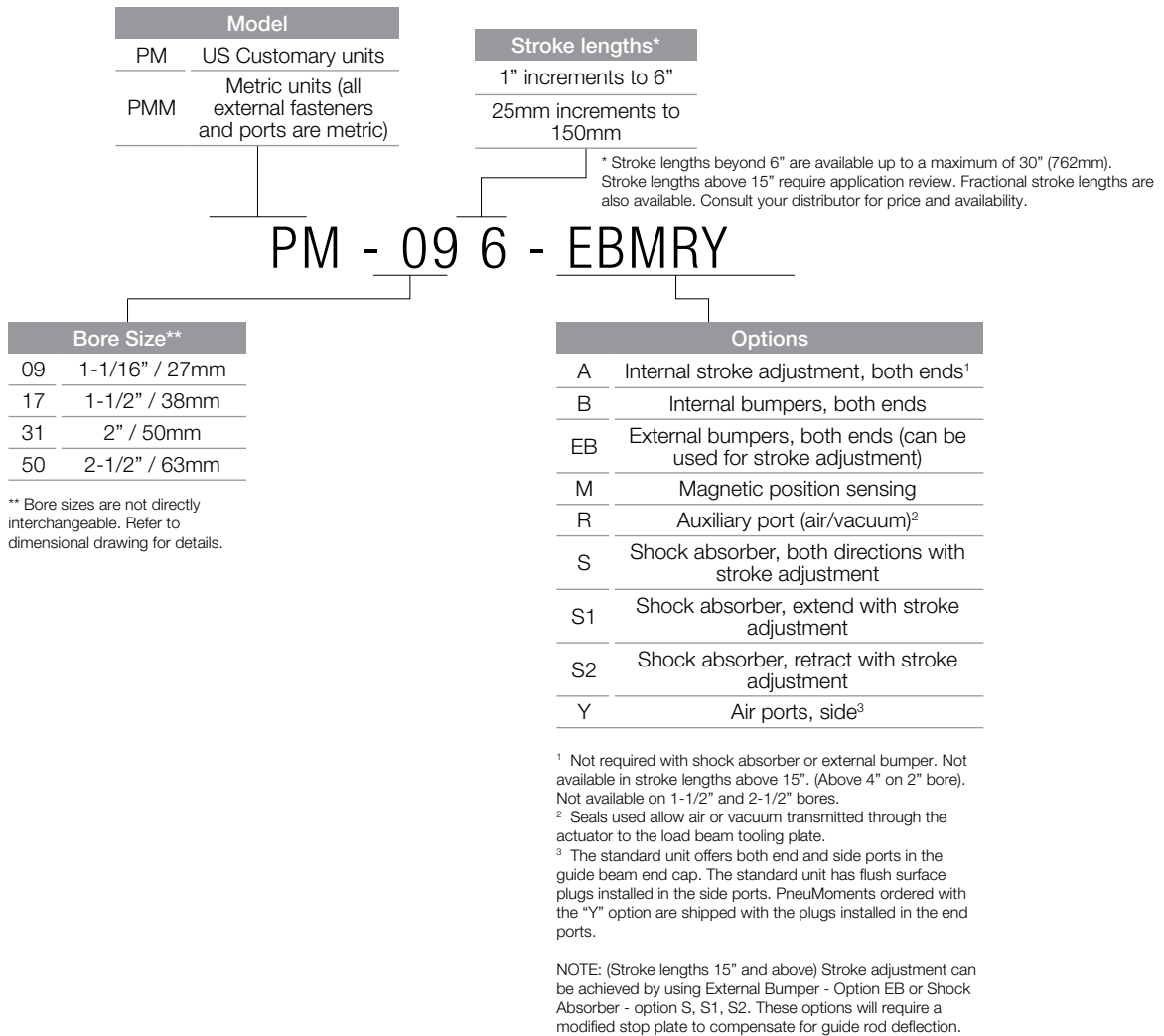
Shock Absorber Specifications						
Bore	Model	(F <sub>p</sub> ) Max. Shock Force	Normal Coil Spring Force		(F <sub>D</sub> ) Max. Propelling Force	Weight
			Extension	Compression		
1-16" - 1-1/2"	U.S.	775 lbs.	1.25 lbs.	2.75 lbs.	250 lbs.	5 oz.
27mm - 38mm	Metric	(2 KN)	(4.44 N)	(9.77 N)	(534 N)	(85 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 Order

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

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

Please use the linear actuator serial number located at the drive end for all inquiries, along with the original purchase order number (if available). Describe the part required along with part number below. Contact Bimba Customer Service at 800-442-4622 (800-44-BIMBA) or e-mail [cs@bimba.com](mailto:cs@bimba.com).

## 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)

# How to Customize

## Switches

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Switches add versatility to your electric motion application. They can be used to provide end of stroke limits, count strokes, or communicate positioning to an outside source. Switches can provide safety to applications as well, preventing undesirable situations like runaways to prevent damage.

To learn more about Bimba's available switch selection, refer to the Switches section in this catalog.

## Air/Purge Ports

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Air and purge ports are essential for actuators that operate in dirty applications. In both belt- and screw-driven actuators, ports keep dust and grime from egressing, protecting the internals of the actuator. Air and purge ports are recommended for use with Bimba's air preparation products.

When using purge ports, supply dry filtered air to the actuators in order to achieve optimal protection.

## Protection

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Bimba offers several protection options for our actuators. Our primary options are Armoloy® and stainless steel. Armoloy® offers additional protection against moisture and dirt. It is used to coat the steel linear rail and bearings in a Bimba actuator. Armoloy® coating can also be applied to the aluminum extrusion upon request. Stainless steel works in conjunction with Armoloy® coatings, providing additional protection to the end caps and carriage.

Additional coatings are available upon request.

## Motor mounting

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Motor mounts allow you to mount any motor to any actuator (within the actuator's rating). They give end users the ability to use Bimba electric actuators with the motor of their choosing. Careful considerations regarding torque limitations must be made when mounting a motor the actuator is not rated for.

To request custom motor mounting options, please supply Bimba with the following information: shaft diameter, shaft length, pilot diameter, pilot depth, bolt circle, and hole size.

## Customer-requested Holes and Dowel pins

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Bimba can provide custom holes and dowel pins to accommodate the customer's specific tooling and mounting holes.

For further customization, contact the factory.