Bimba’s classic "Blue and Improved" Original Line® continues to set the standard for non-repairable air cylinders. This product line features an incredible variety of standard models, including three-position, MRS, non-rotating, and PC air cylinders. Design enhancements to this line, including permanent grease lubrication, have more than doubled the anticipated service life of this industry-leading, non-repairable family of air cylinders.
Contents

13 Types of Cylinders
14 Cushion Energy Absorption
15 Specification Details

19 Original Line Cylinders
19 – 5/16” Bore Air Cylinders
21 – 7/16” Bore Air Cylinders
25 – 9/16” Bore Air Cylinders
27 – 3/4” Bore Air Cylinders
33 – 7/8” Bore Air Cylinders
35 – 1-1/16” Bore Air Cylinders
42 – 1-1/4” Bore Air Cylinders
45 – 1-1/2” Bore Air Cylinders
52 – 1-3/4” Bore Air Cylinders
54 – 2” Bore Air Cylinders
56 – 2-1/2” Bore Air Cylinders
57 – 3” Bore Air Cylinders
58 – Original Line Stainless Steel Body Options
59 – Fail Safe Length Adders
61 – Switch Track Kit Options
62 – Original Line Accessories
71 – How to Order
72 – How to Customize

73 Three Position Original Line Cylinders
74 – Dimensions
75 – How to Order

76 Adjustable Cushion Air Cylinders
77 – 3/4” Bore Air Cylinders with Adjustable Cushions
78 – 1-1/16” Bore Air Cylinders with Adjustable Cushions
79 – 1-1/2” Bore Air Cylinders with Adjustable Cushions
80 – 2” Bore Air Cylinders with Adjustable Cushions
81 – 2-1/2” Bore Air Cylinders with Adjustable Cushions
82 – 3” Bore Air Cylinders with Adjustable Cushions

83 MRS® Magnetic Reed Switch Air Cylinders
84 – 9/16” Bore MRS Air Cylinders
85 – 3/4” Bore MRS Air Cylinders
85 – 1-1/16” Bore MRS Air Cylinders
86 – 1-1/4” Bore MRS Air Cylinders
86 – 1-1/2” Bore MRS Air Cylinders
87 – 1-3/4” Bore MRS Air Cylinders
87 – 2” Bore MRS Air Cylinders
88 – 2-1/2” Bore MRS Air Cylinders
89 – Switch Track Options
90 – MRS Accessories

94 Non-Rotating Original Line Cylinders
95 – 9/16” Bore Non-Rotating Air Cylinders
96 – 3/4” Bore Non-Rotating Air Cylinders
98 – 1-1/16” Bore Non-Rotating Air Cylinders
100 – 1-1/2” Bore Non-Rotating Air Cylinders
102 – 2” Bore Non-Rotating Air Cylinders
104 – 2-1/2” Bore Non-Rotating Air Cylinders

105 Original Line with Plastic End Caps
106 – Dimensions
110 – How to Order

111 All Stainless Steel Non-Repairable Original Line Cylinders
112 – Technical Data
113 – Dimensions
117 – How to Order

118 All Stainless Steel Repairable (Bell Ring Style) Original Line Cylinders
119 – 3/4” Bore Cylinders
119 – 1-1/16” Bore Cylinders
120 – All Stainless Steel Repairable (Bell Ring Style) Accessories
121 – How to Repair

122 Z Line Air Cylinders
122 – Features and Benefits
122 – Options
123 – 3/4” Bore Z Line Air Cylinders
124 – 1-1/16” Bore Z Line Air Cylinders
124 – 1-1/2” Bore Z Line Air Cylinders
125 – 2” Bore Z Line Air Cylinders
126 – Z Line Accessories

128 Original Line Rod Lock Cylinders
129 – Dimensions
130 – Engineering Specifications
131 – How to Order

132 Hole Punch Cylinders
132 – Product Features
133 – Dimensions
133 – Engineering Specifications
134 – How to Repair
Types Of Cylinders

Bimba manufactures several different types of Original Line cylinders for your applications. These include the basic 5/16” to 3” bore cylinders described on pages 19-57. Weights published for each cylinder are approximate. Additional styles include:

Three-Position Cylinders
This multi-position Original Line stainless body cylinder provides three positive stroke positions with a single cylinder.

Cushion Cylinders
These include adjustable air cushions that slow cylinder speed at the end of stroke, reducing impact and extending cylinder life. Cushions can be ordered on rear, front or both ends, and can be ordered in combination with magnetic pistons.

MRS Cylinders
These include a magnet on the piston, designed to operate Bimba switches to actuate programmable controllers, relays, solenoids, timers or other electrically operated equipment. Dimensional differences from the basic Original Line include larger mounting threads and longer overall lengths in certain bore sizes.

Non-Rotating Cylinders
Double acting and reverse acting non-rotating cylinders have a unique square piston rod with rounded corners. They are dimensionally interchangeable with the standard Original Line.

PC Cylinders
These cylinders include acetal resin end caps. They are ideal for applications and environments that require exposure to moisture, lubricants and specific solvents. All dimensions except 1-1/2” bore nose threads are interchangeable with the Original Line.

All Stainless Steel Non-Repairable Cylinders
The new all stainless Original Line cylinders are the perfect solution for applications in the food processing/packaging, medical, chemical, or marine environments where wash down solutions or other corrosives are present in the environment. Designed to be dimensionally interchangeable with our standard Original Line, these cylinders offer a cost effective method of extending cylinder life in difficult application environments.

All Stainless Steel Repairable Cylinders
The new all stainless repairable Original Line cylinders are ideal for food processing, chemical, medical, pharmaceutical, offshore or marine equipment, and energy production or waste management applications. The bell ring design also offers the added benefit of full repairability without the need for hand tools by securing the body to the rod guide with a knurled, threaded nut.

Z-line Cylinders
For extremely tough applications, with larger diameter, two-piece piston rod, elastomer bumpers and Buna N U-cup seals for low breakaway.

Rod Lock Cylinders
This cylinder is a normally clamped unit that holds the piston rod in position when air pressure is not present. It is ideal for preventing drift at machine shut down.

500 Hydraulic Cylinders
For hydraulic use, up to 500 PSI.

Low Pressure Hydraulic Cylinders
Designed for use in low pressure hydraulic circuits with pressures not exceeding 250 PSI. The design incorporates chrome plated piston rods and hydraulic seals.

Hole Punchers
These are designed to punch millions of holes in thin film or plastic materials 2-3 mils thick.
How it Works

Cushion Energy Absorption

Cylinders with air cushions provide a possible solution to destructive energies. The air cushion traps a small amount of exhaust air at the end of stroke, providing an air pocket that decelerates the load. This reduces the potentially destructive energy being transmitted to the cylinder and other components. The following is a brief explanation on how to determine the energy level of your application and decide if an air cushion can provide adequate energy absorption. For a more detailed description, consult the factory at 1-800-44-BIMBA.

1. Determine the load to be stopped by the cylinder.
2. Determine the velocity at which the load impacts the cylinder endcap.
3. Calculate the energy the cylinder generates. Use the following equation:
   
   \[ \text{energy (e)} = \left( \frac{w}{64} \right) \times \left( v^2 \right) + (p \times k) \]

   - \( w \) = weight of the load (lbs)
   - \( V \) = velocity of the cylinder as the piston impacts the endcap (feet per second)
   - \( p \) = driving pressure (PSI)
   - \( k \) = bore constant

   Example: C-316-D at 80 PSI with total load of 8lbs

   driving pressure (\( p \)) = 80 PSI
   total load (\( w \)) = 8lbs
   bore constant (\( k \)) = .24
   maximum velocity (\( v \)) = 6 fps

   \[ = \left( \frac{8}{64} \right) \times (6^2) + (80 \times .24) = 23.7 \text{ ft-lbs} \]

<table>
<thead>
<tr>
<th>Bore</th>
<th>Max Energy (ft-lbs)</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>4.47</td>
<td>0.03</td>
</tr>
<tr>
<td>09</td>
<td>10.40</td>
<td>0.05</td>
</tr>
<tr>
<td>17</td>
<td>18.80</td>
<td>0.11</td>
</tr>
<tr>
<td>31</td>
<td>27.60</td>
<td>0.24</td>
</tr>
<tr>
<td>50</td>
<td>40.11</td>
<td>0.37</td>
</tr>
<tr>
<td>70</td>
<td>77.72</td>
<td>0.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cushion Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75&quot;</td>
</tr>
<tr>
<td>0.75&quot;</td>
</tr>
<tr>
<td>0.90&quot;</td>
</tr>
<tr>
<td>0.99&quot;</td>
</tr>
</tbody>
</table>
### Specification Details

#### Accessories
Accessories have separate catalog numbers and are shown at the end of each bore size section. Most accessories are zinc-plated carbon steel. We also offer stainless steel accessories in some bore sizes.

#### Lubrication
Standard Original Line Cylinders are pre-lubricated at our factory with a semi-synthetic grease and do not require additional lubrication during their service life. In some instances where a specified option is not conducive to our standard grease pre-lubrication, such as our High Temperature and Hydraulic options, alternate standard pre-lubrications will be applied. See below for complete details. Additional optional pre-lubrications are available upon customer request.

- Optional oil pre-lubrication is available in most models and can be ordered by specifying option "99".
- Cylinders ordered with our High Temperature seals are pre-lubricated with an oil more suitable for high temperature applications.
- Cylinders ordered with our Low Temperature seals are pre-lubricated with a grease more suitable for low temperature applications.
- All Hydraulic Cylinders are lubricated with our proprietary oil lubrication (HT-99).
- All Stainless Steel cylinders are pre-lubricated with food grade grease.

HT-99 can be ordered through your local Bimba distributor.

#### Piston Rod Material
Standard models feature ground and polished, high strength carbon steel piston rod or ground and roller burnished type 303 stainless steel. Stainless steel can also be ordered as an option on most models (see models for pricing). Stainless steel is standard on the following models:

- All 5/16", 7/16" and 9/16" bore cylinders
- All cylinders with adjustable cushions
- All 9/16" through 3" bore cylinders ordered with Magnet (M) option
- MRS cylinders
- "Z" Line cylinders
- Block and Trunnion-mounted cylinders
- Universal mount, double-end rod cylinders
- All Fail Safe models (options JS/JR)

#### Temperature Range
Buna N seals with a temperature range of -20° F (-29° C) to 200° F (90° C) are standard in all BIMBA air cylinders. Fluoroelastomer seals rated for higher temperature applications (up to 400° F) are available. When specifying our magnetic piston ("M" option), maximum operating temperature is 200° F based on the material of the magnet. If cylinders are operated at temperatures below 0° F for extended time periods, our low temperature seal and lubrication option (N) is recommended. This option has a temperature range of -40° F to 200° F. If cylinders are operated below -20° F with low temperature seals for extended time periods, cylinder performance will be affected by the cold temperature.
How To Specify

Specifying Details

Mounting
Mounting should be by the threaded stud ends, pivot or bolt holes provided. Mount cylinders to provide alignment with the driven mechanism, avoiding side loads that restrict the free operation of the cylinder.

Free Test Cylinder
Since 1975, our policy has been to provide a FREE TEST CYLINDER to any qualified original equipment manufacturer. This service is provided at no obligation, but we would appreciate a copy of your test results. Contact us or your local stocking BIMBA distributor for more information.

Special Cylinders
Do you have a complicated or unusual application? BIMBA will custom-design and build the cylinder that will solve your problem. Whatever your needs—special stroke, mounting styles, rod-end configurations, seal materials, dimensional changes, etc—contact us or your local stocking BIMBA distributor.

Delivery/Availability
Bimba cylinders are sold through local stocking distributors. Each distributor maintains an inventory of our most popular models. At the factory, Bimba classifies cylinders as shelving and non-shelving models. More than 125,000 units of various shelving models are kept in stock for immediate delivery. Standard stroke lengths shown in blue are stocked at Bimba. (Most stocked models shown in blue do not include options.) These stroke lengths are available in limited quantities for immediate shipment. Bimba also stocks a large quantity of cylinders with options such as stainless steel rods or bumpers. Non-stocked standard models are manufactured within 5 working days.

Cylinder Life Expectancy
Bimba cylinders have been designed and tested for an expected life of 3,000 miles of travel when properly applied. Additional lubrication is not required. This life estimate applies to cylinders with our standard semi-synthetic grease pre lubricant, and may not include cylinders with design modifications, those exposed to harsh operating conditions or any unintended applications. Please note that for cylinders utilizing Fluoroelastomer seals, the life rating will be 1,400 miles of travel when properly applied.

Stroke Lengths
Standard stroke lengths and recommended maximum stroke lengths are listed in each model description.

Special stroke lengths are available upon request. Stroke lengths are available in lengths longer than published, but an application review may be required. The cost per inch of stroke is listed below the base price of each cylinder. On models with 1/2" standard stroke length increments, add 1/2 of the per inch price for the 1/2" inch of stroke.

NOTE ON ROD MATERIAL: Please refer to table to determine the maximum stroke lengths for cylinders with carbon steel rods. Stroke lengths greater than those shown require a stainless steel rod.
Specification Details

Fractional Stroke Lengths
Fractional stroke lengths for single and reverse acting cylinders, both standard and nonstandard, require special calculations to determine cylinder dimensions. The following equations apply:

Single Acting Cylinders
Calculate the length of next whole standard increment of stroke, then subtract the difference between desired stroke and next longer whole increment of stroke.

Example: 092.75
090 Base length = 1.94"
Plus 1.56 per inch of stroke = +4.68"
1.56 X 3.0 (next longer stroke increment)
093 length = 6.62
Whole stroke increment = 3.00"
Minus desired stroke = -2.75
Stroke difference = .25 -0.25"
092.75 length = 6.37"

Reverse Acting Cylinders
Calculate length of next longer standard increment of stroke, then subtract twice the difference between desired stroke and next longer standard increment of stroke.

Example: 011.625-RP
010-RP Base length = 2.38"
Plus 1.44 per each 0.5" of stroke = +5.76"
1.44 X 4 (number of standard increments required for the next longer increment)
012-RP length = 8.14
Standard stroke increment = 2.000"
Minus desired stroke = -1.625
Stroke difference = .375
Twice stroke difference = .750 -0.75"
011.625 length = 7.39"

Double Acting Cylinders
Add desired stroke length to base length of cylinder.

Example: 041.25-D
040-D Base length = 2.97"
Plus 1.25 stroke = +1.25"
041.25-D length = 4.22

Spring Forces (approximate)

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Relaxed (lbs)</th>
<th>Compressed (lbs)</th>
<th>Heavy Spring Relaxed (lbs)</th>
<th>Compressed (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot;</td>
<td>.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/16&quot;</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/16&quot;</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td>7.5</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>7</td>
<td>14</td>
<td>8.5</td>
<td>17</td>
</tr>
<tr>
<td>1-3/4&quot;</td>
<td>11</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&quot;</td>
<td>15</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES: Heavy spring option may increase cylinder overall length. Spring forces listed are for whole strokes.
## How To Specify

### Original Line Cylinders

#### How To Specify

#### Specification Details

##### Nose Mount Torque Values

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Torque (IN<em>LB) FT</em>LB</th>
<th>Bore Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4-28 UNF</td>
<td>(27.6) 2.3</td>
<td>5/16” (007)</td>
</tr>
<tr>
<td>3/8-24 UNF</td>
<td>(60) 5</td>
<td>5/16” (007) &amp; 7/16” (01)</td>
</tr>
<tr>
<td>7/16-20 UNF</td>
<td>(84) 7</td>
<td>7/16” (01) &amp; 9/16” (02)</td>
</tr>
<tr>
<td>1/2-20 UNF</td>
<td>(144) 12</td>
<td>3/4” (04)</td>
</tr>
<tr>
<td>5/8-18 UNF</td>
<td>(336) 28</td>
<td>3/4” (04), 7/8” (06) &amp; 1-1/16” (09)</td>
</tr>
<tr>
<td>3/4-16 UNF</td>
<td>(480) 40</td>
<td>3/4” (04), 1-1/16” (09), 1-1/4” (12) &amp; 1-1/2” (17)</td>
</tr>
<tr>
<td>7/8-16 UNF</td>
<td>(780) 65</td>
<td>1-1/16” (09), 1-1/4” (12) &amp; 1-1/2” (17)</td>
</tr>
<tr>
<td>1-1/4 UNF</td>
<td>(1200) 100</td>
<td>1-1/2” (17) &amp; 1-3/4” (24)</td>
</tr>
<tr>
<td>1 1/8-12 UNF</td>
<td>(1320) 110</td>
<td>1-1/2” (17) &amp; 1-3/4” (24)</td>
</tr>
<tr>
<td>1 1/4-12 UNF</td>
<td>(1440) 120</td>
<td>2” (31)</td>
</tr>
<tr>
<td>1 3/8-12 UNF</td>
<td>(1560) 130</td>
<td>2-1/2” (50)</td>
</tr>
<tr>
<td>1 1/2-12 UNF</td>
<td>(1680) 140</td>
<td>3” (70)</td>
</tr>
</tbody>
</table>

##### Pressure Rating

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Line, Cushioned Original Line, NR series, Z-line, MRS and hole punchers:</td>
<td>250 PSI</td>
</tr>
<tr>
<td>PC cylinder:</td>
<td>100 PSI</td>
</tr>
<tr>
<td>Bimba 500 Hydraulic:</td>
<td>500 PSI hydraulic</td>
</tr>
<tr>
<td>Reservoirs:</td>
<td>250 PSI</td>
</tr>
</tbody>
</table>
How To Specify

5/16” Bore Air Cylinders

- Ground and Roller Burnished 303 Stainless Steel Piston Rod Standard
- Force Exerted Approximately 0.07 of Air Line Pressure

Options:
See also: Option Combination Availability Chart

- Ports rotated (K)*
- No thread (NT)
  » Rod guide port rotated 90° clockwise in BF model.
- Side Ported Rear Head (Q)
  » Add .20" to nose mount overall length
- Extra Extension (EE)
- Double Acting Failsafe
  » JS=Spring Return, JR=Spring Extend
  » See pages 59-60 for overall length adders
- Low Temperature (N)
  » Temperature Range: -40° to 200° F
- High Temperature "U" Cups (V)
  » Overall length does not change
  » Temperature Range: 0° to 400° F (-18° to 205°C)

> Enclosed Spring Force: .5lb Relaxed — 1lb Compressed
> Cushion Quiet Bumpers Standard on All Models

> Rod Wiper (W)
  » Not available in standard single acting

> Magnetic Position Sensing (M)
  » Add .15" to overall length
  » Must specify track(s) for use with Bimba’s miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

> Low Pressure Hydraulic (HL)
  » 250 psi maximum
  » Double acting models only
  » Option specified as a prefix

Enter Stroke Length as 4th Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
How To Specify

5/16" Bore Air Cylinders

- Ground and Roller Burnished 303 Stainless Steel Piston Rod Standard
- Force Exerted Approximately 0.07 of Air Line Pressure
- Enclosed Spring Force: .5 lb. Relaxed — 1 lb. Compressed
- Cushion Quiet Bumpers Standard on All Models

☐ Enter Stroke Length as 4th Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
7/16” Bore Air Cylinders

Options:
- Ground and Roller Burnished 303 Stainless Steel Piston Rod Standard
- Ports Rotated (K) (Not available in block mount)
- No Thread (NT)
- Side Ported Rear Head (Q)
  - Add .19” to nose mount overall length
- Pivot Bushing (Y)
  - .157” ID (Use bracket D-12321-A)
- Single And Reverse Acting Bumper (B)
  - Add .062 to overall length; Reverse acting, add .125
- Double Acting Bumper (B)
  - Add .188 to overall length – DXDE; add .250
- Extra Extension (EE)
  - Single, reverse and double acting
  - DXDE, extension added to each end
- Double Acting Failsafe
  - (JS = Spring Return, JR = Spring Extend)
  - See pages 59-60 for overall length adders

**How To Specify**

- Force Exerted Approximately 0.15 of Air Line Pressure
- Enclosed Spring Force: 1lb Relaxed — 2lbs Compressed
- Low Temperature (N)
  - Temperature Range: -40° to 200°F
- High Temperature “U” Cups (V)
  - Temperature Range: 0° to 400°F (-18° to 205°C)
- Magnet (prefix M)
  - Add 0.25” to Double Acting overall length
  - Add 0.20” to Single Acting overall length
  - Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.
- Rod Wiper (W)
  - Not available in standard single acting
- Low Pressure Hydraulic (HL)
  - 250 psi maximum
  - Double acting models only
  - Option specified as a prefix

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
</tbody>
</table>
## How To Specify

### 7/16” Bore Air Cylinders

- **Enter Stroke Length as 3rd Digit**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-D</td>
<td>Double Acting – Air Return – Front Nose Mounting Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4” Maximum Stroke – 12” Stainless Steel Rod Standard Optional Accessory: D-770 Mounting Bracket Base Weight: .07 Adder Per Inch of Stroke: .02</td>
<td><img src="image4.png" alt="Diagram 4" /></td>
</tr>
<tr>
<td>01-DP</td>
<td>Double Acting – Pivot Type – Air Return – Rear Pivot Mounting Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4” Maximum Stroke – 12” Stainless Steel Rod Standard Optional Accessories: D-780 Pivot Brackets D-850 Piston Rod Clevis Base Weight: .08 Adder Per Inch of Stroke: .02</td>
<td><img src="image5.png" alt="Diagram 5" /></td>
</tr>
</tbody>
</table>
### 7/16” Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| BF-01 | Double Acting – Double End Mount – Air Return Standard Stroke Lengths:
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
Maximum Stroke – 6”
Stainless Steel Rod Standard
Optional Accessory:
D-770 Mounting Bracket
Base Weight: .07
Adder Per Inch of Stroke: .04 |
| BF-01-D | Double Acting – Front Block Mounting – Air Return Standard Stroke Lengths:
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
Maximum Stroke – 6”
Stainless Steel Rod Standard
Base Weight: .07
Adder Per Inch of Stroke: .02 |
| BR-01 | Single Acting – Rear Block Mounting for Vertical Positioning – Spring Return Standard Stroke Lengths:
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
Maximum Stroke – 6”
Stainless Steel Rod Standard
Base Weight: .05
Adder Per Inch of Stroke: .04 |

See page 17 for length calculation of fractional stroke for single acting cylinders.
## 7/16" Bore Block Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

## 7/16" Bore Trunnion Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
# How To Specify

## 9/16" Bore Air Cylinders

- Ground and Roller Burnished 303 Stainless Steel Piston Rod Standard

### Options:
- Ports Rotated (K) (Not available in block mount)
- No Thread (NT)
- Side Ported Rear Head (Q)
  - Add .03" to nose mount overall length
- Single And Reverse Acting Bumper (B)
  - Add .062 to overall length
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Double Acting Failsafe
  - (JS = Spring Return, JR = Spring Extend)
  - See pages 59-60 for overall length adders
- Magnet (prefix M)
  - Single and reverse acting add .125" to overall length

### How To Specify

- Force Exerted Approximately 0.25 of Air Line Pressure
- Enclosed Spring Force: 2lbs Relaxed — 4lbs Compressed

- Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See the Switch Products chapter for switch selection information.

- Low Temperature (N)
  - Temperature Range: -40° to 200°F
- High Temperature “U” Cups (V)
  - Temperature Range: 0° to 400°F (-18° to 205°C)
- Rod Wiper (W)
  - Not available in standard single acting
- Low Pressure Hydraulic (HL)
  - 250 psi maximum
  - Double acting models only
  - Option specified as a prefix

### Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
# How To Specify

## 9/16” Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 02-P  | Single Acting – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 6”  
Stainless Steel Rod Standard  
Optional Accessories:  
D-850 Rod Clevis  
D-12321-A Pivot Bracket  
Base Weight: .06  
Adder Per Inch of Stroke: .05 | ![Diagram](image1) See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 02-R  | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”  
Maximum Stroke – 6”  
Stainless Steel Rod Standard  
Optional Accessory:  
D-770 Mounting Bracket  
Base Weight: .08  
Adder Per Inch of Stroke: .04 | ![Diagram](image2) See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 02-RP | Reverse Single Acting – Pivot and Pull Type – Rod Normally Extended – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”  
Maximum Stroke – 6”  
Stainless Steel Rod Standard  
Optional Accessories:  
D-850 Rod Clevis  
D-12321-A Pivot Bracket  
Base Weight: .08  
Adder Per Inch of Stroke: .04 | ![Diagram](image3) See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 02-D  | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 12”  
Stainless Steel Rod Standard  
Optional Accessory:  
D-770 Mounting Bracket  
Base Weight: .09  
Adder Per Inch of Stroke: .02 | ![Diagram](image4) See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 02-DEXP | Double Acting – Double End or Rear Pivot Mounting – Air Return  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 12”  
Stainless Steel Rod Standard  
Optional Accessories:  
D-770 Mounting Bracket  
D-850 Rod Clevis  
D-12321-A Pivot Bracket  
Base Weight: .09  
Adder Per Inch of Stroke: .02 | ![Diagram](image5) See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 02-DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 6”  
Stainless Steel Rod Standard  
Optional Accessory:  
D-770 Mounting Bracket  
D-850 Rod Clevis  
Base Weight: .16  
Adder Per Inch of Stroke: .03 | ![Diagram](image6) See page 17 for length calculation of fractional stroke for single acting cylinders. |
3/4” Bore Air Cylinders

- Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod
- Available as an Option — Bronze Rod Guide Bushing Standard

Options:
- Ports Rotated (K)
- No Thread (NT)
- Side Ported Rear Head (Q)
  » Add .44” to nose mount overall length
- Pivot Bushing (Y)
  » .250” ID
- Single And Reverse Acting Bumper (B)
  » Add .125 to overall length
- Double Acting Bumpers (B)
  » No change in overall length
- Extra Extension (EE)
  » DXDE, extension added to each end
- Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
- Rod Wiper (W) (not available in standard single acting)
  » Now available in block mount
- Heavy Spring (H) (available on single acting and reverse acting)
  » Force Exerted Approximately 0.4 of Air Line Pressure
  » Enclosed Spring Force: 3lbs Relaxed — 6lbs Compressed
  » Rod Wipers Available on D, DP, DXP and DXDE Models

- Magnet (prefix M)
  » Single and reverse acting add .125” to overall length
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See the Switch Products chapter for switch selection information.

- Low Temperature (N)
  » Temperature Range: -40° to 200°F

- High Temperature “U” Cups (V)
  » Temperature Range: 0° to 400°F (-18° to 205°C)

- Stainless Steel Rod (prefix SR)
  » Standard on M option, block mount, DXP and DXDE models

- Low Pressure Hydraulic (HL)
  » 250 psi maximum
  » Option specified as a prefix

- Extra Extension (EE)
  » DXDE, extension added to each end

- Heavy Spring (H)
  » Spring Force: 4 lbs. relaxed — 10 lbs. compressed

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
### 3/4" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 04 P  | Single Acting – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .13  
Adder Per Inch of Stroke: .08 |
| 04 R  | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .18  
Adder Per Inch of Stroke: .07 |
| 04 RP | Reverse Single Acting – Pivot and Pull Type – Rod Normally Extended – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .18  
Adder Per Inch of Stroke: .07 |
| 04 LS or LSC (Conduit Outlet) | Single Acting – Built-in Midget 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting  
- 150 PSI, 3/64" Orifice  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Standard Voltage – 115/60  
Optional Voltages:  
24, 230 A.C. or 6, 12, 24 D.C.  
Optional Accessory:  
D-226 Mounting Bracket  
Base Weight: .38  
Adder Per Inch of Stroke: .08 |
| 04 NRLS or NRLSC (Conduit Outlet) | Single Acting – Non-rotating Hexagon Piston Rod – Built-in Midget 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting  
- 150 PSI, 3/64" Orifice  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Standard Voltage – 115/60  
Optional Voltages:  
24, 230 A.C. or 6, 12, 24 D.C.  
Optional Accessory:  
D-226 Mounting Bracket  
Base Weight: .46  
Adder Per Inch of Stroke: .08 |
3/4" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 04-0  | Double Acting – Air Return – Front Nose Mounting  
Maximum Stroke – 12"  
Optional Stainless Steel Rod  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .21  
Adder Per Inch of Stroke: .03 | See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 04-0D | Double Acting – Pivot Type – Air Return – Rear Pivot Mounting  
Maximum Stroke – 32"  
Optional Stainless Steel Rod  
Optional Rod Wiper  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .21  
Adder Per Inch of Stroke: .03 | See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 04-0DP| Double Acting – Double End or Rear Pivot Mounting – Air Return  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessories:  
D-129 Mounting Bracket  
D-13498-A Pivot Bracket  
D-166-3 Piston Rod Clevis  
Base Weight: .29  
Adder Per Inch of Stroke: .03 | |
| 04-0DXDE| Double Acting – Double End Rod – Air Return – Double End Mounting  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .37  
Adder Per Inch of Stroke: .04 | |
# How To Specify

## 3/4" Bore Block Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

## 3/4" Bore Block Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
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</table>
### 3/4" Bore Block Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR-04</td>
<td>Double Acting – Rear Block – Mounting for Vertical Positioning – Air Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel Rod Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .08</td>
<td></td>
</tr>
</tbody>
</table>

### 3/4" Bore Trunnion Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFT-04</td>
<td>Single Acting – Front Block Trunnion Mounting – Spring Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 6&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel Rod Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: TRB-2 Trunnion Brackets D-166-3 Rod Clevis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .08</td>
<td></td>
</tr>
<tr>
<td>BFT-04 -D</td>
<td>Double Acting – Front Block Trunnion Mounting – Air Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel Rod Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: TRB-2 Trunnion Brackets D-166-3 Rod Clevis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .03</td>
<td></td>
</tr>
</tbody>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

3/4" Bore Trunnion Mounted Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

3/4" Bore Adjustable Stroke Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
7/8" Bore Air Cylinders

- Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard

Options:
- Ports Rotated (K)
- No Thread (NT)
- Side Ported Rear Head (Q)
  - Add .28" to nose mount overall length
- Pivot bushes (Y)
  - .250" ID
- Extra Extension (EE)
  - DXDE, extension added to each end
- Double Acting Failsafe
  - (JS = Spring Return, JR = Spring Extend)
  - See pages 59-60 for overall length adders
- Magnet (prefix M)
  - All models add .125" to overall length
  - Stainless steel rod becomes standard with this option
  - Must specify track(s) for use with miniature position

- Force Exerted Approximately 0.6 of Air Line Pressure
- Enclosed Spring Force: 3lbs Relaxed — 6lbs Compressed
- Cushion Quiet Bumpers Standard on All Models

- Low Temperature (N)
  - Temperature Range: -40° to 200°F
- High Temperature “U” Cups (V)
  - Temperature Range: 0° to 400°F (-18° to 205°C)
- Rod Wiper (W)
  - Not available in standard single acting
- Stainless Steel Rod (prefix SR)
  - Standard on DXP, DXDE, and M option
- Low Pressure Hydraulic (HL)
  - 250 psi maximum
  - Double acting models only
  - Option specified as a prefix

Enter Stroke Length as 3rd Digit

### Model | Description/Weight (Lbs) | Dimensions
--- | --- | ---
06 | Single Acting — Spring Return — Front Nose Mounting Standard Stroke Lengths:
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"
Maximum Stroke — 6"
Optional Stainless Steel Rod
Optional Accessory:
D-129 Mounting Bracket
Base Weight: .17
Adder Per Inch of Stroke: .09
See page 17 for length calculation of fractional stroke for single acting cylinders.

06 - NR | Single Acting — Non-rotating Hexagon Rod — Spring Return — Front Nose Mounting Standard Stroke Lengths:
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"
Maximum Stroke — 6"
Optional Stainless Steel Rod
Optional Accessory:
D-129 Mounting Bracket
Base Weight: .17
Adder Per Inch of Stroke: .09
See page 17 for length calculation of fractional stroke for single acting cylinders.

06 - NRP | Single Acting — Non-rotating Hexagon Rod — Pivot Type — Spring Return — Rear Pivot Mounting Standard Stroke Lengths:
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"
Maximum Stroke — 6"
Optional Stainless Steel Rod
Optional Accessory:
D-166-3 Piston Rod Clevis
D-167 Pivot Brackets
Base Weight: .17
Adder Per Inch of Stroke: .09
See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

7/8” Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 06-P  | Single Acting – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 6”  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: 17  
Adder Per Inch of Stroke: .09 |
| 06-R  | Reverse Single Acting – Pull Type – Rod Normally Extended – Front Nose Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 6”  
Optional Stainless Steel Rod  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .20  
Adder Per Inch of Stroke: .09 |
| 06-RP | Reverse Single Acting – Pivot and Pull Type – Rod Normally Extended – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”  
Maximum Stroke – 6”  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .20  
Adder Per Inch of Stroke: .09 |
| 06-D  | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”, 5”, 6”, 7”, 8”, 9”, 10”, 11”, 12”  
Maximum Stroke – 12”  
Optional Stainless Steel Rod  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .25  
Adder Per Inch of Stroke: .03 |
| 06-DXP| Double Acting – Double End or Rear Pivot Mounting – Air Return  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”, 5”, 6”, 7”, 8”, 9”, 10”, 11”, 12”  
Maximum Stroke – 32”  
Stainless Steel Rod Standard  
Optional Accessories:  
D-166-3 Piston Rod Clevis  
D-129 Mounting Bracket  
D-13498-A Pivot Bracket  
Base Weight: .32  
Adder Per Inch of Stroke: .03 |
| 06-DXDE| Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”, 5”, 6”  
Maximum Stroke – 12”  
Stainless Steel Rod Standard  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .39  
Adder Per Inch of Stroke: .06 |

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

1-1/16" Bore Air Cylinders

> Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard

Options:

> Ports Rotated (K)
  > Front port rotated 90° on BF-090-D.
> No Thread (NT)
> Side Ported Rear Head (Q)
  > Add .25" to nose mount overall length
> Pivot Bushing (Y)
  > .250" ID
> Single And Reverse Acting Bumper (B)
  > Add .125 to overall length
> Double Acting Bumpers (B)
  > Add .125 to overall length
  > Models DXDE and DXDEH add .500
> Extra Extension (EE)
  > DXDE, extension added to each end
  > DXDE hollow rod, extension added to each end
> Double Acting Failsafe
  > (JS = Spring Return, JR = Spring Extend)
  > See pages 59-60 for overall length adders
> Heavy Springs (H) are standard on all single acting block
  > Front and block rear mount and -NRLSC models, and reverse acting except -RA type
  > Spring Force: 6 lbs. relaxed — 12 lbs. compressed

> Force Exerted Approximately 0.9 of Air Line Pressure
> Enclosed Spring Force: 3lbs Relaxed — 6lbs Compressed
> Rod Wipers Available on D, DP, DX and DXDE Models

> Magnet (prefix M)
  > Single acting and DXDE add .125" to overall length
  > Use bumper length adder for DXDE and DXDEH when magnet and bumper are ordered together.
  > Stainless steel rod becomes standard with this option
  > Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products, for switch selection information.

> Low Temperature (N)
  > Temperature Range: -40° to 200°F
> High Temperature “U” Cups (V)
  > Temperature Range: 0° to 400°F (-18° to 205°C)
> Rod Wiper (W)
  > Not available in standard single acting
  > Now available in block mount
> Stainless Steel Rod (prefix SR)
  > Standard on DX, DXDE, DXDEH, All block mountings and M option
> Low Pressure Hydraulic (HL)
  > 250 psi maximum
  > Double acting models only
  > Option specified as a prefix

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
1-1/16" Bore Air Cylinders

**Model** | **Description/Weight (Lbs)** | **Dimensions**
--- | --- | ---
09 □ NRP | Single Acting – Non-Rotating Hexagon Rod – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-1 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .25  
Adder Per Inch of Stroke: .12  
See page 17 for length calculation of fractional stroke for single acting cylinders.

09 □ P | Single Acting – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-1 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .24  
Adder Per Inch of Stroke: .11  
See page 17 for length calculation of fractional stroke for single acting cylinders.

09 □ R | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .24  
Adder Per Inch of Stroke: .16  
See page 17 for length calculation of fractional stroke for single acting cylinders.

09 □ RP | Reverse Single Acting – Pivot and Pull Type – Rod Normally Extended – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-166-1 Piston Rod Clevis  
D-167 Pivot Brackets  
Base Weight: .22  
Adder Per Inch of Stroke: .16  
See page 17 for length calculation of fractional stroke for single acting cylinders.

09 □ S or SC | Single Acting – Built-in 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting – 150 PSI  
1/16" Orifice Standard – 150 PSI, 1/32" Orifice Optional  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Voltage – 115/60  
Optional Voltages:  
24, 230 A.C. or 6, 12, 24 D.C.  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: 1.11  
Adder Per Inch of Stroke: .11  
See page 17 for length calculation of fractional stroke for single acting cylinders.
### 1-1/16" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
1-1/16" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09 DX</td>
<td>Double Acting – Universal Mounting Pivot, or Double End Mounting – Air Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 32&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel Rod Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Rod Wiper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: D-13498-A Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-129 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-166-1 Piston Rod Clevis</td>
<td>Base Weight: .33</td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .05</td>
<td></td>
</tr>
</tbody>
</table>

| 09 DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting                      |            |
|         | Maximum Stroke – 12"                                                                   |            |
|         | Stainless Steel Rod Standard                                                           |            |
|         | Optional Rod Wiper                                                                     |            |
|         | Optional Accessory: D-129 Mounting Bracket                                             | Base Weight: .48 |
|         | Adder Per Inch of Stroke: .07                                                          |            |

| 09 DXDEH | Double Acting – Double End Hollow Rod – Air Return – Double End Mounting               |            |
|          | Maximum Stroke – 12"                                                                   |            |
|          | Stainless Steel Rod Standard                                                           |            |
|          | Optional Accessory: D-129 Mounting Bracket                                             | Base Weight: .47 |
|          | Adder Per Inch of Stroke: .07                                                          |            |

1-1/16" Bore Block Mounted (Spring Force: 6lbs Retracted, 12lbs Extended)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BF-09</td>
<td>Single Acting – Front Block Mounting – Spring Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 6&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel Rod Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .11</td>
<td></td>
</tr>
</tbody>
</table>

| BF-09 D | Double Acting – Front Block Mounting – Air Return                                       |            |
|         | Maximum Stroke – 12"                                                                   |            |
|         | Stainless Steel Rod Standard                                                           |            |
|         | Adder Per Inch of Stroke: .05                                                          |            |

See page 17 for length calculation of fractional stroke for single acting cylinders.
### 1-1/16” Bore Block Mounted (Spring Force: 6lbs Retracted, 12lbs Extended)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| BF-09-R | Pull Type – Front Block Mounting – Rod Normally Extended – Reverse Single Acting – Spring Return  
Maximum Stroke – 6"  
Stainless Steel Rod Standard  
Base Weight: .36  
Adder Per Inch of Stroke: .16 | ![BF-09-R Diagram](image) |
| BF-09-LS or LSC | Built-in Midget 3-Way Solenoid Operated Valve – Single Acting – Spring Return – Front Block Mounting – 150 PSI, 3/64” Orifice  
Maximum Stroke – 6"  
Stainless Steel Rod Standard  
Standard Voltage – 115/60  
Optional Voltages: 24, 230 A.C. or 6, 12, 24 D.C.  
Base Weight: 1.31  
Adder Per Inch of Stroke: .11 | ![BF-09-LS.png](image) |
| BR-09-D | Single Acting – Rear Block Mounting for Vertical Positioning – Spring Return  
Maximum Stroke – 6"  
Stainless Steel Rod Standard  
Base Weight: .36  
Adder Per Inch of Stroke: .16 | ![BR-09-D.png](image) |
| BR-09-R | Pull Type – Rear Block Mounting for Vertical Positioning  
– Rod Normally Extended – Reverse Single Acting – Spring Return  
Maximum Stroke – 6"  
Stainless Steel Rod Standard  
Base Weight: .32  
Adder Per Inch of Stroke: .16 | ![BR-09-R.png](image) |

See page 17 for length calculation of fractional stroke for single acting cylinders.
### Original Line Cylinders

#### How To Specify

**1-1/16” Bore Trunnion Mounted (Spring Force: 6lbs Retracted, 13lbs Extended)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/weight (lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image" alt="Single Acting Front Block Trunnion Mounting" /> See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
<tr>
<td>BFT-09-D</td>
<td>Double Acting – Front Block Trunnion Mounting – Air Return Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4” Maximum Stroke – 12” Stainless Steel Rod Standard Optional Accessories: TRB-2 Trunnion Brackets D-166-1 Rod Clevis Base Weight: .49 Adder Per Inch of Stroke: .05</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Double Acting Front Block Trunnion Mounting" /> See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Single Acting Rear Block Trunnion Mounting" /> See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
<tr>
<td>BRT-09-D</td>
<td>Double Acting – Rear Block Trunnion Mounting – Air Return Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4” Maximum Stroke – 12” Stainless Steel Rod Standard Optional Accessories: TRB-2 Trunnion Brackets D-166-1 Rod Clevis Base Weight: .43 Adder Per Inch of Stroke: .05</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Double Acting Rear Block Trunnion Mounting" /> See page 17 for length calculation of fractional stroke for single acting cylinders.</td>
<td></td>
</tr>
</tbody>
</table>
## 1-1/16” Bore Block Mounted (Spring Force: 6lbs Retracted, 12lbs Extended)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09</td>
<td>A</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Single Acting – Spring Return – Adjustable Stroke – Double End Mounting – Brass Piston Rod
- Bearing and Stroke Adjustment in 1”, 2”, 3”
- 1” Stroke Adjusts 0” – 1”, 2” Stroke
- 1” – 2”, and 3” Stroke 2” – 3”
- Mounting brackets are included.
- Maximum Stroke – 6”
- Optional Stainless Steel Rod
- Base Weight: .58
- Adder Per Inch of Stroke: .11

See page 17 for length calculation of fractional stroke for single acting cylinders.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09</td>
<td>RA</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- 1” Stroke Adjusts 0” – 1”, 2” Stroke
- 1” – 2”, and 3” Stroke 2” – 3”
- Maximum Stroke – 6”
- Optional Stainless Steel Rod
- Optional Accessory: D-129 Mounting Brackets
- Base Weight: .41
- Adder Per Inch of Stroke: .11

See page 17 for length calculation of fractional stroke for single acting cylinders.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09</td>
<td>AP</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Single Acting – Pivot Type – Rear Pivot Mounting – Stroke Adjustment in 1”, 2”, 3”
- 1” Stroke Adjusts 0” – 1”, 2” Stroke
- 1” – 2”, and 3” Stroke 2” – 3”
- Maximum Stroke – 6”
- Optional Stainless Steel Rod
- Optional Accessories:
  - D-166-1 Piston Rod Clevis
  - D-167 Pivot Brackets
- Base Weight: .40
- Adder Per Inch of Stroke: .11

See page 17 for length calculation of fractional stroke for single acting cylinders.

## 1-1/16” Bore Built-in Manual Valve

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09</td>
<td>M</td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
- Maximum Stroke – 6”
- Optional Stainless Steel Rod
- Optional Accessory: D-129 Mounting Bracket
- Base Weight: .45
- Adder Per Inch of Stroke: .11

See page 17 for length calculation of fractional stroke for single acting cylinders.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09</td>
<td>NRM</td>
<td><img src="image5" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- Standard Stroke Lengths: 1/2”, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
- Maximum Stroke – 6”
- Optional Stainless Steel Rod
- Optional Accessory: D-129 Mounting Bracket
- Base Weight: .47
- Adder Per Inch of Stroke: .12

See page 17 for length calculation of fractional stroke for single acting cylinders.
### 1-1/4" Bore Air Cylinders

**>** Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard  
**>** Force Exerted Approximately 1.2 of Air Line Pressure  
**>** Enclosed Spring Force: 7.5lbs Relaxed — 15lbs Compressed  
**>** Cushion Quiet Bumpers Standard

#### Options:
- **Ports Rotated (K)**  
- **No Thread (NT)**  
- **Side Ported Rear Head (Q)**  
- **Pivot Bushing (Y)**  
- **Extra Extension (EE)**  
- **Double Acting Failsafe**  
- **Magnet (prefix M)**  
  - Single acting and DXDE add .125" to overall length  
  - Stainless steel rod becomes standard with this option  
  - Must specify track(s) for use with miniature position

- **Ports Rotated (K)**  
  - Side Ported Rear Head (Q)**  
  - Pivot Bushing (Y)**  
  - Extra Extension (EE)**  
  - Double Acting Failsafe**  
  - Magnet (prefix M)**  
  - Single acting and DXDE add .125" to overall length  
  - Stainless steel rod becomes standard with this option  
  - Must specify track(s) for use with miniature position

#### Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 12    | Single Acting – Spring Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .39  
Adder Per Inch of Stroke: .21  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12-NR | Single Acting – Non-rotating Hexagon Rod – Spring Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .41  
Adder Per Inch of Stroke: .20  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12-NRP | Single Acting – Non-rotating Hexagon Rod – Pivot Type – Spring Return – Rear Pivot or Double End Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-231-1 Piston Rod Clevis  
D-1360 Pivot Brackets  
Base Weight: .41  
Adder Per Inch of Stroke: .20  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
## How To Specify

### 1-1/4" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 12 P  | Single Acting – Pivot Type – Spring Return – Rear Pivot or Double End Mounting  
        Maximum Stroke – 6"  
        Optional Stainless Steel Rod  
        Optional Accessories: D-231-1 Piston Rod Clevis  
        D-1360 Pivot Brackets  
        Base Weight: .53  
        Adder Per Inch of Stroke: .21 | ![Diagram 1](#)  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12 R  | Reverse Single Acting – Pull Type – Rod  
        Normally Extended – Spring Return – Front Nose Mounting  
        Maximum Stroke – 6"  
        Optional Stainless Steel Rod  
        Optional Accessory: D-241 Mounting Bracket  
        Base Weight: .50  
        Adder Per Inch of Stroke: .21 | ![Diagram 2](#)  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12 RP | Reverse Single Acting – Pivot and Pull Type – Rod  
        Normally Extended – Spring Return – Rear Pivot Mounting  
        Maximum Stroke – 6"  
        Optional Stainless Steel Rod  
        Optional Accessories: D-231-1 Piston Rod Clevis  
        D-1360 Pivot Bracket  
        Base Weight: .57  
        Adder Per Inch of Stroke: .21 | ![Diagram 3](#)  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12 LS or LSC | Single Acting – Built-in Midget 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting – 150 PSI, 3/64" Orifice  
        Maximum Stroke – 6"  
        Optional Stainless Steel Rod  
        Standard Voltage – 115/60  
        Optional Voltages: 24, 230 A.C. or 6, 12, 24 D.C.  
        Optional Accessory: D-241 Mounting Bracket  
        Base Weight: 1.30  
        Adder Per Inch of Stroke: .21 | ![Diagram 4](#)  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
| 12 NRLS or NRLSC | Single Acting – Non-rotating Hexagon Piston Rod – Built-in Midget 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting – 150 PSI, 3/64" Orifice  
        Maximum Stroke – 6"  
        Optional Stainless Steel Rod  
        Standard Voltage – 115/60  
        Optional Voltages: 24, 230 A.C. or 6, 12, 24 D.C.  
        Optional Accessory: D-241 Mounting Bracket  
        Base Weight: 1.30  
        Adder Per Inch of Stroke: .21 | ![Diagram 5](#)  
See page 17 for length calculation of fractional stroke for single acting cylinders. |
# How To Specify

## 1-1/4" Bore Air Cylinders

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION/WEIGHT (lbs)</th>
<th>DIMENSIONS</th>
</tr>
</thead>
</table>
| 12 D  | Double Acting – Air Return  
Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .58  
Adder Per Inch of Stroke: .08 | ![Diagram of 12 D Cylinder] |
| 12 DP | Double Acting – Pivot Type – Air Return – Rear  
Pivot or Double End Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-231-1 Piston Rod Clevis  
D-1360 Pivot Brackets  
D-241 Mounting Bracket  
Base Weight: .71  
Adder Per Inch of Stroke: .08 | ![Diagram of 12 DP Cylinder] |
| 12 DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
Stainless Steel Rod Standard  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .98  
Adder Per Inch of Stroke: .12 | ![Diagram of 12 DXDE Cylinder] |
| 12 DXDEH | Double Acting – Double End Hollow Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .97  
Adder Per Inch of Stroke: .12 | ![Diagram of 12 DXDEH Cylinder] |

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

1-1/2" Bore Air Cylinders

> Force Exerted Approximately 1.7 of Air Line Pressure

Options:
> Ports Rotated (K)
  » *Front port rotated 90° on BF models.
> No Thread (NT)
> Side Ported Rear Head (Q)
  » Add .19" to nose mount overall length and DNR; BF and BFT add .38"
> Pivot Bushing (Y)
  » .375" ID (use D-620-1 pivot bracket)
> Single And Reverse Acting Bumpers (B)
  » Add .125 to overall length
> Double Acting Bumpers (B)
  » Add .125 to overall length
> Extra Extension (EE)
  » DXDE, extension added to each end
  » DXDE hollow rod, extension added to each end
> Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
> Heavy Springs (H) are standard on all single acting block
  » Front and block rear mount, and all reverse acting and stroke adjust models.
  » Spring Force: 8.5 lbs. relaxed — 17 lbs. compressed

☐ Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

> Enclosed Spring Force: 7lbs Relaxed — 14lbs Compressed Rod Wipers Available on D, DP, DX, DXDE, and DXDEH Models

> Magnet (prefix M)
  » Single and reverse acting add .125" to overall length
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.
> Low Temperature (N)
  » Temperature Range: -40° to 200°F
> High Temperature “U” Cups (V)
  » Temperature Range: 0° to 400°F (-18° to 205°C)
> Rod Wiper (W)
  » Not available in standard single acting
  » Now available in block mount
> Stainless Steel Rod (prefix SR)
  » Standard on DX, DXDE, DXDEH, DNR, DXNR, All block mounts, and M option
> Low Pressure Hydraulic (HL)
  » 250 psi maximum
  » Double acting models only
  » Option specified as a prefix

See page 17 for length calculation of fractional stroke for single acting cylinders.
# How To Specify

## 1-1/2" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 17 P  | Single Acting – Pivot Type – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-231-1 Piston Rod Clevis  
D-229 Pivot Brackets  
Base Weight: .45  
Adder Per Inch of Stroke: .22 | ![Diagram](image1) |
| 17 R  | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Spring Force 8.5 lbs.  
Extended, 17 lbs. Retracted – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .44  
Adder Per Inch of Stroke: .22 | ![Diagram](image2) |
Extended, 17 lbs. Retracted – Rear Pivot Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-231-1 Piston Rod Clevis  
D-229 Pivot Brackets  
Base Weight: .45  
Adder Per Inch of Stroke: .22 | ![Diagram](image3) |
| 17 S or SC | Single Acting – Built-in 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting – 150 PSI, 1/16" Orifice Standard – 150 PSI, 3/64" Orifice Optional  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Standard Voltage – 115/60  
Optional Voltages:  
24, 230 A.C. or 6, 12, 24 D.C.  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: 1.38  
Adder Per Inch of Stroke: .22 | ![Diagram](image4) |
| 17 NRS or NRSC | Single Acting – Non-rotating Piston Rod – Built-in 3-Way Solenoid Operated Valve – Spring Return – Front Nose Mounting – 150 PSI, 1/16" Orifice Standard – 150 PSI, 3/64" Orifice Optional  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4"  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Standard Voltage – 115/60  
Optional Voltages:  
24, 230 A.C. or 6, 12, 24 D.C.  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: 1.38  
Adder Per Inch of Stroke: .22 | ![Diagram](image5) |
# How To Specify

## 1-1/2" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 17□-D | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Stainless Steel Rod  
Optional Rod Wiper  
Optional Accessory: D-241 Mounting Bracket  
Base Weight: .69  
Adder Per Inch of Stroke: .08 | ![Diagram](image1.png) |
| 17□-DP | Double Acting – Pivot Type – Air Return – Rear Pivot Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Optional Stainless Steel Rod  
Optional Rod Wiper  
Optional Accessories: D-231-1 Piston Rod Clevis  
D-229 Pivot Brackets  
Base Weight: .73  
Adder Per Inch of Stroke: .08 | ![Diagram](image2.png) |
| 17□-DX | Double Acting – Double End Mounting – Air Return  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory: D-241 Mounting Bracket  
Base Weight: .82  
Adder Per Inch of Stroke: .08 | ![Diagram](image3.png) |
| 17□-DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory: D-241 Mounting Bracket  
Base Weight: 1.17  
Adder Per Inch of Stroke: .13 | ![Diagram](image4.png) |
| 17□-DXDEH | Double Acting – Double End Hollow Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory: D-241 Mounting Bracket  
Base Weight: 1.16  
Adder Per Inch of Stroke: .13 | ![Diagram](image5.png) |

## 1-1/2" Bore Double Acting, Non-Rotating Rod (Repair Parts)

<table>
<thead>
<tr>
<th>Part</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod Seal</td>
<td>D-2500</td>
</tr>
<tr>
<td>Rod Bearing</td>
<td>D-2501</td>
</tr>
<tr>
<td>DXNR Rod Guide</td>
<td>D-1117</td>
</tr>
<tr>
<td>DNR Rod Guide (7/8-14 mounting threads)</td>
<td>D-2509</td>
</tr>
</tbody>
</table>
## How To Specify

### 1-1/2" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

### 1-1/2" Bore Adjustable Stroke Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-A</td>
<td>Single Acting – Spring Return – Adjustable Stroke – Double End Mounting – Brass Piston Rod Bearing and Stroke Adjustment in 1&quot; increments to 3&quot; Mounting Brackets are included. 1&quot; Stroke Adjusts 0&quot; to 1&quot;, 2&quot; Stroke 1&quot; to 2&quot;, 3&quot; Stroke 2&quot; to 3&quot; Maximum Stroke – 6&quot; Optional Stainless Steel Rod Base Weight: .75 Adder Per Inch of Stroke: .25</td>
<td>![Diagram 17-A]</td>
</tr>
</tbody>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
# 1-1/2" Bore Built-In Manual Valve Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2&quot; Bore Block Mounted (Spring Force: 8.5lbs Retracted, 17lbs Extended)</td>
<td></td>
<td>![Diagram 3]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
## How To Specify

### 1-1/2” Bore Block Mounted (Spring Force: 8.5lbs Retracted, 17lbs Extended)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
### 1-1/2" Bore Trunnion Mounted (Spring Force: 8.5lbs Retracted, 17lbs Extended)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

1-3/4" Bore Air Cylinders

> Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard
> Force Exerted Approximately 2.4 of Air Line Pressure

> Enclosed Spring Force: 11lbs Relaxed — 24lbs Compressed
> Cushion Quiet Bumpers Standard

Options:

> Ports Rotated (K)
> No Thread (NT)
> Side Ported Rear Head (Q)
  » Add .56" to nose mount overall length
> Pivot Bushing (Y)
  » .375" ID
> Extra Extension (EE)
  » DXDE, extension added to each end
  » DXDE hollow rod, extension added to each end
> Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
> Magnet (prefix M)
  » Single and reverse acting add .125" to overall length
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.

Port Rotated (K)

Options:

- No Thread (NT)
- Side Ported Rear Head (Q)
  » Add .56" to nose mount overall length
- Pivot Bushing (Y)
  » .375" ID
- Extra Extension (EE)
  » DXDE, extension added to each end
  » DXDE hollow rod, extension added to each end
- Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
- Magnet (prefix M)
  » Single and reverse acting add .125" to overall length
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.

Low Temperature (N)

Options:

- High Temperature “U” Cups (V)
  » Temperature Range: 0° to 400°F (-18° to 205°C)
- Rod Wiper (W)
  » Not available in standard single acting
- Stainless Steel Rod (prefix SR)
  » Standard on DXDE, DXDEH
- Low Pressure Hydraulic (HL)
  » 250 psi maximum
  » Double acting models only
  » Option specified as a prefix

See page 59-60 for overall length adders

Magnet (prefix M)

Options:

- No Thread (NT)
- Side Ported Rear Head (Q)
  » Add .56" to nose mount overall length
- Pivot Bushing (Y)
  » .375" ID
- Extra Extension (EE)
  » DXDE, extension added to each end
  » DXDE hollow rod, extension added to each end
- Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
- Magnet (prefix M)
  » Single and reverse acting add .125" to overall length
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.

See Switch Products for switch selection information.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
# How To Specify

## 1-3/4" Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 24 P  | Single Acting – Pivot Type – Spring Return – Rear Pivot or Double End Mounting  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-231-3 Piston Rod Clevis  
D-620-1 Pivot Brackets  
C-1337 Mounting Bracket  
Base Weight: .86  
Adder Per Inch of Stroke: .36 | ![Diagram](image1) |

| 24 R  | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Front Nose Mounting  
Maximum Stroke – 6"  
Optional Stainless Steel Rod  
Optional Accessory:  
C-1337 Mounting Bracket  
Base Weight: 1.17  
Adder Per Inch of Stroke: .31 | ![Diagram](image2) |

| 24 O  | Double Acting – Air Return – Front Nose Mounting  
Maximum Stroke – 12"  
Optional Stainless Steel Rod  
Optional Accessory:  
C-1337 Mounting Bracket  
Base Weight: 1.29  
Adder Per Inch of Stroke: .11 | ![Diagram](image3) |

| 24 DP | Double Acting – Pivot Type – Air Return – Rear Pivot or Double End Mounting  
Maximum Stroke – 32"  
Optional Stainless Steel Rod  
Optional Accessory:  
D-231-3 Piston Rod Clevis  
D-620-1 Pivot Brackets  
C-1337 Mounting Bracket  
Base Weight: 1.64  
Adder Per Inch of Stroke: .11 | ![Diagram](image4) |

| 24 DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessory:  
C-1337 Mounting Bracket  
Base Weight: 1.87  
Adder Per Inch of Stroke: .18 | ![Diagram](image5) |

| 24 DXDEH | Double Acting – Double End Hollow Rod – Air Return – Double End Mounting  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessory:  
C-1337 Mounting Bracket  
Base Weight: 1.80  
Adder Per Inch of Stroke: .16 | ![Diagram](image6) |

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

2" Bore Air Cylinders

> Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard
> Force Exerted Approximately 3.1 of Air Line Pressure

Enclosed Spring Force: 15lbs Relaxed — 30lbs Compressed
Mounting Nuts Not Included

Options:

> Ports Rotated (K)
> No Thread (NT)
> Side Ported Rear Head (Q)
  » Add .38" to nose mount overall length
> Single And Reverse Acting Bumpers (B)
  » Add .125 to overall length
> Double Acting Bumpers (B)
  » Add .250 to overall length
> Extra Extension (EE)
  » DXDE, extension added to each end
> Double Acting Failsafe
  » (JS = Spring Return, JR = Spring Extend)
  » See pages 59-60 for overall length adders
> Magnet (prefix M)
  » Single and reverse acting add .125" to overall length
  » Stainless steel rod becomes standard with this option

Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

> Low Temperature (N)
  » Temperature Range: -40° to 200°F
> High Temperature “U” Cups (V)
  » Temperature Range: 0° to 400°F (-18° to 205°C)
> Rod Wiper (W)
  » Not available in standard single acting
> Stainless Steel Rod (prefix SR)
  » Standard on DXP, DXDE, XP, M option
> Low Pressure Hydraulic (HL)
  » 250 PSI maximum
  » Double acting models only
  » Option specified as a prefix

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/weight (lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
# How To Specify

## 2” Bore Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
### How To Specify

#### 2-1/2" Bore Air Cylinders

- Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard

- Force Exerted Approximately 5.0 of Air Line Pressure
- Double Acting Only
- Mounting Nuts Not Included

#### Options:

- **Ports Rotated (K)**
- **No Thread (NT)**
- **Side Ported Rear Head (Q)** » Add .38" to nose mount overall length
- **Double Acting Bumpers (B)** » Add .250 to overall length
- **Extra Extension (EE)** » DXDE, extension added to each end
- **Magnet (prefix M)** » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

#### Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 50 □ .0 | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 12"  
Optional Stainless Steel Rod  
Optional Accessories:  
D-615-1 Mounting Bracket  
D-2540 Mounting Nut  
Base Weight: 1.98  
Adder Per Inch of Stroke: .17 | ![Diagram 1](image1) |
| 50 □ DXP | Double Acting – Universal Mounting Type – Pivot or Double End – Air Return – Bronze Rod Bushing and Bronze Pivot Bushing  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-231-3 Piston Rod Clevis  
D-615-1 Mounting Bracket  
D-620 Pivot Brackets  
D-2540 Mounting Nut  
Base Weight: 2.27  
Adder Per Inch of Stroke: .17 | ![Diagram 2](image2) |
| 50 □ DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-615-1 Mounting Bracket  
D-2540 Mounting Nut  
Base Weight: 2.32  
Adder Per Inch of Stroke: .34 | ![Diagram 3](image3) |
3" Bore Air Cylinders

> Ground and Polished, High Strength Carbon Steel Piston Rod Standard — 303 Stainless Steel Rod Available as an Option — Bronze Rod Guide Bushing Standard

Options:
> Ports Rotated (K)
> No Thread (NT)
> Side Ported Rear Head (Q)  
  » Add .44" to nose mount overall length
> Double Acting Bumpers (B)  
  » Add .250 to overall length
> Extra Extension (EE)  
  » DXDE, extension added to each end
> Magnet (prefix M)  
  » Stainless steel rod becomes standard with this option
  » Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

» Force Exerted Approximately 7.0 of Air Line Pressure
» Double Acting Only
» Mounting Nuts Not Included

» Low Temperature (N)  
  » Temperature Range: -40° to 200°F
» High Temperature “U” Cups (V)  
  » Temperature Range: 0° to 400°F (-18° to 205°C)
» Rod Wiper (W)  
  » Not available in standard single acting
» Stainless Steel Rod (prefix SR)  
  » Standard on DXP, DXDE, and M option
» Low Pressure Hydraulic (HL)  
  » 250 psi maximum
  » Double acting models only
  » Option specified as a prefix

☐ Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/weight (lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| 70 □ 0 | Double Acting – Air Return – Front Nose Mounting  
  Standard Stroke Lengths:  
  1/2", 1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
  Maximum Stroke – 12"  
  Carbon Steel Piston Rod Standard  
  Optional Stainless Steel Rod  
  Optional Accessories:  
  D-19127 Mounting Bracket  
  D-5379 Mounting Nut  
  Base Weight: 3.34  
  Adder Per Inch of Stroke: .26 |
| 70 □ DXP | Double Acting – Universal Mount Pivot or Double End Mounting  
  Standard Stroke Lengths:  
  Maximum Stroke – 32"  
  Stainless Steel Rod Standard  
  Optional Accessories:  
  D-13512-A Pivot Bracket  
  D-19127 Mounting Bracket  
  D-8314-A Rod Clevis  
  D-5379 Mounting Nut  
  Base Weight: 3.87  
  Adder Per Inch of Stroke: .26 |
| 70 □ DXDE | Double Acting – Double End Rod – Double End Mounting  
  Standard Stroke Lengths:  
  Maximum Stroke – 12"  
  Stainless Steel Rod Standard  
  Optional Accessories:  
  D-19127 Mounting Bracket  
  D-5379 Mounting Nut  
  Base Weight: 4.05  
  Adder Per Inch of Stroke: .52 |
How To Specify

Original Line Stainless Steel Body Options

Many options can be added to our standard cylinders. Options vary by bore size. See individual bore sizes for valid options, pricing and length adders for that size. Consult specific cylinder types in this catalog for options available for those cylinder types.

Option Combination Availability Chart

Due to design or compatibility restrictions, the following options may NOT be ordered in combination. For example, option K (ports rotated) and option Q (side ported rear head) are not a valid combination.

Options NT and EE are available independently, with each other or with all other options or viable option combinations.

<table>
<thead>
<tr>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>W (Wiper)</td>
</tr>
<tr>
<td>B (Bumper)</td>
</tr>
<tr>
<td>V (High Temperature)</td>
</tr>
<tr>
<td>H (Heavy Spring)</td>
</tr>
<tr>
<td>K (Ports Rotated 90°)</td>
</tr>
<tr>
<td>Y (Pivot Bushing)</td>
</tr>
<tr>
<td>N (Low Temperature)</td>
</tr>
<tr>
<td>Q (Side Ported Rear Head)</td>
</tr>
<tr>
<td>HL (Low Pressure Hydraulic)</td>
</tr>
</tbody>
</table>

Overall Length Reductions for Options N & V

The switch track and port orientation when ordering the “Z” (Switch Track) and “K” (Ports Rotated) options on an Original Line MRS cylinder is shown below. Double track option MRS-DXPZK and K cannot be ordered in combination.

NOTES:
1 Option M is designated as a prefix, (ie M-041-DXP). When M is specified, the piston rod will be made of 303 stainless steel. Certain bore sizes and mounting styles offer the stainless rod standard.
2 When bumpers are standard and high or low temperature option is specified, the bumpers are omitted and the overall length of the cylinder may decrease. When bumpers and high temperature are ordered as options on the same cylinder, the bumper material will be standard Buna N.
3 Wipers are available in double acting and reverse single acting models only. Wipers may not be available with certain mounting configurations. Consult the specific bore size in this catalog for detail.
4 When high temperature and the magnetic options are combined, operating temperature remains at 200°F. This combination is recommended when Fluoroelastomer seals are specified for compatibility. When specifying the high temperature and wiper options together, a standard Buna N or Urethane wiper will be provided.
5 Option HL applies only to Double Acting Original Line cylinders and is not available with the following series: Cushion, PC, MRS, NR, Z-Line, DNR, 500 Hydraulic and Multiple Position.

| Double Acting |
| Single Acting |
| 0070-DV | N/A |
| 0070-DXPN | .08” |
| BF-0070-DN | .08” |
| 060-D (V or N) | .22” |
| 060-DXP (V or N) | .22” |
| 060-DXDE (V or N) | .25” |
| 120-D (V or N) | .19” |
| 120-DP (V or N) | .19” |
| 120-DXDE (V or N) | .25” |
| 120-DXDEH (V or N) | .25” |
| 240-D (V or N) | .25” |
| 240-DP (V or N) | .25” |
| 240-DXDE (V or N) | .25” |

0070-0070-N | .04” |
| 0070-XPN | .04” |
| 0070-RN | .04” |
| 0070-RPN | .04” |
| 060-060- (V or N) | .09” |
| 060-060-NR (V or N) | .09” |
| 060-060-RP (V or N) | .125” |
| 060-060-R (V or N) | .125” |
| 120-120- (V or N) | .125” |
| 120-120-NR (V or N) | .125” |
| 120-120-P (V or N) | .125” |
| 120-120-R (V or N) | .125” |
| 120-120-PR (V or N) | .125” |
| 240-240- (V or N) | .125” |
| 240-240-NR (V or N) | .125” |
| 240-240-P (V or N) | .125” |
| 240-240-R (V or N) | .125” |

* 0070 bumpers are high temperature option material and not removed when high temperature option is specified.
### Fail Safe Length Adders (Option JS)

#### Spring Return Length Adder

<table>
<thead>
<tr>
<th>Bore</th>
<th>Type</th>
<th>Overall Length Adder for -JS Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot;</td>
<td>0070-D</td>
<td>1.65 + 0.75 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>0070-DXP</td>
<td>2.04 + 0.75 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-0070-D</td>
<td>1.71 + 0.75 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td>7/16&quot;</td>
<td>010-D, BF-010-D, BF-010-D &amp; BF-010-D</td>
<td>2.17 + 0.94 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>010-DP &amp; 0010-DX</td>
<td>2.61 + 0.94 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-010-D &amp; BRT-010-D</td>
<td>2.49 + 0.94 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>010-DXDE</td>
<td>2.86 + 1.44 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>020-D</td>
<td>2.34 + 1.63 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>020-DXP</td>
<td>2.61 + 1.63 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>020-DXDE</td>
<td>3.00 + 2.63 per 1&quot; of stroke</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>040-D</td>
<td>3.03 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>040-DXP, 040-DXP, BR-040-D &amp; BRT-040-D</td>
<td>3.81 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-040-D &amp; BFT-040-D</td>
<td>3.28 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>040-DXDE</td>
<td>4.06 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>060-D</td>
<td>3.19 (3.10 High Temp.) + 1.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>060-DXP</td>
<td>3.62 (3.72 High Temp.) + 1.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>060-DXDE</td>
<td>4.16 (4.03 High Temp.) + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-1/16&quot;</td>
<td>090-D</td>
<td>4.10 + 1.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>090-DP, 090-DXP</td>
<td>4.00 + 1.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-090-D, BRT-090-D</td>
<td>4.25 + 1.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>090-DXDE</td>
<td>4.25 + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td>120-D</td>
<td>4.38 (4.25 High Temp.) + 1.81 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>120-DP</td>
<td>5.09 (5.03 High Temp.) + 1.81 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>120-DXDE</td>
<td>5.94 (5.81 High Temp.) + 2.81 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-D</td>
<td>3.75 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-DP</td>
<td>4.44 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-DX</td>
<td>4.56 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-170-D, BFT-170-D</td>
<td>4.25 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-170-D, BRT-170-D</td>
<td>4.44 + 1.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-DXDE</td>
<td>5.19 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-3/4&quot;</td>
<td>240-D</td>
<td>5.13 (5.00 High Temp.) + 2&quot; per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>240-DP</td>
<td>6.43 (6.07 High Temp.) + 3&quot; per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>240-DXDE</td>
<td>7.00 (6.87 High Temp.) + 3&quot; per 1&quot; of stroke</td>
</tr>
</tbody>
</table>

### Spring Return Length Adder for 2" Bore

<table>
<thead>
<tr>
<th>Bore</th>
<th>Type</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>310-D</td>
<td>5.95 + stroke 6.95 + stroke 7.20 + stroke 9.14 + stroke</td>
</tr>
<tr>
<td></td>
<td>310-DX</td>
<td>6.88 + stroke 7.88 + stroke 8.13 + stroke 10.07 + stroke</td>
</tr>
<tr>
<td></td>
<td>310-DXDE</td>
<td>7.82 + 2 x stroke 8.82 + 2 x stroke 9.07 + 2 x stroke 11.02 + 2 x stroke</td>
</tr>
</tbody>
</table>

Please use the drawings below as examples of the reference points for the overall length dimensions shown in the tables above. Length is always referenced to the base of the rod thread.

For models not shown in the drawings below (ex., BF, BR, DXDE, etc.), please refer to the applicable catalog drawing of the base model (double acting) without the failsafe option to determine your reference points for determining overall length.
How To Specify

Fail Safe Length Adders (Option JR)

<table>
<thead>
<tr>
<th>Bore</th>
<th>Type</th>
<th>Overall Length Adder for -JR Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot;</td>
<td>0070-D</td>
<td>1.65 + 1.25 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>0070-DXP</td>
<td>2.04 + 1.25 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-0070-D</td>
<td>1.71 + 1.25 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td>7/16&quot;</td>
<td>010-D, BF-010-D &amp; BFT-010-D</td>
<td>2.17 + 1.44 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>010-DP &amp; 0010-DX</td>
<td>2.61 + 1.44 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-010-D &amp; BRT-010-D</td>
<td>2.49 + 1.44 per 0.50&quot; of stroke</td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>020-D</td>
<td>2.34 + 2.63 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>020-DXP</td>
<td>2.61 + 2.63 per 1&quot; of stroke</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>040-D</td>
<td>3.03 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>040-DP, 040-DXP, BR-040-D &amp; BRT-040-D</td>
<td>3.81 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-040-D &amp; BFT-040-D</td>
<td>3.28 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>060-D</td>
<td>3.38 (3.50 SR) + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>060-DXP</td>
<td>3.82 (3.72 High Temp.) + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-1/16&quot;</td>
<td>090-D, 090-DXP</td>
<td>4.10 + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-090-D, BFT-090-D</td>
<td>4.00 + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-090-D, BRT-090-D</td>
<td>4.25 + 2.56 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td>120-D</td>
<td>4.38 (4.25 High Temp.) + 2.81 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>120-DP</td>
<td>5.09 (5.05 High Temp.) + 2.81 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>170-D</td>
<td>3.75 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-DP</td>
<td>4.44 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>170-DX</td>
<td>4.56 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BF-170-D, BFT-170-D</td>
<td>4.25 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>BR-170-D, BRT-170-D</td>
<td>4.44 + 2.69 per 1&quot; of stroke</td>
</tr>
<tr>
<td>1-3/4&quot;</td>
<td>240-D</td>
<td>5.13 (5.00 High Temp.) + 3&quot; per 1&quot; of stroke</td>
</tr>
<tr>
<td></td>
<td>240-DP</td>
<td>6.43 (6.07 High Temp.) + 3&quot; per 1&quot; of stroke</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bore</th>
<th>Type</th>
<th>Spring Extend Length Adder for 2&quot; Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>310-D</td>
<td>5.95 + 2 x stroke</td>
</tr>
<tr>
<td></td>
<td>310-DXP</td>
<td>6.88 + 2 x stroke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot; to 2&quot; Stroke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.95 + 2 x stroke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.88 + 2 x stroke</td>
</tr>
<tr>
<td>2&quot; to 3&quot;</td>
<td>310-D</td>
<td>7.20 + 2 x stroke</td>
</tr>
<tr>
<td></td>
<td>310-DXP</td>
<td>8.13 + 2 x stroke</td>
</tr>
<tr>
<td>3&quot; to 4&quot;</td>
<td>310-D</td>
<td>9.14 + 2 x stroke</td>
</tr>
<tr>
<td></td>
<td>310-DXP</td>
<td>10.07 + 2 x stroke</td>
</tr>
</tbody>
</table>

Please use the drawings below as examples of the reference points for the overall length dimensions shown in the tables above. Length is always referenced to the base of the rod thread.

For models not shown in the drawings below (ex., BF, BR, DXDE, etc.), please refer to the applicable catalog drawing of the base model (double acting) without the failsafe option to determine your reference points for determining overall length.

---

**Original Line Cylinders**

BIMBA BIM-PFL-0119 Catalog 2019 | For Technical Assistance: 800-442-4622
Switch Track Kit Options

For Original Line cylinders, including MRS cylinders, with -T2, T3, and T4 options

<table>
<thead>
<tr>
<th>Option</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2</td>
<td>0.29</td>
</tr>
<tr>
<td>T3</td>
<td>0.23</td>
</tr>
<tr>
<td>T4</td>
<td>.25</td>
</tr>
</tbody>
</table>

Miniature Position Sensing track lengths can now be purchased separately for field mounting of custom track locations. Simply specify the length of track desired after the part number.

Mounting recommendations:
> Clean body with acetone. Remove all oil from body surface.
> Avoid mounting track over rolled construction. Locate edge of track 0.175” from rolled construction.
> Use a solid continuous bead of glue for the entire length of track used. Bead should fill center channel of track.
> Adhere to recommended cure times as specified by the glue manufacturer.

<table>
<thead>
<tr>
<th>Bores</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>007 - 04</td>
<td>D-74168-A-length</td>
</tr>
<tr>
<td>06 - 31</td>
<td>D-78527-A-length</td>
</tr>
<tr>
<td>50 - 70</td>
<td>D-78528-A-length</td>
</tr>
</tbody>
</table>

Locite U-05FL or similar adhesive is recommended (not included).
How to Accessorize

**5/16" Bore Accessories**

**D-3229-A**

Aluminum Alloy Barbed Fitting

1/4" Hose (O.D.) Barbed Fitting Supplied with Gasket, No. 10-32 to 1/4" O.D. Tubing.

**D-26731**

Mounting Bracket (for Single Acting Models)

**D-26765**

Mounting Bracket (for Double Acting Models)

**D-26689**

Pivot Bracket with Pin

**D-855-A**

Adaptors (10-32 to 1/8 NPT Female) Supplied with Gasket

**D-26690**

Piston Rod Clevis (with Pin)

**D-344**

Mounting Nut

**D-801**

Mounting Nut
**How to Accessorize**

### 7/16" Bore Accessories

**D-775**
- Mounting Bracket (for Single Acting Models)

**D-770**
- Mounting Bracket (for Double Acting Models)

**D-780**
- Pivot Brackets

**TRB-1**
- Trunnion Brackets

**D-3229-A**
- Aluminum Alloy Barbed Fitting, 1/4" Hose (O.D.) Barbed Fitting Supplied with Gasket, No. 10-32 to 1/4" O.D. Tubing

**D-850**
- Piston Rod Clevis

**D-855-A**
- Adaptors (10-32 to 1/8 NPT Female) Supplied with Gasket

**D-801**
- Mounting Nut

**D-154**
- Mounting Nut
How to Accessorize

9/16" Bore Accessories

D-770: Mounting Bracket

D-850: Piston Rod Clevis

D-12321-A: Pivot Bracket with Pin

D-154: Mounting Nut
3/4" Bore Accessories

**Mounting Bracket (for Single Acting Models)**

- **D-226**
- **D-13498-A**
- **D-9**

**Mounting Bracket (for Double Acting Models)**

- **D-129**
- **TRB-2**
- **D-98**

**Pivot Brackets**

- **D-167**

**Trunnion Brackets**

- **D-166-3**

**Piston Rod Clevis**

- **D-98**
How to Accessorize

**7/8" Bore Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-129</td>
<td>Mounting Bracket</td>
</tr>
<tr>
<td>D-13498-A</td>
<td>Pivot Bracket</td>
</tr>
<tr>
<td>D-167</td>
<td>Pivot Bracket</td>
</tr>
</tbody>
</table>

**1-1/16" Bore Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-129</td>
<td>Mounting Bracket (for Single &amp; Double Acting Models)</td>
</tr>
<tr>
<td>D-13498-A</td>
<td>Pivot Bracket</td>
</tr>
<tr>
<td>D-167</td>
<td>Pivot Bracket</td>
</tr>
<tr>
<td>TRB-2</td>
<td>Trunnion Brackets</td>
</tr>
<tr>
<td>D-166-1</td>
<td>Piston Rod Clevis</td>
</tr>
<tr>
<td>D-9</td>
<td>Mounting Nut</td>
</tr>
</tbody>
</table>
1-1/4" Bore Accessories

D-241
Mounting Bracket (for Single & Double Acting Models)

D-1360
Pivot Brackets

D-231-1
Piston Rod Clevis

D-3556
Mounting Nut
How to Accessorize

1-1/2" Bore Accessories

- **D-241**: Mounting Bracket
- **D-229**: Pivot Bracket
- **TRB-2**: Trunnion Brackets
- **D-2669**: Mounting Bracket
- **D-231-1**: Piston Rod Clevis
- **D-8310-A**: Rod Clevis
- **D-3556**: Mounting Nut
- **D-2545**: Mounting Nut
How to Accessorize

1-3/4" Bore Accessories

- C-1337
- D-620-1
- D-231-3

Mounting Bracket
Pivot Brackets
Piston Rod Clevis

Mounting Nut

2" Bore Accessories

- D-615
- D-620
- D-231-3

Mounting Bracket
Pivot Brackets
Piston Rod Clevis

Mounting Nut
How to Accessorize

2-1/2" Bore Accessories

D-615-1
Mounting Bracket

D-620
Pivot Brackets

D-231-3
Piston Rod Clevis

D-2540
Mounting Nut

3" Bore Accessories

D-13512-A
Pivot Bracket

D-8314-A
Rod Clevis

D-19127
Mounting Bracket

D-5379
Mounting Nut
The model number of all Original Line pneumatic actuators consists of an alphanumeric cluster designating product type, bore size, stroke length, mounting styles, 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 double-acting Original Line unit with a rear block, 7/16” bore, 3” stroke, and additional options is shown below.

Bimba has made sizing a cylinder as easy as knowing the model number. Each base model number is developed by calculating the area of the cylinder bore. This area, or Power Factor, will provide the force the cylinder will exert when multiplied by the airline pressure.

### Approximate Power Factors

<table>
<thead>
<tr>
<th>Bore Size/Power Factor</th>
<th>Power Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot;</td>
<td>0.07</td>
</tr>
<tr>
<td>7/16&quot;</td>
<td>0.15</td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>0.25</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>0.40</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>0.60</td>
</tr>
<tr>
<td>1-1/16&quot;</td>
<td>0.90</td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td>1.20</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>1.7</td>
</tr>
<tr>
<td>1-3/4&quot;</td>
<td>2.40</td>
</tr>
<tr>
<td>2&quot;</td>
<td>3.10</td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>5.00</td>
</tr>
<tr>
<td>3&quot;</td>
<td>7.00</td>
</tr>
</tbody>
</table>

**FORC**E = Airline Pressure x Piston Area  
**PISTON AREA** = Bimba Power Factor  
**FORC**E = Airline Pressure x Bimba Power Factor
How to Customize

Common Customization Options

Bimba provides a wide variety of common customization options for Original Line cylinders, including:

- Custom labeling
- Pre-assembled flow controls in cylinder ports
- New end cap mounting geometries
- Special component materials
- Unique testing requirements
- Manifold-based consolidated circuits
- Rate controls

Beyond the common customization options, Bimba offers our full support in developing a custom solution that’s perfectly tailored to the needs of your application. We bring over 60 years of experience to the customization process, backing your group up with our expert team of engineers, machinists, and salespeople from concept to creation.

Contact your local Bimba distributor or the factory directly to learn more.
Three Position Original Line Cylinders

The "Blue and Improved" 3-Position Original Line® cylinder features permanent grease lubrication. Design enhancements have more than doubled the anticipated service life of this non-repairable stainless steel body cylinder offering three distinct stopping points in its travel. This double acting cylinder is an example of our industry leading product breadth in non-repairable cylinders.

- Bore sizes: 9/16", 3/4", 1-1/16", 1-1/2", 2"
- 3 Model Options: Standard; Magnetic piston for end of stroke sensing; Non-rotating rod
- Standard Options: Bumpers, Alternate Port Location, Rod Wiper, Switch Track, and more
- Low and High Temperature Lubrication and Seals
- Blue and Improved design doubles previous cylinder life
- Permanent grease lubricant requires no additional lubrication during service
# How To Specify

## Dimensions (Three Position Original Line Cylinders)

**D Mounting Style (in)**

<table>
<thead>
<tr>
<th>Bore</th>
<th>Aa</th>
<th>Ba</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>Aa</th>
<th>Ba</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>4.12</td>
<td>2.25</td>
<td>0.75</td>
<td>#10-32</td>
<td>0.38</td>
<td>0.06</td>
<td>N/A</td>
<td>0.50</td>
<td>7/16-20</td>
<td>N/A</td>
<td>#10-32</td>
<td>.434/.437</td>
<td>0.19</td>
<td>0.50</td>
<td>0.62</td>
<td>4.31</td>
<td>2.31</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>5.47</td>
<td>3.12</td>
<td>0.97</td>
<td>1/8 NPT</td>
<td>0.50</td>
<td>0.09</td>
<td>N/A</td>
<td>0.50</td>
<td>5/8-18</td>
<td>N/A</td>
<td>1/4-28</td>
<td>.621/.624</td>
<td>0.19</td>
<td>0.62</td>
<td>0.81</td>
<td>5.47</td>
<td>3.12</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>5.97</td>
<td>3.25</td>
<td>1.19</td>
<td>1/8 NPT</td>
<td>0.62</td>
<td>0.09</td>
<td>0.12</td>
<td>0.50</td>
<td>5/8-18</td>
<td>0.25</td>
<td>5/16-24</td>
<td>.621/.624</td>
<td>0.19</td>
<td>0.88</td>
<td>1.12</td>
<td>6.09</td>
<td>3.25</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>6.5</td>
<td>3.69</td>
<td>1.50</td>
<td>1/8 NPT</td>
<td>0.88</td>
<td>0.09</td>
<td>0.25</td>
<td>0.75</td>
<td>3/4-16</td>
<td>0.38</td>
<td>7/16-20</td>
<td>.746/.749</td>
<td>0.25</td>
<td>0.88</td>
<td>1.56</td>
<td>6.62</td>
<td>3.69</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>8.25</td>
<td>4.78</td>
<td>1.92</td>
<td>1/4 NPT</td>
<td>1.19</td>
<td>0.12</td>
<td>0.38</td>
<td>0.88</td>
<td>1-1/4-12</td>
<td>0.50</td>
<td>1/2-20</td>
<td>1.375/1.372</td>
<td>0.31</td>
<td>1.25</td>
<td>2.09</td>
<td>8.62</td>
<td>4.91</td>
</tr>
</tbody>
</table>

**DXP Mounting Style (in)**

<table>
<thead>
<tr>
<th>Bore</th>
<th>Aa</th>
<th>Ba</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>DXP Model</th>
<th>Bumper Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>4.41</td>
<td>2.25</td>
<td>0.75</td>
<td>#10-32</td>
<td>0.38</td>
<td>0.06</td>
<td>N/A</td>
<td>0.50</td>
<td>7/16-20</td>
<td>N/A</td>
<td>0.50</td>
<td>0.50</td>
<td>0.38</td>
<td>0.31</td>
<td>0.62</td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>6.25</td>
<td>3.12</td>
<td>0.97</td>
<td>1/8 NPT</td>
<td>0.50</td>
<td>0.09</td>
<td>N/A</td>
<td>0.50</td>
<td>5/8-18</td>
<td>N/A</td>
<td>0.50</td>
<td>0.50</td>
<td>0.38</td>
<td>0.31</td>
<td>0.62</td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>6.5</td>
<td>3.25</td>
<td>1.19</td>
<td>1/8 NPT</td>
<td>0.62</td>
<td>0.09</td>
<td>0.12</td>
<td>0.50</td>
<td>5/8-18</td>
<td>0.25</td>
<td>5/16-24</td>
<td>.621/.624</td>
<td>0.19</td>
<td>0.88</td>
<td>1.12</td>
<td>6.09</td>
<td>3.25</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>7.18</td>
<td>3.69</td>
<td>1.50</td>
<td>1/8 NPT</td>
<td>0.88</td>
<td>0.09</td>
<td>0.25</td>
<td>0.75</td>
<td>3/4-16</td>
<td>0.38</td>
<td>7/16-20</td>
<td>.746/.749</td>
<td>0.25</td>
<td>0.88</td>
<td>1.56</td>
<td>6.62</td>
<td>3.69</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>9.19</td>
<td>4.78</td>
<td>1.92</td>
<td>1/4 NPT</td>
<td>1.19</td>
<td>0.12</td>
<td>0.38</td>
<td>0.88</td>
<td>1-1/4-12</td>
<td>0.50</td>
<td>1/2-20</td>
<td>1.375/1.372</td>
<td>0.31</td>
<td>1.25</td>
<td>2.09</td>
<td>8.62</td>
<td>4.91</td>
</tr>
</tbody>
</table>

**DXP Model**

<table>
<thead>
<tr>
<th>Bore</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>Aa</th>
<th>Ba</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>#10-32</td>
<td>.434/.437</td>
<td>0.38</td>
<td>0.31</td>
<td>0.62</td>
<td>0.25</td>
<td>0.19</td>
<td>0.157</td>
<td>4.59</td>
<td>2.31</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>1/4-28</td>
<td>.621/.624</td>
<td>0.62</td>
<td>0.38</td>
<td>0.86</td>
<td>0.34</td>
<td>0.28</td>
<td>0.250</td>
<td>6.25</td>
<td>3.12</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>5/16-24</td>
<td>.621/.624</td>
<td>0.62</td>
<td>0.38</td>
<td>1.12</td>
<td>0.34</td>
<td>0.28</td>
<td>0.250</td>
<td>6.68</td>
<td>3.25</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>7/16-20</td>
<td>.746/.749</td>
<td>0.81</td>
<td>0.62</td>
<td>1.56</td>
<td>0.50</td>
<td>0.38</td>
<td>0.375</td>
<td>7.31</td>
<td>3.69</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>1/2-20</td>
<td>1.375/1.372</td>
<td>1.03</td>
<td>0.75</td>
<td>2.08</td>
<td>0.56</td>
<td>0.44</td>
<td>0.500</td>
<td>9.56</td>
<td>4.91</td>
</tr>
</tbody>
</table>
The model number of all Three-Position Original Line 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 double-acting Three-Position Original Line unit with a 3/4” bore, 3” stroke for position A, additional 4-1/2” stroke for position B, and additional options is shown below.

**How to Order**

**Specifications**

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected life:</td>
<td>3,000 miles without additional lubrication when properly applied</td>
</tr>
<tr>
<td>Total stroke tolerance:</td>
<td></td>
</tr>
<tr>
<td>9/16” - 1-1/2”</td>
<td>+.075/-040</td>
</tr>
<tr>
<td>2”</td>
<td>+.095/-060</td>
</tr>
<tr>
<td>Operating medium:</td>
<td>Air only</td>
</tr>
<tr>
<td>Maximum operating pressure:</td>
<td>250 psi</td>
</tr>
<tr>
<td>Temperature range:</td>
<td>-20°F to 200°F</td>
</tr>
<tr>
<td>Standard lubrication:</td>
<td>Semi-synthetic grease</td>
</tr>
<tr>
<td>Endcaps, center section, and piston material:</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Cylinder body:</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>Piston and rod seals:</td>
<td>Buna N “U” cups</td>
</tr>
<tr>
<td>Rod and pivot bushings:</td>
<td>Sintered bronze</td>
</tr>
<tr>
<td>Piston rod:</td>
<td>303 stainless steel</td>
</tr>
</tbody>
</table>

**Weights (lbs)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Base Weight</th>
<th>Adder per inch of Combined Stroke*</th>
</tr>
</thead>
<tbody>
<tr>
<td>020/0-D</td>
<td>.13</td>
<td>Total combined stroke x .02</td>
</tr>
<tr>
<td>020/0-DXP</td>
<td>.13</td>
<td>Total combined stroke x .02</td>
</tr>
<tr>
<td>040/0-D</td>
<td>.24</td>
<td>Total combined stroke x .03</td>
</tr>
<tr>
<td>040/0-DXP</td>
<td>.32</td>
<td>Total combined stroke x .03</td>
</tr>
<tr>
<td>090/0-D</td>
<td>.36</td>
<td>Total combined stroke x .05</td>
</tr>
<tr>
<td>090/0-DXP</td>
<td>.45</td>
<td>Total combined stroke x .05</td>
</tr>
<tr>
<td>170/0-D</td>
<td>.96</td>
<td>Total combined stroke x .08</td>
</tr>
<tr>
<td>170/0-DXP</td>
<td>1.09</td>
<td>Total combined stroke x .08</td>
</tr>
<tr>
<td>310/0-D</td>
<td>2.25</td>
<td>Total combined stroke x .15</td>
</tr>
<tr>
<td>310/0-DXP</td>
<td>2.47</td>
<td>Total combined stroke x .15</td>
</tr>
</tbody>
</table>

*Total combined stroke = (2 x Stroke A) + Stroke B

For accessories, see the standard air cylinder accessories section, pages 62-70.
Product Features

Adjustable Cushion Air Cylinders

- Readily accessible cushion needle for easy adjustment
- Double acting models
- Rated 250 PSI
- 304 Stainless steel body - mirror finish I.D.
- High strength aluminum alloy porting ends
- Ground and roller burnished 303 stainless steel piston rod standard
- Buna N “U” cup seals
- Low breakaway friction - less than 5 PSI
- Special stroke lengths available on request

Cylinders are supplied with adjustable cushions on both ends. To order cushion on one end only, specify CF (front head cushion only), or CR (rear head cushion only), or CS (one end only) and deduct from base price as shown.

(ex: 3/4” bore, cushion on front head only - CF-04-D;
3/4” bore, cushion on rear head only - CR-04-D;
3/4” DXDE model, cushion on one side only - CS-04-DXDE)

Options:

- No Thread (NT)
  » Available on 3/4", 1-1/16" and 1-1/2" bores
- Pivot Bushing (Y)
  » .250” ID
- Extra Extension (EE)
- Ports Rotated (K)*
  » Rotates ports and cushion screw location 90° clockwise
- Magnetic Piston (prefix M)
- Mini Switch Tracks on all bore sizes
  » Must specify track(s) for use with Bimba's miniature position sensing (T2, T3, T4. See page 61 for track location details. See Switch Products for switch selection information.
- High Temperature Seals (V)
- Rod Wiper (W) (Available on 3/4", 1-1/16" and 1-1/2" bores)
  » *Consult local distributor for pricing.
# How To Specify

## 3/4” Bore Air Cylinders with Adjustable Cushions

- **Enter Stroke Length as 3rd Digit**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| C-04  | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .24  
Adder Per Inch of Stroke: .03 |
| C-04  | Double Acting – Double End or Rear Pivot Mounting – Air Return  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessories:  
D-129 Mounting Bracket  
D-13498-A Pivot Bracket  
D-166-3 Piston Rod Clevis  
Base Weight: .29  
Adder Per Inch of Stroke: .03 |
| C-04  | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1", 2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .30  
Adder Per Inch of Stroke: .06 |
1-1/16" Bore Air Cylinders with Adjustable Cushions

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| C-09 □ D | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .38  
Adder Per Inch of Stroke: .04 | ![Dimension Diagram](image1) |
| C-09 □ DXP | Double Acting – Universal Mounting Pivot, or Double End Mounting – Air Return  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessories:  
D-13498-A Pivot Bracket  
D-129 Mounting Bracket  
D-166-1 Piston Rod Clevis  
Base Weight: .44  
Adder Per Inch of Stroke: .04 | ![Dimension Diagram](image2) |
| C-09 □ DxDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1", 2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .46  
Adder Per Inch of Stroke: .08 | ![Dimension Diagram](image3) |
# How To Specify

## 1-1/2" Bore Air Cylinders with Adjustable Cushions

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| C-17 D | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .76  
Adder Per Inch of Stroke: .09 | ![Diagram](image1.png) |
| C-17 DP | Double Acting – Pivot Type – Air Return –  
Rear Pivot Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessories:  
D-231-1 Piston Rod Clevis  
D-229 Pivot Brackets  
Base Weight: .77  
Adder Per Inch of Stroke: .09 | ![Diagram](image2.png) |
| C-17 DXP | Double Acting – Double End Mounting – Air Return  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .84  
Adder Per Inch of Stroke: .09 | ![Diagram](image3.png) |
| C-17 DXDE | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Rod Wiper  
Optional Accessory:  
D-241 Mounting Bracket  
Base Weight: .90  
Adder Per Inch of Stroke: .18 | ![Diagram](image4.png) |
## 2" Bore Air Cylinders with Adjustable Cushions

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
## 2-1/2" Bore Air Cylinders with Adjustable Cushions

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| **C-50 □-D** | Double Acting – Air Return – Front Nose Mounting  
Standard Stroke Lengths:  
1", 1-1/2", 2", 2-1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-615-1 Mounting Bracket  
D-2540 Mounting Nut  
Base Weight: 2.21  
Adder Per Inch of Stroke: .17 | ![Diagram of C-50 □-D model](image1.png) |
| **C-50 □-DXP** | Double Acting – Universal Mounting Pivot, or Double End Mounting – Air Return  
Standard Stroke Lengths:  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-615-1 Mounting Bracket  
D-620 Pivot Bracket  
D-231-3 Piston Rod Clevis  
D-2540 Mounting Nut  
Base Weight: 2.33  
Adder Per Inch of Stroke: .17 | ![Diagram of C-50 □-DXP model](image2.png) |
| **C-50 □-DXDE** | Double Acting – Double End Rod – Air Return – Double End Mounting  
Standard Stroke Lengths:  
1", 2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-615-1 Mounting Bracket  
D-2540 Mounting Nut  
Base Weight: 2.38  
Adder Per Inch of Stroke: .34 | ![Diagram of C-50 □-DXDE model](image3.png) |
3" Bore Air Cylinders with Adjustable Cushions

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| C-70 D | Double Acting – Air Return – Front Nose Mounting  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-19127 Mounting Bracket  
D-5379 Mounting Nut  
Base Weight: 3.81  
Adder Per Inch of Stroke: .26 | ![Dimensions Diagram] |
| C-70 DXP | Double Acting – Pivot Type – Air Return –  
Rear Pivot Mounting  
Maximum Stroke – 32"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-8314-A Piston Rod Clevis  
D-13512-A Pivot Brackets  
D-5379 Mounting Nut  
Base Weight: 3.97  
Adder Per Inch of Stroke: .26 | ![Dimensions Diagram] |
| C-70 DXDE | Double Acting – Double End Rod – Air Return –  
Double End Mounting  
Maximum Stroke – 12"  
Stainless Steel Rod Standard  
Optional Accessories:  
D-19127 Mounting Bracket  
D-5379 Mounting Nut  
Base Weight: 4.15  
Adder Per Inch of Stroke: .52 | ![Dimensions Diagram] |

Accessories

For accessories, see the standard air cylinder accessories section, pages 62-70.
MRS® Magnetic Reed Switch Air Cylinders

Specifically designed to operate Bimba position sensing switches to actuate programmable controllers, relays, solenoids, timers, or any other electrically operated equipment. MRS cylinders have an additional groove in the piston to accommodate a magnet. They differ from the M option because they combine features of the “Z” line with Original Line construction; check dimensional drawings for each size for more specific information. Type 303 stainless steel rods are standard.

Options:

- **No Thread (NT)**
- **Switch Track for Miniature Switches (T2, T3, T4)**
  - Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.
- **Switch Track for Heavy Duty Track Mounted Switches**
  - Must specify Z for one track, ZTT for 2 tracks. See Switch Products for switch selection information.
- **Double Acting Bumpers (B)**
  - 9/16", add .125" to length
  - 3/4" and 11/16" add .250" to length
  - 1-1/4" and 1-1/2" add .250" to length
  - 1-3/4", 2" and 2-1/2" add .250" to length
- **Extra Extension (EE)**
- **Fluoroelastomer/High Temperature Seal (V)**
- **Ports Rotated 90 (K)**
- **Side Ported Rear Head (Q)**

*Consult local distributor for pricing.
# How To Specify

## 9/16” Bore MRS® Magnetic Reed Switch Air Cylinders

- Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| MRS-02 D  | Nose Mount  
Nose Mount  
Maximum Stroke – 12"  
Optional Accessory: D-770 Mounting Bracket  
Base Weight: .10  
Adder Per Inch of Stroke: .01 | ![Diagram](image1) |
| MRS-02 DXP  | Double End or Rear Pivot Mounting  
Double End or Rear Pivot Mounting  
Maximum Stroke – 12"  
Optional Accessories: D-12321-A Pivot Bracket  
D-770 Mounting Bracket  
D-850 Rod Clevis  
Base Weight: .10  
Adder Per Inch of Stroke: .01 | ![Diagram](image2) |
| MRS-02 DXDE  | Double End Rod – Double End Mounting  
Double End Rod – Double End Mounting  
Maximum Stroke – 12"  
Optional Accessory: D-770 Mounting Bracket  
Base Weight: .14  
Adder Per Inch of Stroke: .02 | ![Diagram](image3) |
### 3/4” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| MRS-04 □ -D | Nose Mount  
Standard Stroke Lengths: 
1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .24  
Adder Per Inch of Stroke: .04 | ![Diagram](image1) |
| MRS-04 □ -DXP | Double End or Rear Pivot Mounting  
Standard Stroke Lengths: 
Maximum Stroke – 32"  
Optional Accessories:  
D-10131-A Pivot Bracket  
D-129 Mounting Bracket  
Base Weight: .30  
Adder Per Inch of Stroke: .06 | ![Diagram](image2) |
| MRS-04 □ -DXDE | Double End Rod – Double End Mounting  
Standard Stroke Lengths: 
1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Accessory:  
D-129 Mounting Bracket  
Base Weight: .41  
Adder Per Inch of Stroke: .06 | ![Diagram](image3) |

### 1-1/16” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| MRS-09 □ -D | Nose Mount  
Standard Stroke Lengths: 
1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Accessory:  
D-8315 Mounting Bracket  
Base Weight: .37  
Adder Per Inch of Stroke: .05 | ![Diagram](image4) |
| MRS-09 □ -DXP | Double End or Rear Pivot Mounting  
Standard Stroke Lengths: 
Maximum Stroke – 32"  
Optional Accessories:  
D-8315 Mounting Bracket  
D-8309-A Rod Clevis  
Base Weight: .42  
Adder Per Inch of Stroke: .05 | ![Diagram](image5) |
| MRS-09 □ -DXDE | Double End Rod – Double End Mounting  
Standard Stroke Lengths: 
1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6"  
Maximum Stroke – 12"  
Optional Accessory:  
D-8315 Mounting Bracket  
Base Weight: .60  
Adder Per Inch of Stroke: .08 | ![Diagram](image6) |
How To Specify

1-1/4” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| MRS-12 D | Nose Mount  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 12”  
Optional Accessory:  
D-8316 Mounting Bracket  
Base Weight: .51  
Adder Per Inch of Stroke: .07 | ![Diagram](image1) |
| MRS-12-DXP | Double End or Rear Pivot Mounting  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 32”  
Optional Accessories:  
D-8322-A Pivot Bracket  
D-8316 Mounting Bracket  
D-8310-A Rod Clevis  
Base Weight: .61  
Adder Per Inch of Stroke: .05 | ![Diagram](image2) |
| MRS-12-DXDE | Double End Rod – Double End Mounting  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 12”  
Optional Accessory:  
D-8316 Mounting Bracket  
Base Weight: .70  
Adder Per Inch of Stroke: .14 | ![Diagram](image3) |

1-1/2” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| MRS-17 D | Nose Mount  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 12”  
Optional Accessory:  
D-8317 Mounting Bracket  
Base Weight: .74  
Adder Per Inch of Stroke: .10 | ![Diagram](image4) |
| MRS-17-DXP | Double End or Rear Pivot Mounting  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 32”  
Optional Accessories:  
D-8323-A Pivot Bracket  
D-8317 Mounting Bracket  
D-8311-A Rod Clevis  
Base Weight: .87  
Adder Per Inch of Stroke: .10 | ![Diagram](image5) |
| MRS-17-DXDE | Double End Rod – Double End Mounting  
Standard Stroke Lengths:  
½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
Maximum Stroke – 12”  
Optional Accessory:  
D-8317 Mounting Bracket  
Base Weight: .94  
Adder Per Inch of Stroke: .20 | ![Diagram](image6) |
How To Specify

1-3/4” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRS-24</td>
<td>Nose Mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Stroke Lengths: 1/4”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8318 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .13</td>
<td></td>
</tr>
<tr>
<td>MRS-24</td>
<td>Double End or Rear Pivot Mounting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 32”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: D-8324-A Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-8318 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-8312-A Rod Clevis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .13</td>
<td></td>
</tr>
<tr>
<td>MRS-24</td>
<td>Double End Rod – Double End Mounting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Stroke Lengths: 1/4”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8318 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .26</td>
<td></td>
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</table>

2” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRS-31</td>
<td>Nose Mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Stroke Lengths: 1/4”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8319 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .15</td>
<td></td>
</tr>
<tr>
<td>MRS-31</td>
<td>Double End or Rear Pivot Mounting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 32”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: D-8325-A Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-8319 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-8313-A Rod Clevis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .15</td>
<td></td>
</tr>
<tr>
<td>MRS-31</td>
<td>Double End Rod – Double End Mounting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Stroke Lengths: 1/4”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8319 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: 1.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .30</td>
<td></td>
</tr>
</tbody>
</table>
How To Specify

2-1/2” Bore MRS® Magnetic Reed Switch Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRS-50</td>
<td>Nose Mount</td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8320 Mounting Bracket</td>
</tr>
<tr>
<td></td>
<td>Base Weight: 2.48</td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRS-50-DXP</td>
<td>Double End or Rear Pivot Mounting</td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 32&quot;</td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: D-8326-A Pivot Bracket</td>
</tr>
<tr>
<td></td>
<td>D-8320 Mounting Bracket</td>
</tr>
<tr>
<td></td>
<td>D-8314-A Rod Clevis</td>
</tr>
<tr>
<td></td>
<td>Base Weight: 2.90</td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRS-50-DXDE</td>
<td>Double End Rod – Double End Mounting</td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-8320 Mounting Bracket</td>
</tr>
<tr>
<td></td>
<td>Base Weight: 3.15</td>
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<tr>
<td></td>
<td>Adder Per Inch of Stroke: .40</td>
</tr>
</tbody>
</table>
Switch Track Options

For Original Line cylinders, including MRS cylinders, with –T2, T3, and T4 options

**OPTION T2**

**OPTION T3**

**OPTION T4**

Switch Track for use with Bimba MR, MS, MSC, and MSK Switches

Miniature Position Sensing track lengths can now be purchased separately for field mounting of custom track locations. Simply specify the length of track desired after the part number.

Mounting recommendations:

> Clean body with acetone. Remove all oil from body surface.
> Avoid mounting track over rolled construction. Locate edge of track 0.175” from rolled construction.
> Use a solid continuous bead of glue for the entire length of track used. Bead should fill center channel of track.
> Adhere to recommended cure times as specified by the glue manufacturer.

**For MRS cylinders with –Z or –ZTT options**

<table>
<thead>
<tr>
<th>Bore Designator</th>
<th>Bore</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>9/16&quot;</td>
<td>1.00</td>
</tr>
<tr>
<td>04</td>
<td>3/4&quot;</td>
<td>1.38</td>
</tr>
<tr>
<td>09</td>
<td>1-1/16&quot;</td>
<td>1.50</td>
</tr>
<tr>
<td>12</td>
<td>1-1/4&quot;</td>
<td>1.68</td>
</tr>
<tr>
<td>17</td>
<td>1-1/2&quot;</td>
<td>1.91</td>
</tr>
<tr>
<td>24</td>
<td>1-3/4&quot;</td>
<td>2.20</td>
</tr>
<tr>
<td>31</td>
<td>2&quot;</td>
<td>2.43</td>
</tr>
<tr>
<td>50</td>
<td>2-1/2&quot;</td>
<td>2.98</td>
</tr>
</tbody>
</table>

Loctite U-05FL or similar adhesive is recommended (not included).
How to Accessorize

**MRS® Accessories**

- **9/16” Bore Accessories**
  - D-770
  - D-154
  - D-850
  - D-12321-A

- **3/4” Bore Accessories**
  - D-129
  - D-10139-A
  - D-10131-A

- **Original Line Cylinders**
  - Mounting Bracket
  - Rod Clevis
  - Pivot Bracket
  - Mounting Nut

- **D-770**
  - Mounting Bracket

- **D-154**
  - Mounting Nut

- **D-850**
  - Rod Clevis

- **D-12321-A**
  - Pivot Bracket

- **D-129**
  - Mounting Bracket

- **D-10139-A**
  - Rod Clevis

- **D-10131-A**
  - Pivot Bracket

- **Mounting Nut**

- **D-9**
  - Mounting Nut
How to Accessorize

MRS® Accessories

1-1/16" Bore Accessories

D-8315
Mounting Bracket

D-3556
Mounting Nut

D-8309-A
Rod Clevis

D-8321-A
Pivot Bracket

D-8310-A

D-8316
Mounting Bracket

1-1/4" Bore Accessories

D-2545
Mounting Nut

D-8316

D-8322-A

D-3556

D-8322-A

D-2545

D-8310-A

D-8322-A

Mounting Bracket

Rod Clevis

Pivot Bracket

Mounting Nut
How to Accessorize

MRS® Accessories

1-1/2" Bore Accessories

- D-8317 Mounting Bracket
- D-1331 Mounting Nut
- D-8311-A Rod Clevis
- D-8323-A Pivot Bracket

1-3/4" Bore Accessories

- D-8318 Mounting Bracket
- D-8484 Mounting Nut
- D-8312-A Rod Clevis
- D-8324-A Pivot Bracket
MRS® Accessories

2" Bore Accessories

- D-8319
- D-8313-A
- D-8325-A

2-1/2" Bore Accessories

- D-8320
- D-8314-A
- D-8326-A

Mounting Bracket

Mounting Nut

Rod Clevis

Pivot Bracket
Non-Rotating Original Line Air Cylinders

Bimba’s new Non-Rotating Original Line stainless steel body air cylinder design consists of a unique square piston rod with rounded corners. The square rod prevents rotation better than other rod configurations, and the rounded corners provide longer seal life than conventional hexagon rods. The unusual geometry of the square rod also provides superior rotation control. All bore sizes have a rotational control of less than or equal to ±3 degrees. The special high strength aluminum alloy rod guide provides high load carrying capability and abrasion resistance. The urethane-based rod seal provides excellent seal life and leak-free service. The Non-Rotating Original Line cylinder is dimensionally interchangeable with the standard Original Line stainless steel cylinder.
# How To Specify

## 9/16" Bore Non-Rotating Air Cylinders

- New! Stainless Steel Piston Rod Standard
- Unique Square Piston Rod with Rounded Corners
- High Strength Aluminum Alloy Rod Guide
- Urethane-based Rod Seal
- Buna N "U" Cup Piston Seal

### Options:

- Side Ported Rear Head (Q)
- Ports Rotated (K)
- Reverse Acting Bumpers (B)
  - Add .062 to overall length
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Magnet (prefix M)
  - Reverse acting add .125" to overall length

- Pressure Rating – 250 PSI Maximum (Air only)
- Available in Double Acting and Reverse Acting Models
- Enclosed Spring Force: 2lbs Relaxed - 4lbs Compressed
- Standard Buna N Seals Temperature Range: -20˚ F (-25˚ C) to 200˚ F (95˚ C)

**Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See the Switch Products chapter for switch selection information.**

- Low Temperature (N)
  - Temperature Range: -40˚ to 200˚F
- High Temperature Seals (V)
  - Temperature Range: 0˚ to 400˚F (-18˚ to 205˚C)

### Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| NR-02-D | Double Acting – Air Return – Front Nose Mounting  
Maximum Stroke – 10"  
Optional Accessory: D-770 Mounting Bracket  
Base Weight: .09  
Adder Per Inch of Stroke: .02 |
| NR-02-DXP | Double Acting – Double End or Rear Pivot Mounting – Air Return  
Maximum Stroke – 10"  
Optional Accessories: D-770 Mounting Nut  
D-850 Rod Clevis  
D-12321-A Pivot Bracket  
Base Weight: .09  
Adder Per Inch of Stroke: .02 |
| NR-02-R | Reverse Single Acting – Pull Type – Rod Normally Extended – Spring Return – Front Nose Mounting  
Standard Stroke Lengths: ½", 1", 1½", 2", 2½", 3"  
Maximum Stroke – 4"  
Optional Accessory: D-770 Mounting Bracket  
Base Weight: .08  
Adder Per Inch of Stroke: .04 |
| NR-02-RP | Reverse Single Acting – Pivot and Pull Type – Rod Normally Extended – Spring Return – Rear Pivot Mounting  
Standard Stroke Lengths: ½", 1", 1½", 2", 2½", 3"  
Maximum Stroke – 4"  
Optional Accessories: D-850 Rod Clevis  
D-12321-A Pivot Bracket  
Base Weight: .08  
Adder Per Inch of Stroke: .04 |

See page 17 for length calculation of fractional stroke for single acting cylinders.
**How To Specify**

### 3/4" Bore Non-Rotating Air Cylinders

- New! Stainless Steel Piston Rod Standard
- Unique Square Piston Rod with Rounded Corners
- High Strength Aluminum Alloy Rod Guide
- Urethane-based Rod Seal
- Buna N ‘U’ Cup Piston Seal
- Pressure Rating – 250 PSI Maximum (Air only)
- Available in Double Acting and Reverse Acting Models
- Enclosed Spring Force: 3lbs Relaxed - 6lbs Compressed
- Standard Buna N Seals Temperature Range: 20˚ F (-25˚ C) to 200˚ F (95˚ C)

### Options:

- Ports Rotated (K)
- Side Ported Rear Head (Q)
- Pivot Bushing (Y)
- Reverse Acting Bumpers (B)
  - Add .062 to overall length
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Magnet (prefix M)
  - Reverse acting add .125" to overall length

Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See the Switch Products chapter for switch selection information.

- Low Temperature (N)
  - Temperature Range: -40˚ to 200˚F
- High Temperature Seals (V)
  - Temperature Range: 0˚ to 400˚F (-18˚ to 205˚C)

### Enter Stroke Length as 3rd Digit

Select from the following models:

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-129 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 24&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessories: D-129 Mounting Bracket, D-166-3 Rod Clevis, D-13498-A Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 6&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Accessory: D-129 Mounting Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 6&quot;</td>
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</tr>
<tr>
<td></td>
<td>Optional Accessories: D-167 Mounting Brackets, D-166-3 Piston Rod Clevis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Weight: .18</td>
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</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .07</td>
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# How To Specify

## 3/4" Bore Non-Rotating Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| BFNR-04 | Double Acting – Front Block Mounting – Air Return
Maximum Stroke – 12"
Base Weight: .22
Adder Per Inch of Stroke: .03 |  ![Diagram of BFNR-04 D](image) |
| BFNR-04 | Pull Type – Front Block Mounting Rod Normally Extended
– Reverse Single Acting – Spring Return
Maximum Stroke – 6"
Base Weight: .19
Adder Per Inch of Stroke: .07 |  ![Diagram of BFNR-04 R](image) |
| BFTNR-04 | Double Acting – Front Block Mounting – Air Return
Maximum Stroke – 12"
Optional Accessories:
TRB-2 Trunnion Brackets
D-166-3 Rod Clevis
Base Weight: .29
Adder Per Inch of Stroke: .03 |  ![Diagram of BFTNR-04 D](image) |

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

1-1/16" Bore Non-Rotating Air Cylinders

- Stainless Steel Piston Rod Standard
- Unique Square Piston Rod with Rounded Corners
- High Strength Aluminum Alloy Rod Guide
- Urethane-based Rod Seal
- Buna N "U" Cup Piston Seal

Options:
- Ports Rotated (K)
- Side Ported Rear Head (Q)
- Pivot Bushing (Y)
- Reverse Acting Bumpers (B)
  - Add .062 to overall length
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Magnet (prefix M)
  - Reverse acting add .125" to overall length

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

Pressure Rating – 250 PSI Maximum (Air only)
Available in Double Acting and Reverse Acting Models
Enclosed Spring Force: 6lbs Relaxed - 12lbs Compressed.
Standard Buna N Seals Temperature Range: -20°F (-25°C) to 200°F (95°C)

Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

Low Temperature (N)
Temperature Range: -40°F to 200°F
High Temperature Seals (V)
Temperature Range: 0°F to 400°F (-18°C to 205°C)

See page 17 for length calculation of fractional stroke for single acting cylinders.
# 1-1/16” Bore Non-Rotating Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
| BFNR-09 | **D** Double Acting – Front Block Mounting – Air Return  
  Standard Stroke Lengths: ½”, 1”, 1½”, 2”, 2½”, 3”, 4”, 5”, 6”  
  Maximum Stroke – 12”  
  Base Weight: .49  
  Adder Per Inch of Stroke: .05 | ![Diagram](BFNR-09-D.png) |
| BFNR-09 | **R** Reverse Single Acting – Front Block Mounting – Rod  
  Normally Extended – Reverse Single Acting – Spring Return  
  Standard Stroke Lengths: ½”, 1”, 1½”, 2”, 2½”, 3”, 4”  
  Maximum Stroke – 6”  
  Base Weight: .36  
  Adder Per Inch of Stroke: .16 | ![Diagram](BFNR-09-R.png)  
  See page 17 for length calculation of fractional stroke for single acting cylinders. |
| BFTNR-09| **D** Double Acting – Front Block Trunnion Mounting – Air Return  
  Standard Stroke Lengths: ½”, 1”, 1½”, 2”, 2½”, 3”, 4”  
  Maximum Stroke – 12”  
  Optional Accessories:  
  TRB-2 Trunnion Brackets  
  D-166-1 Rod Clevis  
  Base Weight: .49  
  Adder Per Inch of Stroke: .05 | ![Diagram](BFTNR-09-D.png) |
How To Specify

1-1/2" Bore Non-Rotating Air Cylinders

> Stainless Steel Piston Rod Standard
> Unique Square Piston Rod with Rounded Corners
> High Strength Aluminum Alloy Rod Guide
> Urethane-based Rod Seal
> Buna N “U” Cup Piston Seal

Options:

> Ports Rotated (K)
> Side Ported Rear Head (Q)
> Pivot Bushing (Y)
> Reverse Acting Bumpers (B)
  » Add .062 to overall length
> Double Acting Bumpers (B)
  » Add .125 to overall length
> Extra Extension (EE)
> Magnet (prefix M)
  » Reverse acting add .125" to overall length

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR-17 □-D</td>
<td>Double Acting – Front Nose Mounting</td>
</tr>
<tr>
<td></td>
<td>Standard Stroke Lengths:</td>
</tr>
<tr>
<td></td>
<td>½&quot;, 1&quot;, 1½&quot;, 2&quot;, 2½&quot;, 3&quot;, 4&quot;, 5&quot;, 6&quot;</td>
</tr>
<tr>
<td></td>
<td>Maximum Stroke – 12&quot;</td>
</tr>
<tr>
<td></td>
<td>Optional Accessory:</td>
</tr>
<tr>
<td></td>
<td>D-241 Mounting Bracket</td>
</tr>
<tr>
<td></td>
<td>Base Weight: .69</td>
</tr>
<tr>
<td></td>
<td>Adder Per Inch of Stroke: .08</td>
</tr>
</tbody>
</table>

| NF-17 □-DXP | Double Acting – Double End or Rear Pivot Mounting – Air Return  |
|            | Standard Stroke Lengths:  |
|            | Maximum Stroke – 24"  |
|            | Optional Accessories:  |
|            | D-241 Mounting Bracket  |
|            | D-231-1 Rod Clevis  |
|            | D-323-A Pivot Bracket  |
|            | Base Weight: .82  |
|            | Adder Per Inch of Stroke: .08  |

| NR-17 □-R | Reverse Single Acting – Pull Type – Rod Normally Extended Spring Return – Spring force 8.5lbs relaxed, 17lbs compressed – Front Nose Mounting  |
|           | Standard Stroke Lengths:  |
|           | ½", 1", 1½", 2", 2½", 3", 4"  |
|           | Maximum Stroke – 6"  |
|           | Optional Accessory:  |
|           | D-241 Mounting Bracket  |
|           | Base Weight: .44  |
|           | Adder Per Inch of Stroke: .22  |

Pressure Rating – 250 PSI Maximum (Air only)
Available in Double Acting and Reverse Acting Models.
Enclosed Spring Force: 8.5lbs Relaxed - 17lbs Compressed
Standard Buna N Seals Temperature Range: -20˚F (-25˚C) to 200˚F (95˚C)

» Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

» Low Temperature (N)
  » Temperature Range : -40˚ to 200˚F

» High Temperature Seals (V)
  » Temperature Range : 0˚ to 400˚F (-18˚ to 205˚C)

See page 17 for length calculation of fractional stroke for single acting cylinders.

Options:

> Ports Rotated (K)
> Side Ported Rear Head (Q)
> Pivot Bushing (Y)
> Reverse Acting Bumpers (B)
  » Add .062 to overall length
> Double Acting Bumpers (B)
  » Add .125 to overall length
> Extra Extension (EE)
> Magnet (prefix M)
  » Reverse acting add .125" to overall length

Low Temperature (N)
  » Temperature Range : -40˚ to 200˚F

High Temperature Seals (V)
  » Temperature Range : 0˚ to 400˚F (-18˚ to 205˚C)
### 1-1/2” Bore Non-Rotating Air Cylinders

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

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How To Specify

2" Bore Non-Rotating Air Cylinders

- New! Stainless Steel Piston Rod Standard
- Unique Square Piston Rod with Rounded Corners
- High Strength Aluminum Alloy Rod Guide
- Urethane-based Rod Seal
- Buna N "U" Cup Piston Seal
- Pressure Rating – 250 PSI Maximum (Air only)
- Available in Double Acting and Reverse Acting Models.
- Enclosed Spring Force: 15lbs Relaxed - 30lbs Compressed.
- Standard Buna N Seals Temperature Range: -20˚ F (-25˚ C) to 200˚ F (95˚ C)

Options:

- Ports Rotated (K)
- Side Ported Rear Head (Q)
- Reverse Acting Bumpers (B)
  - Add .062 to overall length
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Magnet (prefix M)
  - Reverse acting add .125" to overall length

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
  Maximum Stroke – 12"  
  Optional Accessories:  
  D-615 Mounting Bracket  
  D-508 Mounting Nut  
  Base Weight: 1.40  
  Adder Per Inch of Stroke: .15 |            |
| NR-31DXP| Double Acting – Universal Mounting Type – Pivot or Double End — Air Return  
  Maximum Stroke – 24"  
  Optional Accessories:  
  D-615 Mounting Bracket  
  D-231-3 Rod Clevis  
  D-620 Pivot Bracket  
  D-508 Mounting Nut  
  Base Weight: 1.62  
  Adder Per Inch of Stroke: .15 |            |
2" Bore Non-Rotating Air Cylinders

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>

See page 17 for length calculation of fractional stroke for single acting cylinders.
How To Specify

2-1/2" Bore Non-Rotating Air Cylinders

- New! Stainless Steel Piston Rod Standard
- Unique Square Piston Rod with Rounded Corners
- High Strength Aluminum Alloy Rod Guide
- Urethane-based Rod Seal
- Buna N “U” Cup Piston Seal
- Pressure Rating – 250 PSI Maximum (Air only)
- Available in Double Acting
- Standard Buna N Seals Temperature Range: -20˚ F (-25˚ C) to 200˚ F (95˚C)

Options:

- Ports Rotated (K)
- Side Ported Rear Head (Q)
- Double Acting Bumpers (B)
  - Add .125 to overall length
- Extra Extension (EE)
- Magnet (prefix M)
  - Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.

- Low Temperature (N)
  - Temperature Range: -40˚ to 200˚F
- High Temperature Seals (V)
  - Temperature Range: 0˚ to 400˚F (-18˚ to 205˚C)

Enter Stroke Length as 3rd Digit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
</table>
  Maximum Stroke – 12"  
  Optional Accessories:  
  D-615-1 Mounting Bracket  
  D-2540 Mounting Nut  
  Base Weight: 1.98  
  Adder Per Inch of Stroke: .17 | ![Dimensions](image1.png) |
  Maximum Stroke – 24"  
  Optional Accessories:  
  D-615-1 Mounting Bracket  
  D-231-3 Rod Clevis  
  D-620 Pivot Bracket  
  D-2540 Mounting Nut  
  Base Weight: 2.27  
  Adder Per Inch of Stroke: .17 | ![Dimensions](image2.png) |

Accessories

Non-Rotating Original Line cylinders utilize the same accessories as standard Original Line cylinders. For more information on accessories, please refer to the Original Line accessories section, pages 62-70.
Original Line Cylinders with Plastic End Caps

The "Blue and Improved" Original Line® cylinder features permanent grease lubrication. Design enhancements have more than doubled the anticipated service life. This cylinder features acetal resin end caps, stainless steel rods and stainless steel bodies. They’re ideal for applications in environments requiring exposure to moisture, lubricants and specific solvents.
# How To Specify

## Dimensions (PC Cylinders)

**D Mounting Style**

![D Mounting Style Diagram](image)

<table>
<thead>
<tr>
<th>Bore</th>
<th>A</th>
<th>A (cushion or Q option)</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>2.28</td>
<td>--</td>
<td>0.38</td>
<td>0.38</td>
<td>0.50</td>
<td>0.06</td>
<td>#10-32</td>
<td>0.19</td>
<td>0.61</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>2.97</td>
<td>3.44</td>
<td>0.50</td>
<td>0.47</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.19</td>
<td>0.81</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>3.25</td>
<td>3.50</td>
<td>0.50</td>
<td>0.56</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.19</td>
<td>1.13</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>3.69</td>
<td>3.88</td>
<td>0.63</td>
<td>0.63</td>
<td>0.75</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.25</td>
<td>1.56</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>4.69</td>
<td>5.27</td>
<td>0.81</td>
<td>0.72</td>
<td>0.88</td>
<td>0.13</td>
<td>1/4 NPT</td>
<td>0.31</td>
<td>2.08</td>
</tr>
</tbody>
</table>

**Dimensions (PC Cylinders)**

![Dimensions Diagram](image)

**Magnetic Piston Length Adder**: 0.125" for 1-1/16" and 1-1/2", all other sizes 0.250"

**Bumper Length Adder**

<table>
<thead>
<tr>
<th>Bore</th>
<th>9/16&quot; (02)</th>
<th>3/4&quot; (04)</th>
<th>1-1/16&quot; (09)</th>
<th>1-1/2&quot; (17)</th>
<th>2&quot; (31)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.125</td>
<td>0</td>
<td>0.125*</td>
<td>0.125</td>
<td>0.250</td>
</tr>
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</table>

*For DXDE model, add 0.500*
## How To Specify

### Dimensions (PC Cylinders)

#### DXP Mounting Style

<table>
<thead>
<tr>
<th>Bore</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>H (cushion option)</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16” (02)</td>
<td>2.94</td>
<td>0.38</td>
<td>0.38</td>
<td>0.50</td>
<td>0.06</td>
<td>#10-32</td>
<td>0.61</td>
<td>--</td>
<td>--</td>
<td>0.19</td>
</tr>
<tr>
<td>3/4” (04)</td>
<td>4.00</td>
<td>0.50</td>
<td>0.47</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.86</td>
<td>0.96</td>
<td>--</td>
<td>0.25</td>
</tr>
<tr>
<td>1-1/16” (09)</td>
<td>4.00</td>
<td>0.50</td>
<td>0.56</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.13</td>
<td>1.13</td>
<td>0.13</td>
<td>0.31</td>
</tr>
<tr>
<td>1-1/2” (17)</td>
<td>5.13</td>
<td>0.63</td>
<td>0.63</td>
<td>0.75</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.56</td>
<td>1.56</td>
<td>0.25</td>
<td>0.44</td>
</tr>
<tr>
<td>2” (31)</td>
<td>6.56</td>
<td>0.81</td>
<td>0.73</td>
<td>0.88</td>
<td>0.13</td>
<td>1/4 NPT</td>
<td>2.08</td>
<td>2.08</td>
<td>0.38</td>
<td>0.63</td>
</tr>
</tbody>
</table>

#### DXDE Mounting

<table>
<thead>
<tr>
<th>Bore</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>H (cushion option)</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16” (02)</td>
<td>2.94</td>
<td>0.38</td>
<td>0.38</td>
<td>0.50</td>
<td>0.06</td>
<td>#10-32</td>
<td>0.61</td>
<td>--</td>
<td>--</td>
<td>0.19</td>
</tr>
<tr>
<td>3/4” (04)</td>
<td>4.00</td>
<td>0.50</td>
<td>0.47</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.86</td>
<td>0.96</td>
<td>--</td>
<td>0.25</td>
</tr>
<tr>
<td>1-1/16” (09)</td>
<td>4.00</td>
<td>0.50</td>
<td>0.56</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.13</td>
<td>1.13</td>
<td>0.13</td>
<td>0.31</td>
</tr>
<tr>
<td>1-1/2” (17)</td>
<td>5.13</td>
<td>0.63</td>
<td>0.63</td>
<td>0.75</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.56</td>
<td>1.56</td>
<td>0.25</td>
<td>0.44</td>
</tr>
<tr>
<td>2” (31)</td>
<td>6.56</td>
<td>0.81</td>
<td>0.73</td>
<td>0.88</td>
<td>0.13</td>
<td>1/4 NPT</td>
<td>2.08</td>
<td>2.08</td>
<td>0.38</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Magnetic Piston Length Adder: 0.250”
### Dimensions (PC Cylinders)

#### Stainless Steel Mounting Nut*

<table>
<thead>
<tr>
<th>Bore*</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>D-154-SS</td>
<td>0.69</td>
<td>0.25</td>
<td>7/16-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-9-SS</td>
<td>0.94</td>
<td>0.38</td>
<td>5/8-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-9-SS</td>
<td>0.94</td>
<td>0.38</td>
<td>5/8-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-1331-SS</td>
<td>1.50</td>
<td>0.55</td>
<td>1-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-508-SS</td>
<td>1.88</td>
<td>0.50</td>
<td>1-1/4-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See page 18 for torque specifications.

#### Stainless Steel Rod End Clevis (includes nut)

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>D-850-SS</td>
<td>0.38</td>
<td>0.75</td>
<td>0.94</td>
<td>0.13</td>
<td>0.56</td>
<td>0.19</td>
<td>0.38</td>
<td>0.56</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-54565-SS</td>
<td>0.50</td>
<td>0.94</td>
<td>1.19</td>
<td>0.16</td>
<td>0.69</td>
<td>0.25</td>
<td>0.50</td>
<td>0.69</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-54564-SS</td>
<td>0.50</td>
<td>0.94</td>
<td>1.19</td>
<td>0.19</td>
<td>0.69</td>
<td>0.25</td>
<td>0.50</td>
<td>0.69</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-54562-SS</td>
<td>0.75</td>
<td>1.31</td>
<td>1.69</td>
<td>0.25</td>
<td>0.94</td>
<td>0.38</td>
<td>0.75</td>
<td>1.03</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-54563-SS</td>
<td>0.75</td>
<td>1.31</td>
<td>1.69</td>
<td>0.31</td>
<td>0.94</td>
<td>0.38</td>
<td>0.75</td>
<td>1.03</td>
<td>0.38</td>
<td></td>
</tr>
</tbody>
</table>

#### Stainless Steel Foot Bracket

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>D-770-SS</td>
<td>0.84</td>
<td>1.38</td>
<td>0.69</td>
<td>0.44</td>
<td>0.19</td>
<td>0.38</td>
<td>0.56</td>
<td>0.09</td>
<td>0.38</td>
<td>0.19</td>
<td>1.00</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-129-SS</td>
<td>1.38</td>
<td>1.88</td>
<td>1.00</td>
<td>0.63</td>
<td>0.27</td>
<td>0.56</td>
<td>0.81</td>
<td>0.12</td>
<td>0.56</td>
<td>0.19</td>
<td>1.50</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-129-SS</td>
<td>1.38</td>
<td>1.88</td>
<td>1.00</td>
<td>0.63</td>
<td>0.27</td>
<td>0.56</td>
<td>0.81</td>
<td>0.12</td>
<td>0.56</td>
<td>0.19</td>
<td>1.50</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-61288-SS</td>
<td>1.75</td>
<td>2.50</td>
<td>1.50</td>
<td>1.03</td>
<td>0.28</td>
<td>0.75</td>
<td>1.00</td>
<td>0.12</td>
<td>0.75</td>
<td>0.31</td>
<td>1.88</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-615-SS</td>
<td>2.50</td>
<td>3.13</td>
<td>1.63</td>
<td>1.38</td>
<td>0.34</td>
<td>1.00</td>
<td>1.50</td>
<td>0.25</td>
<td>1.00</td>
<td>0.44</td>
<td>2.25</td>
</tr>
</tbody>
</table>

Stainless Steel Rod End Clevis (includes nut)

Stainless Steel Foot Bracket

*See page 18 for torque specifications.
### How to Accessorize

#### Stainless Steel Pivot Bracket

![Stainless Steel Pivot Bracket Diagram]

#### Specifications

- **Pressure Rating:** 100 PSI (Air)
- **Temperature Range:** 32° F to 160° F (0° C to 72° C)
- **Delrin End Caps**
- **304 Stainless Steel Body**
- **303 Stainless Steel Rod**
- **Anodized Aluminum Alloy Piston**
- **Options:**
  - Buna N Bumpers
  - Polyurethane Wiper
  - Fluoroelastomer Seals (for compatibility only, not high temperature)

### CYLINDER WEIGHT (lbs)

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
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<td>D-55202-SS</td>
<td>0.20</td>
<td>0.16</td>
<td>0.31</td>
<td>0.06</td>
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<td>0.56</td>
<td>0.20</td>
<td>0.50</td>
<td>0.13</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-55203-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.38</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.22</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>0.63</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-55203-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.38</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.22</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>0.63</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
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<td>0.38</td>
<td>0.38</td>
<td>0.63</td>
<td>0.13</td>
<td>1.75</td>
<td>1.38</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>0.91</td>
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<tr>
<td>2&quot; (31)</td>
<td>D-55205-SS</td>
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<td>0.38</td>
<td>0.75</td>
<td>0.25</td>
<td>1.75</td>
<td>1.38</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>1.25</td>
</tr>
</tbody>
</table>

### MOUNTING NUT Torque Specifications

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Thread Size</th>
<th>Max Torque (in-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16&quot; (02)</td>
<td>7/16-20</td>
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</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>5/8-18</td>
<td>12.0</td>
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<tr>
<td>1-1/16&quot; (09)</td>
<td>1-14</td>
<td>30.0</td>
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<tr>
<td>1-1/2&quot; (17)</td>
<td>1/4-12</td>
<td>45.0</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>1/4-12</td>
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</table>
How to Order

The model number of all PC 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 PC unit with 1-1/16” bore, 6” stroke, and additional options is shown below.

**PC - 09 6 - DXP W**

### Bore Size

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>9/16”</td>
</tr>
<tr>
<td>04</td>
<td>3/4”</td>
</tr>
<tr>
<td>09</td>
<td>1-1/16”</td>
</tr>
<tr>
<td>17</td>
<td>1-1/2”</td>
</tr>
<tr>
<td>31</td>
<td>2”</td>
</tr>
</tbody>
</table>

### Mounting

- **D**: Nose mount
- **DP**: Universal mount
- **DXDE**: Double-ended rod

### Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>HT-99 oil pre-lube</td>
</tr>
<tr>
<td>B</td>
<td>Bumpers</td>
</tr>
<tr>
<td>C</td>
<td>Air cushion, both ends</td>
</tr>
<tr>
<td>C1</td>
<td>Air cushion, front head only</td>
</tr>
<tr>
<td>C2</td>
<td>Air cushion, rear head only</td>
</tr>
<tr>
<td>K</td>
<td>Pivot 90° (DXP models only)</td>
</tr>
<tr>
<td>M</td>
<td>Magnetic piston</td>
</tr>
<tr>
<td>NT</td>
<td>No thread</td>
</tr>
<tr>
<td>Q</td>
<td>Side ported rear head</td>
</tr>
<tr>
<td>T</td>
<td>Switch track (T1, T2, T3, or T4) (see Switch Products for switch selection information)</td>
</tr>
<tr>
<td>V</td>
<td>Fluoroelastomer seals (for compatibility only)</td>
</tr>
<tr>
<td>W</td>
<td>Rod wiper (not available for 9/16” bore)</td>
</tr>
<tr>
<td>EEX.XX</td>
<td>Extra rod extension of X.XX</td>
</tr>
</tbody>
</table>

**Standard stroke lengths**

- **All models**: 1/2”; 1”; 1-1/2”; 2”; 2-1/2”; 3”; 4”; 5”; 6”
- **DXP / DXDE models**: 7”; 8”; 9”; 10”; 11”; 12”

### Delrin End Cap Cylinder

### Standard stroke lengths*

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>9/16”</td>
</tr>
<tr>
<td>04</td>
<td>3/4”</td>
</tr>
<tr>
<td>09</td>
<td>1-1/16”</td>
</tr>
<tr>
<td>17</td>
<td>1-1/2”</td>
</tr>
<tr>
<td>31</td>
<td>2”</td>
</tr>
</tbody>
</table>

### Approximate Power Factors

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Power Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16”</td>
<td>0.25</td>
</tr>
<tr>
<td>3/4”</td>
<td>0.40</td>
</tr>
<tr>
<td>1-1/16”</td>
<td>0.90</td>
</tr>
<tr>
<td>1-1/2”</td>
<td>1.7</td>
</tr>
<tr>
<td>2”</td>
<td>3.10</td>
</tr>
</tbody>
</table>

Bimba has made sizing a cylinder as easy as knowing the model number. Each base model number is developed by calculating the area of the cylinder bore. This area, or Power Factor, will provide the force the cylinder will exert when multiplied by the airline pressure.

**FORCE** = Airline Pressure x Piston Area

**PISTON AREA** = Bimba Power Factor

**FORCE** = Airline Pressure x Bimba Power Factor

* Consult your local distributor for price and availability of non-standard strokes.
Product Features

The "Blue and Improved" all stainless steel Original Line® cylinder utilizes permanent FDA approved grease lubrication. Design enhancements have more than doubled the anticipated service life of these cylinders, which are perfect solutions for applications in food processing, packaging, medical, pharmaceutical, or marine industries where wash down solutions and corrosives are present.

All Stainless Steel Non-Repairable Original Line Cylinders

- Corrosion resistant stainless steel end caps
- Urethane rod wiper limits ingress of application matter/chemical solutions into cylinder
- PTFE-based rod and pivot bushings selected for their resistance to many commonly used cleaning solutions.
- Blue and Improved design doubles previous cylinder life
- Permanent grease lubricant requires no additional lubrication during service
- 304 SS body with mirror finish ID for long, reliable seal life.
- Nitrile seals are standard with optional high temperature or other materials available.
How it Works

Technical Data

Operating Specifications

Pressure Rating
250 PSI air maximum

Temperature Rating
-20° F to 200° F

Note that if the magnetic piston is used, maximum temperature is derated to 185° F. Fluoroelastomer seals rated for higher temperatures (up to 400° F) are available. Fluoroelastomer seals (option “V”) should be ordered for chemical compatibility only. The temperature rating of the standard Urethane rod wiper is 200° F. If a cylinder temperature rating of higher than 200° F is required please contact your local distributor to request a quote for a custom design to meet your application requirements.

If cylinders are operated at temperatures below 0° F for extended time periods, our low temperature option (N) is recommended. This option has a temperature range of -40° F to 200° F. If cylinders are operated below -20° F with low temperature seals for extended time periods, cylinder performance will be affected by the cold temperature.

Lubrication
Food grade synthetic grease
### Dimensions (All Stainless Steel Non-Repairable Original Line Cylinders)

#### Bore A B C D E F G H I J K L M N O

<table>
<thead>
<tr>
<th>Bore</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot; (007)</td>
<td>1.55</td>
<td>0.31</td>
<td>0.16</td>
<td>0.38</td>
<td>N/A</td>
<td>#10-32</td>
<td>N/A</td>
<td>0.125</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3/8-24</td>
<td>N/A</td>
<td>#5-40</td>
</tr>
<tr>
<td>7/16&quot; (01)</td>
<td>2.13</td>
<td>0.38</td>
<td>0.35</td>
<td>0.50</td>
<td>0.05</td>
<td>#10-32</td>
<td>0.74</td>
<td>N/A</td>
<td>0.188</td>
<td>0.38</td>
<td>0.433/0.437</td>
<td>7/16-20</td>
<td>N/A</td>
<td>#10.32</td>
<td></td>
</tr>
<tr>
<td>9/16&quot; (02)</td>
<td>2.28</td>
<td>0.38</td>
<td>0.38</td>
<td>0.50</td>
<td>0.06</td>
<td>#10-32</td>
<td>0.62</td>
<td>N/A</td>
<td>0.188</td>
<td>0.50</td>
<td>0.434/0.437</td>
<td>7/16-20</td>
<td>N/A</td>
<td>#10-32</td>
<td></td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>2.97</td>
<td>0.50</td>
<td>0.47</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.86</td>
<td>N/A</td>
<td>0.250</td>
<td>0.621/0.624</td>
<td>5/8-18</td>
<td>N/A</td>
<td>1/4-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/8&quot; (06)</td>
<td>2.71</td>
<td>0.50</td>
<td>0.47</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>0.93</td>
<td>N/A</td>
<td>0.250</td>
<td>0.621/0.624</td>
<td>5/8-18</td>
<td>N/A</td>
<td>1/4-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>3.25</td>
<td>0.50</td>
<td>0.57</td>
<td>0.50</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.11</td>
<td>0.12</td>
<td>0.312</td>
<td>0.88</td>
<td>0.621/0.624</td>
<td>5/8-18</td>
<td>0.25</td>
<td>5/16-24</td>
<td></td>
</tr>
<tr>
<td>1-1/4&quot; (12)</td>
<td>3.81</td>
<td>0.63</td>
<td>0.75</td>
<td>0.75</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.33</td>
<td>0.25</td>
<td>0.438</td>
<td>0.88</td>
<td>0.746/0.749</td>
<td>3/4-16</td>
<td>0.38</td>
<td>7/16-20</td>
<td></td>
</tr>
<tr>
<td>1-3/4&quot; (17)</td>
<td>3.69</td>
<td>0.66</td>
<td>0.63</td>
<td>0.75</td>
<td>0.09</td>
<td>1/8 NPT</td>
<td>1.56</td>
<td>0.25</td>
<td>0.438</td>
<td>0.88</td>
<td>0.746/0.749</td>
<td>3/4-16</td>
<td>0.38</td>
<td>7/16-20</td>
<td></td>
</tr>
<tr>
<td>2&quot; (24)</td>
<td>4.44</td>
<td>0.75</td>
<td>0.88</td>
<td>0.88</td>
<td>0.09</td>
<td>1/4 NPT</td>
<td>1.85</td>
<td>0.31</td>
<td>0.500</td>
<td>1.25</td>
<td>1.029/1.032</td>
<td>1-14</td>
<td>0.44</td>
<td>1/2-20</td>
<td></td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>4.69</td>
<td>0.81</td>
<td>0.75</td>
<td>0.88</td>
<td>0.13</td>
<td>1/4 NPT</td>
<td>2.09</td>
<td>0.38</td>
<td>0.625</td>
<td>1.25</td>
<td>1.372/1.375</td>
<td>1-1/4-12</td>
<td>0.50</td>
<td>1/2-20</td>
<td></td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>5.25</td>
<td>1.00</td>
<td>0.72</td>
<td>1.25</td>
<td>0.19</td>
<td>3/8 NPT</td>
<td>3.13</td>
<td>0.38</td>
<td>0.750</td>
<td>2.00</td>
<td>1.622/1.625</td>
<td>1-1/2-12</td>
<td>0.63</td>
<td>5/8-18</td>
<td></td>
</tr>
</tbody>
</table>

### How To Specify

#### D Mounting Style

#### DXP Mounting Style

---

BIMBA BIM-PFL-0119 Catalog 2019 | For Technical Assistance: 800-442-4622
### Dimensions (All Stainless Steel Non-Repairable Original Line Cylinders)

#### Stainless Steel One Piece Pivot Bracket

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot; (007)</td>
<td>D-26689-SS</td>
<td>0.13</td>
<td>0.13</td>
<td>0.27</td>
<td>0.04</td>
<td>0.57</td>
<td>0.44</td>
<td>0.16</td>
<td>0.38</td>
<td>0.13</td>
<td>0.63</td>
<td>0.34</td>
</tr>
<tr>
<td>7/16&quot; (01)</td>
<td>D-55202-SS</td>
<td>0.20</td>
<td>0.16</td>
<td>0.32</td>
<td>0.06</td>
<td>0.76</td>
<td>0.56</td>
<td>0.20</td>
<td>0.50</td>
<td>0.13</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td>9/16&quot; (02)</td>
<td>D-55202-SS</td>
<td>0.20</td>
<td>0.16</td>
<td>0.32</td>
<td>0.06</td>
<td>0.76</td>
<td>0.56</td>
<td>0.20</td>
<td>0.50</td>
<td>0.13</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-55203-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.39</td>
<td>0.11</td>
<td>1.18</td>
<td>0.86</td>
<td>0.22</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>0.61</td>
</tr>
<tr>
<td>7/8&quot; (06)</td>
<td>D-55203-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.39</td>
<td>0.11</td>
<td>1.18</td>
<td>0.86</td>
<td>0.22</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>0.61</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-55203-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.39</td>
<td>0.11</td>
<td>1.18</td>
<td>0.86</td>
<td>0.22</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>0.61</td>
</tr>
<tr>
<td>1-1/4&quot; (12)</td>
<td>D-55204-SS</td>
<td>0.38</td>
<td>0.37</td>
<td>0.64</td>
<td>0.14</td>
<td>1.77</td>
<td>1.39</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>0.92</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-55204-SS</td>
<td>0.38</td>
<td>0.37</td>
<td>0.64</td>
<td>0.14</td>
<td>1.77</td>
<td>1.39</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>0.92</td>
</tr>
<tr>
<td>1-3/4&quot; (24)</td>
<td>D-55204-SS</td>
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<td>0.37</td>
<td>0.64</td>
<td>0.14</td>
<td>1.77</td>
<td>1.39</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>1.26</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-55205-SS</td>
<td>0.38</td>
<td>0.37</td>
<td>0.76</td>
<td>0.25</td>
<td>1.77</td>
<td>1.38</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>1.26</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>D-55205-SS</td>
<td>0.38</td>
<td>0.37</td>
<td>0.76</td>
<td>0.25</td>
<td>1.77</td>
<td>1.38</td>
<td>0.28</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>1.26</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>D-111613-SS</td>
<td>0.50</td>
<td>0.50</td>
<td>0.89</td>
<td>0.25</td>
<td>2.25</td>
<td>1.75</td>
<td>0.42</td>
<td>1.38</td>
<td>0.38</td>
<td>2.13</td>
<td>1.39</td>
</tr>
</tbody>
</table>

#### Stainless Steel Two Piece Pivot Bracket

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot; (007)</td>
<td>D-113373-SS</td>
<td>0.13</td>
<td>0.13</td>
<td>0.28</td>
<td>0.04</td>
<td>0.54</td>
<td>0.40</td>
<td>0.13</td>
<td>0.38</td>
<td>0.12</td>
<td>0.63</td>
<td>1.03</td>
<td>0.13</td>
<td>0.78</td>
</tr>
<tr>
<td>7/16&quot; (01)</td>
<td>D-12321-SS</td>
<td>0.20</td>
<td>0.16</td>
<td>0.34</td>
<td>0.06</td>
<td>0.77</td>
<td>0.57</td>
<td>0.19</td>
<td>0.50</td>
<td>0.13</td>
<td>0.75</td>
<td>1.36</td>
<td>0.23</td>
<td>0.91</td>
</tr>
<tr>
<td>9/16&quot; (02)</td>
<td>D-12321-SS</td>
<td>0.20</td>
<td>0.16</td>
<td>0.34</td>
<td>0.06</td>
<td>0.77</td>
<td>0.57</td>
<td>0.19</td>
<td>0.50</td>
<td>0.13</td>
<td>0.75</td>
<td>1.36</td>
<td>0.23</td>
<td>0.91</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-13498-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.38</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.27</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>2.00</td>
<td>0.38</td>
<td>1.26</td>
</tr>
<tr>
<td>7/8&quot; (06)</td>
<td>D-13498-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.38</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.27</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>2.00</td>
<td>0.38</td>
<td>1.26</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-13498-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.38</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.27</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>2.00</td>
<td>0.38</td>
<td>1.26</td>
</tr>
<tr>
<td>1-1/4&quot; (12)</td>
<td>D-1360-SS</td>
<td>0.31</td>
<td>0.25</td>
<td>0.50</td>
<td>0.12</td>
<td>1.19</td>
<td>0.88</td>
<td>0.27</td>
<td>0.75</td>
<td>0.19</td>
<td>1.13</td>
<td>2.13</td>
<td>0.38</td>
<td>1.39</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-229-SS</td>
<td>0.38</td>
<td>0.38</td>
<td>0.63</td>
<td>0.13</td>
<td>1.75</td>
<td>1.38</td>
<td>0.27</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>2.63</td>
<td>0.38</td>
<td>1.88</td>
</tr>
<tr>
<td>1-3/4&quot; (24)</td>
<td>D-620-1-SS</td>
<td>0.38</td>
<td>0.38</td>
<td>0.63</td>
<td>0.25</td>
<td>1.75</td>
<td>1.38</td>
<td>0.27</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>2.87</td>
<td>0.43</td>
<td>2.00</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-620-SS</td>
<td>0.38</td>
<td>0.38</td>
<td>0.76</td>
<td>0.25</td>
<td>1.75</td>
<td>1.38</td>
<td>0.27</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>3.01</td>
<td>0.44</td>
<td>2.14</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>D-620-SS</td>
<td>0.38</td>
<td>0.38</td>
<td>0.76</td>
<td>0.25</td>
<td>1.75</td>
<td>1.38</td>
<td>0.27</td>
<td>1.00</td>
<td>0.25</td>
<td>1.50</td>
<td>3.01</td>
<td>0.44</td>
<td>2.14</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>D-13512-SS</td>
<td>0.50</td>
<td>0.50</td>
<td>0.88</td>
<td>0.25</td>
<td>2.25</td>
<td>1.75</td>
<td>0.27</td>
<td>1.25</td>
<td>0.25</td>
<td>1.75</td>
<td>3.88</td>
<td>0.63</td>
<td>2.63</td>
</tr>
</tbody>
</table>

---

Stainless Steel One Piece Pivot Bracket

Stainless Steel Two Piece Pivot Bracket
# Dimensions (All Stainless Steel Non-Repairable Original Line Cylinders)

## Stainless Steel Mounting Nut

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot; (007)</td>
<td>D-801-SS</td>
<td>0.56</td>
<td>0.22</td>
<td>3/8-24</td>
</tr>
<tr>
<td>7/16&quot; (01)</td>
<td>D-154-SS</td>
<td>0.69</td>
<td>0.25</td>
<td>7/16-20</td>
</tr>
<tr>
<td>9/16&quot;(02)</td>
<td>D-154-SS</td>
<td>0.69</td>
<td>0.25</td>
<td>7/16-20</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-9-SS</td>
<td>0.94</td>
<td>0.38</td>
<td>5/8-18</td>
</tr>
<tr>
<td>7/8&quot; (06)</td>
<td>D-9-SS</td>
<td>0.94</td>
<td>0.38</td>
<td>5/8-18</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-9-SS</td>
<td>0.94</td>
<td>0.38</td>
<td>5/8-18</td>
</tr>
<tr>
<td>1-1/4&quot; (12)</td>
<td>D-3556-SS</td>
<td>1.12</td>
<td>0.42</td>
<td>3/4-16</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-3556-SS</td>
<td>1.12</td>
<td>0.42</td>
<td>3/4-16</td>
</tr>
<tr>
<td>1-3/4&quot; (24)</td>
<td>D-1331-SS</td>
<td>1.50</td>
<td>0.55</td>
<td>1-14</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-508-SS</td>
<td>1.88</td>
<td>0.50</td>
<td>1-1/4-12</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>D-2540-SS</td>
<td>1.85</td>
<td>0.50</td>
<td>1-3/8-12</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>D-5379-SS</td>
<td>2.25</td>
<td>0.50</td>
<td>1-1/2-12</td>
</tr>
</tbody>
</table>

## Stainless Steel Foot Bracket

<table>
<thead>
<tr>
<th>Bore</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16&quot; (007)</td>
<td>D-26765-SS</td>
<td>0.75</td>
<td>1.00</td>
<td>0.38</td>
<td>0.38</td>
<td>0.13</td>
<td>0.25</td>
<td>0.44</td>
<td>0.06</td>
<td>0.31</td>
<td>0.13</td>
<td>0.75</td>
</tr>
<tr>
<td>7/16&quot; (01)</td>
<td>D-770-SS</td>
<td>0.83</td>
<td>1.38</td>
<td>0.69</td>
<td>0.44</td>
<td>0.19</td>
<td>0.38</td>
<td>0.56</td>
<td>0.09</td>
<td>0.38</td>
<td>0.19</td>
<td>1.00</td>
</tr>
<tr>
<td>9/16&quot; (02)</td>
<td>D-770-SS</td>
<td>0.83</td>
<td>1.38</td>
<td>0.69</td>
<td>0.44</td>
<td>0.19</td>
<td>0.38</td>
<td>0.56</td>
<td>0.09</td>
<td>0.38</td>
<td>0.19</td>
<td>1.00</td>
</tr>
<tr>
<td>3/4&quot; (04)</td>
<td>D-129-SS</td>
<td>1.38</td>
<td>1.88</td>
<td>1.00</td>
<td>0.63</td>
<td>0.27</td>
<td>0.56</td>
<td>0.81</td>
<td>0.12</td>
<td>0.56</td>
<td>0.19</td>
<td>1.50</td>
</tr>
<tr>
<td>7/8&quot; (06)</td>
<td>D-129-SS</td>
<td>1.38</td>
<td>1.88</td>
<td>1.00</td>
<td>0.63</td>
<td>0.27</td>
<td>0.56</td>
<td>0.81</td>
<td>0.12</td>
<td>0.56</td>
<td>0.19</td>
<td>1.50</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>D-129-SS</td>
<td>1.38</td>
<td>1.88</td>
<td>1.00</td>
<td>0.63</td>
<td>0.27</td>
<td>0.56</td>
<td>0.81</td>
<td>0.12</td>
<td>0.56</td>
<td>0.19</td>
<td>1.50</td>
</tr>
<tr>
<td>1-1/4&quot; (12)</td>
<td>D-241-SS</td>
<td>1.75</td>
<td>2.50</td>
<td>1.50</td>
<td>0.76</td>
<td>0.28</td>
<td>0.75</td>
<td>1.00</td>
<td>0.12</td>
<td>0.75</td>
<td>0.31</td>
<td>1.88</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>D-241-SS</td>
<td>1.75</td>
<td>2.50</td>
<td>1.50</td>
<td>0.76</td>
<td>0.28</td>
<td>0.75</td>
<td>1.00</td>
<td>0.12</td>
<td>0.75</td>
<td>0.31</td>
<td>1.88</td>
</tr>
<tr>
<td>1-3/4&quot; (24)</td>
<td>D-1337-SS</td>
<td>2.12</td>
<td>3.00</td>
<td>1.50</td>
<td>1.04</td>
<td>0.34</td>
<td>0.88</td>
<td>1.25</td>
<td>0.18</td>
<td>0.91</td>
<td>0.38</td>
<td>2.25</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>D-615-SS</td>
<td>2.50</td>
<td>3.13</td>
<td>1.65</td>
<td>1.39</td>
<td>0.34</td>
<td>1.00</td>
<td>1.50</td>
<td>0.27</td>
<td>1.00</td>
<td>0.44</td>
<td>2.25</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>D-615-1-SS</td>
<td>3.00</td>
<td>3.75</td>
<td>1.63</td>
<td>1.50</td>
<td>0.34</td>
<td>1.00</td>
<td>1.75</td>
<td>0.26</td>
<td>1.25</td>
<td>0.44</td>
<td>2.88</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>D-19127-SS</td>
<td>3.14</td>
<td>4.38</td>
<td>1.63</td>
<td>1.63</td>
<td>0.34</td>
<td>1.00</td>
<td>1.89</td>
<td>0.25</td>
<td>1.25</td>
<td>0.44</td>
<td>3.50</td>
</tr>
</tbody>
</table>
### Dimensions (All Stainless Steel Non-Repairable Original Line Cylinders)

**Stainless Steel Rod End Clevis (includes nut)**

| Bore  | Model       | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   |
|-------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5/16” (007) | D-26690-SS  | #5-40 | 0.31 | 0.44 | 0.56 | 0.11 | 0.37 | 0.14 | 0.31 | 0.50 | 0.13 |
| 7/16” (01)   | D-850-SS    | #10-32 | 0.38 | 0.75 | 0.94 | 0.12 | 0.56 | 0.20 | 0.38 | 0.55 | 0.19 |
| 9/16” (02)   | D-850-SS    | #10-32 | 0.38 | 0.75 | 0.94 | 0.12 | 0.56 | 0.20 | 0.38 | 0.55 | 0.19 |
| 3/4” (04)    | D-54565-SS  | 1/4-28 | 0.50 | 0.94 | 1.19 | 0.16 | 0.69 | 0.26 | 0.50 | 0.69 | 0.25 |
| 7/8” (06)    | D-54565-SS  | 1/4-28 | 0.50 | 0.94 | 1.19 | 0.16 | 0.69 | 0.26 | 0.50 | 0.69 | 0.25 |
| 1-1/16” (09) | D-54564-SS  | 5/16-24 | 0.50 | 0.94 | 1.19 | 0.19 | 0.69 | 0.26 | 0.50 | 0.69 | 0.25 |
| 1-1/4” (12)  | D-54562-SS  | 7/16-20 | 0.75 | 1.31 | 1.69 | 0.25 | 0.94 | 0.39 | 0.75 | 1.03 | 0.37 |
| 1-1/2” (17)  | D-54562-SS  | 7/16-20 | 0.75 | 1.31 | 1.69 | 0.25 | 0.94 | 0.39 | 0.75 | 1.03 | 0.37 |
| 1-3/4” (24)  | D-54563-SS  | 1/2-20 | 0.75 | 1.31 | 1.69 | 0.31 | 0.94 | 0.39 | 0.75 | 1.03 | 0.37 |
| 2” (31)      | D-54563-SS  | 1/2-20 | 0.75 | 1.31 | 1.69 | 0.31 | 0.94 | 0.39 | 0.75 | 1.03 | 0.37 |
| 2-1/2” (50)  | D-54563-SS  | 1/2-20 | 0.75 | 1.31 | 1.69 | 0.31 | 0.94 | 0.39 | 0.75 | 1.03 | 0.37 |
| 3” (70)      | D-8314-SS   | 5/8-18 | 1.00 | 2.25 | 2.75 | 0.38 | 1.50 | 0.50 | 1.00 | 1.38 | 0.50 |
How to Order

The model number of all All Stainless Steel Non-Repairable Original Line 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 All Stainless Steel Non-Repairable Original Line unit with 303 Stainless Steel end cap, 1-1/16” bore, 2” stroke, and additional options is shown below.

<table>
<thead>
<tr>
<th>Model</th>
<th>Stroke Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>303 Stainless Steel end caps</td>
</tr>
<tr>
<td>SSM</td>
<td>Includes magnetic piston</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Mounting Options</th>
<th>Options*</th>
</tr>
</thead>
<tbody>
<tr>
<td>007 5/16”</td>
<td>D Double acting, nose mount</td>
<td>99 HT-99 oil pre-lube¹</td>
</tr>
<tr>
<td>01 7/16”</td>
<td>DXP Double acting, double end or rear pivot mount</td>
<td>F Molycoated body</td>
</tr>
<tr>
<td>02 9/16”</td>
<td></td>
<td>G Magnalube® G lubrication</td>
</tr>
<tr>
<td>04 3/4”</td>
<td></td>
<td>N Low temperature seals and lubrication</td>
</tr>
<tr>
<td>06 7/8”</td>
<td></td>
<td>NT Non-threaded rod</td>
</tr>
<tr>
<td>09 1-1/16”</td>
<td></td>
<td>V Fluoroelastomer seals (for chemical compatibility)²</td>
</tr>
<tr>
<td>12 1-1/4”</td>
<td></td>
<td>W Rod wiper (standard)³</td>
</tr>
<tr>
<td>17 1-1/2”</td>
<td></td>
<td>EEX.XX Extra rod extension of XXX</td>
</tr>
<tr>
<td>24 1-3/4”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 2”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 2-1/2”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70 3”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Consult the option combination availability chart on page 58.
¹ HT-99 pre-lube is NOT a food-grade lubricant.
² Specify for chemical compatibility only. For cylinders rated over 200° F, see the note under Operating Specifications on previous page.
³ Rod wiper is standard; “W” option must be included in part number.

* Specifications and prices are subject to change without notice. For assistance, call 800-442-4622 or visit www.bimba.com.
The new "Blue and Improved" Original Line® All Stainless Steel Repairable cylinder is ideal for food processing, chemical, medical, pharmaceutical, offshore or marine equipment, energy production, or waste management applications. A bell ring design offers the benefit of full repairability without using hand tools by securing the body to the rod guide with a knurled, threaded nut.

**All Stainless Steel Repairable (Bell Ring Style) Original Line Cylinders**

- Bore sizes: 3/4", 1-1/16"
- Maximum Pressure Rating: 250 PSI
- Composite FDA approved rod bearing and FDA approved lubricant
- 304 stainless steel body
- 303 stainless steel end caps, piston rod, and bell ring nut
- Low friction Buna N "U" Cup seals and rod wiper
# All Stainless Steel Repairable (Bell Ring Style) Original Line Cylinders

- Enter Stroke Length as 3rd Digit

## 3/4" Bore

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-4161-A-</td>
<td>Double-Acting - Air Return - Front Nose Mounting</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td>Optional Stainless Steel Accessories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-129-SS Foot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-9-SS Mounting Nut</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-54565-SS Rod Clevis</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-4231-A-</td>
<td>Double-Acting - Universal Mounting - Pivot, or Double</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td>End Mounting - Air Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Stainless Steel Accessories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-129-SS Foot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-55203-SS Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-9-SS Mounting Nut</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-54565-SS Rod Clevis</td>
<td></td>
</tr>
</tbody>
</table>

## 1-1/16" Bore

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-4173-A-</td>
<td>Double-Acting - Air Return - Front Nose Mounting</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td>Optional Stainless Steel Accessories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-241-SS Foot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-3556-SS Mounting Nut</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-54564-SS Rod Clevis</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-4232-A-</td>
<td>Double-Acting - Universal Mounting - Pivot, or Double</td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td>End Mounting - Air Return</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional Stainless Steel Accessories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-241-SS Foot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-55203-SS Pivot Bracket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-3556-SS Mounting Nut</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D-54564-SS Rod Clevis</td>
<td></td>
</tr>
</tbody>
</table>

## Engineering Specifications

- 304 Stainless steel body
- Low friction Buna N "U" Cup seals and rod wiper
- 303 Stainless steel endcaps, piston rod, and bell ring nut
- Pressure Rating: 250 PSI (air)
- Composite FDA approved rod bearing and FDA approved lubricant
How to Accessorize

All Stainless Steel Repairable (Bell Ring Style) Accessories

**3/4” Bore**

- **D-129-SS**
- **D-54565-SS**
- **D-55203-SS**
- **D-9-SS**

**1-1/16” Bore**

- **D-241-SS**
- **D-54564-SS**
- **D-55203-SS**
- **D-3556-SS**
Bimba All Stainless Steel Repairable (Bell Ring Style) Original Line Cylinders are repairable. A list of the individual components is given below that together make up the All Stainless Steel Repairable (Bell Ring Style) Original Line Cylinder.

Please use the original purchase order number (if available) for all inquiries. 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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>D-4485-A</td>
<td>Rod guide assembly (includes rod guide and D-4530 kit)</td>
</tr>
<tr>
<td>B</td>
<td>D-4530-A</td>
<td>Rod seal kit (includes seals, bushing, seal retainer and body seal)</td>
</tr>
<tr>
<td>C</td>
<td>D-4486-A</td>
<td>Piston rod assembly (includes rod, piston and D-4531 kit)</td>
</tr>
<tr>
<td>D</td>
<td>D-4531</td>
<td>Piston seal kit (includes piston seals and piston guide ring)</td>
</tr>
<tr>
<td>E</td>
<td>D-3961-SS</td>
<td>Bell ring</td>
</tr>
<tr>
<td>F</td>
<td>D-4487-A</td>
<td>Rear head and body assembly (nose mount)</td>
</tr>
<tr>
<td>G</td>
<td>D-4488-A</td>
<td>Rear head and body assembly (universal mount)</td>
</tr>
</tbody>
</table>

Repair Parts (1-1/16" bore)

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>D-4489-A</td>
<td>Rod guide assembly (includes rod guide and D-4533 kit)</td>
</tr>
<tr>
<td>B</td>
<td>D-4533-A</td>
<td>Rod seal kit (includes seals, bushing, seal retainer and body seal)</td>
</tr>
<tr>
<td>C</td>
<td>D-4490-A</td>
<td>Piston rod assembly (includes rod, piston and D-4534 kit)</td>
</tr>
<tr>
<td>D</td>
<td>D-4534-A</td>
<td>Piston seal kit (includes piston seals and piston guide ring)</td>
</tr>
<tr>
<td>E</td>
<td>D-1778-SS</td>
<td>Bell ring</td>
</tr>
<tr>
<td>F</td>
<td>D-4491-A</td>
<td>Rear head and body assembly (nose mount)</td>
</tr>
<tr>
<td>G</td>
<td>D-4492-A</td>
<td>Rear head and body assembly (universal mount)</td>
</tr>
</tbody>
</table>
Product Features

Z Line Air Cylinders

- Larger diameter, two-piece 303 stainless steel piston rod
- HEX-STUD rod end thread of heat treated alloy steel – easily removed in case of failure due to overload
- CUSHION QUIET elastomer bumpers

Options (for all Z Line models):

- Magnalube® G (G)
- Extra Extension (EE), per inch of extension:
- Molycoated Body (F)
- Magnet (Prefix M)
  - Must specify track(s) for use with miniature position sensing (T2, T3, T4). See page 61 for track location details. See Switch Products for switch selection information.
### 3/4" Bore Z Line Air Cylinders

Enter Stroke Length as 3rd Digit

Push Force = .441 x PSI · Pull Force = .365 x PSI

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>04-DBZ</td>
<td>Block Mount – Double Acting – Two bolt holes are provided for positive mounting to a base. Standard Stroke Lengths: 1&quot;, 2&quot;, 3&quot;, 4&quot;, 5&quot;, 6&quot; Maximum Stroke – 12&quot; Base Weight: .30 Adder Per Inch of Stroke: .04</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>
### How To Specify

#### 1-1/16" Bore Z Line Air Cylinders

**Push Force = .886 x PSI · Pull Force = .776 x PSI**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09  DBZ</td>
<td>Block Mount – Double Acting – Four bolt holes are provided for positive mounting to a base. Standard Stroke Lengths: 1&quot;, 2&quot;, 3&quot;, 4&quot;, 5&quot;, 6&quot; Maximum Stroke – 12&quot; Base Weight: .55 Adder Per Inch of Stroke: .06</td>
<td></td>
</tr>
</tbody>
</table>

#### 1-1/2" Bore Z Line Air Cylinders

**Push Force = 1.77 x PSI · Pull Force = 1.57 x PSI**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>17  DBZ</td>
<td>Block Mount – Double Acting – Four bolt holes are provided for positive mounting to a base. Standard Stroke Lengths: 1&quot;, 2&quot;, 3&quot;, 4&quot;, 5&quot;, 6&quot; Maximum Stroke – 12&quot; Base Weight: 1.00 Adder Per Inch of Stroke: .10</td>
<td></td>
</tr>
</tbody>
</table>
# How To Specify

## 2" Bore Z Line Air Cylinders

**Push Force = 3.14 x PSI · Pull Force = 2.83 x PSI**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description/Weight (Lbs)</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 DBZ</td>
<td>Block Mount – Double Acting – Four bolt holes are provided for positive mounting to a base. Standard Stroke Lengths: 1&quot;, 2&quot;, 3&quot;, 4&quot;, 5&quot;, 6&quot;. Maximum Stroke – 12&quot;. Base Weight: 2.03. Adder Per Inch of Stroke: .15.</td>
<td>![Diagram of 31 DBZ]</td>
</tr>
</tbody>
</table>
How to Accessorize

Z Line Accessories

3/4" Bore Accessories

- D-8315
  - Mounting Bracket

- D-10139-A
  - Rod Clevis

- D-8321-A
  - Pivot Bracket

1-1/16" Bore Accessories

- D-8316
  - Mounting Bracket

- D-8309-A
  - Rod Clevis

- D-8322-A
  - Pivot Bracket

3/4" Bore Accessories

- D-9868
- 1-1/16" Bore Accessories

- 1-1/2" Bore

- 2" Bore

Hex-Stud

- D-6583
- D-6636
- D-6637
How to Accessorize

Z Line Accessories

1-1/2" Bore Accessories

D-8318
Mounting Bracket

D-8311-A
Rod Clevis

D-8324-A
Pivot Bracket

2" Bore Accessories

D-8319
Mounting Bracket

D-8313-A
Rod Clevis

D-8325-A
Pivot Bracket
Original Line Rod Lock Cylinders

- Dowel pins ride in the cam groove.
- When air pressure is present, piston actuates and dowel pins follow cam to open position, allowing piston rod to travel freely through clamp.
- In absence of pressure, the spring actuates piston and dowels follow to closed position, activating the rod clamp.
How To Specify

Dimensions (Original Line Rod Lock Cylinders) (in)

<table>
<thead>
<tr>
<th>Bore</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; (04)</td>
<td>4.48</td>
<td>0.72</td>
<td>0.37</td>
<td>0.75</td>
<td>0.31</td>
<td>1/4-28 UNF-2A</td>
<td>0.25</td>
<td>0.25</td>
<td>2.48</td>
<td>1.83</td>
<td>#10-32 UNF-2B</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>4.84</td>
<td>0.61</td>
<td>0.31</td>
<td>0.75</td>
<td>0.38</td>
<td>5/16-24 UNF-2A</td>
<td>0.31</td>
<td>0.38</td>
<td>2.6</td>
<td>1.95</td>
<td>#10-32 UNF-2B</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>5.75</td>
<td>0.82</td>
<td>0.32</td>
<td>1.25</td>
<td>0.5</td>
<td>7/16-20 UNF-2A</td>
<td>0.43</td>
<td>0.38</td>
<td>3.75</td>
<td>2.75</td>
<td>1/8 NPT</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>6.84</td>
<td>0.88</td>
<td>0.44</td>
<td>1.25</td>
<td>0.62</td>
<td>1/2-20 UNF-2A</td>
<td>0.56</td>
<td>0.38</td>
<td>3.97</td>
<td>3.13</td>
<td>1/8 NPT</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>7.48</td>
<td>0.87</td>
<td>0.43</td>
<td>1.25</td>
<td>0.75</td>
<td>1/2-20 UNF-2A</td>
<td>0.62</td>
<td>0.38</td>
<td>4.61</td>
<td>3.62</td>
<td>1/4 NPT</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>8.22</td>
<td>0.92</td>
<td>0.46</td>
<td>1.25</td>
<td>0.75</td>
<td>5/8-18 UNF-2A</td>
<td>0.62</td>
<td>0.38</td>
<td>5.15</td>
<td>4.17</td>
<td>1/4 NPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bore</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; (04)</td>
<td>#10</td>
<td>0.25</td>
<td>2.32</td>
<td>1.12</td>
<td>0.16</td>
<td>0.81</td>
<td>1/8 NPT</td>
<td>0.80</td>
<td>0.62</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>#10</td>
<td>0.25</td>
<td>2.78</td>
<td>1.38</td>
<td>0.16</td>
<td>1.06</td>
<td>1/8 NPT</td>
<td>1.12</td>
<td>0.87</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>1/4</td>
<td>0.32</td>
<td>3.38</td>
<td>1.75</td>
<td>0.25</td>
<td>1.25</td>
<td>1/4 NPT</td>
<td>1.56</td>
<td>0.88</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>3/8</td>
<td>0.39</td>
<td>4.45</td>
<td>2.25</td>
<td>0.31</td>
<td>1.62</td>
<td>1/4 NPT</td>
<td>2.08</td>
<td>1.24</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>7/16</td>
<td>0.42</td>
<td>5.67</td>
<td>2.75</td>
<td>0.44</td>
<td>1.88</td>
<td>1/4 NPT</td>
<td>2.58</td>
<td>1.74</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>1/2</td>
<td>0.42</td>
<td>6.28</td>
<td>3.25</td>
<td>0.5</td>
<td>2.25</td>
<td>3/8 NPT</td>
<td>3.13</td>
<td>1.99</td>
</tr>
</tbody>
</table>

Options

Dimensional Deviations from Standard

<table>
<thead>
<tr>
<th>Option</th>
<th>Dimensional Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q - Side Port Rear Head</td>
<td>Use DXP model, omit rear pivot tang</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B - Bumpers</th>
<th>Add to Overall Length by Bore Size:</th>
</tr>
</thead>
<tbody>
<tr>
<td>04 - no adder</td>
<td>0.13&quot;</td>
</tr>
<tr>
<td>09 - .13&quot;</td>
<td>0.13&quot;</td>
</tr>
<tr>
<td>17 - .13&quot;</td>
<td>0.13&quot;</td>
</tr>
<tr>
<td>31 - .25&quot;</td>
<td>0.25&quot;</td>
</tr>
<tr>
<td>50 - .25&quot;</td>
<td>0.25&quot;</td>
</tr>
<tr>
<td>70 - .25&quot;</td>
<td>0.25&quot;</td>
</tr>
</tbody>
</table>

Weights (lbs)

<table>
<thead>
<tr>
<th>Bore</th>
<th>Base Weight</th>
<th>Adder per inch of Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; (04)</td>
<td>0.46</td>
<td>0.03</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>1.03</td>
<td>0.05</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>1.97</td>
<td>0.08</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>4.08</td>
<td>0.15</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>7.13</td>
<td>0.17</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>10.55</td>
<td>0.26</td>
</tr>
</tbody>
</table>
How To Specify

Dimensions (Original Line Rod Lock Cylinders) (in)

<table>
<thead>
<tr>
<th>Bore</th>
<th>A</th>
<th>U</th>
<th>V</th>
<th>W</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>AA</th>
<th>BB</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; (04)</td>
<td>5.26</td>
<td>0.28</td>
<td>0.62</td>
<td>0.35</td>
<td>0.09</td>
<td>0.62</td>
<td>5/8-18 UNF-2A</td>
<td>0.25</td>
<td>0.37</td>
</tr>
<tr>
<td>1-1/16&quot; (09)</td>
<td>5.44</td>
<td>0.28</td>
<td>0.62</td>
<td>0.34</td>
<td>0.09</td>
<td>0.62</td>
<td>5/8-18 UNF-2A</td>
<td>0.25</td>
<td>0.37</td>
</tr>
<tr>
<td>1-1/2&quot; (17)</td>
<td>6.68</td>
<td>0.47</td>
<td>0.97</td>
<td>0.56</td>
<td>0.09</td>
<td>1.00</td>
<td>1-14 UNF-2A</td>
<td>0.38</td>
<td>0.68</td>
</tr>
<tr>
<td>2&quot; (31)</td>
<td>7.78</td>
<td>0.44</td>
<td>1.03</td>
<td>0.56</td>
<td>0.13</td>
<td>1.37</td>
<td>1-1/4-12 UNF-2A</td>
<td>0.38</td>
<td>0.72</td>
</tr>
<tr>
<td>2-1/2&quot; (50)</td>
<td>8.42</td>
<td>0.44</td>
<td>1.03</td>
<td>0.56</td>
<td>0.12</td>
<td>1.50</td>
<td>1-3/8-12 UNF-2A</td>
<td>0.38</td>
<td>0.72</td>
</tr>
<tr>
<td>3&quot; (70)</td>
<td>9.47</td>
<td>0.63</td>
<td>1.34</td>
<td>0.81</td>
<td>0.19</td>
<td>1.62</td>
<td>1-1/2-12 UNF-2A</td>
<td>0.50</td>
<td>0.85</td>
</tr>
</tbody>
</table>

DXP Mounting Style

The Rod Lock is not a safety device.
Do not use for intermediate stopping; the cylinder is designed to prevent drift from a stationary position.
Load weight must not exceed the stated holding force for the cylinder.
The model number of all Original Line Rod Lock 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 Rod Lock unit with 1-1/16” bore, 3” stroke, and additional options is shown below.
Our rugged hole punch cylinder has been redesigned with a removable cutter to allow customers to replace the cutter as needed without having to replace the entire cylinder. The razor sharp cutting teeth are designed to punch millions of holes in thin plastic film.

**Original Line Hole Punch Cylinders**

- High strength carbon steel rod is hollow with an ID of .07” to provide an air jet to eject cutter slugs from the cutting head.
- An oil soaked felt washer beside the rod seal provides a continuous source of lubrication to the rod on every stroke.
- Eight (8) models with seven (7) different cutter diameters for a wide range of applications.
- Available with no cutter for customers that choose to mount their own.
- Single acting, spring return 3/4” bore, 1” stroke cylinder is pre-lubricated for maximum life.
- Nickel plated steel rod guide offers improved fatigue resistance over competitors aluminum end caps which is critical in high speed/high cycle applications.
- Bumpers are present for both extend and retract strokes to minimize sound levels.
- Special cutter shapes and different stroke lengths are available on request.
How To Specify

Dimensions (Repairable Hole Punch Cylinders) (in)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Hole Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-11840-A</td>
<td>1/4&quot;</td>
<td>.250&quot;</td>
<td>1/2-20</td>
<td>.50</td>
<td>.44</td>
<td>3.44</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.25</td>
<td>#10-322</td>
</tr>
<tr>
<td>D-9846-A1</td>
<td>N/A</td>
<td>N/A</td>
<td>1/2-20</td>
<td>.50</td>
<td>.44</td>
<td>3.44</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.50</td>
<td>1/4-28</td>
</tr>
<tr>
<td>D-11811-A</td>
<td>5/16&quot;</td>
<td>.312&quot;</td>
<td>1/2-20</td>
<td>1.00</td>
<td>.44</td>
<td>3.44</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.50</td>
<td>1/4-282</td>
</tr>
<tr>
<td>D-11618-A</td>
<td>3/8&quot;</td>
<td>.375&quot;</td>
<td>1/2-20</td>
<td>1.00</td>
<td>.44</td>
<td>3.44</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.50</td>
<td>1/4-282</td>
</tr>
<tr>
<td>D-11998-A</td>
<td>7/16&quot;</td>
<td>.438&quot;</td>
<td>5/8-18</td>
<td>1.00</td>
<td>.50</td>
<td>3.50</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.50</td>
<td>3/8-403</td>
</tr>
<tr>
<td>D-11999-A</td>
<td>1/2&quot;</td>
<td>.500&quot;</td>
<td>5/8-18</td>
<td>1.00</td>
<td>.50</td>
<td>3.50</td>
<td>.19</td>
<td>.62</td>
<td>.81</td>
<td>.50</td>
<td>3/8-403</td>
</tr>
<tr>
<td>D-12107-A</td>
<td>9/16&quot;</td>
<td>.562&quot;</td>
<td>3/4-16</td>
<td>1.00</td>
<td>.63</td>
<td>3.63</td>
<td>.19</td>
<td>.62</td>
<td>.99</td>
<td>.50</td>
<td>3/8-403</td>
</tr>
</tbody>
</table>

1. The Pneumatic Hole Puncher Cylinder may be ordered without the cutter under model number D-9846-A. This cylinder has the same features and dimensions as the Hole Puncher except 1/4-28 UNF-2A by 0.50 long rod threads are provided so you may attach your own cutter.
2. Cutter to rod mating threads
3. Cutter to rod end adapter mating threads

Engineering Specifications (Repairable Hole Punch Cylinders)

- **Maximum Pressure:** 250 PSI (air)
- **Temperature Range:** -20° F to 200° F
- **Body:** 304 Stainless Steel
- **Rod:** Ground and Polished Carbon Steel
- **Front End Cap:** Nickel Plated Steel
- **Rear End Cap:** Aluminum
- **Lubrication:** Permanent Grease Lubrication for Piston Seals, Oil Soaked Felt Washer for Rod Seal
Bimba Repairable Hole Punch Cylinders are repairable. A list of the individual components is given below that together make up the Repairable Hole Punch Cylinder. Each box of five (5) cutters includes five (5) O-rings and repair instructions.

Please use the original purchase order number (if available) for all inquiries. 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.

**Repair Parts**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repunch - 1/4</td>
<td>1/4&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 5/16</td>
<td>5/16&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 3/8</td>
<td>3/8&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 7/16</td>
<td>7/16&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 1/2</td>
<td>1/2&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 9/16</td>
<td>9/16&quot; Replacement Cutter Kit</td>
</tr>
<tr>
<td>Repunch - 5/8</td>
<td>5/8&quot; Replacement Cutter Kit</td>
</tr>
</tbody>
</table>