New

# Bimba Non-Contact Position Feedback Cylinders

Bimba's non-contact Position Feedback Cylinders employ a new magnetostrictive sensor. The sensor tip, fixed inside the cylinder, senses position as a magnet mounted to the piston moves back and forth across the sensor tip's length. This provides many important advantages, and makes the Non Contact PFC the preferred solution for closed-loop pneumatic positioning applications.

- PFCN is immune to conditions that deteriorate older technology PFC's, such as moisture, dirt, dirty air lines, and debris generated as pneumatic products wear.
- PFCN is immune to probe wear due to repeated short stroke cycling.
- Every PFCN is calibrated for 0 volts fully retracted and 10 volts fully extended. This simplifies use of multiple cylinders in an application and enables use of Bimba PCS controls.
- The magnetic piston facilitates use of a magnetic sensor as a failsafe for applications that require it.

## How to Order

The model number of all Non-Contact Position Feedback Cylinders consists of three alpha-numeric clusters. These designate product type, bore size, stroke length, mounting style, and options. The example below describes PFCN-316-XBYN, a non-contact position feedback cylinder with 2 inch bore, 6 inch stroke, universal mount, bumpers, and a matching PCS controller with no enclosure.

**PFCN - 31 6 - X B YN**

| BORE SIZE | |
|---|---|
| 09 | 1-1/16" |
| 17 | 1-1/2" |
| 31 | 2" |
| 50 | 2-1/2" |
| 70 | 3" |

| STANDARD STROKE LENGTHS* |
|---|
| 1", 2", 3", 4", 5", 6", 7", 8", 9" |
| *0.5 inch increments |
| *1 inch minimum |

| MOUNTING | |
|---|---|
| Blank | Front nose |
| BF | Block front |
| X | Universal |

| OPTIONS | |
|---|---|
| B | Bumpers |
| EE | 0.375 - 3/8" extra rod extension, etc. |
| L | Low friction[1] |

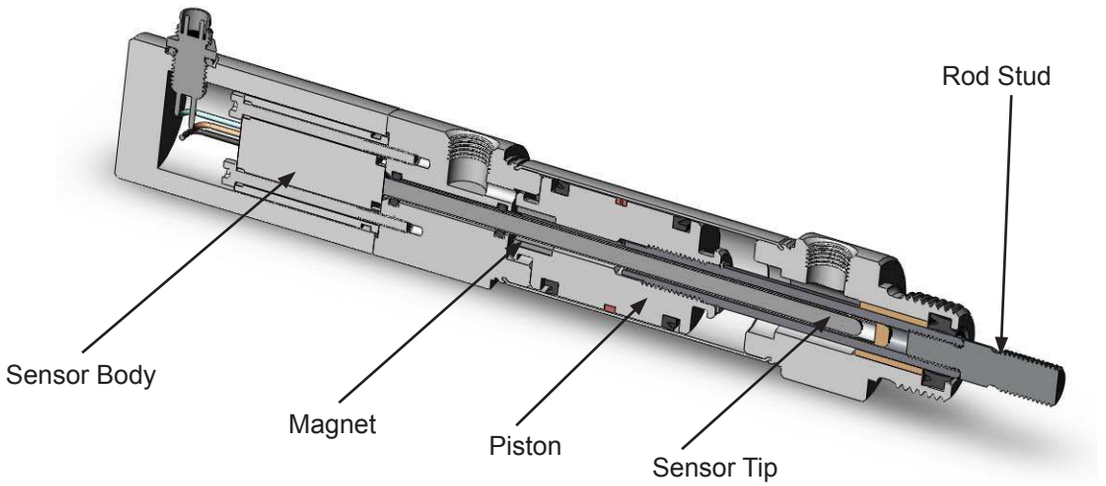
[1] Low friction option includes special seals and lubrication.

| CONTROLLER | |
|---|---|
| Blank | none |
| Y | PCS, enclosure |
| YN | PCS, no enclosure |
| YQ | PCS, quick connects, enclosure |

### *Approximate Power Factors*

| | | |
|---|---|---|
| 1-1/16" | = | 0.9 |
| 1-1/2" | = | 1.7 |
| 2" | = | 3.1 |
| 2-1/2" | = | 5.0 |
| 3" | = | 7.0 |

For example, a PFCN-096-BFP will exert a force of 0.9 times the air lines pressure; a PFCN-506-XB will exert a force of 5.0 times the air line pressure.




# Specifications

| Positioning error due to temperature at 70 ±15° F by stroke length | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1" Stroke** | **2" Stroke** | **3" Stroke** | **4" Stroke** | **5" Stroke** | **6" Stroke** | **7" Stroke** | **8" Stroke** | **9" Stroke** |
| 3.74% | 0.93% | 0.63% | 0.48% | 0.34% | 0.28% | 0.23% | 0.20% | 0.16% |
| 0.0373 in. | 0.0186 in. | 0.0189 in. | 0.0191 in. | 0.0168 in. | 0.0167 in. | 0.0160 in. | 0.0162 in. | 0.0144 in. |
| ***Variations in temperature will cause output voltage to change. To determine error at a temperature range other than what is in the table above, contact Bimba Technical Support.*** | | | | | | | | |

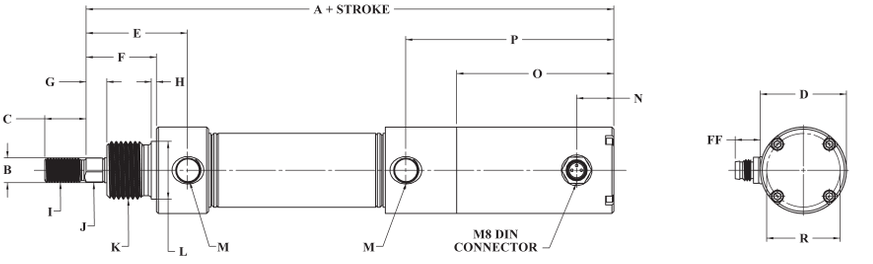
- Operating temperature: -20° to 200°F (-28° to 93°C).
- Accuracy: ± 0.016 inch maximum anywhere along the stroke (calculated value combining Non-Linearity, Repeatability, Hysteresis effects at a constant temperature).
  - Non-Linearity: ± 0.010 inch
  - Repeatability: ± 0.006 inch
  - Hysteresis: ± 0.001 inch
- Signal output: 0 V DC retracted and 10 V DC extended, all stroke lengths (into 100 kOhms minimum and 300 pF maximum)
- Excitation (Supply) Voltage: 24 ±10% V DC (50mA maximum current)
- Maximum end of stroke impact speed: 10 in/sec.
- Rated Life of the Cylinder: 1400 linear miles (at 10 inches/sec, no load, room temperature)
- Over voltage  and polarity protection
- Cylinder RoHs compliant.
- IP-68 rated connector standard.

# List Prices

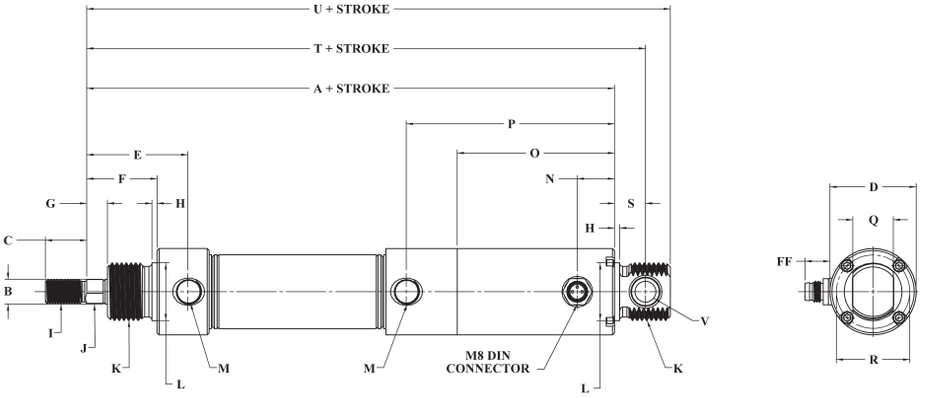
| Bore | Base | Stroke Adder (per inch) | Mounting | | Options | | | *Controller | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | BF Block Front | X Universal | B Bumpers | EE Extra Extention (per inch) | L* Low Friction | *Y | *YN | *YQ |
| 1-1/16" (09) | $465.00 | $15.30 | $17.70 | $4.90 | $4.40 | 2.85 | $13.00 | $510.00 | $540.00 | $600.00 |
| 1-1/2" (17) | 498.00 | 18.35 | 19.05 | 5.75 | 5.35 | 7.00 | 13.00 | | | |
| 2" (31) | 539.00 | 21.25 | 23.10 | 7.20 | 6.90 | 9.30 | 13.00 | | | |
| 2-1/2" (50) | 584.00 | 24.25 | 27.90 | 9.05 | 8.65 | 12.00 | 13.00 | | | |
| 3" (70) | 636.00 | 27.40 | 35.80 | 12.00 | 13.00 | 12.00 | 13.00 | | | |

*Specify option L for closed loop position control applications requiring optimal positioning performance. Use Bimba PCS Controls for best results (options Y, YN, YQ).

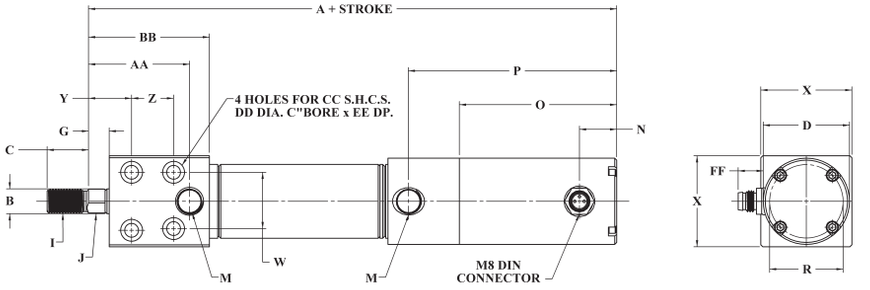
## Nose mount




## Universal Mount




## Block Mount




# Dimensions (in.)

| Bore | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-1/16" (09) | 7.47 | ϕ0.38 | 0.63 | ϕ1.31 | 1.54/Option L 1.52 | 1.06 | 0.31 | 0.08 | 3/8-24 UNF | 0.31 | 7/8-14 UNF | ϕ0.87 | 1/8 NPT | 0.56 |
| 1-1/2" (17) | 7.80 | ϕ0.50 | 0.88 | ϕ1.58 | 1.72 | 1.13 | 0.31 | 0.09 | 7/16-20 UNF | 0.44 | 1-1/8-12 UNF | ϕ1.12 | 1/4 NPT | 0.56 |
| 2" (31) | 7.75 | ϕ0.63 | 1.00 | ϕ2.09 | 2.10 | 1.38 | 0.38 | 0.11 | 1/2-20 UNF | 0.50 | 1-1/4-12 UNF | ϕ1.25 | 1/4 NPT | 0.40 |
| 2-1/2" (50) | 8.31 | ϕ0.75 | 1.25 | ϕ2.58 | 2.28 | 1.50 | 0.44 | 0.13 | 5/8-18 UNF | 0.63 | 1-3/8-12 UNF | ϕ1.37 | 3/8 NPT | 0.40 |

| Bore | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | BB | CC | DD | EE | FF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-1/16" (09) | 2.38 | 3.14 | 0.62 | ϕ1.11 | 0.47 | 7.94 | 8.31 | ϕ0.31 | 0.88 | 1.38 | 0.75 | N/A | 1.52 | 1.82 | #10 | ϕ0.33 | 0.20 | 0.38 |
| 1-1/2" (17) | 2.38 | 3.25 | 0.74 | ϕ1.33 | 0.56 | 8.36 | 8.83 | ϕ0.38 | 1.25 | 1.75 | 0.69 | 0.75 | 1.68 | 2.00 | 1/4 | ϕ0.41 | 0.25 | 0.38 |
| 2" (31) | 2.03 | 2.91 | 0.86 | ϕ1.63 | 0.66 | 8.38 | 8.88 | ϕ0.44 | 1.44 | 2.25 | 0.75 | 1.00 | 1.75 | 2.41 | 3/8 | ϕ0.58 | 0.39 | 0.38 |
| 2-1/2" (50) | 2.00 | 3.03 | 0.99 | ϕ2.06 | 0.75 | 9.06 | 9.69 | ϕ0.50 | 1.88 | 2.75 | 0.88 | 1.25 | 2.13 | 2.72 | 7/16 | ϕ0.67 | 0.45 | 0.38 |

Bumper length adder 0.25"

# Bimba Non-Contact PFC Rod Lock

## How to Order

The model number of all Non-Contact PFC Rod Lock Cylinders consists of three alpha-numeric clusters. These designate product type, bore size, stroke length, mounting style, and options. The example below describes PFCNL-703-XBYQ, a non-contact position feedback cylinder with 3 inch bore, 3 inch stroke, universal mount, bumpers, and low friction seals, and matched PCS controller with an enclosure and quick connects.

**PFCNL - 70 3 - X B YQ**

| BORE SIZE |
|---|
| 09 - 1-1/16" |
| 17 - 1-1/2" |
| 31 - 2" |
| 50 - 2-1/2" |
| 70 - 3" |

| STANDARD STROKE LENGTHS* |
|---|
| 1", 2", 3", 4", 5", 6", 7", 8", 9" |
| *0.5 inch increments |
| *1 inch minimum |

| MOUNTING |
|---|
| Blank - Block Front |
| X - Universal |

| OPTIONS |
|---|
| B - Bumpers |
| EE - 0.375 - 3/8" extra rod extension, etc. |

| CONTROLLER |
|---|
| Blank - none |
| Y - PCS, enclosure |
| YN - PCS, no enclosure |
| YQ - PCS, quick connects, enclosure |

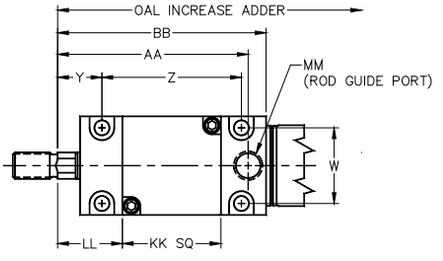
Note: Low friction seals on the piston are standard on the PFCNL. Rod wiper is included to keep out contaminants. Only available in block front mounting on the rod guide.

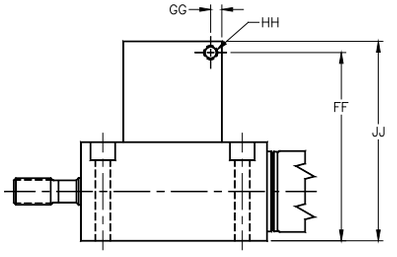
## List Prices

| Bore | Base | Stroke Adder (per inch) | Mounting | Options | | Controller | | |
|---|---|---|---|---|---|---|---|---|
| | | | X Universal | B Bumpers | EE Extra Extention (per inch) | *Y | *YN | *YQ |
| 1-1/16" (09) | $550.00 | $15.30 | $4.90 | $4.40 | $2.85 | $510.00 | $540.00 | $600.00 |
| 1-1/2" (17) | 598.00 | 18.35 | 5.75 | 5.35 | 7.00 | | | |
| 2" (31) | 665.00 | 21.25 | 7.20 | 6.90 | 9.30 | | | |
| 2-1/2" (50) | 772.00 | 24.25 | 9.05 | 8.65 | 12.00 | | | |
| 3" (70) | 874.00 | 27.40 | 12.00 | 13.00 | 12.00 | | | |

*Use Bimba PCS Controls for best results (options Y, YN, YQ).

## Dimensions*




| Bore | W | Y | Z | AA | BB | FF | GG | HH | JJ | KK | LL | MM | OAL Increase Adder |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-1/16" (09) | 1.06 | 0.62 | 1.95 | 2.66 | 2.91 | 2.62 | 0.16 | #10-32 | 2.78 | 1.38 | 0.90 | 1/8 NPT | 1.08 |
| 1-1/2" (17) | 1.25 | 0.64 | 2.75 | 3.36 | 3.68 | 3.13 | 0.25 | 1/8 NPT | 3.38 | 1.75 | 1.14 | 1/4 NPT | 1.68 |
| 2" (31) | 1.62 | 0.82 | 3.13 | 3.97 | 4.34 | 4.20 | 0.38 | 1/8 NPT | 4.45 | 2.25 | 1.26 | 1/4 NPT | 1.94 |
| 2-1/2" (50) | 1.88 | 0.87 | 3.62 | 4.62 | 5.05 | 5.34 | 0.33 | 1/4 NPT | 3.67 | 2.75 | 1.31 | 3/8 NPT | 2.33 |
| 3" (70) | 2.25 | 0.90 | 4.17 | 5.17 | 5.59 | 5.86 | 0.50 | 1/4 NPT | 6.28 | 3.25 | 1.35 | 3/8 NPT | 2.69 |

*All other dimensions are same as the non-contact PFCN cylinders.


Price/Catalog PFCN-1108
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