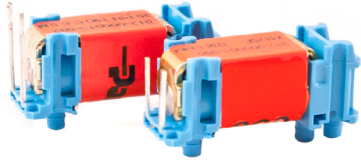


X-Valve[®] Miniature Pneumatic Solenoid Valve

8mm Solenoid Valve



Typical Applications

- Portable Equipment
- Blood Pressure Monitoring
- Wound Therapy
- Air and Oxygen Delivery
- Sensor Zeroing


Product Specifications

Mechanical

| |
|---|
| Valve Type: |
| 3-Way, Solenoid-actuated poppet style - Universal (6 psig & 30 psig models) - Normally Closed (100 psig model) 2-Way Solenoid-actuated poppet style - Normally Closed, Bi-Directional Flow (6 & 30 psig models) - Normally Closed, Directional Flow (100 psig model) |
| Media: Non-Reactive gases |
| Operating Environment: 32 to 122°F (0 to 50°C) |
| Storage Temperature: -40 to 158°F (-40 to 70°C) |
| Dimensions: - Length: 0.92 in (23.4 mm) - Width: 0.31 in (7.9 mm) - Height: 0.48 in (12.2 mm) to Barb End / 0.35 in (8.9 mm) to Manifold Face |
| Spacing: 0.315 in (8 mm) center |
| Porting: - Barbs for 1/16 in (1.5 mm) I. D. Tubing, (1/32 in Wall Max.) - Manifold Mount (Gasket accessory required, see ordering info) |
| Weight: 0.16 oz (4.5 g) |
| Internal Volume: 0.0056 in ³ (0.092 cm ³) |

The X-Valve[®] is a miniature pneumatic solenoid valve measuring only 8 mm in width. The compact size, light weight and low power consumption of the X-Valve[®] is the ideal solution for portable applications and those applications with limited space and available power. The body construction of the X-Valve[®] is suited for manifold or barbed-tube pneumatic connections and is available in 2-way normally closed and 3-way universal configurations.

Features

- Direct PC and side-to-side mounting enables compact and efficient system design
- Large range of pressure options (6, 30 and 100 psi) to meet various application requirements
- Light weight valve construction is ideal for portable applications
- Available low power model (0.5 Watt) for continuous duty applications
- RoHS compliant 

Electrical

| |
|---|
| Power Options: 0.5 Watt (6 psig model) 1.0 Watt (30, 100 psig model) |
| Voltage Options: 3, 5, 12 or 24 VDC Further power reduction may be achieved through the use of spike and hold or PWM electrical control. |
| Electrical Connections: PC Pins, 4 mm centers (all models) Lead Wire/Connector Assembly (Accessory, see ordering info) |

Wetted Materials

| |
|---|
| Bobbin/Body: PBT (Polybutylene terephthalate) |
| Pole & Plunger: 430 FR Series Stainless Steel |
| Seal (Options): FKM, EPDM, Silicone |
| Other: 302 Series Stainless Steel |

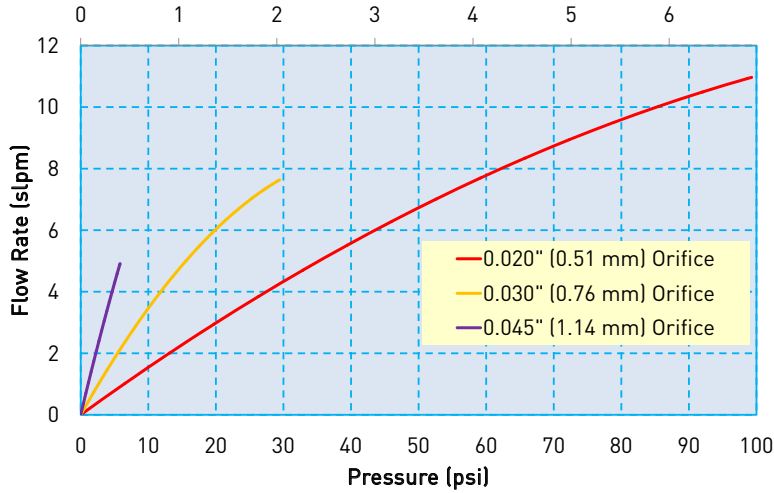
Performance Characteristics

| |
|--|
| Leak Rate: Tested with Air <0.016 sccm (6 psig Silicone) <0.016 sccm (30 psig FKM) <0.16 sccm (6 psig EPDM & FKM) <0.2 sccm (100 psig only) |
| Response: < 20 ms maximum cycling (FKM, Silicone) < 50 ms maximum cycling (EPDM) |
| Pressure/Vacuum: 0 to 6 psid (0.4 bar differential) 0 to 30 psid (2.0 bar differential) 0 to 100 psid (6.9 bar differential) |
| Proof Pressure: 200 psig (13.7 bar) |
| Minimum Flow: 4 slpm @ 6 psid (0.4 bar differential) 6 slpm @ 30 psid (2.0 bar differential) 9 slpm @ 100 psid (6.9 bar differential) |
| Orifice Sizes/Equivalent Cv: 0.045" (1.14 mm) / 0.018 0.030" (0.75 mm) / 0.010 0.020" (0.5 mm) / 0.005 |
| Reliability: Life Cycle rating of 25 million (worst case tested, no performance degradation) |

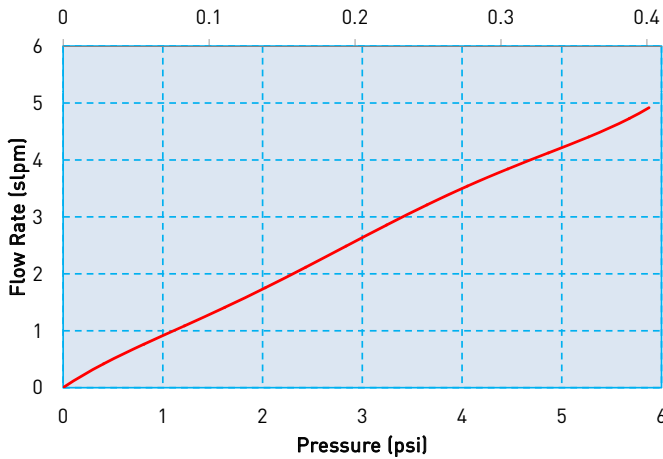
X-Valve® Miniature Pneumatic Solenoid Valve

Typical Flow Curve

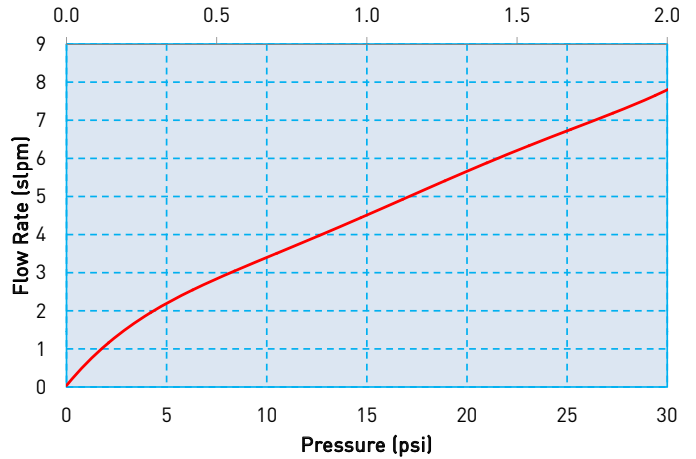
All Models
 (Tested w/air 24° C)
 Pressure (bar)



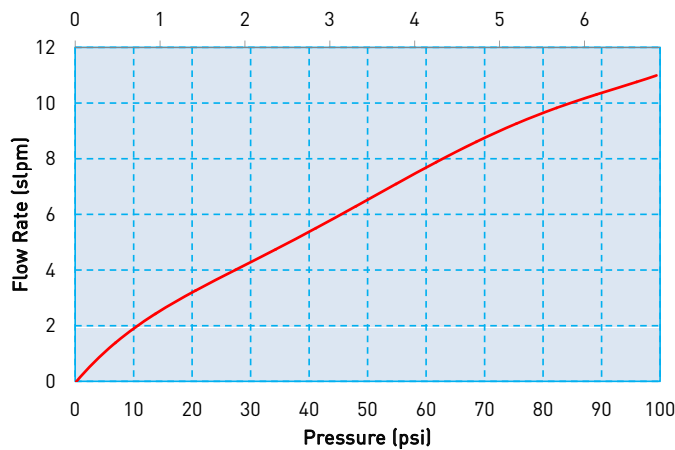
Models 1 and 6 – 0.045" (1.14 mm) Orifice
 Pressure (bar)



Models 2 and 7 – 0.030" (0.76 mm) Orifice
 Pressure (bar)



Models 5 and 8 – 0.020" (0.51 mm) Orifice
 Pressure (bar)



X-Valve® Miniature Pneumatic Solenoid Valve

Pressure and Flow Capabilities/Power

| Model No. | Orifice Size | Nominal Cv | Maximum Operating Pressure Differential | Nominal Power Consumption |
|-----------|--------------------|------------|---|---------------------------|
| 1 and 6 | 0.045 in (1.14 mm) | 0.018 | 6 psi (0.4 bar differential) | 0.5 Watt |
| 2 and 7 | 0.030 in (0.76 mm) | 0.010 | 30 psi (2.0 bar differential) | 1 Watt |
| 5 and 8 | 0.020 in (0.51 mm) | 0.005 | 100 psi (6.9 bar differential) | 1 Watt |

* Proof pressure is 200 psig (13.7 bar)

Pneumatic Interface / Electrical Interface

Short Pin

(For Pin/Wire Lead or PCB Terminal Housing Connection)
[Reference Accessories section]

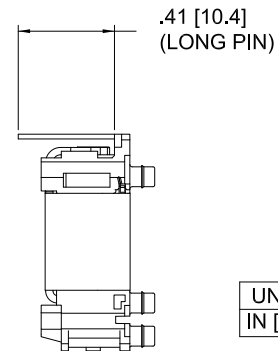
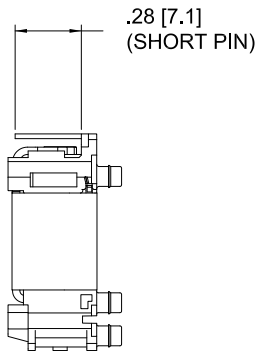


Long Pin

(For Pin/PCB solder mount connection)



Coil Connections



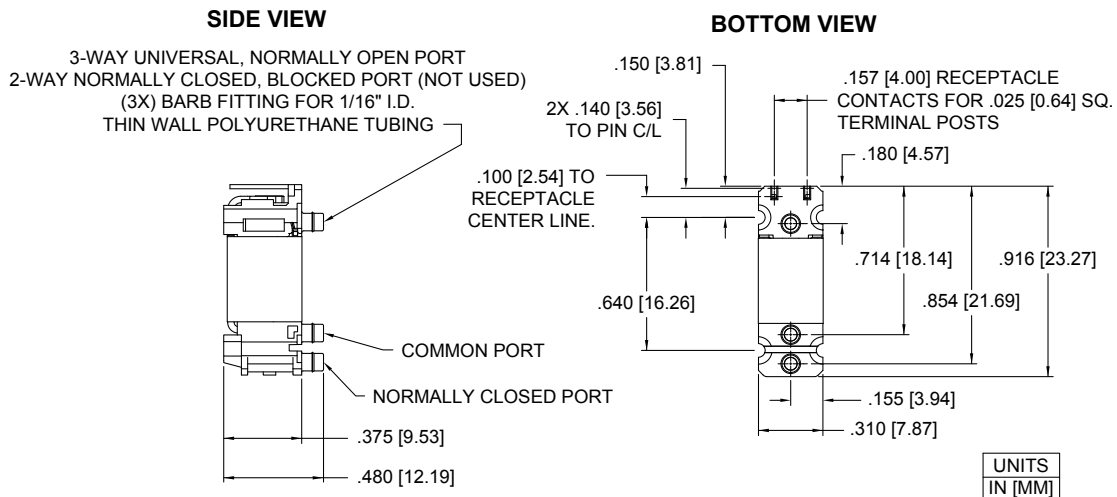
Electrical Connection Options:

Electrical terminals compatible with Molex 51065 series connector or equivalent.

UNITS
IN [MM]

Mechanical Integration

Dimensions

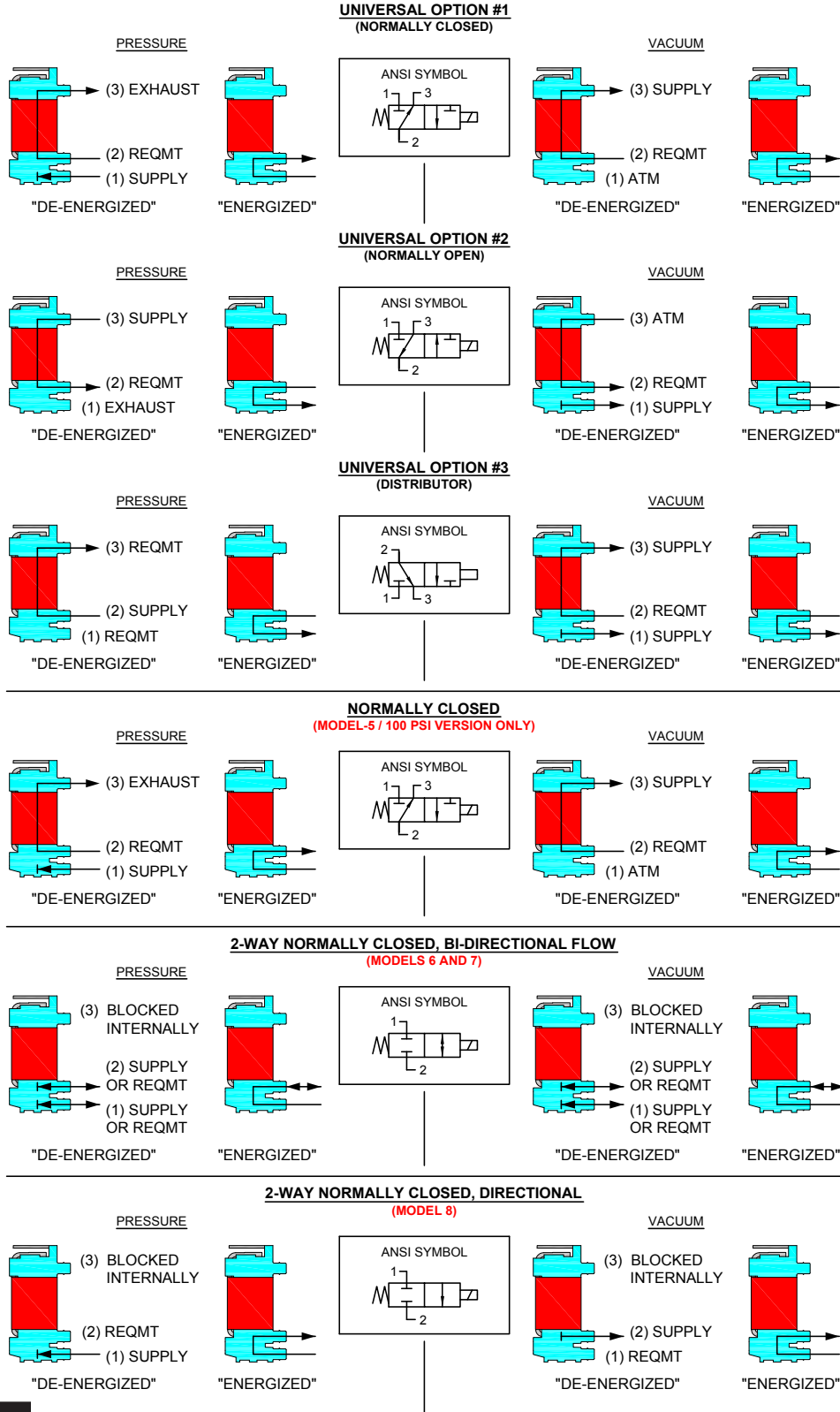


X-Valve® Miniature Pneumatic Solenoid Valve

ANSI Symbols

| LEGEND: | |
|----------|-------------------------------------|
| SUPPLY: | Pneumatic Source or Supply Pressure |
| EXHAUST: | Exhaust to Atmospheric Pressure |
| REQMT: | Customer Requirement or Application |
| ATM: | Atmospheric Pressure |

Pneumatic Schematics by Valve Types

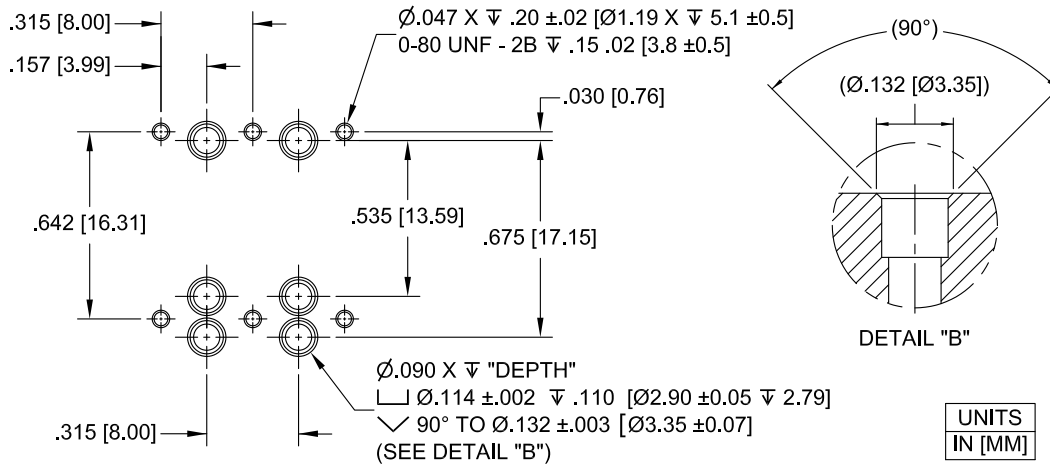


X-Valve® Miniature Pneumatic Solenoid Valve

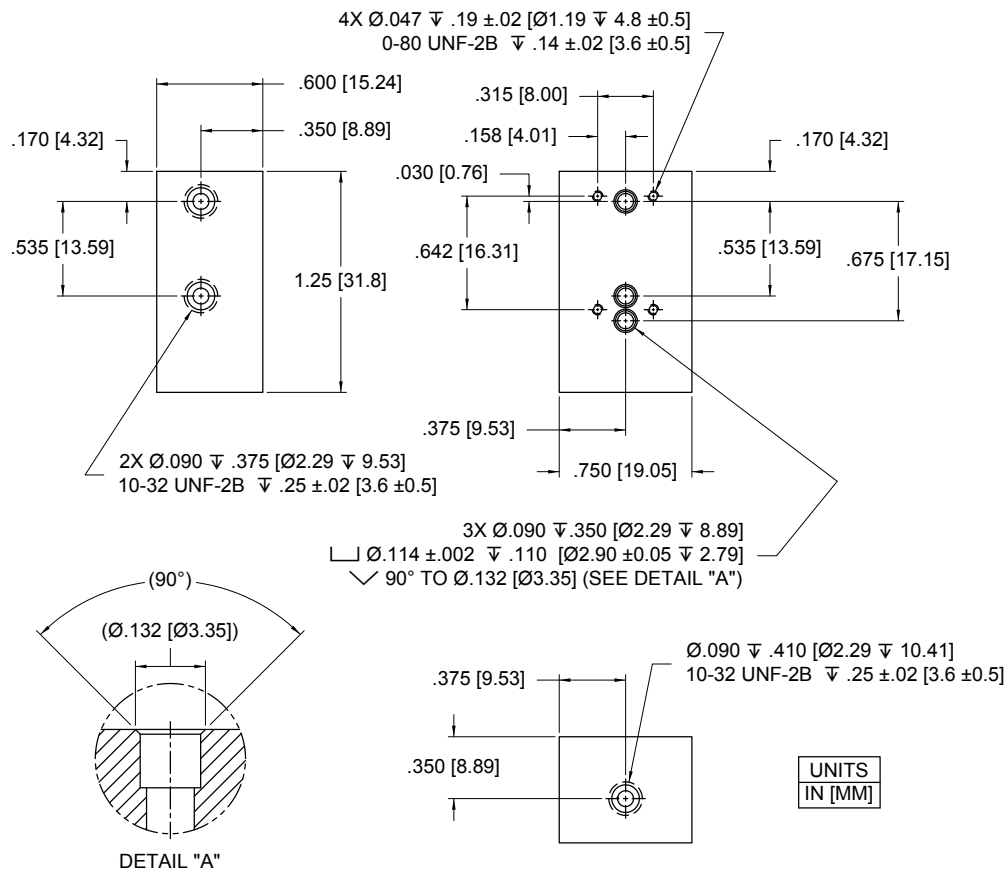
Installation and Use

X-Valve Manifold Mount Diagram

Parker Precision Fluidics recommends 3-5 in-oz of torque for the screws



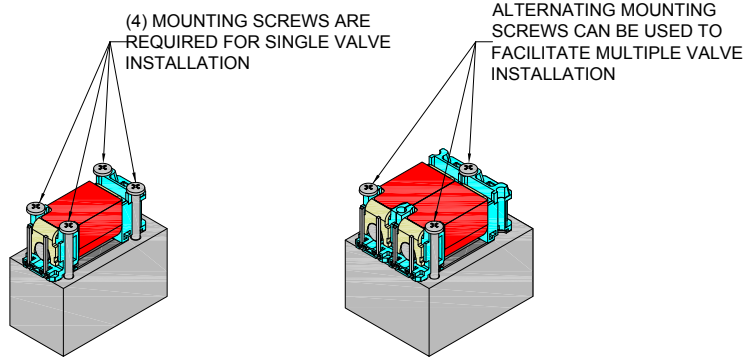
Recommended X-Valve Manifold Dimensions



X-Valve® Miniature Pneumatic Solenoid Valve

Installation and Use

Recommended X-Valve Mounting



Single Station Manifold Mounting

Multiple Station Manifold Mounting

Accessories

Mounting Options

Manifold Rubber Gasket (FKM)

195-000159-001

(required for manifold mounting)



12" Wire Leads

290-006061-001

(for use with Short Pin valve configuration)



Screw 0-80 x 1/2" Binding Head, Phillips

191-000100-208

(see valve mounting recommendations above)

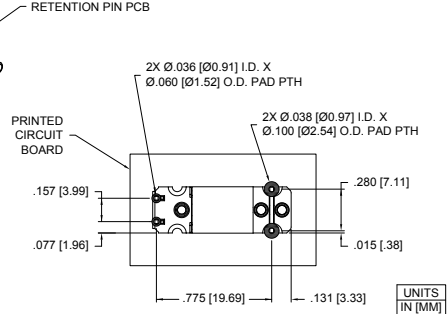
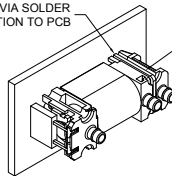


Retention Pin PCB

190-006020-001



PIN SECURED VIA SOLDER CONNECTION TO PCB



X-Valve® Miniature Pneumatic Solenoid Valve

Ordering Information

| Sample Product ID | X | 1 | 05 | L | F | |
|-------------------|--------|--|----|---|---|--|
| Description | Series | Model Number: Pressure / Orifice / Power / Type | | Voltage | Electrical Coil Connection | Elastomer |
| Options | X | 1: 6 psig / 0.045" / 0.5 Watt / 3-Way Universal 2: 30 psig / 0.030" / 1 Watt / 3-Way Universal 5: 100 psig / 0.020" / 1 Watt / 3-Way NC only 6: 6 psig / 0.045" / 0.5 Watt / 2-Way NC, Bi-Directional Flow ⁽¹⁾ 7: 30 psig / 0.030" / 1 Watt / 2-Way NC, Bi-Directional Flow ⁽¹⁾ 8: 100 psig / 0.020" / 1 Watt / 2-Way NC, Directional Flow ⁽¹⁾ | | 03: 3 VDC 05: 5 VDC 12: 12 VDC 24: 24 VDC | S: Short Pins ⁽²⁾ L: Long Pins ⁽³⁾ | F: FKM E: EPDM (6 psig only) S: Silicone (6 psig only) |
| | | ⁽¹⁾ 2-Way NC configurations only available in FKM | | ⁽²⁾ For Pin/Wire Lead or PCB Terminal Housing Connection | | ⁽³⁾ For Pin/PCB solder mount connection |

| Product ID Reference | Order Part Number | Product ID Reference | Order Part Number | Product ID Reference | Order Part Number |
|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|
| X-1-03-L-F | 912-000001-001 | X-1-05-S-F | 912-000001-009 | X-5-12-S-F | 912-000001-019 |
| X-1-12-L-F | 912-000001-002 | X-1-05-L-F | 912-000001-010 | X-5-24-S-F | 912-000001-020 |
| X-2-12-L-F | 912-000001-003 | X-2-03-S-F | 912-000001-011 | X-5-12-L-F | 912-000001-021 |
| X-2-24-L-F | 912-000001-004 | X-2-03-L-F | 912-000001-012 | X-5-24-L-F | 912-000001-022 |
| X-1-03-S-F | 912-000001-005 | X-5-03-S-F | 912-000001-013 | X-5-05-L-F | 912-000001-031 |
| X-1-12-S-F | 912-000001-006 | X-5-03-L-F | 912-000001-014 | X-5-05-S-F | 912-000001-032 |
| X-2-12-S-F | 912-000001-007 | X-1-24-S-F | 912-000001-017 | X-2-05-L-F | 912-000001-033 |
| X-2-24-S-F | 912-000001-008 | X-1-24-L-F | 912-000001-018 | X-2-05-S-F | 912-000001-034 |



| Product ID Reference | Order Part Number | Product ID Reference | Order Part Number | Product ID Reference | Order Part Number |
|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|
| X-6-03-L-F | 912-000007-001 | X-6-05-S-F | 912-000007-009 | X-8-12-S-F | 912-000007-019 |
| X-6-12-L-F | 912-000007-002 | X-6-05-L-F | 912-000007-010 | X-8-24-S-F | 912-000007-020 |
| X-7-12-L-F | 912-000007-003 | X-7-03-S-F | 912-000007-011 | X-8-12-L-F | 912-000007-021 |
| X-7-24-L-F | 912-000007-004 | X-7-03-L-F | 912-000007-012 | X-8-24-L-F | 912-000007-022 |
| X-6-03-S-F | 912-000007-005 | X-8-03-S-F | 912-000007-013 | X-8-05-L-F | 912-000007-031 |
| X-6-12-S-F | 912-000007-006 | X-8-03-L-F | 912-000007-014 | X-8-05-S-F | 912-000007-032 |
| X-7-12-S-F | 912-000007-007 | X-6-24-S-F | 912-000007-017 | X-7-05-L-F | 912-000007-033 |
| X-7-24-S-F | 912-000007-008 | X-6-24-L-F | 912-000007-018 | X-7-05-S-F | 912-000007-034 |

| Accessories | |
|---|---|
| 195-000159-001: Rubber (FKM) Gasket ⁽¹⁾ | ⁽¹⁾ Not supplied with the valve. Used as a seal between the valve ports and manifold. |
| 290-006061-001: 12" (30.5 cm) Wire Leads ⁽²⁾ | ⁽²⁾ Not supplied with the valve. Used to electrically interface with the valve. |
| 190-006020-001: Retention Pin, PCB ⁽³⁾ | ⁽³⁾ Not supplied with the valve. Used to secure the valve for printed circuit board solder mounting. |
| 191-000100-208: Screw, 0-80 x 1/2", Binding Head, Phillips ⁽⁴⁾ | ⁽⁴⁾ Not supplied with the valve. Four (4) screws are required for single station manifold valve mounting. See Recommended X-Valve Mounting for multiple station mounting screw requirements. |

NOTE: In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate
- System Supply Voltage
- Media
- Ambient Temperature Range

Please click on the Order On-line button (or go to www.parker.com/precisionfluidics/xvalve) to configure your X-Valve Miniature Pneumatic Solenoid Valve. For more detailed information, visit us on the Web, or call and refer to Specification #790-002166-001 (3-Way, 6 and 30 psig), #790-002241-001 (3-Way, 100 psig), #790-002383-001 (2-Way, 6 psig), #790-002384-001 (2-Way, 30 psig), #790-002385-001 (2-Way, 100 psig) and drawing #890-003090-003 (Standard Pins) and #890-003090-004 (Long Pins).

NOTES
