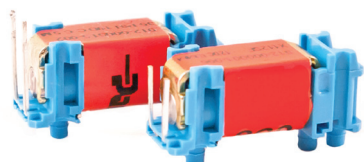


# X-Valve® Miniature Pneumatic Solenoid Valve

## 8mm Solenoid Valve



### Typical Applications

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

### Mechanical

#### Valve Type:

3 Port, Direct-acting poppet style  
 - Universal (6 psig & 30 psig models)  
 - Normally Closed (100 psig model)

#### Media:

Non-Reactive gases

#### Operating Environment:

32 to 122°F (0 to 50°C) 6, 30 psig  
 59 to 122°F (15 to 50°C) 100 psig

#### 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<sup>3</sup> (0.092 cm<sup>3</sup>)

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 both 2-way and 3-way 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:

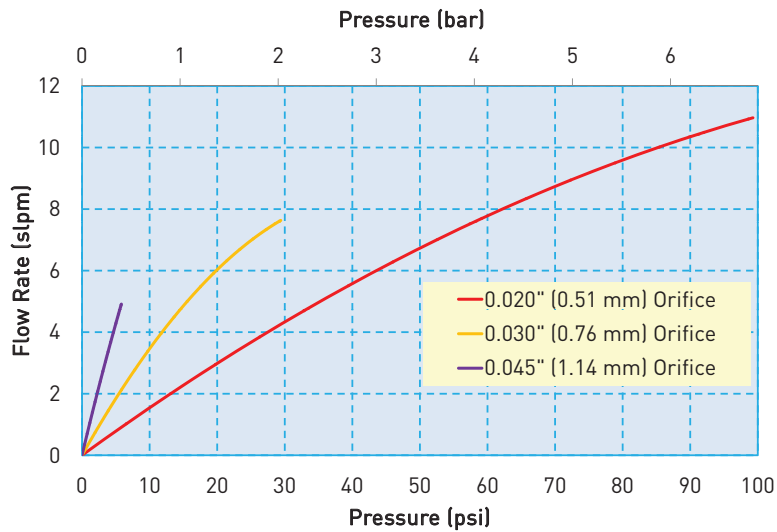
0.045" (1.14 mm) / 0.018  
 0.030" (0.75 mm) / 0.010  
 0.020" (0.5 mm) / 0.005

#### Reliability:

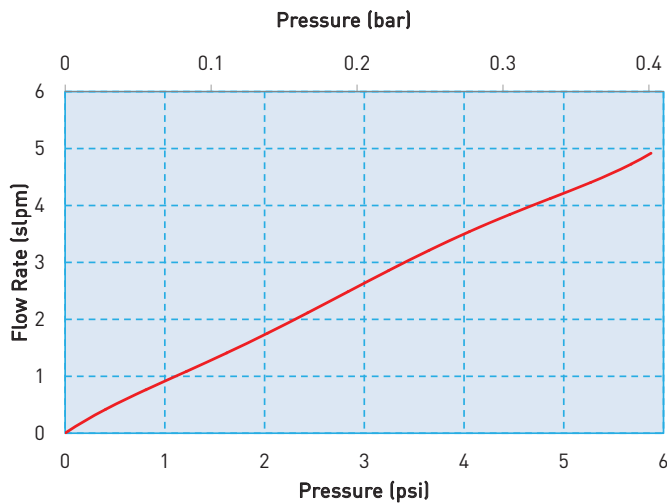
Life Cycle rating of 25 million  
 (worst case tested, no performance  
 degradation)

# X-Valve® Miniature Pneumatic Solenoid Valve

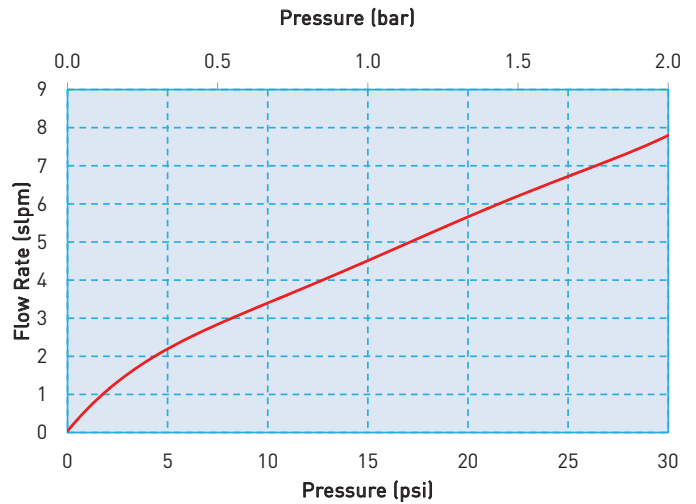
## Typical Flow Curve (Tested w/air 24° C) All Models



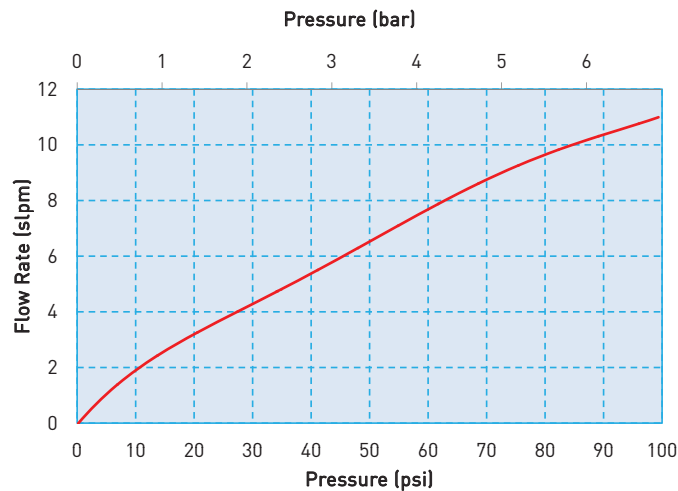
### Model 1 – 0.045" (1.14 mm) Orifice



### Model 2 – 0.030" (0.76 mm) Orifice



### Model 5 – 0.020" (0.51 mm) Orifice



# X-Valve® Miniature Pneumatic Solenoid Valve

## Pressure and Flow Capabilities/Power

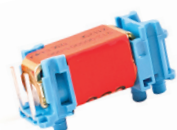
Model No.	Orifice Size	Nominal Cv	Maximum Operating Pressure Differential *	Power Consumption
1	0.045 in (1.14 mm)	0.018	6 psid (0.4 bar differential)	0.5 Watt
2	0.030 in (0.76 mm)	0.010	30 psid (2.0 bar differential)	1 Watt
5	0.020 in (0.51 mm)	0.005	100 psid (6.8 bar differential)	1 Watt

\* Proof pressure is 200 psig (13.7 bar)

## Electrical Interface / Pneumatic Interface

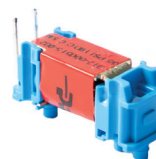
### Short Pin

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

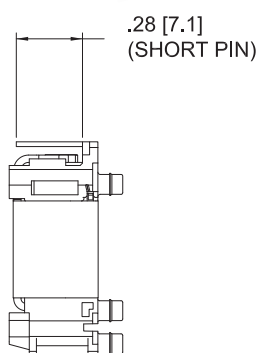


### Long Pin

(For Pin/PCB solder mount connection)



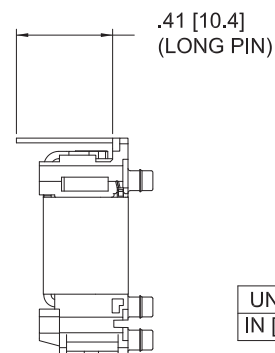
## Coil Connections



.28 [7.1]  
(SHORT PIN)

### Electrical Connection Options:

Electrical terminals compatible with Molex 51065 series connector or equivalent.

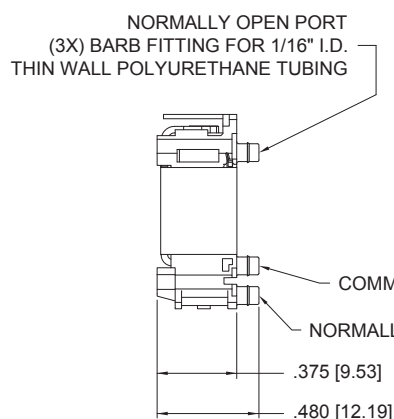


.41 [10.4]  
(LONG PIN)

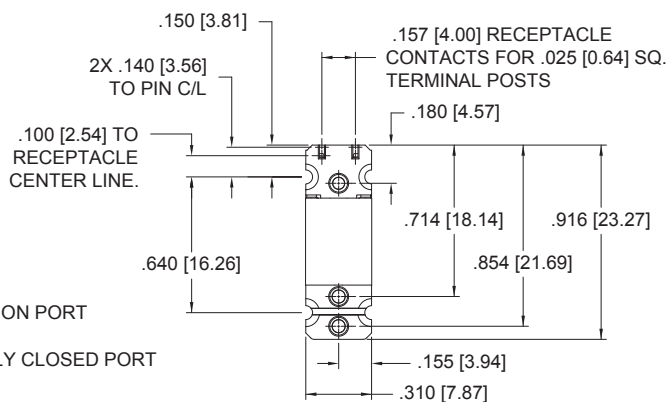
UNITS  
IN [MM]

## Dimensions

### SIDE VIEW



### BOTTOM VIEW

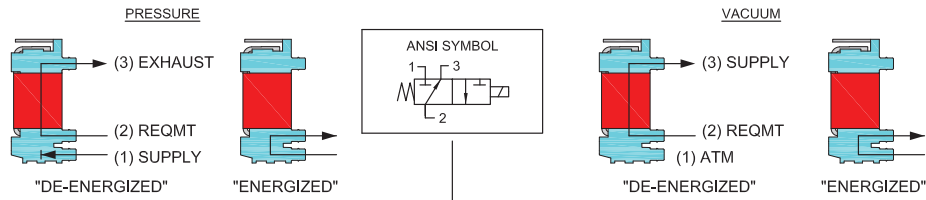


# X-Valve® Miniature Pneumatic Solenoid Valve

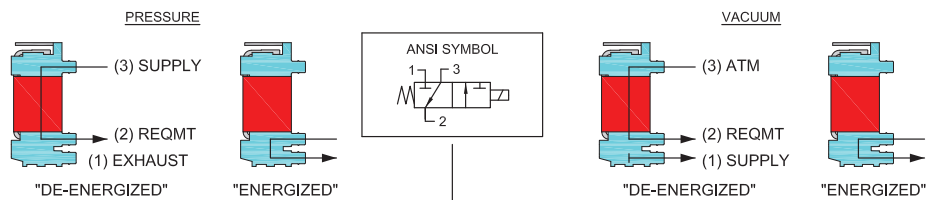
## ANSI Pneumatic Schematics by Valve Types

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

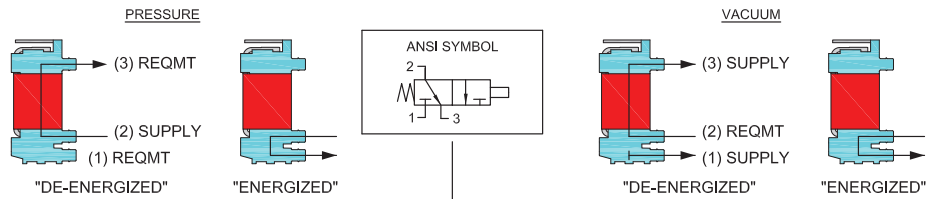
### UNIVERSAL OPTION #1 (NORMALLY CLOSED)



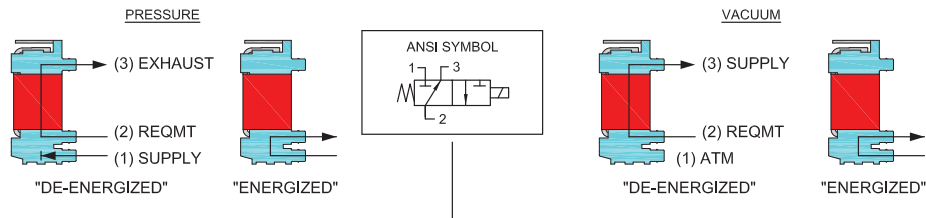
### UNIVERSAL OPTION #2 (NORMALLY OPEN)



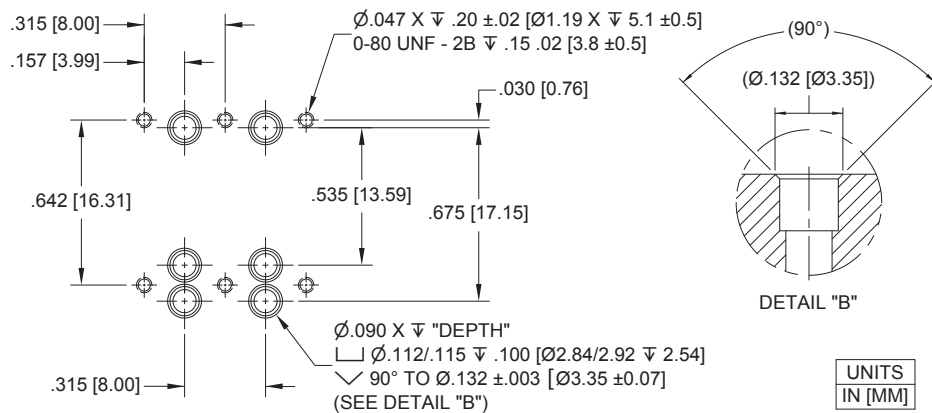
### UNIVERSAL OPTION #3 (DISTRIBUTOR)



### NORMALLY CLOSED MODEL-5, 100 PSI VERSION ONLY

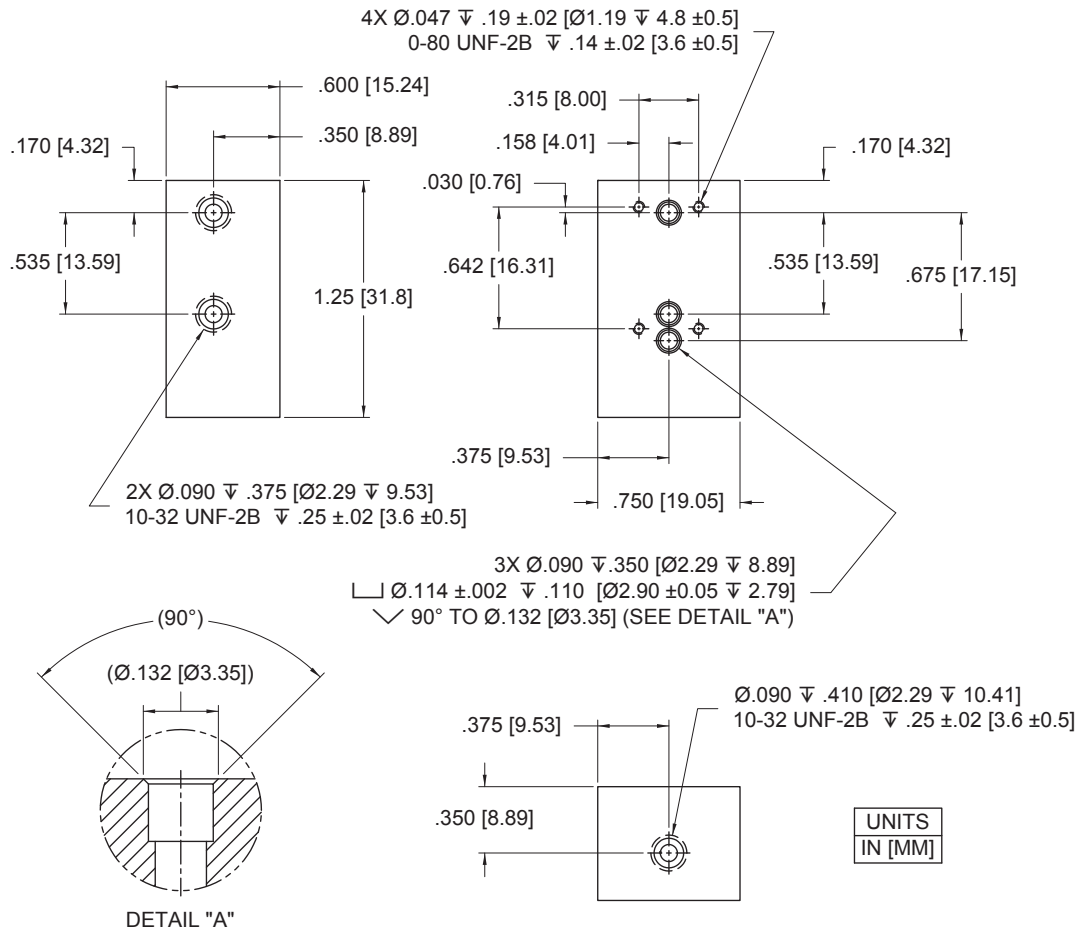


## X-Valve Manifold Mount Diagram



# X-Valve® Miniature Pneumatic Solenoid Valve

## Recommended X-Valve Manifold Dimensions



## Accessories

### 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

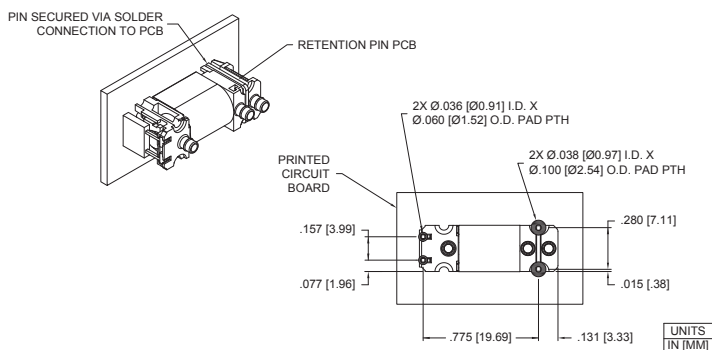
(2 required for each valve)



# X-Valve® Miniature Pneumatic Solenoid Valve

## Accessories (continued)

### Retention Pin PCB 190-006020-001



## Ordering Information

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

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



Accessories
195-000159-001: Rubber Gasket (FKM)
290-006061-001: 12" Wire Leads
190-006020-001: Retention Pin PCB
191-000100-208: Screw 0-80 x 1/2" Binding Head, Phillips (2 required for each valve)

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](http://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 Performance Spec. #790-002166-001 (6, 30 psig) and Drawing #790-002241-001 (100 psig) and drawing #890-003090-003 (Standard Pins) and #890-003090-004 (Long Pins).

PPF-MSV-002/US April 2012

For more information call +1 603 595 1500 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)

