

# X-Valve®

## 8 mm switching solenoid valves

### FEATURES

- 2-way or 3-way, 2 position valve (NO, NC & Distributor)
- Compact size, only 8 mm in width
- Meets pressure requirements including 6, 30 & 100 psi
- Excellent leakage specification for over 25 million cycles
- Ensures high reliability with its single piece body design
- Barbed pressure ports allow for direct tubing or manifold assemblies
- Non-elastomeric versions with enhanced media compatibility available on request
- RoHS compliant



### MEDIA COMPATIBILITY

Non-reactive gases

### WETTED MATERIALS

|                  |                                  |
|------------------|----------------------------------|
| Bobbin/Body      | PBT (polybutylene terephthalate) |
| Pole and plunger | 430 FR series stainless steel    |
| Seal (options)   | FKM, EPDM, silicone              |
| Other            | 302 series stainless steel       |

### ELECTRICAL

|                             |                              |       |
|-----------------------------|------------------------------|-------|
| Power                       |                              |       |
| X1..., X6... (6 psi)        |                              | 0.5 W |
| all other (30 psi, 100 psi) |                              | 1.0 W |
| Voltage                     | 3, 5, 12, 24 V <sub>DC</sub> |       |
| Electrical connections      | PC pins, 4 mm centers        |       |

### PHYSICAL PROPERTIES

|                       |   |
|-----------------------|---|
| Operating environment | 0 to 50 °C  |
| Storage temperature   | -40 to 70 °C  |
| Length                | 24 mm (0.92 in)   |
| Width                 | 7.9 mm (0.31 in)  |
| Height                | 9.5 mm (0.375 in)   |
| Spacing               | 8 mm (centerline)   |
| Porting               | Universal barbs for 1/16 in I.D. tubing (1/32 in wall max.); manifold mount with X-seal |
| Weight                | 4.5 g (0.16 oz)   |
| Internal volume       | 0.092 cm <sup>3</sup> (0.0056 in <sup>3</sup> )   |

X-Valve is a registered trademark of Parker Hannifin Corporation.

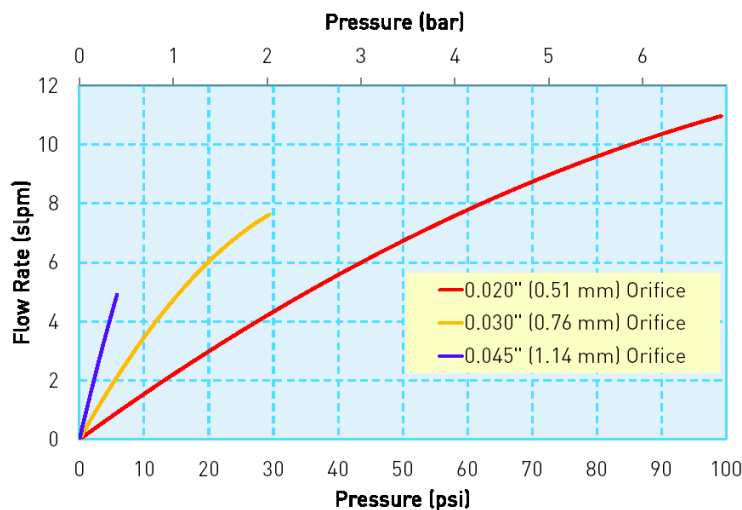
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## 8 mm switching solenoid valves

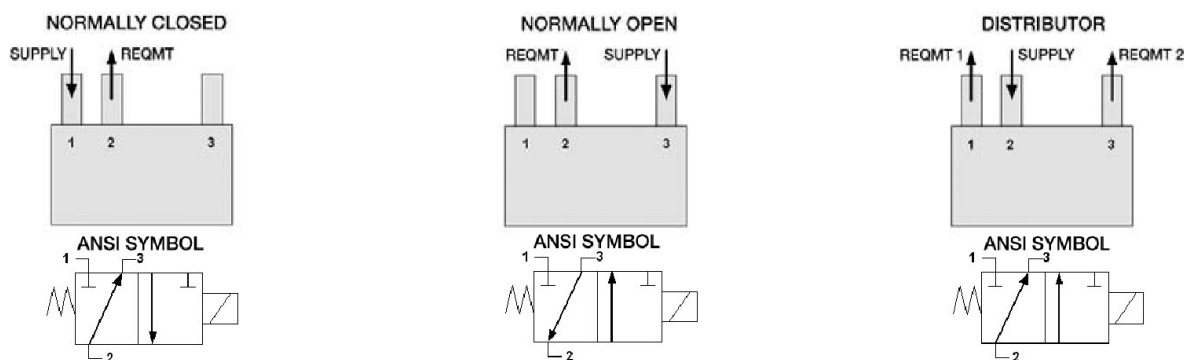
### PERFORMANCE CHARACTERISTICS

| Part no.     | Pressure <sup>4</sup> | Minimum flow     | Orifice sizes/<br>Equivalent $C_v$ <sup>1</sup> | Leak rate <sup>2</sup>                            | Response          |
|--------------|-----------------------|------------------|---|---|-------------------|
| X1..., X6... | 0...6 psid            | 4 lpm @ 6 psid   | 0.045 in (1.143 mm)/<br>0.018 $C_v$             | ≤0.16 sccm (FKM, EPDM),<br>≤0.016 sccm (silicone) | <20 ms<br>cycling |
| X2..., X7... | 0...30 psid           | 6 lpm @ 30 psid  | 0.030 in (0.76 mm)/<br>0.010 $C_v$              | ≤0.016 sccm                                       |                   |
| X5..., X8... | 0...100 psid          | 9 lpm @ 100 psid | 0.020 in (0.51 mm)/<br>0.005 $C_v$              | ≤0.2 sccm   |                   |

### FLOW CURVES (typ. air flow @ 24 °C)<sup>3</sup>



### CONNECTION DIAGRAM



#### Notes:

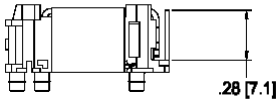
- The  $C_v$  value is the volume flow in US gallons/min under specific flow conditions and describes the relative flow capacity of a valve. The equivalent european measure is the  $k_v$  value expressed in  $m^3/h$  ( $k_v = 0.86 C_v$ ).
- sccm denotes Standard Cubic Centimeters per Minute. It is a unit for the flow rate at standard conditions of temperature and pressure. 1000 sccm = 1 slpm.
- slpm denotes Standard Liters per Minute. It is a unit for the flow rate at standard conditions of temperature and pressure. 1 slpm = 1000 sccm.
- Proof pressure is 200 psig (13.7 bar)

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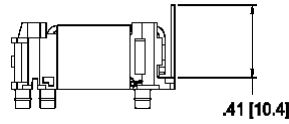
## 8 mm switching solenoid valves

### ELECTRICAL CONNECTION

Short pin



Long pin



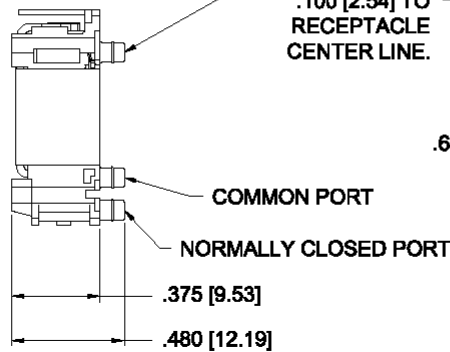
dimensions in inches (mm)

Electrical terminals compatible with Molex 51065 series connector or equivalent.

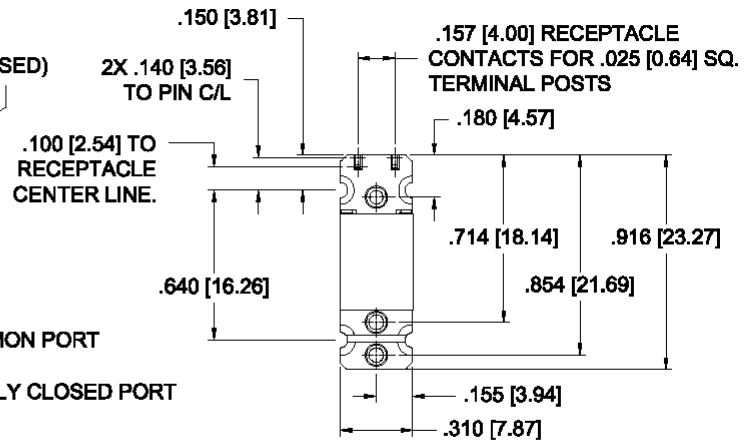
### OUTLINE DRAWING

Side view

3-WAY UNIVERSAL, NORMALLY OPEN PORT  
2-WAY NORMALLY CLOSED, BLOCKED PORT (NOT USED)

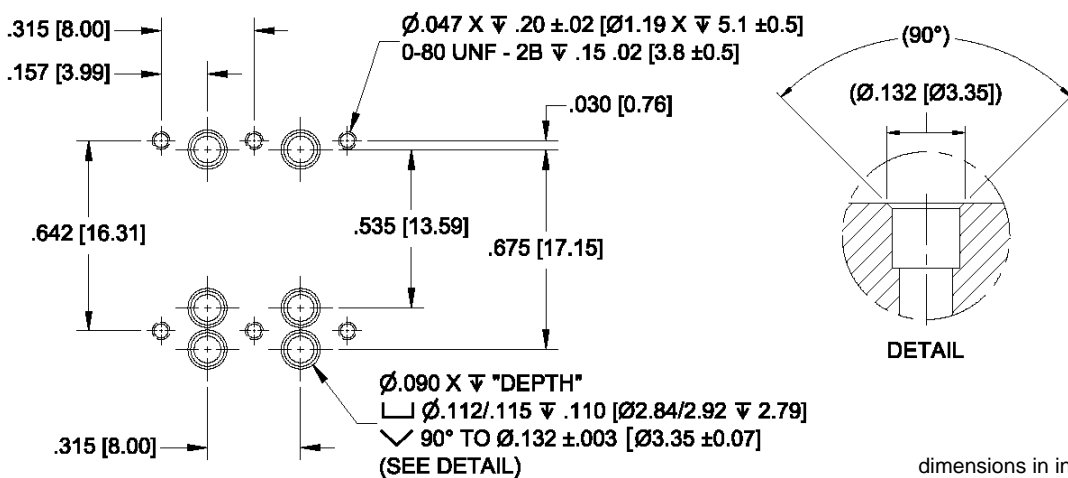


Bottom view



dimensions in inches (mm)

### Manifold mount diagram



dimensions in inches (mm)

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### ORDERING INFORMATION

| Options  | Series | Model no. |         |                        |       | Voltage                     | Electical connection |                    | Elastomer |           | Optional accessories*                  |                          |   |                |
|--|--------|-----------|---------|------------------------|-------|-----------------------------|----------------------|--------------------|-----------|-----------|--|--------------------------|---|----------------|
|  |        | Pressure  | Orifice | Coil wattage           | Type  |                             |                      |                    |           |           |  |                          |   |                |
|  | X      | 1         | 6 psi   | 0.045 in<br>(1.143 mm) | 0.5 W | 3-way,<br>universal         | 03                   | 3 V <sub>DC</sub>  | S         | Short pin | F                                      | FKM                      | B | Screw & gasket |
|  |        | 2         | 30 psi  | 0.030 in<br>(0.762 mm) | 1 W   | 3-way,<br>universal         | 05                   | 5 V <sub>DC</sub>  | L         | Long pin  | E                                      | EPDM<br>(6 psi only)     | 0 | No accessories |
|  |        | 5         | 100 psi | 0.020 in<br>(0.510 mm) | 1 W   | 3-way, NC                   | 12                   | 12 V <sub>DC</sub> |           |           | S                                      | Silicone<br>(6 psi only) |   |                |
|  |        | 6*        | 6 psi   | 0.045 in<br>(1.143 mm) | 0.5 W | 2-way, NC,<br>bidirectional | 24                   | 24 V <sub>DC</sub> |           |           |  |                          |   |                |
|  |        | 7*        | 30 psi  | 0.030 in<br>(0.762 mm) | 1 W   | 2-way, NC,<br>bidirectional |                      |                    |           |           |  |                          |   |                |
|  |        | 8*        | 100 psi | 0.020 in<br>(0.510 mm) | 1 W   | 2-way, NC,<br>bidirectional |                      |                    |           |           |  |                          |   |                |
| * 2 way NC configurations only available in FKM.<br>Port 3 internally blocked. |        |           |         |                        |       |                             |                      |                    |           |           | * accessory field not printed on valve |                          |   |                |
| <b>Example:</b>  | X      | 1         |         |                        |       |                             | 05                   |                    | L         |           | F                                      |                          | B |                |

**Note: Not all combinations might be available.  
Non-elastomeric versions with enhanced media compatibility are available on request.  
Please contact First Sensor for further information.**

### Accessories (please order separately using the following order numbers)

| Order No.        | Description  |
|------------------|--|
| ZK071248         | Clear transparent polyurethane tubing, ID 1/16 in (1.6 mm), OD 1/8 in (3.2 mm) |
| X-RETAINING CLIP | Solder clip for mounting   |
| X-CONNECTOR      | 12 in (30.5 cm) leads with connector   |

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