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# Miniature Solenoid Valves

Precision Fluidics



ENGINEERING YOUR SUCCESS.



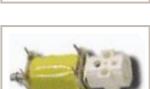
## ENGINEERING **YOUR** SUCCESS.

When you partner with the global leader in motion and control technologies, expect to move your business and the world forward. From miniature solenoid valves to highly integrated automation systems, our innovations are critical to life-saving medical devices and scientific instruments used for drug discovery and pathogen detection. Not to mention, critical to decreasing time to market and lowering your overall cost of ownership. So partner with Parker, and get ready to move, well, anything.



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# X-Valve® Universal Style Solenoid Valve

## 8mm Universal Solenoid Valve



X-Valve® is a 2 or 3-way universal solenoid valve measuring just 8mm in width. The X-Valve's unitized body incorporates its functional features in a single glass-reinforced PBT (Polybutylene Terephthalate) molded body.

### Features

- Provides compact size; only 8mm in width.
- Meets a range of pressure requirements including 6, 30 & 100 psi.
- Offers optional capabilities to meet a 0.016 sccm leakage specification (0.2 sccm for 100 psi) for over 25 million cycles. *(worst case tested, no performance degradation)*
- Ensures high reliability with its single piece body design.
- Allows for direct tubing connection or a radial seal for manifold assemblies through its universal barb design.
- ROHS compliant

### Physical Properties

<b>Valve Type:</b>	2/3-Way Normally Closed 6, 30, 100 psi 2/3-Way Normally Open 6, 30 psi 3-Way Distributor 6, 30 psi
<b>Media:</b>	Non-Reactive Gases
<b>Operating Environment:</b>	32 to 122°F (0 to 50°C) 59 to 122°F for 100 psi (15 to 50°C)
<b>Storage Temperature:</b>	-40 to 158°F (-40 to 70°C)
<b>Length:</b>	0.92 in (24 mm)
<b>Width:</b>	0.31 in (7.9 mm)
<b>Height:</b>	0.35 in (9 mm)
<b>Spacing:</b>	0.135 in (8 mm) centers
<b>Porting:</b>	Universal barbs for 1/16" I.D. tubing (1/32" Wall Max.); Manifold mount with X-seal
<b>Weight:</b>	0.16 oz (4.5 grams)
<b>Internal Volume:</b>	.0045 in <sup>3</sup> (0.074 cm <sup>3</sup> )

### Electrical

<b>Power:</b>	0.5 Watt (6 psi model) 1.0 Watt (30, 100 psi model)
<b>Voltage:</b>	3, 5, 12, 24 VDC <i>Not all voltage options are available in all models. See Ordering Info.</i>
<b>Electrical Connections:</b>	PC Pins, 4 mm centers (all models) Optional lead wires

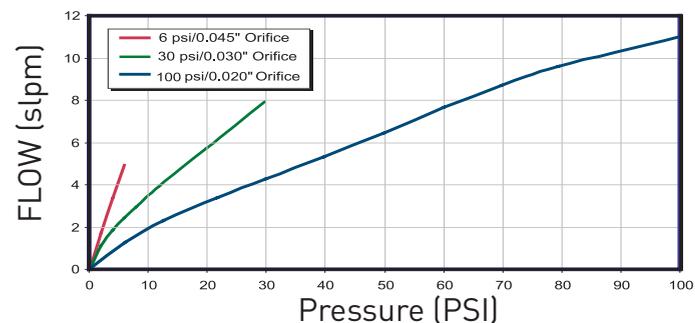
### Wetted Materials

PBT (Polybutylene Terephthalate);  
430 Series Stainless Steel; 302 Series Stainless Steel  
FKM (Fluoroelastomer) or EPDM (Ethylene Propylene Diene Monomer) or Silicone  
*Consult factory for details.*

### Performance Characteristics

<b>Leak Rate:</b>	<0.016 sccm (6 psi Silicone) <0.016 sccm (30 psi FKM) <0.16 sccm (6 psi EPDM & FKM) <0.2 sccm (100 psi only)
<b>Response:</b>	<20 msec cycling (Silicone, FKM) <50 msec cycling (EPDM)
<b>Pressure:</b>	0 to 6 psig (0.04 MPa) 0 to 30 psig (0.20 MPa) 0 to 100 psig (0.69 MPa)
<b>Minimum Flow:</b>	4 lpm @ 6 psi (0.04 MPa) 6 lpm @ 30 psi (0.20 MPa) 9 lpm @ 100 psi (0.69 MPa)
<b>Orifice Sizes/Equivalent Cv:</b>	0.020"/0.005 Cv 0.030"/0.010 Cv 0.045"/0.018 Cv

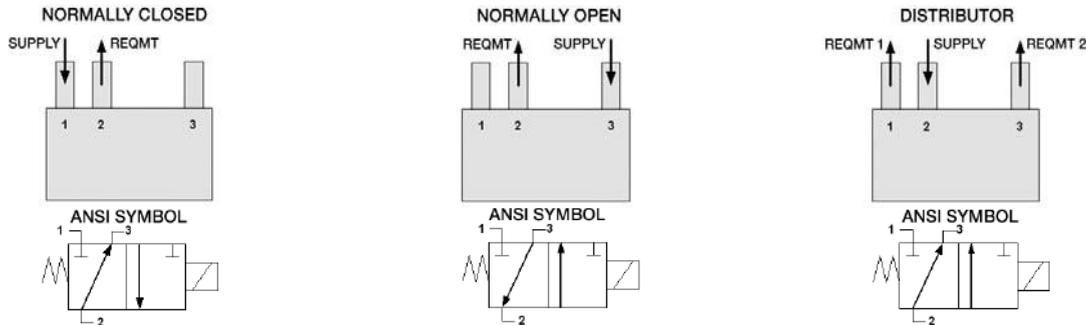
Typical Flow Curve (Tested w/ air 24° C)



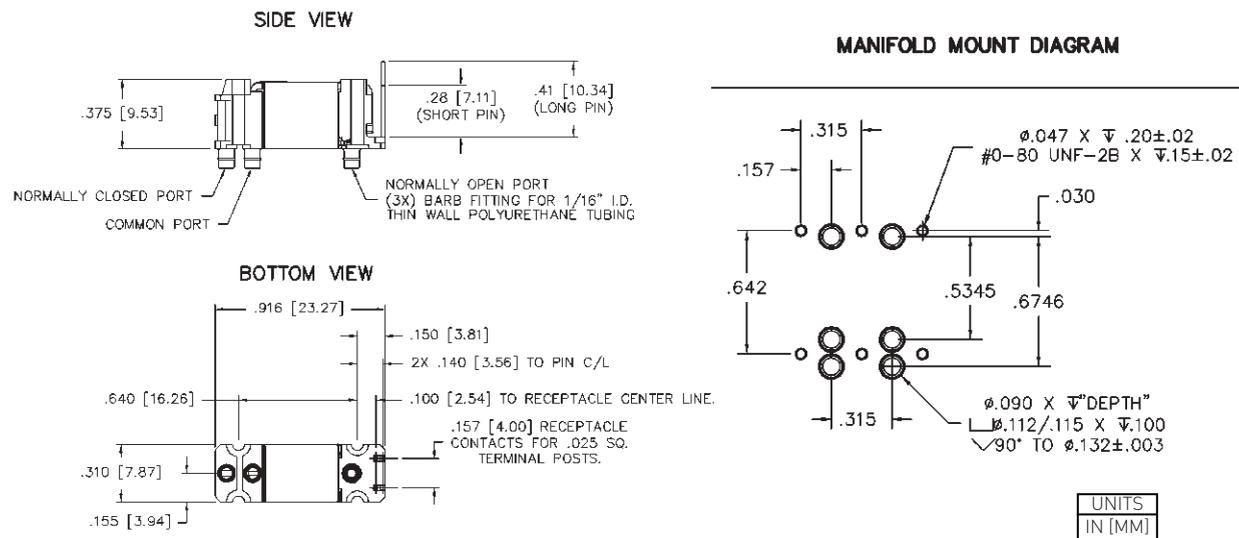
X-Valve is a registered trademark of Parker Hannifin Corporation.

# X-Valve® Universal Style Solenoid Valve

## Connection Diagram



## Dimensions



## Ordering Information

Sample Part ID	X	1	05	L	F	
Description	Series	Model	Voltage	Electrical Connection	Elastomer	Accessories
		<b>No. Pressure/Orifice/Coil Wattage/Type</b>	<b>03:</b> 3 VDC (6 & 30 psi only)	<b>S:</b> Standard Pins <b>L:</b> Long Pins	<b>F:</b> FKM <b>E:</b> EPDM (6 psi only) <b>S:</b> Silicone (6 psi only)	Screws [2] 191-000100-208 Gasket 195-000159-001 12' Lead Wires 290-006061-001 Retention Pin PCB 190-006020-001
		<b>1:</b> 6 psi/0.045"/0.5 Watt/Universal	<b>05:</b> 05 VDC (6 psi only)			
		<b>2:</b> 30 psi/0.030"/1 Watt/Universal	<b>12:</b> 12 VDC			
		<b>5:</b> 100 psi/0.020"/1 Watt/NC	<b>24:</b> 24VDC			



NOTE: Not all versions available for online purchase. Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002166-001 (6, 30 psi) and Drawing #790-002241-001 (100 psi) and drawing #890-003090-002.

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For more information call 1.800.525.2857 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# NEX-Valve

## Universal Style Solenoid Valve

### Non Elastomeric



NEX-Valve is a 3 Way 2 position, bidirectional flow, non elastomeric valve that incorporates many of the proven features of the X-valve. NEX is designed to eliminate elastomer swelling commonly encountered in aggressive liquid applications.

#### Features

- Unique non elastomeric design eliminates compatibility issues typically found with Alcohols, Solvents, Water and Solvent based inks
- Power consumption as low as 0.5 Watts; PWM and pulse hold circuit compatible
- Ensures high reliability with its single piece body design.
- Allows for direct tubing connection or a radial seal for manifold assemblies through its universal barb design.
- ROHS Compliant

#### Common Applications

- Inkjet printing, print heads
- Reservoir fill/drain.
- Liquid cooling systems

#### Physical Properties

<b>Valve Type:</b>
2/3-Way Normally Closed 2/3-Way Normally Open 3-Way Universal 2 Way NC (30 psig only)
<b>Media:</b>
Water, Alcohols (Methanol, Ethanol) Solvents (MEK, Toluene)
<b>Operating Environment:</b>
32 to 122°F (0 to 50°C)
<b>Storage Temperature:</b>
-40 to 158°F (-40 to 70°C)
<b>Length:</b>
0.92 in (24 mm)
<b>Width:</b>
0.31 in (7.9 mm)
<b>Height:</b>
0.35 in (9 mm)
<b>Spacing:</b>
0.135 in (8 mm) centers
<b>Porting:</b>
Universal barbs for 1/16" I.D. tubing (1/32" Wall Max.); Manifold mount with X-seal
<b>Weight:</b>
0.16 oz (4.5 grams)
<b>Internal Volume:</b>
.0045 in <sup>3</sup> (0.074 cm <sup>3</sup> )

#### Electrical

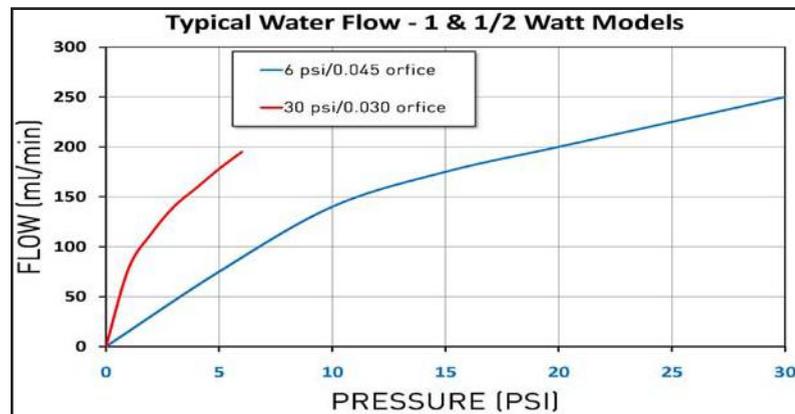
<b>Power:</b>
0.5 Watt (6 psi model) 1.0 Watt (30 psi model)
<b>Voltage:</b>
3, 5, 12, 24 VDC <i>Not all voltage options are available in all models. See Ordering Info.</i>
<b>Electrical Connections:</b>
PC Pins, 4 mm centers (all models) Optional lead wires

#### Wetted Materials

PBT (Polybutylene Terephthalate); 430 Series Stainless Steel; 302 Series Stainless Steel

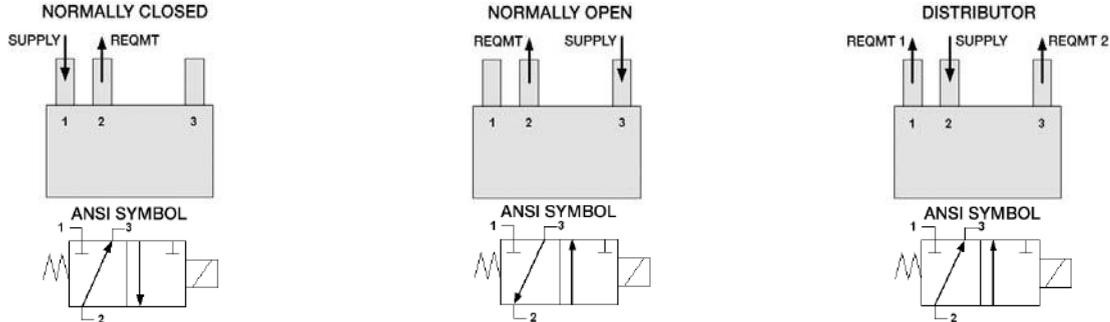
#### Performance Characteristics

<b>Leak Rate:</b>
.02 cc/min, water (water tight)
<b>Response:</b>
<20 msec cycling
<b>Pressure:</b>
0 to 6 psig (0.04 MPa) 0 to 30 psig (0.20 MPa)
<b>Minimum Flow: Water</b>
160 ml/min @ 6 psi 225 ml/min @ 30 psi
<b>Orifice Sizes/Equivalent Cv:</b>
0.030"/0.010 Cv 0.045"/0.018 Cv

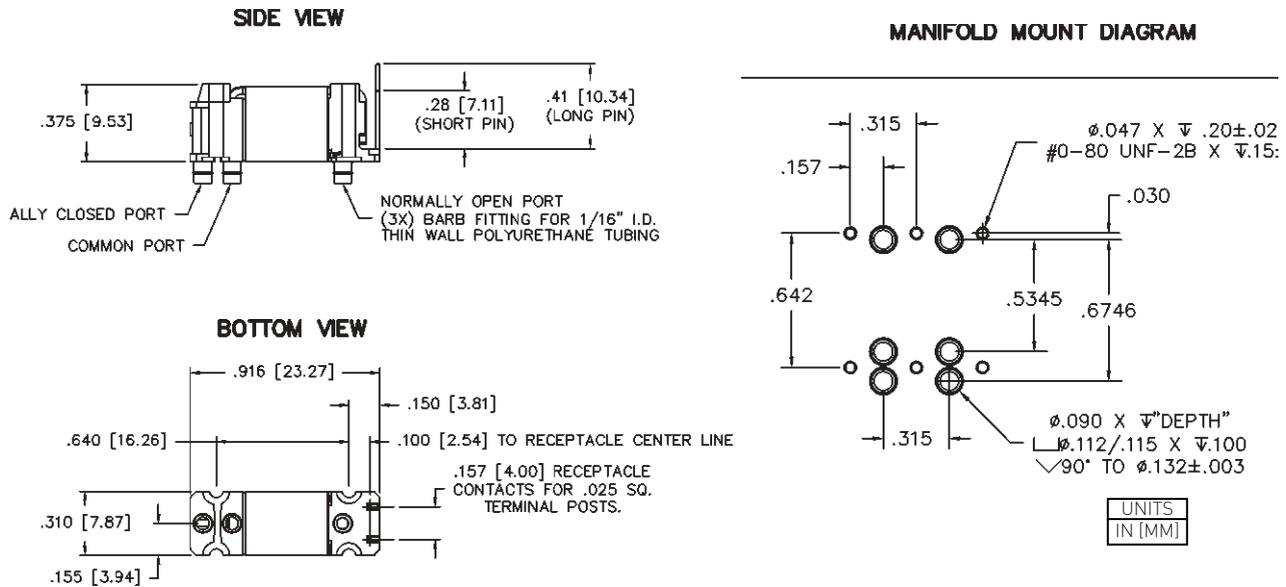


# NEX-Valve Universal Style Solenoid Valve

## Connection Diagram



## Dimensions



## Ordering Information

Sample Part ID	NEX	1	05	L	
Description	Series	Model	Voltage	Electrical Connection	Accessories
		<b>No. Pressure/Orifice/Coil Wattage/Type</b> 1: 6 psi/0.045"/0.5 Watt/Universal 2: 30 psi/0.030"/1 Watt/NC	<b>03:</b> 3 VDC <b>05:</b> 05 VDC 6 psi only <b>12:</b> 12 VDC <b>24:</b> 24VDC	<b>S:</b> Standard Pins <b>L:</b> Long Pins	Screws [2] 191-000100-208 Gasket 195-000159-001 12' Lead Wires 290-006061-001 Retention Pin PCB 190-000602-001

NOTE: Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002240-001 and drawing #890-003090-001 (Standard pin length) # 890-003090-002 (Long pin length).

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 Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# Ten-X<sup>®</sup> Digital Solenoid Valve

## 10mm Normally Open/Closed Solenoid Valve



Ten-X<sup>®</sup> is a 10mm solenoid valve with a 2- or 3-way NO/NC and distributor design. Ten-X delivers repeatable “energized” and “de-energized” response times, low power, and flow capability to meet the specific performance requirements of medical devices.

### Features

- Small 10mm footprint, with up to 8 lpm of flow
- Highly reliable single piece body design
- Universal barb or manifold connections and PCB mount
- 20 million cycles (*worst case tested, no performance degradation*)
- ROHS compliant

### Common Applications

- Portable medical equipment
- Patient monitors
- Wound therapy
- Non-invasive blood pressure

### Physical Properties

<b>Valve Type:</b>	2/3-Way Normally Closed 2 and 3-Way Normally Open 3-Way Distributor
<b>Media:</b>	Non-Reactive Gases
<b>Operating Environment:</b>	32 to 122°F (0 to 50°C) Continuous Duty
<b>Storage Temperature:</b>	-40 to 158°F (-40 to 70°C)
<b>Length:</b>	1.26 in. (32 mm)
<b>Width:</b>	0.39 in. (10 mm)
<b>Height:</b>	0.63 in. (16 mm)
<b>Porting:</b>	Barbs for 0.078 in. ID tubing; Manifold mount with gasket
<b>Weight:</b>	0.39 oz. (10.7 grams)
<b>Internal Volume:</b>	0.0080 in. <sup>3</sup> (0.131 cm <sup>3</sup> )

### Electrical

<b>Power:</b>	0.5 Watt (Continuous Duty)
<b>Voltage:</b>	5, 12, 24 VDC
<b>Electrical Connections:</b>	PC Pins, 6 mm centers

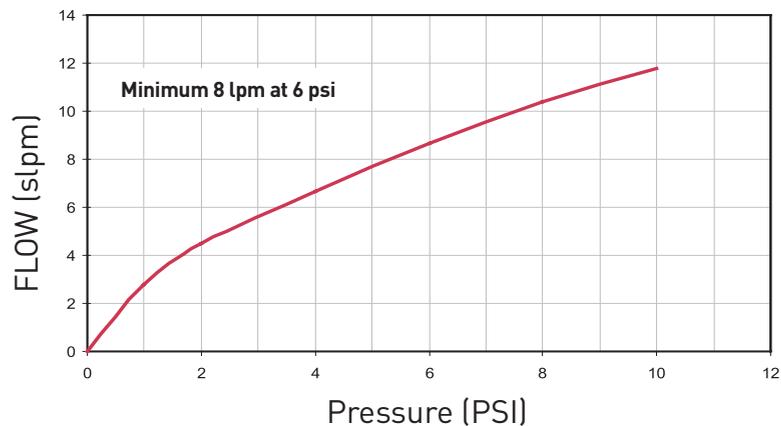
### Wetted Materials

Polybutylene Terephthalate (PBT)  
Glass Filled, 430FR Series Stainless Steel, 302 Series Stainless Steel, Silicone, EPDM or FKM elastomer  
*Consult factory for details.*

### Performance Characteristics

<b>Leak Rate:</b>	0.016 sccm of air (Silicone) 0.2 sccm of air (Viton & EPDM)
<b>Response Time:</b>	<5 msec cycling (Silicone) <20 msec cycling (Viton & EPDM)
<b>Pressure:</b>	Up to 6 psi (0.04 MPa)
<b>Minimum Flow:</b>	8 lpm @ 6 psi (0.04 MPa)
<b>Orifice Sizes/Equivalent Cv:</b>	0.060"/0.042 Cv

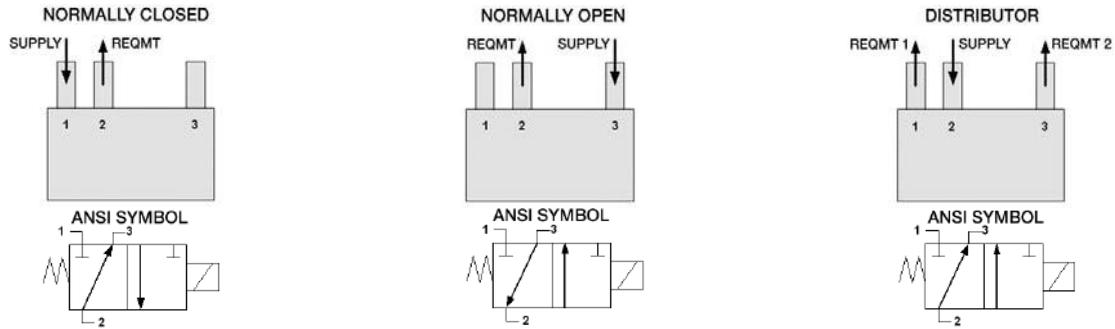
### Typical Flow Curve (Tested w/ air 24°C)



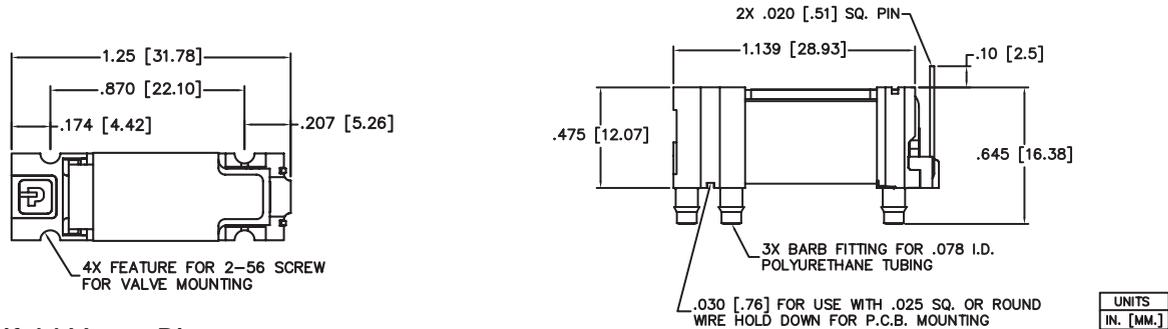
Ten-X is a registered trademark of Parker Hannifin Corporation.

# Ten-X<sup>®</sup> Digital Solenoid Valve

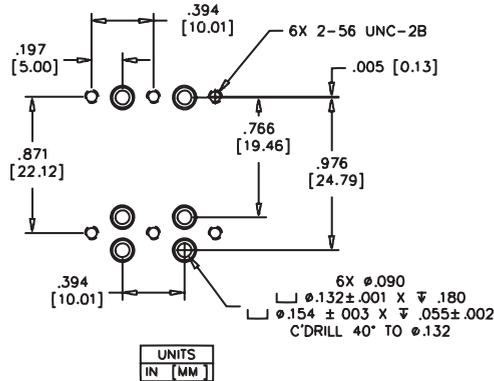
## Connection Diagram



## Dimensions



## Manifold Mount Diagram



## Ordering Information

Sample Part ID	914	1	1	1	05	1	000	
Description	Series	Elastomer	Valve Type	Model	Voltage	Electrical		Accessories
Options		1: Silicone 2: Viton (FKM) 3: EPDM	1: 2-Way NO 6 PSI Silicone/EPDM Elastomer 2: 2/3 Way NC 6 PSI FKM Elastomer Only 6: Distributor 6 PSI FKM/EPDM Elastomer 7: 3-Way NO 6 PSI Silicone/EPDM Elastomer	1: Standard	05: 5 VDC 12: 12 VDC 24: 24 VDC	1: Pins (6mm) 2: PC Mount		Mounting Screw 191-000112-010 * Manifold Gasket (FKM) 195-000211-001 * Manifold Gasket (EPDM) 195-000211-001 * 18" Leads w/ Connector 590-000073-001 *

\* Order as separate line items



NOTE: Not all versions available for online purchase. Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002213-001 and Drawing #890-003150-001.

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Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# Ten-X<sup>®</sup>Le Low Energy Digital Solenoid Valve

## 10mm Normally Open/Closed Solenoid Valve



The Ten X<sup>®</sup> Le is an electro-magnetic poppet valve designed to provide the highest performance available for the package size. The quiet, lightweight 10-mm wide valve can be used stand alone with tube connections, PC or multi-station manifold mount set-ups. Integrated drive electronics featuring efficient pulse width modulation (PWM) circuit technology consume minimal power.

### Features

- Low power, small 10mm footprint with up to 22 lpm of flow
- Minimal heat generation provides stable performance for valve and surrounding environment
- 20 million cycles (*worst case tested, no performance degradation*)
- ROHS compliant

### Common Applications

- Portable medical equipment
- Patient monitors
- Wound therapy
- Non-invasive blood pressure

### Physical Properties

<b>Valve Type:</b>
2/3-way Normally Closed 30 psi 2/3-way Normally Open 30 psi 3-way Distributor 20 psi
<b>Media:</b>
Non-Reactive Gases
<b>Operating Environment:</b>
32 to 122°F (0 to 50°C) Continuous Duty
<b>Storage Temperature:</b>
-40 to 158°F (-40 to 70°C)
<b>Length:</b>
1.3 in. (33.1 mm)
<b>Width:</b>
0.39 in. (10 mm)
<b>Height:</b>
0.61 in. (15.5 mm)
<b>Porting:</b>
Barbs for 0.078 in. ID tubing; Manifold mount with gasket
<b>Weight:</b>
0.42 oz. (12 grams)
<b>Internal Volume:</b>
0.0080 in. <sup>3</sup> (0.131 cm <sup>3</sup> )

### Electrical

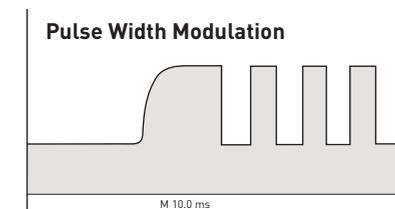
<b>Power:</b>
0.5 Watt (with PWM circuit)
<b>Voltage:</b>
5, 12, 24 VDC
<b>Electrical Connections:</b>
PC Pins, 2.5 mm centers (Model 2 only)

### Wetted Materials

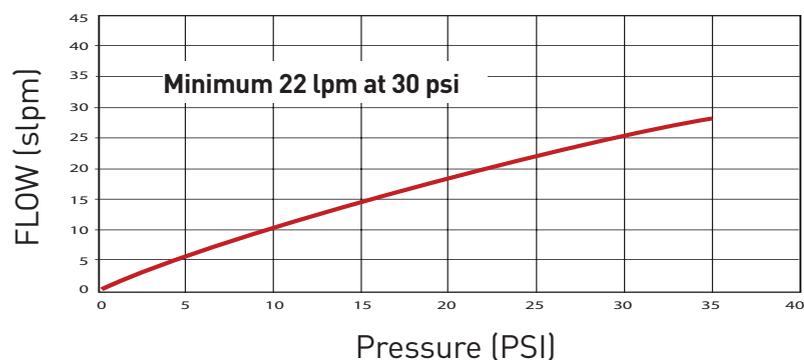
Polybutylene Terephthalate (PBT)  
glass filled, 430FR Series Stainless Steel, 302 Series Stainless Steel, FKM or EPDM  
*Consult factory for details.*

### Performance Characteristics

<b>Leak Rate:</b>
0.2 sccm of air max.
<b>Response Time:</b>
<20 msec cycling
<b>Pressure:</b>
Up to 30 psi (0.20 MPa)
<b>Minimum Flow:</b>
22 lpm at 30 psi (0.20 MPa)
<b>Orifice Sizes/Equivalent Cv:</b>
0.060"/0.042 Cv



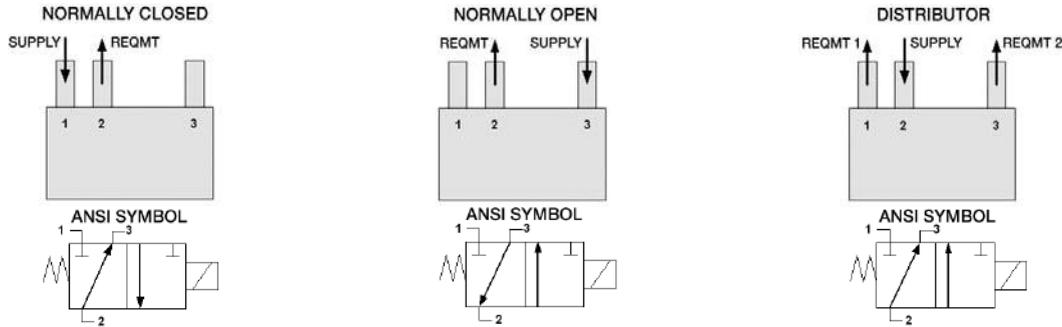
### Typical Flow Curve (Tested w/ air 24°C)



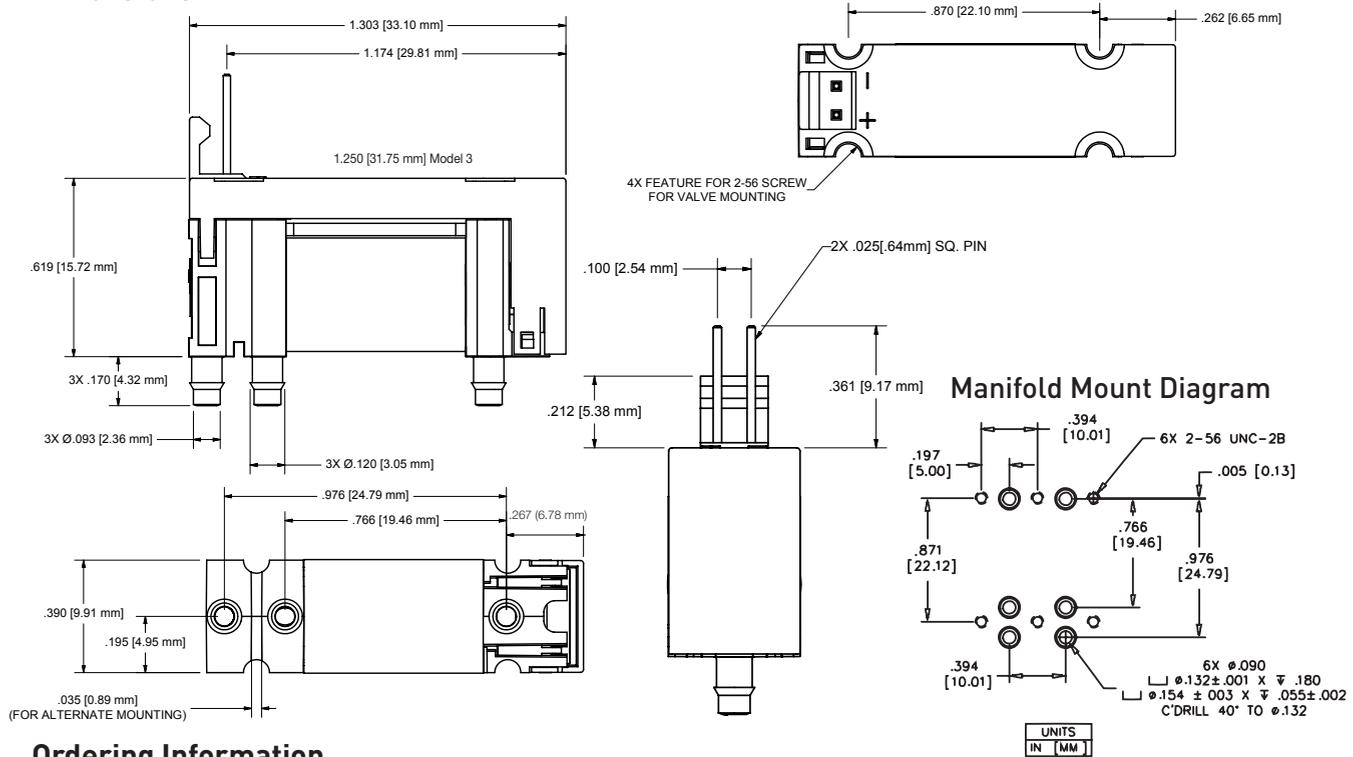
Ten-X is a registered trademark of Parker Hannifin Corporation.

# Ten-X<sup>®</sup> L<sub>e</sub> Low Energy Digital Solenoid Valve

## Connection Diagram



## Dimensions



## Ordering Information

Sample Part ID	914	2	3	2	05	3	000	
Description	Series	Elastomer	Valve Type	Model	Voltage	Electrical		Accessories
Options		2: Viton (FKM) 3: EPDM	3: 2/3 Way NC 30 PSI 4: 2/3 Way NO 30 PSI 5: 3 Way Distributor 20 PSI	2: Integrated Electronics	05: 5 VDC 12: 12 VDC 24: 24 VDC	3: Pins (2.54mm)		Mounting Screw 191-000112-012 * Manifold Gasket (FKM) 195-000211-001 * Manifold Gasket (EPDM) 195-000242-001 * 18" Leads w/ Connector 590-000073-001 *



\* Order as separate line item

NOTE: Not all versions available for online purchase. Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002213-002 and Drawing #890-003150-002.

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 Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# SRS Valve Universal Style Solenoid Valve

## 10 mm Manifold Mount Solenoid Valve



The 10mm SRS Series plastic solenoid valve converts a digital electrical signal into a digital pneumatic output. The SRS Series is constructed of engineering thermoplastics and non-corrosive metals to exceed the specifications demanded by critical applications in the life sciences.

### Features

- Design incorporates thermoplastics and non-corrosive metals.
- Offers high-density manifold mounting with convenient manifold to PC board interface.
- Weighs only 0.23 ounces; perfect where low weight is critical to overall system.
- ROHS compliant.

### Physical Properties

#### Valve Type:

2/3-way Normally Closed  
2/3-way Normally Open  
3-Way Distributor

#### Media:

Gases

#### Operating Environment:

32 to 131°F (0 to 55°C)

#### Storage Temperature:

-40 to 158°F (-40 to 70°C)

#### Length:

1.5 in (38.1 mm)

#### Width:

0.394 in (10 mm)

#### Height:

0.61 in (15.49 mm)

#### Porting:

Manifold mount; Gasket supplied

#### Weight:

.23 oz (6.57 grams)

#### Internal Volume:

0.0016 in<sup>3</sup> (0.0267 cm<sup>3</sup>)

#### Filtration:

40 micron (recommended)

### Electrical

#### Power:

0.5 or 1.0 Watt

#### Voltage:

5, 12, 24 VDC + 10%

### Wetted Materials

#### Crystalline Plastics:

PBT; LNP Thermocomp®

#### Elastomers:

FKM

#### Non-Corrosive Metals:

302 Series Stainless Steel; 430 FR Series Stainless Steel; CMI-B Core Iron; Electroless Nickel Plating

### Performance Characteristics

#### Leak Rate:

<0.016 sccm (bubble tight)

#### Response:

<30 msec cycling

#### Pressure:

0 to 20 psi (0.13 MPa)

0 to 50 psi (0.34 MPa)

0 to 85 psi (0.58 MPa)

#### Vacuum:

0-27 in Hg (0.09 MPa)

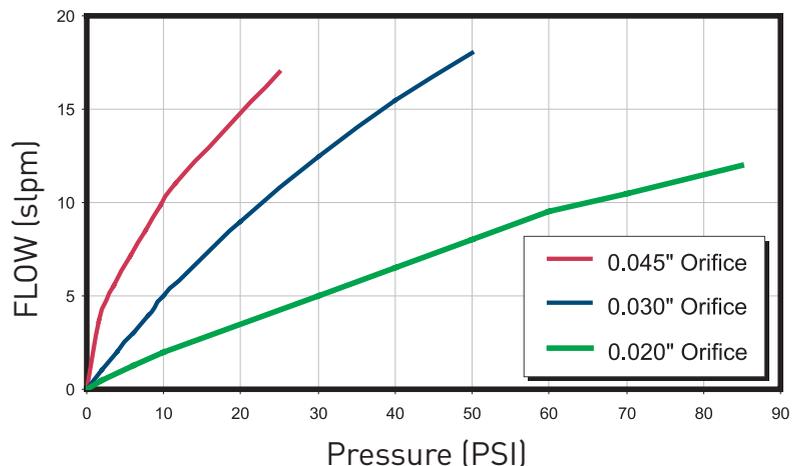
#### Orifice Sizes/Equivalent Cv:

0.020"/0.0075 Cv

0.030"/0.017 Cv

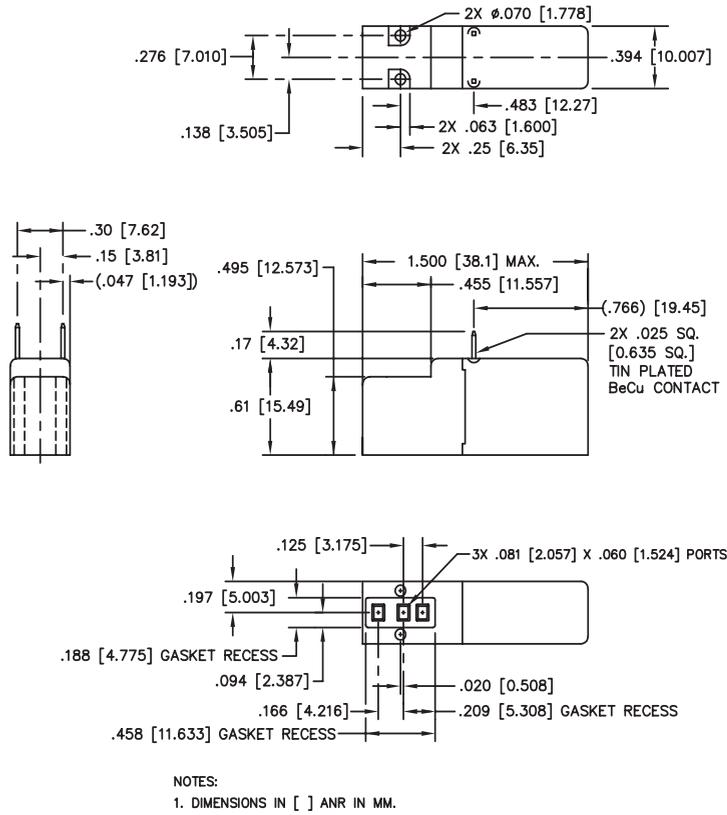
0.045"/0.027 Cv

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

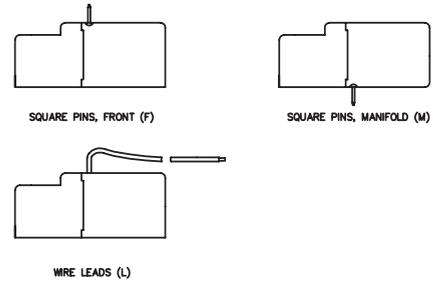


# SRS Valve Universal Style Solenoid Valve

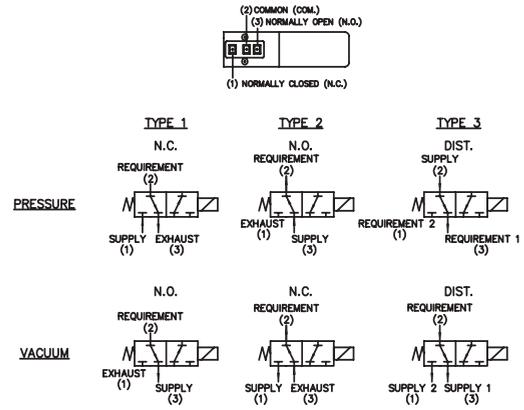
## Dimensions



## ELECTRICAL INTERFACE OPTIONS



## TYPICAL VALVE SELECTION CONSIDERATIONS:



## Ordering Information

Sample Part ID	SRS	10	2	P	V	12	M
Description	Series	Model Number	Type	Material	Seal Material	Voltage	Electrical Connection
Options		No: Pressure/Orifice 10: 0-35 psi/0.020" 11: 0-85 psi/0.020" 13: 0-20 psi/0.030" 14: 0-50 psi/0.030" 16: 0-10 psi/0.045" 17: 0-20 psi/0.045"	1: 3-Way NC 2: 3-Way NO 3: Distributor	P: Engineering Plastic	V: FKM	5: 5 VDC 12: 12 VDC 24: 24 VDC	F: 0.025" Square Pins, Front M: 0.025" Square Pins, Manifold Interface L: Insulated Wire Leads, 18", Front



NOTE: Not all versions available for online purchase. Please consult Parker for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002090-001 and Drawing #890-003061-001.

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Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# Series 11, 25, 26 Classic Style Solenoid Valve

## 15mm Digital Solenoid Valve



Series 11, 25, and 26 PC mountable solenoid valves convert a digital electrical signal into a digital pneumatic output. The patented miniature design is preferred by medical and analytical OEMs worldwide and allows valves to be soldered directly onto a printed circuit board, providing both electrical termination and mechanical attachment. These valves power small cylinders directly or can be used to pilot larger valves that require high flow.

### Features

- Offers discrete valve design with up to 200 million life cycle rating.
- Available in manifold mounting.
- Provides a range of electrical coil options, including PC mountable, spade lugs, or wire leads to simplify integration.
- Powerful enough for a range of uses that require high flow.
- ROHS compliant.

### Physical Properties

<b>Valve Type:</b>	2/3-way Normally Closed 2/3-way Normally Open 3-Way Distributor
<b>Media:</b>	Gases and select liquids
<b>Operating Environment:</b>	-32 to 158°F (0 to 70°C)
<b>Storage Temperature:</b>	-40 to 158°F (-40 to 70°C)
<b>Length:</b>	1.73 in (43.94 mm)
<b>Width:</b>	0.625 in (15.88 mm)
<b>Height:</b>	0.67 in (17.02 mm)
<b>Porting:</b>	10-32 tapped ports, 1/16", 5/64", or 1/8" Stem Barbs, Manifold
<b>Weight:</b>	2.1 oz. (60 grams)
<b>Internal Volume:</b>	0.026 in <sup>3</sup> (0.426 cm <sup>3</sup> )
<b>Filtration:</b>	40 micron (recommended)

### Electrical

<b>Power:</b>	0.5, 1.0, or 2.0 Watts
<b>Voltage:</b>	5, 12, 24 VDC + 10%

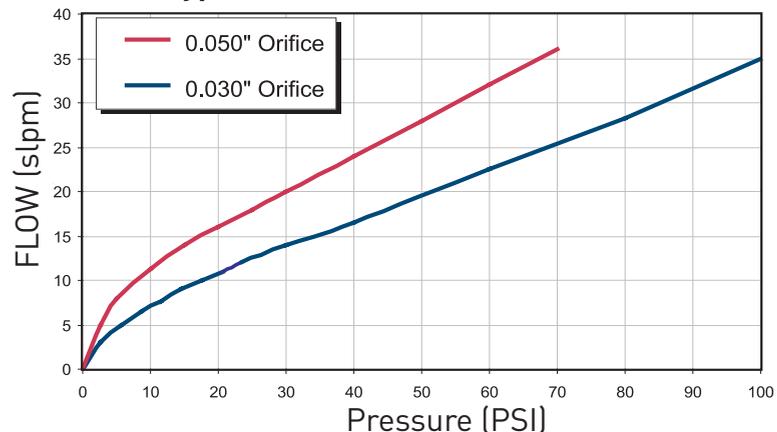
### Wetted Materials

<b>Body:</b>	360 HO2 Brass; 303 Series Stainless Steel
<b>Stem Base:</b>	385 HO2 Brass; 303 Series Stainless Steel
<b>All Others:</b>	FKM; EPDM; 430 FR Series Stainless Steel 302 Series Stainless Steel

### Performance Characteristics

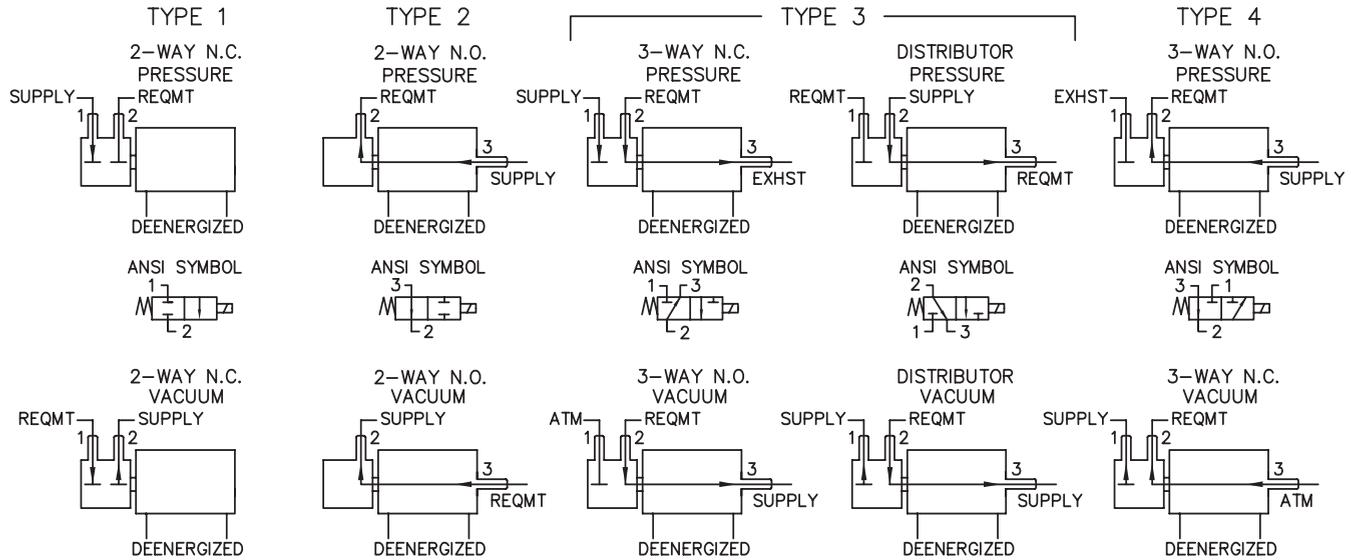
<b>Leak Rate:</b>	<0.016 sccm (bubble tight)
<b>Response:</b>	<30 msec cycling (2 Watts)
<b>Pressure:</b>	0 to 100 psi (0.69 MPa) 0 to 70 psi (0.48 MPa) 0 to 50 psi (0.34 MPa) 0 to 25 psi (0.17 MPa) 0 to 10 psi (0.07 MPa)
<b>Vacuum:</b>	0-27 in Hg (0.09 MPa)
<b>Orifice Sizes/Equivalent Cv:</b>	0.030"/0.017 Cv 0.050"/0.035 Cv

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

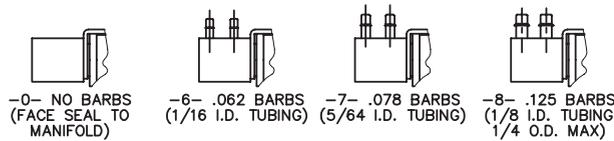


# Series 11, 25, 26 Classic Style Solenoid Valves

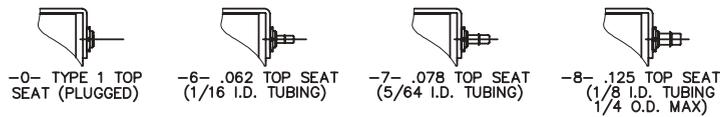
## Dimensions



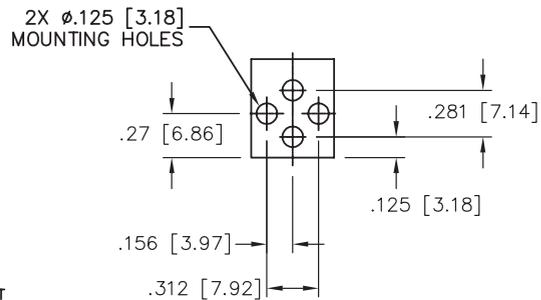
### BODY STYLES



### STEM STYLES



### PORT AND MOUNTING HOLE DIAGRAM



## Ordering Information

Sample Part ID	11	10	3	BV	12	P	7	7
Description	Series	Model Number	Type	Material	Voltage	Coil Type	Pneumatic Connection Body	Pneumatic Connection Stem
Options	11	No: Pressure/Orifice 10: 0-100 psi/0.030" 12: 0-50 psi/0.050" 13: 0-50 psi/0.030" 15: 0-25 psi/0.050" 16: 0-25 psi/0.030" 18: 0-10 psi/0.050" 19: 0-70 psi/0.050"	1: 2-Way NC 2: 2-Way NO 3: 3-Way NC or Distributor 4: 3-Way NO	XX: Body/Plunger & Seal BV: Brass/FKM SV: Stainless Steel/FKM BE: Brass/EPDM  Selection of stainless steel body may extend lead time	5: 5 VDC 12: 12 VDC 24: 24 VDC	P: PC Mount, 4 PC Pins F: Wire Leads, 18" No Term S: PC Mount, 2 Solder Tabs Q: Quick Connect Spade	0: No Barbs 6: 1/16" Barbs 7: 5/64" Barbs 8: 1/8" Barbs	0: Type 1/None 6: 1/16" Barbs* 7: 5/64" Barbs 8: 1/8" Barbs  * 1/16" Barbs not available for 0.050" orifice valves



NOTE: Series 25 and Series 26 valves are no longer standard product. Not all versions available for online purchase. Consult factory for qualified opportunities. Please consult Parker for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002075-001 and Drawing #890-003016-001.

PPF-MSV-002/US Sept 2009

For more information call 1.800.525.2857 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
 Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# V<sup>2</sup> Valve Classic Style Solenoid Valve

## 15 mm PBT Body Solenoid Valve



The V<sup>2</sup> valve offers a unique plastic body, which provides an economical solution without compromising on quality or reliability. Parker offers the versatile V<sup>2</sup> in either a manifold mount design or with molded barbed fittings. This PC and manifold mountable solenoid valve converts a digital electrical signal into a digital pneumatic output.

### Features

- Cost-effective, unique Polybutylene Terephthalate (PBT) body.
- Manifold mount design or molded barbed fittings to fit a range of needs.
- ROHS compliant.

### Physical Properties

#### Valve Type:

2/3-way Normally Closed  
2/3-way Normally Open  
3-Way Distributor

#### Media:

Non-Corrosive Gases

#### Operating Environment:

32 to 158°F (0 to 70°C)

#### Storage Temperature:

-40 to 158°F (-40 to 70°C)

#### Length:

1.73 in (43.94 mm)

#### Width:

0.625 in (15.88 mm)

#### Height:

0.67 in (17.02 mm)

#### Porting:

Barb fittings for 1/8" I.D. tubing  
or manifold mount

#### Weight:

1.2 oz (34.29 grams)

#### Internal Volume:

0.0009 in<sup>3</sup> (0.016 cm<sup>3</sup>)

#### Filtration:

40 micron (recommended)

### Electrical

#### Power:

0.5, 1.0, or 2.0 Watts

#### Voltage:

5, 12, 24 VDC + 10%

### Wetted Materials

#### Body:

PBT

#### Stem Base:

360 HO2 Brass

#### All Others:

FKM; 430 FR Series Stainless Steel

302 Series Stainless Steel;

Loctite<sup>®</sup> 290

### Performance Characteristics

#### Leak Rate:

≤0.2 sccm

#### Response:

<30 msec cycling (2 Watts)

#### Pressure:

0 to 100 psi (0.69 MPa)

0 to 30 psi (0.20 MPa)

#### Vacuum:

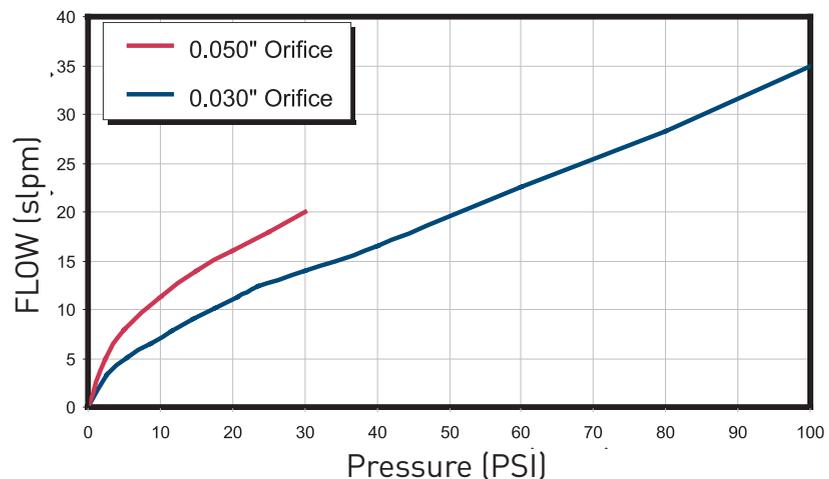
0-27 in Hg (0.09 MPa)

#### Orifice Sizes/Equivalent Cv:

0.030"/0.017 Cv

0.050"/0.035 Cv

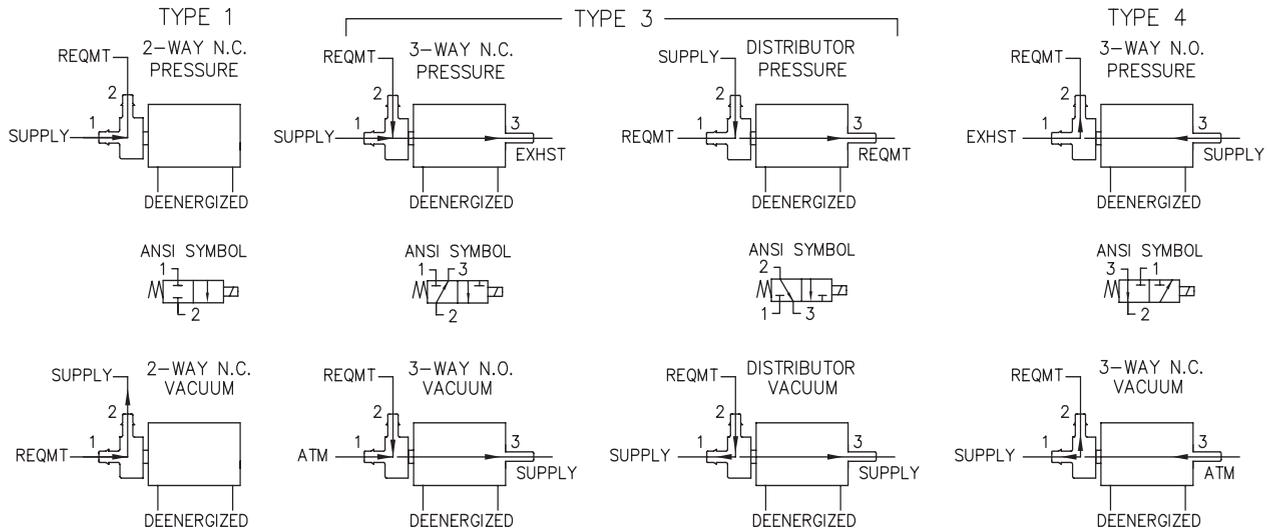
Typical Flow Curve (Tested w/ air 24°C)



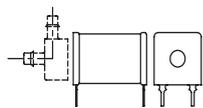
Loctite<sup>®</sup> is a registered trademark of Henkel Consumer Adhesives, Inc.

# V<sup>2</sup> Valve Classic Style Solenoid Valves

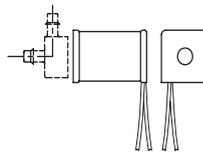
## Dimensions



### COIL STYLES

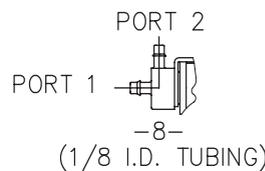


-P- PC MOUNT  
4 PC PINS

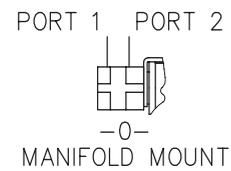


-F- WIRE LEADS  
NO TERMINALS

### BODY STYLES

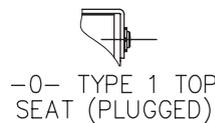


-8- (1/8" I.D. TUBING)

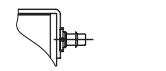


-0- MANIFOLD MOUNT

### STEM BARB STYLES



-0- TYPE 1 TOP SEAT (PLUGGED)



-8- .125 TOP SEAT (1/8" I.D. TUBING)

## Ordering Information

Sample Part ID	V2	14	3	PV	12	P	8	8
Description	Series	Model Number	Type	Material	Voltage	Coil Type	Body Styles	Topseat Barbs
Options		No: Pressure/Orifice 10: 0-100 psi/0.030" 13: 0-50 psi/0.030" 14: 0-30 psi/0.050" 17: 0-15 psi/0.050" 20: 0-6 psi/0.050"	1: 2-Way NC 3: 3-Way NC or Distributor 4: 3-Way NO	XX: Body/Plunger & Seal PV: Plastic/FKM	5: 5 VDC 12: 12 VDC 24: 24 VDC	P: PC Mount, 4 PC Pins F: Wire Leads, 18"	0: Manifold 8: 1/8" Barbs	0: None (Type 1) 8: 1/8" Barbs



NOTE: Not all versions available for on-line purchase. Please consult Parker for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002156-001 and Drawing #890-003080-001.

PPF-MSV-002/US Sept 2009

For more information call 1.800.525.2857 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# PND Series Classic Style Solenoid Valve

## Normally Open Dump Valve



The PND Series is a miniature, low cost, application-specific, 2-way Normally Open exhaust or "dump" valve. Perfect for safety-oriented applications that require pressure relief to atmosphere upon power loss.

### Features

- Normally Open exhaust valve in a small package size.
- Works well in miniature applications such as in Non-Invasive Blood Pressure (NIBP) devices.
- Provides small size and low cost.
- Offers low holding voltage.
- ROHS compliant.
- 250,000 cycles (*worst case tested, no performance degradation*)
- .050 Orifice comes standard with 2 M2 mounting holes.

### Physical Properties

<b>Valve Type:</b>	2-Way Normally Open
<b>Media:</b>	Non-corrosive gases
<b>Operating Environment:</b>	-32 to 131°F (0 to 55°C)
<b>Storage Temperature:</b>	-13 to 158°F (-25 to 70°C)
<b>Length:</b>	1.01 in (25.6 mm)
<b>Width:</b>	0.394 in (10 mm)
<b>Height:</b>	0.472 in (12 mm)
<b>Porting:</b>	1 port, 0.118" (3 mm) O.D.; suitable for 0.078 I.D.; Urethane tubing
<b>Weight:</b>	.27 oz (7.71 grams)
<b>Internal Volume:</b>	0.0016 in <sup>3</sup> (0.026 cm <sup>3</sup> )
<b>Filtration:</b>	None required
<b>Lubrication:</b>	None required

### Electrical

<b>Power:</b>	0.5 or less
<b>Voltage:</b>	3, 6, 12 VDC

### Wetted Materials

<b>Elastomers:</b>	Silicon; Nickel-Plated Steel
<b>Frame:</b>	SPCC (Treatment: MFZn2-c)
<b>All Other:</b>	Polybutylene Terephthalate (PBT); 303 Series Stainless Steel

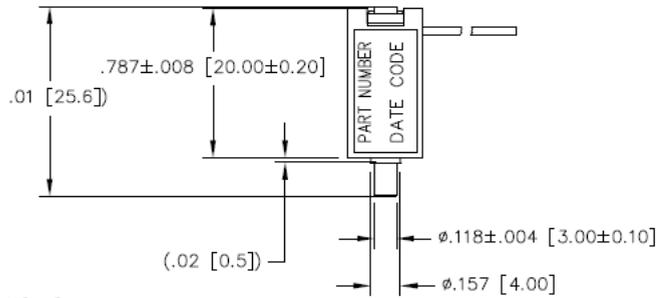
### Performance Characteristics

<b>Leak Rate:</b>	<0.016 sccm (bubble tight)
<b>Response:</b>	<100 msec cycling
<b>Pressure:</b>	0 to 6 psi (0.04 MPa) holding
<b>Vacuum:</b>	0-27 in Hg (0.09 MPa)
<b>Orifice Sizes/Equivalent Cv:</b>	0.030"/0.017 Cv 0.050"/0.035 Cv <i>Larger sizes available in 15 mm frame</i>

# PND Valve Classic Style Solenoid Valves

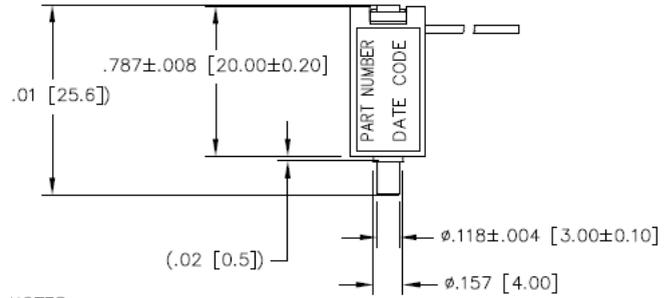
## Dimensions

### PND Series 05A



NOTES:

### PND Series 05D



NOTES:

## Ordering Information

Sample Part ID	PND	-	05	A	-	12
Description	Series	-	Watts (Rated Power at 20°C)	Orifice Size	-	Voltage
			05: 0.5 Watt	D: 0.030" A: 0.050"		03: 3 VDC 06: 6 VDC 12: 12 VDC
Options				Note: With Orifice Size at 0.050", the frame width and height increases 0.118" (3mm)		

NOTE: Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002198-001 and Drawing #s: PND-05A-DWG and PND-05D-DWG.

PPF-MSV-002/US Sept 2009

For more information call 1.800.525.2857 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



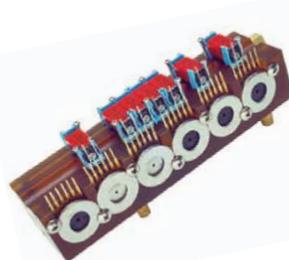
# Value Added Application-Specific Solutions

## Gassing Control System



- Mixed gassing logic design includes VSO<sup>®</sup> proportional valves, X-Valve<sup>®</sup>, pressure switch, pressure sensors, and PCB interface

## 7 Position X-Valve<sup>®</sup> Pneumatic Manifold



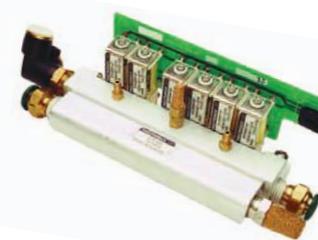
- Integrated pressure/vacuum sensors
- Mixed pneumatic logic design
- Ultem<sup>®</sup> manifold pressure/vacuum sensors

## Vacuum Gas Control Module



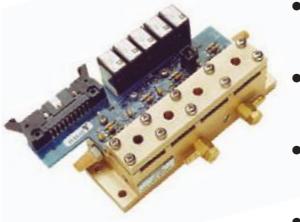
- Tested to  $1 \times 10^{-7}$  cc/sec/atm Helium
- Assembly tested on mass spectrometer

## 6 Position VSO<sup>®</sup> Proportional Valve Pneumatic Manifold Assembly



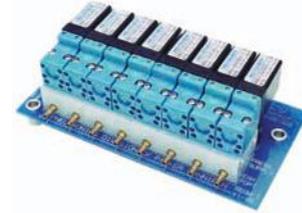
- Quick connect fittings
- Circuit board with mass electrical termination

## 5 Position SRS Model Pneumatic Manifold



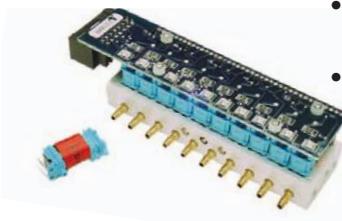
- Mixed pneumatic logic assembly
- Integrated pressure sensors
- Mass termination of sensors & valves
- Pressed in barbed fittings

## 8 Position SRS Model Pneumatic Manifold



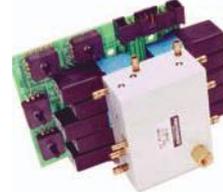
- Integrated circuit board mounting
- Mass electrical termination

## 10 Position X-Valve<sup>®</sup> Pneumatic Manifold



- Mixed pneumatic logic design
- Ultra-miniature design with PCB for mass termination

## 10 Position SRS Model Pneumatic Manifold



- Circuit board with transducers
- Pressed in barbed fittings

For more information call 1.800.525.2857 or email [ppinfo@parker.com](mailto:ppinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



## PARKER-HANNIFIN CORP., PRECISION FLUIDICS TERMS AND CONDITIONS OF SALE, ORDER POLICIES & PRODUCT WARRANTY INFORMATION

**1. APPLICABLE LAW:** This order shall be only subject to the terms and conditions set forth herein, notwithstanding any terms and conditions that may be contained in any order acknowledgement or other form of Buyer. Such terms and conditions of Buyer shall not bind the Seller unless accepted by it in writing whether or not they materially alter this order. This order shall be governed in all respects by the laws of the State of New Hampshire.

**2. TAXES:** Prices do not include Federal, State or local taxes, including without limitation, which taxes may at Seller's discretion be added to sales price or may be billed separately and which taxes will, in any event, be paid by Buyer unless Buyer provides Seller with a proper tax exemption certificate.

**3. TERMS OF PAYMENT:** Unless otherwise stated on Seller's invoices, terms of payment shall be Net 30 days from date of invoice. If at any time Seller in its sole discretion determines an alternative payment arrangement would be prudent, Seller may require Letter of Credit, Cash on Delivery, advance or other acceptable means of payment. If requirements of Seller are not met, Seller may cancel the order or any part thereof and receive reasonable cancellation fees.

**4. DELIVERY:** Seller shall not be liable for any delays in or failure of delivery due to acts of God or public authority, labor disturbances, accidents, fires, floods, extreme weather conditions, failure of any delays by carriers, shortages of material, delays of a supplier or any other cause beyond Seller's control. In no event shall the Seller be liable for consequential or special damages arising out of a delay in or failure of delivery. Buyer's requested delivery date or schedule shall be approximate and subject to Seller's acceptance.

**5. TERMINATION OF CONTRACT:** Orders accepted by the Seller may be cancelled by Buyer only with the consent of Seller and upon payment of reasonable cancellation charges, determined by Seller in its sole discretion. Seller shall have the right without penalty or payment to cancel any order accepted or to refuse or delay the shipment thereof if (1) Buyer fails to make promptly any payment due, or to meet any other reasonable requirements established by Seller, (2) Buyer's act or omission to act delays Seller's performance, or (3) Buyer's credit becomes impaired, in the Seller's sole judgement. In such event, Seller shall be entitled to receive reimbursement for reasonable and proper cancellation charges.

**6. CHANGES IN SPECIFICATIONS OR DESIGN:** If Buyer requests changes in specifications or designs relating to any goods, delivery schedules shall be revised if necessary, and an equitable adjustment upward or downward shall be made in price if warranted.

**7. FREIGHT:** Carriers will be selected by the Seller unless the Buyer instructs otherwise in writing. All shipments will be F. O. B. Seller's plant. Standard freight charges for equipment repaired under warranty will be paid by Parker Precision Fluidics. Buyers request for alternatives means will be charged additional freight as required.

**8. CONSEQUENTIAL DAMAGES:** In no event shall Seller be liable for consequential or special damages arising out of delay in or failure of delivery, defects in material, or workmanship or arising out of a breach by Seller of any other term or obligation of the Seller under this contract.

**9. GOVERNMENT CONTRACTS:** If the products to be furnished under this contract are to be used in the performance of a United States Government Contract or sub-contract, the government contract number, priority rating and a statement to that effect shall appear on the Buyer's purchase order. If the Buyer's purchase order includes all of said information and if said order is accepted in writing by an authorized officer of Seller with knowledge of said information, then those clauses of the applicable government procurement regulations which are mandatorily required by Federal Statute or regulation to be included in this contract shall be incorporated herein by reference; in all other events said clauses shall not be incorporated herein by reference.

**10. PROPRIETARY INFORMATION:** Buyer represents that it has adopted reasonable procedures to protect proprietary information as defined hereafter including binding agreements with employees and consultants to prevent unauthorized publication, disclosure, or use of such information during or after the term of their employment by or services for Buyer. Buyer shall not use proprietary information except as expressly permitted hereunder, shall not disclose proprietary information of Seller to any third party and shall not transmit any documents or copies thereof containing proprietary information to any third party except as may be authorized in writing by Seller.

**11. PATENT INDEMNITY:** Seller shall have no liability for patent infringement unless the goods furnished hereunder, in an of themselves, constitute the infringement. If they do, and Seller is notified of the class of infringement within ten days after such claim is received by the Buyer and is permitted to settle or defend such claim, Seller will indemnify the Buyer against reasonable expense of defending suit and against any judgement or settlement to which Seller agrees. However, such indemnity will be limited to an amount not exceeding the price paid by Buyer to Seller for the infringing goods. If an injunction is issued against the further use of the goods, Seller will have the option of either procuring for the Buyer the right to use the goods, replacing them with non-infringing goods, modify them so that they become non-infringing, or refunding the purchase price. The foregoing constitutes Seller's entire warranty and liability as to patents. If the goods furnished hereunder are in accordance with a design furnished by the Buyer, the Buyer will defend and hold harmless Seller from all cost, expenses and judgements on accounts of any claim of infringement of any patent.

**12. WARRANTIES: A. Equipment:** Seller warrants that all equipment manufactured by it shall be free from defects in material or workmanship under normal use for a period of one (1) year from date of shipment to Buyer and upon examination of Seller determines to its satisfaction that such equipment is defective in material or workmanship and such defect was not caused by accident, misuse, neglect, alteration, improper adjustment, improper repair, improper application, or improper testing. Seller shall at its option repair or replace the equipment, shipment to Buyer prepaid. Seller does not recommend its products for use in life support systems.

**B.** The foregoing are in lieu of all representations, warranties and covenants, express or implied, with respect to the products and any defects therein of any nature whatever, including without limitation, warranties of merchantability and fitness for a particular purpose. Seller's sole and exclusive liability, and Buyer's sole and exclusive remedy, for any nonconformity or defect in the products in tort (including negligence), contract, or otherwise, shall be as set forth in Section 12A.

### Pricing and Lead Time

- Standard Prices and lead times are as indicated on the current published Standard Price List and Discount Schedule.
- Non-standard pricing [other than that contained in the published Price List] must be approved by Parker Precision Fluidics and a formal quotation must be submitted to the customer.
- Quantity discounts for similar product are as noted on the Standard Price List and Discount Schedule.
- All shipments are FCA factory [payable in US dollars].
- The Standard Price List and Discount Schedule are subject to change.
- All price quotations are valid for a period of 90 days.

### Payment and Credit Terms

- Payment terms are 1% 10, 25 net 30 as noted below:
  - For invoices dated between the 1st and 15th, payments must be received by the 25th of the month.
  - For invoices dated between the 16th and 31st, payments must be received by the 10th of the following month.
- The above payment terms and discount are available to all customers with established credit. Otherwise, the following special terms exist:
  - COD for non-established domestic customers for orders greater than \$1,000. Cash in Advance for non-established foreign customers for orders greater than \$1,000.
  - Standard payment terms will be established upon corporate credit approval.
  - Credit card sales will be accepted from customers with established credit.

### Order Policies

- A hard copy Purchase Order confirmation must be provided for all orders. This copy may be sent via fax or Internet e-mail provided it is signed by the authorized buyer.
- Minimum order/shipment is \$250.00 Net. All sales transactions totaling \$2,500 or less will be processed via credit card only.
- Distributor/Contract Mfg. Orders: All distributors and contract manufacturers are required to report end customer information at the time of order. Orders will not be processed by Parker Precision Fluidics until such information is provided.
- Blanket Orders: Orders consisting of multiple releases must be completed within a twelve (12) month (A.R.O.) period unless other terms have been agreed upon prior to acceptance of the order.
- Blanket Orders are subject to back billing (add billing) as indicated below:**
  - Standard Product: If at the end of the contract period the full quantity has not been released and shipped, the entire order will be re-priced at the applicable discount for quantity shipped.
  - Custom Product: If at the end of the contract period the full quantity has not been released and shipped, a charge will be assessed to cover the cost of any unique material plus an adjustment of discount on the entire order.
- Order Reschedules:**
  - Standard Product: A 20% reschedule fee will be incurred unless a formal change order is received at least thirty (30) days prior to scheduled shipment.
  - Custom Product: A 20% reschedule fee will be incurred unless a formal change order is received at least sixty (60) days prior to scheduled shipment due to unique component lead time.
- Order Expedites:**
  - Customers requesting an expedited delivery of two (2) weeks or less of the quoted standard lead time will be subject to a charge equal to 20% of the amount being expedited.
- Order Cancellations:**
  - Standard Product - A 20% cancellation fee will be incurred unless a formal change order is received at least thirty (30) days prior to scheduled shipment.
  - Custom Product - Cancellations of custom product are subject to a 20% cancellation fee plus the cost of all work in process and the cost of any material unique to that order

### Product Returns

- Standard Product: - All returns of standard product are subject to prior approval from Parker Precision Fluidics and will incur a restocking charge of 20%. Credit will be issued based upon original invoice value. No material will be accepted for return without prior authorization from Parker Precision Fluidics. The Return Material Authorization (RMA) number should appear on all packages and accompanying paperwork.
- Custom Product: Return of custom product cannot be accepted.

### Warranties

- Parker Precision Fluidics warrants its products against defective materials and workmanship under normal use for a period of one (1) year from the date of shipment to our customer. This warranty does not apply to any product that has been subjected to misuse, accident, improper installation, improper application, or improper operation, nor does it apply to any product that has been repaired or altered by other than an authorized factory representative. There are no warranties that extend beyond those herein specifically given.
- Miniature Diaphragm Pumps - Seller warrants to buyer that the products will be free, under normal use and maintenance, from defects in material and workmanship for a period of twelve (12) months from the manufacture date as noted by date code, serial number, or rated hours of operation which ever occurs first, unless otherwise stated.
- Warranty Repair: All products will be repaired at the factory, replaced at no charge throughout the warranty period, or a credit will be issued to reconcile the account. The balance of the warranty will remain in effect and no other warranty will be issued.
- Warranty items costing less than \$75 will no longer be repaired - credit will be issued upon receipt of item.
- Non-Warranty Repair Charges: Non-warranty repairs are not available. For a fee of \$500, a standard analysis which includes visual inspection, determination of cause, and failure analysis report will be performed. Additional charges may be imposed if the use of an outside lab is necessary.
- IOTA One Solenoid Valve Controllers and Picospritzer III Pressure Injection Systems manufactured more than five (5) years prior to the request date will not be accepted for repair. For a fee of \$250.00, an evaluation will be performed on non-warranty units less than five (5) years old and a quote will be prepared detailing the cost of all the repairs.

### Return Materials Authorizations

- Hazardous Material: All products returned must be free of hazardous materials. Return of any product exposed to bio hazardous material will not be accepted.
  - You must obtain a Return Material Authorization (RMA) number from Parker Precision Fluidics in order that we may process your returned equipment. Material will not be accepted unless an RMA number is assigned and is clearly marked on all incoming packages and associated paperwork. RMA numbers expire 60 days after date of issue. Items returned without authorization or after 60 days of issuance will be returned to the customer freight collect.
  - This policy has been set for our mutual protection in that it greatly reduces the possibility of misplaced returns. Please call our Customer Service Department at 1-800-525-2857 to obtain an RMA number. **Be prepared to provide the following information when calling:**
    - Customer Name, Address & Phone Number
    - Contact Name
    - Ship-To and Bill-To Address
    - Reason for Return & Failure Symptoms if Applicable
    - Part Number, Quantity & Date Code
- Purchase Order Numbers (\*Note: A Purchase Order Number is necessary for products returned under warranty. P.O. number to be used as tracking Vehicle only. Precision Fluidics Division will contact the customer with date of return shipment.

**Shipping:** Products that are shipped to the factory for Warranty repair will be shipped at the customer's expense and will be returned to the Customer at no charge via Precision Fluidics Division's standard shipping method. Products that are shipped to the factory on a freight collect basis will not be accepted. Customers may specify preferred method of shipment. Product will then be shipped back to the customer on a freight collect basis.

PARKER-HANNIFIN CORP., PRECISION FLUIDICS DIVISION 8/10/2009  
Standard terms and conditions are supplemented by this policy statement,  
which each apply to all orders from the division.





## **WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE.**

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.



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