

Series 3

Miniature Inert Valves

2-Way and 3-Way Liquid Solenoid Valve




The Series 3 solenoid valve is constructed of inert materials suitable for liquids including bleach and saline, for applications in analytical chemistry, clinical diagnostics and ink jet printing. These 2-Way and 3-Way valves handle high flow in a small valve with pressures up to 100 psi and no metal-to-metal sliding surfaces, ensuring long life and trouble free operation. Series 3 also offers a higher pressure rating than most diaphragm isolation valves.

Typical Applications

Control of:

- Bleach
- Wash solutions
- Waste removal
- Reagents
- Inks
- Other aggressive media

Features

- Wetted parts are inert plastic (PEEK, PTFE), stainless steel, and elastomer (FKM or EPDM)
- Chemically resistant to moderate acids, bases, bleach and saline
- Leak safe design ensures that fluids are contained within the valve preventing damage to the other components in the instrument
- High flow in small package while providing fast cycle times
- Resistant to crystallization and particulates
- No sliding metal-to-metal surfaces minimizes wear of moving parts
- Direct-acting design does not require pressure or vacuum to operate
- RoHS compliant 

Product Specifications

Physical Properties

Valve Type:
Inert Non-Isolation Valve
Valve Configuration:
2-Way Normally Closed, 3-Way
Media: Liquids
Operating Environment:
40 to 150°F (4 to 66°C)
Dimensions: See page 3
Porting (Orifice Dependent):
Barbs for 1/16" (1.6 mm) ID tubing
Barbs for 1/8" (3.2 mm) ID tubing
Barbs for 3/16" (4.8 mm) ID tubing
Manifold Mount (Contact factory for options)
Weight:
1.8 - 2.0 oz (51 - 56 g)
Internal Volume (µL):
238 (1/16" Barb Option)
326 (1/8" Barb Option)
516 (3/16" Barb Option)
208 (Manifold Option)

Electrical

Voltage (VDC):	12	24
Power (Watts):	2.5	4.2
Current (mA):	211	173
Resistance (Ohm):	57	139
(Ω±5% @ 70°F, 21.1°C)		
Connections:		
12" Lead Wires Standard		
26 AWG, PTFE Insulated		

Wetted Materials*

Seal:	
FKM, EPDM	
Body:	
PEEK	
All Others:	
PTFE, Stainless Steel	
* See Chemical Compatibility Page	
Consult factory for other options	

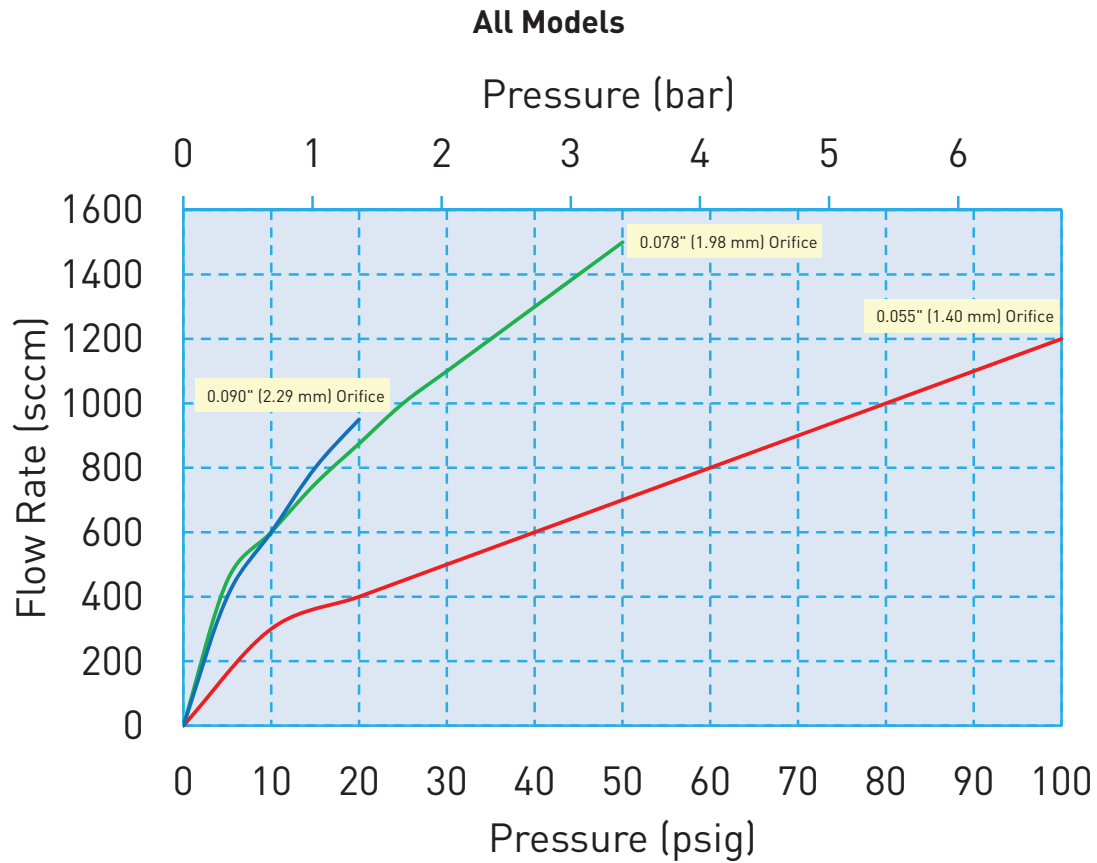
Performance Characteristics

Operating Pressure/Orifice Diameters:
Vac-100 psig (6.89 bar)/0.055" (1.40 mm)
Vac-50 psig (3.44 bar)/0.078" (1.98 mm)
Vac-20 psig (1.36 bar)/0.090" (2.29 mm)
Proof Pressure:
1.5X rated pressure
Leak Rate:
Bubble Tight
Response Time:
< 12 ms cycling
Recommended Filtration:
40 µm max
Reliability:
Life Cycle Rating of 10 million (Application dependent)



Series 3 Miniature Inert Valves

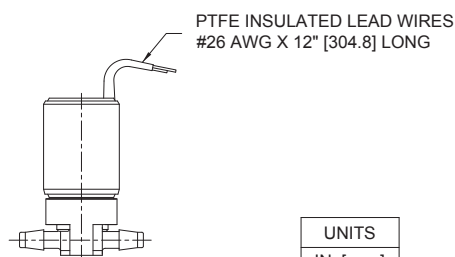
Typical Flow Curve (Tested w/water 24° C)



Series 3 Miniature Inert Valves

Electrical Interface

Coil Type: Wire leads



UNITS
IN. [mm.]

Custom connections available upon request

Liquid Interface

Manifold Mount



Barbed

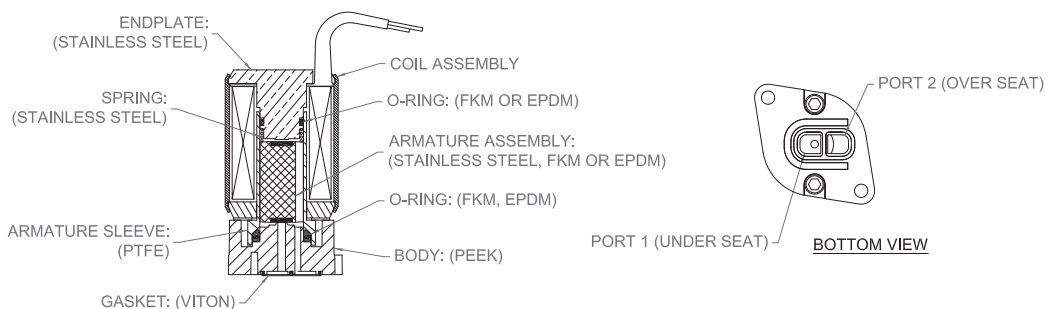


Mechanical Integration

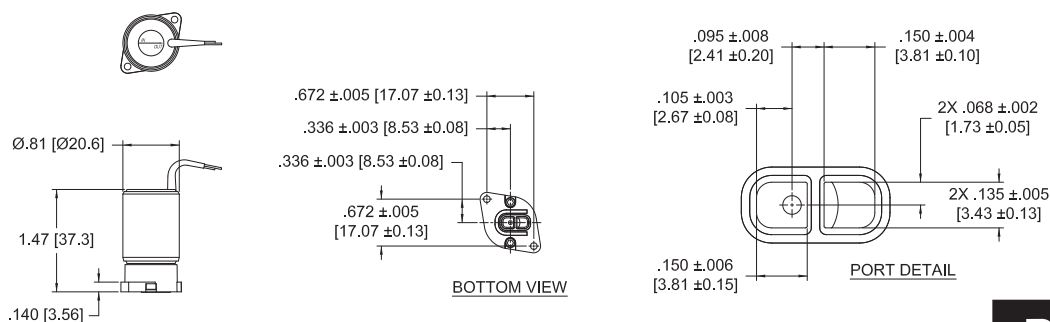
Dimensions

Series 3: 2-Way Cross-Section, Manifold Mount

Wetted Material and Dimensions



2-WAY, 0.055" (1.40 mm) ORIFICE, MANIFOLD MOUNT



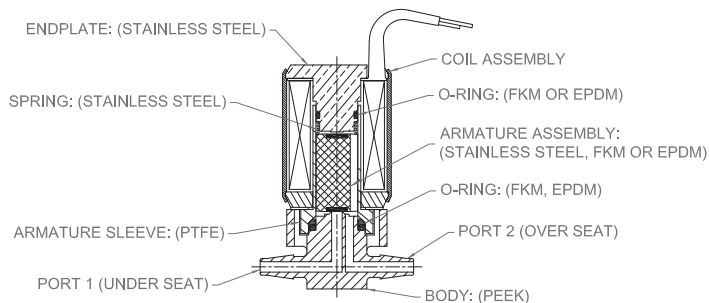
Series 3 Miniature Inert Valves

Mechanical Integration

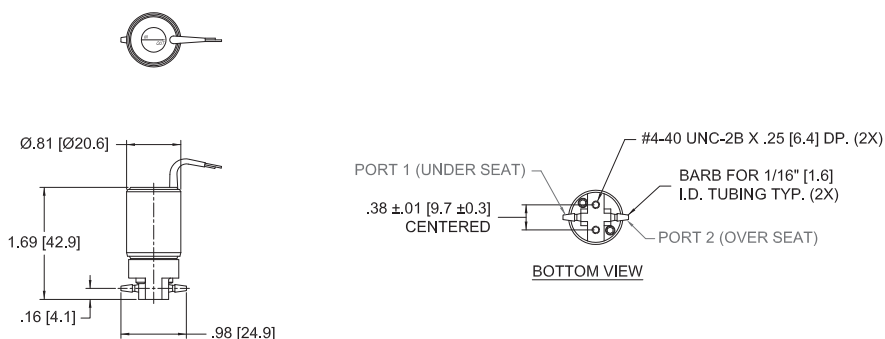
Dimensions

Series 3: 2-Way Cross-Section, Barb

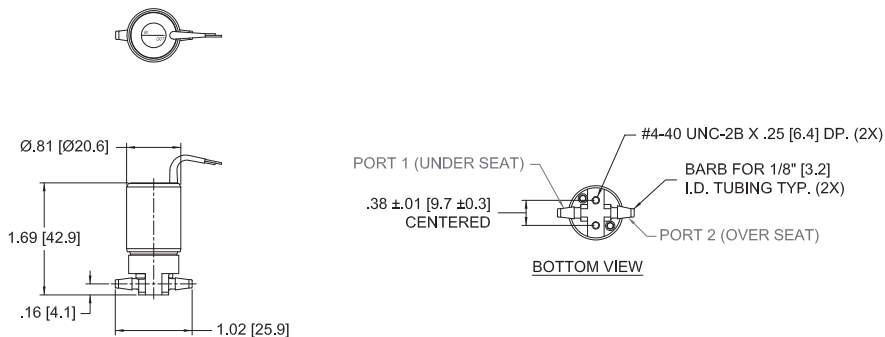
Wetted Material and Dimensions



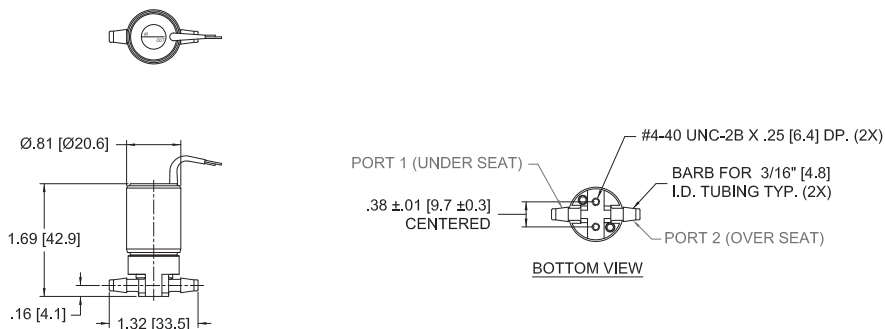
2-WAY, 0.055" (1.40 mm) ORIFICE, 1/16" (1.6 mm) BARB



2-WAY, 0.078" (1.98 mm) ORIFICE, 1/8" (3.2 mm) BARB



2-WAY, 0.090" (2.29 mm) ORIFICE, 3/16" (4.8 mm) BARB



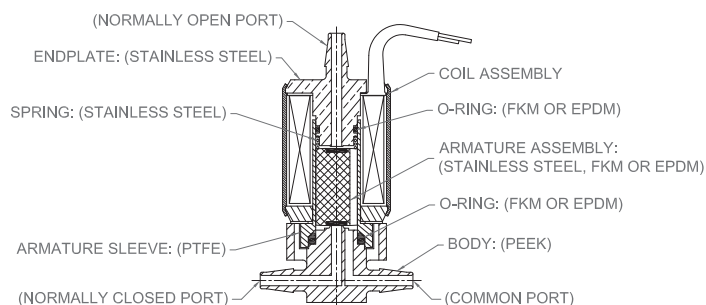
Series 3 Miniature Inert Valves

Mechanical Integration

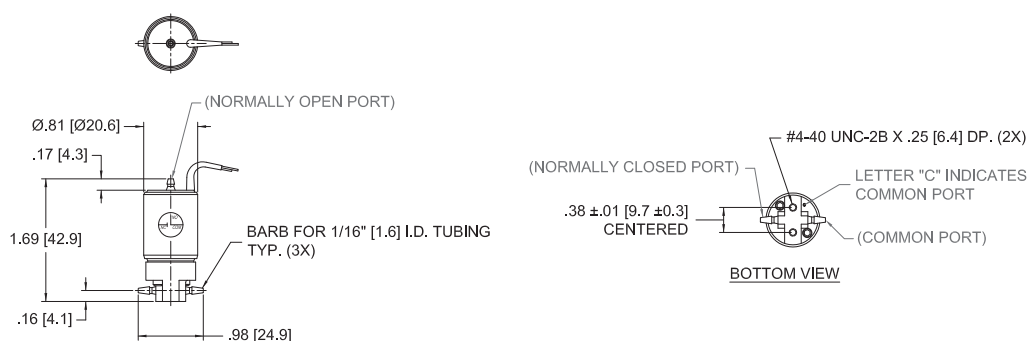
Dimensions

Series 3: 3-Way Cross-Section, Barb

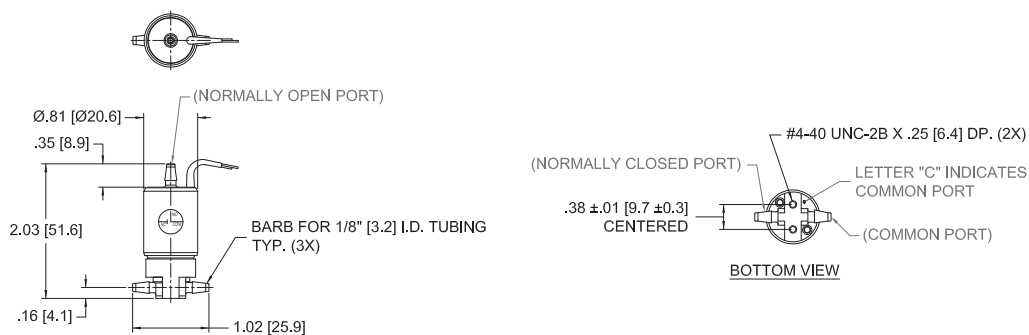
Wetted Material and Dimensions



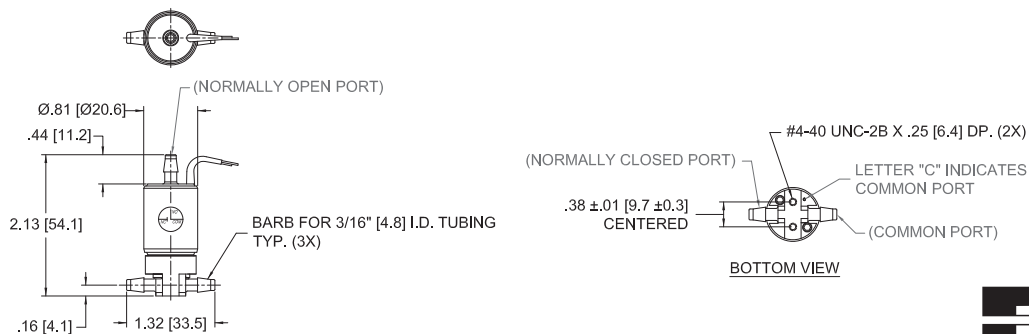
3-WAY, 0.055" (1.40 mm) ORIFICE, 1/16" (1.6 mm) BARB



3-WAY, 0.078" (1.98 mm) ORIFICE, 1/8" (3.2 mm) BARB



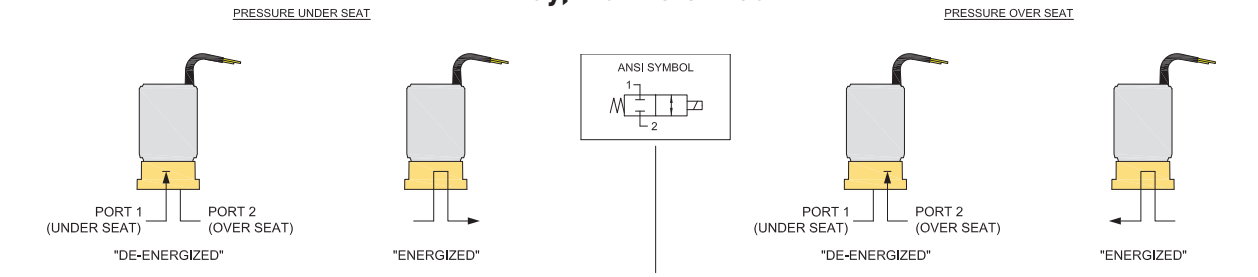
3-WAY, 0.090" (2.29 mm) ORIFICE, 3/16" (4.8 mm) BARB



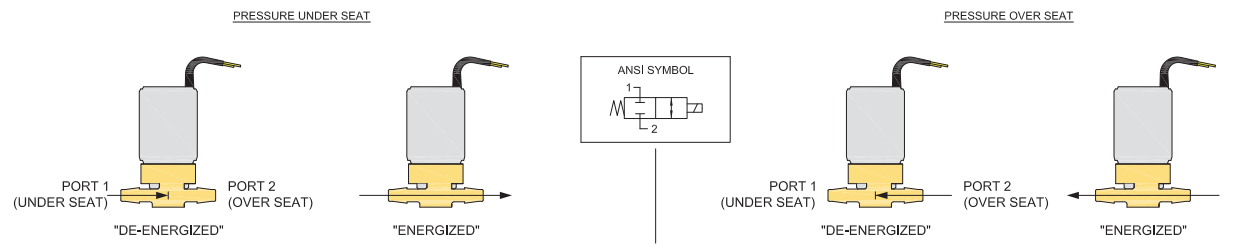
Series 3 Miniature Inert Valves

ANSI Symbols

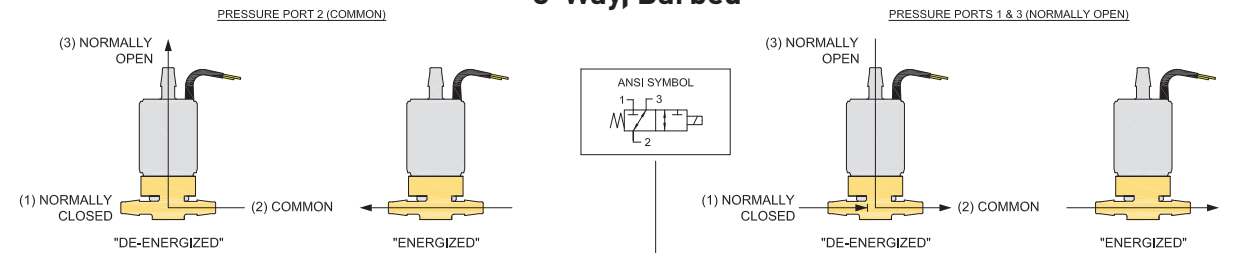
Pressure 2-Way, Manifold Mount



2-Way, Barbed



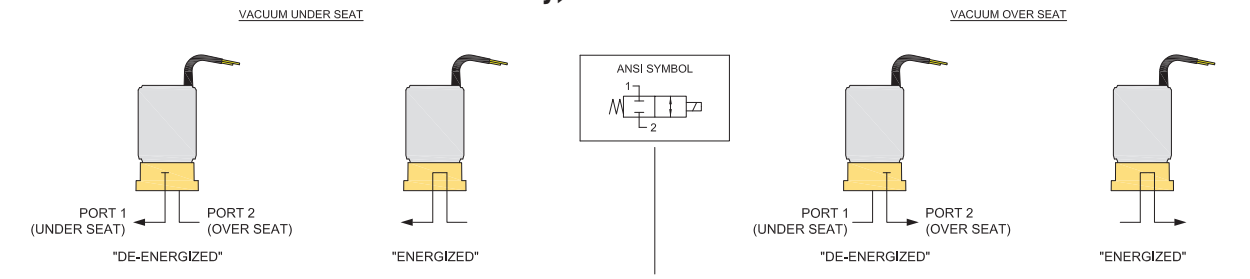
3-Way, Barbed



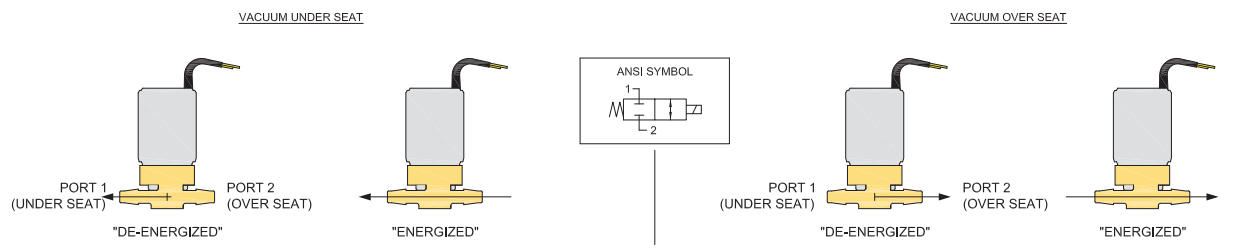
Series 3 Miniature Inert Valves

ANSI Symbols

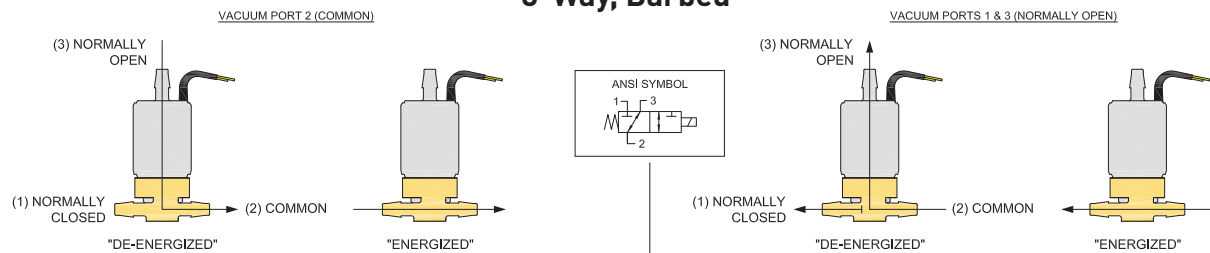
Vacuum 2-Way, Manifold Mount



2-Way, Barbed



3-Way, Barbed



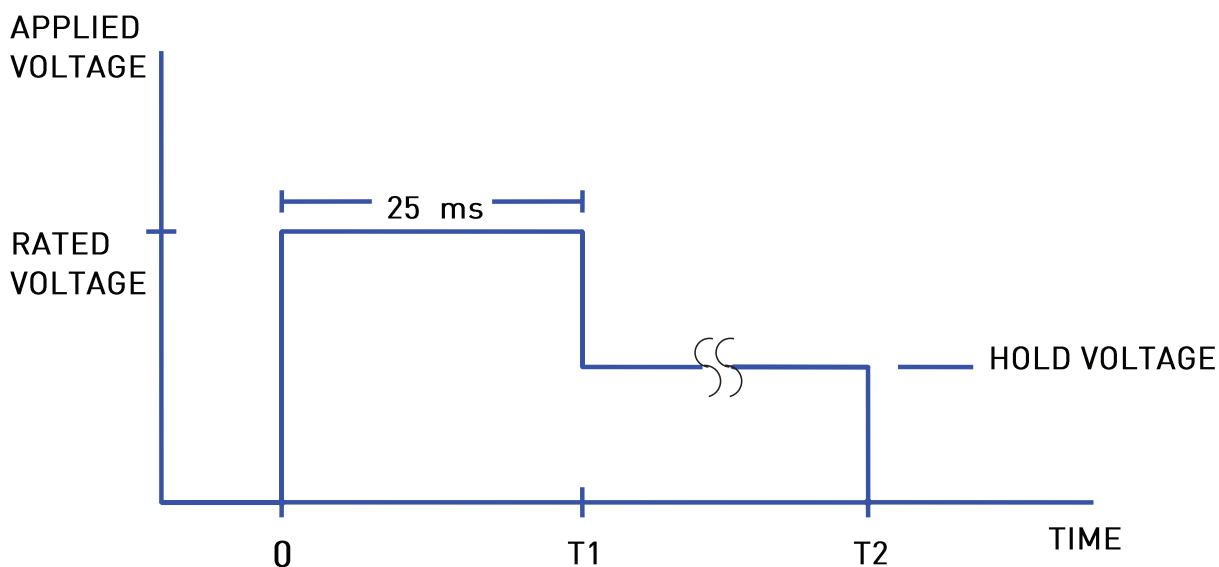
Series 3 Miniature Inert Valves

Hit and Hold Specifications

Hit and Hold is a method for driving valves that can be used to reduce power consumption and heat generation while maintaining valve performance specifications. The valve is “hit” with the full rated voltage for some time period to open it (T1 in the graph) and then “held” open with substantially reduced voltage until the desired pulse length is reached (T2 in the graph). The following table shows the possible holding voltages and power consumption for our standard 12 and 24 VDC solenoids.

Rated Voltage (volts)	3-way		2-way	
	Hold Voltage	Hold Power	Hold Voltage	Hold Power
24	12 volts	1.04 watts	8 volts	0.46 watts
12	6 volts	0.63 watts	5 volts	0.44 watts

Note: Other voltages available



Hold Voltage Graph

Series 3 Miniature Inert Valves

Chemical Compatibility Chart*

Chemical	Seal Options			Other Wetted Materials PEEK, PTFE & Stainless Steel
	FKM	or	EPDM	
DI Water	1		1	1
Methanol	4		1	1
Isopropanol	1		1	1
Ethanol	3		1	1
Acetonitrile	4		1	1
Tetrahydrofuran	4		4	1
Toluene	2		4	1
Organic Acids - Dilute	1		1	1
Non Organic Acids - Dilute	1		1	1
Bases - Dilute	1		1	1
Saline	1		1	1
Bleach 12%	1		1	1 or 2**
Sodium Hydroxide 20%	2		1	1

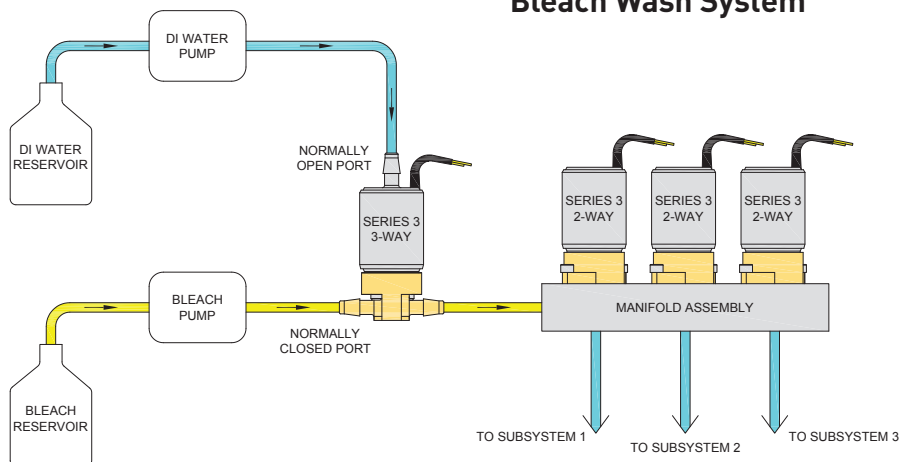
*The above is an Abbreviated Chemical Compatibility Chart and is for reference purposes only. Please consult factory for a complete list.

**See Ordering Information: 1 = Bleach Part Number 2 = Non Bleach Part Number

COMPATIBILITY LEGEND	
1 EXCELLENT	Minimal or no effect
2 GOOD	Possible swelling and/or loss of physical properties
3 DOUBTFUL	Moderate or severe swelling and loss of physical properties
4 NOT RECOMMENDED	Severe effect and should not be considered

Typical Flow Diagram

Bleach Wash System



Proven Performance:

- The Series 3 Bleach Valve has been successfully tested to more than six million cycles with no degradation of components.
- Tested with standard bleach concentration used in IVD instrumentation
- Passed specifications for
 - Response time
 - Internal leakage
 - External leakage

The Series 3 Bleach Valve has a proven track record in Clinical Diagnostic Instrumentation for over 25 years.

Series 3 Miniature Inert Valves

Ordering Information

Orifice Size	Pressure	Valve Type	Seal Material	Bleach Compatible	Voltage	Porting	Part Number
0.055" (1.40 mm)	Vac-100 psig (6.89 bar)	2 Way NC	FKM	Yes	12V	1/16" (1.6 mm) Barb	003-0860-900
						Manifold Mount	003-0872-900
					24V	1/16" (1.6 mm) Barb	003-0861-900
						Manifold Mount	003-0873-900
				No	12V	1/16" (1.6 mm) Barb	003-0137-900
						Manifold Mount	003-0874-900
					24V	1/16" (1.6 mm) Barb	003-0096-900
						Manifold Mount	003-0875-900
		3 Way	EPDM	No	12V	1/16" (1.6 mm) Barb	003-0218-900
					24V	1/16" (1.6 mm) Barb	003-0264-900
			FKM	Yes	12V	1/16" (1.6 mm) Barb	003-0862-900
					24V	1/16" (1.6 mm) Barb	003-0863-900
				No	12V	1/16" (1.6 mm) Barb	003-0130-900
					24V	1/16" (1.6 mm) Barb	003-0194-900
			EPDM	No	12V	1/16" (1.6 mm) Barb	003-0214-900
					24V	1/16" (1.6 mm) Barb	003-0241-900

Orifice Size	Pressure	Valve Type	Seal Material	Bleach Compatible	Voltage	Porting	Part Number
0.078" (1.98 mm)	Vac-50 psig (3.44 bar)	2 Way NC	FKM	Yes	12V	1/8" (3.2 mm) Barb	003-0864-900
					24V	1/8" (3.2 mm) Barb	003-0865-900
				No	12V	1/8" (3.2 mm) Barb	003-0141-900
					24V	1/8" (3.2 mm) Barb	003-0111-900
			EPDM	No	12V	1/8" (3.2 mm) Barb	003-0260-900
					24V	1/8" (3.2 mm) Barb	003-0257-900
		3 Way	FKM	Yes	12V	1/8" (3.2 mm) Barb	003-0866-900
					24V	1/8" (3.2 mm) Barb	003-0867-900
				No	12V	1/8" (3.2 mm) Barb	003-0120-900
					24V	1/8" (3.2 mm) Barb	003-0165-900
			EPDM	No	12V	1/8" (3.2 mm) Barb	003-0356-900
					24V	1/8" (3.2 mm) Barb	003-0258-900

Orifice Size	Pressure	Valve Type	Seal Material	Bleach Compatible	Voltage	Porting	Part Number
0.090" (2.29 mm)	Vac-20 psig (1.36 bar)	2 Way NC	FKM	Yes	12V	3/16" (4.8 mm) Barb	003-0868-900
					24V	3/16" (4.8 mm) Barb	003-0869-900
				No	12V	3/16" (4.8 mm) Barb	003-0175-900
					24V	3/16" (4.8 mm) Barb	003-0359-900
			EPDM	No	12V	3/16" (4.8 mm) Barb	003-0189-900
					24V	3/16" (4.8 mm) Barb	003-0376-900
		3 Way	FKM	Yes	12V	3/16" (4.8 mm) Barb	003-0870-900
					24V	3/16" (4.8 mm) Barb	003-0871-900
				No	12V	3/16" (4.8 mm) Barb	003-0328-900
					24V	3/16" (4.8 mm) Barb	003-0421-900
			EPDM	No	12V	3/16" (4.8 mm) Barb	003-0347-900
					24V	3/16" (4.8 mm) Barb	003-0461-900

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/s3) to configure your Series 3 Miniature Inert Valve. For more detailed information, visit us on the Web, or call 603-595-1500.



PPF-MLV-002/US June 2013

For more information call +1 603 595 1500 or email ppfinfo@parker.com
Visit www.parker.com/precisionfluidics

