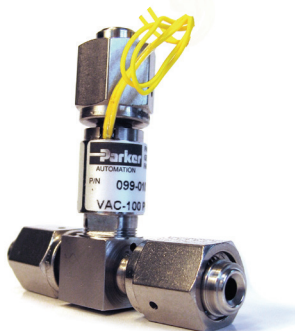


Series 99 Miniature High Speed and Pressure Gas Control Valve

Ultra Low Leak Extreme Performance Valve




Typical Applications

- Calibrant Gas Control for Mass Spectrometers
- Precision Control of Gas Dosing
- Gas Chromatography
- High Pressure Gas Control

Series 99 solenoid valves offer outstanding potential for precision control of gases. Combining high speed, ultra low leak rate, high flow, and high temperature capability, in a small size. This rugged valve operates with extreme repeatability and is constructed of non-corroding, passivated stainless steel. Series 99 coils are rated for continuous duty and are potted to protect against the environment.

Features

- Smallest footprint in its class
- 100% duty cycle in environmental temperatures of up to 221°F (105°C)
- High speed response times of less than 6 ms eliminate delays in the system
- 100% tested to leak-tight 1 x 10⁸ atm cc/sec Helium
- Pressures up to 1,250 PSI (86.2 bar)
- Available with a variety of fittings, orifices, seals, and voltages to match your application
- Configurations available to handle corrosive gasses
- Hydrocarbon and Lubricant free
- RoHS compliant 

Product Specifications

Physical Properties

Valve Type:	Inert Non-Isolation Valve
Valve Configuration (Type):	2-Way Normally Closed or 3-Way
Media:	Gasses (also capable of handling liquids, for details see the Series 9 Liquid datasheet)
Operating Environment:	40 to 221°F (4 to 105°C)
Dimensions:	See pages 4, 5 & 6
Porting (Orifice Dependent):	A-LOK® compression fittings, 1/4" Female VacuSeal
Weight:	3.1 oz (88.9 g) [3-Way, 1/8" NPT Body Option]
Internal Volume (µL):	354.5 to 2645.8 (Contact factory for details)

Electrical

Voltage (VDC):	12	24
Power (Watts):	12	12
Current (mA):	1000	500
Resistance (Ohm):	12	48
(Ω±5% @ 70°F, 21°C)		
Connections:	12" Minimum Lead Wires Standard 24 AWG, PTFE Insulated (Custom connectors are available)	

Wetted Materials*

Seals:	Vespel & Silver-Plated Nickel or FKM & Silver-Plated Nickel
Body:	316 Stainless Steel
All Others:	PTFE, Stainless Steel, Body, Seals
Consult factory for other options	

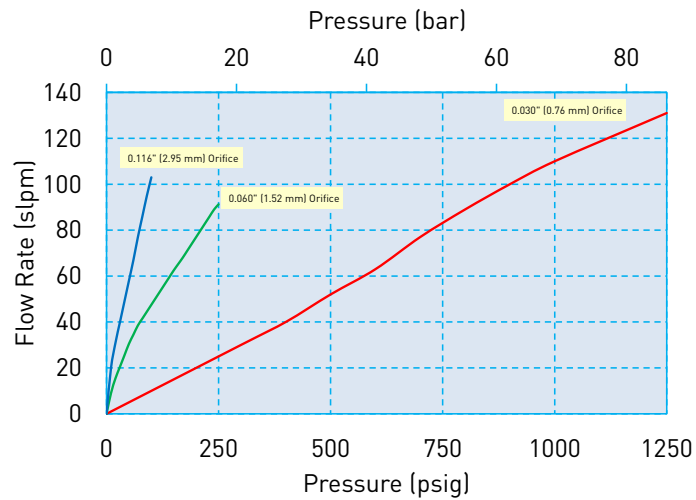
Performance Characteristics

Orifice Diameters/ Operating Pressure:	0.030" (0.76 mm) / 1x10 ⁵ Torr -1250 psig (86.2 bar)
	0.060" (1.52 mm) / 2-way 1x10 ⁵ Torr - 250 psig (17.2 bar)
	3-way 1x10 ⁵ Torr - 100 psig (6.9 bar)
	0.116" (2.95 mm) / 1x10 ⁵ Torr - 100 psig (6.9 bar)
Proof Pressure:	1.5X rated pressure
Response Time:	<5 ms 0.030" (0.76 mm) <5 ms 0.060" (1.52 mm) <6 ms 0.116" (2.95 mm)
Leak Rate:	1 x 10 ⁻⁸ atm cc/sec Helium
Recommended Filtration:	40 µm max

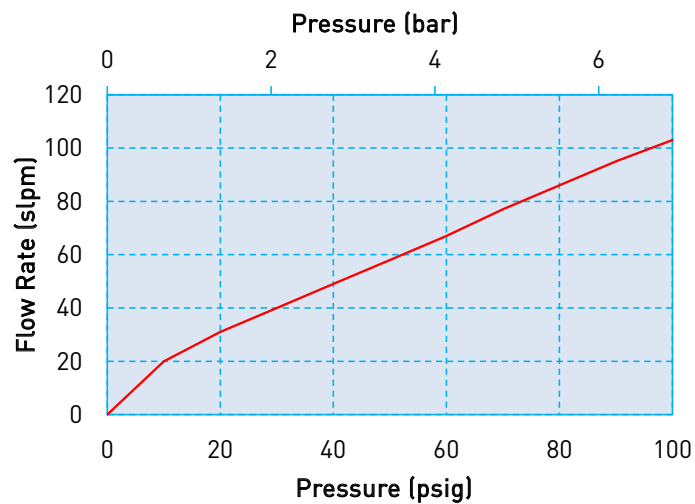
Series 99 Miniature High Speed and Pressure Gas Control Valve

Typical Flow Curve

All Models
(Tested w/air 24° C)

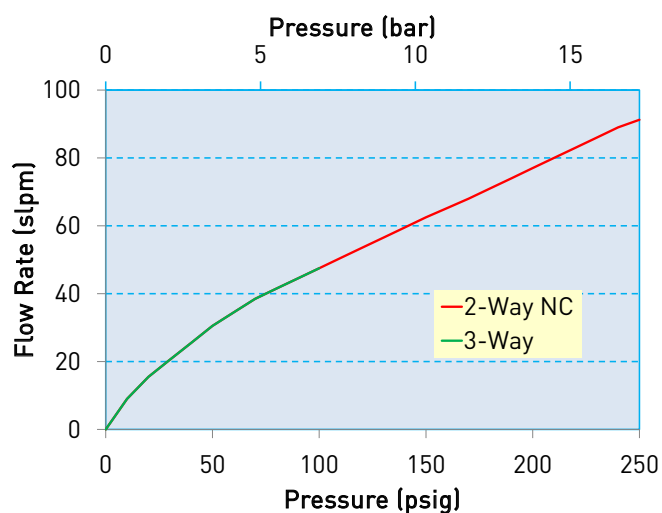


0.030\" (0.76 mm) Orifice

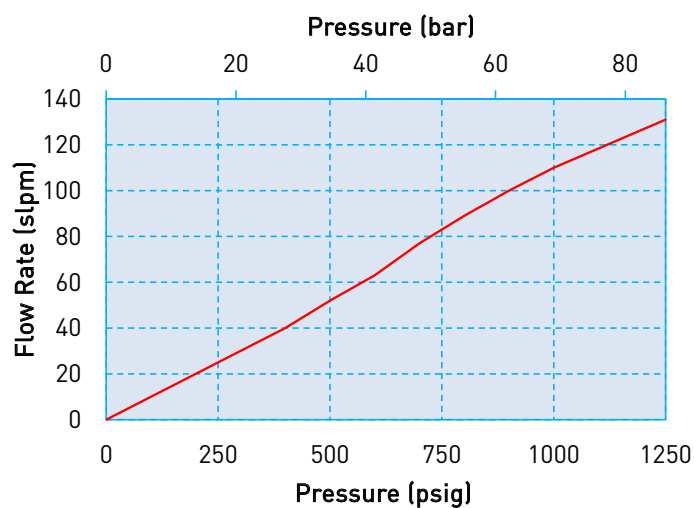


Series 99 Miniature High Speed and Pressure Gas Control Valve

0.060" (1.52 mm) Orifice

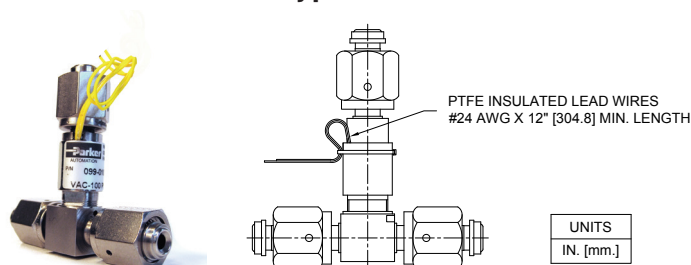


0.116" (2.95 mm) Orifice



Electrical Interface

Coil Type: Wire leads



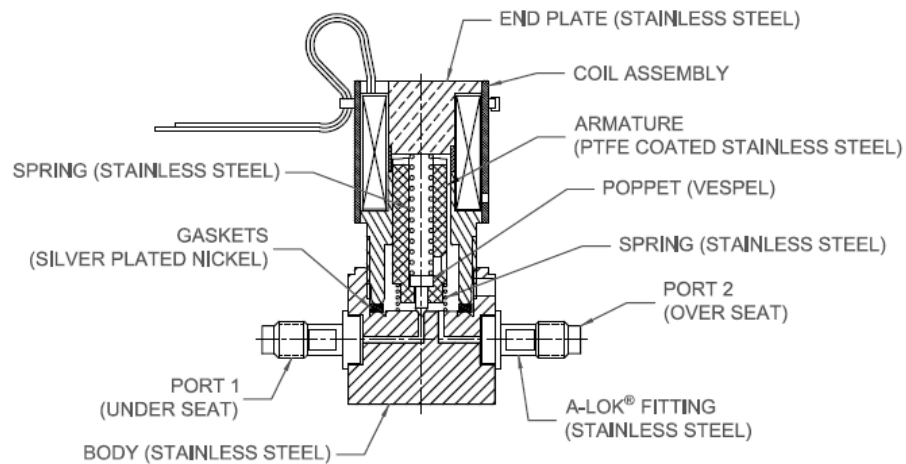
Custom connections available upon request

Series 99 Miniature High Speed and Pressure Gas Control Valve

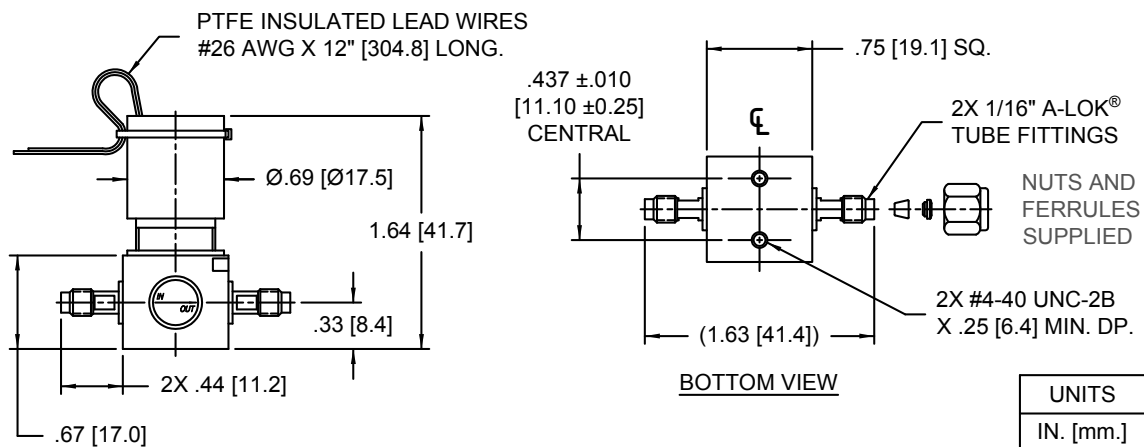
Mechanical Integration

Dimensions

Series 99: 2-Way Cross-Section Wetted Materials and Dimensions



2-WAY, 0.030" [0.76 mm] ORIFICE, 1/16" [1.6 mm] A-LOK®

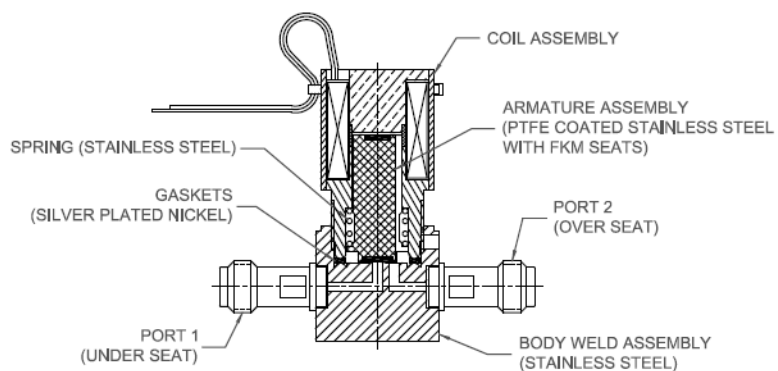


Series 99 Miniature High Speed and Pressure Gas Control Valve

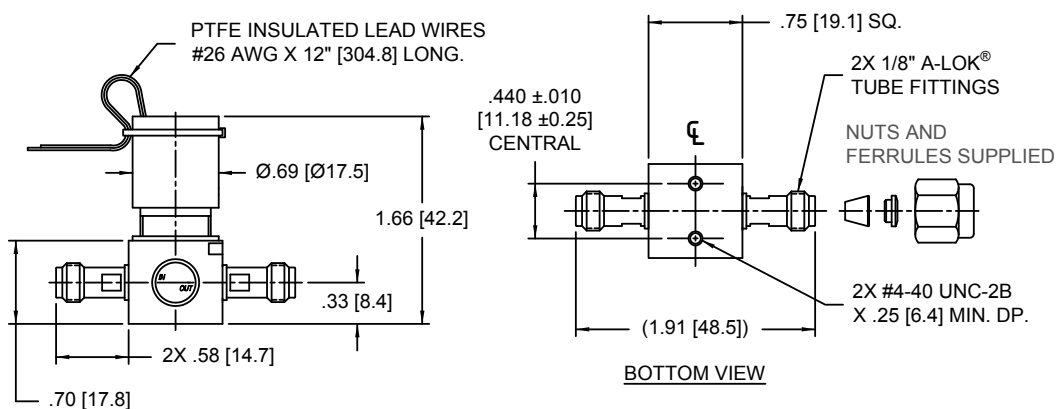
Mechanical Integration

Dimensions

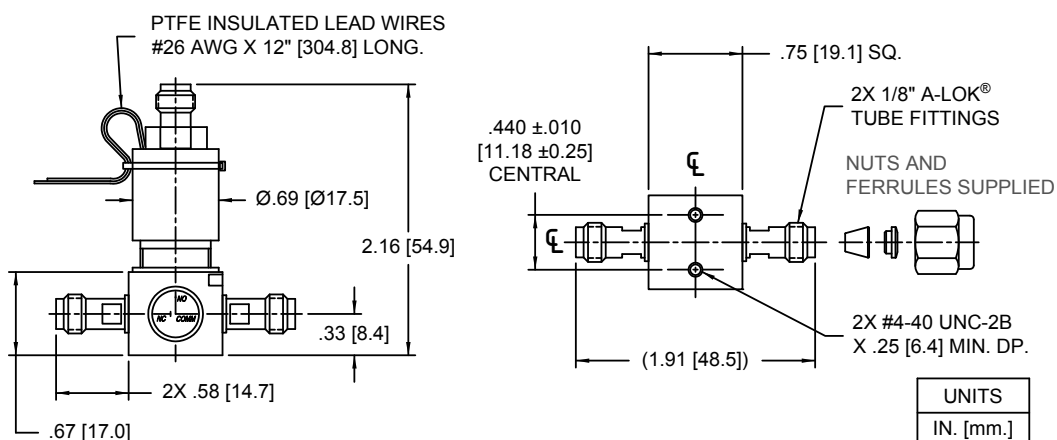
Series 99: 2-Way Cross-Section Wetted Materials and Dimensions



2-WAY, 0.060" [1.52 mm] ORIFICE, 1/8" [3.18 mm] A-LOK®



3-WAY, 0.060" [1.52 mm] ORIFICE, 1/8" [3.18 mm] A-LOK®



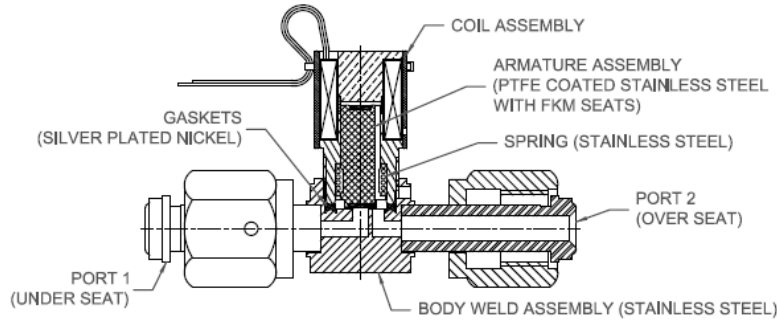
UNITS
IN. [mm.]

Series 99 Miniature High Speed and Pressure Gas Control Valve

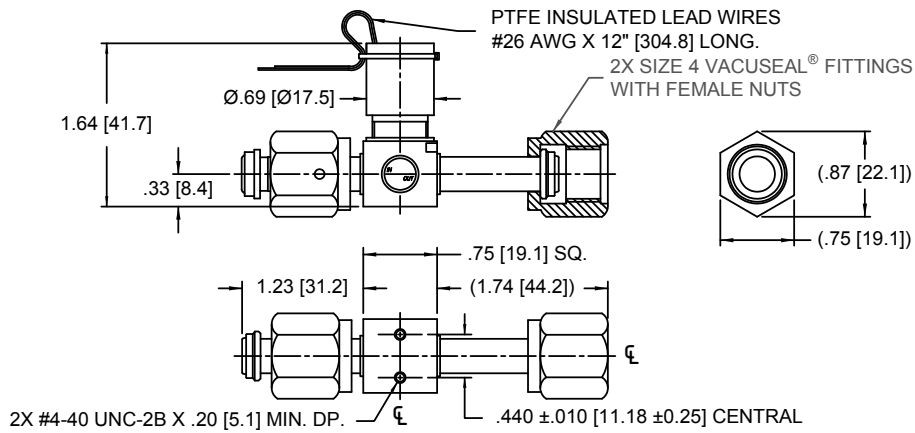
Mechanical Integration

Dimensions

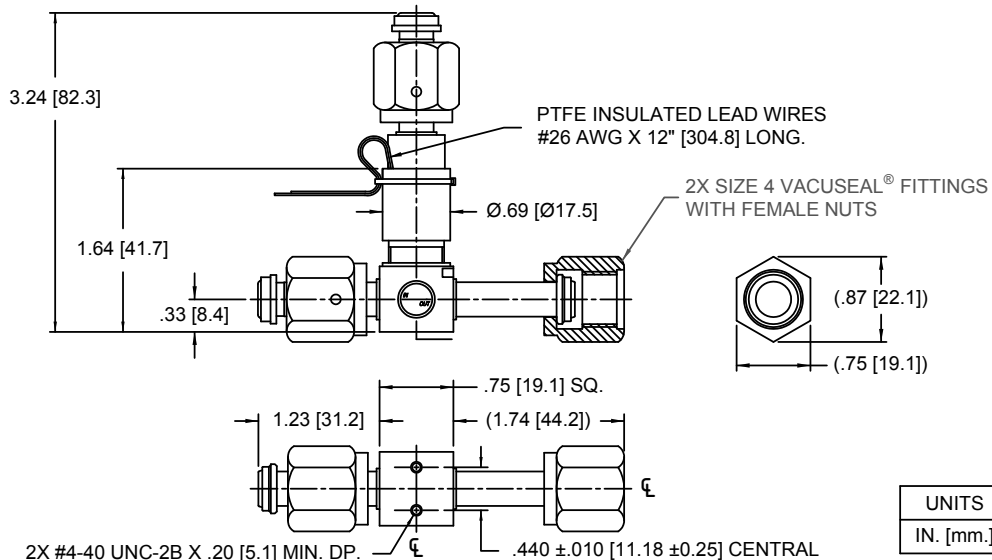
Series 99: 2-Way Cross-Section Wetted Materials and Dimensions



2-WAY, 0.116" [2.95 mm] ORIFICE, 1/4" [6.35 mm] VACUSEAL®



3-WAY, 0.116" [2.95 mm] ORIFICE, 1/4" [6.35 mm] VACUSEAL®



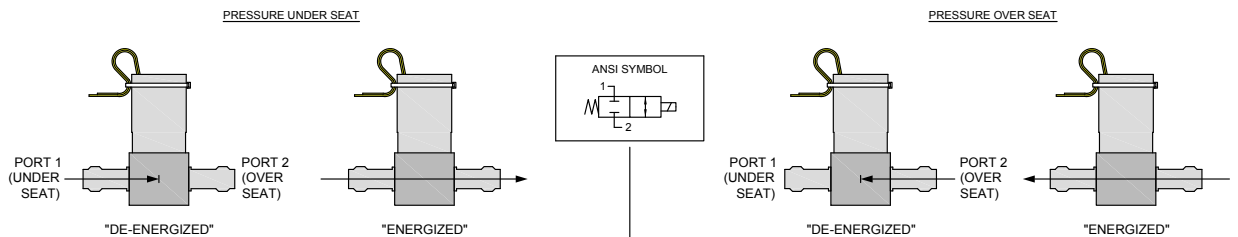
UNITS
IN. [mm.]

Series 99 Miniature High Speed and Pressure Gas Control Valve

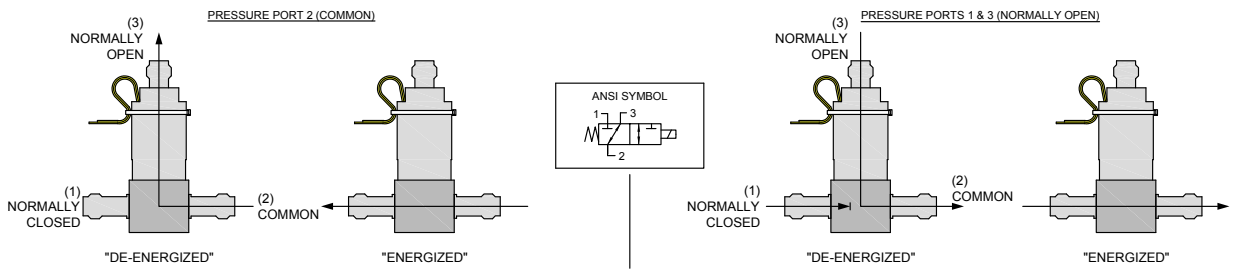
ANSI Symbols

Pressure

2-WAY (1/8" A-LOK® FITTINGS SHOWN)

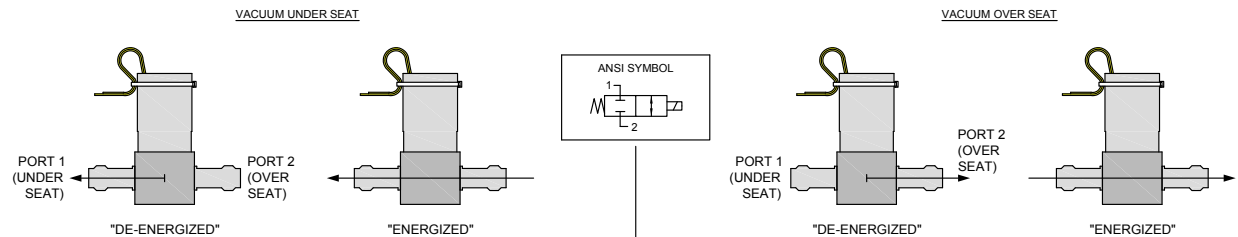


3-WAY (1/8" A-LOK® FITTINGS SHOWN)

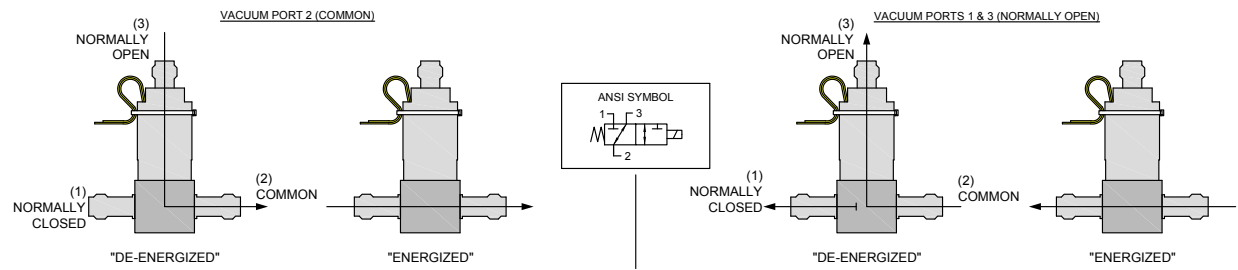


Vacuum

2-WAY (1/8" A-LOK® FITTINGS SHOWN)



3-WAY (1/8" A-LOK® FITTINGS SHOWN)



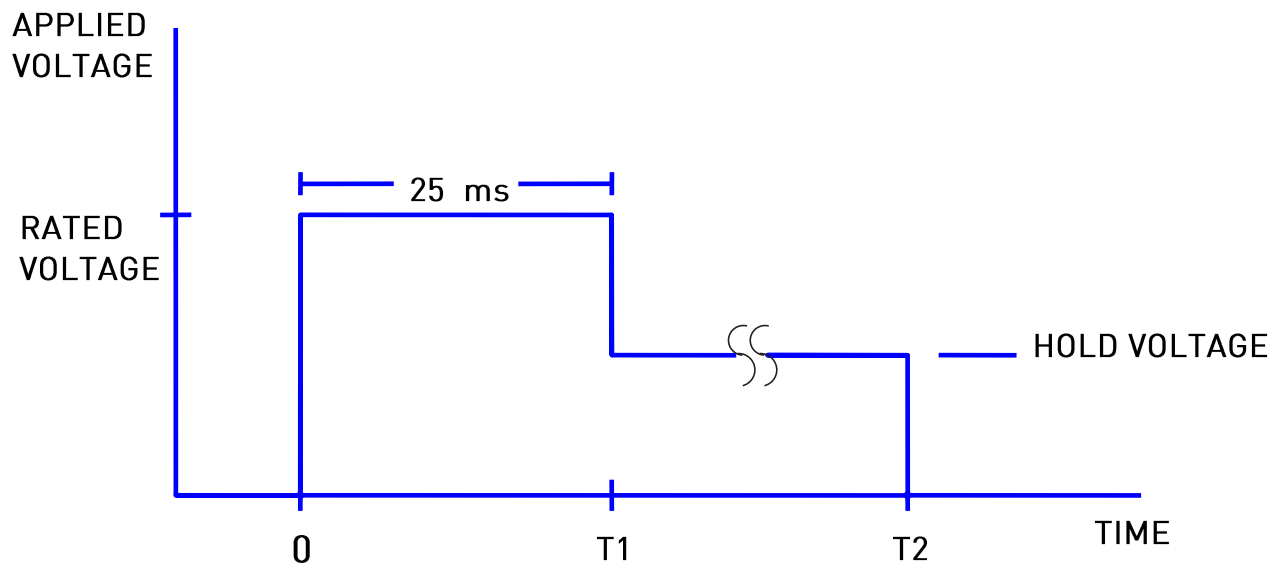
Series 99 Miniature High Speed and Pressure Gas Control Valve

Hit and Hold Specifications (12-Watt coils):

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 24VDC solenoids.

Rated Voltage (volts)	3-way		2-way	
	Hold Voltage	Hold Power	Hold Voltage	Hold Power
24	12 volts	3 watts	5 volts	0.52 watts
12	6 volts	3 watts	5 volts	2.1 watts

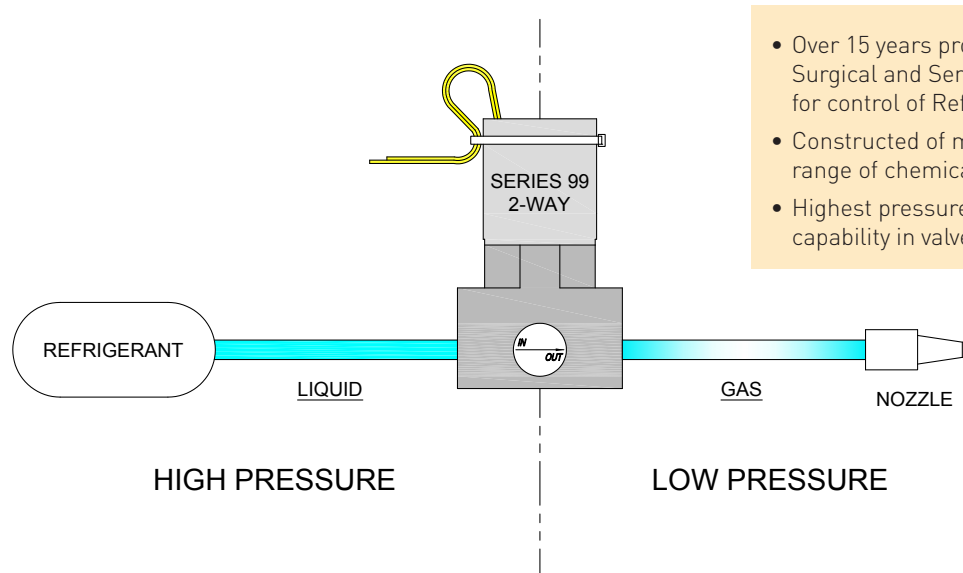
Note: Other voltages available



Hold Voltage Graph

Series 99 Miniature High Speed and Pressure Gas Control Valve Typical Flow Diagram

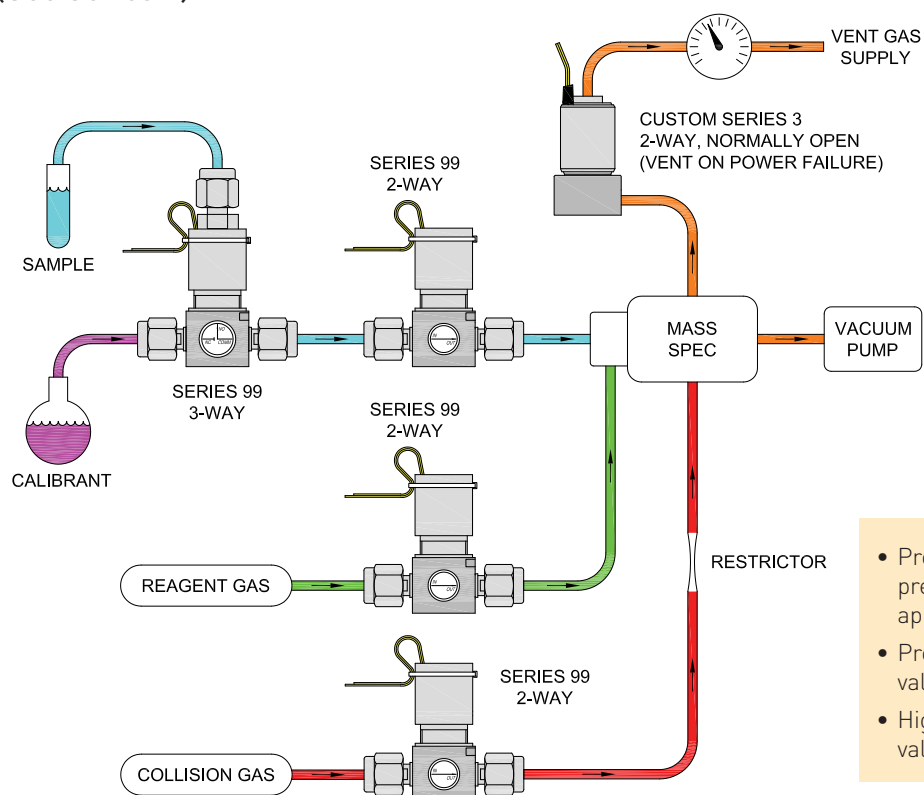
Typical Sample Control of Refrigerant Dispensing



- Over 15 years proven track record in Surgical and Semiconductor applications for control of Refrigerant Dispensing.
- Constructed of materials to handle wide range of chemicals.
- Highest pressure and temperature capability in valves of its size.

Gas Control for Mass Spectrometry

(See Series 9)



- Proven performance in high pressure and low leak applications using liquids
- Proven lowest leak rate among valves in this form factor.
- Highest pressure capacity in valves of its size.

Series 99 Miniature High Speed and Pressure Gas Control Valve

Ordering Information

Orifice Size	Seal Material	Pressure	Valve Type	Voltage	Porting	Part Number
0.030" (0.76mm)	Vespel, Silver Plated Nickel	Vac-1250psig (86.2 bar)	2 Way NC	12V	1/16" (1.6 mm) A-Lok®	099-0051-900
				24V	1/16" (1.6 mm) A-Lok®	099-0340-900

Orifice Size	Seal Material	Pressure	Valve Type	Voltage	Porting	Part Number
0.060" (1.52mm)	FKM, Silver Plated Nickel	Vac-250psig (17.2 bar)	2 Way NC	24V	1/8" (3.2 mm) A-Lok®	099-0080-900
		Vac-100psig (6.89 bar)	3 Way	12V	1/8" (3.2 mm) A-Lok®	099-0075-900
				24V	1/8" (3.2 mm) A-Lok®	099-0135-900

Orifice Size	Seal Material	Pressure	Valve Type	Voltage	Porting	Part Number
0.116" (2.95mm)	FKM, Silver Plated Nickel	Vac-100psig (6.89 bar)	2 Way NC	24V	1/4" (6.4 mm) Female VacuSeal®	099-0167-900
			3 Way	24V	1/4" (6.4 mm) Female VacuSeal®	099-0107-900

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/s99) to configure your Series 99 Miniature High Speed and Pressure Dispense Valve. For more detailed information, visit us on the Web, or call 603-595-1500.

Parker Hannifin Precision Fluidics Division reserves the right to make changes. Drawings are for reference only.