

R6 Valve

6.4 mm Miniature Diaphragm Isolation Valve



Markets:


- Clinical Diagnostics
- Analytical Chemistry
- Agent Detection
- Environmental monitoring

Typical Applications:

- Sampling
- Reagent Addition
- Flow Control
- Microfluidics

The R6 Miniature Diaphragm Isolation Valve delivers liquid dispense performance in a very small package. At just 6.4 mm, wide it can be easily mounted over microplates improving performance and saving space. When mounted on a manifold, the R6's ultra small footprint enables smaller and more efficient fluidic circuits by taking less space and shortening fluid channels. The R6 provides solutions to today's demanding Analytical, Clinical, and Agent detection applications.

Features

- 8.1 uL internal volume enables low carryover designs and reduces use of precious reagents
- Low power required with 2 Watts max enables portable and low power control.
- Slim design allows for mounting as close as 7 mm centers
- Small enough to be mounted at point of dispense eliminating transfer lines
- 100% tested leak rate ensures a tight seal on every valve
- Optional ported bases for stand-alone operation or testing
- RoHS and Reach compliant 

Product Specifications

Physical Properties

Valve Type:	Diaphragm Isolation Valve
Valve Configuration:	2-Way Normally Closed
Media: Liquids	
Operating Environment:	50 to 104°F (10 to 50°C)
Storage Temperature:	14 to 158°F (-10 to 70°C)
Dimensions:	
Width:	0.26" (6.4 mm)
Depth:	0.87" (22 mm)
Length:	1.28" (32.5 mm)
Weight:	
Face Seal Version:	0.31 oz. (8.8g)
1/4-28 Version:	0.65 oz (18.3g)
Porting:	
Face seal, 1/4-28 sub-base	
Internal Volume (µL):	
Face Seal	8.1
with sub base manifold 1/4-28	34.3

Electrical

Voltage (VDC):	12 and 24 VDC ± 1V	
Power (Watts): 2.0 Max	12V	24V
Current (mA):	150	80
Resistance (Ohm):	80.4	305.6
(Ω±10% @ 68°F, 20°C)		
Connections:	5.9" (150 mm) Flying Lead	

Wetted Materials

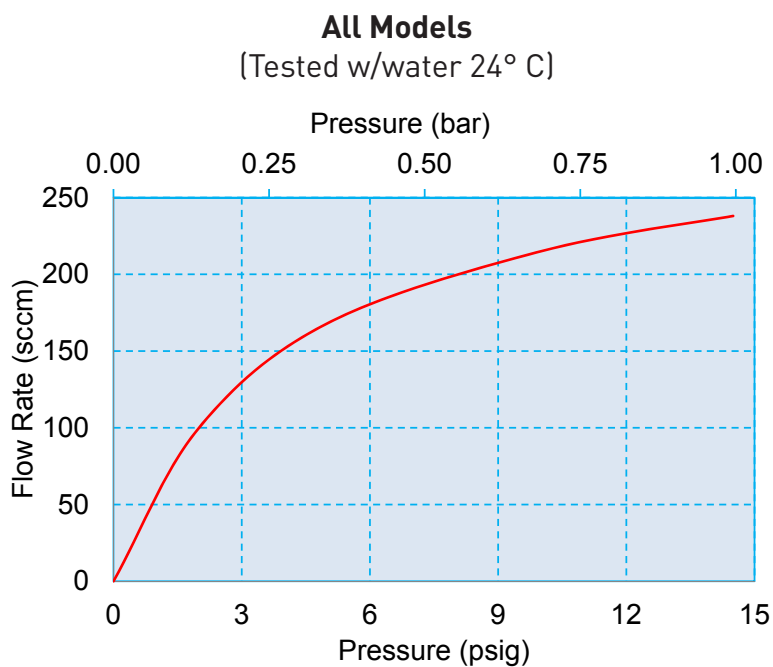
Seals:	FFKM
Body:	PEEK (polyetheretherketone)
Manifold:	PEEK (polyetheretherketone)

Performance Characteristics

Orifice Diameters:	0.031" (0.8 mm)
Operating Pressure:	0-14.5 psi (1.0 Bar) Inlet 0-7.25 psi (0.5 Bar) Outlet
Proof Pressure:	30 psig (2.1 bar)
Leak Rate:	Bubble Tight
Response Time:	<25 mSec
Recommended Filtration:	40µM
Reliability:	10 Million Cycles
Regulatory:	Compliant with RoHS directive (2002/95/EC) and REACH EC 1907/2006

R6 Miniature Diaphragm Isolation Valve

Typical Flow Curve



Electrical Interface

(12V – Black Wires / 24V – Blue Wires)



Wire Leads*
5.9" [150 mm]

*Custom lead length available.

Liquid Interface



Face Seal
[Manifold Mount]

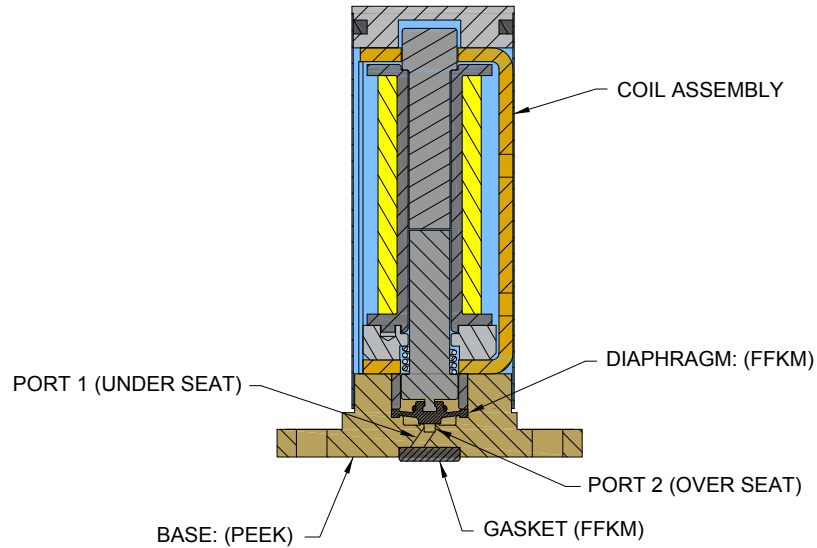
1/4" - 28 Ports
[Threaded Connector]

R6 Miniature Diaphragm Isolation Valve

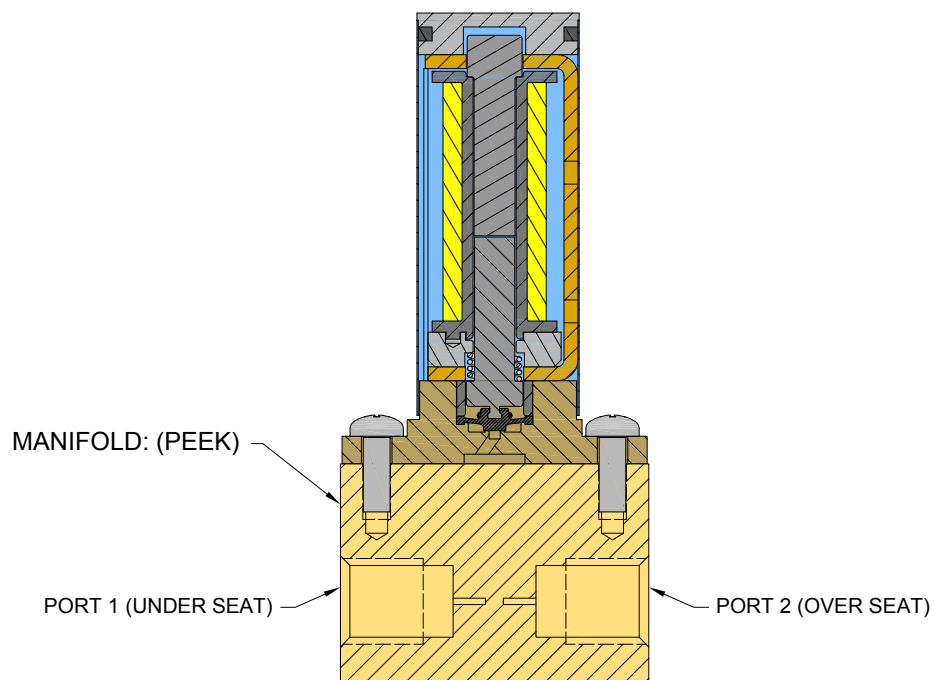
Mechanical Integration

Dimensions

**R6 Cross Section
Wetted Materials**



R6 1/4-28 CROSS-SECTION

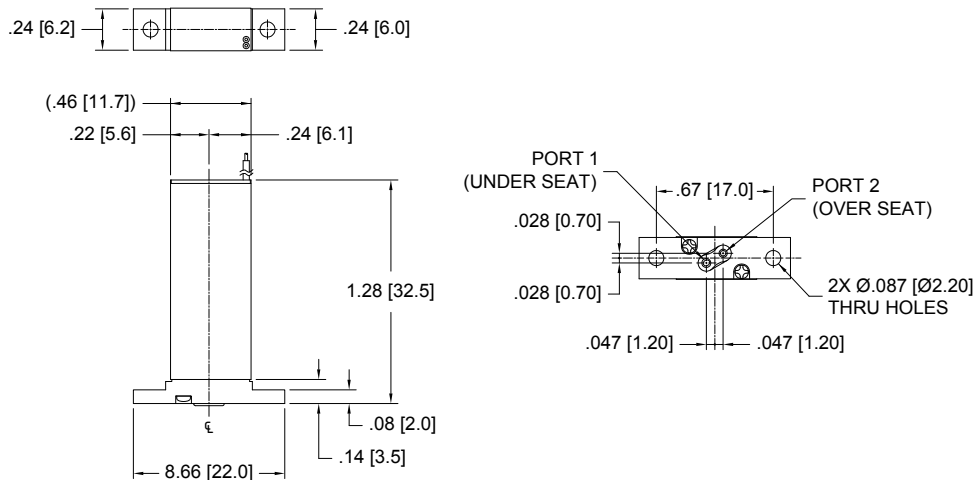


R6 Miniature Diaphragm Isolation Valve

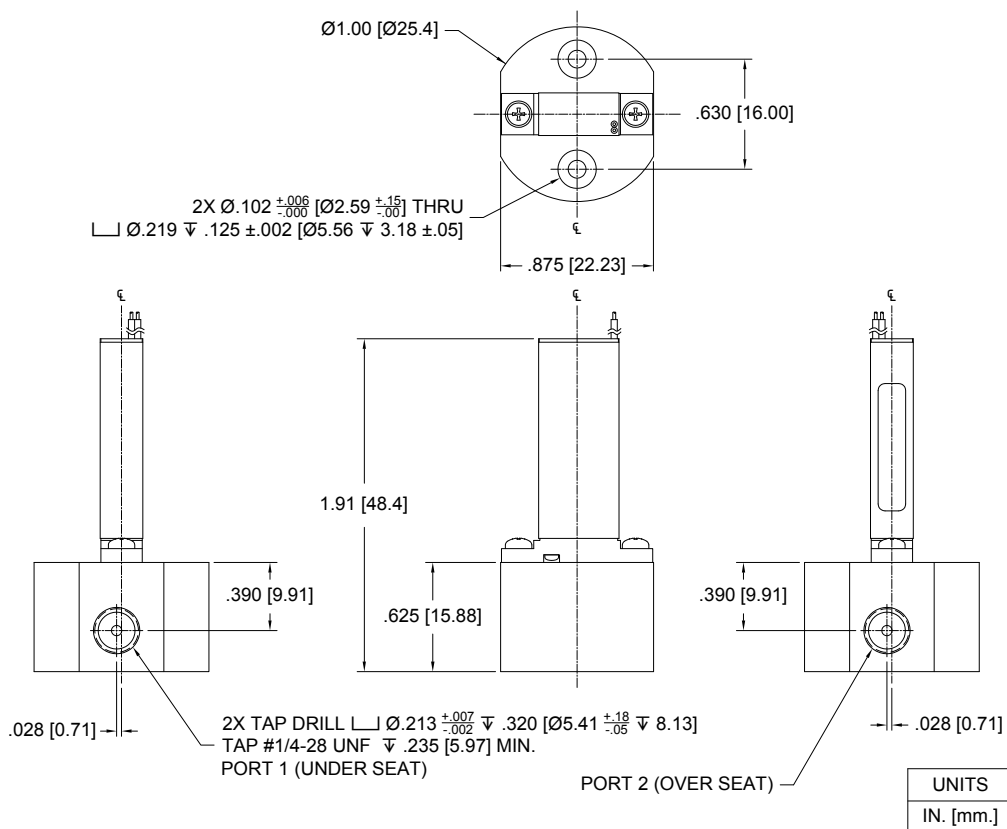
Mechanical Integration

Dimensions

R6 2-Way Face Seal



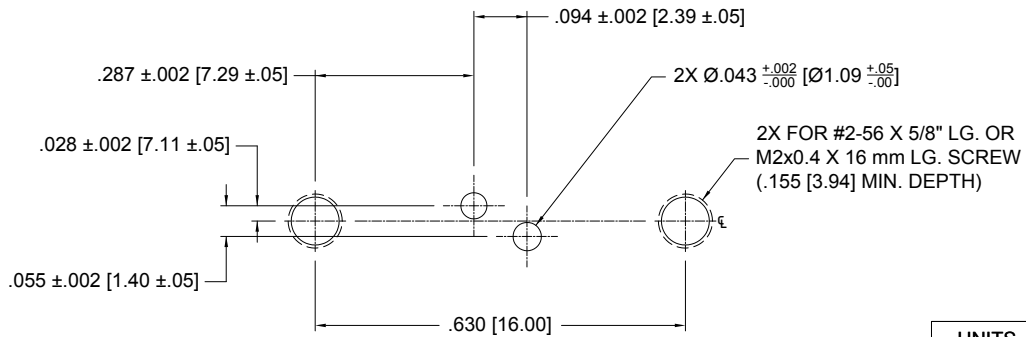
2-WAY 1/4-28



R6 Miniature Diaphragm Isolation Valve

Installation and Use

R6 Manifold Interface Reccomended R6 Valve Mounting



UNITS
IN. [mm.]

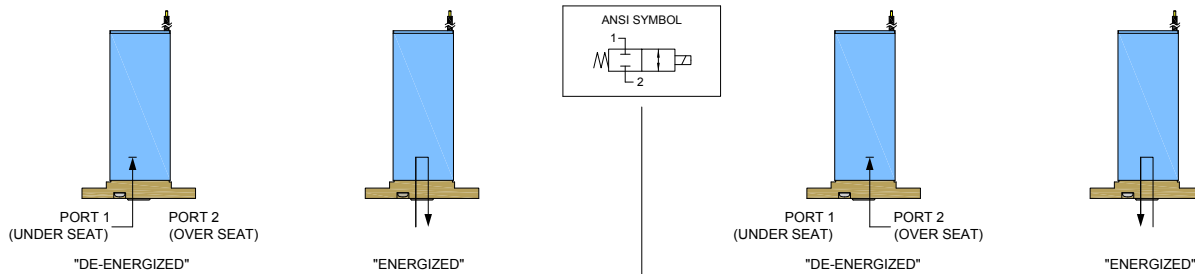
ANSI Symbols

Pressure

R6 ANSI SYMBOLS 2-WAY FACE SEAL

PRESSURE UNDER SEAT

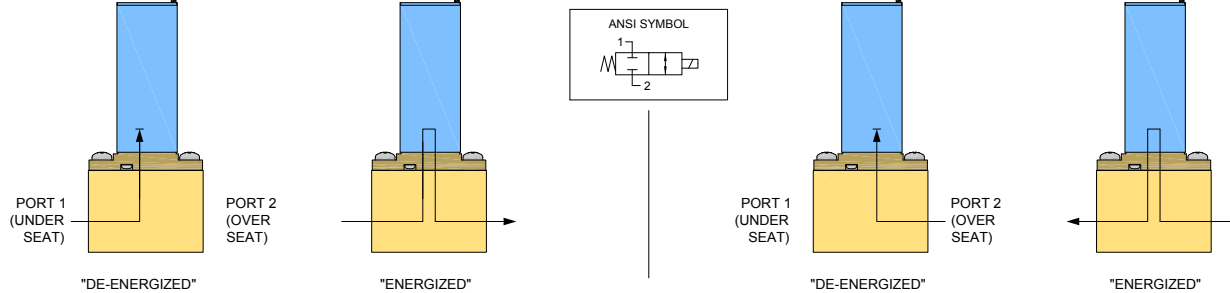
PRESSURE OVER SEAT



2-WAY 1/4-28

PRESSURE UNDER SEAT

PRESSURE OVER SEAT

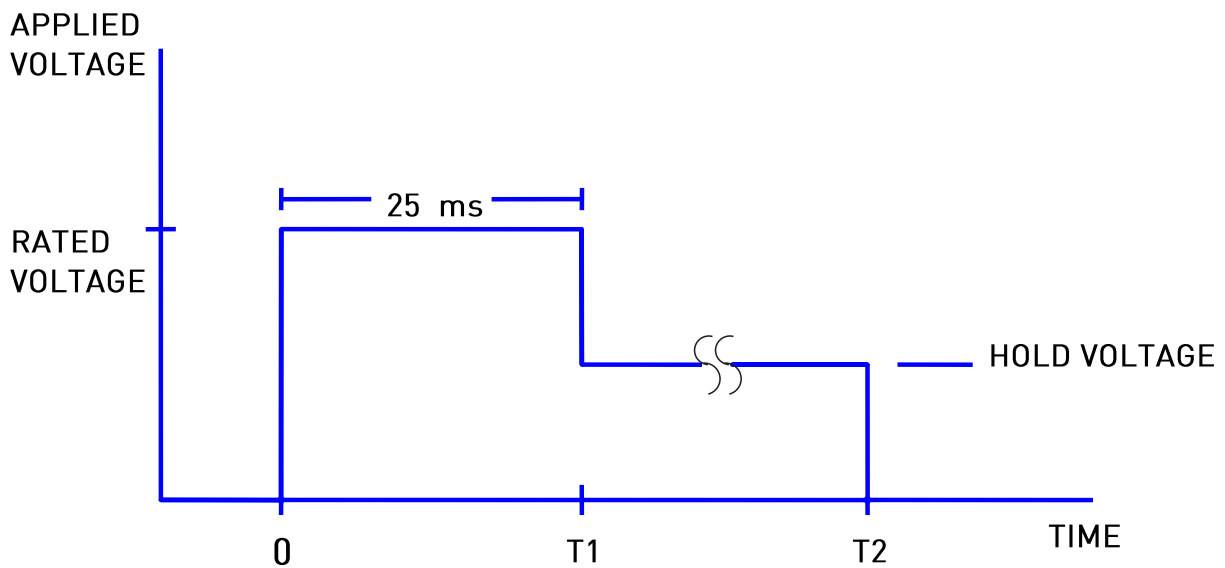


R6 Miniature Diaphragm Isolation Valve

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 (VDC)	R6 Valve	
	Hold Voltage	Hold Power
24	12VDC	0.5 watts
12	6VDC	0.5 watts



Hold Voltage Graph

R6 Miniature Diaphragm Isolation Valve

Chemical Compatibility Chart*

Chemical	Diaphragm	Other Wetted Materials
	FFKM	PEEK
DI Water	1	1
Methanol	1	1
Isopropanol	1	1
Ethanol	1	1
Acetonitrile	1	1
Tetrahydrofuran	2	1
Toluene	1	1
Organic Acids - Dilute	1	1
Non Organic Acids - Dilute	1	1
Bases - Dilute	1	1
Saline	1	1
Bleach 12%	2	1
Sodium Hydroxide 20%	1	1

Compatibility Legend

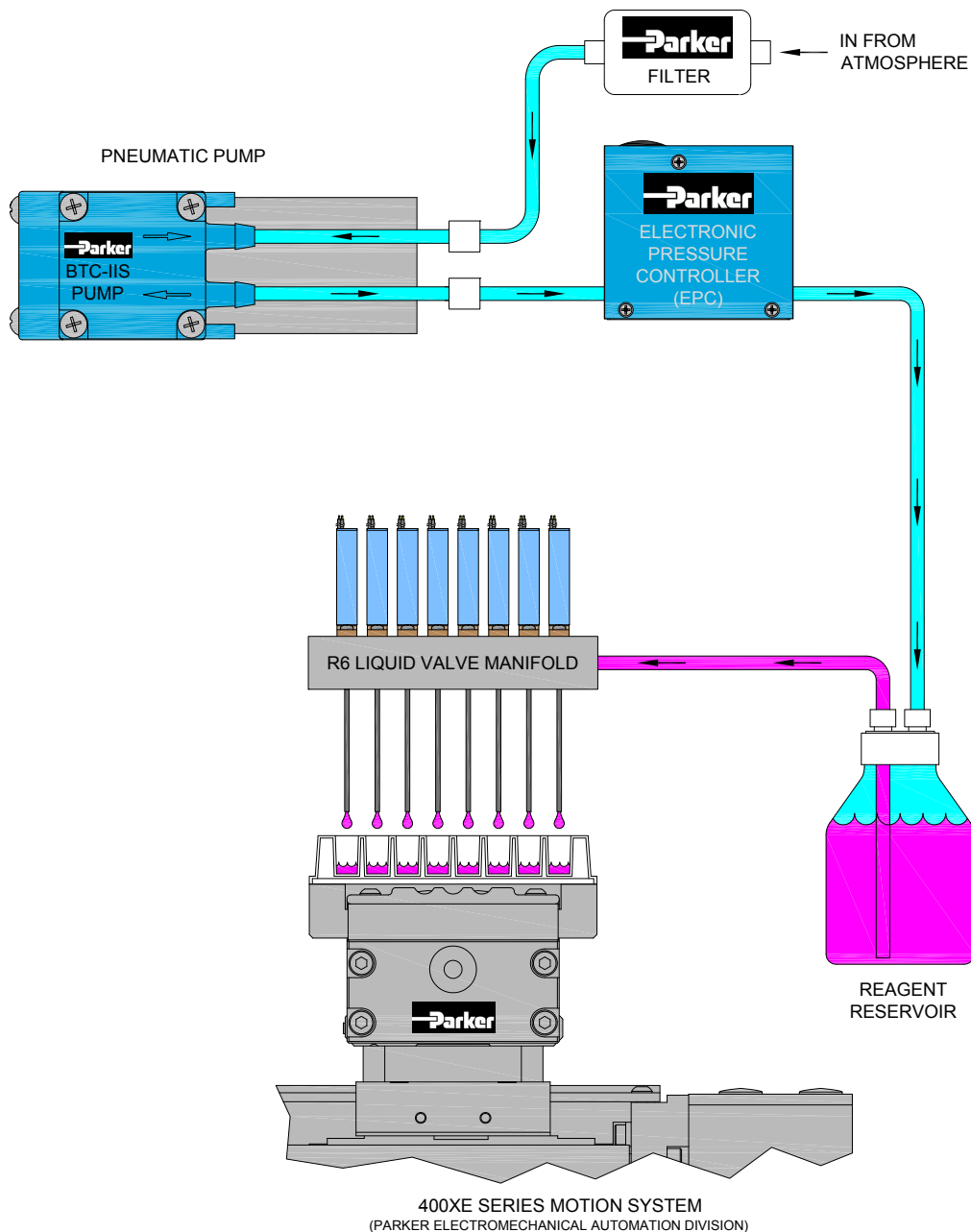
1. EXCELLENT
Minimal or no effect
2. GOOD
Possible swelling and or loss of physical properties
3. DOUBTFUL
Moderate or severe swelling and loss of physical properties
4. NOT RECOMMENDED
Severe effect and should not be considered

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

R6 Miniature Diaphragm Isolation Valve

Typical Flow Diagram

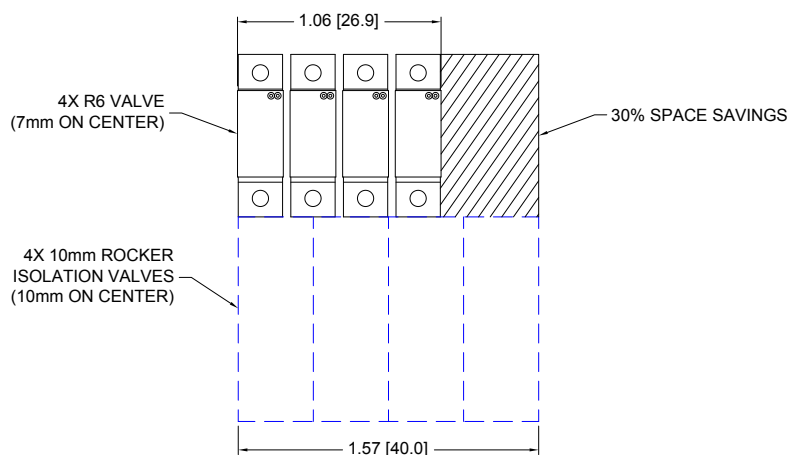
9 mm on center dispense application



- Compact size of the R6 valve enables it to be mounted directly at the point of dispense eliminating transfer lines.
- Can be mounted on 9 mm centers for 96 well microplate use and with a dual sided manifold design can be mounted on 4.5 mm centers over 384 well microplates.
- Parker can offer complete fluidic solutions integrating Parker tubing, fittings, filtration, Pneumatic and liquid pumps, pneumatic and liquid valves and precision motion systems.

R6 Miniature Diaphragm Isolation Valve

Comparison of Footprint of 4 R6 Valves vs. Typical 10 mm Rocker Valve



Ordering Information

Orifice Size	Valve Type	Seal Material	Pressure	Voltage	Electrical Connection	Porting	Part Number
0.040" (1.02mm)	2-Way NC	FFKM	0-14.5 PSI (1.0 bar)	12V	Flying leads	Manifold Mount	R6-212FF30FF-000
						1/4 - 28	R6-212FF304F-000
				24V	Flying leads	Manifold Mount	R6-224FF30FF-000
						1/4 - 28	R6-224FF304F-000

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/r6) to configure your R6 Miniature Diaphragm Isolation Valve. For more detailed information, visit us on the Web, or call 603-595-1500.



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

