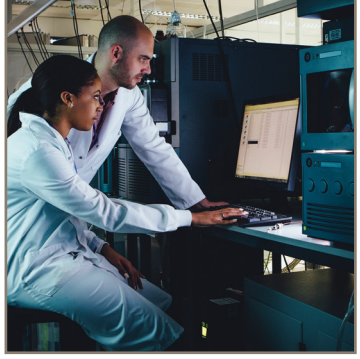
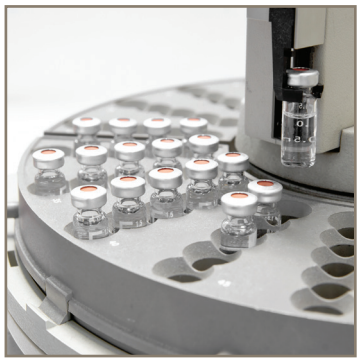
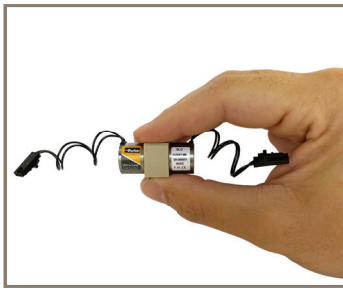




Ultra Low Carryover Valve

Miniature Liquid Valve



ENGINEERING YOUR SUCCESS.

THIS IS INCREASING THROUGHPUT

Ultra Low Carryover Valve

- Improve Throughput
- Decrease Fluidic Circuit Volume
- Reduce Waste

Parker Hannifin's Precision Fludics Division is excited to introduce the Ultra Low Carryover Valve, a novel liquid valve that features both unparalleled carryover performance and the ability to reduce fluidics complexity by replacing one or more valves with a single Ultra Low Carryover Valve.

Truly two valves in one.

discover.parker.com/ultralowcarryovervalve

ENGINEERING YOUR SUCCESS.

Ultra Low Carryover Valve

Miniature Liquid Valve

The Ultra Low Carryover Valve features both unrivaled low carryover and the ability to reduce fluidic circuit complexity by replacing multiple valves with a single valve. The valve uses a patent pending approach to increase throughput and decrease liquid waste by reducing wash times. Additionally, the Ultra Low Carryover Valve offers superior performance as a gradient proportioning valve for HPLC, HbA1c and other life science applications.

Markets

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

Applications

- Sampling
- Reagent Addition
- Flow Control
- Gradient Proportioning

Features

- Best in class low carryover performance
- 3 port valve offers four modes of operation: flow off, flow channel A, flow channel B, flow channel A + B.
- Simplifies OEM instrument design by using fewer valves
- Internal volume as low as 4.13 µL from common port to orifice seat
- CE, IP-65 Rating, REACH and RoHS compliant

Product Specifications

Physical Properties

Valve Types:	
3 Ports with Four Modes	
2 Ports with Two Modes	
Porting:	
1/4 - 28 or Face Seal	
Media:	
Liquid	
Operating Environment/ Media Temperature:	
39°F to 122°F (4°C to 50°C)	
Storage Temperature:	
-4°F to 158°F (-20°C to 70°C)	
Weight:	
3 Port Face Seal:	1.06 oz (30.2 g)
2 Port Face Seal:	0.61 oz (17.3 g)
3 Port 1/4 - 28:	1.19 oz (33.7 g)
2 Port 1/4 - 28:	0.69 oz (19.6 g)

Electrical

Voltage (VDC):	**12**	**24**
Power (Watts):	3.0	3.0
Current (mA):	250	116
Resistance (Ohm):	48	207

Ω ± 10% @ 68 °F, 20 °C
Note: For actuation exceeding 100ms Hit & Hold is required.

Electrical Termination:	4.5 in (114.3 mm) Leads Terminated with Molex Housing #50-57-9402

Wetted Materials*

Seals:	FFKM or EPDM
Body:	PEEK

Performance Characteristics

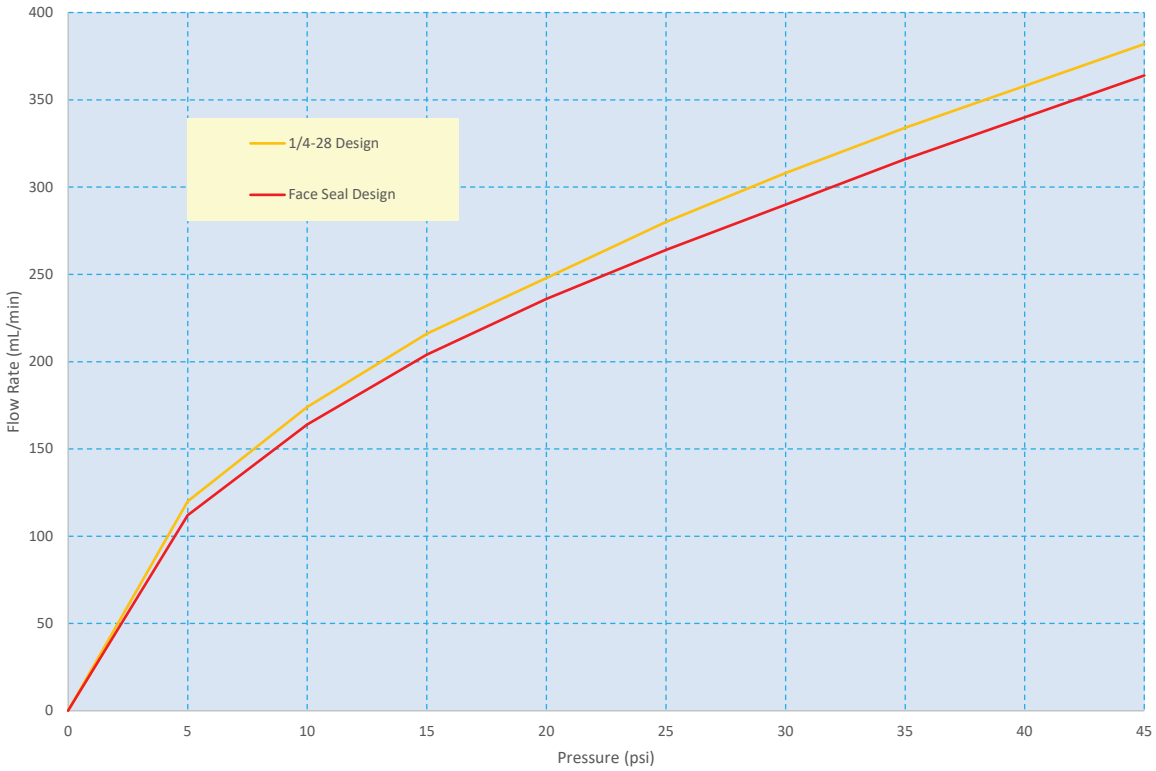
Leak Rate:		
0.15 sccm of Air		
Operating Pressure:		
45 psig (3.1 bar)		
Response Time:		
<10 msec at 20°C		
Recommended Filtration:		
16 µm or less		
Reliability:		
10 Million Cycles 0.95 Reliability Factor 95% Confidence Interval		
Internal Volume:		
Configuration	**Port to Seat**	**Port to Port**
3 Port Face Seal	12.54 µL	21.87 µL
2 Port Face Seal	11.36 µL	20.67 µL
3 Port 1/4 - 28	5.32 µL	15.43 µL
2 Port 1/4 - 28	4.05 µL	14.24 µL
Flow Rate:		
Minimum water flow of 320 mL/min @ 45 psig (3.1 bar)		

*Other materials available upon request

Ultra Low Carryover Valve Miniature Liquid Valve

Typical Flow Curve

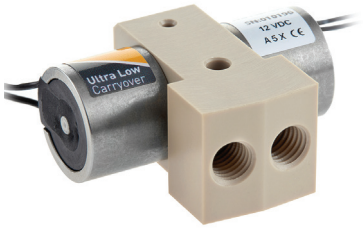
Water Flow



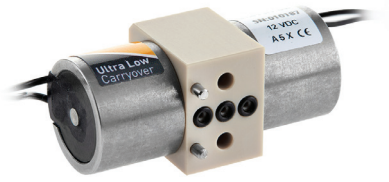
Electrical Interface

Wire Leads
4.5 in (114.3 mm) ±0.25 in (6.35 mm)
Terminated with Molex Housing #50-57-9402

Liquid Interface



1/4 - 28 Design
(Threaded Connectors)



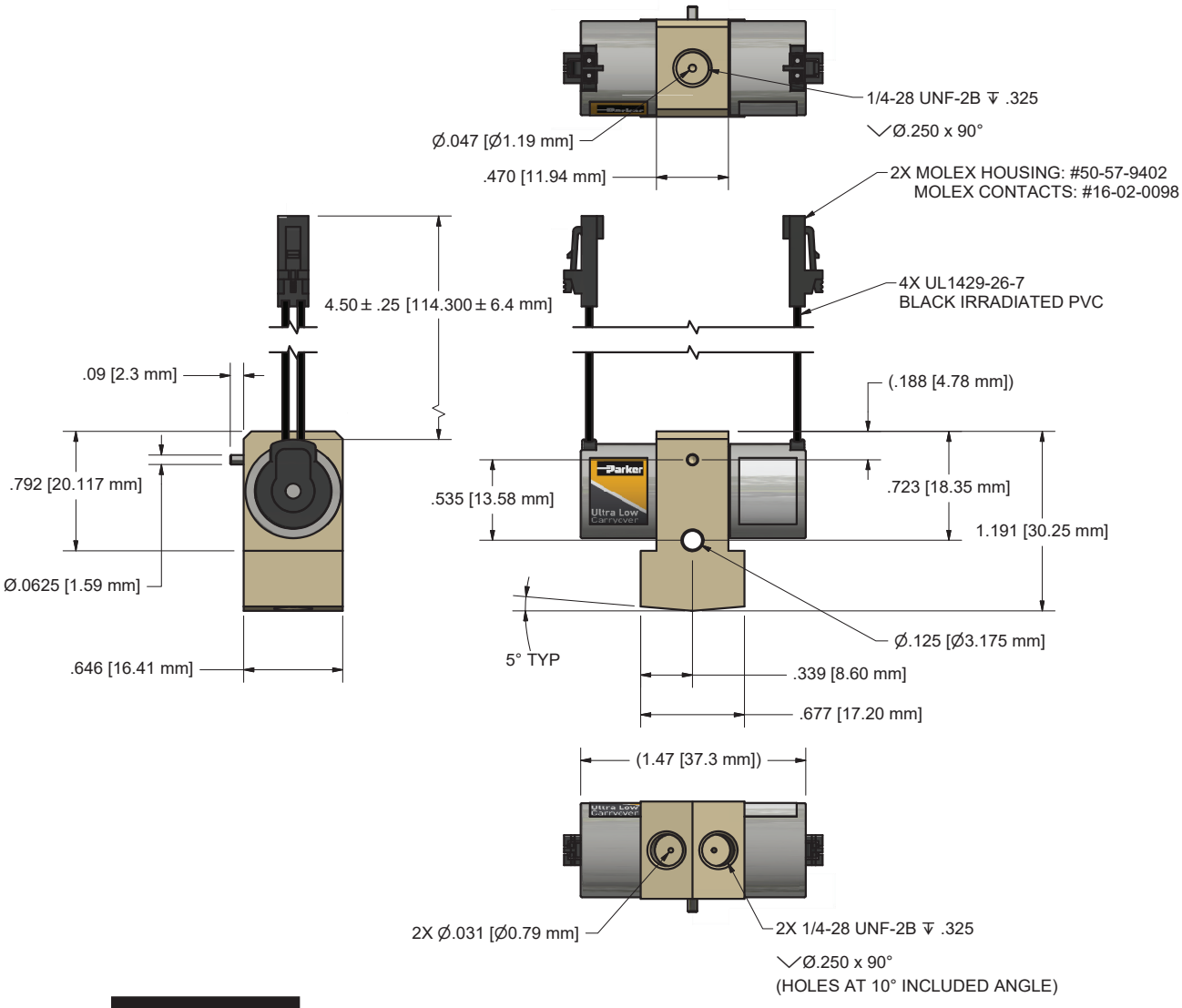
Face Seal Design
(Manifold Mount)

Ultra Low Carryover Valve Miniature Liquid Valve

Mechanical Integration

Dimensions

3 Port 1/4 - 28 Design

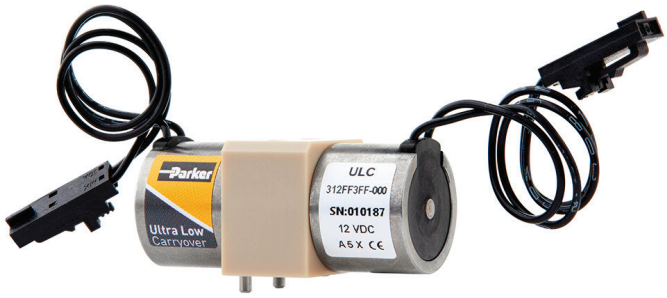


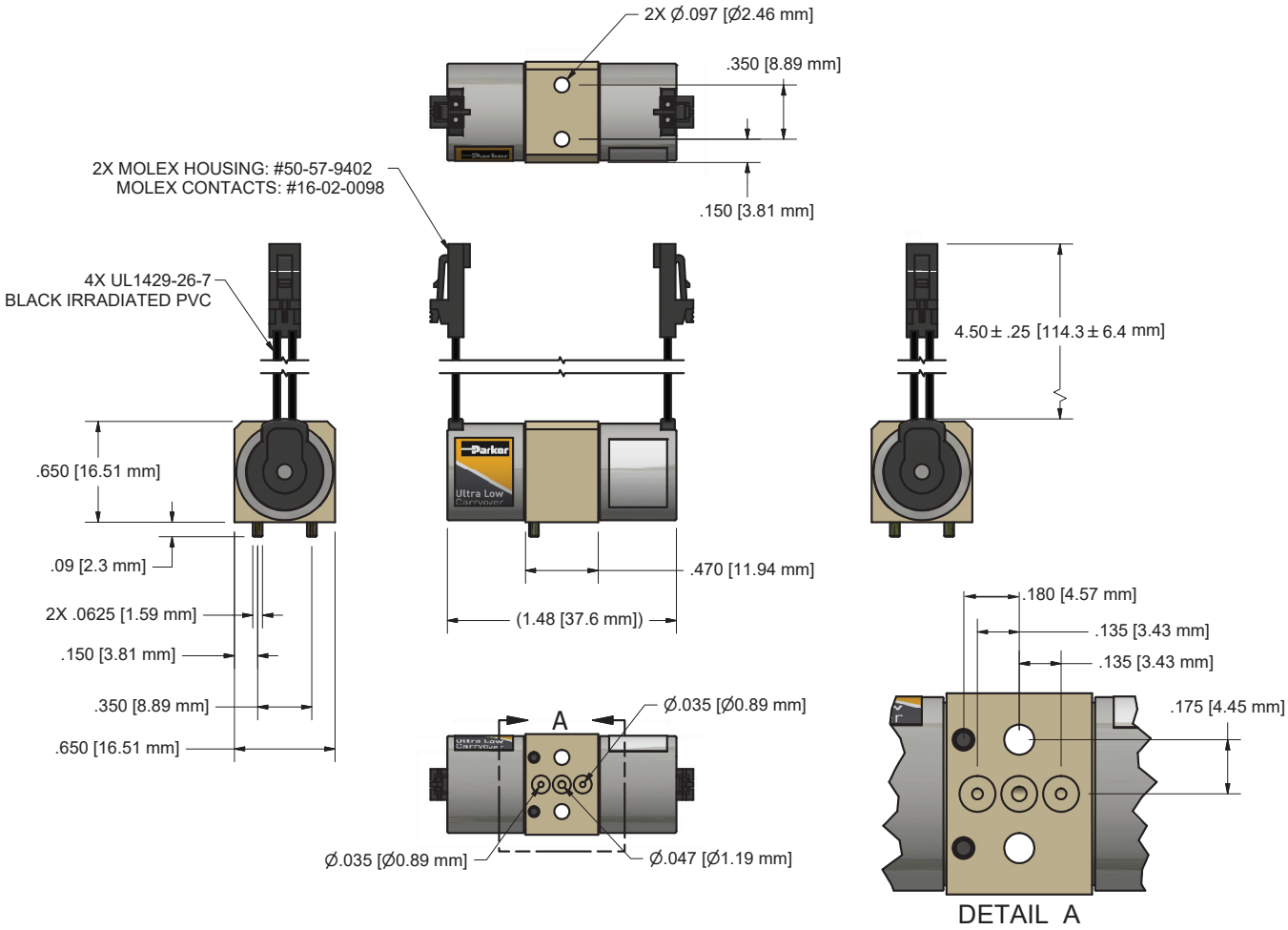
Ultra Low Carryover Valve Miniature Liquid Valve

Mechanical Integration

Dimensions

3 Port Face Seal Design



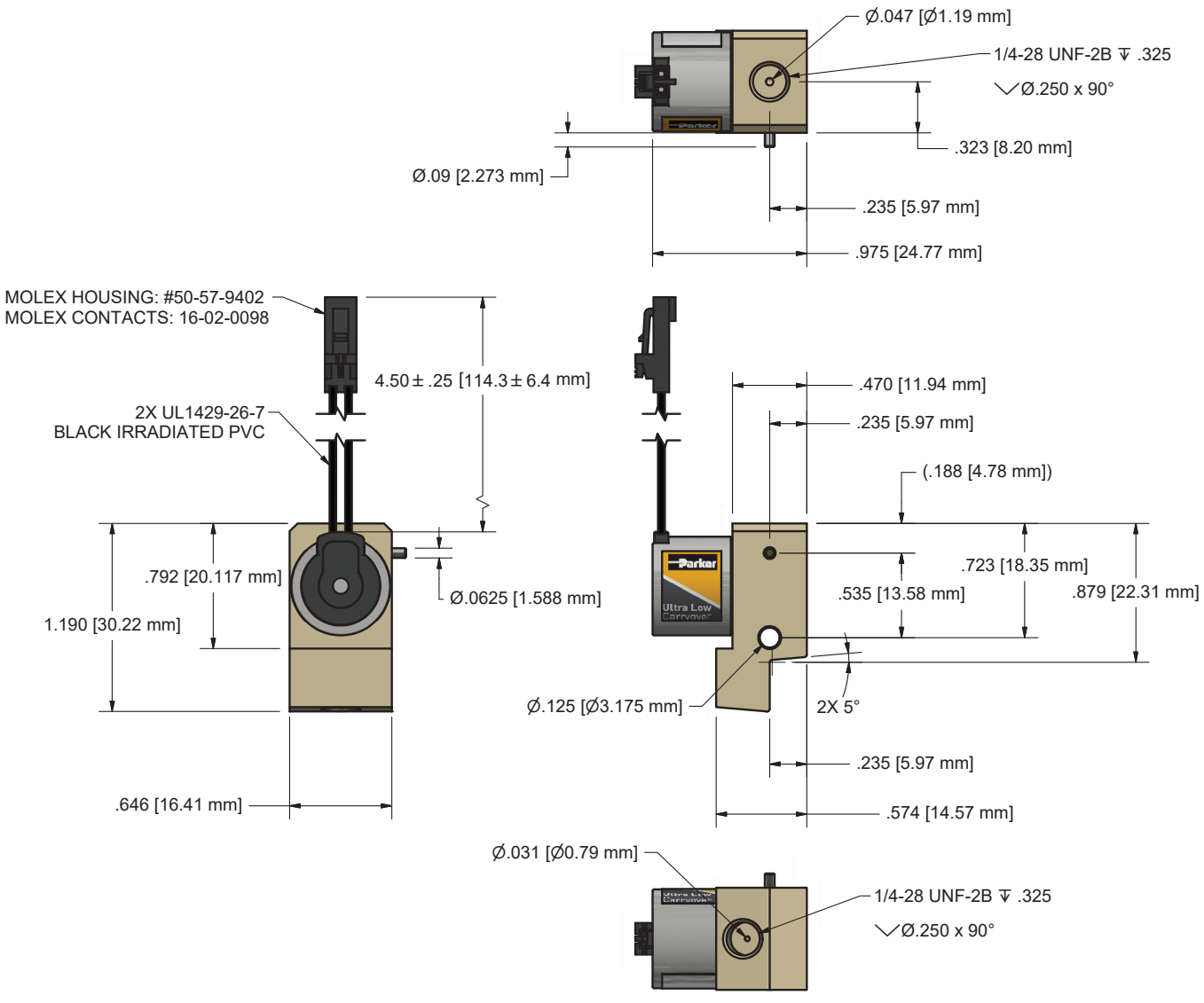


Ultra Low Carryover Valve Miniature Liquid Valve

Mechanical Integration

Dimensions

2 Port 1/4 - 28 Design

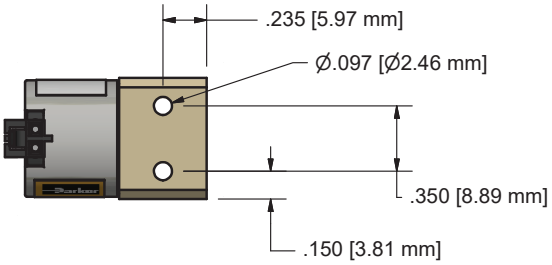


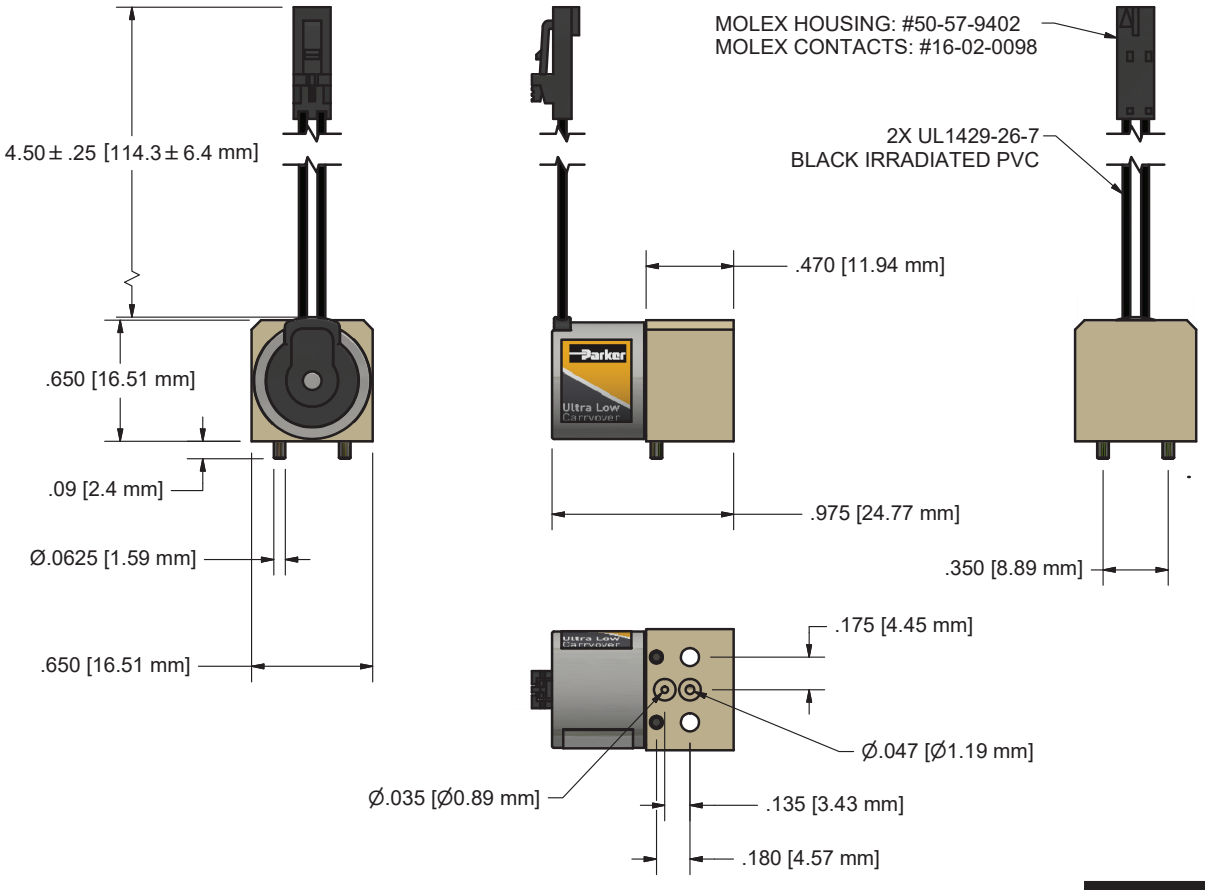
Ultra Low Carryover Valve Miniature Liquid Valve

Mechanical Integration

Dimensions

2 Port Face Seal Design

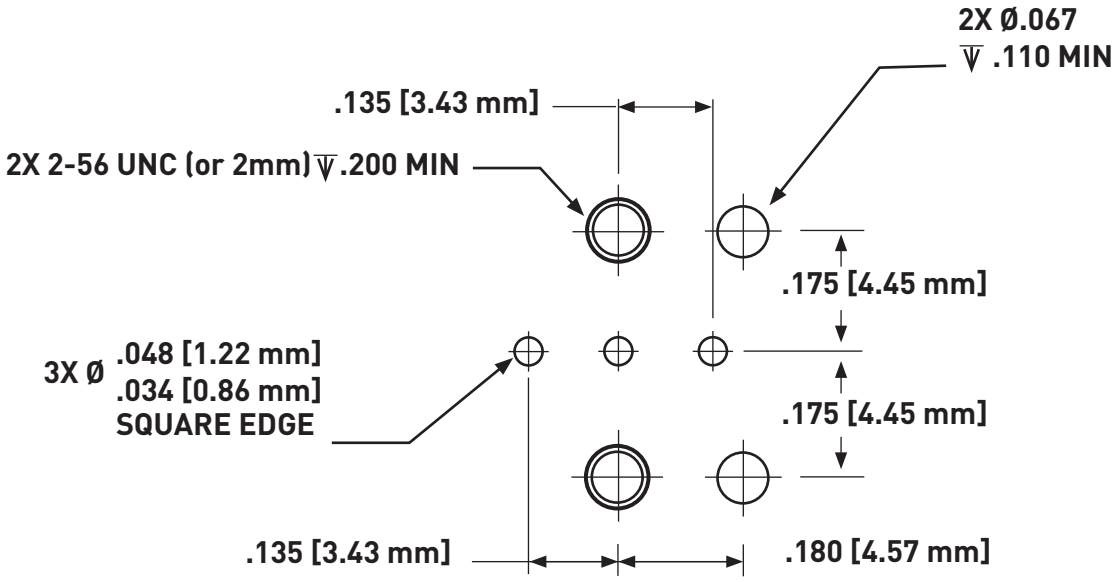




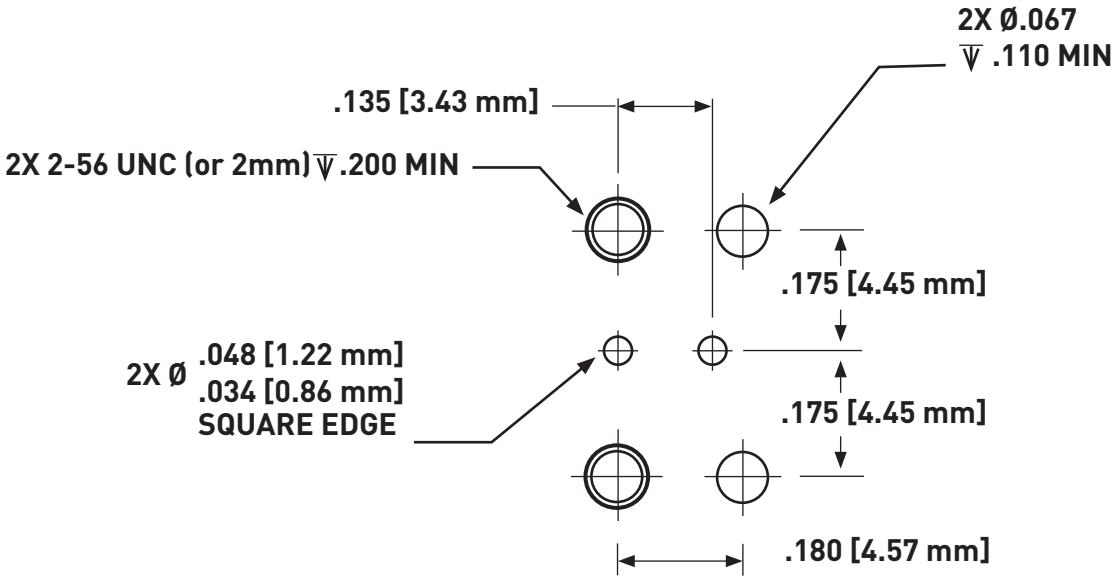
Ultra Low Carryover Valve Miniature Liquid Valve

Installation and Use

3 Port Manifold Interface



2 Port Manifold Interface



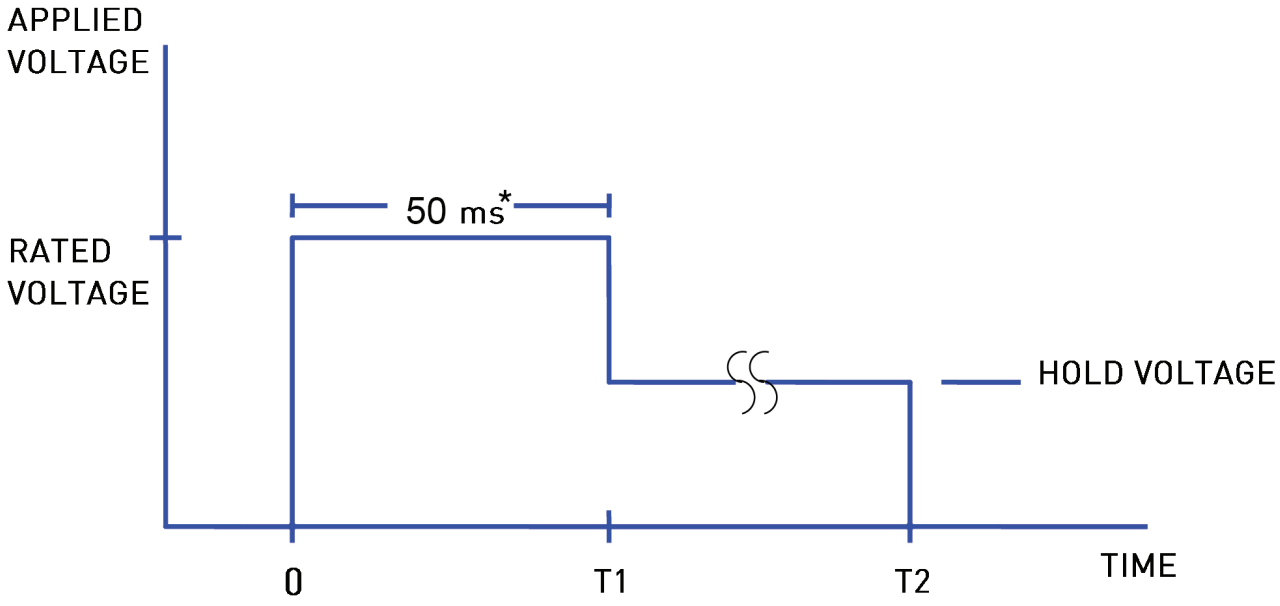
UNITS
IN. [mm]

Ultra Low Carryover Valve Miniature Liquid 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 a 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. A hit and hold circuit is required for use with actuation exceeding 100ms.

Rated Voltage (VDC)	Hold Voltage (VDC)	Typical Hold Power
24	12	0.7 watts
12	6	0.7 watts



Hold Voltage Graph

*** 50 ms recommended. Hit time shall be greater than 20 ms but not exceed 100 ms**

Ultra Low Carryover Valve Miniature Liquid Valve

Chemical Compatibility Chart

	Diaphragm			Other Wetted Materials
Chemical	FFKM	or	EPDM	PEEK
DI Water	1		1	1
Methanol	1		1	1
Isopropanol	1		1	1
Ethanol	1		1	1
Acetonitrile	1		1	1
Tetrahydrofuran	2		4	1
Toluene	1		4	1
MEK	1		1	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%	2		1	1
Sodium Hydroxide 20%	1		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 additional information.

Regulatory CE
ENG61010 - 1:2010

IP-65 Rating - Contact Factory For Details

RoHS Directive Compliant - Contact Factory For Details

REACH Compliant - Contact Factory For Details

Ultra Low Carryover Valve Miniature Liquid Valve

Ordering Information

3 Port 1/4- 28 Design

3 Port Face Seal Design

2 Port 1/4- 28 Design

2 Port Face Seal Design

ULC	3	24	FF	3	F	F	-000
Series	**Configuration**	**Voltage**	**Seal Manifold**	**Orifice**	**Mounting**	**Electrical Connection**	**Configuration**
ULC-	2: 2 - Port 3: 3 - Port	12: 12 VDC 24: 24 VDC	FF: FFKM EP: EPDM	3: 0.030" (0.76mm)	F: Face Seal 4:1/4 - 28	F: Latching Connector	-000

Accessories

Part Number	Description	Comments
890-001198-001	1/4 - 28 Female Threaded Face Seal Manifold	Allows connection of 1/4 - 28 fittings to Face Seal Design for bench testing
191-000112-417	18 - 8 Stainless Steel Mounting Screws, #2-56 x 3/4	
290-006061-005	19.5 in (495.3mm) Wire Extension with Flying Leads	

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 and Media Temperature Range
- Ambient Temperature Range

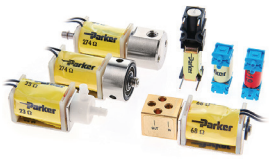
For more detailed information, visit us on the Web, or call 603-595-1500.

Ultra Low Carryover Valve Miniature Liquid Valve

Serving a broad spectrum of life science, air quality, and process instrumentation OEM fluidic needs

Providing Pressure and Vacuum:
Broad range of diaphragm pumps for Gas

Gas Flow Control:
High to Low Flow Proportional Valves



On/Off & Channel Selection Capabilities:
Gas and Liquid Solenoid Valves

High Precision Thermal Flow Control:
Mass Flow Controllers and Meters

Learn More at: www.discover.parker.com/ultralowcarryovervalve

Below are some common specifications that are helpful to have on hand to accelerate your product selection:

- Gas Type
- Maximum Flow Rate
- Inlet and Outlet Pressures
- Operating Temperature
- Standard Reference Conditions
- Process Connection Size and Type
- Set Point Signal
- Digital Communication Protocol Preferences

For more information call **+1 603 595 1500** or email **ppfinfo@parker.com**

Visit **www.parker.com/precisionfluidics**

Recommendations on application design and material selection are based on available technical data and are offered as suggestions only. Each user should conduct their own tests to determine the suitability for their own use. Parker offers no express or implied warranties concerning the form, fit, or function of a product in any application.

PPF ULC - 002/US June 2021

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