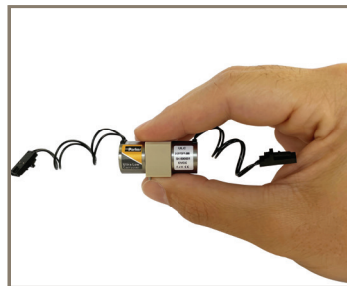




Improving Throughput In Laboratory Instrumentation Using The Ultra Low Carryover Valve



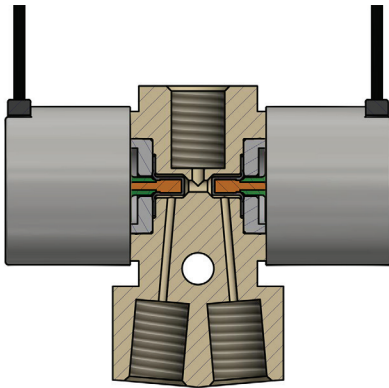
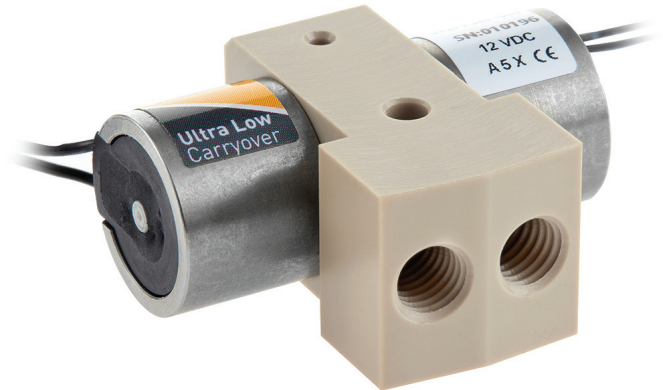
ENGINEERING YOUR SUCCESS.

Ultra Low Carryover Valve Miniature Liquid Valve

Increasing Throughput, Reducing Carryover and Simplifying Fluidic Circuits in Your Clinical Diagnostics or Analytical Instrumentation

Parker Hannifin's Precision Fluidics 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 fluidic circuit complexity by replacing one or more valves with a single Ultra Low Carryover Valve.

Truly two valves in one.



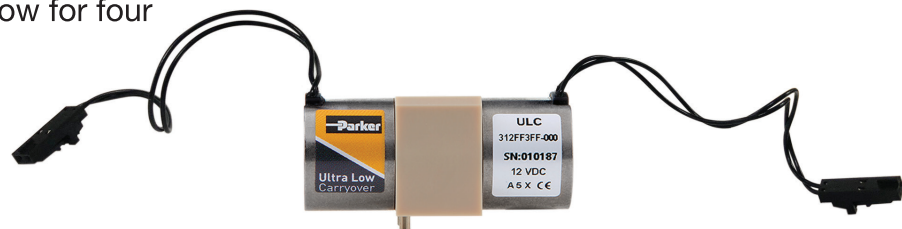
Patent pending design

The Ultra Low Carryover Valve uses a patent pending approach to increase throughput and decrease liquid waste by reducing the wash times required to eliminate carryover.

Four flow options in a single valve

The Ultra Low Carryover Valve's unique individually actuated channels allow for four states in the valve.

- Channel A Open
- Channel B Open
- Both Channels Closed
- Both Channels Open



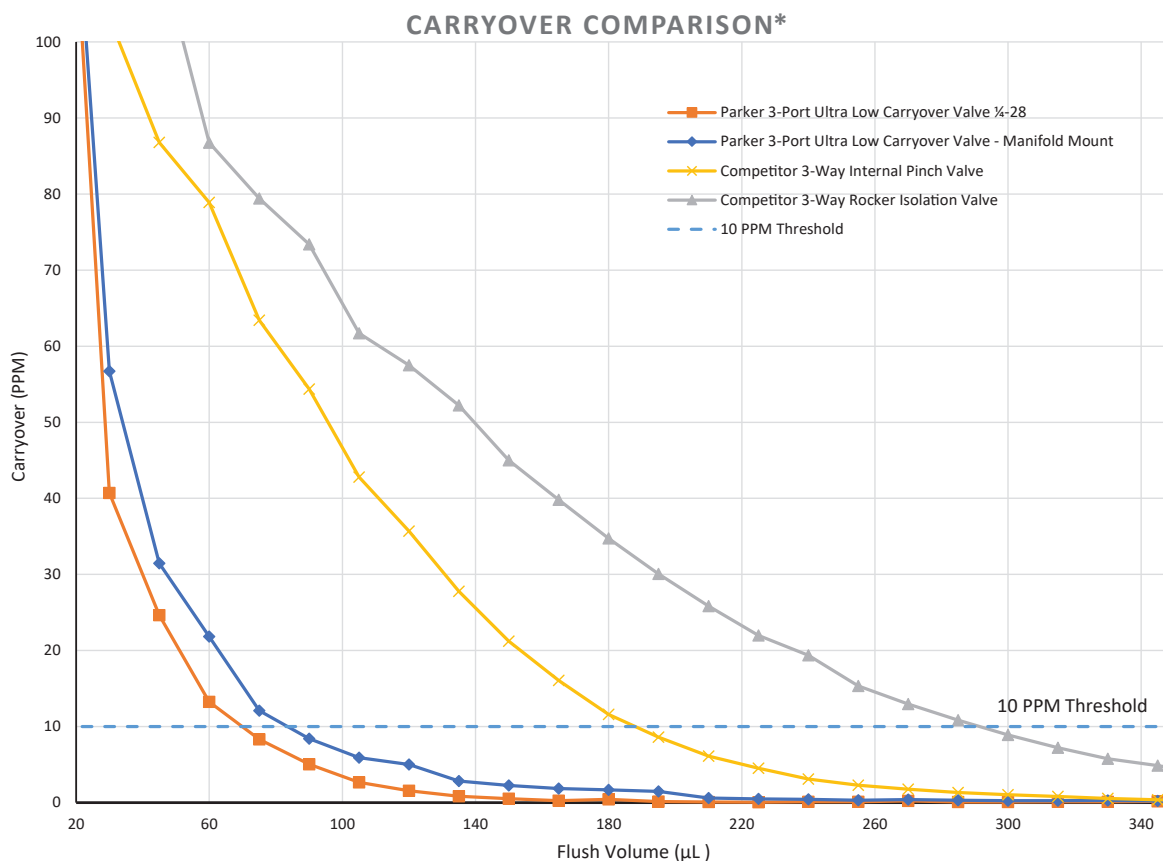
Ultra Low Carryover Valve Miniature Liquid Valve

Best in Class Carryover Performance

The Ultra Low Carryover Valve addresses the most common cause of decreased throughput in laboratory instruments, carryover.

The Ultra Low Carryover Valve features a patent pending armature design which allows for very small internal volume and an exceptionally well swept fluid path. Together these features create the best carryover performance available and reduce the volume of your fluidic circuits.

These features translate into more samples per hour and reduced cost per sample, major cost drivers in most laboratories.



*Note: Benchmarked against next best competitive valve

Unmatched Carryover Performance

Compared to the next best alternative valve, the Ultra Low Carryover Valve requires only a third of the time and liquid to clean out to less than 10 PPM carryover level.

Ultra Low Carryover Valve Miniature Liquid Valve

How Can The Ultra Low Carryover Valve Help Improve Your Fluidic System Design?

Best in class carryover performance

By reducing carryover, wash times are decreased, thereby increasing throughput.

Reduce Waste

Liquid volumes used are decreased by reducing wash times, which lowers liquid and disposal costs.



Longer Life

Eliminate the need to replace pinch valve tubing or internal pinch valves, which reduces downtime and maintenance costs.

Decrease fluid circuit volume

The Ultra Low Carryover Valve's small internal volume and manifold mount capability help minimize fluidic circuit volumes, saving reagents and speeding up reaction times.

Ultra Low Carryover Valve Miniature Liquid Valve

Reducing Fluidic Circuit Complexity

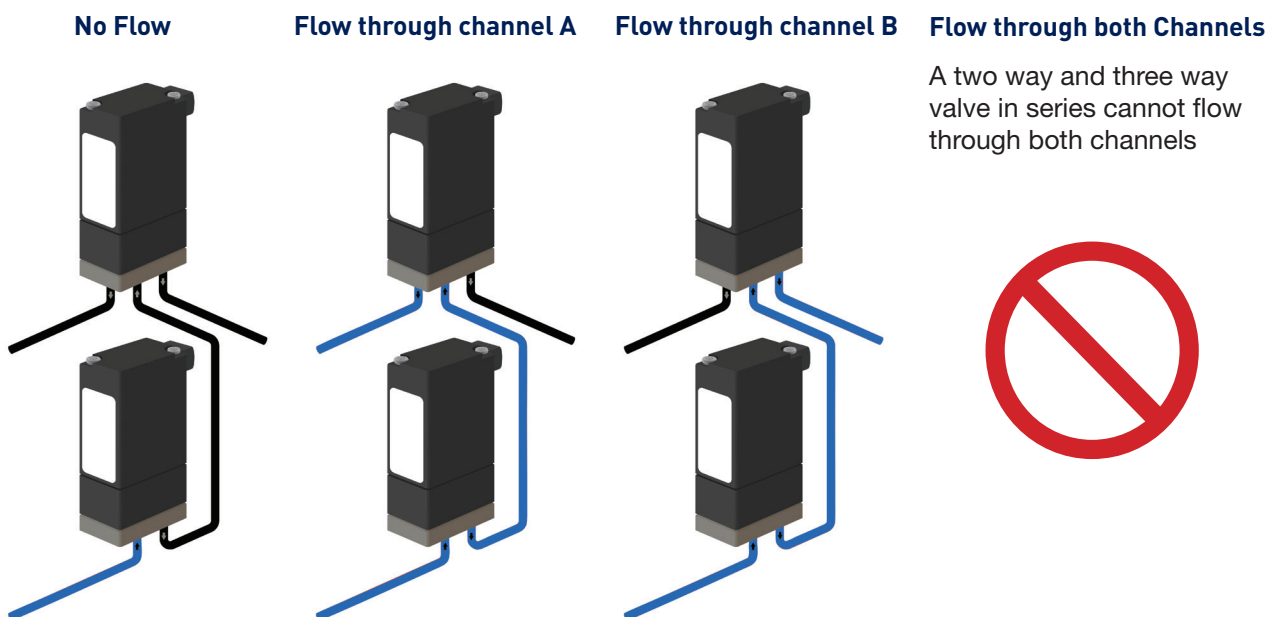
The Ultra Low Carryover Valve has the unique capability to operate in four different states, which offers distinct advantages over the typical two state operation of a two way or three way solenoid valve.

The Ultra Low Carryover Valve delivers several important benefits:

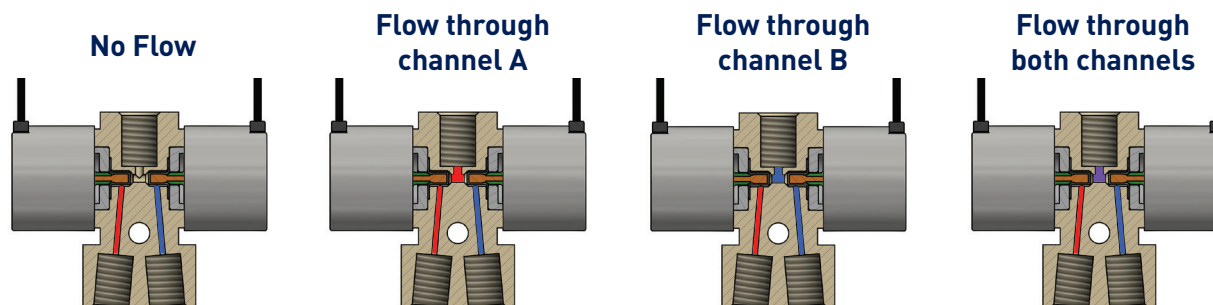
- Simplifies OEM instrument design by using fewer valves
- Reduces number of connections and potential leak points
- Decreases total assembly cost
- Improves system efficiency and reliability

Example

Typical circuit using two way and three way valves in series



More functionality with a single Ultra Low Carryover Valve



Ultra Low Carryover Valve Miniature Liquid Valve

Product Specifications

Physical Properties		Electrical		Performance Characteristics				
Valve Types:		Voltage (VDC):	12	24	Leak Rate:			
3 Ports with Four Modes			0.15 sccm of Air					
2 Ports with Two Modes		Power (Watts):	3.0	3.0	Operating Pressure:			
Porting:			45 psig (3.1 bar)					
1/4 - 28 or Face Seal		Current (mA):	250	116	Response Time:			
Media:			<10 msec at 20°C					
Liquid		Resistance (Ohm):	48	207	Recommended Filtration:			
Operating Environment/ Media Temperature:			16 µm or less					
39°F to 122°F (4°C to 50°C)		$\Omega \pm 10\% @ 68^\circ\text{F}, 20^\circ\text{C}$		Reliability:				
Storage Temperature:		Note: For actuation exceeding 100ms Hit & Hold is required.		10 Million Cycles				
-4°F to 158°F (-20°C to 70°C)		Electrical Termination:	4.5 in (114.3 mm) Leads Terminated with Molex Housing #50-57-9402		0.95 Reliability Factor			
Weight:			Wetted Materials*			95% Confidence Interval		
3 Port Face Seal: 1.06 oz (30.2 g)		Seals:		FFKM or EPDM		Internal Volume:		
2 Port Face Seal: 0.61 oz (17.3 g)		Body:		PEEK		Configuration	Port to Seat	Port to Port
3 Port 1/4 - 28: 1.19 oz (33.7 g)						3 Port Face Seal	12.54 µL	21.87 µL
2 Port 1/4 - 28: 0.69 oz (19.6 g)						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)		



3 Port 1/4- 28 Design



3 Port Face Seal Design



2 Port 1/4- 28 Design



2 Port Face Seal Design

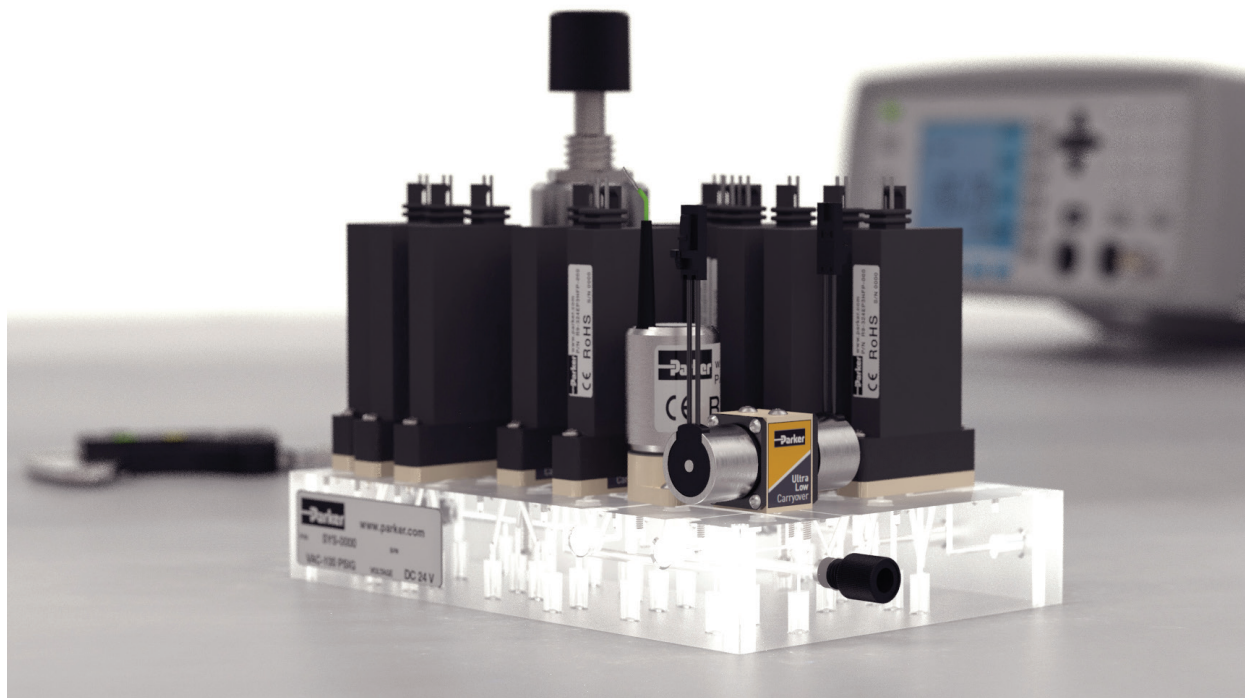
ULC	3	24	FF	3	F	F	-000
Series	Configuration	Voltage	Seal Manifold	Orifice	Mounting	Electrical Connection	Configuration
ULC-	2: 2 - Port 3: 3 - Port	12: 12 VDC 24: 24 VDC	FF: FFKM EP: EPDM	3: 0.030" (0.76mm)	F: Face Seal 4: 1/4 - 28	F: Latching Connector	-000

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	



Parker, your partner in fluidic circuit development



With over 30 years of expertise in integrating fluidic circuits, Parker is in a unique position to assist you with your instrument designs. We are the only company that manufactures liquid valves, liquid pumps, gas valves, and gas pumps. Because we manufacture both pumps and valves, you can rely on our expertise to provide a reliable and cost-effective solution. This expertise helps solve your fluidic needs by providing products or integrating them onto manifolds. If you are looking for a pre-tested solution, the entire subsystem can be delivered as a module.

Clinical Diagnostics and Analytical Instrumentation Expertise

Liquid Valves

Miniaturized valves featuring inert materials for the highest chemical compatibility, long life, low carryover and high pressure.

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YEARS

Material Science – Sealing Elastomers and Valve Bodies

Elastomers and other wetted path materials developed for improved chemical compatibility, long life and optimized temperature performance.

30
YEARS

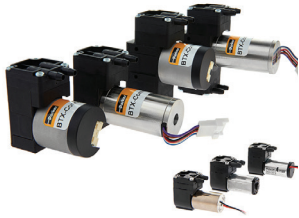
Customization for OEM Projects

As your valve and pump engineers, we can optimize valve and pump performance to suit your OEM application.

40
YEARS

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

In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- System Supply Voltage
- Ambient Temperature Range
- Minimum Required Flow Rate
- Media and Media Temperature Range
- Carryover requirement and how measured

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.

