



**CR8 3-WAY SERIES
PNEUMATICALLY OPERATED VALVES**

*For corrosive environments in
wet etch and clean applications*



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Overview

CR8 3-way series valves are designed to divert one media stream into two directions or alternate two media streams into one, minimizing the footprint. The CR8 effectively handles temperatures up to 130°C (266°F) in corrosive environments for wet etch and clean applications. At this temperature, the CR8 3-way valve is rated to 276 kPa (40 PSIG) media.

Users will have a variety of connection options available in 1/2" and 3/4" port sizes. Without exposed metal hardware, the valve is completely sealed and protected from harsh chemical environments. The end result is a highly effective valve that simplifies your system design and increases product longevity.

Applications

- High-purity corrosive chemical handling for chemical line size in 1/2" and 3/4"
- All semiconductor wet clean process chemicals
- Transporting and protecting your high-purity chemicals

Features and Benefits

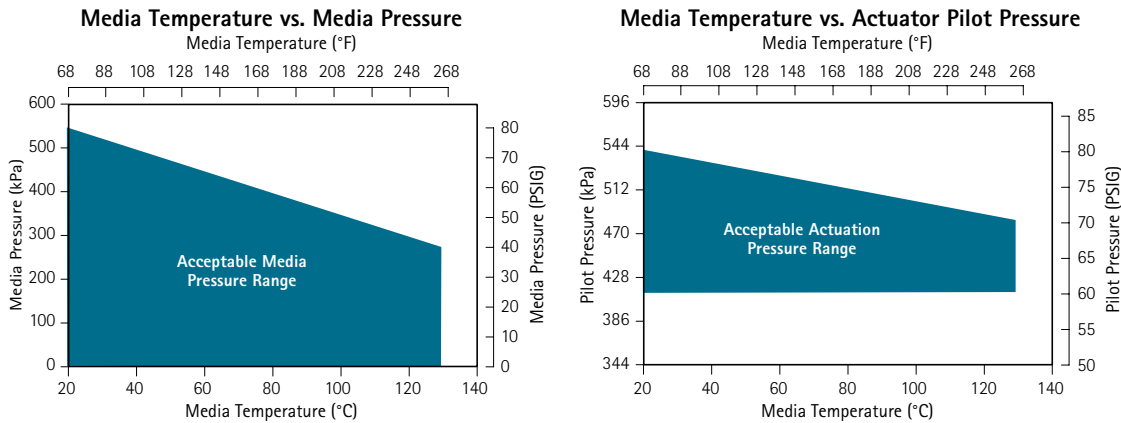
Features	Benefits
Three-ported directional valve design	Enables simplification of piping system design while minimizing footprint
Compact 3-way design	Reduced footprint saving valuable space
Sealed actuator with vent port	Eliminates chemical exposure of the valve spring
Valves withstand corrosive and harsh chemical environments	Product longevity and reliability
Valve offered in connection options: Flaretek® and Pillar® S300	Versatility and ease in system design

Specifications

Materials:	All-wetted parts	PTFE, PFA		
	Exterior actuator parts	PVDF, Viton®		
	Interior actuator parts	PVDF, SST, Viton		
	Mounting base	PVDF		
Operating conditions:	Media pressure at	21°C (70°F)	All ports	552 kPa (80 PSIG)*
		130°C (266°F)	All ports	276 kPa (40 PSIG)*
	Actuation pressure	21°C (70°F)	414–552 kPa (60–80 PSIG)*	
		130°C (266°F)	414–483 kPa (60–70 PSIG)*	
	Temperature range	Ambient	21–50°C (70–122°F)*	
		Fluid	21–130°C (70–266°F)*	
Pneumatic supply port:	1/4" tube stub; accepts one-touch (push to connect) type fittings or molded female Luer lug style			
Compliant:	RoHs, WEE			

*Actual valve performance varies with pressure and temperature; refer to actual ratings in performance data.

Performance Data



Valve Reliability Test Results

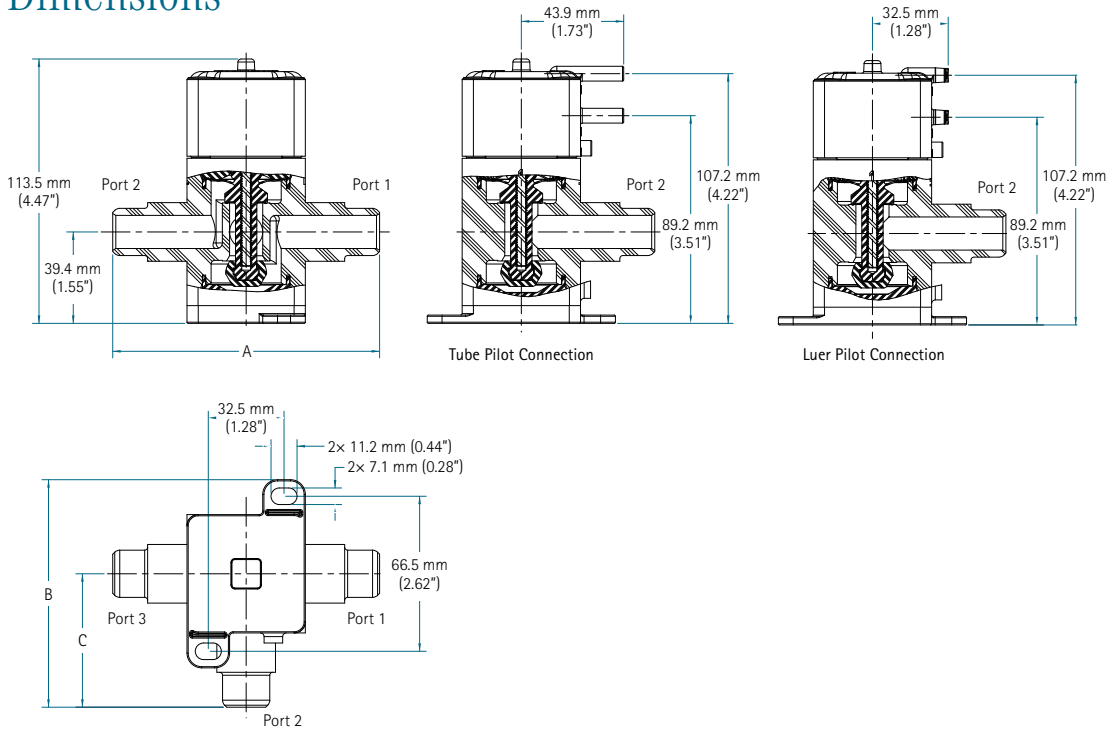
Valve Qualification Test

Test type	Test conditions	Acceptance criteria	Test results
Burst pressure	Hydraulic oil pressure increased until leakage detected	Burst pressure must be >2 times rated pressure @ 23°C (73°F) and @ 130°C (266°F)	PASS
Pressure envelope	827 kPa (120 PSIG) water @ 23°C (73°F)	No external leakage failures for 1 million cycles @ 1.5 times rated pressure	PASS No external leakage
	414 kPa (60 PSIG) hydraulic oil @ 130°C (266°F)	No external leakage failures for 1 million cycles @ 1.5 times rated pressure	PASS No external leakage
Actuation cycle testing	552 kPa (80 PSIG) water @ 23°C (73°F) for 2 million cycles	No leakage in functional performance for up to 2.1 million cycles	PASS No external or port-to-port leakage <0.050 CC H ₂ O/hr
	276 kPa (40 PSIG) hydraulic oil @ 130°C (266°F) for 1 million cycles	No leakage in functional performance for up to 1 million cycles	PASS No external or port-to-port leakage <0.050 CC H ₂ O/hr

100% Valve Test Procedure in Production

Test type	Test conditions	Acceptance criteria
External media leak	552 kPa (80 PSIG) CDA	Zero bubbles per minute through 1/32" ID tube immersed in DI water
Port-to-port valve test	552 kPa (80 PSIG) CDA to common port. Tested at normally closed port and normally open port in actuated position.	Less than 4 bubbles per minute through 1/32" ID tube immersed in DI water
Valve actuation	Pressure decay 552 kPa (80 PSIG) CDA	Less than 7 kPa (1 PSIG/min) pressure drop

Dimensions



Port Connection	Flow Factor C _v	Flow Factor K _v	A	B	C
1/2" Flaretek ¹	1.6	22.8	108.5 mm (4.27")	94.7 mm (3.73")	54.1 mm (2.13")
3/4" Flaretek ¹	2.3	32.8	114.6 mm (4.51")	97.8 mm (3.85")	57.4 mm (2.26")
1/2" Pillar S300 ²	1.6	22.8	85.9 mm (3.38")	83.3 mm (3.28")	42.9 mm (1.69")
3/4" Pillar S300 ²	2.3	32.8	94.7 mm (3.73")	87.9 mm (3.46")	47.5 mm (1.87")

¹ Also available in Flaretek "SpaceSaver" (replaceable fitting)

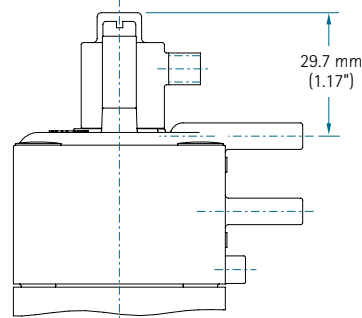
² Pillar nuts, inserts and gauge rings supplied separately

Sensing Option Dimensional Information

REMOTE POSITION INDICATION OPTION:

Electronic valve position sensing for monitoring valve open and closed positions.

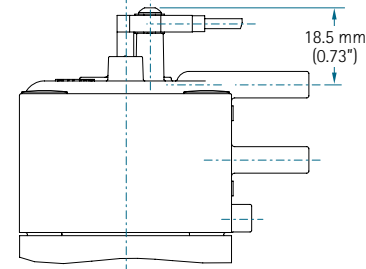
CR8 with Espy® Sensor*



Entegris Espy part number ES-IN-01

*Sensor sold separately

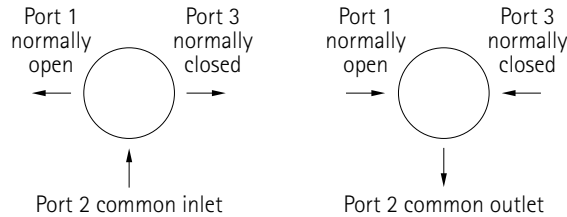
CR8 with Omron® Sensor*



Omron part number EE-SX771R or EE-SX771A

Port Configurations

Port 1 is the normally open port
 Port 2 is the common port
 Port 3 is the normally closed port

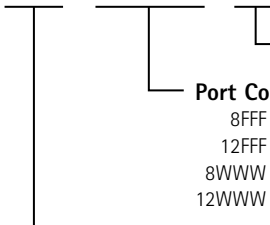


Ordering Information

CR8 3-way Valves

Part Number

CR8-



Actuator

3CT = 3-way tube pilot port
 3CL = 3-way Luer pilot port

Port Configurations

8FFF = 1/2" Flaretek all port
 12FFF = 3/4" Flaretek all port
 8WWW = 1/2" Pillar S300 all port
 12WWW = 3/4" Pillar S300 all port

Special Order

3 = PFA Flaretek nut
 II = FlareLock® II
 N = Pillar nuts, inserts and gauge rings included
 OM = Omron sensor
 ES = Espy sensor

For More Information

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit www.entegris.com and select the Customer Service link for the center nearest you.

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