

Thermal-Immersion Diaphragm Valves

DH Series

An increasing number of applications today require high precursor temperatures, often up to 220°C (428°F), with very tight temperature controls. System designers may specify an oven enclosure for the entire gas system to precisely control these high temperatures. This demands a valve that can be entirely situated within the high-temperature environment, including the body and actuator.

Normally closed pneumatic actuation

Capable of valve opening or closing time of less than 5 ms

Manual actuation with a lock-out handle

Fully contained high-purity grade PFA seat provides:

- Broad range of chemical compatibility
- Excellent resistance to swelling and contamination

Fully swept flow path:

- Minimizes entrapment areas
- Facilitates purging
- Maximizes flow capacity

Valve and actuator fully immersible in a heated chamber

Swagelok® thermal-immersion diaphragm valves offer high-speed actuation, flow coefficients up to 0.60, and are designed for optimum performance at 220°C (428°F) for high-temperature processes including atomic layer deposition (ALD) and precursor delivery applications. They are offered in both pneumatically actuated and manual models with a variety of 1/4 and 3/8 in. end connections.

Fully immersible at 220°C (428°F)

Offered in both pneumatically actuated and manual models

Available with a variety of 1/4 and 3/8 in. end connections



Swagelok®

Technical Data

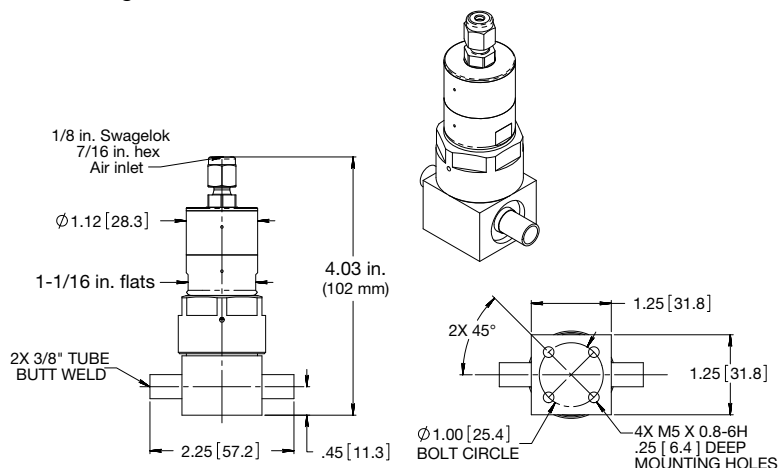
Working Pressure	Vacuum to 70 psig (4.8 bar)
Burst Pressure	> 3200 psig (220 bar)
Actuation Pressure	60 to 90 psig (4.1 to 6.2 bar)
Temperature	20 to 220°C (70 to 428°F)
Flow Coefficient (Cv) “H” type VCR® connections	0.60 at 20°C (70°F); 0.40 at 220°C (428°F)
VCR and all other connections	0.30 at 20°C (70°F); 0.21 at 220°C (428°F)
Modular surface-mount body	0.25 at 20°C (70°F); 0.21 at 220°C (428°F)
Body Material	316L VIM-VAR stainless steel
Diaphragm Material	Cobalt-based superalloy

End Connections

Type	VCR® and “H” type VCR metal gasket face seal fittings, tube butt weld; modular surface mount (MSM)
Size	1/4 and 3/8 in. 1.125 and 1.5 in. MSM

Dimensions

Dimensions, in inches (millimeters), are for reference only. Dimensions shown are for ordering number 6LVV-DH6BW6-P-C-29938.



Ordering Information

Ordering numbers are dependent on the configuration requested. Discuss your system needs with your authorized Swagelok sales and service representative to determine the correct ordering information.

Process Specifications

Ultrahigh-purity, P process: Ultrahigh-Purity Process Specification (SC-01)

- Ultrahigh-purity cleaning with a continuously monitored, deionized water, ultrasonic cleaning system
- Performed in ISO Class 4 work areas; valves are double bagged and vacuum sealed in cleanroom bags
- Wetted surface roughness (R_a): electropolished and finished to an average of 5 $\mu\text{in.}$ (0.13 μm)

Testing

- 1×10^{-9} std cm³/s envelope leak rate
- 1×10^{-6} std cm³/s seat leak rate at 220°C (428°F)

Configurations

Valve with Modular Surface-Mount Platform

- Two-port straight and elbow configurations

2-Port Valve

- Two-, three-, and four- port multiport and multivalve manifolds

Multiport/Manifold

- Two- and three-port modular surface mount in 1.125 and 1.5 in. platforms

Additional configurations available on request

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok sales and service representative.

Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Contact your authorized Swagelok sales and service representative for more details.

This product is just one example of our problem-solving capabilities. Your local authorized Swagelok sales and service representative, along with regional technology centers and trained field engineers, are at your service to create a solution that meets the needs of your application.

