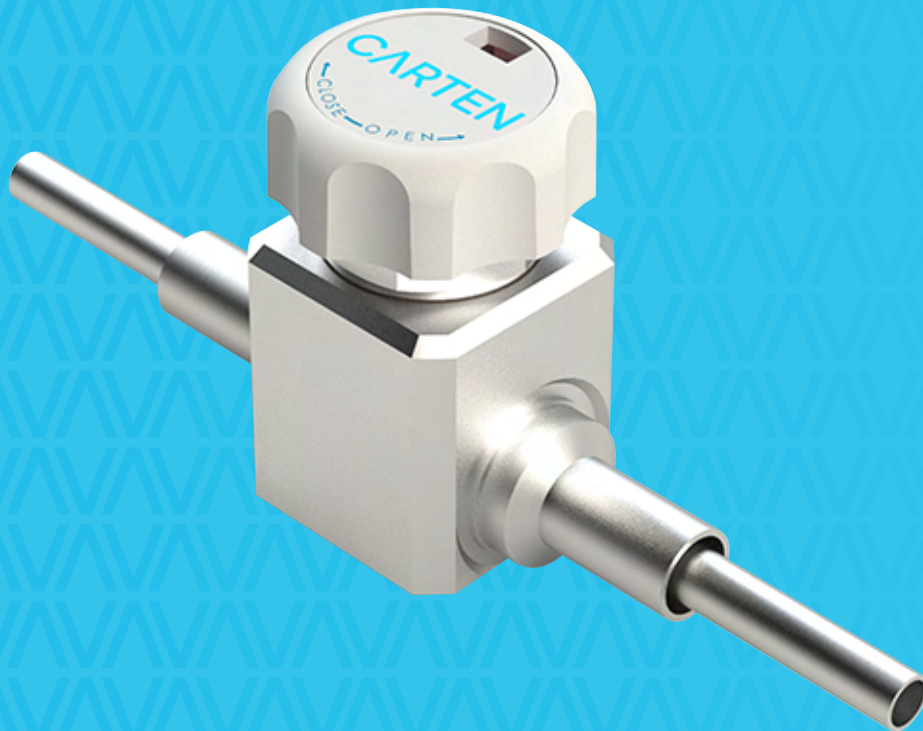


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

INTRODUCING CARTEN'S DCS SERIES

ULTRA-HIGH PURITY DUAL
CONTAINMENT DIAPHRAGM VALVES



DCS Series

Ultra-High Purity Dual Containment Diaphragm Valves

The DCS series provide the safety of a complete secondary containment flow path, that remains open regardless of the primary passage being opened / closed, creating a sealed secondary barrier against the most toxic, corrosive, and dangerous gases.

Key Features

Available in line sizes up to 3/4" (primary) / 1" (secondary)

Metal-to-metal external seals for both flow paths

Pneumatic or manual interchangeability

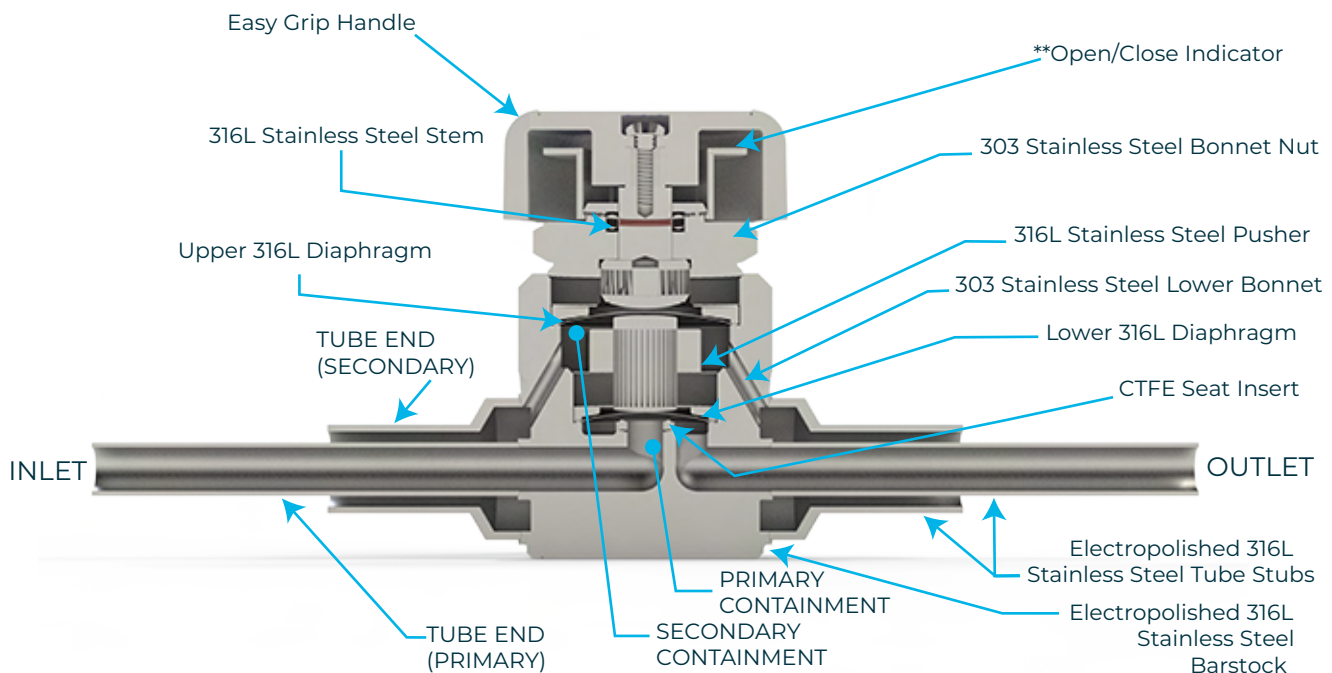
Fully metal-sealed secondary containment layer

Typical Applications

Lateral points-of-connection (POC), tool hook-up shut-off, ultra-high-purity gas control for point-of-use service, valve manifold boxes (VMB), gas distribution panels, gas sticks, and critical application containment functionality.

Key Specifications

Materials of Construction	Cleanliness	Specifications	Options
316L stainless body	Manufactured in Class 10 Cleanroom	Leak tested using Mass spectrometer <math><1 \times 10^{-9}</math> mbar.l/s	Manual or pneumatic
Stainless 316L Diaphragm (both flow paths)	Zero particles @0.1µm	<math><10\text{Ra}</math> micro-inch surface roughness	PFA / PI seat high temperature (up to 150C)
Barstock-only source	<math><10\text{ppb}</math> O ₂ /H ₂ O outgassing	Vacuum and pressure tested 100% production control	4/20mA switching / signalling automation
PCTFE standard seat (minimal volume)	Cleaned using 18.2MΩ.cm DI water	250p.s.i. operating pressure	0.41 – 1.2 Cv (flow coefficient)



‡ U.S. Patent # 4,867,201

DCS SERIES -Technical Data

Construction Material	Primary Wetted Areas	316L Stainless Steel, CTFE	Helium Leak Test	Inboard/across the seat	1x10 ⁻¹⁰ scc/s He max.	Rated
	Secondary Wetted Areas	316L Stainless Steel, 303 Stainless Steel			1x10 ⁻⁹ scc/s He max.	Std. Production
Maximum Operating Pressure	Primary and Secondary	Vacuum to 250psi. (17 BAR) See application note	Cleanliness and Packaging	Assembled and tested in CLASS10 cleanroom. Purged and final packaged in Class 1 cleanroom. Double-bag packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with N ₂ gas environment supplied from a liquid source		
Orifice	DCS 250 & 375 DCS 500 & 750	0.250in.(6.35mm) 0.437in.(10.96mm)	Standard Finish	Electropolished to 10 Ra (0.25 Ra m) on all wetted surfaces		
Operating Temp Range	DCS Series	-22°F (-30°C) to 180°F (82°C)	Options	Surface finish -5 Ra, 20 Ra Particle, moisture, THC and O ₂ testing SEM and ESCA testing, Auger analysis Air-actuated versions (DCS 250 and 375 only) Material: VAR, VIM / VAR Handwheel color		
FLOWCOEFFICIENT (C _v)	DCS 250 DCS 375 DCS 500 DCS 750	0.41 0.41 1.2 1.2		**The open/close indicator provides open/close status at the fully open or closed positions. It is not intended to act as a metering or proportioning system.		

Specifications are subject to change without notice.

**The open/close indicator provides open/close status at the fully open or closed positions. It is not intended to act as a metering or proportioning system.

APPLICATION NOTE - DCS SERIES

A typical application utilizes a vacuum on the secondary line. However, the secondary line pressure can exceed the primary if desired. As the secondary pressure increases to more than 60 psi over the primary (for DCS 250) or 20 psi (for DCS500), reduced primary flow rate could result. Increasing secondary pressure to more than 110 psi over the primary (for DCS 250) or 50 psi (for DCS 500), the flow in the primary will be essentially shut off.

APPLICATION NOTE - DCSA SERIES

The DCSA series is not intended for use in a vacuum application. Secondary line pressure should not exceed 14.5 psi. (1bar). Air-actuator is supplied with quick disconnect fitting to suite 1/4" O.D. pipe. Air-actuator requires 90-100 psi. air to open.

Order Information

Sample: DCSA - 250 - 035 - 500-049 - NC

DCSA - 250 - 035 - 500-049 - NC

DCSA Pneumatic Air Operated Version - 1/4" - 1/4" TE - 1/2" TE = 500 - Normally Closed

Series	Size	Inlet Connection	Outlet Connection	Actuator Designator ³	Actuator Accessories ³
DCS – Manual Multi Turn Version	250 (1/4")	1/4" TE = 035	1/2" TE = 500-049	NO - Normally Open	PS (Proximity Sensor)
DCSA – Pneumatic Air Operated Version	375 (3/8")	3/8" TE = 035	5/8" TE = 625-049	NC - Normally Closed	PSEx (Explosion Proof Proximity Sensor)
	500 (1/2")	1/2" TE = 049	3/4" TE = 750- 065		

³ Actuated Version only

FSM = Face Seal Metal - VCR® type connections
100% compatible with VCR® brand

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