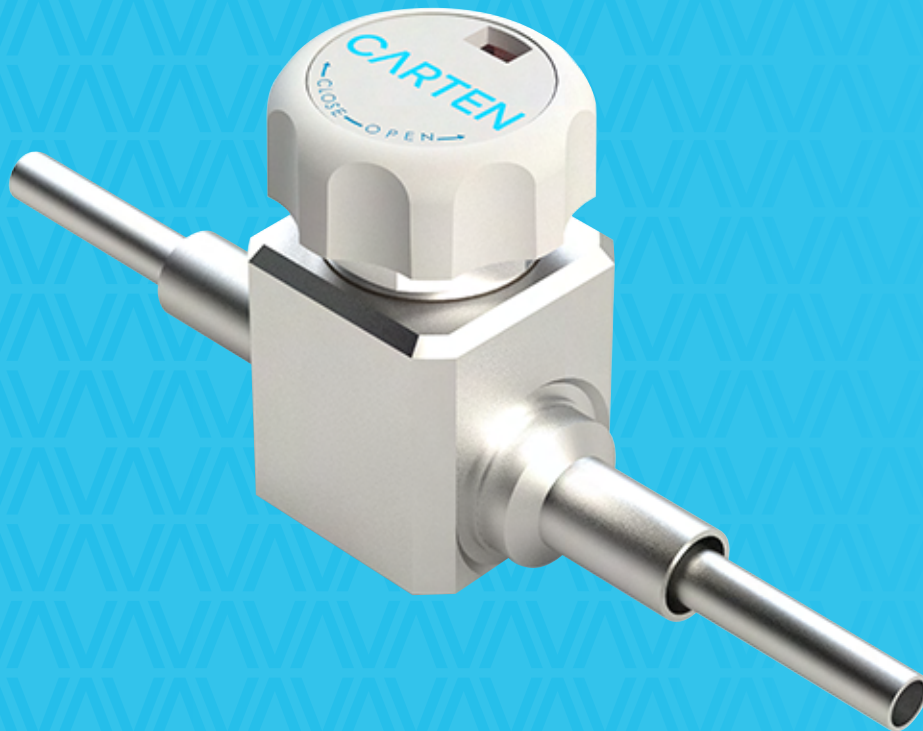


CARTEN

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 provides 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 ¾" (primary)
/ 1" (secondary)

Metal-to-metal
external seals for
both flow paths

Pneumatic or
manual
interchangeability

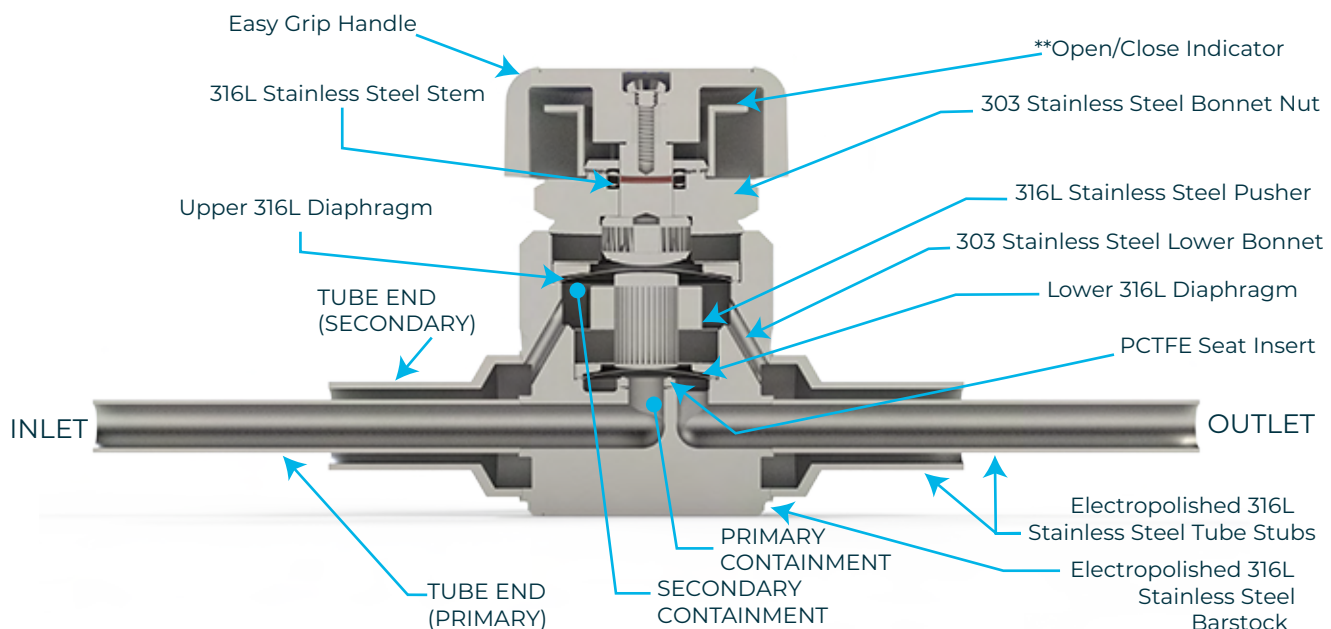
Fully metal-sealed
secondary
containment layer

Typical Applications

This DCS (Diaphragm Design)[†] valve series is intended for bulk gas or solvent double containment distribution service where cleanliness and purity are of the utmost importance. These springless, packless, diaphragm valves control the passage of gas or solvent through the primary tube while providing a complete secondary containment flow path. The secondary flow path remains open regardless of the primary passage being opened or closed.

Key Specifications

Materials of Construction	Cleanliness	Specifications	Options
316L stainless body	Manufactured in ISO Class 4 Cleanroom	<10Ra micro-inch surface roughness	Manual or pneumatic
Stainless 316L Diaphragm (both flow paths)	Zero particles @0.1µm in static conditions	250 PSI Max operating pressure	PI seat high temperature (up to 150C)
Barstock-only source	<10ppb O2/H2O outgassing	0.41 – 1.2 Cv (flow coefficient)	Position Sensing (Pneumatic only)
PCTFE standard seat (minimal volume)	Cleaned using DI water & oven-baked	100% leak tested using mass spectrometer to 1x10 ⁻⁹ scc/s under vacuum and 1x10 ⁻⁶ scc/s under pressure	Solenoid Actuation (Pneumatic only)



DCS SERIES - Technical Data

Construction Material	Primary Wetted Areas	316L Stainless Steel, PCTFE
	Secondary Wetted Areas	316L Stainless Steel, 303 Stainless Steel
Maximum Operating Pressure	Primary and Secondary	Vacuum to 250psi. (17 BAR) See application note
Operating Temperature Range	PCTFE Seat (Standard) Vespel® Seat	-30°C (-22°F) to 82°C (180°F) 302°F (150°C)
Description		Cv
DCS 250		0.41
DCS 375		0.41
DCS 500		1.2
DCS 750		1.2
Helium Leak Test Performed with 100% Helium	Inboard Across the Seat Outboard Pressure Test	<1 x 10 ⁻⁹ scc/s He <1 x 10 ⁻⁹ scc/s He <1 x 10 ⁻⁶ scc/s He
Cleanliness and Packaging	Assembled and tested in ISO Class 4 Cleanroom. Purged and Final Packaged in ISO Class 4 Cleanroom. Double-bag packaging with Ultra-High Purity N ² gas environment. Cleaned using DI water & Oven backed.	
Standard Finish	Electropolished to 10 Ra µin Max (0.25 µm) on all wetted surfaces	
Options	Optional surface finishes available. Testing: Particle, moisture, O2 on request. Purge connections and Purge valves available. Metric tube stubs. VIM/VAR st.st. optional body End connections, Face seal, Compression available up to 1". Air-actuated versions (DCS 250 & 375 only)	

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**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 6mm O.D. pipe. Air-actuator requires 60-100 psi. air to open.

Order Information

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

DCSA Pneumatic Air Operated Version - 1/4" TE PRIMARY - 1/2" TE SECONDARY - NORMALLY CLOSED

Series	Size	Primary Connection	Secondary Connection	Actuator Designator ¹	Actuator Accessories ¹
DCS – Manual Multi Turn Version	250 (1/4")	1/4" TE = 035	1/2" TE = 500-049	NC - Normally Closed	PS (Proximity Sensor)
DCSA – Pneumatic Air Operated Version	375 (3/8")	3/8" TE = 035	5/8" TE = 625-049		PSEx (Explosion Proof Proximity Sensor)
	500 (1/2")	1/2" TE = 049	3/4" TE =750- 065		

¹ Actuated Version only

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