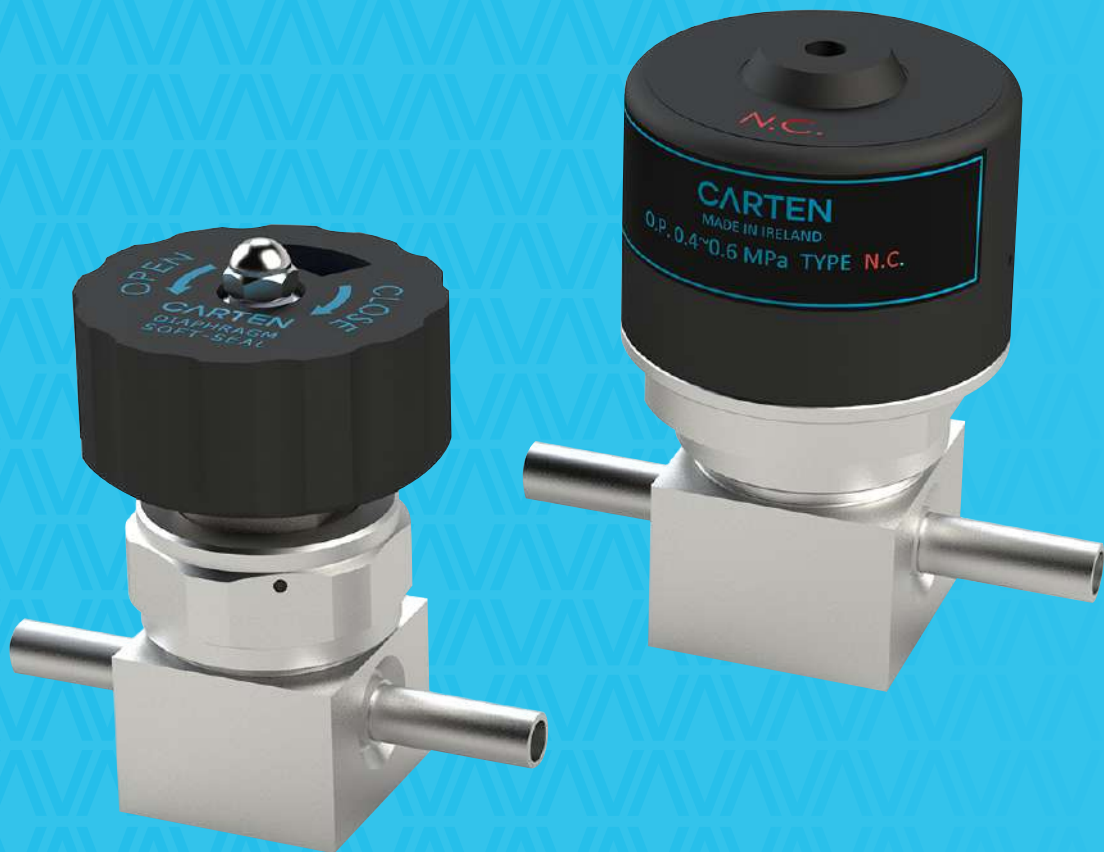


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

INTRODUCING CARTEN'S CMD SERIES

ULTRA-HIGH PURITY
DIAPHRAGM VALVES



CMD Series

Ultra-High Purity Diaphragm Valves

The No.1 UHP dome diaphragm valve-of-choice for semiconductor applications requiring high durability and consistent operation, with a huge array of configuration and valve control options.

Key Features

Available in line sizes up to 1/2"

Metal-to-metal external seals

Pneumatic, multiturn or 1/4- turn interchangeability

Standard & bespoke multiport / block options

Typical Applications

Gas-mixing systems, valve manifold boxes (VMB), gas mixing panels, high durability vacuum service, tool hook-up shut-off, ultra-high-purity gas control for point-of-use service, 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 1×10^{-9} mbar.l/s	Manual, pneumatic, or 1/4 turn
Nickel-cobalt Diaphragm	Zero particles @0.1µm	10Ra micro-inch surface roughness	PFA / PI seat high temperature (up to 150C)
Barstock-only source	10ppb O ₂ /H ₂ O outgassing	Vacuum and pressure tested 100% production control	LOTO failsafe configurations
PCTFE standard seat (minimal volume)	Cleaned using 18.2MΩ·cm DI water	1/4" Pneumatic 150 p.s.i. All others 250 p.s.i.	0.3 – 0.7 Cv (flow coefficient)

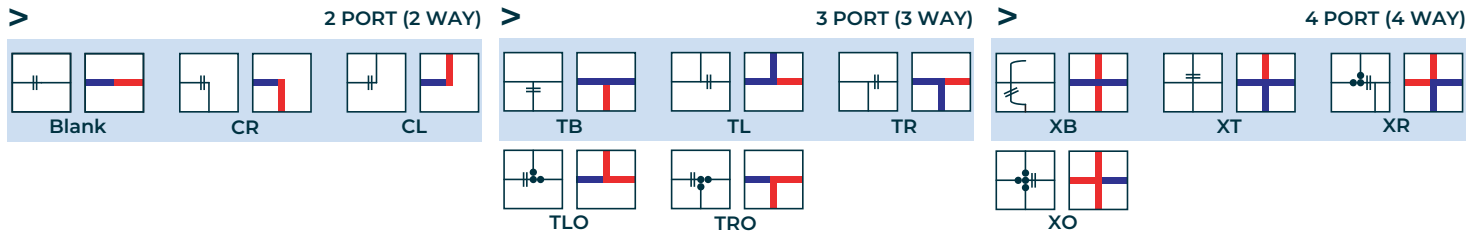
CMD Low Pressure Specifications

Series	Size	Operating Pressure	Standard Operating Temperature	Operating Mode	Air Supply	Cv Value	Durability Test	Body Material	Diaphragm	Seat Material	Surface Finish	Seat Leak Rate	External Leak Rate
CMD250	1/4"	250PSI	-10 to 80 °C	Manual	N/A	0.30	20,000 cycles at 150PSI	316L SS	Nickel-Cobalt Alloy	PCTFE	10Ra EP	1 x 10 ⁻⁹ atm cm ³ /sec	1 x 10 ⁻⁹ atm cm ³ /sec
CMD375	3/8"	250PSI	-10 to 80 °C	Multi Turn	N/A	0.60		316L SS		PCTFE	10Ra EP		
CMD500	1/2"	250PSI	-10 to 80 °C		N/A	0.70		316L SS		PCTFE	10Ra EP		
CMDA250	1/4"	150PSI	-10 to 80 °C	Pneumatic	58-87	0.30	4,000,000 cycles at 150PSI	316L SS	Nickel-Cobalt Alloy	PCTFE	10Ra EP		
CMDA375	3/8"	250PSI	-10 to 80 °C	Pneumatic	PSIG	0.60		316L SS		PCTFE	10Ra EP		
CMDA500	1/2"	250PSI	-10 to 80 °C	Pneumatic		0.70		316L SS		PCTFE	10Ra EP		
CMDQ250	1/4"	250PSI	-10 to 80 °C	Manual	N/A	0.30	20,000 cycles at 150PSI	316L SS	Nickel-Cobalt Alloy	PCTFE	10Ra EP		
CMDQ375	3/8"	250PSI	-10 to 80 °C	Quarter Turn	N/A	0.60		316L SS		PCTFE	10Ra EP		
CMDQ500	1/2"	250PSI	-10 to 80 °C		N/A	0.70		316L SS		PCTFE	10Ra EP		

*Optional Material in Double Melt 316L St. St.

**Optional Seat Materials: Polyimide (150°C) and PFA (150°C)

Valve Porting Guide



Order Information

Sample: CMD 250 - 035 - PC1

CMD Manual Valve with 1/4" Tube End Connections and a 1/4" Downstream Purge connection

Series	Port Type	Size	Inlet Connection	Outlet Connection ¹	Purge Type	Handle Colour ²	Actuator Designator ³	Actuator Accessories ³
CMD – Manual Multi Turn	Blank	250 (1/4")	1/4" FSM FM	1/4" FSM FM	Blank - No Purge	Blank (Black Handwheel Supplied)	NC - Normally Closed	PS (Proximity Sensor)
CMDA – Pneumatic Air Operated	CL	375 (3/8")	1/4" FSM M	1/4" FSM M	PC1 - 1/4" Downstream Purge Connection	Red (Red Handwheel Supplied)	NO - Normally Open	PSEx (Explosion Proof Proximity Sensor)
CMDQ – Manual Quarter Turn	CR	500 (1/2")	1/4" FSM M(S)	1/4" FSM M(S)	PC2 - 1/4" Up and Downstream Purge Connection	Yellow (Yellow Handwheel Supplied)		
	TB		1/4" C/LOK	1/4" C/LOK	PC3 - 1/4" Upstream Purge Connection	Green (Green Handwheel Supplied)		
	TL		1/4" TE = 035	1/4" TE = 035	PV1 - 1/4" Downstream Purge Valve	Orange (Orange Handwheel Supplied)		
	TR		3/8" FSM FM	3/8" FSM FM	PV2 - 1/4" Up and Downstream Purge Valve	White (White Handwheel Supplied)		
	TLO		3/8" FSM M	3/8" FSM M	PV3 - 1/4" Upstream Purge Valve	Blue (Blue Handwheel Supplied)		
	TRO		3/8" FSM M(S)	3/8" FSM M(S)		Pink (Pink Handwheel Supplied)		
	XB		3/8" TE = 035	3/8" TE = 035		Brown (Brown Handwheel Supplied)		
	XT		3/8" C/LOK	3/8" C/LOK		Gold (Gold Handwheel Supplied)		
	XR		1/2" FSM FM	1/2" FSM FM		Grey (Grey Handwheel Supplied)		
	XO		1/2" FSM M	1/2" FSM M		Silver (Silver Handwheel Supplied)		
			1/2" FSM M(S)	1/2" FSM M(S)		Purple (Purple Handwheel Supplied)		
			1/2" TE = 049	1/2" TE = 049				
			1/2" C/LOK	1/2" C/LOK				

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

¹ Only Specify the Outlet connection when different from the Inlet connection

² Manual Version only

³ Actuated Version only

CARTEN

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