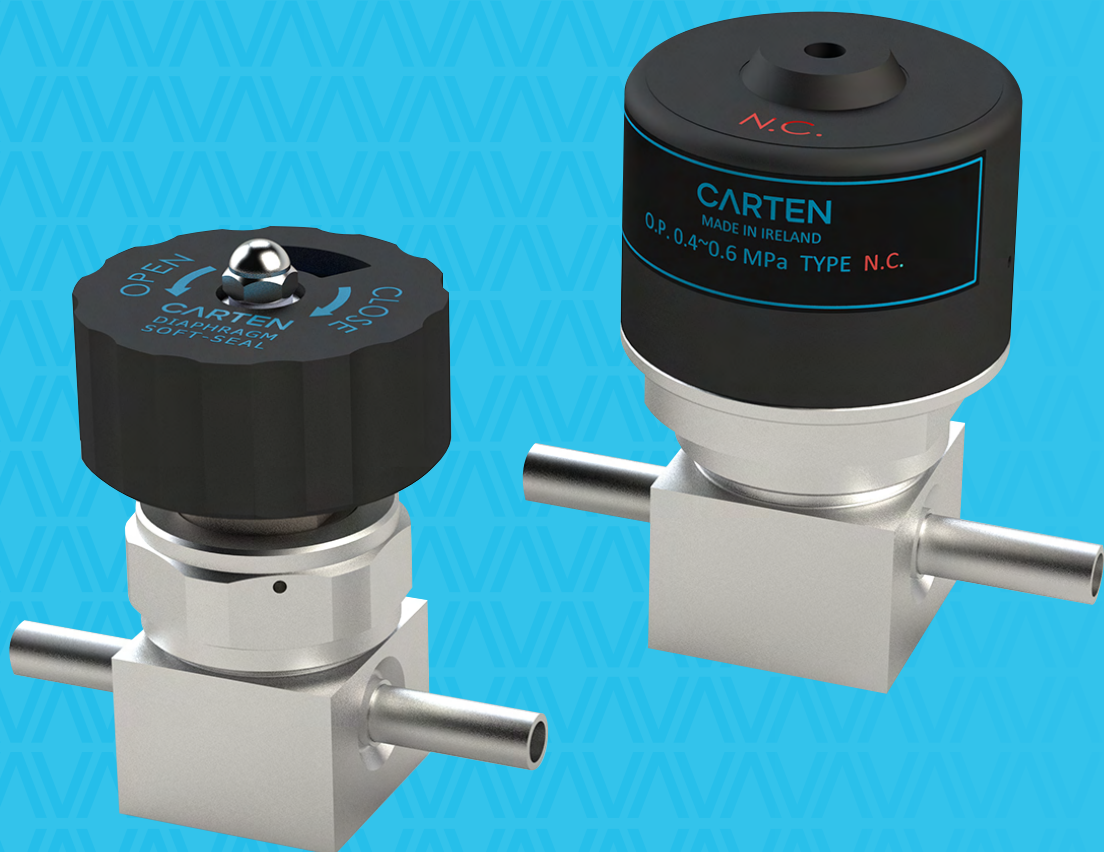


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

INTRODUCING CARTEN'S CMD SERIES

ULTRA-HIGH PURITY
DIAPHRAGM VALVES



CMD Series

Ultra-High Purity Diaphragm Valves

The 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 ½"

Metal-to-metal external seals

Pneumatic, multiturn or ¼- 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 ISO Class 4 Cleanroom	0.3 – 0.7 Cv (flow coefficient)	Manual, pneumatic, or ¼ turn
Nickel-cobalt Diaphragm	Zero particles @0.1µm in static conditions	<10Ra micro-inch surface roughness	PFA / PI seat high temperature (up to 150°C)
Barstock-only source	<10ppb O2/H2O outgassing	¼" pneumatic 150 PSI Max. All other sizes are 250 PSI Max	LOTO failsafe configurations
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	

CMDA Pneumatic Series

Maximum Operating Pressure			CMDA Series		Vacuum to 250 PSI CMDA250 vacuum to 150 PSI
Maximum Operating Temperature			PCTFE Seat (Standard) Vespel® Seat		-10°C to 80°C -10°C to 150°C
Construction Material			Wetted Areas		316L SS, Nickel-Cobalt Alloy, PCTFE
			Non-Wetted Areas		304 SS, Viton, T6061 Al, Al Alloy
Description	Line (Body) Size	Cv	Control Function	Cycle Life	Actuation Pressure
CMDA250	.250 (.250)	0.3	NO, NC	4,000,000 at 150 PSI	58-87 PSI
CMDA375	.375 (.375)	0.6	NO, NC	4,000,000 at 150 PSI	58-87 PSI
CMDA500	.500 (.375)	0.7	NO, NC	4,000,000 at 150 PSI	58-87 PSI
Helium Leak Test Performed with 100% Helium			Inboard Across the Seat Outboard		<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. Testing: Particle, Moisture, O2 on request. Purge connections and Purge valves available. Metric tube stubs. VIM/VAR SS optional body. End connections, Face seal, Compression, tube (Contact sales for more). Multi-Porting options (See below guide). Position sensors (Signal at valve open only).		

® Vespel is a registered trademark of DuPont Company.

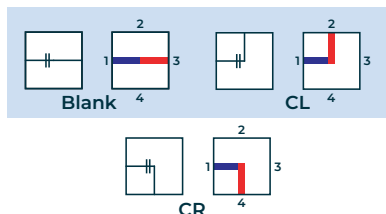
CMD/CMDQ Manual Multi-Turn/Quarter-Turn Series

Maximum Operating Pressure		CMD/Q Series		Vacuum to 250 PSI
Maximum Operating Temperature		PCTFE Seat (Standard) Vespel® Seat		-10°C to 80°C -10°C to 150°C
Construction Material		Wetted Areas		316L SS, Nickel-Cobalt Alloy, PCTFE
		Non-Wetted Areas		304/630 SS, Viton, Al Alloy, ABS
Description	Line (Body) Size	Cv	Control Function	Cycle Life
CMD/Q250	.250 (.250)	0.3	Multi-Turn (CMD) or Quarter-Turn (CMDQ)	20,000 at 150 PSI
CMD/Q375	.375 (.375)	0.6	Multi-Turn (CMD) or Quarter-Turn (CMDQ)	20,000 at 150 PSI
CMD/Q500	.500 (.375)	0.7	Multi-Turn (CMD) or Quarter-Turn (CMDQ)	20,000 at 150 PSI
Helium Leak Test Performed with 100% Helium		Inboard Across the Seat Outboard		<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. Testing: Particle, Moisture, O ₂ on request. Purge connections and Purge valves available. Metric tube stubs. VIM/VAR SS optional body. End connections, Face seal, Compression, tube (Contact sales for more). Multi-Porting options (See below guide). Position sensors (Quarter-Turn CMDQ Signal at valve open only).		

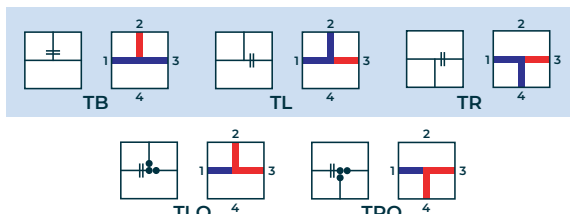
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Valve Porting Guide

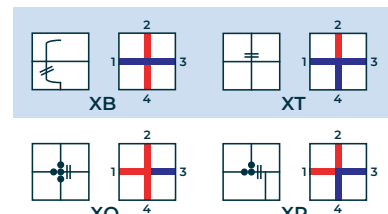
> 2 PORT (2 WAY)



> 3 PORT (3 WAY)



> 4 PORT (4 WAY)



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 ⁴	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(S)	3/8" FSM M(S)	PV3 - 1/4" Upstream Purge Valve	Blue (Blue Handwheel Supplied)		
	TRO		3/8" TE = 035	3/8" TE = 035		Pink (Pink Handwheel Supplied)		
	XB		3/8" C/LOK	3/8" C/LOK		Brown (Brown Handwheel Supplied)		
	XT		1/2" FSM FM	1/2" FSM FM		Gold (Gold Handwheel Supplied)		
	XR		1/2" FSM M(S)	1/2" FSM M(S)		Grey (Grey Handwheel Supplied)		
	XO		1/2" TE = 049	1/2" TE = 049		Silver (Silver Handwheel Supplied)		
			1/2" C/LOK	1/2" C/LOK		Purple (Purple Handwheel Supplied)		

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

⁴ PC = FSM Male Capped
PV = Diaphragm Valve With FSM Male Capped

CARTEN

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