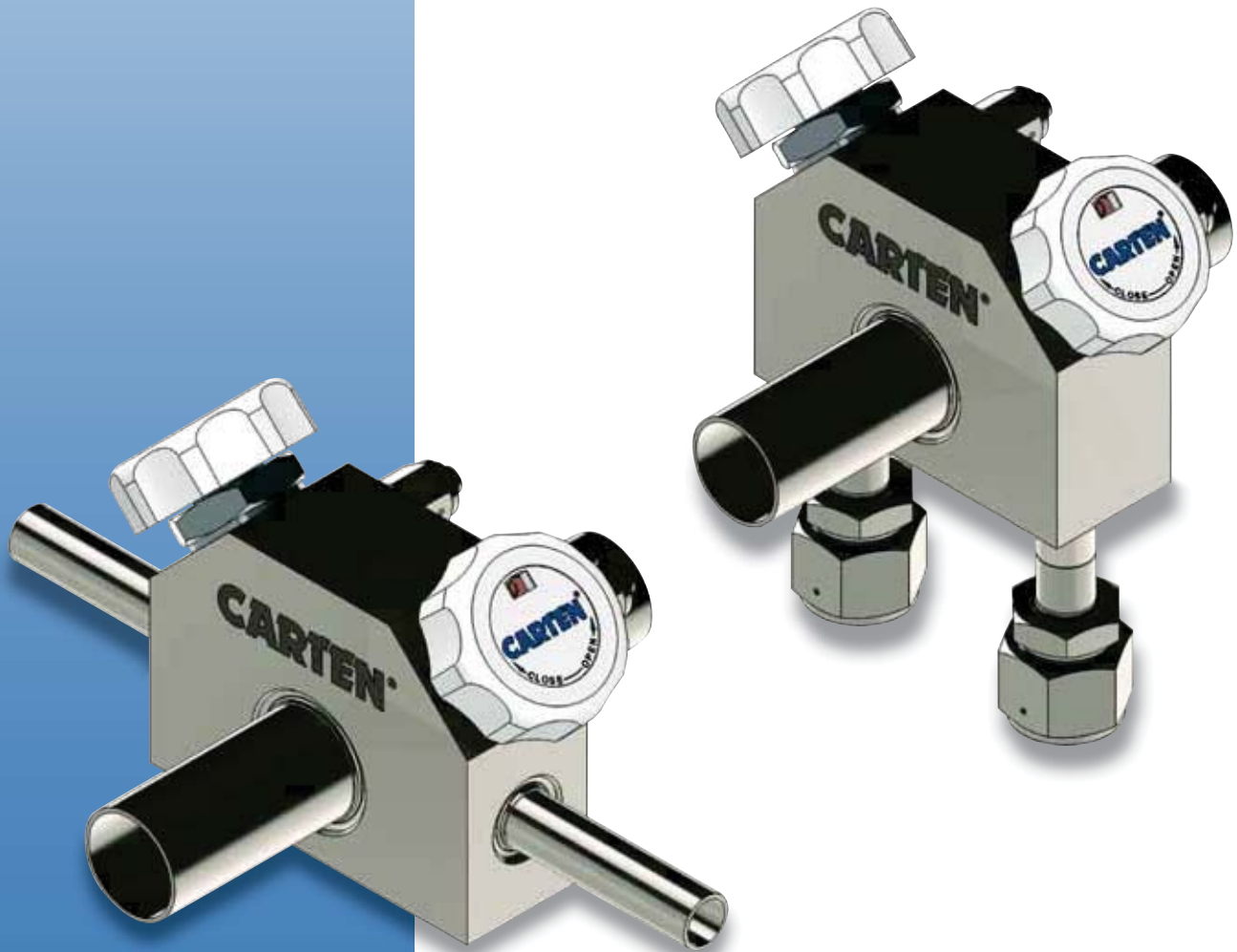


**CARTEN**<sup>®</sup>  
Ultra High Purity Valves

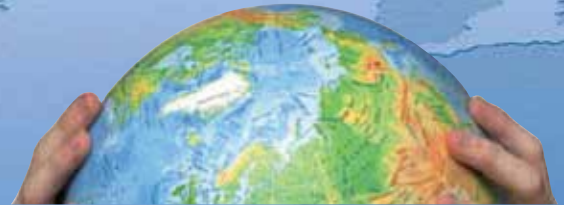
# DUPLEX SERIES

High-Flow Design (DPCL)

Ultra-High Purity Diaphragm Valves



# DUPLEX SERIES



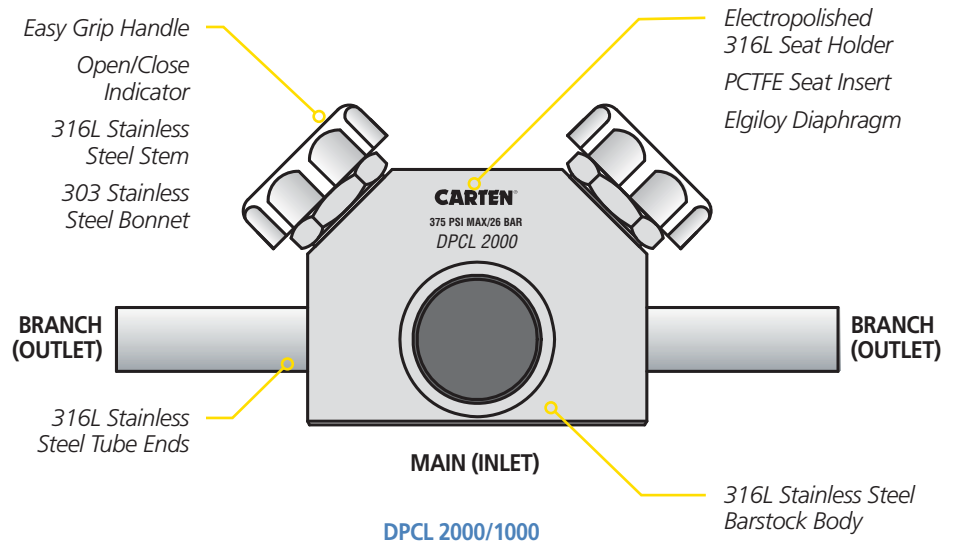
**NEW** This compact Duplex (diaphragm design) high-flow valve series is intended for bulk gas distribution service where containment, cleanliness and purity are of utmost importance. Applications for this valve include:

- **Ultra-high purity gas system control valves**
- **Ultra-high purity gas control for point-of-use or service for hookups**
- **Superior containment and cleanliness for your most critical valve applications**
- **Suitable for inert and most toxic gases**

## DPCL Series Product Features

- **New** high-flow design
- Diaphragm Design for Ultra-High Purity and Long Cycle Life
- Elgiloy Tied-Diaphragm for Maximum Flow and High Life Cycle
- Springless, Packless Design
- No Internal Particle Shedding Components
- Electropolished Wetted Surfaces to 10 Ra Max (Optional surface finishes available)
- Industry Leading Design in Ultra-High Purity Gas Containment
- Assembled and Tested in Class 10 Cleanroom
- Valve Bodies and Tube Stubs are Serialized for Material Certification
- Purge Connections and Purge Valves are Integral in Valve Body
- Inboard and Across the Seat Leak Tested with Helium
- Cleaned for Ultra-High Purity Gas Service
- Purged and Final Packaged in Class 1 Cleanroom. Double-Bag Packaging with Ultra-High Purity N<sub>2</sub> Gas Environment

## DPCL Construction Materials



## DPCL Series Technical Data

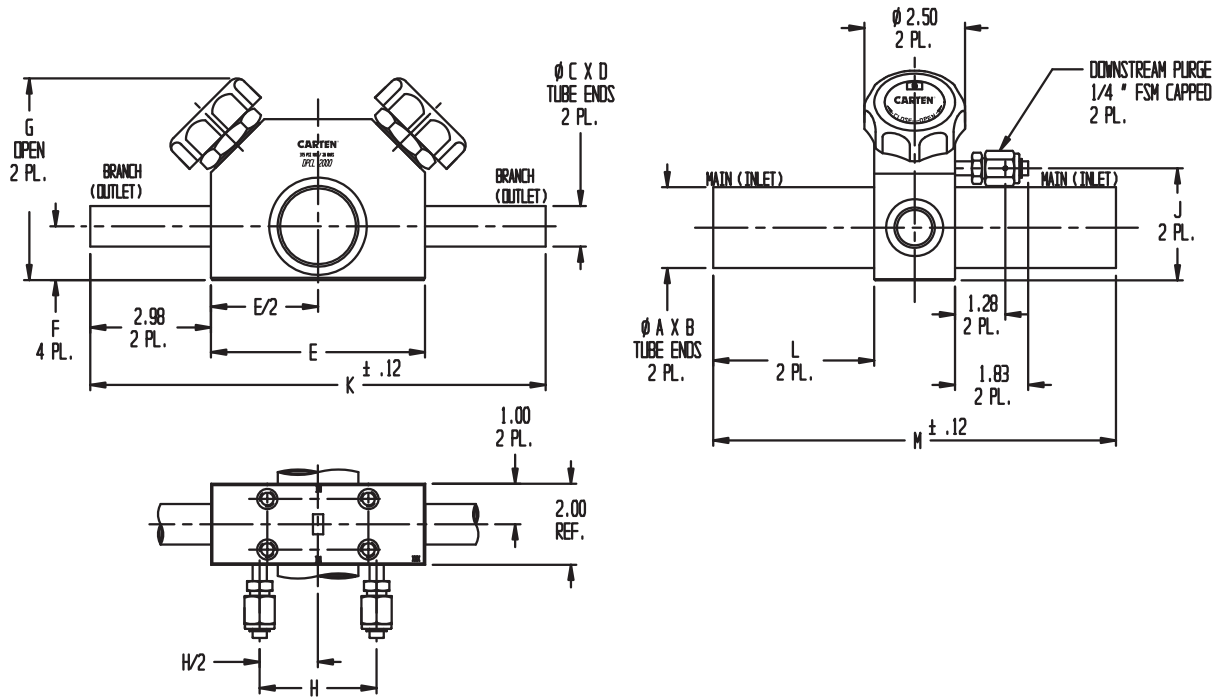
MATERIAL OF CONSTRUCTION	Wetted Areas	316L Stainless Steel, Elgiloy, PCTFE
	Non-Wetted Areas	316L Stainless Steel, 303 Stainless Steel
MAXIMUM OPERATING PRESSURE	Vacuum to 375 psig (0 - 25.8 bar)	
MAXIMUM OPERATING TEMPERATURE	PCTFE Seat	-22°F (-30°C) to 180°F (82°C)
	Vespe <sup>®</sup> Seat*	181°F (83°C) to 302°F (150°C)
FLOW COEFFICIENT (C <sub>v</sub> )	Model/Outlet	C <sub>v</sub> Value
	DPCL Series/Ø.750	5.00
	DPCL Series/Ø1.000	6.00
CYCLE LIFE	DPCL Series/Ø1.500	8.00
	Model	Cycle Life
	DPCL Series	>3,000 @ 375 psig (25.8 bar)
HELIUM LEAK TEST	Inboard	1 x 10 <sup>-10</sup> Pa-m <sup>3</sup> /sec (1 x 10 <sup>-9</sup> atm-cc/sec Helium)
	Across the Seat	1 x 10 <sup>-10</sup> Pa-m <sup>3</sup> /sec (1 x 10 <sup>-9</sup> atm-cc/sec Helium)
	Outboard Pressure Test	1 x 10 <sup>-7</sup> Pa-m <sup>3</sup> /sec (1 x 10 <sup>-6</sup> atm-cc/sec Helium)
CLEANLINESS AND PACKAGING	Assembled and tested in CLASS 10 cleanroom. Purged and final packaged in Class 1 cleanroom. Double-bag packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N <sub>2</sub> gas environment.	
STANDARD FINISH	Electropolished to 10 Ra Max (0.25 Ra µm) on all wetted surfaces	
OPTIONS	Surface finish: 20 Ra, 25 Ra, EP Testing: Particle, moisture, THC and O <sub>2</sub> , SEM, ESCA and AES Fitting connections available for up to 1.00" size – inlet/outlet Material: Vespe <sup>®</sup> seat Handle color: Std. White Pneumatic Actuator: Please contact your Carten Sales Representative	

Specifications are subject to change without notice. Vespe<sup>®</sup> is a registered trademark of DuPont Company.

# DUPLEX SERIES

## DPCL (CROSS) Series Typical Valve Dimensions

DPCL 2000/1000-PC1FSM



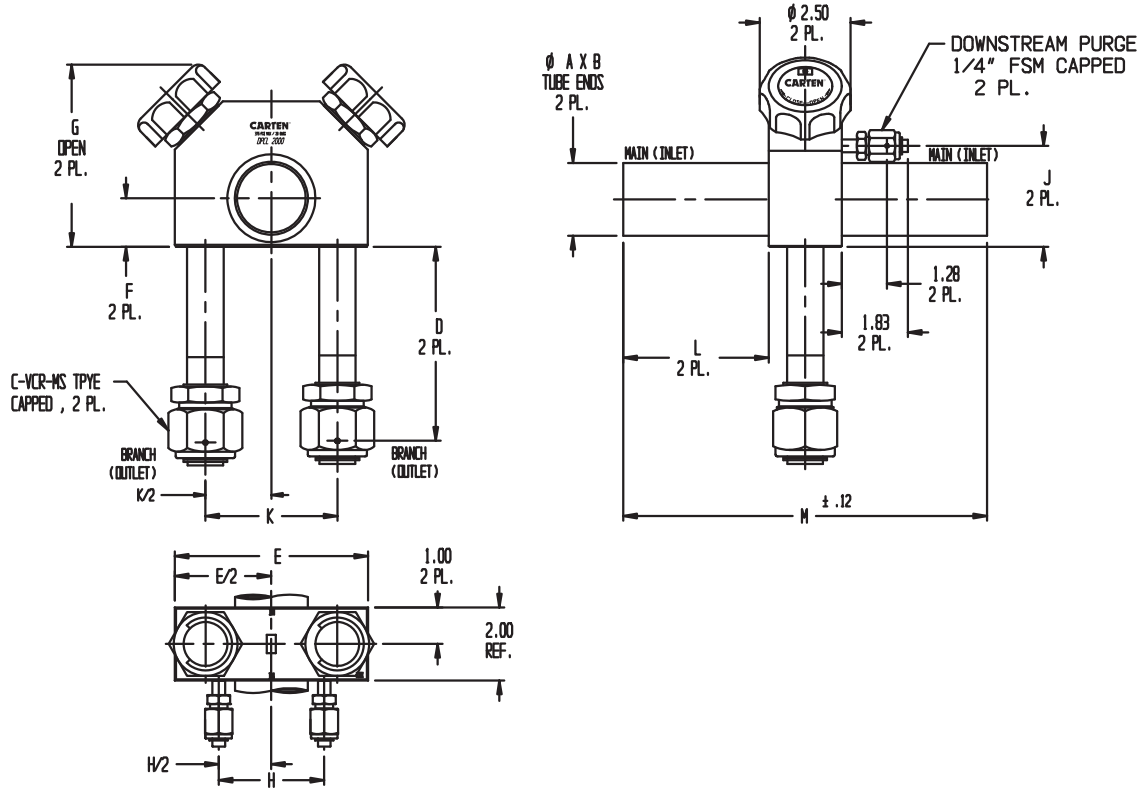
## DPCL (CROSS) Series Technical Dimensions

Size	A	B	C	D	E	F	G	H	J	K	L	M
DPCL 1000-750	Ø 1.00 (25.4mm)	0.065 (1.65mm)	Ø 0.75 (19.1mm)	0.065 (1.65mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1000-1000	Ø 1.00 (25.4mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	0.065 (1.7mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1500-750	Ø 1.50 (38.1mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	0.065 (1.7mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1500-1000	Ø 1.50 (38.1mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	0.065 (1.7mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 2000-750	Ø 2.00 (50.8mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	0.065 (1.7mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 2000-1000	Ø 2.00 (50.8mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	0.065 (1.7mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	11.24 (285.5mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-750	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	0.065 (1.65mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-1000	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	0.065 (1.7mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-1500	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 1.50 (38.1mm)	0.065 (1.7mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-750	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 0.75 (19.1mm)	0.065 (1.7mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-1000	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 1.00 (25.4mm)	0.065 (1.7mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-1500	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 1.50 (38.1mm)	0.065 (1.7mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	13.00 (330.2mm)	3.98 (101.1mm)	9.96 (253.0mm)

NOTE 1: All tolerances are ±0.06 in. (±1.52mm) unless otherwise stated. NOTE 2: Dimensional drawings shown are for reference only. Please contact CARTEN® for customer drawings.

# DPCL ( BTM ) Series Typical Valve Dimensions

DPCL 2000-1000-VC R-MS- BTM-PC1FSM



# DPCL ( BTM ) Series Technical Dimensions

DPCL WITH BOTTOM OUTLET PORTS

Size	A	B	C	D	E	F	G	H	J	K	L	M
DPCL 1000-750	Ø 1.00 (25.4mm)	0.065 (1.65mm)	Ø 0.75 (19.1mm)	2.97 (75.4mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1000-1000	Ø 1.00 (25.4mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	5.31 (134.9mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1500-750	Ø 1.50 (38.1mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	2.97 (75.4mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 1500-1000	Ø 1.50 (38.1mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	5.31 (134.9mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	2.98 (75.7mm)	7.96 (202.2mm)
DPCL 2000-750	Ø 2.00 (50.8mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	2.97 (75.4mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 2000-1000	Ø 2.00 (50.8mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	5.31 (134.9mm)	5.29 (134.4mm)	1.33 (33.8mm)	5.04 (128.0mm)	2.89 (73.4mm)	2.77 (70.4mm)	3.61 (91.7mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-750	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 0.75 (19.1mm)	2.97 (75.4mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-1000	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 1.00 (25.4mm)	5.31 (134.9mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 3000-1500*	Ø 3.00 (76.2mm)	0.065 (1.7mm)	Ø 1.50 (38.1mm)	0.065 (1.65mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-750	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 0.75 (19.1mm)	2.97 (75.4mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-1000	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 1.00 (25.4mm)	5.31 (134.9mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)
DPCL 4000-1500*	Ø 4.00 (101.6mm)	0.083 (2.11mm)	Ø 1.50 (38.1mm)	0.065 (1.65mm)	7.04 (178.8mm)	2.34 (59.4mm)	6.75 (171.5mm)	4.27 (108.5mm)	4.48 (113.8mm)	5.00 (127.0mm)	3.98 (101.1mm)	9.96 (253.0mm)

\* This size comes with Ø 1.50 x 0.065 Tube Ends x 2.98 LG.

NOTE 1: All tolerances are ±0.06 in. (±1.52mm) unless otherwise stated. NOTE 2: Dimensional drawings shown are for reference only. Please contact CARTEN® for customer drawings.

**CARTEN-Fujikin Inc.**  
High Performance Valves & Process Flow Solutions

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