Ultra High Purity High-Capacity Check Valves
CB Series

Introduction

CB Series Ultra High Purity High-Capacity Check Valves are engineered for low pressure and high flow bulk gas distribution applications. These valves are suitable for use with inert gases as well as most toxic gases, effectively preventing undesired reverse flow within the high purity system.

Features

- ◎ Metal-to-metal seal between valve body and bonnet
- ◎ Packless design eliminates particle contamination from packing wear
- ◎ Integrated purge port on valve body for easy purging
- ◎ Connection tube in customized length available
- ◎ Low cracking pressure and high sensitivity
- ◎ High flow capacity with a flow coefficient (Cv) of up to 165.5

Technical Data

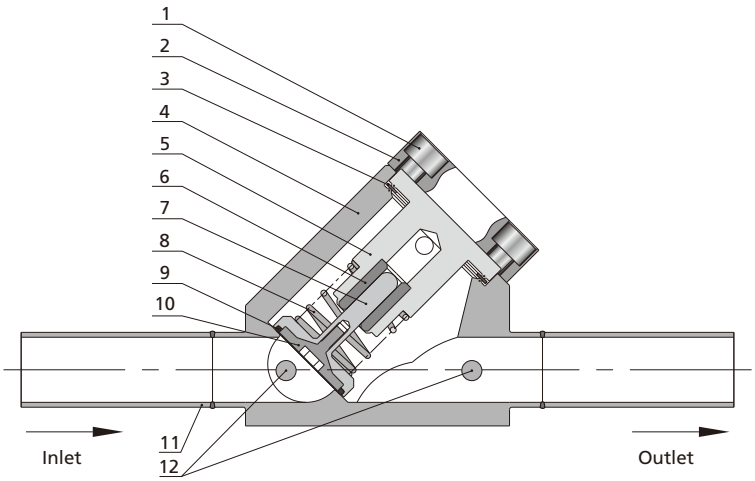
Port Size			3/4" to 4"
Flow Coefficient (Cv)			10.96 ~ 165.5
Working Pressure			Vacuum to 250 psig (17.2 bar)
Working Temperature			-15 ~ 250 °F (-5 ~ 121 °C)
Cracking Pressure①			≤ 1.8 psig (0.12 bar)
Full Open Pressure②			4 ~ 12 psig (0.28 ~ 0.83 bar)
Reseal Pressure (Back Pressure)			≤ 5 psig (0.34 bar)
Leak Rate (Helium)	**Internal**		≤ 1×10^{-9} std cm^3/s
	External	**Inboard**	≤ 1×10^{-9} std cm^3/s
		Outboard	≤ 1×10^{-9} std cm^3/s

Note: ① For valves not actuated for a period of time, initial cracking may be higher than the set cracking pressure.
② Valves vary in their full open pressures. For more information, please contact FITOK.

Process Specification

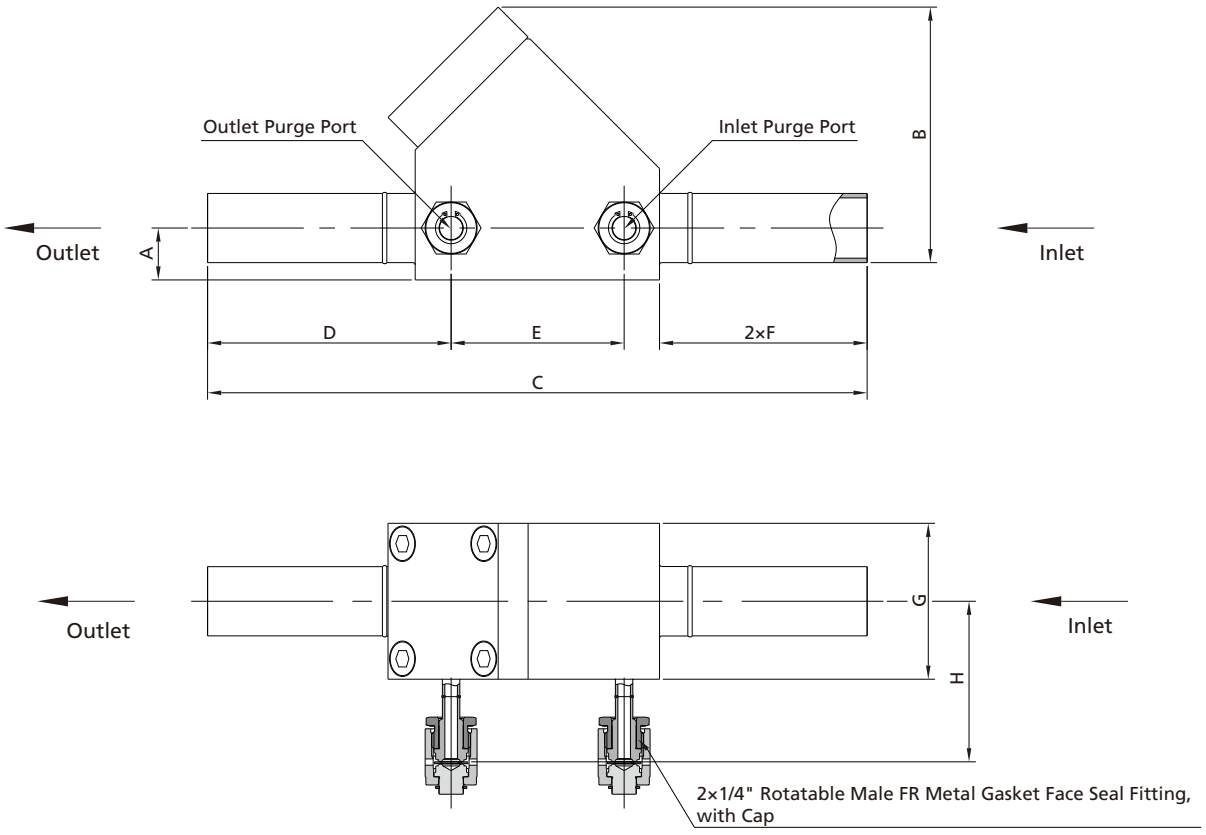
Item / Process Specification	Ultra High Purity Process (FC-03)
Material	316L SS
Wetted Surface Roughness	Ra 10 µin. (0.25 µm)
Polishing Process	Electropolished
Cleaning	Ultra high purity cleaning in continuously monitored ultrasonic cleaning system with deionized water
Assembly Environment	ISO Class 4 (FS 209E Class 10 equivalent) cleanroom
Packaging	Double bagged, inner bag packing in the cleanroom

Major Materials of Construction



Item	Component	Material/Specification
1	Screw	Stainless Steel
2	Bonnet	316L SS/ASTM A479
3	Gasket	Nickel
4	Body	F316L SS/ASTM A182
5	Stem	316L SS/ASTM A479
6	Piston Guide	PCTFE/ASTM D1430
7	Piston	316L SS/ASTM A479
8	Spring	302 SS/ASTM A313
9	O-ring	FKM
10	Lock Nut	316L SS/ASTM A479
11	Welded Tube	316L SS/ASTM A479
12	Purge Ports	316L SS/ASTM A479

Dimensions and Ordering Information



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)								Cv	Full Open Pressure psig (bar)
		A	B	C	D	E	F	G	H		
CB□□-TB12-P2-1-	3/4"×0.065" Tube Butt Weld	0.75 (19.1)	3.94 (100.1)	11.55 (293.4)	4.53 (115.1)	2.5 (63.5)	4.01 (101.9)	2.25 (57.2)	1.16 (29.5)	10.96	12 (0.83)
CB□□-TB16-P2-1-	1"×0.065" Tube Butt Weld	0.75 (19.1)	3.94 (100.1)	9.53 (242.1)	3.52 (89.4)	2.5 (63.5)	3 (76.2)	2.25 (57.2)	1.16 (29.5)	15.21	12 (0.83)
CB□□-TB24-P2-1-	1 1/2"×0.065" Tube Butt Weld	0.79 (20.1)	3.94 (100.1)	13.45 (341.6)	5.48 (139.2)	2.5 (63.5)	4.96 (126)	2.25 (57.2)	1.16 (29.5)	16.73	12 (0.83)
CB□□-TB24-P2-2-	1 1/2"×0.065" Tube Butt Weld	1.25 (31.8)	6.28 (159.5)	15.42 (391.7)	7.28 (185)	2.5 (63.5)	4 (101.6)	3.38 (85.8)	1.16 (29.5)	42.43	6 (0.41)
CB□□-TB32-P2-2-	2"×0.065" Tube Butt Weld	1.25 (31.8)	6.28 (159.5)	13.5 (342.9)	6.02 (52.9)	2.5 (63.5)	4 (101.6)	3.38 (85.8)	1.16 (29.5)	51.26	6 (0.41)
CB□□-TB48-P2-4-	3"×0.065" Tube Butt Weld	2.12 (53.8)	8.97 (227.8)	25.62 (650.7)	10.43 (264.9)	4.25 (107.9)	8.96 (227.5)	5.12 (130)	1.16 (29.5)	158.8	4 (0.28)
CB□□-TB64-P2-4-	4"×0.083" Tube Butt Weld	2.12 (53.8)	8.97 (227.8)	17.9 (454.7)	7.08 (179.9)	4.25 (107.9)	4 (101.6)	5.12 (130)	1.16 (29.5)	165.5	4 (0.28)

Note: Dimensions are for reference only and subject to change. For other dimensions, please contact FITOK or our authorized distributors.

Ordering Number Description

CB6L - TB16 - P2 - 1 - F3

Body Material	
6L	316L SS

Connection Type	
TB	Fractional Tube Butt Weld

Connection Size	
12	3/4"×0.065"
16	1"×0.065"
24	1 1/2"×0.065"
32	2"×0.065"
48	3"×0.065"
64	4"×0.083"

Purge Port	
P2	Inlet/Outlet Purge Ports are both 1/4" rotatable male FR metal gasket face seal fittings, with caps
P2V	Inlet/Outlet Purge Ports are DQ series diaphragm valves, while valve outlet is 1/4" rotatable male FR metal gasket face seal fittings, with caps

Body Size	
1	1"
2	2"
4	4"

Process Specification	
F3	FC-03

Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available. For any questions, Please contact FITOK Group or our authorized distributors.