All-Welded Check Valves
CW Series

Introduction

CW Series All-Welded Check Valves are suitable for high purity and ultra high purity applications. All-welded construction offers reliable control of system media, featuring low cracking pressure and low resealing pressure. This ensures sensitive and precise control of flow direction within the flow path.

Features

- Internally threadless and all-welded design
- Forward flow starts at less than 2 psig (0.14 bar) pressure differential
- Valve closes with less than 2 psog (0.14 bar) back pressure
- Standard surface roughness finished to an average of Ra 20 μin. (0.5 μm) or electropolished to Ra 10 μin. (0.25 μm) optional
- Variety of end connections available

Technical Data

Ports Size			1/4" to 1/2" or 6 mm to 12 mm
Flow Coefficient (Cv)			0.55 or 0.70
Cracking Pressure①			＜ 2 psig (0.14 bar)
Reseal Pressure			＜ 2 psig (0.14 bar)
Max. Working Pressure			3000 psig (207 bar)
Max. Pressure Drop			145 psig (10 bar)
Working Temperature			-10 ~ 400 °F (-23 ~ 204 °C)
Leak Rate (Helium)	**External**	**Inboard**	⩽ 1×10^{-9} std·cm^3/s
	Internal		Bubble tight

① For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.

Flow Data

Air @ 70 °F (21 °C)

Pressure Drop to Atmosphere psig (bar)	Cv 0.55 (l/min)	Cv 0.70 (l/min)
10 (0.68)	170	220
50 (3.4)	450	590
100 (6.8)	820	1040

Perssure - Temperature Ratings

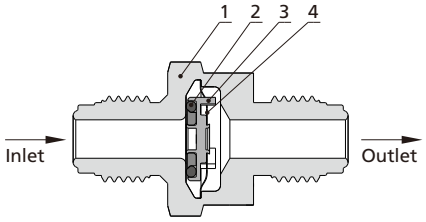
Temperature °F (°C)	Working Pressure psig (bar)
-10~100 (-23~37)	3000 (207)
200 (93)	2530 (174)
300 (148)	2270 (156)
400 (204)	2065 (142)

Process Specification

Item \ Process Specification	Standard Cleaning and Packaging (FC-01) Special Cleaning and Packaging (FC-02)	Ultra High Purity (FC-03)
Material	316L SS	316L SS, 316L SS VAR
Wetted Surface Roughness	Ra 20 µin. (0.5 µm)	Ra 10 µin. (0.25 µm)
Polishing Process	Machine finished	Electropolished

Notes: Refer to page P-01 for a detailed description of Process Specification.

Major Materials of Construction

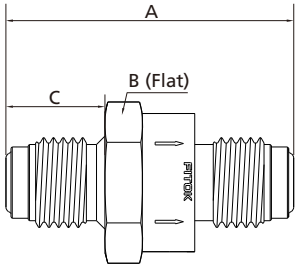


Item	Component	Material Grade/ASTM Specification
1	Body	316L SS or 316L SS VAR
2	Seal	FKM and 316L SS or 316L SS VAR
3	Belleville Spring	N06022/ASTM B575
4	Stop	316L SS or 316L SS VAR

Note: Check valves are designed for directional flow control only and should never be used as code safety relief devices.

Dimensions and Ordering Information

Dimensions, in inches (millimeters), are for reference only.



Basic Ordering Number	Connection Type and Size		Cv	Dimensions, in. (mm)		
	Inlet	Outlet		A	B	C
CW□□-TB4	1/4"× 0.035" Tube Butt Weld		0.55	1.24 (31.5)	7/8 (22.22)	0.25 (6.3)
CW□□-TB6	3/8"× 0.035" Tube Butt Weld		0.70			0.28 (7.2)
CW□□-TB8	1/2"× 0.049" Tube Butt Weld					0.25 (6.3)
CW□□-MTB6	6×1 mm Tube Butt Weld		0.55			0.28 (7.2)
CW□□-FR4	1/4" Integral Male FR Fitting		0.70	1.80 (45.7)		0.62 (15.8)
CW□□-FR8	1/2" Integral Male FR Fitting			2.06 (52.3)	1 (25.4)	0.71 (18.1)

Ordering Number Description

CW6L – FFR4 – FR4 – B – F2

Series
CW

Body Material	
6L	316L SS
6LV	316L SS VAR

Inlet Type	
FFR	Rotatable Female FR Fitting
FR	Integral Male FR Fitting
RFR	Rotatable Male FR Fitting
TB	Fractional Tube Butt Weld
MTB	Metric Tube Butt Weld

Inlet Size	
4	1/4" or 1/4"× 0.035"
6	6 × 1 mm or 3/8"× 0.035"
8	8 × 1 mm or 1/2" or 1/2"× 0.049"
10	10 × 1 mm
12	12 × 1 mm or 3/4" or 3/4"× 0.049"

Outlet Type	Outlet Size
Same as Inlet	
Specified in the same way as Inlet	

Seal Material	
	Fluorocarbon FKM
B	Buna N
E	EPDM
Z	FFKM

Process Specification	
	FC-01
F2	FC-02
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, Should you have any questions, please contact FITOK Group or our authorized distributors.