



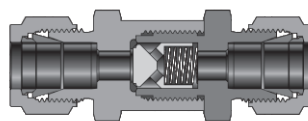
# Check Valves

CV Series

# Contents

## General-Purpose Check Valves (CV1 Series)

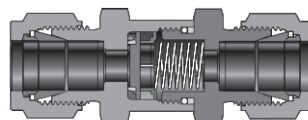
- ❖ Working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure from 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ Variety of end connections
- ❖ Variety of body materials and seal materials



8-3

## High Performance Check Valves (CV2 Series)

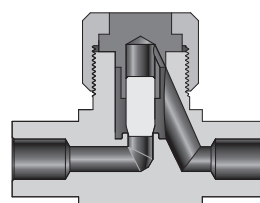
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 50 psig (0.03 to 3.4 bar)
- ❖ With bonded elastomer seal structure design
- ❖ Liquid or gas service



8-7

## All Metal Check Valves (CV3 Series)

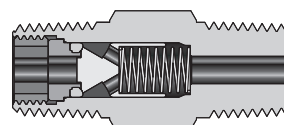
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 900°F (-53°C to 482°C)
- ❖ Metal to metal seal structure design
- ❖ Liquid or gas service



8-11

## One-Piece Check Valves (CV4 Series)

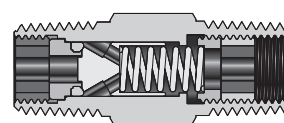
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ One-piece body design
- ❖ 316 stainless steel, brass and alloy 400 body material



8-14

## One-Piece Adjustable Cracking Pressures Check Valves (CV5 Series)

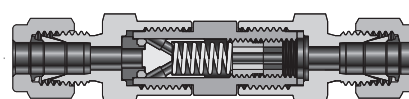
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ One-piece body design
- ❖ Adjustable spring sets cracking pressure
- ❖ 316 stainless steel, brass and alloy 400 body material



8-17

## Adjustable cracking pressure Check Valves (CV6 Series)

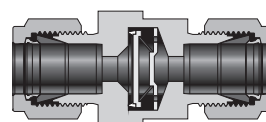
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ Adjustable spring sets cracking pressure
- ❖ 316 stainless steel, brass and alloy 400 body material



8-20

## All-Welded Check Valves (CV7 Series)

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure less than 2 psig (0.14 bar)
- ❖ 316L stainless steel body material



8-23

# General-Purpose Check Valves

## CV1 Series

### Features

- ❖ Working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ Variety of end connections and materials available



### Cracking Pressure

Series	Nominal Cracking Pressure psig (bar)	Cracking Pressure Range psig (bar)	Reseal Pressure psig (bar)
CV1	1/3(0.02)	Up to 3 (0.21)	Up to 6 (0.42) back pressure
	1(0.07)	Up to 4 (0.28)	Up to 6 (0.42) back pressure
	3(0.21)	1 to 5 (0.07 to 0.34)	Up to 5 (0.34) back Pressure
	10(0.69)	7 to 15 (0.49 to 1.1)	3 (0.21) or more inlet Pressure
	25(1.7)	20 to 30 (1.4 to 2.1)	17 (1.2) or more inlet Pressure

### Pressure-Temperature Ratings

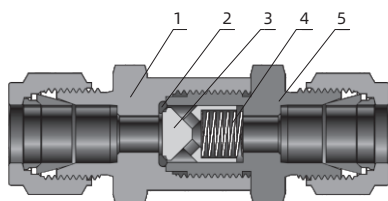
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.	Brass
Temperature, °F(°C)	Working Pressure, psig (bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	–
400 (204)	2185 (150)	–

### Seal Materials

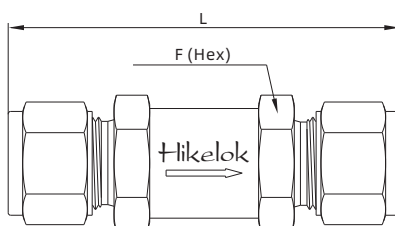
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)
Kalrez	0 to 525 (-17 to 274)

## Standard Materials of Construction



Component	Valve Material Grade / ASTM Specification	
	316 S.S.	Brass
1 Inlet Body	316 S.S. / A479	Brass 360 / B16
2 O-ring	Fluorocarbon FKM	Buna N
3 Poppet	316 S.S. / A479	Brass 360 / B16
4 Spring	302 S.S. / A313	302 SS / A313
5 Outlet Body	316 S.S. / A479	Brass 360 / B16

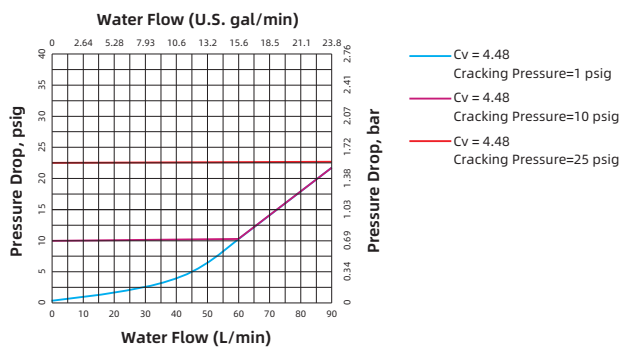
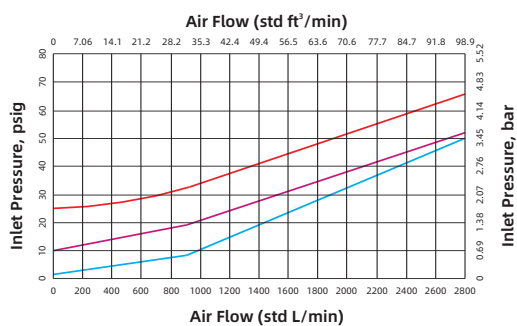
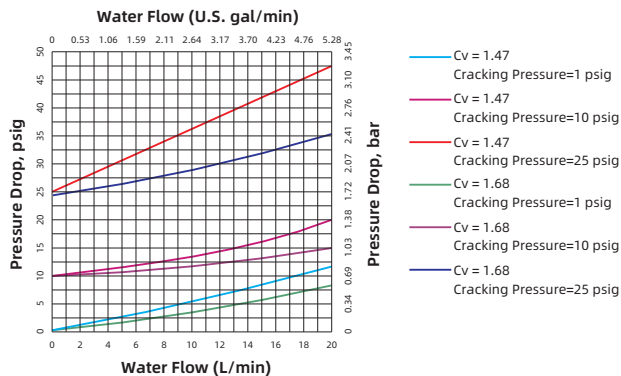
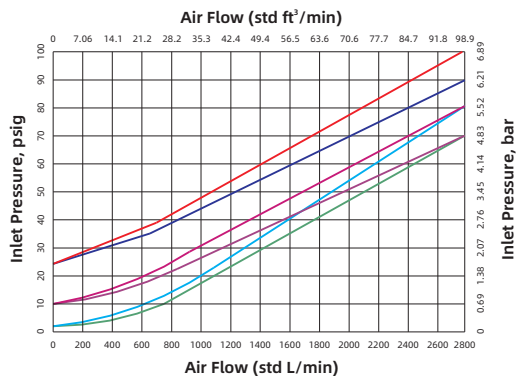
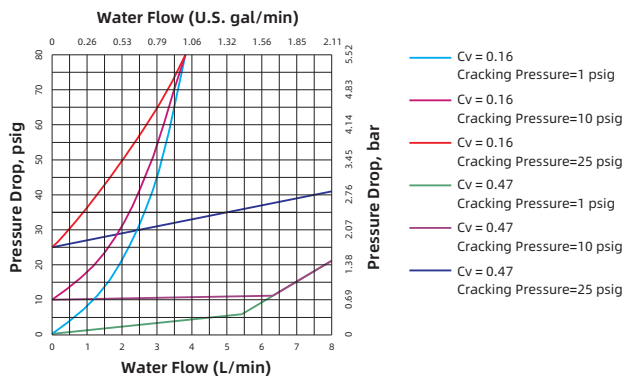
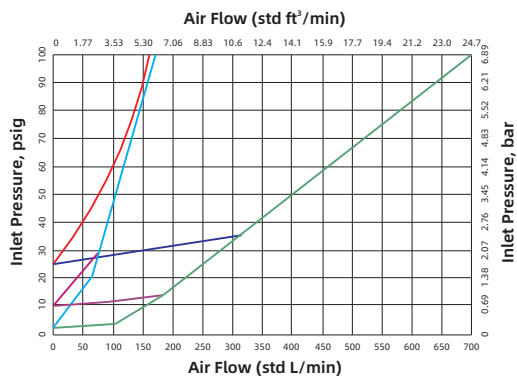
## Dimensions



Basic Ordering Number	Connection Type and Size	Series	CV	Dimension, in. (mm)	
				L	F
CV1-F2-	1/8" Hikelok	4	0.16	2.14 (54.3)	5/8 (15.88)
CV1-F4-	1/4" Hikelok		0.47	2.35 (59.7)	
CV1-F6-	3/8" Hikelok	6	1.47	3.17 (80.5)	7/8 (22.23)
CV1-F8-	1/2" Hikelok		1.68	3.42 (86.9)	
CV1-F12-	3/4" Hikelok	12	4.48	4.32 (110)	1 1/4 (31.75)
CV1-F16-	1" Hikelok			4.74 (120)	1 3/8 (34.93)
CV1-M6-	6 mm Hikelok	4	0.47	2.36 (59.9)	5/8 (15.88)
CV1-M10-	10 mm Hikelok	6	1.68	3.32 (84.3)	7/8 (22.23)
CV1-M12-	12 mm Hikelok			3.42 (86.9)	
CV1-FNPT2-	1/8" Female NPT	4	0.16	1.89 (48.0)	5/8 (15.88)
CV1-FNPT4-	1/4" Female NPT		0.47	2.15 (54.6)	3/4 (19.05)
CV1-FNPT6-	3/8" Female NPT	6	1.47	2.98 (75.7)	7/8 (22.23)
CV1-FNPT8-	1/2" Female NPT		1.68	3.58 (90.9)	1 1/16 (26.99)
CV1-FNPT12-	3/4" Female NPT	12	4.48	4.08 (104)	1 1/4 (31.75)
CV1-FNPT16-	1" Female NPT			4.84 (123)	1 5/8 (41.28)
CV1-NPT2-	1/8" Male NPT	4	0.16	1.71 (43.4)	5/8 (15.88)
CV1-NPT4-	1/4" Male NPT		0.47	2.09 (53.1)	
CV1-NPT6-	3/8" Male NPT	6	1.47	2.78 (70.6)	7/8 (22.23)
CV1-NPT8-	1/2" Male NPT		1.68	3.16 (80.3)	
CV1-NPT12-	3/4" Male NPT	12	4.48	4.08 (104)	1 1/4 (31.75)
CV1-NPT16-	1" Male NPT			4.52 (115)	1 5/8 (41.28)

❖ Sizes and types listed does not contain all . Other sizes and types are available.

## Flow Data at 70°F(20 °C)



## Options and Accessories

❖ The use scenario of seal kit and spring kit is replacement or repair.

### Seal Kits

❖ Composition of seal Kit:  
-4 and-8 series only with O-rings, And -12



O-ring Material	Series	Ordering Number
Buna N	4	CV1-SK-4-B
	6	CV1-SK-6-B
	12	CV1-SK-12-B
Ethylene Propylene	4	CV1-SK-4-E
	6	CV1-SK-6-E
	12	CV1-SK-12-E
Fluorocarbon FKM	4	CV1-SK-4-V
	6	CV1-SK-6-V
Neoprene	4	CV1-SK-4-N
	6	CV1-SK-6-N
	12	CV1-SK-12-N
Kalrez	4	CV1-SK-4-Z
	6	CV1-SK-6-Z
	12	CV1-SK-12-Z

### Spring Kits

❖ Please select the order number of the spring kit according to the working pressure.



Examples: **CV1-MK-4-2**

Cracking Pressure psig (bar)	Series	Ordering Number
1/3 (0.02)	4	CV1-MK-4-2
	6	CV1-MK-6-2
	12	CV1-MK-12-2
1 (0.06)	4	CV1-MK-4-1
	6	CV1-MK-6-1
	12	CV1-MK-12-1
3 (0.21)	4	CV1-MK-4-3
	6	CV1-MK-6-3
10 (0.68)	4	CV1-MK-4-10
	6	CV1-MK-6-10
	12	CV1-MK-12-10
25 (1.70)	4	CV1-MK-4-25
	6	CV1-MK-6-25
	12	CV1-MK-12-25

## How to Order

**CV1** — **F8** — **M10** — **N** — **1** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV1	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		V Fluorocarbon FKM	1 1 psig	316 316 S.S.
	NPT Male NPT	4 1/4 in.			B Buna N	2 1/3 psig	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			E Ethylene propylene	3 3 psig	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm	If outlet and inlet are the same, eliminate the outlet designator	N Neoprene	10 10 psig	304L 304L S.S.	
	FMS Female Metric	10 10 mm		Z Kalrez	25 25 psig	A400 Alloy 400	
	MS Male Metric (for BG)	12 3/4 in. or 12 mm		A20 Alloy 20			
	FBP Female BSPP	14 14 mm		A600 Alloy 600			
	MBP Male BSPP (for BG)	16 1 in. or 16 mm		A825 Alloy 825			
	F Fractional Tube Fitting	18 18 mm		A276 Alloy C276			
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm		DU7 Duplex 2507			
	UGF Nut + Gasket+ Fractional Bulge Nipple	22 22 mm	BR Brass				
	UGM Nut + Gasket+ Metric Bulge Nipple	25 25 mm					

# High Performance Check Valves

## CV2 Series

### Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 50 psig (0.03 to 3.4bar)
- ❖ With bonded elastomer seal structure design
- ❖ Liquid or gas service
- ❖ Variety of end connections and materials available



### Cracking Pressure

Series	Nominal Cracking Pressure psig (bar)	Cracking Pressure Range psig (bar)	Reseal Pressure psig (bar)
CV2	1/3(0.02)	Up to 3 (0.21)	Up to 6 (0.42) back pressure
	1(0.07)	Up to 4 (0.28)	Up to 5 (0.34) back pressure
	3(0.21)	1 to 5 (0.07 to 0.34)	Up to 5 (0.34) back Pressure
	10(0.69)	7 to 15 (0.49 to 1.1)	3 (0.21) or more inlet Pressure
	25(1.7)	20 to 30 (1.4 to 2.1)	17 (1.2) or more inlet Pressure
	50(3.4)	45 to 55 (3.1 to 3.8)	24 to 50 (1.6 to 3.4) inlet pressure

### Pressure-Temperature Ratings

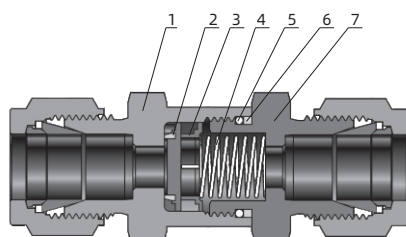
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.
Temperature, °F(°C)	Working Pressure, psig(bar)
-10 (-23) to 100 (37)	6000 (413)
200 (93)	5160 (355)
250 (121)	4910 (338)
300 (148)	4660 (321)
400 (204)	4280 (294)

### Seal Materials

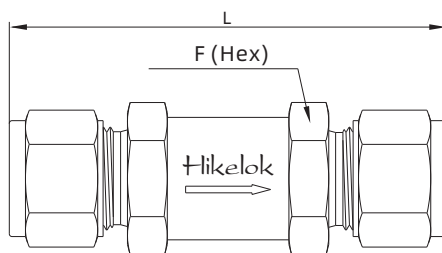
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)

### Standard Materials of Construction



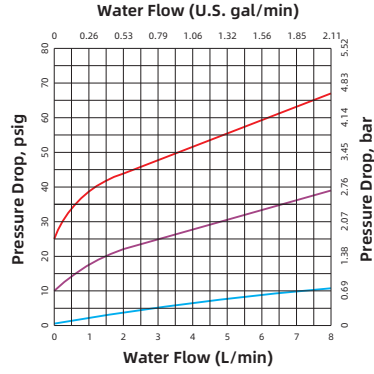
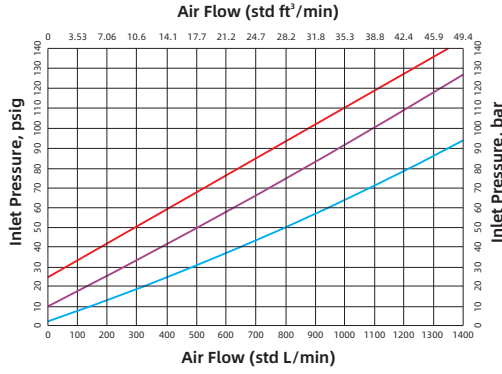
Component	Valve Material Grade / ASTM Specification
1	Inlet Body 316 S.S. / A479
2	Poppet Fluorocarbon FKM - bonded 316 S.S. / A479
3	Poppet Stop 316 S.S. / A240
4	Spring 302 S.S. / A313
5	O-ring Fluorocarbon FKM
6	Backup Ring PTFE / D1710
7	Outlet Body 316 S.S. / A479

## Dimensions

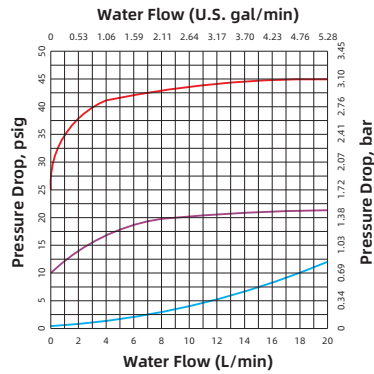
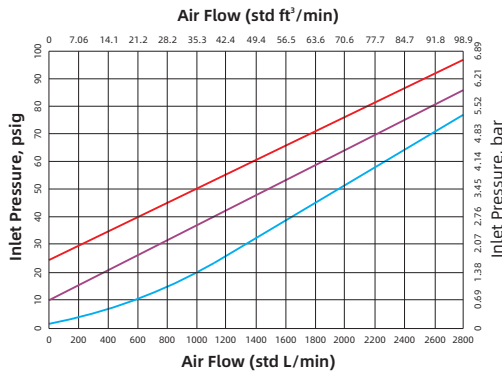


Basic Ordering Number	Connection Type and Size	Series	CV	Dimension, in. (mm)	
				L	F
CV2-F2-	1/8" Hikelok	4	0.67	2.27 (57.7)	11/16 (17.46)
CV2-F4-	1/4" Hikelok			2.43 (61.7)	
CV2-F6-	3/8" Hikelok	8	1.8	2.75 (69.9)	1 (25.4)
CV2-F8-	1/2" Hikelok			2.96 (75.2)	
CV2-F12-	3/4" Hikelok	16	4.7	3.52 (89.4)	1 5/8 (41.28)
CV2-F16-	1" Hikelok			3.88 (98.6)	
CV2-M6-	6 mm Hikelok	4	0.67	2.43 (61.7)	11/16 (17.46)
CV2-M8-	8 mm Hikelok	8	1.8	2.70 (68.6)	1 (25.4)
CV2-M10-	10 mm Hikelok			2.80 (71.1)	
CV2-M12-	12 mm Hikelok			2.96 (75.2)	
CV2-M22-	22 mm Hikelok	16	4.7	3.48 (88.4)	1 5/8 (41.28)
CV2-M25-	25 mm Hikelok			3.88 (98.6)	
CV2-FNPT4-	1/4" Female NPT	4	0.67	2.13 (54.1)	11/16 (17.46)
CV2-FNPT6-	3/8" Female NPT	8	1.8	2.55 (64.8)	1 (25.4)
CV2-FNPT8-	1/2" Female NPT			3.03 (77.0)	1 1/16 (26.99)
CV2-FNPT12-	3/4" Female NPT	16	4.7	3.23 (82.0)	1 5/8 (41.28)
CV2-FNPT16-	1" Female NPT			3.83 (97.3)	
CV2-NPT2-	1/8" Male NPT	4	0.67	1.79 (45.4)	11/16 (17.46)
CV2-NPT4-	1/4" Male NPT			2.17 (55.1)	
CV2-NPT6-	3/8" Male NPT	8	1.8	2.36 (59.9)	1 (25.4)
CV2-NPT8-	1/2" Male NPT			2.73 (69.3)	
CV2-NPT12-	3/4" Male NPT	16	4.7	3.29 (83.6)	1 5/8 (41.28)
CV2-NPT16-	1" Male NPT			3.67 (93.2)	
CV2-FBT4-	1/4" Female BSPT	4	0.67	2.28 (57.9)	11/16 (17.46)
CV2-FBT8-	1/2" Female BSPT	8	1.8	3.29 (83.6)	1 1/16 (26.99)
CV2-FBT12-	3/4" Female BSPT	16	4.7	3.55 (90.2)	1 5/8 (41.28)
CV2-FBT16-	1" Female BSPT			3.83 (97.3)	
CV2-MBT4-	1/4" Male BSPT	4	0.67	2.17 (55.1)	11/16 (17.46)
CV2-MBT8-	1/2" Male BSPT	8	1.8	2.73 (69.3)	1 (25.4)
CV2-MBT12-	3/4" Male BSPT	16	4.7	3.35 (85.1)	1 5/8 (41.28)
CV2-MBT16-	1" Male BSPT			3.67 (93.2)	

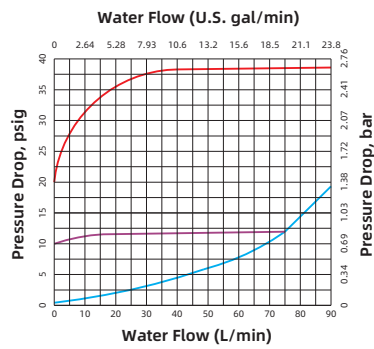
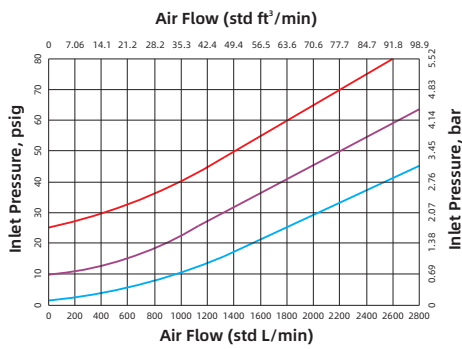
## Flow Data at 70°F(20 °C)



- Cv = 0.67  
Cracking Pressure=1 psig
- Cv = 0.67  
Cracking Pressure=10 psig
- Cv = 0.67  
Cracking Pressure=25 psig



- Cv = 1.8  
Cracking Pressure=1 psig
- Cv = 1.8  
Cracking Pressure=10 psig
- Cv = 1.8  
Cracking Pressure=25 psig



- Cv = 4.7  
Cracking Pressure=1 psig
- Cv = 4.7  
Cracking Pressure=10 psig
- Cv = 4.7  
Cracking Pressure=25 psig

## Options and Accessories

❖ The use scenario of seal kit and spring kit is replacement or repair.

### Seal Kits

❖ Composition of seal Kit:  
O-rings, bonded disc and  
PTFE retaining ring.



O-ring Material	Series	Ordering Number
Buna N	4	CV2-SK-4-B
	8	CV2-SK-8-B
	16	CV2-SK-16-B
Ethylene Propylene	4	CV2-SK-4-E
	8	CV2-SK-8-E
	16	CV2-SK-16-E
Fluorocarbon FKM	4	CV2-SK-4-V
	8	CV2-SK-8-V
	16	CV2-SK-16-V
Neoprene	4	CV2-SK-4-N
	8	CV2-SK-8-N
	16	CV2-SK-16-N

### Spring Kits

❖ Please select the order number of the spring kit according to the working pressure.

Examples: **CV2-MK-4-2**

Cracking Pressure psig (bar)	Series	Ordering Number
1/3 (0.02)	4	CV2-MK-4-2
	8	CV2-MK-8-2
	16	CV2-MK-16-2
1 (0.06)	4	CV2-MK-4-1
	8	CV2-MK-8-1
	16	CV2-MK-16-1
3 (0.21)	4	CV2-MK-4-3
	8	CV2-MK-8-3
	16	CV2-MK-16-3
10 (0.68)	4	CV2-MK-4-10
	8	CV2-MK-8-10
	16	CV2-MK-16-10
25 (1.70)	4	CV2-MK-4-25
	8	CV2-MK-8-25
	16	CV2-MK-16-25
50 (3.4)	4	CV2-MK-4-50
	8	CV2-MK-8-50
	16	CV2-MK-16-50

## How to Order

**CV2** — **F8** — **M10** — **N** — **1** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV2	<b>FNPT</b> Female NPT	2 1/8 in.	Same as inlet type and inlet size  If outlet and inlet are the same, eliminate the outlet designator		<b>V</b> Fluorocarbon FKM  <b>B</b> Buna N  <b>E</b> Ethylene propylene  <b>N</b> Neoprene	<b>1</b> 1 psig	<b>316</b> 316 S.S.
	<b>NPT</b> Male NPT	4 1/4 in.				<b>2</b> 1/3 psig	<b>316L</b> 316L S.S.
	<b>FBT</b> Female BSPT	6 3/8 in. or 6 mm				<b>3</b> 3 psig	<b>304</b> 304 S.S.
	<b>MBT</b> Male BSPT	8 1/2 in. or 8 mm				<b>10</b> 10 psig	<b>304L</b> 304L S.S.
	<b>FMS</b> Female Metric	10 10 mm				<b>25</b> 25 psig	<b>A400</b> Alloy 400
	<b>MS</b> Male Metric (for BG)	12 3/4 in. or 12 mm				<b>50</b> 50 psig	<b>A20</b> Alloy 20
	<b>FBP</b> Female BSPP	14 14 mm					<b>A600</b> Alloy 600
	<b>MBP</b> Male BSPP (for BG)	16 1 in. or 16 mm					<b>A825</b> Alloy 825
	<b>F</b> Fractional Tube Fitting	18 18 mm					<b>A276</b> Alloy C276
	<b>M</b> Metric Tube Fitting	20 1 1/4 in. or 20 mm					<b>DU7</b> Duplex 2507
	<b>UGF</b> Nut + Gasket+ Fractional Bulge Nipple	22 22 mm					<b>BR</b> Brass
	<b>UGM</b> Nut + Gasket+ Metric Bulge Nipple	25 25 mm					
	<b>FGFS</b> Female GFS Fitting						
	<b>GFS</b> Male GFS Fitting						
	<b>RGFS</b> Rotatable Male GFS Fitting						

# All Metal Check Valves

## CV3 Series

### Features

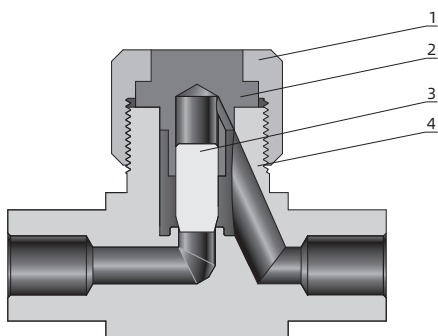
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 900°F (-53°C to 482°C)
- ❖ Metal to metal seal structure design
- ❖ Reverse flow coefficient less than 0.1% of forward flow coefficient
- ❖ No springs or elastomers
- ❖ Liquid or gas service
- ❖ Variety of end connections and materials



### Pressure-Temperature Ratings

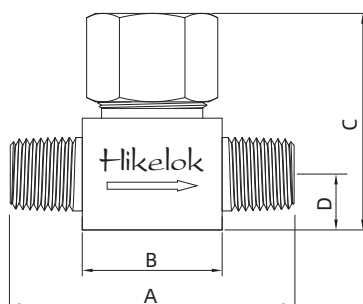
Material	316 S.S.
Temperature, °F(°C)	Working Pressure, psig(bar)
-65 (-53) to 100 (37)	6000 (413)
200 (93)	5160 (355)
250 (121)	4910 (338)
300 (148)	4660 (321)
350 (176)	4470 (307)
400 (204)	4280 (294)
450 (232)	4130 (284)
500 (260)	3980 (274)
600 (315)	3760 (259)
650 (343)	3700 (254)
700 (371)	3600 (248)
750 (398)	3520 (242)
800 (426)	3460 (238)
850 (454)	3380 (232)
900 (482)	3280 (225)

### Standard Materials of Construction



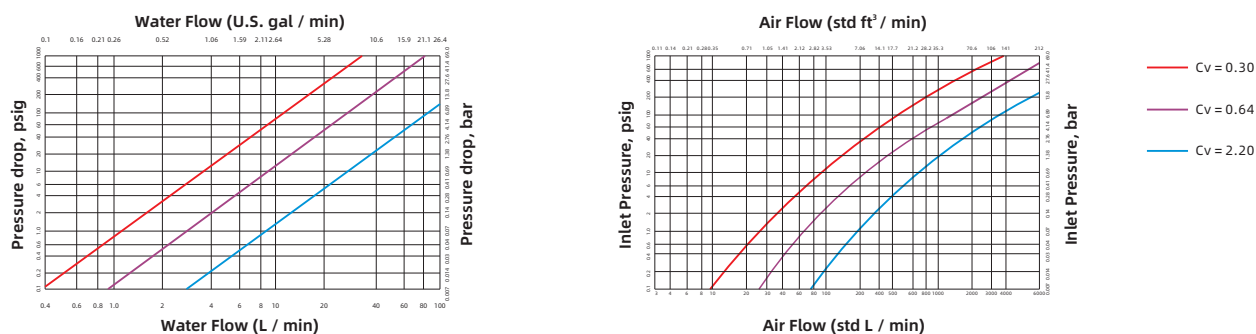
Component	Valve Material Grade / ASTM Specification
1 Bonnet Nut	316 S.S. / A479
2 Bonnet	316 S.S. / A479
3 Poppet	S17400 / A564
4 Body	316 S.S. / A479

## Dimensions



Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)			
			A	B	C	D
CV3-F4-	1/4" Hikelok	0.30	2.40 (61.0)	1.01 (25.7)	1.47 (37.3)	0.39 (9.9)
CV3-F6-	3/8" Hikelok	0.64	2.83 (71.9)	1.31 (33.3)	1.85 (47.0)	0.50 (12.7)
CV3-F8-	1/2" Hikelok	2.20	3.92 (99.6)	2.19 (55.6)	2.44 (62.0)	0.62 (15.7)
CV3-F12-	3/4" Hikelok					
CV3-M6-	6 mm Hikelok	0.30	2.40 (61.0)	1.01 (25.7)	1.47 (37.3)	0.39 (9.9)
CV3-FNPT2-	1/8" Female NPT					
CV3-FNPT4-	1/4" Female NPT	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FNPT6-	3/8" Female NPT	2.20	3.12 (79.2)	1.86 (47.2)	2.44 (62.0)	0.62 (15.7)
CV3-FNPT8-	1/2" Female NPT					
CV3-FSW4-	1/4" FSW	0.30	1.81 (46.0)	0.9 (22.9)	1.47 (37.3)	0.39 (9.9)
CV3-FSW6-	3/8" FSW	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FSW8-	1/2" FSW	2.20	3.13 (79.5)	1.88 (47.8)	2.44 (62.0)	0.62 (15.7)
CV3-FBW4-	1/4" FBW	0.30	1.81 (46.0)	0.9 (22.9)	1.47 (37.3)	0.39 (9.9)
CV3-FBW6-	3/8" FBW	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FBW8-	1/2" FBW	2.20	3.13 (79.5)	1.88 (47.8)	2.44 (62.0)	0.62 (15.7)

## Flow Data at 70°F(20 °C)



### How to Order

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Body Material
CV3 —	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		316 316 S.S.
	NPT Male NPT	4 1/4 in.			316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm			304L 304L S.S.
	FMS Female Metric	10 10 mm			A400 Alloy 400
	MS Male Metric (for BG)	12 3/4 in. or 12 mm			A20 Alloy 20
	FBP Female BSPP	14 14 mm			A600 Alloy 600
	MBP Male BSPP (for BG)	16 1 in. or 16 mm			A825 Alloy 825
	MSW Metric Tube Socket Weld	18 18 mm			A276 Alloy C276
	FBW Fractional Tube Butt Weld	20 1 1/4 in. or 20 mm			DU7 Duplex 2507
	MBW Metric Tube Butt Weld	22 22 mm			CS Steel
	PSW Pipe Socket Weld	25 25 mm			
	PBW Pipe Buttt Weld				
	F Fractional Tube Fitting				
	M Metric Tube Fitting				
UGF Nut + Gasket+ Fractional Bulge Nipple					
UGM Nut + Gasket+ Metric Bulge Nipple					

# One-Piece Check Valves

## CV4 Series

### Features

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ One-piece body design
- ❖ Fully contained O-ring seal
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



### Cracking Pressure

Series	Nominal Cracking Pressure psig (bar)	Cracking Pressure Range psig (bar)	Reseal Pressure psig (bar)
CV4	1/3(0.02)	Up to 3 (0.21)	Up to 20 (1.4) back pressure
	1(0.07)	Up to 4 (0.28)	Up to 20 (1.4) back pressure
	10(0.69)	7 to 13 (0.49 to 0.9)	Up to 10 (0.69) back pressure
	25(1.7)	21 to 29 (1.5 to 2.0)	5 (0.34) or more inlet pressure

### Pressure-Temperature Ratings

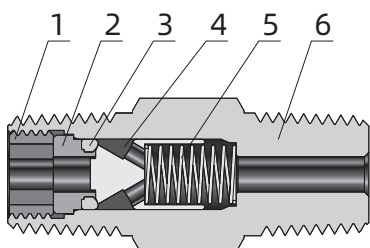
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.	Brass
Temperature, °F (°C)	Working Pressure, psig (bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	–
400 (204)	2185 (150)	–

### Seal Materials

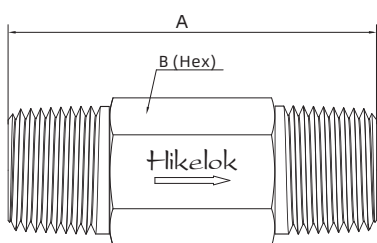
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)
Kalrez	0 to 525 (-17 to 274)

## Standard Materials of Construction



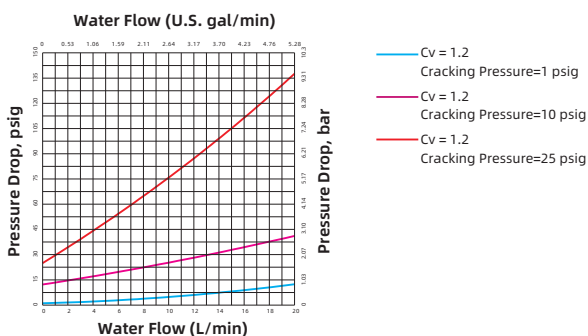
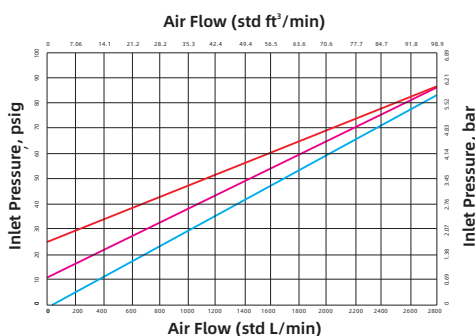
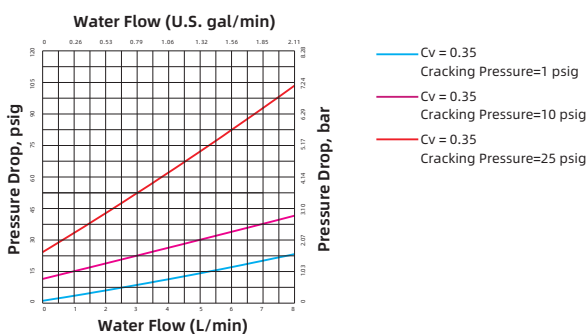
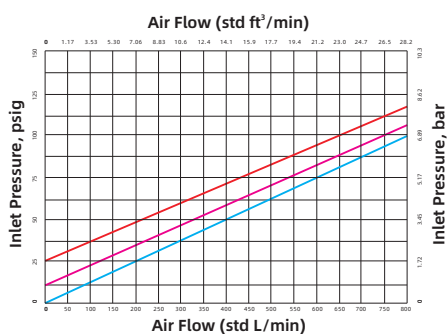
Component	Valve Material Grade / ASTM Specification		
	316 S.S.	Brass	
1	Insert Locking Screw	316 S.S. / A276 or A479	Brass C36000 / B16
2	Insert	316 S.S. / A479	Brass C36000 / B16
3	O-ring	Fluorocarbon FKM	Buna N
4	Poppet	316 S.S. / A479	Brass C36000 / B16
5	Spring	302 S.S. / A313	
6	Body	316 S.S. / A479	Brass C36000 / B16

## Dimensions



Basic Ordering Number	Connection Type and Size	Series	CV	Dimension, in. (mm)	
				A	B
CV4-FNPT4-	1/4" Female NPT	4	0.35	2.41 (61.2)	3/4 (19.05)
CV4-FNPT8-	1/2" Female NPT	8	1.20	3.71 (94.2)	1 1/16 (26.99)
CV4-NPT4-	1/4" Male NPT	4	0.35	1.62 (41.1)	9/16 (14.29)
CV4-NPT8-	1/2" Male NPT	8	1.20	2.28 (57.9)	7/8 (22.23)
CV4-FBT4-	1/4" Female BSPT	4	0.35	2.54 (64.5)	3/4 (19.05)
CV4-MBT4-	1/4" Male BSPT	4	0.35	1.62 (41.1)	9/16 (14.29)

## Flow Data at 70°F(20 °C)



## Options and Accessories

❖ The use scenario of seal kit and spring kit is replacement or repair.

### Seal Kits

❖ Composition of seal Kit: O-rings.

O-ring Material	Series	Ordering Number
Buna N	4	CV4-SK-4-B
	8	CV4-SK-8-B
Ethylene Propylene	4	CV4-SK-4-E
	8	CV4-SK-8-E
Fluorocarbon FKM	4	CV4-SK-4-V
	8	CV4-SK-8-V
Neoprene	4	CV4-SK-4-N
	8	CV4-SK-8-N
Kalrez	4	CV4-SK-4-Z
	8	CV4-SK-8-Z

### Spring Kits

❖ Please select the order number of the spring kit according to the working pressure.

Examples: **CV4-MK-4-2**

Cracking Pressure psig (bar)	Series	Ordering Number
1/3 (0.02)	4	CV4-MK-4-2
	8	CV4-MK-8-2
1 (0.06)	4	CV4-MK-4-1
	8	CV4-MK-8-1
3 (0.21)	4	CV4-MK-4-3
	8	CV4-MK-8-3
10 (0.68)	4	CV4-MK-4-10
	8	CV4-MK-8-10
25 (1.70)	4	CV4-MK-4-25
	8	CV4-MK-8-25

## How to Order

**CV4 — NPT8 — MBT8 — V — 1 — 316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
<b>CV4</b>	<b>FNPT</b> Female NPT	<b>2</b> 1/8 in.	Same as inlet type and inlet size		<b>V</b> Fluorocarbon FKM <b>B</b> Buna N <b>E</b> Ethylene propylene <b>N</b> Neoprene <b>Z</b> Kalrez	<b>1</b> 1 psig	<b>316</b> 316 S.S.
	<b>NPT</b> Male NPT	<b>4</b> 1/4 in.				<b>2</b> 1/3 psig	<b>316L</b> 316L S.S.
	<b>FBT</b> Female BSPT	<b>6</b> 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator	<b>3</b> 3 psig		<b>304</b> 304 S.S.	
	<b>MBT</b> Male BSPT	<b>8</b> 1/2 in. or 8 mm		<b>10</b> 10 psig		<b>304L</b> 304L S.S.	
	<b>FMS</b> Female Metric			<b>25</b> 25 psig		<b>A400</b> Alloy 400	
	<b>MS</b> Male Metric (for BG)					<b>A20</b> Alloy 20	
	<b>FBP</b> Female BSPP					<b>A600</b> Alloy 600	
	<b>MBP</b> Male BSPP (for BG)					<b>A825</b> Alloy 825	
						<b>A276</b> Alloy C276	
						<b>DU7</b> Duplex 2507	
			<b>BR</b> Brass				

# One-Piece Adjustable Cracking Pressures Check Valves

## CV5 Series

### Features

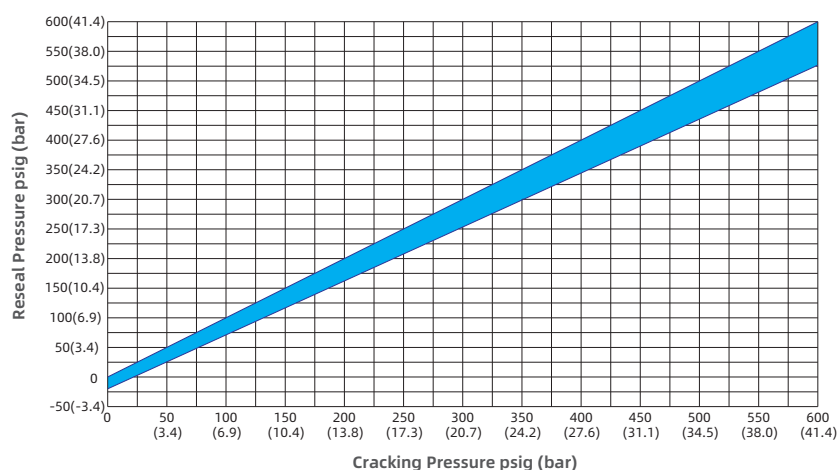
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ One-piece body design
- ❖ Fully contained O-ring seal
- ❖ Adjustable spring sets cracking pressure
- ❖ Locking screw maintains setting
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



### Cracking Pressure

Series	Nominal Cracking Pressure psig (bar)
CV5	3 to 50 (0.21 to 3.50)
	50 to 150 (3.40 to 10.4)
	150 to 350 (10.4 to 24.2)
	350 to 600 (2.40 to 41.4)

### Reseal Pressure



### Pressure-Temperature Ratings

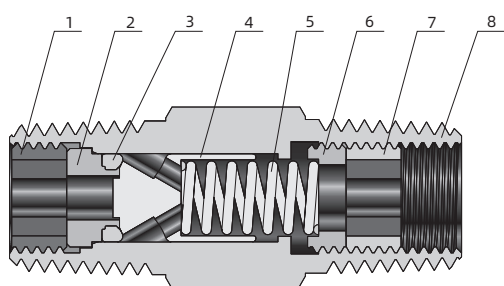
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.	Brass
Temperature, °F (°C)	Working Pressure, psig (bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	–
400 (204)	2185 (150)	–

### Seal Materials

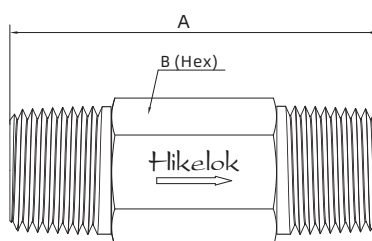
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)
Kalrez	0 to 525 (-17 to 274)

## Standard Materials of Construction



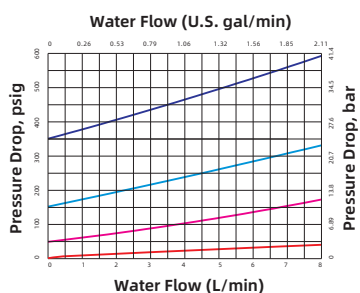
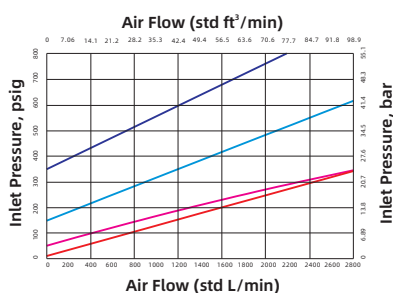
Component	Valve Material Grade / ASTM Specification	
	316 S.S.	Brass
1 Insert Locking Screw	316 S.S. / A479	Brass C36000 / B16
2 Insert	316 S.S. / A479	Brass C36000 / B16
3 O-ring	Fluorocarbon FKM	Buna N
4 Poppet	316 S.S. / A479	Brass C36000 / B16
5 Spring	302 S.S. / A313	
6 Adjusting Screw	316 S.S. / A276	
7 Locking Screw	316 S.S. / A276	
8 Body	316 S.S. / A479	Brass C36000 / B16

## Dimensions

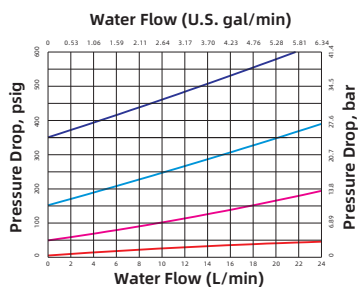
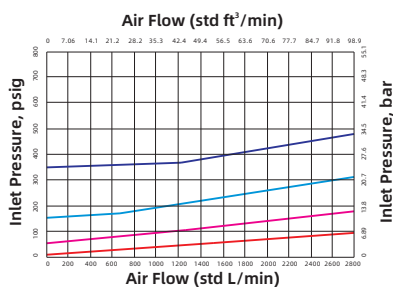


Basic Ordering Number	Connection Type and Size	Series	CV	Dimension, in. (mm)	
				A	B
CV5-FNPT4-	1/4" Female NPT	4	0.35	2.98 (75.7)	3/4 (19.05)
CV5-NPT4-	1/4" Male NPT			1.62 (41.1)	9/16 (14.29)
CV5-NPT8-	1/2" Male NPT	8	1.20	2.56 (65.0)	7/8 (22.23)
CV5-MBT4-	1/4" Male BSPT	4	0.35	1.62 (41.1)	9/16 (14.29)
CV5-MBT8-	1/2" Male BSPT	8	1.20	2.56 (65.0)	7/8 (22.23)

## Flow Data at 70°F(20 °C)



- Cv = 0.35  
Cracking Pressure = 3 psig
- Cv = 0.35  
Cracking Pressure = 50 psig
- Cv = 0.35  
Cracking Pressure = 150 psig
- Cv = 0.35  
Cracking Pressure = 350 psig



- Cv = 1.2  
Cracking Pressure = 3 psig
- Cv = 1.2  
Cracking Pressure = 50 psig
- Cv = 1.2  
Cracking Pressure = 150 psig
- Cv = 1.2  
Cracking Pressure = 350 psig

## Options and Accessories

❖ The use scenario of seal kit and spring kit is replacement or repair.

### Seal Kits

❖ Composition of seal Kit: O-rings.

O-ring Material	Series	Ordering Number
Buna N	4	CV5-SK-4-B
	8	CV5-SK-8-B
Ethylene Propylene	4	CV5-SK-4-E
	8	CV5-SK-8-E
Fluorocarbon FKM	4	CV5-SK-4-V
	8	CV5-SK-8-V
Neoprene	4	CV5-SK-4-N
	8	CV5-SK-8-N
Kalrez	4	CV5-SK-4-Z
	8	CV5-SK-8-Z

### Spring Kits

❖ Please select the order number of the spring kit according to the working pressure.

Examples: **CV5-MK-4-50**

Cracking Pressure psig (bar)	Series	Ordering Number
3 to 50 (0.21 to 3.5)	4	CV5-MK-4-50
	8	CV5-MK-8-50
50 to 150 (3.5 to 10.4)	4	CV5-MK-4-150
	8	CV5-MK-8-150
150 to 350 (10.4 to 24.2)	4	CV5-MK-4-350
	8	CV5-MK-8-350
350 to 600 (24.2 to 41.4)	4	CV5-MK-4-600
	8	CV5-MK-8-600

## How to Order

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material	
CV5	FNPT	Female NPT	2	1/8 in.	V Fluorocarbon FKM B Buna N E Ethylene propylene N Neoprene Z Kalrez	50	3 to 50 psig	316 316 S.S.
	NPT	Male NPT						
	FBT	Female BSPT	6	3/8 in. or 6 mm		350	150 to 350 psig	304 304 S.S.
	MBT	Male BSPT						
	FMS	Female Metric	A400	Alloy 400				
	MS	Male Metric (for BG)				A20	Alloy 20	
	FBP	Female BSPP	A600	Alloy 600				
	MBP	Male BSPP (for BG)				A825	Alloy 825	
		A276	Alloy C276					
				DU7	Duplex 2507			
		BR	Brass					

# Adjustable cracking pressure Check Valves

## CV6 Series

### Features

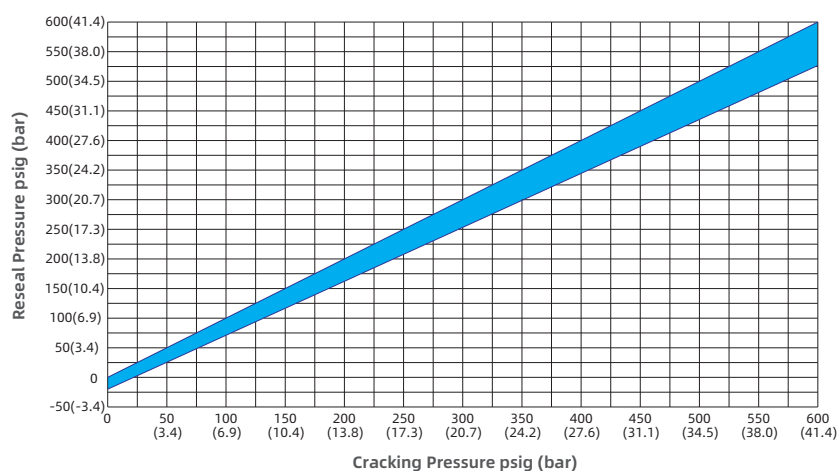
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ Fully contained O-ring seal
- ❖ Adjustable spring sets cracking pressure
- ❖ Locking screw maintains setting
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



### Cracking Pressure

Series	Nominal Cracking Pressure psig (bar)
CV6	3 to 50 (0.21 to 3.50)
	50 to 150 (3.40 to 10.4)
	150 to 350 (10.4 to 24.2)
	350 to 600 (2.40 to 41.4)

### Reseal Pressure



### Pressure-Temperature Ratings

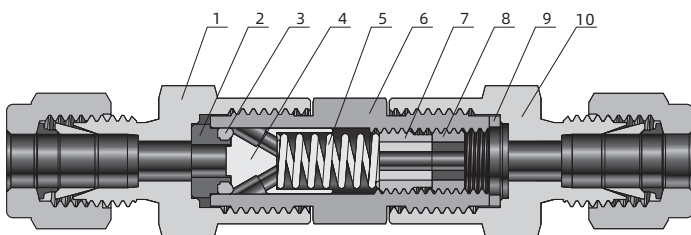
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.	Brass
	Working Pressure, psig(bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	–
375 (190)	2185 (150)	–

### Seal Materials

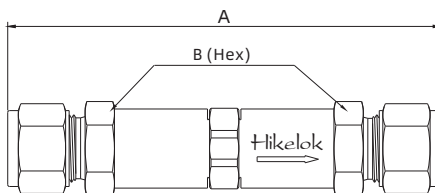
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)
Kalrez	0 to 525 (-17 to 274)

## Standard Materials of Construction



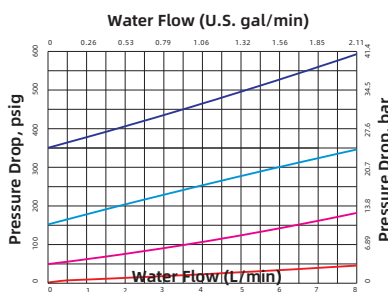
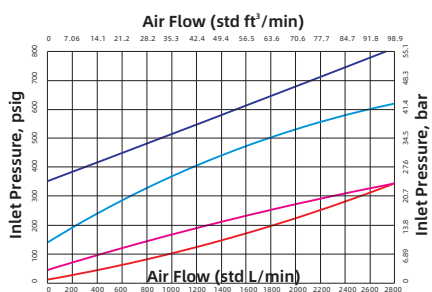
Component	Valve Material Grade / ASTM Specification	
	316 S.S.	Brass
1 Inlet Body	316 S.S. / A479	Brass C36000 / B16
2 Insert	316 S.S. / A479	Brass C36000 / B16
3 O-ring	Fluorocarbon FKM	Buna N
4 Poppet	316 S.S. / A479	Brass C36000 / B16
5 Spring	302 S.S. / A313	
6 Center Body	316 S.S. / A479	Brass C36000 / B16
7 Adjusting Screw	316 S.S. / A276	
8 Locking Screw	316 S.S. / A276	
9 Gasket	PTFE-coated 316 S.S./A276	
10 Outlet Body	316 S.S. / A479	Brass C36000 / B16

## Dimensions



Basic Ordering Number	Connection Type and Size	Cv	Dimension, in. (mm)	
			A	B
CV6-F4-	1/4" Hikelok	0.37	3.23 (82.0)	5/8 (15.88)
CV6-M6-	6 mm Hikelok			
CV6-M8-	8 mm Hikelok			
CV6-GFS4-	1/4" Male GFS		3.09 (78.5)	

## Flow Data at 70°F(20 °C)



- Cv = 0.37  
Cracking Pressure = 3 psig
- Cv = 0.37  
Cracking Pressure = 50 psig
- Cv = 0.37  
Cracking Pressure = 150 psig
- Cv = 0.37  
Cracking Pressure = 350 psig

## Options and Accessories

❖ The use scenario of seal kit and spring kit is replacement or repair.

### Seal Kits

❖ Composition of seal Kit: O-rings.

O-ring Material	Ordering Number
Buna N	CV6-SK-B
Ethylene Propylene	CV6-SK-E
Fluorocarbon FKM	CV6-SK-V
Neoprene	CV6-SK-N
Kalrez	CV6-SK-Z

### Spring Kits

❖ Please select the order number of the spring kit according to the working pressure.

Examples: **C6-MK-50**

Cracking Pressure psig (bar)	Ordering Number
3 to 50 (0.21 to 3.5)	CV6-MK-50
50 to 150 (3.5 to 10.4)	CV6-MK-150
150 to 350 (10.4 to 24.2)	CV6-MK-350
350 to 600 (24.2 to 41.4)	CV6-MK-600

## How to Order

**CV6** — **F4** — **M6** — **V** — **50** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material	
CV6	F Fractional Tube Fitting	2 1/8 in.	Same as inlet type and inlet size		V Fluorocarbon FKM	50 3 to 50 psig	316 316 S.S.	
		4 1/4 in.				150 50 to 150 psig	316L 316L S.S.	
	M Metric Tube Fitting	6 3/8 in. or 6 mm			If outlet and inlet are the same, eliminate the outlet designator	B Buna N	350 150 to 350 psig	304 304 S.S.
		GFS Male GFS Fitting					8 1/2 in. or 8 mm	E Ethylene propylene
				N Neoprene			A400 Alloy 400	
								Z Kalrez
					A276 Alloy C276			
								DU7 Duplex 2507
						BR Brass		

# All-Welded Check Valves

## CV7 Series

### Features

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure less than 2 psig (0.14 bar)
- ❖ All-Welded body design
- ❖ Standard or high-purity wetted surface finishes for choice
- ❖ 316L stainless steel body material
- ❖ Tube butt weld, female GFS fitting, integral male GFS fitting, rotatable male GFS fitting, and Hikelok tube fitting end connections are available..



### Pressure-Temperature Ratings

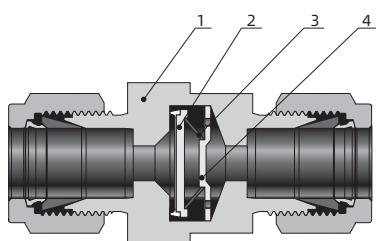
- ❖ Ratings based on fluorocarbon FKM O-rings in 316 stainless steel valves and Buna N O-rings in brass valves.

Material	316 S.S.	Brass
Temperature, °F(°C)	Working Pressure, psig(bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	–
400 (204)	2065 (142)	–

### Seal Materials

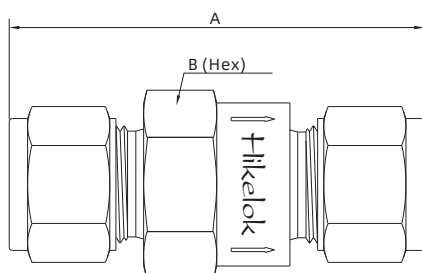
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)

### Standard Materials of Construction



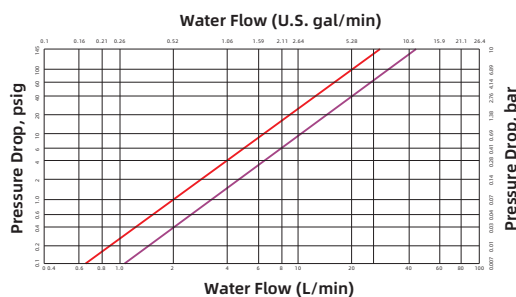
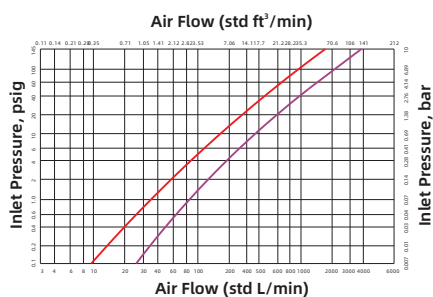
Component	Valve Material Grade / ASTM Specification
1 Body	316L S.S. / A479
2 Poppet	Fluorocarbon FKM - bonded 316L S.S. / A479
3 Guidance Wafer	Alloy X - 750 / B637
4 Poppet Stop	316L S.S. / A240

## Dimensions



Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)	
			A	B
CV7-FBW4-	1/4" FBW	0.55	1.24 (31.5)	7/8 (22.23)
CV7-FBW6-	3/8" FBW	0.70		
CV7-FBW8-	1/2" FBW	0.55	1.80 (45.7)	1 (25.4)
CV7-MBW6-	6 mm MBW			
CV7-GFS4-	1/4" Male GFS	0.70	2.06 (53.8)	1 (25.4)
CV7-GFS8-	1/2" Male GFS	0.55	1.96 (49.8)	7/8 (22.23)
CV7-F4-	1/4" Hikelok			
CV7-M6-	6 mm Hikelok	0.70		

## Flow Data at 70°F(20 °C)



— CV = 0.55  
— CV = 0.70

## How to Order

CV7 — F4 — M6 — V — 316L

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Body Material
CV7	<b>F</b> Fractional Tube Fitting	2 1/8 in.	Same as inlet type and inlet size		<b>V</b> Fluorocarbon FKM	316 316 S.S.
	<b>M</b> Metric Tube Fitting	4 1/4 in.			<b>B</b> Buna N	316L 316L S.S.
	<b>FBW</b> Fractional Tube Butt Weld	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		<b>E</b> Ethylene propylene	
	<b>MBW</b> Metric Tube Butt Weld	8 1/2 in. or 8 mm			<b>N</b> Neoprene	
	<b>GFS</b> Male GFS Fitting					
	<b>FGFS</b> Female GFS Fitting					
	<b>RGFS</b> Rotatable Male GFS Fitting					