



**TECNI-AR**  
Seu caminho  
Para automação

# Check Valves (C Series)

Catalog 4130-C  
August 2005



**TECNI-AR**  
Seu Caminho  
Para Automação

TECNI-AR Ltda  
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## Introduction

Parker C Series Check Valves are designed for uni-directional flow control of fluids and gases in industries such as chemical processing, oil and gas production and transmission, pharmaceutical, pulp and paper, power and utilities.

## Features

- ▶ Resilient, custom molded, blow-out resistant seat design
- ▶ Back stopped poppet minimizes spring stress
- ▶ 100% factory tested for both crack and reseal
- ▶ Cracking pressures include: 1/3, 1, 5, 10, 25, 50, 75, and 100 psi.
- ▶ Port connections include male and female NPT, CPI™, A-LOK®, UltraSeal, VacuSeal, BSP, SAE and Seal-Lok®
- ▶ Heat code traceability

## Materials of Construction

Item #	Part	Stainless Steel Valve	Brass Valve
1	Cap	ASTM A 276, TYPE 316	ASTM B 16 Alloy C36000
2	Seat*	Fluorocarbon Rubber*	
3	Poppet	ASTM A 479, TYPE 316	ASTM B 16 Alloy C36000
4	Spring	316 Stainless Steel	
5	Body	ASTM A 276, TYPE 316	ASTM B 16 Alloy C36000

\* Optional seat materials are available. See How to Order section. Lubrication: Silicone Paste.

**Note:** PTFE seated valves employ an additional PTFE coated 316 SS gasket between the seat and the body and are distinguishable from elastomeric seated valves by the gap designed between the body and cap.

\*\*See Pressure Rating note on page 4.

## Specifications

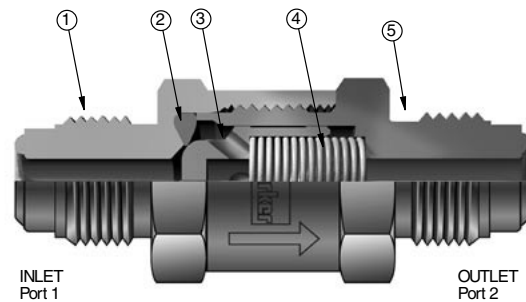
### Pressure Rating:\*\*

316 SS – 1/8" to 3/4": .....6000 psig (414 bar) CWP  
 1": .....5000 psig (345 bar) CWP  
 All sizes with PTFE Seats: .....4000 psig (276 bar) CWP  
 Brass – 1/8": to 1": .....3000 psig (207 bar) CWP

### Temperature Rating:

Fluorocarbon Rubber..... -15°F to +400°F (-26°C to +204°C)  
 Nitrile ..... -30°F to +275°F (-34°C to +135°C)  
 Ethylene Propylene Rubber  
 ..... -70°F to +275°F (-57°C to +135°C)  
 Neoprene Rubber ..... -45°F to +250°F (-43°C to +121°C)  
 PTFE ..... -65°F to +400°F (-54°C to +204°C)  
 Highly Fluorinated Fluorocarbon Rubber  
 ..... -15°F to +200°F (-26°C to +93°C)

**Orifice:**..... .078" to .656" (2.0 mm to 16.7 mm)  
**C<sub>v</sub>:** ..... .18 to 6.56



Model Shown: 4V-C4L-5-SS

## Flow Calculations with 1000 psig (69 bar) Inlet Pressure

Valve Series	Maximum C <sub>v</sub>	Pressure Drop ΔP		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
		psig	bar	gpm	m <sup>3</sup> /hr	scfm	m <sup>3</sup> /hr
C2	0.31	10	0.7	1.0	0.2	30.8	52.1
		50	3.4	2.2	0.5	67.2	112.8
		100	6.9	3.1	0.7	92.0	155.3
C4	0.75	10	0.7	2.4	0.5	74.6	126.1
		50	3.4	5.3	1.2	162.7	273.0
		100	6.9	7.5	1.7	222.8	376.2
C6	2.26	10	0.7	7.1	1.6	225.3	380.9
		50	3.4	16.0	3.6	495.2	831.0
		100	6.9	22.6	5.1	685.1	1157.2
C8	3.53	10	0.7	11.2	2.5	352.0	595.0
		50	3.4	25.0	5.6	774.3	1299.4
		100	6.9	35.3	8.0	1072.4	1811.6
C12	6.01	10	0.7	19.0	4.3	596.6	1008.3
		50	3.4	42.5	9.6	1287.5	2160.4
		100	6.9	60.1	13.7	1738.5	2934.5
C16	6.56	10	0.7	20.7	4.7	648.9	1096.6
		50	3.4	46.4	10.5	1379.4	2314.7
		100	6.9	65.6	14.9	1824.4	3077.6

## Crack and Re-seal Performance

Check Valve Rated Crack Pressure		Minimum Acceptable Crack Pressure		Maximum Acceptable Crack Pressure		Maximum Re-seal Back Pressure	
psig	bar	psig	bar	psig	bar	psig	bar
1/3	0.02	0	0.00	1	0.07	4	0.28
1	0.07	0	0.00	3	0.21	4	0.28
5	0.34	3	0.21	8	0.55	3 BCP	0.21 BCP
10	0.69	7	0.48	13	0.90	3 BCP	0.21 BCP
25	1.72	20	1.38	30	2.07	4 BCP	0.28 BCP
50	3.45	40	2.76	60	4.14	5 BCP	0.34 BCP
75	5.17	60	4.14	90	6.21	7 BCP	0.48 BCP
100	6.89	80	5.52	120	8.27	10 BCP	0.69 BCP

BCP means "Below Cracking Pressure"

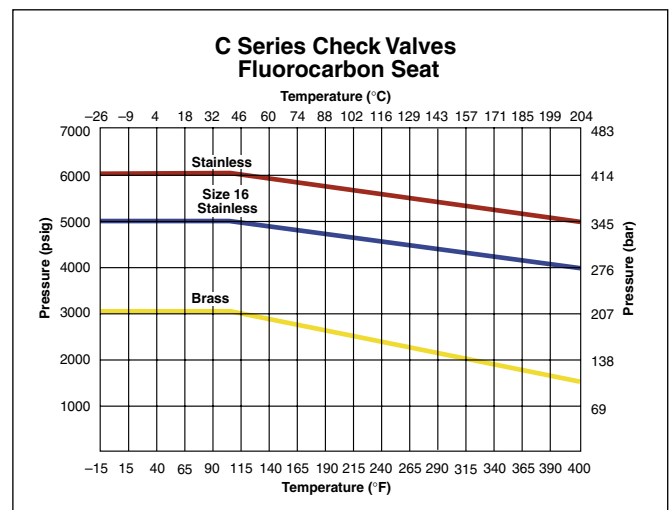
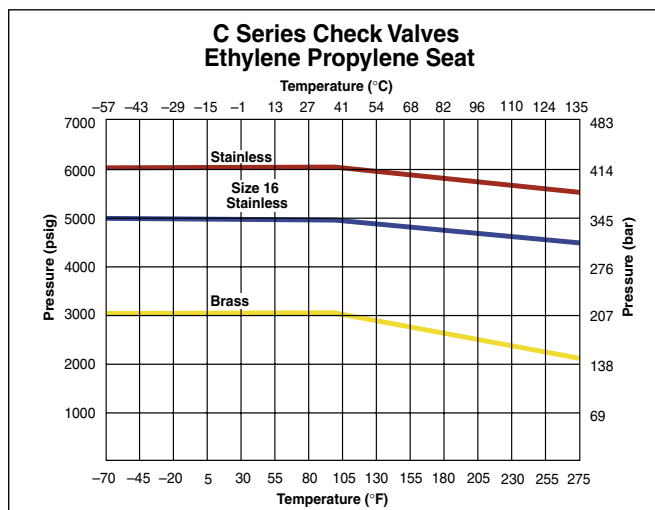
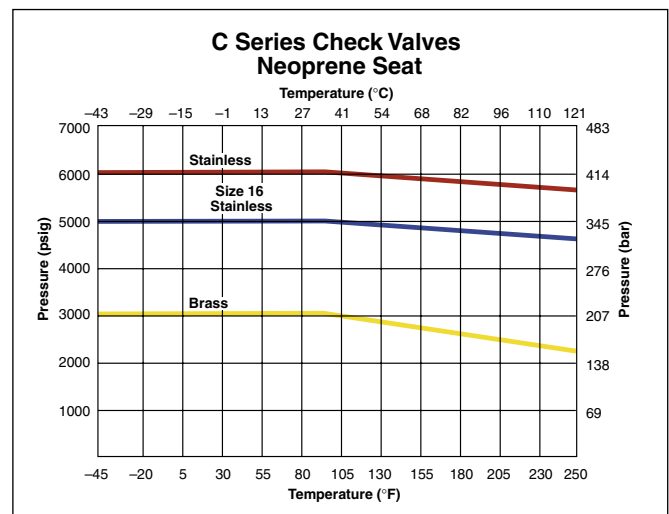
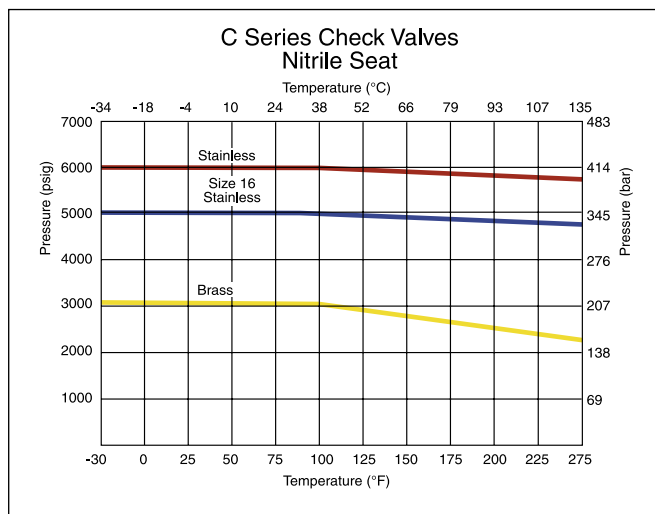
Cracking pressure is defined as the upstream pressure at which a detectable flow is measured.

Re-seal pressure is defined as the downstream pressure at which the check valve closes bubble-tight.

**Example:** For a valve with a spring having a rated cracking pressure of 25 psig (1.72 bar), the actual cracking pressure ranges between 20 and 30 psig (1.38 and 2.07 bar). The re-seal pressure range would be 16 to 20 psig (1.10 to 1.38 bar). Check valves having springs with rated crack pressures of 3 psig (0.21 bar) or less may require up to 4 psig (0.28 bar) back pressure to re-seal bubble-tight.

**Note:** Check valves which are not actuated for a period of time may initially crack at higher than the above crack pressure ranges. PTFE seated valves require a minimum back pressure of 100 psig (6.9 bar) to insure a leak-tight re-seal.

## Pressure vs. Temperature



**Note:** To determine MPa, multiply bar by 0.1



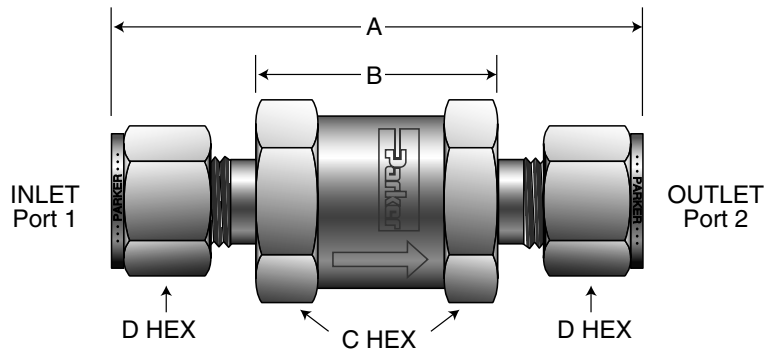
## Flow Data/Dimensions

Basic Part Number	End Connections		Flow Data				Dimensions							
	(Inlet) Port 1	(Outlet) Port 2	Orifice		C <sub>v</sub>	K <sub>t</sub> ‡	A†		B		C		D	
			inch	mm			inch	mm	inch	mm	inch	mm		
2A-C2L	1/8" A-LOK® Compression	1/8" A-LOK® Compression	.093	2.4	.22	0.46	2.29	58.2	1.09	27.7	.625	15.9	.438	11.1
2F-C2L	1/8" Female NPT	1/8" Female NPT	.125	3.2	.31	0.52	1.86	47.2	-	-	.625	15.9	-	-
2F5-C2L	1/8" Male SAE	1/8" Male SAE	.063	1.6	.16	0.42	1.69	42.9	1.09	27.7	.625	15.9	-	-
2G5-C2L	1/8" Female SAE	1/8" Female SAE	.063	1.6	.16	0.42	1.86	47.2	-	-	.625	15.9	-	-
2KF-C2L	1/8" Female BSP/ISO Tapered	1/8" Female BSP/ISO Tapered	.125	3.2	.31	0.52	1.86	47.2	-	-	.625	15.9	-	-
2KM-C2L	1/8" Male BSP/ISO Tapered	1/8" Male BSP/ISO Tapered	.125	3.2	.31	0.52	1.77	45.0	1.00	25.4	.625	15.9	-	-
2M-C2L	1/8" Male NPT	1/8" Male NPT	.125	3.2	.31	0.52	1.77	45.0	1.01	25.7	.625	15.9	-	-
2TA-C2L	1/8" Tube Adapter	1/8" Tube Adapter	.078	2.0	.18	0.43	2.07	52.6	.88	22.4	.625	15.9	-	-
2Z-C2L	1/8" CPI™ Compression	1/8" CPI™ Compression	.093	2.4	.22	0.46	2.29	58.2	1.09	27.7	.625	15.9	.438	11.1
M3A-C2L	3mm A-LOK® Compression	3mm A-LOK® Compression	.086	2.2	.20	0.45	2.30	58.4	1.05	26.7	.625	15.9	.472	12.0
M3Z-C2L	3mm CPI™ Compression	3mm CPI™ Compression	.086	2.2	.20	0.45	2.30	58.4	1.05	26.7	.625	15.9	.472	12.0
2M2A-C2L	1/8" Male NPT	1/8" A-LOK® Compression	.093	2.4	.22	0.46	2.03	51.6	1.05	26.7	.625	15.9	.438	11.1
2M2F-C2L	1/8" Male NPT	1/8" Female NPT	.125	3.2	.31	0.52	1.81	46.0	1.43	36.3	.625	15.9	-	-
2M2Z-C2L	1/8" Male NPT	1/8" CPI™ Compression	.093	2.4	.22	0.46	2.03	51.6	1.05	26.7	.625	15.9	.438	11.1
2F-C4L	1/8" Female NPT	1/8" Female NPT	.187	4.7	.75	0.53	2.01	51.1	-	-	.750	19.1	-	-
2M-C4L	1/8" Male NPT	1/8" Male NPT	.187	4.7	.75	0.53	1.82	46.2	1.06	26.9	.750	19.1	-	-
4A-C4L	1/4" A-LOK® Compression	1/4" A-LOK® Compression	.187	4.7	.75	0.53	2.42	61.5	1.03	26.2	.750	19.1	.563	14.3
4F-C4L	1/4" Female NPT	1/4" Female NPT	.187	4.7	.75	0.53	2.40	61.0	-	-	.750	19.1	-	-
4F5-C4L	1/4" Male SAE	1/4" Male SAE	.172	4.4	.66	0.52	2.02	51.3	1.15	29.2	.750	19.1	-	-
4G5-C4L	1/4" Female SAE	1/4" Female SAE	.172	4.4	.66	0.52	2.20	55.9	-	-	.750	19.1	-	-
4KF-C4L	1/4" Female BSP/ISO Tapered	1/4" Female BSP/ISO Tapered	.187	4.7	.75	0.53	2.40	61.0	-	-	.750	19.1	-	-
4KM-C4L	1/4" Male BSP/ISO Tapered	1/4" Male BSP/ISO Tapered	.281	4.7	.75	0.53	2.18	55.4	1.06	26.9	.750	19.1	-	-
4L-C4L	1/4" Seal-Lok®	1/4" Seal-Lok®	.172	4.4	.66	0.52	1.82	46.2	1.03	26.2	.750	19.1	-	-
4M-C4L	1/4" Male NPT	1/4" Male NPT	.187	4.7	.75	0.53	2.18	55.4	1.04	26.4	.750	19.1	-	-
4Q-C4L	1/4" UltraSeal	1/4" UltraSeal	.180	4.6	.72	0.53	1.97	50.0	1.04	26.4	.750	19.1	-	-
4V-C4L	1/4" VacuSeal	1/4" VacuSeal	.187	4.7	.75	0.53	2.22	56.4	.98	24.9	.750	19.1	-	-
4TA-C4L	1/4" Tube Adapter	1/4" Tube Adapter	.156	4.0	.58	0.52	2.35	59.7	1.07	27.2	.750	19.1	-	-
4Z-C4L	1/4" CPI™ Compression	1/4" CPI™ Compression	.187	4.7	.75	0.53	2.42	61.5	1.03	26.2	.750	19.1	.563	14.3
6A-C4L	3/8" A-LOK® Compression	3/8" A-LOK® Compression	.187	4.7	.75	0.53	2.55	64.8	1.03	26.2	.750	19.1	.688	17.5
6Z-C4L	3/8" CPI™ Compression	3/8" CPI™ Compression	.187	4.7	.75	0.53	2.55	64.8	1.03	26.2	.750	19.1	.688	17.5
M6A-C4L	6mm A-LOK® Compression	6mm A-LOK® Compression	.187	4.7	.75	0.53	2.43	61.7	1.03	26.2	.750	19.1	.551	14.0
M6Z-C4L	6mm CPI™ Compression	6mm CPI™ Compression	.187	4.7	.75	0.53	2.43	61.7	1.03	26.2	.750	19.1	.551	14.0
4M4A-C4L	1/4" Male NPT	1/4" A-LOK® Compression	.187	4.7	.75	0.53	2.29	58.2	1.02	25.9	.750	19.1	.563	14.3
4M4F-C4L	1/4" Male NPT	1/4" Female NPT	.187	4.7	.75	0.53	2.29	58.2	1.72	43.7	.750	19.1	-	-
4M4Z-C4L	1/4" Male NPT	1/4" CPI™ Compression	.187	4.7	.75	0.53	2.29	58.2	1.02	25.9	.750	19.1	.563	14.3
4M6A-C4L	1/4" Male NPT	3/8" A-LOK® Compression	.187	4.7	.75	0.53	2.35	59.7	1.02	25.9	.750	19.1	.688	17.5
4M6Z-C4L	1/4" Male NPT	3/8" CPI™ Compression	.187	4.7	.75	0.53	2.35	59.7	1.02	25.9	.750	19.1	.688	17.5
6A-C6L	3/8" A-LOK® Compression	3/8" A-LOK® Compression	.281	7.1	2.09	0.74	3.27	83.1	1.75	44.5	1.000	25.4	.688	17.5
6F-C6L	3/8" Female NPT	3/8" Female NPT	.359	9.1	2.26	0.77	3.03	77.0	-	-	1.000	25.4	-	-
6F5-C6L	3/8" Male SAE	3/8" Male SAE	.264	6.7	2.05	0.74	2.71	68.8	1.76	44.7	1.000	25.4	-	-
6G5-C6L	3/8" Female SAE	3/8" Female SAE	.264	6.7	2.05	0.74	2.96	75.2	-	-	1.000	25.4	-	-
6KF-C6L	3/8" Female BSP/ISO Tapered	3/8" Female BSP/ISO Tapered	.359	9.1	2.26	0.77	3.03	77.0	-	-	1.000	25.4	-	-
6KM-C6L	3/8" Male BSP/ISO Tapered	3/8" Male BSP/ISO Tapered	.359	9.1	2.26	0.77	2.96	75.2	1.84	46.7	1.000	25.4	-	-
6L-C6L	3/8" Seal-Lok®	3/8" Seal-Lok®	.264	6.7	2.05	0.74	2.65	67.3	1.77	45.0	1.000	25.4	-	-
6M-C6L	3/8" Male NPT	3/8" Male NPT	.359	9.1	2.26	0.77	2.96	75.2	1.82	46.2	1.000	25.4	-	-
6Q-C6L	3/8" UltraSeal	3/8" UltraSeal	.250	6.4	2.02	0.73	2.75	69.9	1.80	45.7	1.000	25.4	-	-
6TA-C6L	3/8" Tube Adapter	3/8" Tube Adapter	.281	7.1	2.09	0.74	3.24	82.3	1.80	45.7	1.000	25.4	-	-
6Z-C6L	3/8" CPI™ Compression	3/8" CPI™ Compression	.281	7.1	2.09	0.74	3.27	83.1	1.75	44.5	1.000	25.4	.688	17.5
8A-C6L	1/2" A-LOK® Compression	1/2" A-LOK® Compression	.359	9.1	2.26	0.77	3.55	90.2	1.81	46.0	1.000	25.4	.875	22.2
8Z-C6L	1/2" CPI™ Compression	1/2" CPI™ Compression	.359	9.1	2.26	0.77	3.55	90.2	1.81	46.0	1.000	25.4	.875	22.2
M8A-C6L	8mm A-LOK® Compression	8mm A-LOK® Compression	.250	6.4	2.02	0.73	3.33	84.6	1.87	47.5	1.000	25.4	.630	16.0
M8Z-C6L	8mm CPI™ Compression	8mm CPI™ Compression	.250	6.4	2.02	0.73	3.33	84.6	1.87	47.5	1.000	25.4	.630	16.0
M10A-C6L	10mm A-LOK® Compression	10mm A-LOK® Compression	.312	7.9	2.16	0.75	3.35	85.1	1.81	46.0	1.000	25.4	.748	19.0
M10Z-C6L	10mm CPI™ Compression	10mm CPI™ Compression	.312	7.9	2.16	0.75	3.35	85.1	1.81	46.0	1.000	25.4	.748	19.0
6M6A-C6L	3/8" Male NPT	3/8" A-LOK® Compression	.281	7.1	2.09	0.74	3.09	78.5	1.76	44.7	1.000	25.4	.688	17.5
6M6F-C6L	3/8" Male NPT	3/8" Female NPT	.359	9.1	2.26	0.77	2.95	74.9	2.38	60.5	1.000	25.4	-	-
6M6Z-C6L	3/8" Male NPT	3/8" CPI™ Compression	.281	7.1	2.09	0.74	3.09	78.5	1.76	44.7	1.000	25.4	.688	17.5
6M8A-C6L	3/8" Male NPT	1/2" A-LOK® Compression	.359	9.1	2.26	0.77	3.26	82.8	1.82	46.2	1.000	25.4	.875	22.2
6M8Z-C6L	3/8" Male NPT	1/2" CPI™ Compression	.359	9.1	2.26	0.77	3.26	82.8	1.82	46.2	1.000	25.4	.875	22.2

**Pressure Rating and Tubing Selection:** For working pressures of A-LOK® and CPI™ tube connections, please see the Instrument Tubing Selection Guide (Bulletin 4200-TS), found in the Technical Section of the Parker Instrumentation Products Master Binder, or the Parker Instrument Tube Fitting Installation Manual (Bulletin 4200-B4).

For working pressures of valves with external or internal pipe threads, please see Catalog 4260, Instrumentation Pipe Fittings.





Model Shown: 4Z-C4L-1-SS

## Flow Data/Dimensions (continued)

Basic Part Number	End Connections		Flow Data				Dimensions							
	(Inlet) Port 1	(Outlet) Port 2	Orifice		$C_v$	$x_T \ddagger$	A†		B		C		D	
			inch	mm			inch	mm	inch	mm	inch	mm		
8A-C8L	1/2" A-LOK® Compression	1/2" A-LOK® Compression	.423	10.7	3.30	0.77	4.08	103.6	2.34	59.4	1.250	31.8	.875	22.2
8F-C8L	1/2" Female NPT	1/2" Female NPT	.453	11.5	3.53	0.81	3.56	90.4	-	-	1.250	31.8	-	-
8F5-C8L	1/2" Male SAE	1/2" Male SAE	.378	9.6	2.96	0.71	3.45	87.6	2.34	59.4	1.250	31.8	-	-
8G5-C8L	1/2" Female SAE	1/2" Female SAE	.453	11.5	3.53	0.81	3.56	90.4	-	-	1.250	31.8	-	-
8KF-C8L	1/2" Female BSP/ISO Tapered	1/2" Female BSP/ISO Tapered	.453	11.5	3.53	0.81	3.56	90.4	-	-	1.250	31.8	-	-
8KM-C8L	1/2" Male BSP/ISO Tapered	1/2" Male BSP/ISO Tapered	.453	11.5	3.53	0.81	3.56	90.4	2.06	52.3	1.250	31.8	-	-
8L-C8L	1/2" Seal-Lok®	1/2" Seal-Lok®	.378	9.6	2.96	0.71	3.22	81.8	2.21	56.1	1.250	31.8	-	-
8M-C8L	1/2" Male NPT	1/2" Male NPT	.453	11.5	3.53	0.81	3.56	90.4	2.05	52.1	1.250	31.8	-	-
8Q-C8L	1/2" UltraSeal	1/2" UltraSeal	.375	9.5	2.93	0.71	3.28	83.3	2.33	59.2	1.250	31.8	-	-
8TA-C8L	1/2" Tube Adapter	1/2" Tube Adapter	.375	9.5	2.93	0.71	4.04	102.6	1.78	45.2	1.250	31.8	-	-
8V-C8L	1/2" VacuSeal	1/2" VacuSeal	.406	10.3	3.17	0.75	3.56	90.4	2.05	52.1	1.250	31.8	-	-
8Z-C8L	1/2" CPI™ Compression	1/2" CPI™ Compression	.423	10.7	3.30	0.77	4.08	103.6	2.34	59.4	1.250	31.8	.875	22.2
M12A-C8L	12mm A-LOK® Compression	12mm A-LOK® Compression	.375	9.5	2.93	0.71	4.06	103.1	2.34	59.4	1.250	31.8	.866	22.0
M12Z-C8L	12mm CPI™ Compression	12mm CPI™ Compression	.375	9.5	2.93	0.71	4.06	103.1	2.34	59.4	1.250	31.8	.866	22.0
8M8A-C8L	1/2" Male NPT	1/2" A-LOK® Compression	.423	10.7	3.30	0.77	3.82	97.0	2.19	55.6	1.250	31.8	.875	22.2
8M8F-C8L	1/2" Male NPT	1/2" Female NPT	.453	11.5	3.53	0.81	3.56	90.4	2.80	71.1	1.250	31.8	-	-
8M8Z-C8L	1/2" Male NPT	1/2" CPI™ Compression	.423	10.7	3.30	0.77	3.82	97.0	2.19	55.6	1.250	31.8	.875	22.2
12A-C12L	3/4" A-LOK® Compression	3/4" A-LOK® Compression	.594	15.1	6.01	0.38	4.34	110.2	2.60	66.0	1.375	34.9	1.125	28.6
12F-C12L	3/4" Female NPT	3/4" Female NPT	.594	15.1	6.01	0.38	4.09	103.9	-	-	1.375	34.9	-	-
12F5-C12L	3/4" Male SAE	3/4" Male SAE	.594	15.1	6.01	0.38	4.05	102.9	2.59	65.8	1.375	34.9	-	-
12G5-C12L	3/4" Female SAE	3/4" Female SAE	.594	15.1	6.01	0.38	4.09	103.9	-	-	1.375	34.9	-	-
12KF-C12L	3/4" Female BSP/ISO Tapered	3/4" Female BSP/ISO Tapered	.594	15.1	6.01	0.38	4.09	103.9	-	-	1.375	34.9	-	-
12KM-C12L	3/4" Male BSP/ISO Tapered	3/4" Male BSP/ISO Tapered	.594	15.1	6.01	0.38	4.09	103.9	2.59	65.8	1.375	34.9	-	-
12L-C12L	3/4" Seal-Lok®	3/4" Seal-Lok®	.594	15.1	6.01	0.38	3.78	96.0	2.44	62.0	1.375	34.9	-	-
12M-C12L	3/4" Male NPT	3/4" Male NPT	.594	15.1	6.01	0.38	4.09	103.9	2.58	65.5	1.375	34.9	-	-
12Q-C12L	3/4" UltraSeal	3/4" UltraSeal	.500	12.7	5.63	0.37	3.78	96.0	2.64	67.1	1.375	34.9	-	-
12TA-C12L	3/4" Tube Adapter	3/4" Tube Adapter	.594	15.1	6.01	0.38	4.24	107.7	2.18	55.4	1.375	34.9	-	-
12V-C12L	3/4" VacuSeal	3/4" VacuSeal	.594	15.1	6.01	0.38	4.64	117.9	2.64	67.1	1.375	34.9	-	-
12Z-C12L	3/4" CPI™ Compression	3/4" CPI™ Compression	.594	15.1	6.01	0.38	4.34	110.2	2.60	66.0	1.375	34.9	1.125	28.6
M20A-C12L	20mm A-LOK® Compression	20mm A-LOK® Compression	.594	15.1	6.01	0.38	4.32	109.7	2.56	65.0	1.375	34.9	1.260	32.0
M20Z-C12L	20mm CPI™ Compression	20mm CPI™ Compression	.594	15.1	6.01	0.38	4.32	109.7	2.56	65.0	1.375	34.9	1.260	32.0
M22A-C12L	22mm A-LOK® Compression	22mm A-LOK® Compression	.594	15.1	6.01	0.38	4.30	109.2	2.56	65.0	1.375	34.9	1.260	32.0
M22Z-C12L	22mm CPI™ Compression	22mm CPI™ Compression	.594	15.1	6.01	0.38	4.30	109.2	2.56	65.0	1.375	34.9	1.260	32.0
12M12A-C12L	3/4" Male NPT	3/4" A-LOK® Compression	.594	15.1	6.01	0.38	4.22	107.2	2.59	65.8	1.375	34.9	1.125	28.6
12M12F-C12L	3/4" Male NPT	3/4" Female NPT	.594	15.1	6.01	0.38	4.09	103.9	3.34	84.8	1.375	34.9	-	-
12M12Z-C12L	3/4" Male NPT	3/4" CPI™ Compression	.594	15.1	6.01	0.38	4.22	107.2	2.59	65.8	1.375	34.9	1.125	28.6
16A-C16L	1" A-LOK® Compression	1" A-LOK® Compression	.656	16.7	6.56	0.27	4.63	117.6	2.53	64.3	1.625	41.3	1.500	38.1
16F-C16L	1" Female NPT	1" Female NPT	.656	16.7	6.56	0.27	4.84	122.9	-	-	1.625	41.3	-	-
16F5-C16L	1" Male SAE	1" Male SAE	.656	16.7	6.56	0.27	4.10	104.1	2.64	67.1	1.625	41.3	-	-
16G5-C16L	1" Female SAE	1" Female SAE	.656	16.7	6.56	0.27	4.84	122.9	-	-	1.625	41.3	-	-
16KF-C16L	1" Female BSP/ISO Tapered	1" Female BSP/ISO Tapered	.656	16.7	6.56	0.27	4.84	122.9	-	-	1.625	41.3	-	-
16KM-C16L	1" Male BSP/ISO Tapered	1" Male BSP/ISO Tapered	.656	16.7	6.56	0.27	4.52	114.8	2.64	67.1	1.625	41.3	-	-
16M-C16L	1" Male NPT	1" Male NPT	.656	16.7	6.56	0.27	4.52	114.8	2.63	66.8	1.625	41.3	-	-
16L-C16L	1" Seal-Lok®	1" Seal-Lok®	.656	16.7	6.56	0.27	3.83	97.3	2.45	62.2	1.625	41.3	-	-
16TA-C16L	1" Tube Adapter	1" Tube Adapter	.656	16.7	6.56	0.27	5.11	129.8	2.52	64.0	1.625	41.3	-	-
16Z-C16L	1" CPI™ Compression	1" CPI™ Compression	.656	16.7	6.56	0.27	4.63	117.6	2.53	64.3	1.625	41.3	1.500	38.1
M25A-C16L	25mm A-LOK® Compression	25mm A-LOK® Compression	.656	16.7	6.56	0.27	4.74	120.4	2.64	67.1	1.625	41.3	1.496	38.0
M25Z-C16L	25mm CPI™ Compression	25mm CPI™ Compression	.656	16.7	6.56	0.27	4.74	120.4	2.64	67.1	1.625	41.3	1.496	38.0
16M16A-C16L	1" Male NPT	1" A-LOK® Compression	.656	16.7	6.56	0.27	4.58	116.3	2.59	65.8	1.625	41.3	1.500	38.1
16M16F-C16L	1" Male NPT	1" Female NPT	.656	16.7	6.56	0.27	4.68	118.9	3.73	94.7	1.625	41.3	-	-
16M16Z-C16L	1" Male NPT	1" CPI™ Compression	.656	16.7	6.56	0.27	4.58	116.3	2.59	65.8	1.625	41.3	1.500	38.1

†For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

‡Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = x_T$ .

## How to Order

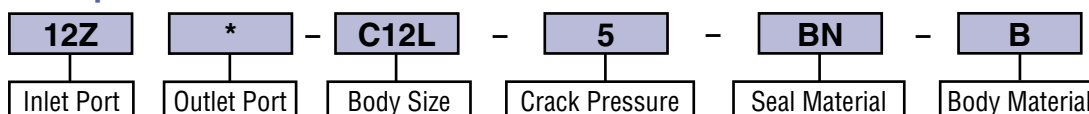
The correct part number is easily derived from the following sequence. The six product characteristics required are coded as shown below.

**\*Note:** If the inlet and outlet ports are the same, eliminate the outlet port designator.

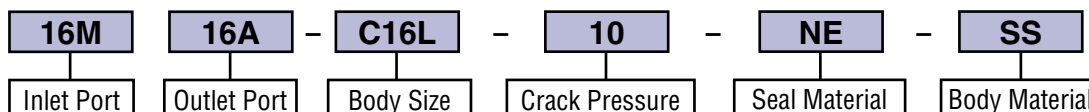
Inlet Port	Outlet Port	Body Size	Crack Pressure	Seal Material	Body Material
2A, 2F, 2F5, 2G5, 2KF, 2KM, 2M, 2TA, 2Z, M3A, M3Z	2A, 2F, 2F5, 2G5, 2KF, 2KM, 2M, 2TA, 2Z, M3A, M3Z	C2L	1/3 psi 1 psi	Blank - Fluorocarbon Rubber	B - Brass
4A, 4F, 4F5, 4G5, 4KF, 4KM, 4L, 4M, 4Q, 4TA, 4V, 4Z, M6A, M6Z	4A, 4F, 4F5, 4G5, 4KF, 4KM, 4L, 4M, 4Q, 4TA, 4V, 4Z, M6A, M6Z	C4L	5 psi 10 psi	BN - Nitrile	SS - 316 Stainless Steel
6A, 6F, 6F5, 6G5, 6KF, 6KM, 6L, 6M, 6Q, 6TA, 6Z, M8A, M8Z, M10A, M10Z	6A, 6F, 6F5, 6G5, 6KF, 6KM, 6L, 6M, 6Q, 6TA, 6Z, M8A, M8Z, M10A, M10Z	C6L	25 psi 50 psi	EPR - Ethylene Propylene Rubber	
8A, 8F, 8F5, 8G5, 8KF, 8KM, 8L, 8M, 8Q, 8TA, 8V, 8Z, M12A, M12Z	8A, 8F, 8F5, 8G5, 8KF, 8KM, 8L, 8M, 8Q, 8TA, 8V, 8Z, M12A, M12Z	C8L	75 psi 100 psi	NE - Neoprene Rubber	
12A, 12F, 12F5, 12G5, 12KF, 12KM, 12L, 12M, 12Q, 12TA, 12V, 12Z, M20A, M20Z, M22A, M22Z	12A, 12F, 12F5, 12G5, 12KF, 12KM, 12L, 12M, 12Q, 12TA, 12V, 12Z, M20A, M20Z, M22A, M22Z	C12L		*T - PTFE  **KZ - Highly Fluorinated Fluorocarbon Rubber	
16A, 16F, 16F5, 16G5, 16KF, 16KM, 16L, 16M, 16TA, 16Z, M25A, M25Z	16A, 16F, 16F5, 16G5, 16KF, 16KM, 16L, 16M, 16TA, 16Z, M25A, M25Z	C16L			

\* Only available with stainless steel valves. \*\* Not available on C2 series.

## Examples:



Describes a C Series Check Valve with 3/4" CPI™ compression inlet and outlet ports, a 5 psi cracking pressure, nitrile seal and brass body construction.



Describes an C Series Check Valve with a 1" male NPT inlet port and a 1" A-LOK® outlet port, a 10 psi cracking pressure, neoprene seal and stainless steel body construction.

## Options

**Oxygen Cleaning** – Add the suffix **-C3** to the end of the part number to receive filters cleaned and assembled for oxygen service in accordance with Parker specification ES8003. **Example:** 4A-C4L-1-BN-SS-C3

**Laser Weld** – Add the suffix **-LW** to the end of the part number to receive tamper-resistant stainless steel filters. **Example:** 2F-C2L-1-SS-LW

**NGV Certification** – To receive valves approved and certified by CSA America, Inc, ECE R110, and ISO 15500 for use on natural gas vehicles, please contact the Instrumentation Products Division or your local authorized Parker distributor.

## Available End Connections

**A** - Two ferrule A-LOK® compression port



**M** -ANSI/ASME B1.20.1 External pipe threads



**TA** -Tube adapter connection



**L** -SAE J1453, Fitting – O-ring face seal – External thread with O-ring groove designed to seal with an elastomer against a sleeve



**Z** -Single ferrule CPI™ compression port



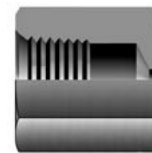
**Q** -UltraSeal face seal port



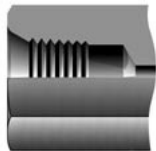
**F5** -SAE J1926/2, Part 2: Heavy-duty (S Series) stud ends



**KF** -British Standard BS 21 (ISO 7-1), Internal pipe threads



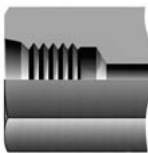
**F** -ANSI/ASME B1.20.1 Internal pipe threads



**V** -VacuSeal face seal port



**G5** -SAE J1926/1, Part 1: Threaded port with O-ring seal in truncated housing



**KM** -British Standard BS 21 (ISO 7-1), External pipe threads



## Kit Information

To order repair kits for the C Series Check Valves simply fill in the designators from the chart below.

Size	Crack Pressure	Seat Material
C2	1/3	<b>V</b> - Fluorocarbon
C4	1	Rubber
C6	5	<b>BN</b> - Nitrile
C8	10	<b>EPR</b> - Ethylene Propylene Rubber
C12	25	
C16	50	
	75	<b>NE</b> - Neoprene Rubber
	100	<b>T</b> - PTFE
		<b>KZ</b> - Highly Fluorinated Fluorocarbon

Examples: **KIT-C8-10-V**  
**KIT-C16-100-BN**



**Check Valve Kits Contain:**  
Seat  
Spring  
Instructions

### ! WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

### Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale" located in Catalog 4110-U Needle Valves (U Series).



# Lift Check Valve

Bulletin 4130-LC  
May 2003



## Introduction

Parker's LC-Series Lift Check Valve has been designed for a wide variety of temperature extremes found in power, chemical, petrochemical, oil & gas, and laboratory applications. The LC-Series, ideal for liquid service, has been designed to prevent flow in the reverse direction to within 99.9% of forward flow. The gravity assisted poppet uses back pressure to achieve a seal.

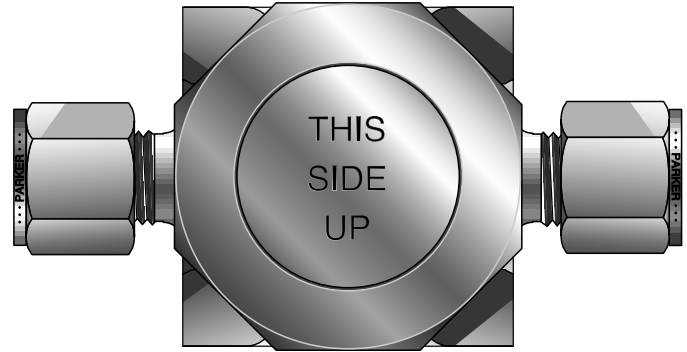
# Lift Check Valve

## Features

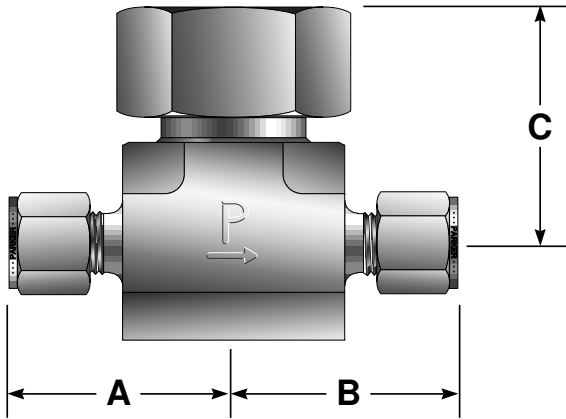
- Wide temperature range
- Variety of end connections available
- Compact design
- Rugged, forged body construction
- Stainless steel construction

## Specifications

- **Pressure Rating:**  
6000 psig (413 bar) CWP
- **Temperature Rating:**  
-100 °F to 900 °F (-148 °C to 482 °C)
- **Flow Data:**  
LC6 Series  
     $C_v$  .63     $X_i$  .47  
LC12 Series  
     $C_v$  1.20    $X_i$  .63  
LC16 Series  
     $C_v$  2.29    $X_i$  .65



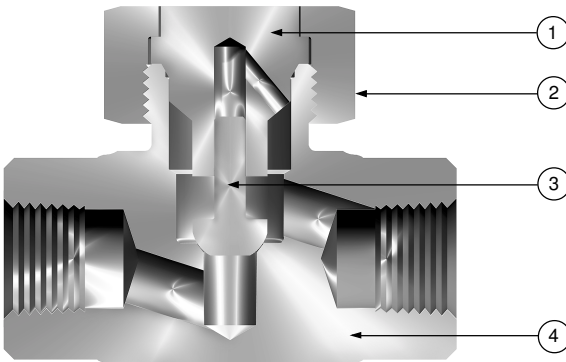
**Note:** Valve must be mounted in proper orientation.



## Part Number / Dimensions

Part #	Size/Connection	A	B	C	Bonnet Hex
2F-LC6L-SS	1/8" Female NPT	1.00 (25.4)	1.00 (25.4)	1.34 (34.0)	15/16 (23.8)
4Z-LC6L-SS	1/4" CPI™	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4A-LC6L-SS	1/4" A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC6L-SS	1/4" Female NPT	1.03 (26.2)	1.03 (26.2)	1.34 (34.0)	15/16 (23.8)
4A4F-LC6L-SS	1/4" A-LOK® x 1/4" Female	1.38 (35.1)	1.03 (26.2)	1.34 (34.0)	15/16 (23.8)
M6A-LC6L-SS	6mm A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC12L-SS	1/4" Female NPT	1.13 (28.7)	1.13 (28.7)	1.50 (38.1)	1-1/4 (31.8)
6Z-LC12L-SS	3/8" CPI™	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
6A-LC12L-SS	3/8" A-LOK®	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
8F-LC16L-SS	1/2" Female NPT	1.56 (39.6)	1.56 (39.6)	1.86 (47.2)	1-1/2 (38.1)
8Z-LC16L-SS	1/2" CPI™	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)
8A-LC16L-SS	1/2" A-LOK®	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)

For CPI™ and A-LOK®, dimensions are measured with nuts in the finger-tight position. Metric dimensions are noted by ( ).



## Materials of Construction

Item #	Description	Material
1	Poppet Guide	ASTM A 479, TYPE 316
2	Bonnet Nut	ASTM A 479, TYPE 316
3	Poppet	ASTM A 564, TYPE 630
4	Valve Body	ASTM A 182, TYPE F316

LC16 Series utilizes a nickel-chromium-iron alloy bonnet seal.



Bulletin 4130-LC, 2M, KG, 05/03

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[www.parker.com/ivd](http://www.parker.com/ivd)

Bulletin 4135-ST  
May 2002

## Features

- Compact design
- In-line flow path
- Quick response to temperature changes
- High repeatability and accuracy
- Excellent particulate handling capability
- No steam loss during operation

## Operating Parameters

- Set Point Temperature: 220 °F (104 °C)
- Maximum Temperature: 365 °F (185 °C)
- Operating Pressure: 0 - 150 psig (0 - 10 bar)
- Maximum condensate removal capacity:
  - 3100 lb/hr (1407 kg/hr) @ 50 psig (3 bar)
  - 4500 lb/hr (2042 kg/hr) @ 100 psig (7 bar)

Condensate capacities are at the specified full open set point temperature and below

## How it Works

A thermal phase change material responds to the temperatures of steam and condensate to open or close the trap.

- The standard position of the trap is open, allowing warm condensate to drain
- As hot condensate begins to pass through the trap it closes to prevent steam from escaping
- Once the accumulated hot condensate cools the trap again opens, repeating the process

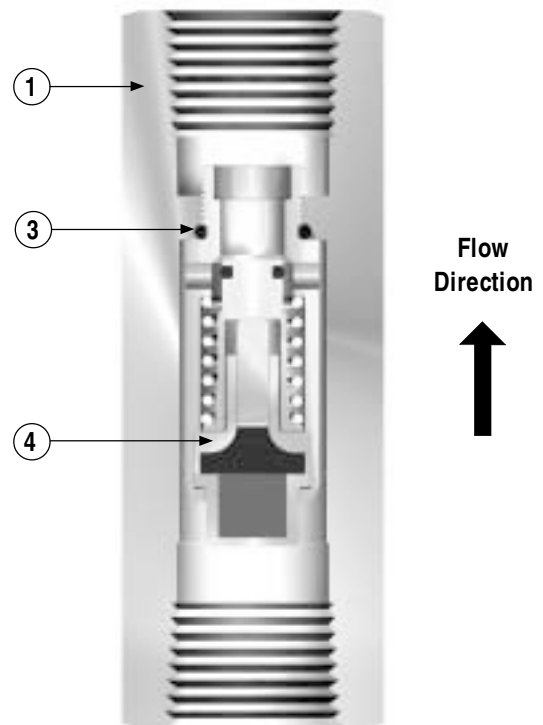
## Materials of Construction

No.	Part Description	Material
1	Body	ASTM A 276, Type 316
2	End Connector (if used)	ASTM A 276, Type 316
3	O-Rings	Optional Elastomers
4	Engine Housing Seals Interior	ASTM B16, Alloy C36000 Optional Elastomers Thermal Phase Change Material

Lubrication: Silicone Paste



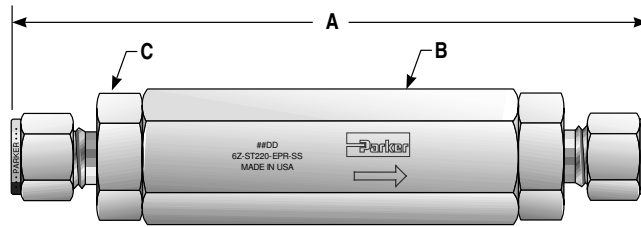
Model Shown: 8F-ST220-EPR-SS



Steam Trap shown in the open position



# Automatic Steam Trap



## Dimensions

Basic Part Number	A Inch (mm)	B (Hex) Inch (mm)	C (Hex) Inch (mm)
8F-ST220	3.39 (86.1)	1.06 (27.0)	1.06 (27.0)
4A-ST220	5.59 (142.0)	1.06 (27.0)	1.06 (27.0)
6A-ST220	5.76 (146.3)	1.06 (27.0)	1.06 (27.0)
8A-ST220	5.94 (150.9)	1.06 (27.0)	1.06 (27.0)
4Z-ST220	5.59 (142.0)	1.06 (27.0)	1.06 (27.0)
6Z-ST220	5.76 (146.3)	1.06 (27.0)	1.06 (27.0)
8Z-ST220	5.94 (150.9)	1.06 (27.0)	1.06 (27.0)
10G5-ST220	3.39 (86.1)	1.06 (27.0)	1.06 (27.0)

## How to Order

The correct part number is easily derived from the following number sequence. The six product characteristics required are coded as shown below. \*Note: If the inlet and outlet ports are the same, eliminate the outlet port designator.

**Example:**    **8Z**    **\***    -    **ST**       **220**    -    **BN**    -    **SS**  
                   ①    ②                    ③                    ④                    ⑤                    ⑥  
**Inlet Port**    **Outlet Port**                    **Series**                    **Set Point Temperature**                    **Seal Material**                    **Body Material**

Describes a ST Series Steam Trap with 1/2" CPI™ compression inlet and outlet ports, Buna-N seals and stainless steel body construction.

1 / 2 End Connections Inlet / Outlet	3 Valve Series	4 Set Point Temperature	5 Seal Material	6 Body Material
8F - 1/2" Female NPT	ST	220 (220 °F / 104 °C)	V - Fluorocarbon Rubber	SS (Stainless Steel)
4A - 1/4" A-LOK® Compression			BN - Buna-N Rubber	
6A - 1/4" A-LOK® Compression			EPR - Ethylene Propylene Rubber	
8A - 1/4" A-LOK® Compression			NE - Neoprene Rubber	
4Z - 1/4" CPI™ Compression			KZ - Highly Fluorinated Fluorocarbon Rubber	
6Z - 1/4" CPI™ Compression				
8Z - 1/4" CPI™ Compression				
10G5 - 5/8" SAE J1926/1				

Note: For additional end connections, contact your Parker Distributor.

## Installation

- The flow arrow on the steam trap must be directed away from the origin of the steam
- For best performance, do not insulate the steam trap



Bulletin 4135-ST, 10M, 05/02

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**TECNI-AR**  
Seu caminho  
Para automação

# Bleed / Purge Valves (BV & PG Series)

*Catalog 4133-BP  
Revised, June 2005*



**TECNI-AR**  
Seu Caminho  
Para Automação

TECNI-AR Ltda  
[www.tecni-ar.com.br](http://www.tecni-ar.com.br)  
Tel: (31)3362-2400

## Introduction

Parker BV Series Bleed Valves are designed for use on products such as multi-valve manifolds or gauge/root valves. Functionally, the valve vents line pressure either to atmosphere or to containment when used with the optional barbed vent tube. Generally, bleed valves are used whenever an instrument is removed from a system or to assist in the calibration of control devices. The BV Series is also recommended for use in bleeding hydraulic systems.

## Features

- Available in stainless steel, carbon steel and Alloy N24135
- Vent tube directs excess gas or liquid from system lines
- Chrome plated stem provides extended cycle life with improved sealability
- Positive stop/vent tube design prevents accidental removal of the stem
- Compact design
- Wrench actuation
- Available in a variety of end configurations including male pipe and SAE ports
- 100% factory tested
- Barbed vent tube option enables containment of vented media
- Optional T-bar handle for wrench-less actuation

## Specifications

### Pressure Rating:

10,000 psig (689 bar) CWP

### Temperature Rating:

Stainless Steel:

-65°F to 850°F (-54°C to 454°C)

Carbon Steel:

-20°F to 450°F (-29°C to 232°C)

Alloy N24135 (400):

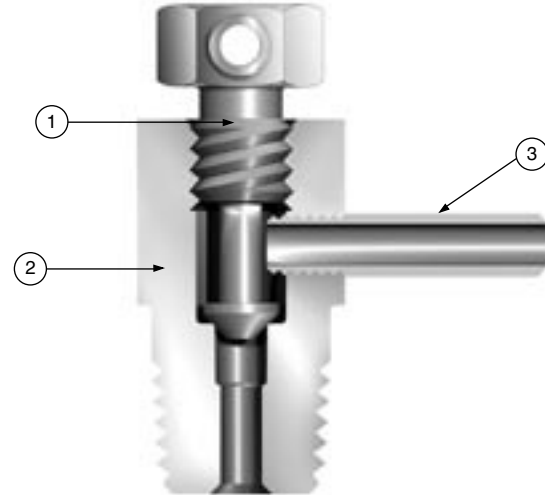
-65°F to 500°F (-54°C to 260°C)

## Flow Data

$C_v = 0.13$ ;  $x_T = 0.53$ ; Orifice = 0.125" (3.2mm).  
Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = x_T$

## Caution

These valves do not have a stem seal. It is imperative to open the valve slowly and direct the vent tube away from persons operating or near the valve. Because of the absence of a stem seal, small amounts of media will flow through the stem thread area when the valves are opened.



Model Shown: 4M-BV4-SS

## Materials of Construction

Item #	Part	Stainless Steel	Carbon Steel	Alloy 400
1	Stem	ASTM A 479, Type 316		ASTM B 164
2	Valve Body	ASTM A 479, Type 316	ASTM A 108, Grade 12L14	ASTM B 164
3	Vent Tube	316 SS		ASTM B 164

Lubrication: Molybdenum disulfide with soft metallic fillers

## Available Purge Valve End Connections

**Z**-Single ferrule CPI™ compression port



**A**-Two ferrule A-LOK® compression port



**M**-ANSI/ASME B1.20.1, External pipe threads



**F**-ANSI/ASME B1.20.1, Internal pipe threads



**F5**-SAE J1926/2 Part 2: Heavy-duty (S Series) stud ends



**TA**-Tube adapter connection





## Introduction

Parker PG Series Purge Valves may be utilized as either bleed, purge, or drain valves. The compact valve requires only a quarter turn with a wrench from finger-tight to ensure a leak-tight seal on the first make-up. Additional wrenching ensures a leak-tight seal up to the rated pressure.

## Features

- A 0.055 inch (1.4 mm) diameter vent hole in the cap bleeds, drains, or purges system pressure
- Hex cap permits finger-tight or wrench assisted closure
- Crimped cap resists accidental disassembly
- A variety of body styles offers system design flexibility, reduced space requirements, and helps to eliminate leak paths
- Available in a variety of end configurations including: CPI™, A-LOK®, male and female NPT, SAE, and Tube Adapter connections
- 100% factory tested
- Optional PTFE Ball requires only finger-tight torque to achieve a leak-tight seal

## Specifications

### Temperature Rating:

Stainless Steel:

-65°F to 600°F (-54°C to 316°C)

Brass:

-65°F to 400°F (-54°C to 204°C)

Carbon Steel:

-20°F to 350°F (-29°C to 177°C)

PTFE Ball Option:

-65°F to 350°F (-54°C to 177°C)

### Pressure Rating:

Stainless Steel: 4000 psig (276 bar) CWP

Brass: 3000 psig (207 bar)

Carbon Steel: 3000 psig (207 bar)

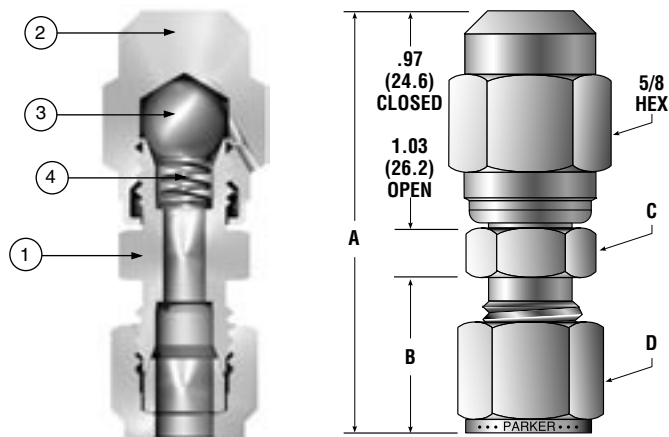
PTFE Ball Option: 200 psig (14 bar)

## Caution

These valves do not have a cap thread seal. It is imperative to open the valve slowly and direct the vent hole away from persons operating or near the valve. Because of the absence of a cap seal, small amounts of media will flow through the cap thread area when the valves are opened.

### PTFE Ball Option

Purge Valves with the PTFE ball option require only finger-tight operation for leak-tight shut-off and are designed with a removable cap for ball replacement.



Models Shown: 4Z-PG4L-SS

( ) Denotes dimensions in millimeters

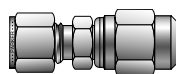
## Materials of Construction

Item #	Part	Stainless Steel	Brass	Carbon Steel
1	Body	ASTM A 479, Type 316	ASTM B 16, Alloy C36000	ASTM A 108, Grade 12L14
2	Cap	ASTM A 479, Type 316	ASTM B 16, Alloy C36000	ASTM A 108, Grade 12L14
3	Ball	316 Stainless Steel*		
4	Spring	316 Stainless Steel		

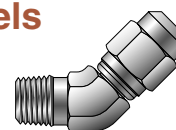
\* Optional PTFE Ball available

Lubrication: Molybdenum disulfide with soft metallic fillers

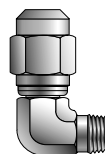
## Available Purge Valve Models



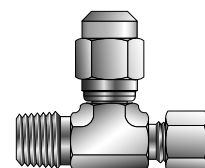
Straight (L)



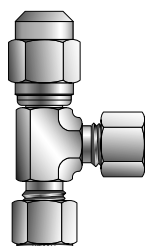
45° Elbow (E)



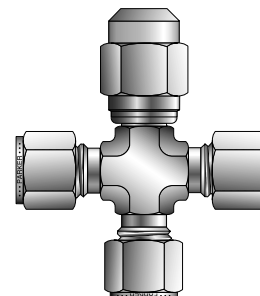
90° Elbow (A)



Inline Tee (TL)



Angle Tee (TA)



Union (U)

## Dimensions

End Connections	A* (Closed)		B*		C (hex)		D (hex)	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm
<b>2A</b> - 1/8" A-LOK® Compression	1.79	45.5	0.60	15.2	0.50	12.7	0.44	11.2
<b>2Z</b> - 1/8" CPI™ Compression	1.79	45.5	0.60	15.2	0.50	12.7	0.44	11.2
<b>2M</b> - 1/8" Male NPT	1.56	39.6	0.38	9.7	0.50	12.7	-	-
<b>2F</b> - 1/8" Female NPT	1.50	38.1	0.53	13.5	0.56	14.2	-	-
<b>2TA</b> - 1/8" Tube Adapter	1.69	42.9	0.55	14.0	0.50	12.7	-	-
<b>4A</b> - 1/4" A-LOK® Compression	1.88	47.8	0.70	17.8	0.50	12.7	0.56	14.2
<b>4Z</b> - 1/4" CPI™ Compression	1.88	47.8	0.70	17.8	0.50	12.7	0.56	14.2
<b>4M</b> - 1/4" Male NPT	1.76	44.7	0.56	14.2	0.56	14.2	-	-
<b>4F</b> - 1/4" Female NPT	1.69	42.9	0.72	18.3	0.75	19.1	-	-
<b>4F5</b> - 1/4" Male SAE	1.78	45.2	0.41	10.4	0.75	19.1	-	-
<b>4TA</b> - 1/4" Tube Adapter	<b>1.91</b>	<b>48.5</b>	<b>0.72</b>	<b>18.3</b>	<b>0.50</b>	<b>12.7</b>	-	-
<b>6A</b> - 3/8" A-LOK® Compression	1.98	50.3	0.76	19.3	0.63	16.0	0.69	17.5
<b>6Z</b> - 3/8" CPI™ Compression	1.98	50.3	0.76	19.3	0.63	16.0	0.69	17.5
<b>6M</b> - 3/8" Male NPT	1.78	45.2	0.56	14.2	0.69	17.5	-	-
<b>6F</b> - 3/8" Female NPT	1.75	44.5	0.78	19.8	0.88	22.4	-	-
<b>6TA</b> - 3/8" Tube Adapter	1.97	50.0	0.78	19.8	0.50	12.7	-	-
<b>M6A</b> - 6mm A-LOK® Compression	1.88	47.8	0.70	17.8	0.55	14.0	0.55	14.0
<b>M6Z</b> - 6mm CPI™ Compression	1.88	47.8	0.70	17.8	0.55	14.0	0.55	14.0
<b>8A</b> - 1/2" A-LOK® Compression	2.12	53.8	0.87	22.1	0.81	20.6	0.88	22.4
<b>8Z</b> - 1/2" CPI™ Compression	2.12	53.8	0.87	22.1	0.81	20.6	0.88	22.4
<b>8M</b> - 1/2" Male NPT	2.03	51.6	0.75	19.1	0.88	22.4	-	-
<b>8F</b> - 1/2" Female NPT	1.94	49.3	0.97	24.6	1.06	26.9	-	-
<b>8F5</b> - 1/2" Male SAE	2.08	52.8	0.47	11.9	1.13	28.7	-	-
<b>8TA</b> - 1/2" Tube Adapter	2.22	56.4	1.03	26.2	0.56	14.2	-	-
<b>M8A</b> - 8mm A-LOK® Compression	1.97	50.0	0.75	19.1	0.63	16.0	0.63	16.0
<b>M8Z</b> - 8mm CPI™ Compression	1.97	50.0	0.75	19.1	0.63	16.0	0.63	16.0

\* For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

## How to Order Purge Valves

The correct part number is easily derived from the following number sequence. The seven product characteristics required are coded as shown below. Note: If the ports are the same, only specify one end connection.

Example: 2M - PG4 A - SS - T  
 (1)(2)(3) (4) (5) (6) (7)

Describes a stainless steel, 90° angle body PG4 Purge Valve with a 1/8" male NPT port configuration and a PTFE Ball.

End Connection (1) (2) (3)	Valve Series (4)	Body Type (5)	Material (6)	Ball (7)
2A, 2Z, 2F, 2M, 2TA	PG4	L - Straight	SS - Stainless Steel	Blank- Stainless Steel
4A, 4Z, 4F, 4F5*, 4M, 4TA		A - 90° Elbow		
6A, 6Z, 6F, 6M 6TA, M6A, M6Z		E - 45° Elbow	B - Brass	T- PTFE
8A, 8Z, 8F, 8F5*, 8TA 8M, M8A, M8Z		TL - Tee with inline flow		
		TA - Tee with angle flow	S - Carbon Steel	
		U - Union		

\* NOTE: Male SAE port will be supplied with a fluorocarbon rubber O-ring seal by adding O after F5; i.e., 4F5O.

Oxygen cleaning: Add the suffix **-C3** to the end of the part number to receive valves cleaned for oxygen service per IVD Specification ES8003.

### ⚠ WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

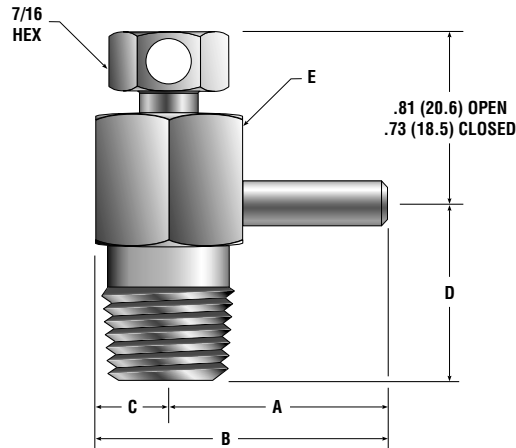
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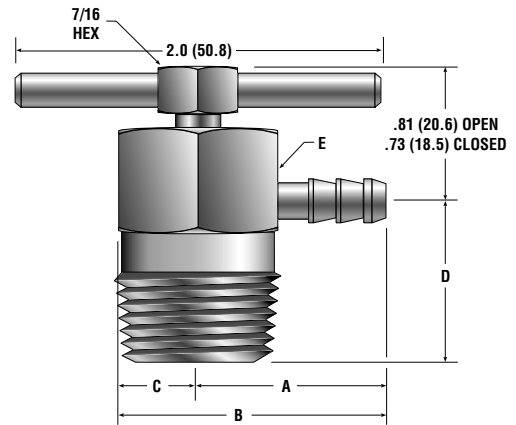
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The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale" located in Catalog 4110-U Needle Valves (U Series).

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Model Shown: **4M-BV4-SS**



Model Shown: **8M-BV8-SS-BVT-T**

( ) Denotes dimensions in millimeters

**Dimensions**

Basic Part Number	Inlet	Outlet	Dimensions									
			A		B		C		D		E (hex)	
			Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
2M-BV4	1/8" Male NPT	3/16" O.D. Tube Stub	0.94	23.88	1.24	31.50	0.31	7.87	0.75	19.05	0.63	16.00
4M-BV4	1/4" Male NPT		0.94	23.88	1.24	31.50	0.31	7.87	0.75	19.05	0.63	16.00
4KM-BV4	1/4" Male BSP		0.94	23.88	1.24	31.50	0.31	7.87	0.75	19.05	0.63	16.00
4F5-BV4	1/4" Male SAE		0.94	23.88	1.24	31.50	0.31	7.87	0.69	17.53	0.63	16.00
6M-BV8	3/8" Male NPT		1.03	26.16	1.49	37.85	0.44	11.18	0.88	22.35	0.88	22.35
8M-BV8	1/2" Male NPT		1.03	26.16	1.49	37.85	0.44	11.18	0.88	22.35	0.88	22.35
8F5-BV8	1/2" Male SAE		1.03	26.16	1.49	37.85	0.44	11.18	0.88	22.35	0.88	22.35

**How to Order Bleed Valves**

The correct part number is easily derived by following the circled number sequence. The five product characteristics required are coded as shown below.

**Example:** 4M - BV4 - SS - BVT -       
 ①                      ②                      ③                      ④                      ⑤

Describes a stainless steel BV4 Bleed Valve with a 1/4" male NPT inlet and a barbed vent tube outlet.

End Connection ①	Valve Series ②	Material ③	Vent Selection ④	Handle Option ⑤
2M 4KM 4M 4F5*	BV4	SS - Stainless Steel	Blank - Vent Tube	Blank - No Handle T - Tee Bar Handle
6M 8M 8F5*	BV8	M - Alloy N24135	BVT - Barbed Vent Tube	

\* Note: Male SAE port will be supplied with a fluorocarbon rubber O-ring by adding O after F5; i.e., 4F5O.

**Available Bleed Valve End Connections**

**M-ANSI/ASME B1.20.1,**  
External pipe threads

**F5-SAE J1926/2 Part 2:**  
Heavy-duty (S Series)  
stud ends

**KM-British Standard**  
BS21 (ISO 7-1),  
External pipe threads





**TECNI-AR**  
Seu caminho  
Para automação

# Relief Valves (RL4 Series)

Catalog 4131-RL  
Revised, April 2005



**TECNI-AR**  
Seu Caminho  
Para Automação

TECNI-AR Ltda  
[www.tecni-ar.com.br](http://www.tecni-ar.com.br)  
Tel: (31)3362-2400



## RL4 Series Relief Valve

### Introduction

Parker RL4 Relief Valves are designed such that when the upstream pressure exceeds the closing force exerted by the spring, the lower stem opens, permitting flow through the valve. Flow through the valve increases proportionately to the increase in upstream pressure.

### Features

- ▶ Pressure settings are externally adjustable while the valve is in operation. Seven different spring ranges provide greater system sensitivity and enhanced performance.
- ▶ Manual override option with positive stem retraction is available for the full working pressures range. This option permits the user to relieve upstream pressure while maintaining the predetermined cracking pressure.
- ▶ Color coded springs and labels indicate spring cracking range.
- ▶ Back pressure has minimum effect on cracking pressure.
- ▶ Lock wire feature secures a given pressure setting.

### Available End Connections

**Z** - Single ferrule CPITM compression port



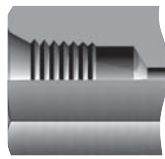
**A** - Two ferrule A-LOK® compression port



**M** - ANSI/ASME B1.20.1, External pipe threads



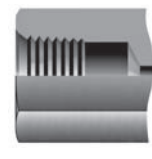
**F** - ANSI/ASME B1.20.1, Internal pipe threads



**KM** - British Standard BS21 (ISO 7-1), External pipe threads



**KF** - British Standard BS21 (ISO 7-1), Internal pipe threads



### Specifications

#### Working pressure:

Up to 400 psig (28 bar) CWP

Up to 600 psig (41 bar) during relief with no internal seal damage.

#### Cracking pressure:

Seven springs with the following ranges:

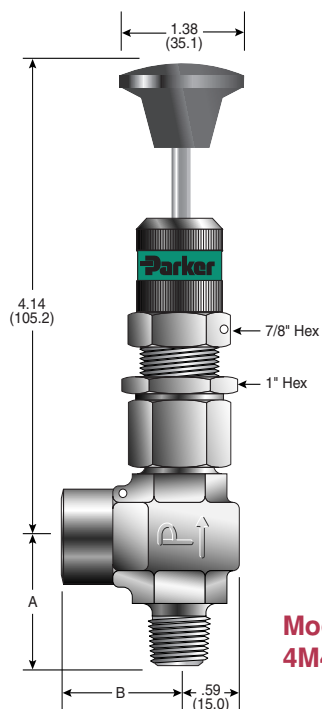
10-25 psig (0.7-1.7 bar)	25-50 psig (1.7-3.4 bar)	50-100 psig (3.4-6.9 bar)
100-150 psig (6.9-10.3 bar)	150-225 psig (10.3-15.5 bar)	225-400 psig (15.5-27.6 bar)
10-225 psig (0.7-15.5 bar)		

#### Temperature Rating:

Nitrile Rubber .....	-30°F to 225°F (-34°C to 107°C)
Highly Fluorinated Fluorocarbon Rubber.....	-20°F to 200°F (-29°C to 93°C)
Ethylene Propylene Rubber.....	-70°F to 275°F (-57°C to 135°C)
Fluorocarbon Rubber.....	-10°F to 400°F (-23°C to 204°C)
Neoprene Rubber.....	-45°F to 250°F (-43°C to 121°C)

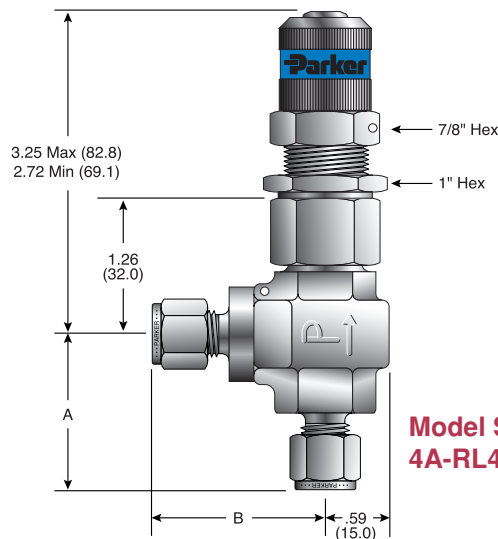
### Flow Calculations

Inlet Pressure		Pressure Drop ΔP		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
psig	bar	psig	bar	gpm	m <sup>3</sup> /hr	scfm	m <sup>3</sup> /hr
100	6.9	1	0.1	0.8	0.2	8.0	12.7
		10	0.7	2.4	0.5	24.2	38.2
		50	3.4	5.3	1.2	44.7	68.2
200	13.8	10	0.7	2.4	0.5	33.8	55.4
		50	3.4	5.3	1.2	68.7	111.2
		100	6.9	7.5	1.7	85.0	136.8
300	20.7	100	6.9	7.5	1.7	112.2	184.9
		150	10.3	9.2	2.1	125.2	205.0
		200	13.8	10.6	2.4	130.4	212.2
400	27.6	150	10.3	9.2	2.1	153.9	255.1
		200	13.8	10.6	2.4	165.4	273.6
		250	17.2	11.9	2.7	171.1	281.9



**Model Shown:  
4M4F-RL4A-VT-SS-MN-KD**

( ) Denotes dimensions in millimeters



**Model Shown:  
4A-RL4A-BNT-SS-KC**

## Flow Data and Dimensions

Basic Part Number	End Connections		Flow Data				Dimensions †			
	(Inlet) Port 1	(Outlet) Port 2	Orifice		$C_v$	$x_T^{\ddagger}$	A		B	
			inch	mm			inch	mm	inch	mm
4A-RL4A	1/4" A-LOK® Compression	1/4" A-LOK® Compression					1.44	36.6	1.60	40.6
4Z-RL4A	1/4" CPI™ Compression	1/4" CPI™ Compression					1.44	36.6	1.60	40.6
4M4A-RL4A	1/4" Male NPT	1/4" A-LOK® Compression					1.19	30.2	1.60	40.6
4M4Z-RL4A	1/4" Male NPT	1/4" CPI™ Compression					1.19	30.2	1.60	40.6
4M4F-RL4A	1/4" Male NPT	1/4" Female NPT					1.19	30.2	1.17	29.7
4KF-RL4A	1/4" Female BSP/ISO Tapered	1/4" Female BSP/ISO Tapered	0.203	5.2	0.75	0.70	1.19	30.2	1.17	29.7
4KM-RL4A	1/4" Male BSP/ISO Tapered	1/4" Male BSP/ISO Tapered					1.19	30.2	1.17	29.7
M6A-RL4A	6mm A-LOK® Compression	6mm A-LOK® Compression					1.44	36.6	1.60	40.6
M6Z-RL4A	6mm CPI™ Compression	6mm CPI™ Compression					1.44	36.6	1.60	40.6
M8A-RL4A	8mm A-LOK® Compression	8mm A-LOK® Compression					1.44	36.6	1.60	40.6
M8Z-RL4A	8mm CPI™ Compression	8mm CPI™ Compression					1.44	36.6	1.60	40.6

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

‡ Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = x_T$ .

## Spring Kits

Kit Part Number	Cracking Pressure Range (psig)	Cracking Pressure Range (bar)	Color Code
KIT-RL4SP-10-25	10-25	0.7-1.7	Magenta
KIT-RL4SP-25-50	25-50	1.7-3.4	Brown
KIT-RL4SP-50-100	50-100	3.4-6.9	Purple
KIT-RL4SP-100-150	100-150	6.9-10.3	Dark Green
KIT-RL4SP-150-225	150-225	10.3-15.5	Dark Blue
KIT-RL4SP-225-400	225-400	15.5-27.6	White
KIT-RL4SP-10-225	10-225	0.7-15.5	None



### Spring Kit Contains:

- Spring
- Coded label
- PTFE washers
- Locking wire/lead seal
- Installation Instructions

## How to Order

The correct part number is easily derived from the following number sequence. The eight product characteristics required are coded as shown below.

**\*Note:** If the inlet and outlet ports are the same, eliminate the outlet port designator.

Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit
<b>4M</b> Male NPT <b>4F</b> Female NPT <b>4A</b> A-LOK® Compression <b>4Z</b> CPI™ Compression <b>4KF</b> Female BSP/ISO <b>4KM</b> Male BSP/ISO <b>M6A</b> A-LOK® Compression <b>M6Z</b> CPI™ Compression <b>M8A</b> A-LOK® Compression <b>M8Z</b> CPI™ Compression		<b>RL4A</b>	<b>V</b> Fluorocarbon Rubber <b>EPR</b> Ethylene Propylene Rubber <b>BN</b> Nitrile Rubber <b>KZ</b> Highly Fluorinated Fluorocarbon Rubber <b>NE</b> Neoprene Rubber	<b>T</b> PTFE	<b>SS</b> Stainless Steel	(blank) Standard <b>MN</b> Manual Overdrive	<b>KA</b> 10 - 25 psig (0.7 - 1.7 bar) <b>KB</b> 25 - 50 psig (1.7 - 3.4 bar) <b>KC</b> 50 - 100 psig (3.4 - 6.9 bar) <b>KD</b> 100 - 150 psig (6.9 - 10.3 bar) <b>KE</b> 150 - 225 psig (10.3 - 15.5 bar) <b>K</b> 10 - 225 psig (0.7 - 15.5 bar) <b>KG</b> 225-400 psig (15.5 - 27.6 bar)
<b>Notes:</b> To order valve with an elastomer back-up ring, eliminate Back-Up Rings code. To order only the valve without a spring kit, eliminate Spring Kit code.							

## Examples:

<b>4Z</b>	*	<b>RL4A</b>	<b>BN</b>	<b>T</b>	<b>SS</b>		<b>KD</b>
Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit

Describes a RL4A Series externally adjustable relief valve equipped with 1/4" CPI™ compression inlet and outlet ports, Nitrile seals, PTFE back-up ring, stainless steel construction, and a 100 to 150 psig (6.9 to 10.3 bar) spring kit.

<b>4M</b>	<b>4F</b>	<b>RL4A</b>	<b>EPR</b>	<b>T</b>	<b>SS</b>	<b>MN</b>	<b>KF</b>
Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit

Describes a RL4A Series externally adjustable relief valve equipped with 1/4" male NPT inlet port, 1/4" female NPT outlet port, ethylene propylene seals, PTFE back-up ring, stainless steel construction, manual override option, and a 10 to 225 psig (0.7 to 15.5 bar) spring kit.

## Seal Kits

Seal Kit Order Number	Seat / Seal Material
KIT-RL4-VT	Fluorocarbon Rubber
KIT-RL4-BNT	Nitrile Rubber
KIT-RL4-EPRT	Ethylene Propylene Rubber
KIT-RL4-NET	Neoprene Rubber
KIT-RL4-KZT	Highly Fluorinated Fluorocarbon Rubber

**Seal Kit Contains:**  
 Stem Seal  
 Bonnet Seal  
 PTFE Back-Up Ring  
 Lower Stem Assembly  
 Maintenance Instructions



### WARNING

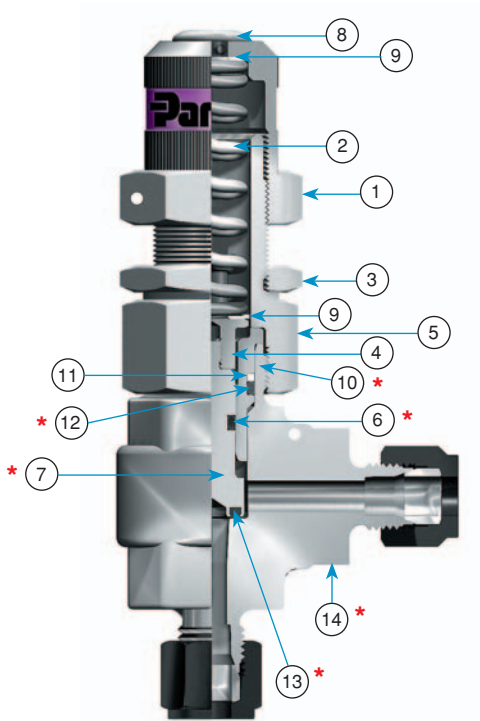
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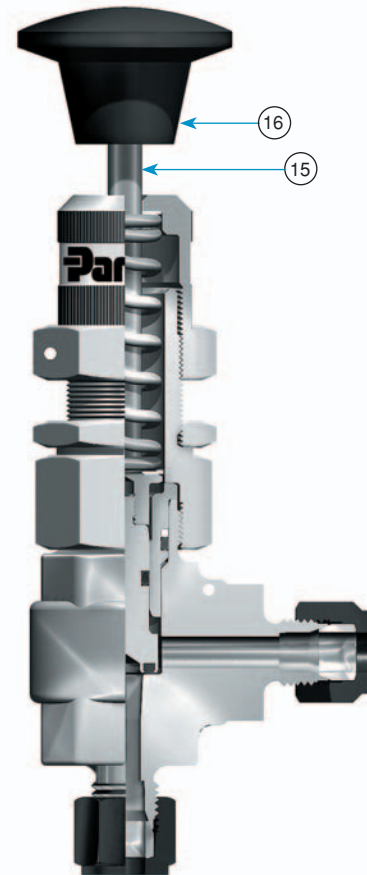
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**Model Shown: 4Z-RL4A-BNT-SS-KE**



**Model Shown: 4Z-RL4A-VT-SS-MN-KG**

## Materials of Construction

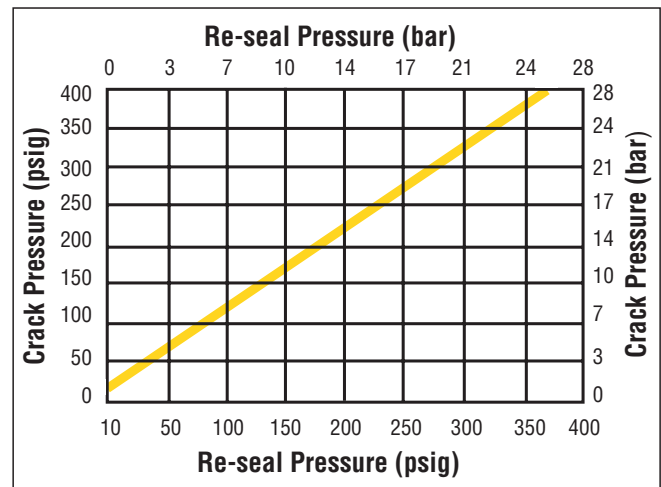
Part No.	Part Description	Material
1	Cap	ASTM A 479 Type 316
2	Spring	17Cr-7Ni Stainless Steel
3	Locknut	316 Stainless Steel
4	Upper Stem	ASTM A 479 Type 316
5	Bonnet	ASTM A 479 Type 316
*6	Stem Seal	*Fluorocarbon Rubber
*7	Lower Stem	ASTM A 479 Type 316
8	Plug	316 SS
9	Washer	PTFE
*10	Stem Guide	ASTM A 479 Type 316
11	Back-up Ring	PTFE
*12	Bonnet Seal	*Fluorocarbon Rubber
*13	Seat	*Fluorocarbon Rubber
*14	Valve Body	ASTM A 182 Type F316
15	Handle Stem	ASTM A 479 Type 316
16	Handle	Phenolic

\* Wetted Parts

\* Optional seat and seal materials are located in How to Order section.

Lubrication: Perfluorinated polyether.

## Crack Pressure vs. Re-seal Pressure



**Note:** Valves which are not actuated for a period of time may initially crack at higher than set crack pressures.

**Note:** To determine MPa, multiply bar by 0.1





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Seu caminho  
Para automação

# Relief Valves (RH4 Series)

Catalog 4131-RH  
August 2005



**TECNI-AR**  
Seu Caminho  
Para Automação

TECNI-AR Ltda  
[www.tecni-ar.com.br](http://www.tecni-ar.com.br)  
Tel: (31)3362-2400

## Introduction

Parker RH4 Relief Valves are designed such that when the upstream pressure exceeds the closing force exerted by the spring, the lower stem opens, permitting flow through the valve. Flow through the valve increases proportionately to the increase in upstream pressure.

## Features

- ▶ Pressure settings are externally adjustable while the valve is in operation. Eight different spring ranges provide greater system sensitivity and enhanced performance.
- ▶ Captured molded seat design is blow-out and chip resistant.
- ▶ Manual Override option with positive stem retraction is available for pressures up to 1500 psig (103 bar). This option permits the user to relieve upstream pressure while maintaining the predetermined cracking pressure.
- ▶ Color coded springs and labels indicate spring cracking range.
- ▶ Lock wire feature secures a given pressure setting.

## Specifications

### Working Pressure

Up to 6000 psig (414 bar) CWP.  
Up to 8000 psig (552 bar) during relief with no internal seal damage.

### Cracking Pressure

Eight springs, from 50 psig to 6000 psig in the following ranges: 50-350 psig, 350-750 psig, 750-1500 psig, 1500-2250 psig, 2250-3000 psig, 3000-4000 psig, 4000-5000 psig, 5000-6000 psig (See table on page 3 for bar equivalents).

### Temperature Rating

Buna-N Rubber..... -30°F to +225°F (-34°C to +107°C)  
Highly Fluorinated Fluorocarbon Rubber  
..... -20°F to +200°F (-29°C to +93°C)  
Ethylene Propylene Rubber  
..... -70°F to +275°F (-57°C to +135°C)  
Fluorocarbon Rubber ..... -10°F to +400°F (-23°C to +204°C)  
Neoprene Rubber..... -45°F to +250°F (-43°C to +121°C)

## Flow Calculations

Inlet Pressure		Pressure Drop Δ P		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
psig	bar	psig	bar	gpm	m <sup>3</sup> /hr	scfm	m <sup>3</sup> /hr
100	7	1	0.1	0.4	0.1	4.3	7.0
		10	0.7	1.3	0.3	13.2	21.0
		50	3.5	2.9	0.7	24.2	37.3
1000	69	10	0.7	1.3	0.3	40.9	69.0
		100	6.9	4.1	0.9	123.5	208.4
		500	34.5	9.2	2.1	219.1	368.6
3000	207	100	6.9	4.1	0.9	220.1	373.5
		1000	69.0	13.0	2.9	590.8	1002.4
		1500	103.4	15.9	3.6	652.1	1105.7
6000	413	1000	69.0	13.0	2.9	916.8	1556.2
		2000	137.9	18.3	4.2	1179.7	2001.3
		3000	206.8	22.5	5.1	1301.6	2207.0

## Available End Connections

**Z** - Single ferrule CPI™ compression port



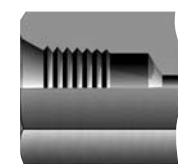
**A** - Two ferrule A-LOK® compression port



**M** - ANSI/ASME B1.20.1, External pipe threads



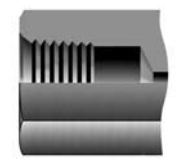
**F** - ANSI/ASME B1.20.1, Internal pipe threads

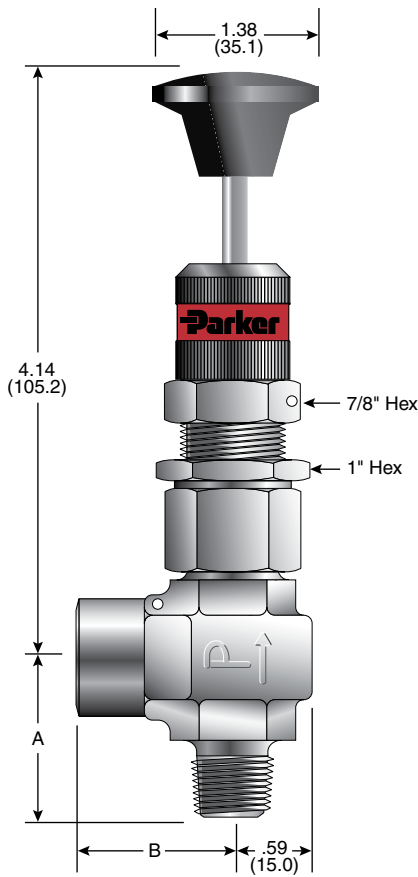


**KM** - British Standard BS 21 (ISO 7-1), External pipe threads



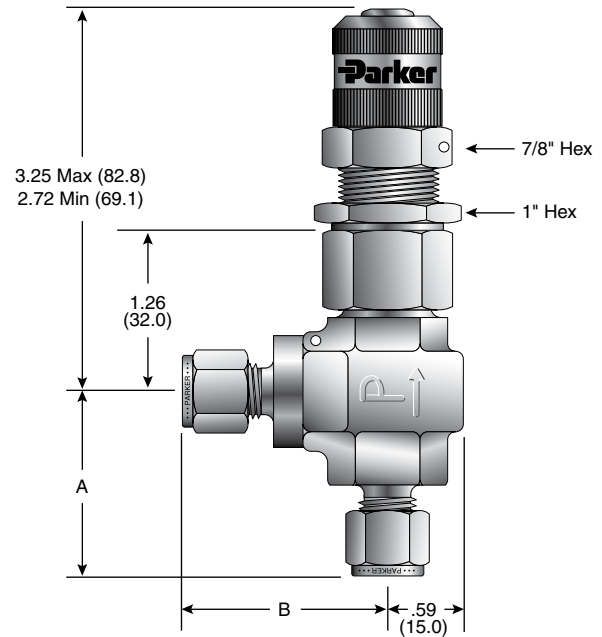
**KF** - British Standard BS 21 (ISO 7-1), Internal pipe threads





Model Shown: 4M4F-RH4A-VT-SS-MN-K2

( ) Denotes dimensions in millimeters



Model Shown: 4A-RH4A-BNT-SS-K1

## Flow Data / Dimensions

Basic Part Number	End Connections		Flow Data				Dimensions †			
	(Inlet) Port 1	(Outlet) Port 2	Orifice		$C_v$	$x_T^‡$	A		B	
			Inch	mm			inch	mm	inch	mm
4A-RH4A	1/4" A-LOK® Compression	1/4" A-LOK® Compression	0.14	3.6	0.41	0.67	1.44	36.6	1.60	40.6
4Z-RH4A	1/4" CPI™ Compression	1/4" CPI™ Compression					1.44	36.6	1.60	40.6
4M4A-RH4A	1/4" Male NPT	1/4" A-LOK® Compression					1.19	30.2	1.60	40.6
4M4Z-RH4A	1/4" Male NPT	1/4" CPI™ Compression					1.19	30.2	1.60	40.6
4M4F-RH4A	1/4" Male NPT	1/4" Female NPT					1.19	30.2	1.17	29.7
4KF-RH4A	1/4" Female BSP/ISO Tapered	1/4" Female BSP/ISO Tapered					1.19	30.2	1.17	29.7
4KM-RH4A	1/4" Male BSP/ISO Tapered	1/4" Male BSP/ISO Tapered					1.19	30.2	1.17	29.7
M6A-RH4A	6mm A-LOK® Compression	6mm A-LOK® Compression					1.44	36.6	1.60	40.6
M6Z-RH4A	6mm CPI™ Compression	6mm CPI™ Compression					1.44	36.6	1.60	40.6
M8A-RH4A	8mm A-LOK® Compression	8mm A-LOK® Compression					1.44	36.6	1.60	40.6
M8Z-RH4A	8mm CPI™ Compression	8mm CPI™ Compression					1.44	36.6	1.60	40.6

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

‡ Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = x_T$ .

## Spring Kits

Kit Part Number	Cracking Pressure Range (psig)	Cracking Pressure Range (bar)	Color Code
KIT-RH4SP-50-350	50-350	3.4-24.1	Gray
KIT-RH4SP-350-750	350-750	24.1-51.7	Red
KIT-RH4SP-750-1500	750-1500	51.7-103.4	Orange
KIT-RH4SP-1500-2250	1500-2250	103.4-155.1	Yellow
KIT-RH4SP-2250-3000	2250-3000	155.1-206.8	Light Green
KIT-RH4SP-3000-4000	3000-4000	206.8-275.8	Light Blue
KIT-RH4SP-4000-5000	4000-5000	275.8-344.7	Violet
KIT-RH4SP-5000-6000	5000-6000	344.7-413.7	Lemon Yellow



**Spring Kit Contains:**  
 Spring  
 Coded label  
 PTFE washers  
 Locking wire / lead seal  
 Installation Instructions

## How to Order

The correct part number is easily derived from the following number sequence. The eight product characteristics required are coded as shown below.

**\*Note:** If the inlet and outlet ports are the same, eliminate the outlet port designator.

Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit
4M Male NPT		RH4A	V Fluorocarbon Rubber	T PTFE	SS Stainless Steel	(blank) Standard	K1 50 - 350 psig
4F Female NPT			EPR Ethylene Propylene Rubber			MN Manual Override	K2 350 - 750 psig
4A A-LOK® Compression			BN Nitrile Rubber				K3 750 - 1500 psig
4Z CPI™ Compression			KZ Highly Fluorinated Fluorocarbon Rubber				K4 1500 - 2250 psig
4KF Female BSP/ISO			NE Neoprene Rubber				K5 2250 - 3000 psig
4KM Male BSP/ISO							K6 3000 - 4000 psig
M6A A-LOK® Compression							K7 4000 - 5000 psig
M6Z CPI™ Compression							K8 5000 - 6000 psig
M8A A-LOK® Compression							
M8Z CPI™ Compression							

**Notes:** To order valve with an elastomer back-up ring, eliminate Back-Up Rings code. To order only the valve without a spring kit, eliminate Spring Kit code.

## Examples:

4Z	*	RH4A	BN	T	SS		K6
Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit

Describes an RH4A Series externally adjustable relief valve equipped with 1/4" CPI™ compression inlet and outlet ports, Nitrile seals, PTFE back-up ring, stainless steel construction, and a 3000 to 4000 psig (206.8 to 275.8 bar) spring kit.

4M	4F	RH4A	EPR	T	SS	MN	K1
Inlet Port	Outlet Port	Valve Series	Seals	Back-Up Rings	Body Material	Actuation	Spring Kit

Describes an RH4A Series externally adjustable relief valve equipped with 1/4" male NPT inlet port, 1/4" female NPT outlet port, ethylene propylene seals, PTFE back-up ring, stainless steel construction, manual override option, and a 50 to 350 psig (3.4 to 24.1 bar) spring kit.

## Seal Kits

Seal Kit Order Number	Seat / Seal Material
KIT-RH4-VT	Fluorocarbon Rubber
KIT-RH4-BNT	Nitrile Rubber
KIT-RH4-EPRT	Ethylene Propylene Rubber
KIT-RH4-NET	Neoprene Rubber
KIT-RH4-KZT	Highly Fluorinated Fluorocarbon Rubber

**Seal Kit Contains:**  
 Stem Seal  
 Bonnet Seal  
 PTFE Back-Up Ring  
 Lower Stem Assembly  
 Maintenance Instructions



## WARNING

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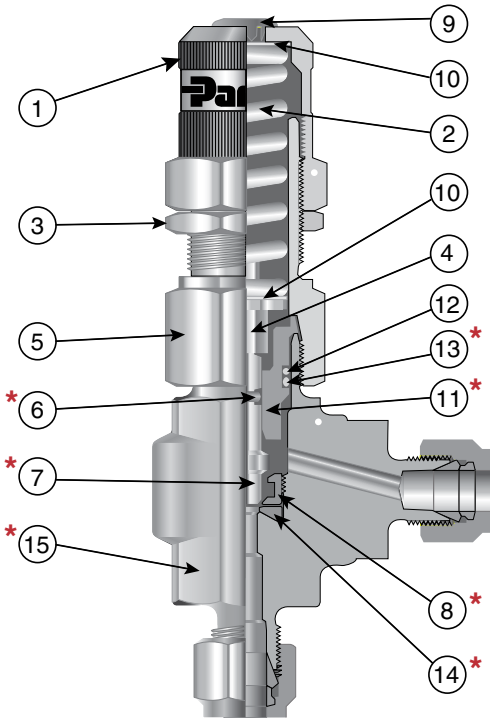
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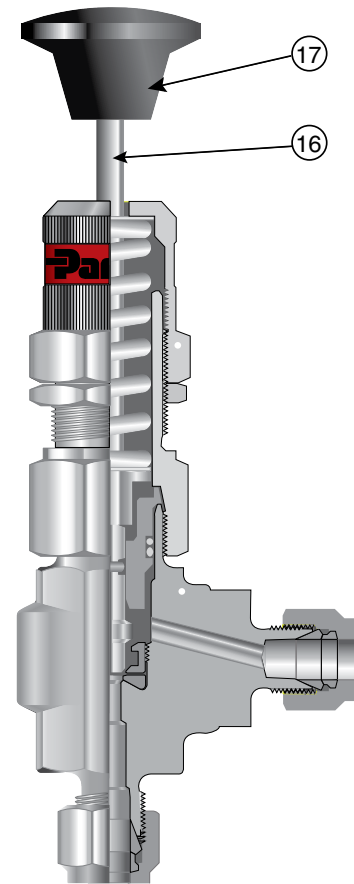
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Model Shown: 4A-RH4A-BNT-SS-K1



Model Shown: 4A-RH4A-VT-SS-MN-K2

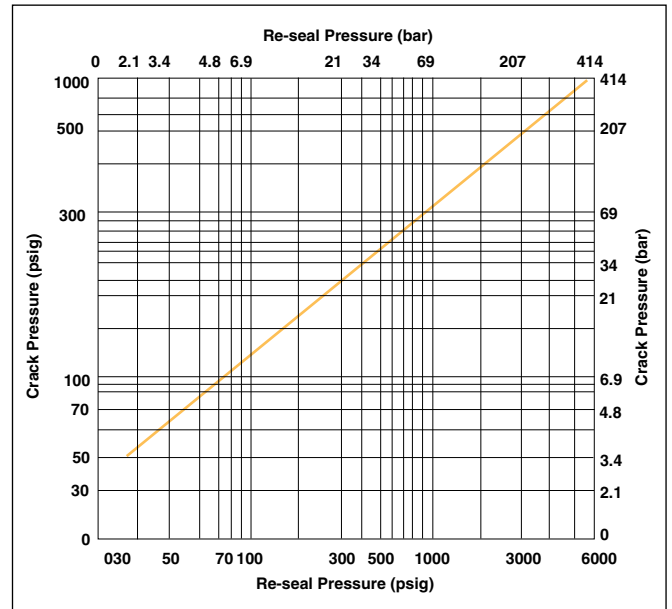
## Materials of Construction

Part No.	Part Description	Material
1	Cap	ASTM A 479 Type 316
2	Spring	17-7 Stainless Steel
3	Locknut	316 Stainless Steel
4	Upper Stem	ASTM A 479 Type 316
5	Bonnet	ASTM A 479 Type 316
*6	Stem Seal	*Fluorocarbon Rubber
*7	Lower Stem	ASTM A 479 Type 316
*8	Seat Retainer	ASTM A 479 Type 316
9	Plug	Zinc Coated Steel
10	Washer	PTFE
*11	Stem Guide	ASTM A 479 Type 316
12	Back-up Ring	PTFE
*13	Body Seal	*Fluorocarbon Rubber
*14	Seat	*Fluorocarbon Rubber
*15	Valve Body	ASTM A 182 Type F316
16	Handle Stem	ASTM A 479 Type 316
17	Handle	Phenolic

\*Wetted Parts

\*Optional seat and seal materials are located in How to Order section.  
 Lubrication: Perfluorinated polyether.

## Crack Pressure vs. Re-seal Pressure



Note: Valves which are not actuated for a period of time may initially crack at higher than set crack pressures.

Note: To determine MPa, multiply bar by 0.1

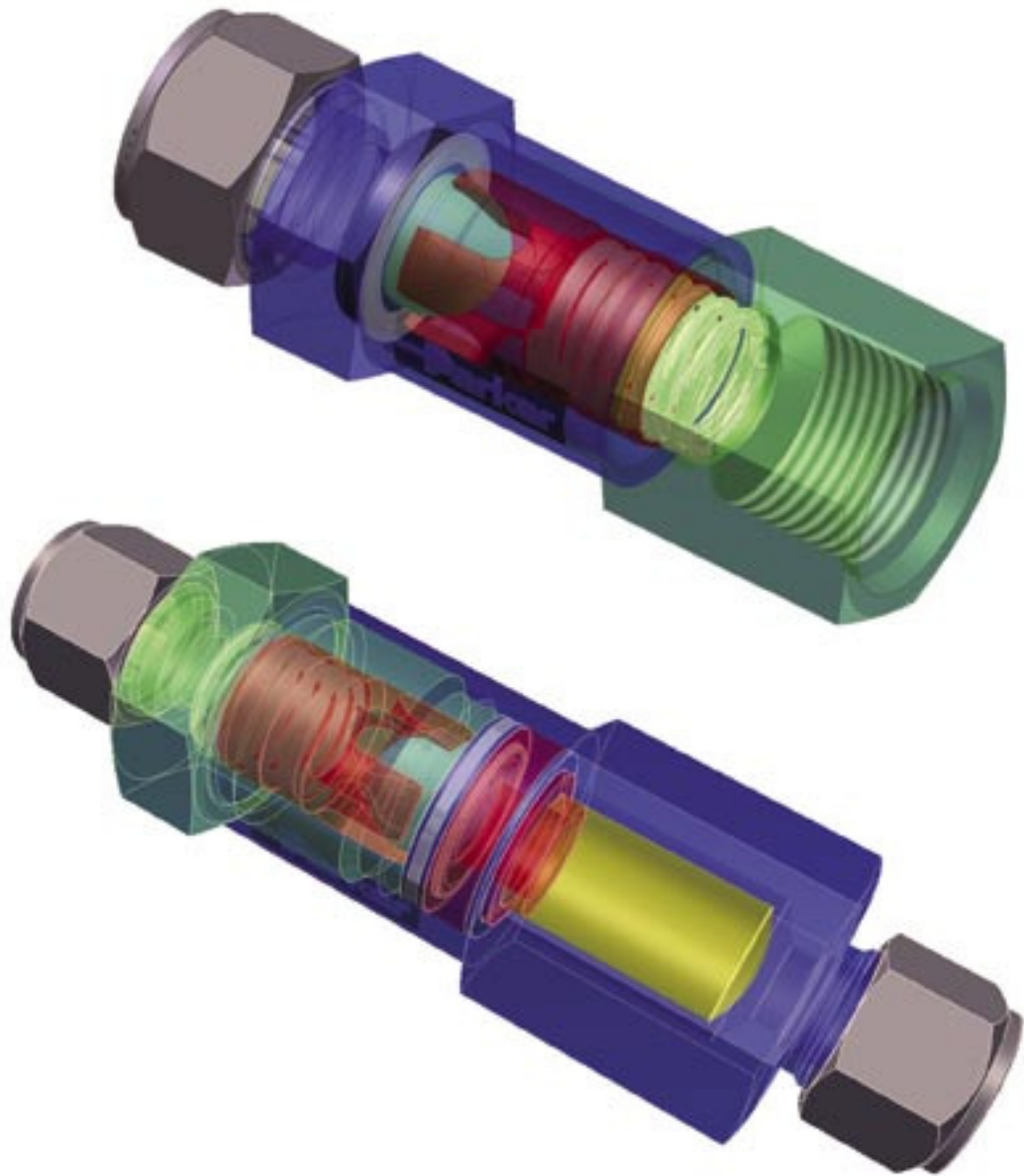


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# Check Valves

*CB and CBF Series*

*Catalog 4130-CB  
May 2005*



## “In the time it takes you to read this bulletin, you can rebuild two Parker CB Series check valves.”

### Introduction

Parker CB and CBF Series Check Valves are designed for uni-directional flow control of fluids and gases. The unique floating ball valve design handles demanding services in power generation, chemical processing, and oil/gas production. The CB/CBF Series are specifically designed to reduce check valve maintenance and performance requirements on dual fuel turbines. Specific issues include, but are not limited to seat leakage, coking, repair and maintenance. All of these issues directly affect turbine efficiency, impacting operating costs. The advanced seat materials of the CB/CBF Series Check Valves are particularly suited for higher temperature applications requiring high integrity leak rates and re-sealing capabilities.

- Rugged and reliable floating ball valve seat design optimizes sealing characteristics while minimizing effects of coking.
- Optional hard PTFE coated ball cage resists poppet “stick” commonly experienced with fuel oil coking.
- Fully field serviceable with Parker rebuild kits. Replace seats in minutes without special tools.
- Advanced reinforced PTFE copolymer seat materials designed by Parker for demanding applications such as air purge and fuel oil.
- Integral “last chance” filter option for seat and nozzle protection.
- To even further reduce turbine downtime during repairs, utilize Parker’s metal flexible hoses.

#### **WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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## Specifications

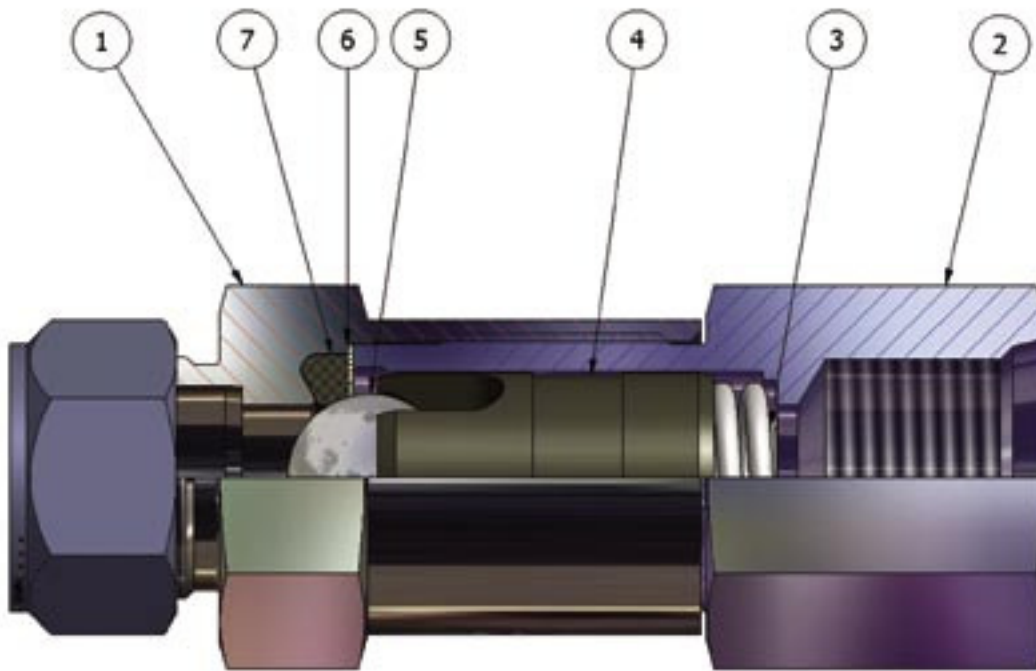
- **Shell Pressure Rating:**  
3000 psi CWP
- **Standard Crack Pressures:**  
1, 5, 10, 25, 50, 75, 100, 120
- **Seat Materials, Back Pressure and Temperature Ratings:**  

Parkerfill	– 1000 psi @ 100 °F
	300 psi @ 450 °F

Parker Carbon	– 2500 psi @ 100 °F
	1250 psi @ 450 °F

Parkerfill is a PTFE copolymer reinforced with carbon and graphite.  
 Parker Carbon is a PTFE copolymer reinforced with carbon.

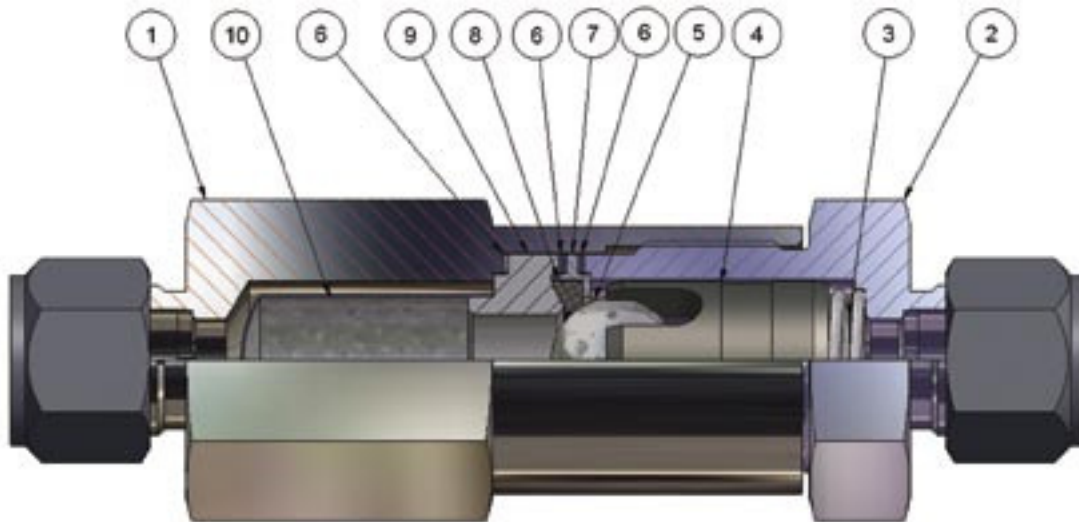
## Materials of Construction — CB Series Check Valve



Item #	Part	Stainless Valve
1	Body	ASTM A276 Type 316
2	Cap	ASTM A276 Type 316
3	Crack Spring	316 SS
4	Ball Cage	ASTM A276 Type 316
5	Ball	440C SS
6	Body Washer	316 SS PTFE Coated
7	Seat	Parkerfill, Parker Carbon

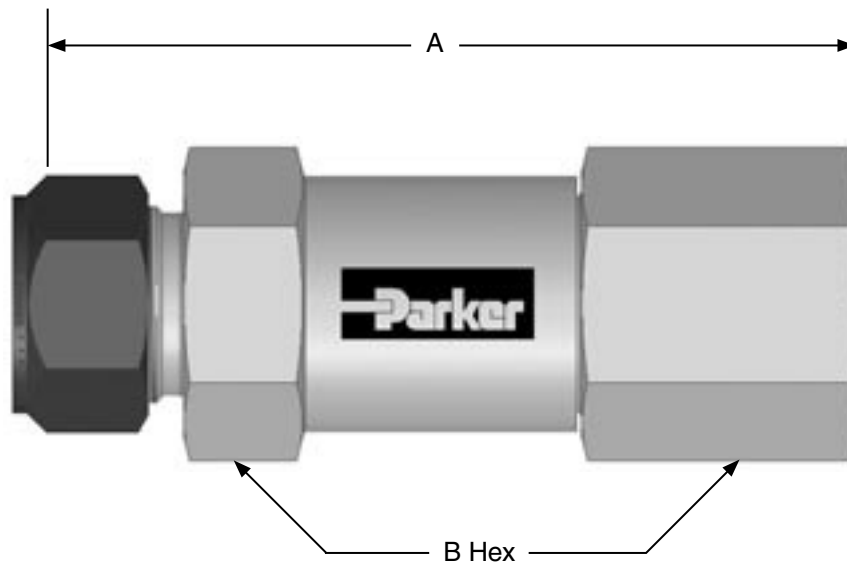


## Materials of Construction — CBF Series Filter Check Valve



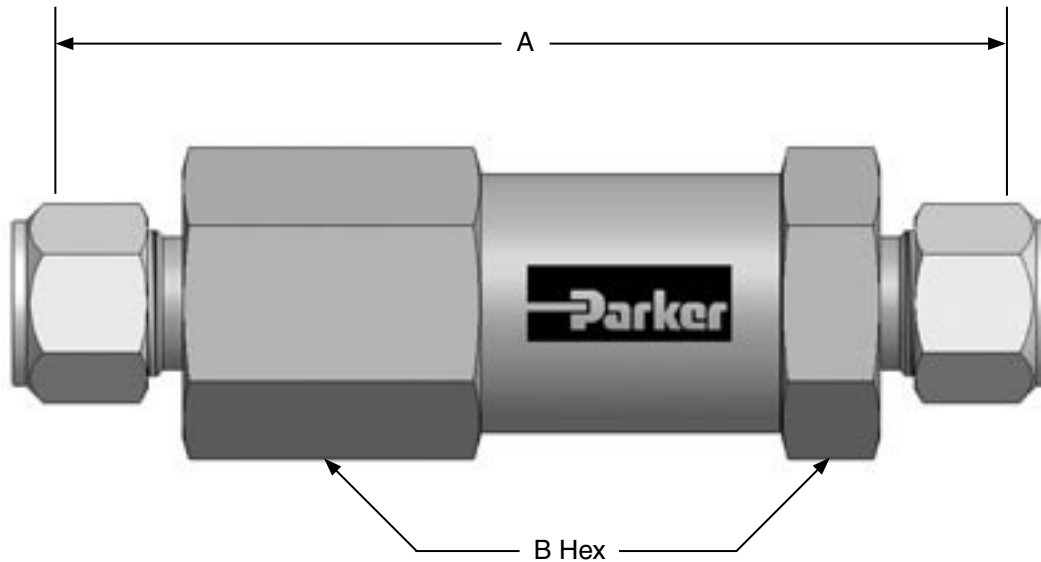
Item #	Part	Stainless Valve
1	Cap	ASTM A276 Type 316
2	Body	ASTM A276 Type 316
3	Crack Spring	316 SS
4	Ball Cage	ASTM A276 Type 316 Hard PTFE Coated
5	Ball	440C SS
6	Body Seal	Grafoil®
7	Seat Retainer	316 SS
8	Seat	Parkerfill, Parker Carbon
9	Filter Base	316 SS
10	Filter Element	Perforated 316 SS Sheet

## Dimensions — CB Series Check Valve



Body Size	End Connections		Dimensions	
	Inlet Port	Outlet Port	A	B Hex
CB6	3/8" A-Lok (6A) or CPI (6Z)	3/8" A-Lok (6A) or CPI (6Z)	2.72	1.00
	3/8" A-Lok (6A) or CPI (6Z)	3/8" Male NPT (6M)	2.88	
	1/2" A-Lok (8A) or CPI (8Z)	1/2" A-Lok (8A) or CPI (8Z)	2.78	
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Female SAE (8G5)	2.98	
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Male NPT (8M)	2.98	
	1/2" Male JIC 37° Flare (8X)	1/2" Female SAE (8G5)	3.16	
CB8	1/2" A-Lok (8A) or CPI (8Z)	1/2" A-Lok (8A) or CPI (8Z)	3.30	1.25
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Female SAE (8G5)	3.44	
	1/2" Male JIC 37° Flare (8X)	1/2" Female SAE (8G5)	3.48	
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Male NPT (8M)	3.44	
	5/8" A-Lok (10A) or CPI (10Z)	5/8" A-Lok (10A) or CPI (10Z)	3.30	
CB12	3/4" A-Lok (12A) or CPI (12Z)	3/4" A-Lok (12A) or CPI (12Z)	3.56	1.375
	3/4" A-Lok (12A) or CPI (12Z)	3/4" Female SAE (12G5)	3.84	
	3/4" A-Lok (12A) or CPI (12Z)	3/4" Male NPT (12M)	3.84	
	3/4" Male JIC 37° Flare (12X)	3/4" Female SAE (12G5)	4.12	

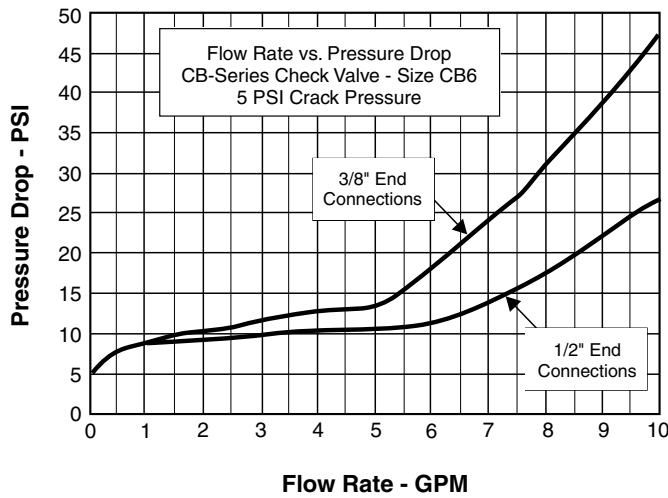
## Dimensions — CBF Series Filter Check Valve



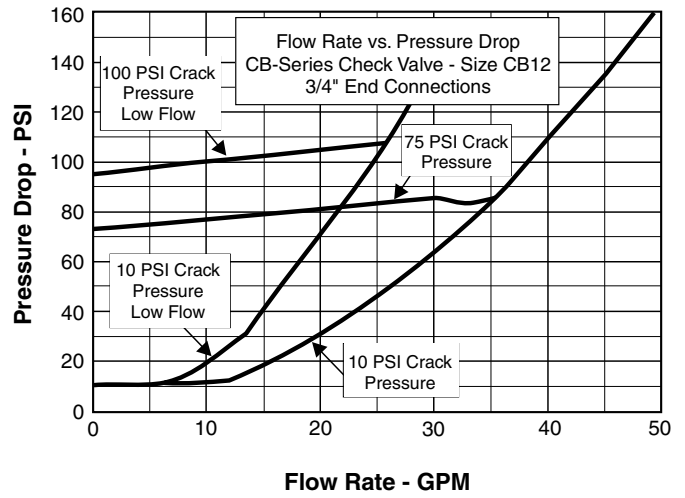
Body Size	End Connections		Dimensions	
	Inlet Port	Outlet Port	A	B Hex
CBF8	1/2" A-Lok (8A) or CPI (8Z)	1/2" A-Lok (8A) or CPI (8Z)	4.50	1.375
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Female SAE (8G5)	4.70	
	1/2" Male JIC 37° Flare (8X)	1/2" Female SAE (8G5)	4.93	
	1/2" A-Lok (8A) or CPI (8Z)	1/2" Male NPT (8M)	4.70	
	5/8" A-Lok (10A) or CPI (10Z)	5/8" A-Lok (10A) or CPI (10Z)	4.75	
	3/4" A-Lok (12A) or CPI (12Z)	3/4" A-Lok (12A) or CPI (12Z)	4.75	
	3/4" A-Lok (12A) or CPI (12Z)	3/4" Female SAE (12G5)	5.14	
	3/4" A-Lok (12A) or CPI (12Z)	3/4" Male NPT (12M)	4.96	
	3/4" Male JIC 37° Flare (12X)	3/4" Female SAE (12G5)	5.37	

## Flow Curves

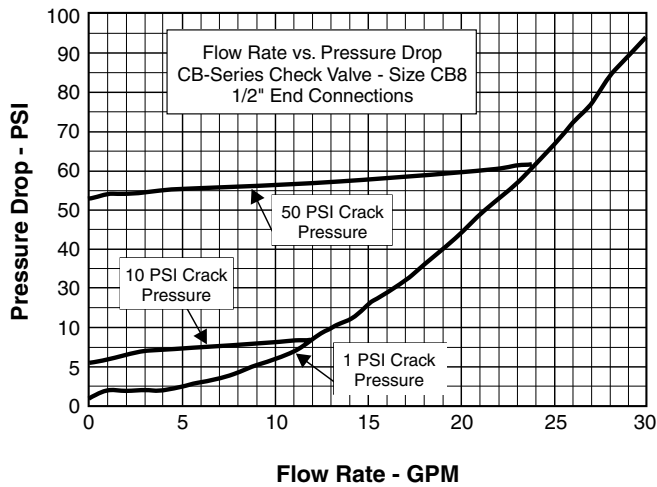
### CB6 Check Valve



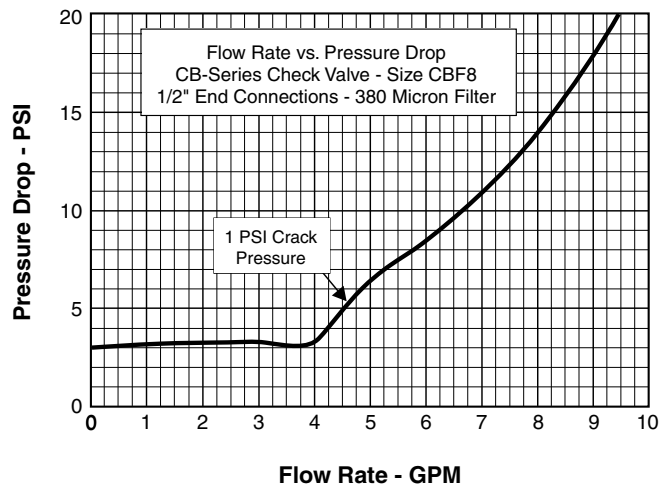
### CB12 Check Valve



### CB8 Check Valve



### CBF8 Filter Check Valve





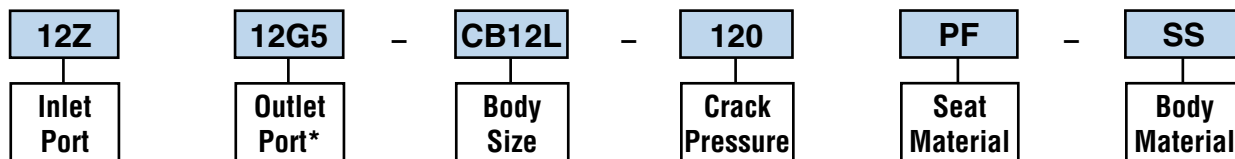
## How to Order CB Series Check Valves

The correct part number is easily derived from the following number sequence. The six product characteristics required are coded as shown below.

**\*Note:** If the inlet and outlet ports are the same, eliminate the outlet port designator.

1 Inlet Port	2 Outlet Port*	3 Body Size	4 Crack Pressure	5 Seat Material	6 Body Material
6A, 6Z 8A, 8Z 8X	6A, 6Z 8A, 8Z 8M, 8G5	CB6L	1 5 10	PF – Parkerfill  PC – Parker Carbon	SS – 316 Stainless Steel
8A, 8Z 8X 10A, 10Z	8A, 8Z 8M, 8G5 10A, 10Z	CB8L	25 50 75		
12A, 12Z 12X	12A, 12Z 12G5, 12M	CB12L	100 120		

### Example:



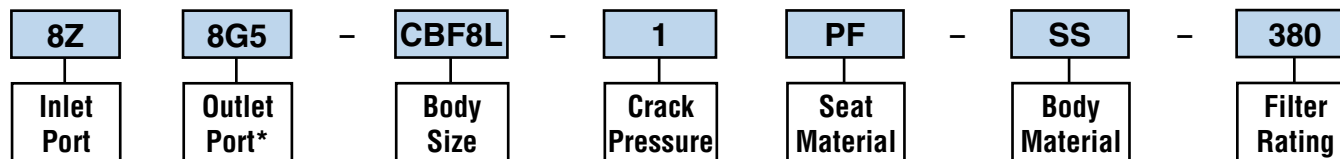
## How to Order CBF Series Filter Check Valves

The correct part number is easily derived from the following number sequence. The seven product characteristics required are coded as shown below.

**\*Note:** If the inlet and outlet ports are the same, eliminate the outlet port designator.

Inlet Port	Outlet Port*	Body Size	Crack Pressure	Seat Material	Body Material	Filter Rating	
1 Inlet Port	2 Outlet Port	3 Body Size	4 Crack Pressure	5 Seat Material	6 Body Material	7 Filter Rating	
8A, 8Z 8X	8A, 8Z 8M, 8G5	CBF8L	1	PF – Parkerfill	SS – 316 Stainless Steel	75	
10A, 10Z	10A, 10Z		5			200	
12A, 12Z 12X	12A, 12Z 12G5, 12M		10			PC – Parker Carbon	380
			25				
			50				
			75				
100	500						
120	Microns						

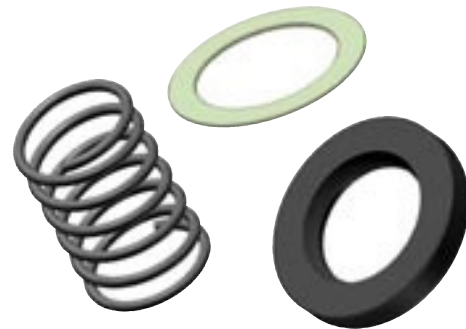
**Example:**



## Repair Kits — CB Series Check Valves

Kits include seat, body gasket and crack spring. To order, fill in the designators from the chart below.

Kit	Size	Crack Pressure	Seat Material
KIT	CB6 CB8 CB12	1	PF – Parkerfill
		5	
		10	
		25	
		50	PC – Parker Carbon
		75	
		100	
		120	



Example kit part number: **KIT-CB12-120-PF**

## Repair Kits — CBF Series Filter Check Valves

Seal kits (KITS) include seat, body gasket and crack spring. Valve kits (KITV) include seat, body gaskets, crack spring and ball. Optional parts for valve kits include ball cage and filter. To order, fill in the designators from the chart below.

Kit	Size	Crack Pressure	Seat Material	Valve Kit Options	Filter Rating	
KITS KITV	CBF8	1	PF – Parkerfill	Blank – None	75	
		5		PC – Parker Carbon	1 – Ball Cage	200
		10			2 – Filter	380
		25				500
		50	3 – Ball Cage & Filter		(Include with filter option)	
		75				
		100				
		120				

Examples:

Seal kit part number: **KITS-CBF8-10-PF**

Valve kit part number: **KITV-CBF8-10-3-200** (with Ball Cage and 200 micron filter option)



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2. **Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. **Delivery:** Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. **Warranty:** Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.

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6. **Changes, Reschedules and Cancellations:** Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. **Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. **Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. **Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. **Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. **Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. **Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

9/91-P



# Check Valves (CO Series)

Catalog 4130-CO  
Revised, June 2001



# CO Series Check Valves

## Introduction

Parker CO Series Check Valves are designed for uni-directional flow control of fluids and gases in industries such as chemical processing, oil and gas production and transmission, pharmaceutical, pulp and paper, power and utilities. The CO Series Check Valve is particularly suitable for applications requiring high integrity leak rates and re-sealing capabilities.

## Features

- Seal integrity across the seat and to atmosphere is tested to  $4 \times 10^{-9}$  std atm-cc/sec ( $4 \times 10^{-10}$  kPa – L/sec) for the CO4L with fluorocarbon rubber seals. All other sizes and seal materials are tested to  $1 \times 10^{-5}$  std atm-cc/sec ( $1 \times 10^{-6}$  kPa – L/sec).
- Special seat seal design provides a repeatable high integrity seal and accurate cracking pressures
- 100% factory tested. Cracking pressures include: 1/3, 1, 5, 10, 25, 50, 75, and 100 psi.
- Valves are available with Male and Female NPT, CPI™, A-LOK®, UltraSeal, Male and Female VacuSeal, and Tube Adapter
- Heat code traceability
- Color coded identification labels indicate seal material

## Specifications

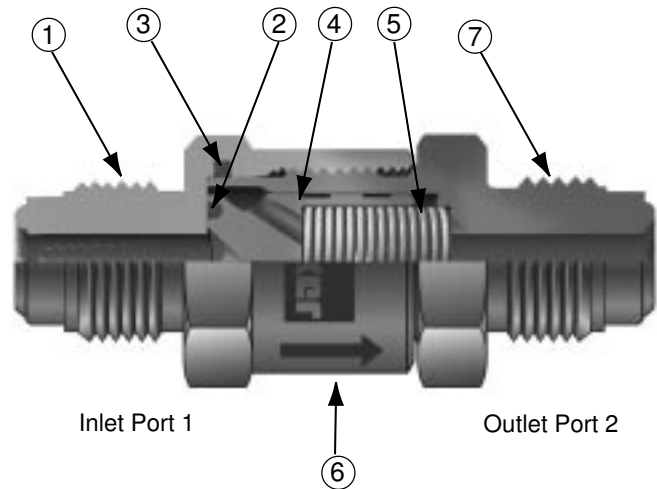
- Pressure Rating:  
6000 psig (414 bar) CWP
- Temperature Rating:  
Fluorocarbon Rubber  
-15 °F to 400 °F (-26 °C to 204 °C)  
Buna-N Rubber  
-30 °F to 250 °F (-34 °C to 121 °C)  
Ethylene Propylene Rubber  
-70 °F to 275 °F (-57 °C to 135 °C)  
Highly Fluorinated Fluorocarbon Rubber  
-15 °F to 200 °F (-26 °C to 93 °C)
- Orifice: .156" to .406" (4.0mm to 10.3mm)
- $C_v$ : .43 to 2.65

## Materials of Construction

Item#	Part Description	Material
1	Cap <sup>1</sup>	ASTM A 276, TYPE 316
2	Seat Seal	Fluorocarbon Rubber <sup>2</sup>
3	Body Seal	Fluorocarbon Rubber <sup>2</sup>
4	Poppet	ASTM A 479, TYPE 316
5	Spring	316 Stainless Steel
6	Label	Aluminum
7	Body <sup>1</sup>	ASTM A 276, TYPE 316

<sup>1</sup>For Female VacuSeal ports, body and cap are manufactured from ASTM A479, TYPE 316L.

<sup>2</sup>Optional seal materials are available. See How to Order section.  
Lubrication: Perfluorinated Polyether

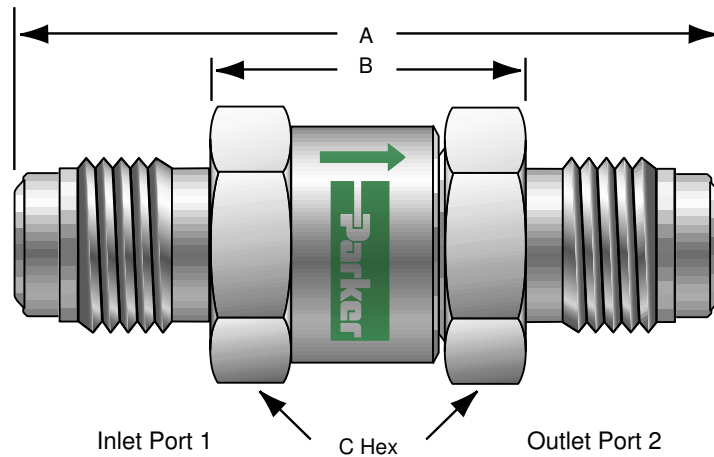


Model Shown: 4V-CO4L-5-V-SS

## Flow Calculations with 1000 psig (69 bar) Inlet Pressure

Valve Series	Maximum $C_v$	Pressure Drop $\Delta P$		Water @60 °F (16 °C)		Air @60 °F (16 °C)	
		psig	bar	gpm	m <sup>3</sup> /hr	scfm	m <sup>3</sup> /hr
CO4	0.62	10	0.7	2.0	0.4	61.8	104.5
		50	3.4	4.4	1.0	135.7	227.7
		100	6.9	6.2	1.4	187.5	316.7
CO6	1.85	10	0.7	5.9	1.3	184.4	311.6
		50	3.4	13.1	3.0	404.4	678.5
		100	6.9	18.5	4.2	557.9	942.3
CO8	2.65	10	0.7	8.4	1.9	264.2	446.5
		50	3.4	18.7	4.2	580.3	973.8
		100	6.9	26.5	6.0	802.3	1355.3

# CO Series Check Valves



D = Hex of nuts where applicable  
Model Shown: 4V-CO4L-5-KZ-SS

## Label Color Cross Reference

Label Color	Seal Material
Brown	Fluorocarbon Rubber
Black	Buna-N Rubber
Purple	Ethylene Propylene Rubber
Green	All others

Testing: All valves are 100% tested for crack, re-seal, and helium leakage.

## Flow Data / Dimensions

Basic Part Number	End Connections		Flow Data				Dimensions							
	(Inlet) Port 1	(Outlet) Port 2	Orifice				A†		B		C		D	
			inch	mm	$C_v$	$x_T \ddagger$	inch	mm	inch	mm	inch	mm	inch	mm
4A-CO4L-***-SS	1/4" A-LOK® Compression	1/4" A-LOK® Compression	.187	4.7	.62	.73	2.39	60.7	1.00	25.4	.750	19.1	.563	14.3
4F-CO4L-***-SS	1/4" Female NPT	1/4" Female NPT	.187	4.7	.62	.73	2.38	60.5	-	-	.750	19.1	-	-
4M-CO4L-***-SS	1/4" Male NPT	1/4" Male NPT	.187	4.7	.62	.73	2.09	53.1	.95	24.1	.750	19.1	-	-
4Q-CO4L-***-SS	1/4" UltraSeal	1/4" UltraSeal	.180	4.6	.58	.72	1.91	48.5	.98	24.9	.750	19.1	-	-
4TA-CO4L-***-SS	1/4" Tube Adapter	1/4" Tube Adapter	.156	4.0	.43	.62	2.35	59.7	1.07	27.2	.750	19.1	-	-
4V-CO4L-***-SS	1/4" VacuSeal	1/4" VacuSeal	.187	4.7	.62	.73	2.22	56.4	.98	24.9	.750	19.1	-	-
4V1-CO4L-***-SS	1/4" Female VacuSeal	1/4" Female VacuSeal	.182	4.6	.59	.75	2.67	67.8	.98	24.9	.750	19.1	.750	19.1
4Z-CO4L-***-SS	1/4" CPI™ Compression	1/4" CPI™ Compression	.187	4.7	.62	.73	2.39	60.7	1.00	25.4	.750	19.1	.563	14.3
M6A-CO4L-***-SS	6mm A-LOK® Compression	6mm A-LOK® Compression	.187	4.7	.62	.73	2.41	61.2	1.01	25.7	.750	19.1	.551	14.0
M6Z-CO4L-***-SS	6mm CPI™ Compression	6mm CPI™ Compression	.187	4.7	.62	.73	2.41	61.2	1.01	25.7	.750	19.1	.551	14.0
4M4A-CO4L-***-SS	1/4" Male NPT	1/4" A-LOK® Compression	.187	4.7	.62	.73	2.25	57.2	.98	24.9	.750	19.1	.563	14.3
4M4F-CO4L-***-SS	1/4" Male NPT	1/4" Female NPT	.187	4.7	.62	.73	2.26	57.4	1.69	42.9	.750	19.1	-	-
4M4Z-CO4L-***-SS	1/4" Male NPT	1/4" CPI™ Compression	.187	4.7	.62	.73	2.25	57.2	.98	24.9	.750	19.1	.563	14.3
6A-CO6L-***-SS	3/8" A-LOK® Compression	3/8" A-LOK® Compression	.281	7.1	1.70	.73	3.17	80.5	1.65	41.9	1.00	25.4	.688	17.5
6F-CO6L-***-SS	3/8" Female NPT	3/8" Female NPT	.328	8.3	1.85	.69	3.03	77.0	-	-	1.00	25.4	-	-
6M-CO6L-***-SS	3/8" Male NPT	3/8" Male NPT	.328	8.3	1.85	.69	2.78	70.6	1.64	41.7	1.00	25.4	-	-
6TA-CO6L-***-SS	3/8" Tube Adapter	3/8" Tube Adapter	.281	7.1	1.70	.73	3.09	78.5	1.65	41.9	1.00	25.4	-	-
6Z-CO6L-***-SS	3/8" CPI™ Compression	3/8" CPI™ Compression	.281	7.1	1.70	.73	3.17	80.5	1.65	41.9	1.00	25.4	.688	17.5
8V-CO6L-***-SS	1/2" VacuSeal	1/2" VacuSeal	.328	8.3	1.85	.69	3.57	90.7	2.06	52.3	1.00	25.4	-	-
8V1-CO6L-***-SS	1/2" Female VacuSeal	1/2" Female VacuSeal	.328	8.3	1.85	.69	3.57	90.7	1.65	41.9	1.00	25.4	1.062	27.0
M8A-CO6L-***-SS	8mm A-LOK® Compression	8mm A-LOK® Compression	.250	6.4	1.60	.68	3.15	80.0	1.69	42.9	1.00	25.4	.630	16.0
M8Z-CO6L-***-SS	8mm CPI™ Compression	8mm CPI™ Compression	.250	6.4	1.60	.68	3.15	80.0	1.69	42.9	1.00	25.4	.630	16.0
8A-CO8L-***-SS	1/2" A-LOK® Compression	1/2" A-LOK® Compression	.406	10.3	2.65	.75	3.37	85.6	1.63	41.4	1.25	31.8	.875	22.2
8F-CO8L-***-SS	1/2" Female NPT	1/2" Female NPT	.406	10.3	2.65	.75	3.60	91.4	-	-	1.25	31.8	-	-
8M-CO8L-***-SS	1/2" Male NPT	1/2" Male NPT	.406	10.3	2.65	.75	3.16	80.3	1.65	41.9	1.25	31.8	-	-
8Q-CO8L-***-SS	1/2" UltraSeal	1/2" UltraSeal	.375	9.5	2.55	.78	3.01	76.5	2.05	52.1	1.25	31.8	-	-
8TA-CO8L-***-SS	1/2" Tube Adapter	1/2" Tube Adapter	.375	9.5	2.55	.78	3.64	92.5	1.68	42.7	1.25	31.8	-	-
8V-CO8L-***-SS	1/2" VacuSeal	1/2" VacuSeal	.406	10.3	2.65	.75	3.56	90.4	2.05	52.1	1.25	31.8	-	-
8V1-CO8L-***-SS	1/2" Female VacuSeal	1/2" Female VacuSeal	.375	9.5	2.55	.78	3.65	92.7	1.73	43.9	1.25	31.8	1.062	27.0
8Z-CO8L-***-SS	1/2" CPI™ Compression	1/2" CPI™ Compression	.406	10.3	2.65	.75	3.37	85.6	1.63	41.4	1.25	31.8	.875	22.2
M12A-CO8L-***-SS	12mm A-LOK® Compression	12mm A-LOK® Compression	.375	9.5	2.55	.78	3.44	87.4	1.72	43.7	1.25	31.8	.866	22.0
M12Z-CO8L-***-SS	12mm CPI™ Compression	12mm CPI™ Compression	.375	9.5	2.55	.78	3.44	87.4	1.72	43.7	1.25	31.8	.866	22.0

\*Cracking Pressure \*\* Seal Designator

†For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

‡Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = x_T$ .

# CO Series Check Valves

## How to Order

The correct part number is easily derived by following the circled number sequence. The six product characteristics required are coded as shown below. \*Note: If both the inlet and outlet ports are the same, eliminate the outlet port designator.

**Example:** **4M** **4F** - **CO4L** - **1** - **V** - **SS**  
 ① ② ③ ④ ⑤ ⑥  
**Inlet Port** **Outlet Port** **Body Size** **Crack Pressure** **Seal Material** **Body Material**

Describes a CO Series Check Valve with 1/4" male NPT inlet and a 1/4" female NPT outlet, 1 psig cracking pressure, fluorocarbon rubber seals, and stainless steel body construction.

① Inlet Port	② Outlet Port	③ Body Size	④ Crack Pressure	⑤ Seat & Seal Material	⑥ Body Material
4A, 4F, 4M, 4Q, 4TA 4V, 4V1, 4Z, M6A, M6Z	4A, 4F, 4M, 4Q, 4TA 4V, 4V1, 4Z, M6A, M6Z	CO4L	1/3 psi 1 psi 5 psi	V - Fluorocarbon Rubber BN - Buna-N Rubber EPR - Ethylene Propylene Rubber KZ - Highly Fluorinated Fluorocarbon Rubber	SS - 316 Stainless Steel
6A, 6F, 6M, 6TA, 6Z, 8V, 8V1, M8A, M8Z	6A, 6F, 6M, 6TA, 6Z, 8V 8V1, M8A, M8Z	CO6L	10 psi 25 psi 50 psi		
8A, 8F, 8M, 8Q, 8TA, 8V1, 8Z, M12A, M12Z	8V, 8A, 8F, 8M, 8Q, 8TA, 8V, 8V1, 8Z, M12A, M12Z	CO8L	75 psi 100 psi		

## Options

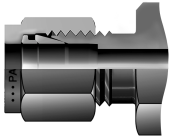
**Oxygen Cleaning** - Add the suffix **-C3** to the end of the part number to receive valves cleaned and assembled for oxygen service in accordance with Parker specification ES8003. **Example:** 4A-CO4L-1-BN-SS-C3

**Special Cleaning** - All face seal ended valves are cleaned in accordance with Parker Specification ES8001. This is an option for all valves by adding the suffix **-C1** to the end of the part number. **Example:** M6A-CO4L-10-SS-C1

**Material** - Contact the factory for availability of AOD/VAR stainless steel and ID Electropolish.

## Available End Connections

**A**-Two ferrule A-LOK® compression port



**M**-ANSI/ASME B1.20.1 External pipe threads



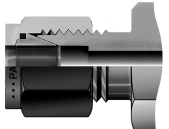
**F**-ANSI/ASME B1.20.1 Internal pipe threads



**Q**-UltraSeal face seal port



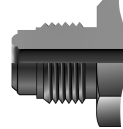
**Z**-Single ferrule CPI™ compression port



**V1**-Internal VacuSeal face seal port



**V**-VacuSeal face seal port



**TA**-Tube adapter connection



### ! WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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## Crack and Re-seal Performance

Check Valve Rated Crack Pressure		Minimum Acceptable Crack Pressure		Maximum Acceptable Crack Pressure		Maximum Re-seal Back Pressure	
psig	bar	psig	bar	psig	bar	psig	bar
1/3	0.02	0	0.00	1	0.07	4	0.28
1	0.07	0	0.00	3	0.21	4	0.28
5	0.34	3	0.21	8	0.55	3 BCP	0.21 BCP
10	0.69	7	0.48	13	0.90	3 BCP	0.21 BCP
25	1.72	20	1.38	30	2.07	4 BCP	0.28 BCP
50	3.45	40	2.76	60	4.14	5 BCP	0.34 BCP
75	5.17	60	4.14	90	6.21	7 BCP	0.48 BCP
100	6.89	80	5.52	120	8.27	10 BCP	0.69 BCP

BCP means "Below Cracking Pressure"

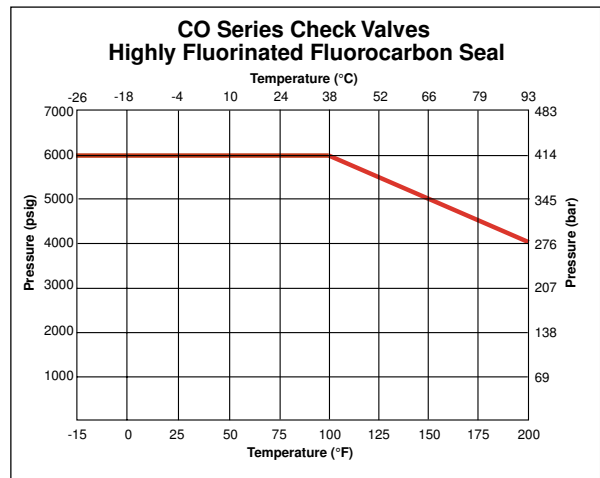
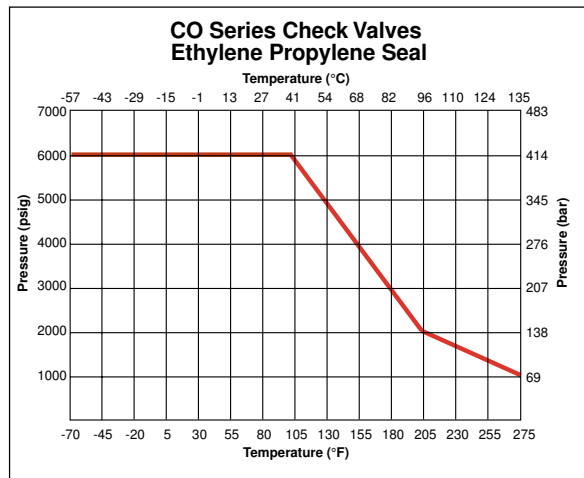
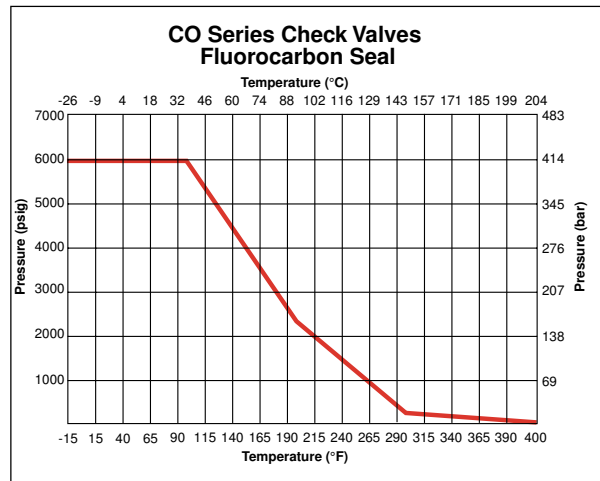
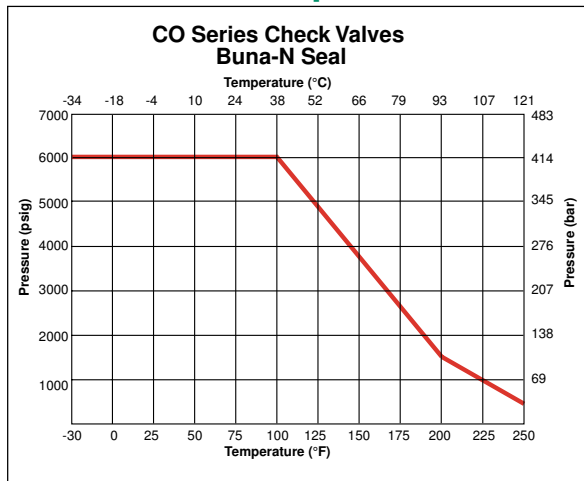
Cracking pressure is defined as the upstream pressure at which a detectable flow is measured.

Re-seal pressure is defined as the upstream pressure at which the check valve closes bubble-tight.

**Example:** For a valve with a spring having a rated cracking pressure of 25 psig, (1.72 bar) the actual cracking pressure ranges between 20 and 30 psig (1.38 and 2.07 bar). The re-seal pressure range would be 16 to 20 psig (1.10 to 1.38 bar). Check valves having springs with rated crack pressures of 3 psig (0.21 bar) or less may require up to 4 psig (0.28 bar) back pressure to re-seal bubble-tight.

**Note:** Check valves which are not actuated for a period of time may initially crack at higher than the above crack pressure ranges.

## Pressure vs. Temperature



**Note:** To determine MPa, multiply bar by 0.1