



Check Valves, Filters and Relief Valves

Catalog 4135-CV

April 2019

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



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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.

RL4

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)

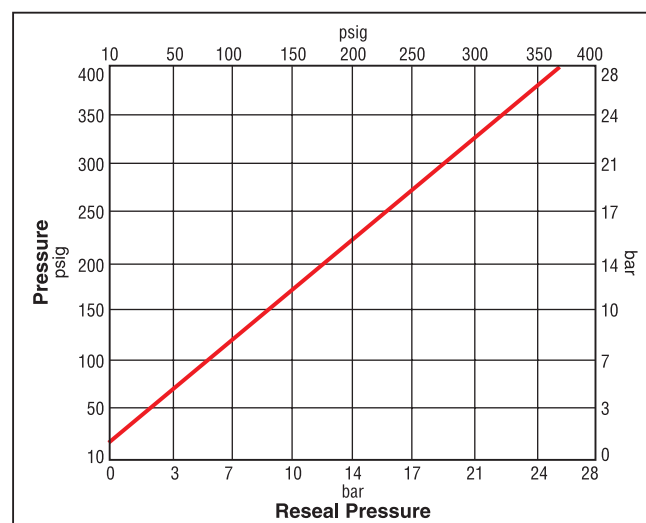
Fluorocarbon Rubber..... -10°F to 400°F (-23°C to 204°C)

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 ³ /hr	SCFM	m ³ /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

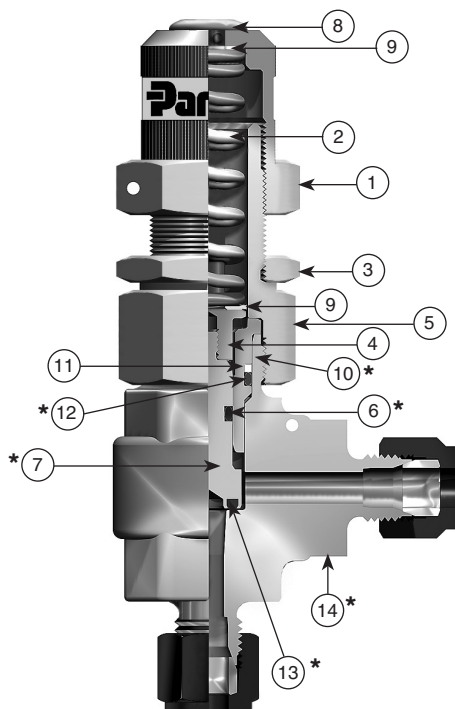
Crack Pressure vs. Reseal Pressure



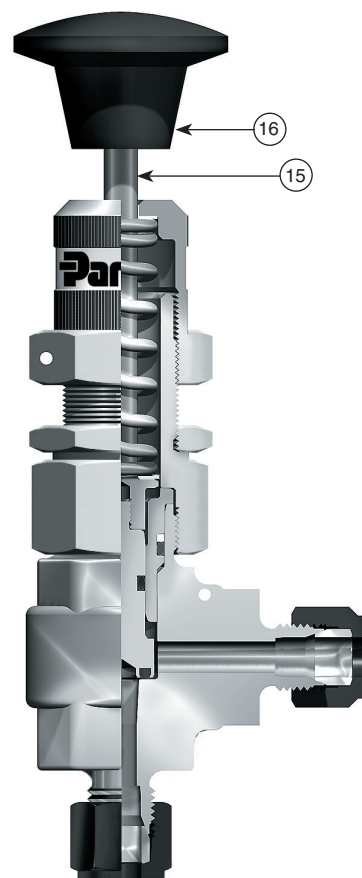
Note: Valves which are not actuated for a period of time may initially crack at higher than set crack pressures.

Note: To determine MPa, multiply bar by 0.1

Materials of Construction



Model Shown: 4Z-RL4A-BNT-SS



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

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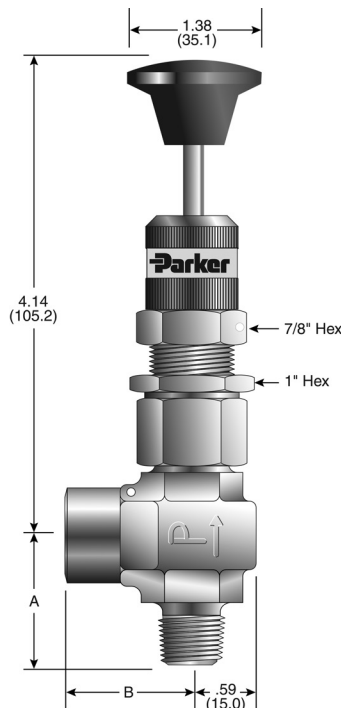
Item #	Part	Material
1	Cap	ASTM A 479, Type 316
2	Spring	17Cr-7Ni Stainless Steel
3	Locknut	316 Stainless Steel
4	Upper Stem	ASTM A 479, Type 316
5	Bonnet	ASTM A 479, Type 316
*6	Stem Seal	**Fluorocarbon Rubber
*7	Lower Stem	ASTM A 479, Type 316
8	Plug	Zinc Plated Steel
9	Washer	PTFE
*10	Stem Guide	ASTM 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

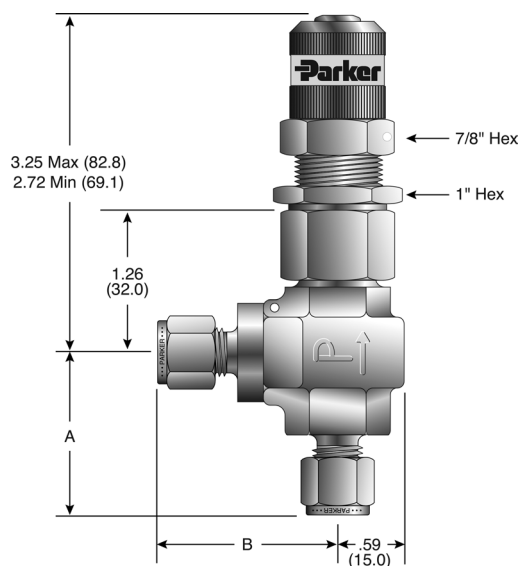
** Optional seat and seal materials are located in How to Order section.

Lubrication: Perfluorinated polyether.

Dimensions and Flow Data



() Denotes dimensions in millimeters



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

Model Shown: 4A-RL4A-BNT-SS

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

Basic Part Number	End Connections (Inlet) Port 1	Flow Data				Dimensions †				Options			
		Orifice		C _v	X _T *	A		B		Seal Material		Actuation	
		Inch	mm			inch	mm	inch	mm				
4A-RL4A-VT-SS	1/4" A-LOK® Compression	0.203	5.2	0.75	0.70	1.44	36.6	1.60	40.6	BN	Nitrile Rubber	MN	Manual Override
4Z-RL4A-VT-SS	1/4" CPI™ Compression					1.44	36.6	1.60	40.6				
4M4A-RL4A-VT-SS	1/4" Male NPT					1.19	30.2	1.60	40.6	EPR	Ethylene Propylene Rubber		
4M4Z-RL4A-VT-SS	1/4" Male NPT					1.19	30.2	1.60	40.6				
4M4F-RL4A-VT-SS	1/4" Male NPT					1.19	30.2	1.17	29.7	NE	Neoprene Rubber		
4KF-RL4A-VT-SS	1/4" Female BSP/ISO Tapered					1.19	30.2	1.17	29.7				
4KM-RL4A-VT-SS	1/4" Male BSP/ISO Tapered					1.19	30.2	1.17	29.7	KZ	Highly Fluorinated Fluorocarb. Rubber		
M6A-RL4A-VT-SS	6mm A-LOK® Compression					1.44	36.6	1.60	40.6				
M6Z-RL4A-VT-SS	6mm CPI™ Compression					1.44	36.6	1.60	40.6				
M8A-RL4A-VT-SS	8mm A-LOK® Compression					1.44	36.6	1.60	40.6				
M8Z-RL4A-VT-SS	8mm CPI™ Compression					1.44	36.6	1.60	40.6				

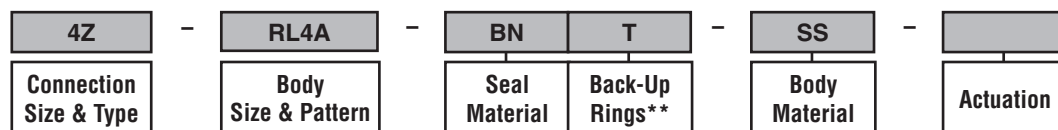
* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.

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

How to Order

The part number sequence identifies product characteristics as shown in the example below.

Example: 4Z-RL4A-BNT-SS Describes an RL4A Series externally adjustable relief valve equipped with 1/4" CPI™ compression inlet and outlet ports on a 1/4" angle pattern body, Nitrile seals, PTFE back-up ring, stainless steel construction.



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



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Seal Kits

Kit Part 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



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