



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 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.

RH4

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 (3.4-24.1 bar)	350-750 psig (24.1-51.7 bar)	750-1500 psig (51.7-103.4 bar)
1500-2250 psig (103.4-155.1 bar)	2250-3000 psig (155.1-206.8 bar)	3000-4000 psig (206.8-275.8 bar)
4000-5000 psig (275.8-344.7 bar)	5000-6000 psig (344.7-413.7 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)

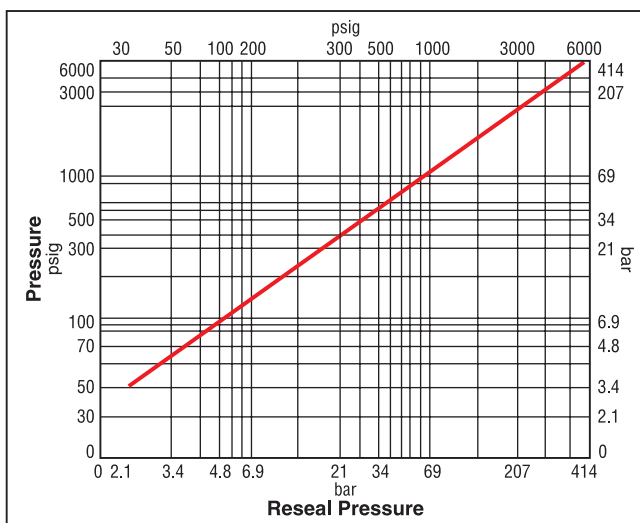
Fluorocarbon Rubber ..-10°F to +400°F (-23°C to +204°C)

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	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

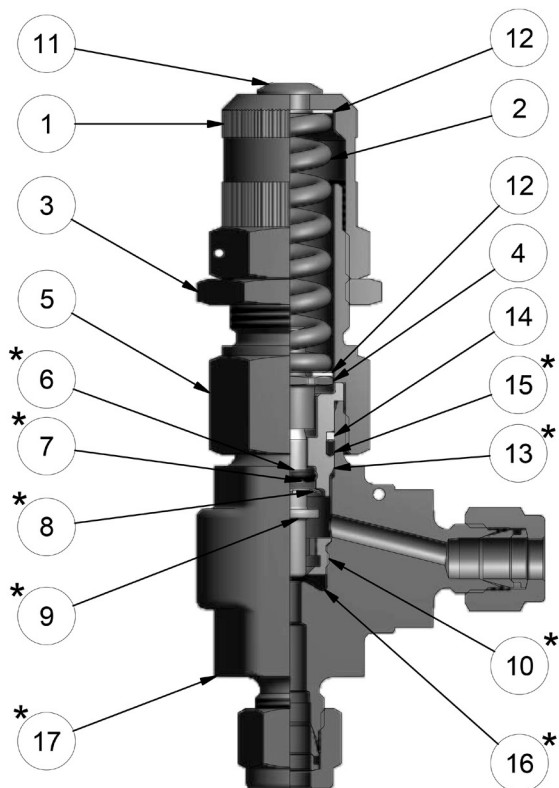
Crack Pressure vs. Reseal Pressure



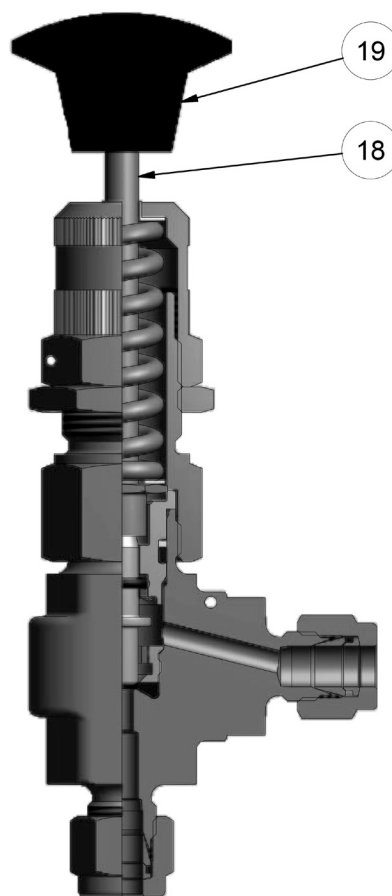
Note: Valves which are not actuated for a period of time may initially crack at higher than set crack pressures.

Note: To determine MPa, multiply bar by 0.1

Materials of Construction



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



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

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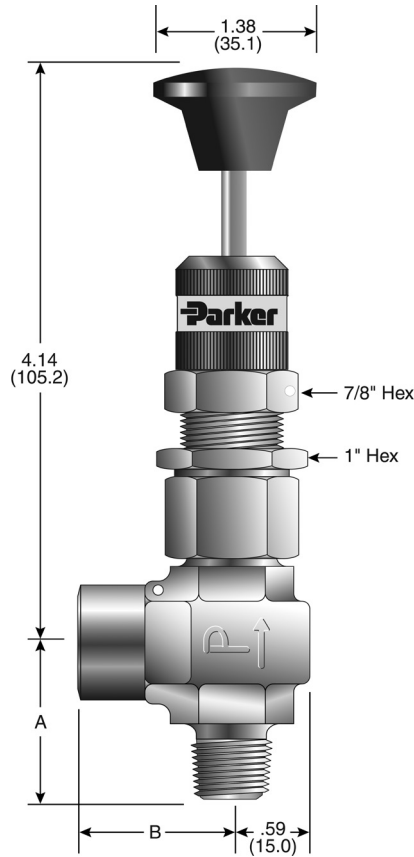
Item #	Part	Material
1	Cap	ASTM A 479, Type 316
2	Spring	17-7 Stainless Steel
3	Locknut	316 Stainless Steel
4	Upper Stem	ASTM A 479, Type 316
5	Bonnet	ASTM A 479, Type 316
*6	Stem Seal	**Fluorocarbon Rubber
*7	Stem Back-up Ring	CTFE
*8	Push On Ring	PH 15-7MO Stainless Steel
*9	Lower Stem	ASTM A 479, Type 316
*10	Seat Retainer	ASTM A 479, Type 316
11	Plug	Zinc Plated Steel
12	Washer	PTFE
*13	Stem Guide	ASTM A 479, Type 316
14	Back-up Ring	PTFE
*15	Body Seal	**Fluorocarbon Rubber
*16	Seat	**Fluorocarbon Rubber
*17	Valve Body	ASTM A 182, Type F316
18	Handle Stem	ASTM A 479, Type 316
19	Handle	Phenolic

* Wetted Parts

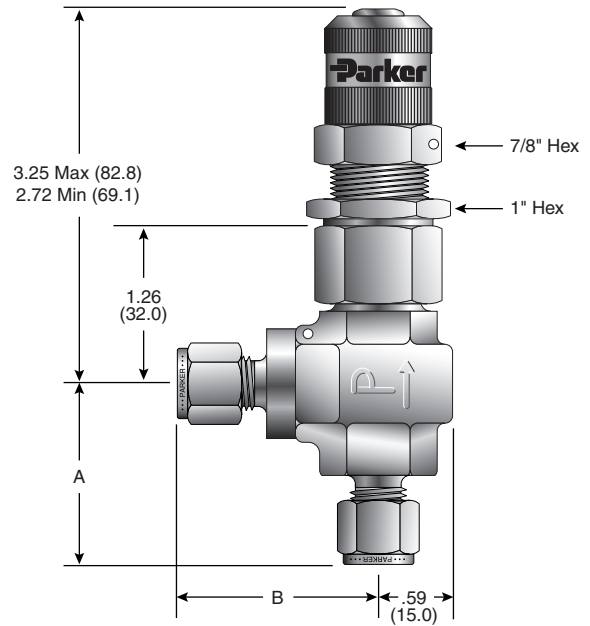
** Optional seat and seal materials are located in How to Order section.

Lubrication: Perfluorinated polyether.

Dimensions / Flow Data



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



Model Shown:
4A-RH4A-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-RH4A-VT-SS	1/4" A-LOK® Compression	0.14	3.6	0.41	0.67	1.44	36.6	1.60	40.6	BN	Nitrile Rubber	MN	Manual Override
4Z-RH4A-VT-SS	1/4" CPI™ Compression					1.44	36.6	1.60	40.6				
4M4A-RH4A-VT-SS	1/4" Male NPT					1.19	30.2	1.60	40.6	EPR	Ethylene Propylene Rubber		
4M4Z-RH4A-VT-SS	1/4" Male NPT					1.19	30.2	1.60	40.6				
4M4F-RH4A-VT-SS	1/4" Male NPT					1.19	30.2	1.17	29.7				
4KF-RH4A-VT-SS	1/4" Female BSP/ISO Tapered					1.19	30.2	1.17	29.7	NE	Neoprene Rubber		
4KM-RH4A-VT-SS	1/4" Male BSP/ISO Tapered					1.19	30.2	1.17	29.7				
M6A-RH4A-VT-SS	6mm A-LOK® Compression					1.44	36.6	1.60	40.6	KZ	Highly Fluorinated Fluorocarbon Rubber		
M6Z-RH4A-VT-SS	6mm CPI™ Compression					1.44	36.6	1.60	40.6				
M8A-RH4A-VT-SS	8mm A-LOK® Compression					1.44	36.6	1.60	40.6				
M8Z-RH4A-VT-SS	8mm CPI™ Compression					1.44	36.6	1.60	40.6				

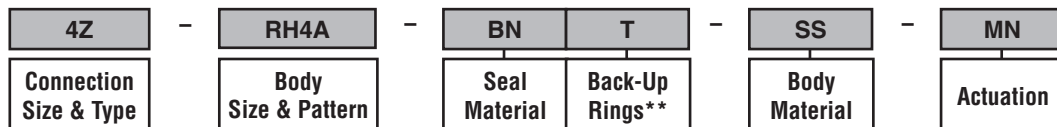
* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.

†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-RH4A-BNT-SS-MN Describes an RH4A 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 and Manual Override.



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

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Seal Kits

Kit Part Number	Kit Part Number (Manual Override Option)	Seat/Seal Material
KIT-RH4-SLEEVE-VT-SS	KIT-RH4-SLEEVE-MN-VT-SS	Fluorocarbon Rubber
KIT-RH4-SLEEVE-BNT-SS	KIT-RH4-SLEEVE-MN-BNT-SS	Nitrile Rubber
KIT-RH4-SLEEVE-EPRT-SS	KIT-RH4-SLEEVE-MN-EPRT-SS	Ethylene Propylene Rubber
KIT-RH4-SLEEVE-NET-SS	KIT-RH4-SLEEVE-MN-NET-SS	Neoprene Rubber
KIT-RH4-SLEEVE-KZT-SS	KIT-RH4-SLEEVE-MN-KZT-SS	Highly Fluorinated Fluorocarbon Rubber

Seal Kit Contains:

- Stem Cartridge
- Seat
- Maintenance Instructions



Parker Worldwide

North America

USA – Corporate, Cleveland, OH
Tel: +1 256 896 3000

USA – IPD, Huntsville, AL
Tel: +1 256 881 2040
ipdcct@parker.com

USA – IPD, (Autoclave), Erie, PA
Tel: +1 814 860 5700
ipdaecct@parker.com

CA – Canada, Grimsby, Ontario
Tel: +1 905-945-2274
ipd_canada@parker.com

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129
falecom@parker.com

BR – Brazil, Sao Jose dos Campos
Tel: +55 12 4009 3504
falecom@parker.com

CL – Chile, Santiago
Tel: +56 (0) 2 2303 9640
falecom@parker.com

MX – Mexico, Toluca
Tel: +52 722 275 4200
contacto@parker.com

Asia Pacific

AU – Australia, Dandenong
Tel: +61 (0)2 9842 5150
customer.service.au@parker.com

CN – China, Shanghai
Tel: +86 21 2899 5000
INGtechnical.china@parker.com

HK – Hong Kong
Tel: +852 2428 8008

IN – India, Mumbai
Tel: +91 22 6513 7081-85

ID – Indonesia, Tangerang
Tel: +62 (0)21 7588 1906
parker.id@parker.com

JP – Japan, Tokyo
Tel: +(81) 3 6408 3900
infophj@parker.com

KR – South Korea, Seoul
Tel: +82 2 559 0400
parkerkr@parker.com

MY – Malaysia, Selangor
Tel: +603 784 90 800
parkermy@parker.com

SG – Singapore,
Tel: +65 6887 6300
parkersg@parker.com

TH – Thailand, Bangkok
Tel: +66 2 186 7000
phthailand@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987
enquiry.taiwan@parker.com

VN – Vietnam, Hochi Minh City
Tel: +848 382 508 56
parker_viet@parker.com

Europe, Middle East, Africa

AE – UAE, Dubai
Tel: +971 4 8875600
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 970
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy
Tel: +41 (0) 21 821 02 30
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 33 00 01
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Stavanger
Tel: +47 (0)51 826 300
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

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