

# R4 Series Proportional Pressure Relief Valves

- working pressures to 6000 psig (413 bar)
- cracking pressures from 50 to 1500 psig (3.4 to 103 bar)
- 316 stainless steel construction with Viton seals
- 1/2" and 12mm gageable SWAGELOK® Tube Fittings and 1/2" NPT end connections

## OPERATION

During relief, flow through the valve increases proportionally as the inlet pressure increases.

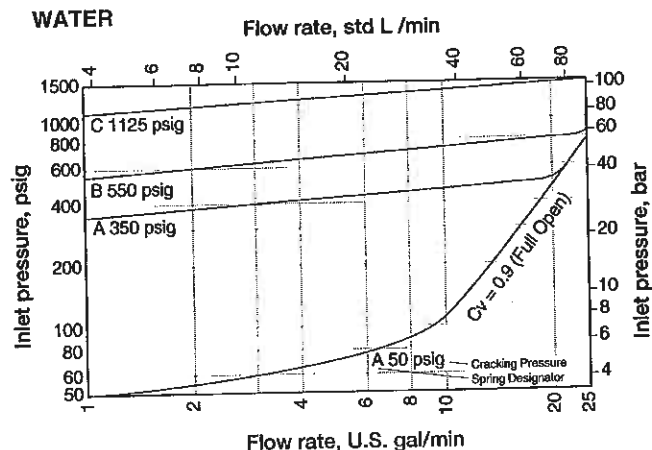
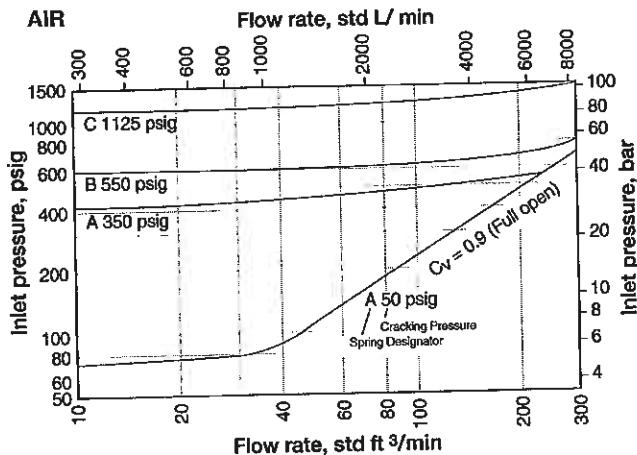
## PRESSURE RATINGS at 70°F (21°C)

Cracking Pressure	Adjustable from 50 to 1500 psig (3.4 to 103 bar)
Working Pressure, Maximum	6000 psig (413 bar)
Outlet Pressure, Maximum	2500 psig (172 bar). Outlet pressure should not exceed inlet pressure

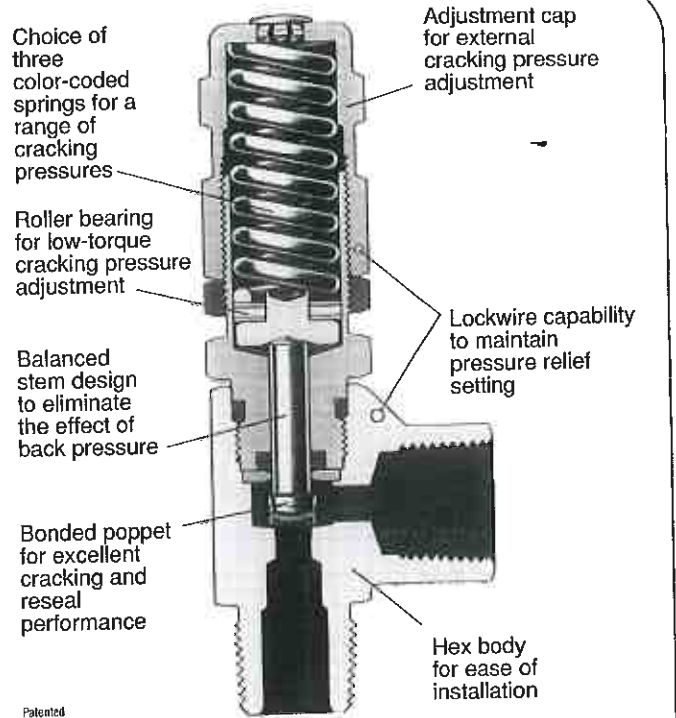
## TEMPERATURE RATING

Seal Material	Temperature Rating
Viton	0°F to 250°F (-18°C to 121°C)
Buna N	-10°F to 250°F (-23°C to 121°C)
Neoprene	-10°F to 275°F (-23°C to 135°C)
Ethylene Propylene	-10°F to 275°F (-23°C to 135°C)

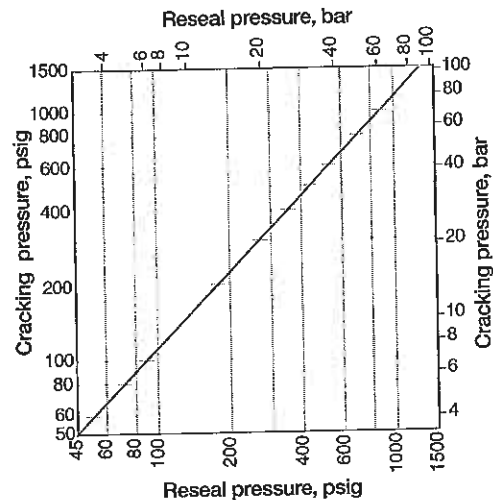
## FLOW CURVES



NOTE: Inlet pressure is measured at the valve; flow rate is measured with the valve discharging to atmosphere. Restrictions in the inlet or discharge piping will reduce the flow rate.



## CRACKING PRESSURE® vs. RESEAL PRESSURE®



NOTE: Cracking and reseal pressures are repeatable within  $\pm 5\%$ .

Valves that are not actuated for a period of time may initially crack above the set cracking pressure.

® Cracking Pressure: The upstream pressure at which the first indication of flow occurs.

® Reseal Pressure: The upstream pressure at which the valve closes bubble-tight.

## TESTING

Every valve is factory tested for crack and reseal performance.

## CLEANING

Every valve is cleaned and packaged to SWAGELOK Specification SC-10. Optional special cleaning and packaging to SWAGELOK Specification SC-11 is available.

Consult your Authorized SWAGELOK Sales & Service Representative.

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## MATERIALS OF CONSTRUCTION

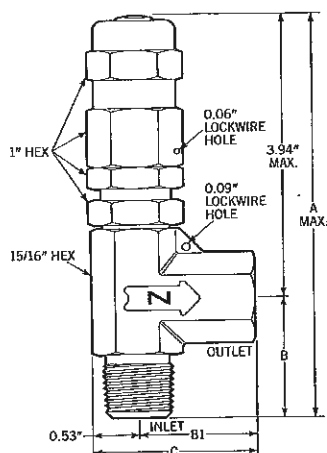
Part	Grade/ASTM Specification
Body	316SS/A182
Bonnet, Adjustment Cap, <sup>®</sup> Spring Support Disc, Locking Nut	316SS/A276 or A479
Stem Guide	316SS/B783
Poppet	Viton Bonded 316SS/A276 or A479
Spring	17-7 PH SS/ASM 5678A
Cap Plug	Nickel plated brass
Roller Bearing	Steel
Stem Seal <sup>®</sup>	TFE-coated Viton
Bonnet Seal <sup>®</sup>	Viton
Pressure Label	Polyester

Wetted parts are shown in GREEN.

Lubricants

®Molybdenum disulfide base dry film    ®Silicone base lubricant

## TABLE OF DIMENSIONS



Basic Ordering Number	Orifice		Connection Size		Dimensions (Inches)			
	In.	mm	Inlet	Outlet	A	B	B1	C
SS-R4S8-			1/2 SWAGELOK	1/2 SWAGELOK	5.84	1.84	1.84	2.38
SS-R4M8S8-			1/2 Male NPT	1/2 SWAGELOK	5.43	1.43	1.84	2.38
SS-R4M8F8-			1/2 Male NPT	1/2 Female NPT	5.43	1.43	1.43	1.97
SS-R4S12MM-			12mm SWAGELOK	12mm SWAGELOK	5.84	1.84	1.84	2.38

Dimensions shown with SWAGELOK nuts finger-tight, where applicable.  
All dimensions are for reference only, subject to change.

## ORDERING INFORMATION

For a complete Ordering Number, select the **Spring Designator** from the ORDERING CHART below that corresponds to the desired Cracking Pressure Range. Use this Spring Designator as a suffix to the Basic Ordering Number. Example: SS-R4S8-C

## ORDERING CHART

Nominal Cracking Pressure Range		Spring Designator	Spring Color	Spring Kit Ordering Number
psig	bar			
50 - 350	3.4-24	A	Blue	177-13K-R4-A
350 - 750	24-51.5	B	Yellow	177-13K-R4-B
750 - 1500	51.5-103	C	Purple	177-13K-R4-C

## OPTIONS & ACCESSORIES

### Seal Materials

- are available in Buna N, neoprene, and ethylene propylene
- include bonnet seal, stem seal, and bonded poppet.

To order seals **factory-assembled**, use the designator for the desired seal material from the chart below as a suffix to the valve Ordering Number.  
Example: SS-R4S8-A-NE

To order a seal kit for **field assembly**, select the Kit Ordering Number from the chart below that corresponds to the desired seal material.

Seal Material	Material Designator	Seal Kit Ordering Number
Viton (standard)	—	SS-3K-R4-VI
Buna N	-BU	SS-3K-R4-BN
Neoprene	-NE	SS-3K-R4-NE
Ethylene propylene	-EP	SS-3K-R4-EP

### Manual Override Handle

- relieves upstream system pressure without disturbing the valve's normal cracking pressure
- maximum operating pressure: 350 psig (24 bar); (use with "A" spring only)
- maximum overall height of valve with handle: 6.78" in the closed position; handle diameter: 1.50"

To order handle **factory-assembled**, use -MO as a suffix to the valve Ordering Number.

Example: SS-R4S8-A-MO  
To order a handle kit for **field assembly**, use Ordering Number SS-R4-K5.

### Spring Kits

- are available for changing cracking pressure range of valve
- include spring, label, lockwire/lead seal, spring support disc, bearing assembly, and installation instructions.

To order, select the Spring Kit Ordering Number from the ORDERING CHART to the left that corresponds to the desired Cracking Pressure Range.

### Safe Valve Selection

When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.

**CAUTION:** Do not mix or interchange parts with those of other manufacturers.

Viton - TM DuPont  
17-7 PH - TM Armco Inc.

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