

CRYOGENIC RELIEF VALVE (STAINLESS)
1/4" and 1/2" NPT
-4 and -8 Metal To Metal Face Seal
1/4", 3/8", and 1/2" Bi-Lok Dual Ferrule Tube
10 - 750 Psig (0.69 - 51.7 Bar)

CRV
STAINLESS

SERIES

Description

The Generant Series Stainless Steel CRV, Cryogenic Relief Valve is a spring reference over pressure protection device. The Stainless CRV is supplied cleaned and packaged for oxygen service making it an ideal choice for most cryogenic relief valve applications. The valve can be ordered with set pressures ranging from 10 to 750 PSIG (0.69 to 51.7 Bar) and come factory preset and permanently locked. Relief pressure cannot be altered or adjusted in the field. Seat and poppet geometry combined with optimized spring ranges provide high flow rates with minimum pressure accumulation. Compact design and availability of a variety of inlet and outlet configurations reduces size and piping requirements. Relief pressure can be discharged to atmosphere or to a downstream connection. The CRV can be specified with PCTFE or PTFE for set pressures above 50 PSIG (3.45 Bar), Fluorosilicone for set pressures below 50 PSIG, and FKM (Viton™) throughout the available set pressure range.

Features

- Available in NPT, Metal to Metal Face Seal and Bi-Lok Dual Ferrule Tube Connections
- High Flow Capacity and Excellent Reseal Performance
- Discharge to Atmosphere or a Wide Variety of Inline Piping Configurations
- Supplied Factory Preset Set and Permanently Locked for Tamper Proof Service
- 100% Factory Tested for Leakage, Crack and Reseal Performance
- Optional Deflector Cap available for diverting exhausted gas
- Cleaned and Packaged for Oxygen Service

Technical Data

Nominal Set Pressure Range: 10 – 750 PSIG (0.69 to 51.7 Bar)
 Factory Set Tolerance: +/- 5% of Specified Pressure
 Zero Leakage to 95% of Set Pressure
 Full Rated Flow @ 110% of Set Pressure
 Reseat: 90% of set pressure OR
 80% for PCTFE seals set below 100 PSIG (6.9 Bar)
 80% for PTFE seals, any set pressure
 Unaffected by up to 10% Back Pressure
 Temperature Rating: -320° to 392° F (-196° C to 200° C)
based on seal material (see How To Order)
 Lubricant: Krytox®

Materials of Construction

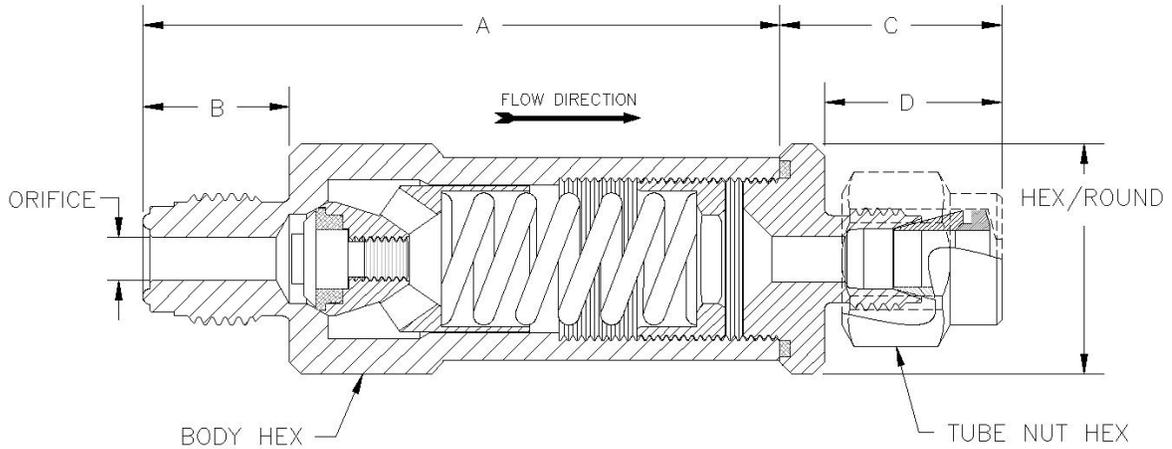
| Component | Material |
|--|---|
| Body, Poppet, Seat Screw, Spring Retainer, In-Line Adapter ¹ , Nuts and Ferrules | 316 Stainless Steel (ASTM A479) ² |
| Spring | 302 or 17-7 PH Stainless Steel (ASTM A313) |
| Seals | PCTFE (ASTM D1430), PTFE, Viton® or Fluorosilicone |

¹ Inline Adapters utilize Viton® o-ring seals. Metal to Metal Face Seal Inline Adapters are Electro Polished to 10 Ra Max.

² Valves supplied with Metal to Metal Face Seal connections have Electro Polished Inlet, Poppet and Seat Screw to 10 Ra Max.



CRYOGENIC RELIEF VALVE (STAINLESS)



Dimensional Data Configuration Shown CRV4T-4V

| Inlet Size | Designation | Orifice | A | B | Body Hex | Tube Nut Hex |
|--------------|-------------|-------------|-------------|-------------|----------|--------------|
| 1/4" NPT | 4 | .312 (7.9) | 2.65 (65.0) | 0.59 (15.0) | 7/8" | N/A |
| 1/2" NPT | 8 | .400 (10.2) | | | | |
| -4 Face Seal | 4V | .180 (4.6) | 2.68 (68.1) | 0.62 (15.8) | | |
| 1/4" Bi-Lok | 4T | .180 (4.6) | 2.94 (74.7) | 0.70 (17.8) | | |
| 3/8" Bi-Lok | 6T | .281 (7.1) | 2.94 (74.7) | 0.76 (19.3) | | |
| 1/2" Bi-Lok | 8T | .400 (10.2) | 3.51 (89.2) | 0.86 (21.8) | 7/8" | |
| -8 Face Seal | 8V | .400 (10.2) | 2.82 (71.6) | 0.75 (19.1) | 1" | N/A |

| Outlet Configuration | Configuration | C | D | Hex/Round | Tube Nut Hex |
|----------------------|---------------|-------------|-------------|-----------|--------------|
| Vent to Atmosphere | CRV | | N/A | | |
| Deflector Cap | CRVD | 0.75 (19.1) | N/A | 7/8" Hex | N/A |
| 1/4" FNPT | CRV4 | 0.37 (9.4) | | | |
| 3/8" FNPT | CRV6 | 0.67 (17.0) | | | |
| 1/2" FNPT | CRV8 | 0.74 (18.8) | | | |
| -4 Face Seal | CRV4V | 0.80 (20.3) | | | |
| 1/4" Bi-Lok | CRV4T | 0.89 (22.6) | 0.70 (17.8) | 7/8" Hex | 9/16" |
| 3/8" Bi-Lok | CRV6T | 0.65 (16.6) | 0.76 (19.3) | | 11/16" |
| 1/2" Bi-Lok | CRV8T | 1.05 (26.7) | 0.86 (21.8) | | 7/8" |
| -8 Face Seal | CRV8V | 0.94 (23.9) | 0.75 (19.1) | 1" Hex | N/A |

Note: Dimensions shown with Bi-Lok nuts finger-tight. Dimensions are in inches (millimeters), for reference only and subject to change. NPT Threads per ASME B1.20.1

Flow Data

| Set Pressure Range (PSIG) | | Discharge Coefficient, Kd | | |
|---------------------------|-----|---------------------------|----------------------|-----------------------|
| From | To | .180 Orifice (4.6mm) | .312 Orifice (7.9mm) | .400 Orifice (10.2mm) |
| 8 | 19 | 0.05 | 0.44 | 0.25 |
| 20 | 28 | 0.30 | 0.57 | 0.30 |
| 29 | 45 | 0.30 | 0.57 | 0.34 |
| 46 | 62 | 0.34 | 0.57 | 0.34 |
| 63 | 89 | 0.60 | 0.57 | 0.34 |
| 90 | 130 | 0.60 | 0.57 | 0.34 |
| 131 | 180 | 0.60 | 0.55 | 0.28 |
| 181 | 275 | 0.57 | 0.55 | 0.28 |
| 275 | 400 | 0.37 | 0.43 | 0.28 |
| 401 | 615 | 0.37 | 0.28 | 0.25 |
| 616 | 750 | 0.37 | 0.17 | 0.12 |

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How To Order

CRV4 - 4 - K - 350

CONFIGURATION

- CRV Vent To Atmosphere
- CRVD Deflector Cap
- CRV4 1/4" NPT Female Inline Adapter
- CRV6 3/8" NPT Female Inline Adapter
- CRV8 1/2" NPT Female Inline Adapter
- CRV4V -4 Face Seal Inline Adapter
- CRV4T 1/4" Bi-Lok Inline Adapter
- CRV6T 3/8" Bi-Lok Inline Adapter
- CRV8T 1/2" Bi-Lok Inline Adapter
- CRV8V -8 Face Seal Inline Adapter

Inlet Size Designation

- 4 1/4" Male NPT
- 8 1/2" Male NPT
- 4V -4 Metal to Metal Face Seal
- 4T 1/4" Bi-Lok Dual Ferrule Tube
- 6T 3/8" Bi-Lok Dual Ferrule Tube
- 8T 1/2" Bi-Lok Dual Ferrule Tube
- 8V -8 Metal to Metal Face Seal

Seal Material

- K PCTFE, above 50 PSIG Only (-320° to 165°F (-196° to 74°C))
- V FKM (Viton TM) (-20° to 375°F (-29° to 190°C))
- FS Fluorosilicone (-85° to 392°F (-65° to 200°C))
- T PTFE (-60° to 375°F (-51° to 190°C))

Specify Set Pressure

10 - 750 PSIG

PROPER COMPONENT SELECTION – When specifying a component, the total system design must be considered to ensure safe and trouble-free performance. Intended component function, materials compatibility, pressure ratings, installation, environment and maintenance are the responsibility of the system designer.



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