

## 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

### 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

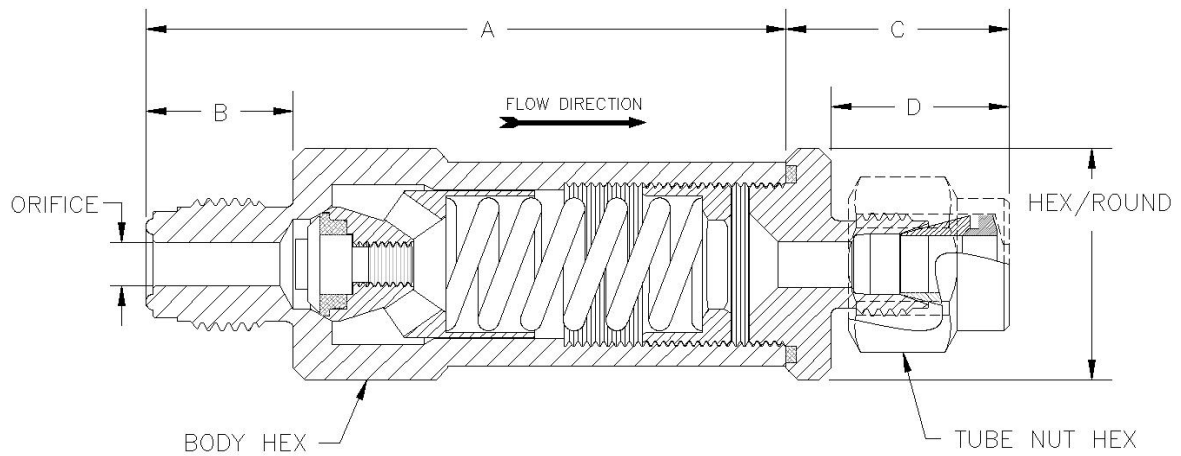
Component	Material
Body, Poppet, Seat Screw, Spring Retainer, In-Line Adapter <sup>1</sup> , Nuts and Ferrules	316 Stainless Steel (ASTM A479) <sup>2</sup>
Spring	302 or 17-7 PH Stainless Steel (ASTM A313)
Seals	PCTFE (ASTM D1430), PTFE, Viton® or Fluorosilicone

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

<sup>2</sup> 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)		9/16"
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)		11/16"
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)		1" Rd	
3/8" FNPT	CRV6	0.67 (17.0)			
1/2" FNPT	CRV8	0.74 (18.8)		7/8" Hex	9/16"
-4 Face Seal	CRV4V	0.80 (20.3)	0.62 (15.8)		
1/4" Bi-Lok	CRV4T	0.89 (22.6)	0.70 (17.8)		
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)	1" Hex	7/8"
-8 Face Seal	CRV8V	0.94 (23.9)	0.75 (19.1)		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