GENERANT

CRYOGENIC RELIEF VALVE (STAINLESS)
10 - 750 PSIG (0.7 - 51.7 bar)
NPT, SAE, FACE SEAL, AND DUAL FERRULE TUBE

STAINLESS CRV SERIES

DESCRIPTION

The Generant Series CRV SS, Stainless Cryogenic Relief Valve is a direct-acting spring reference over pressure protection device. The Stainless CRV is supplied cleaned and packaged for oxygen service. The valve can be ordered with set pressures ranging from 10 to 750 PSIG (0.7 to 51.7 bar) and comes 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 sealed downstream connection. CRV SS can be ordered in a wide variety of seal materials depending on the desired set pressure and temperature.



FEATURES

- **AVAILABLE CE MARKED: "**CE Marked" to the Cat. IV requirements of the Pressure Equipment Directive (PED).
- **MULTIPLE CONNECTION STYES**: NPT, Metal to Metal Face Seal and Dual Ferrule Tube Connections.
- **HIGH FLOW CAPACITY**: See Flow Data next page.
- **CONFIGURABLE OUTLET**: Discharge to Atmosphere or a Wide Variety of Sealed Outlet Pipe-A-Way Connections.
- **HYDROGEN COMPATIBLE**: All Stainless Design with Spring Located Downstream of Poppet Seal.
- **SETPOINT PERMANENTLY LOCKED:** Factory Pre-set and Permanently Staked for Tamper-Proof Service.
- **100% FACTORY TESTED**: Every valve is hand-tested for Leakage, Crack, and Reseat performance.
- **OXYGEN CLEAN STANDARD:** All Valves Supplied Cleaned and Packed for Oxygen Service.

TECHNICAL DATA

Nominal Set Pressure Range: 10 – 750 PSIG (0.7-51.7 bar)
Factory Set Tolerance: Set Pressure ≤ 28.90 PSI, ± 5%
Set Pressure 29.00 – 48.30 PSI, ± 1.45 PSI
Set Pressure ≥ 48.40 PSI, ± 3%
NOTE: Tolerance specifications per *EN ISO 4126-1*.
Zero Leakage to 95% of Set Pressure
Full Rated Flow by 110% of Set Pressure
Reseat: 90% of set pressure OR
85% for PCTFE seals set below 100 PSIG (6.9 Bar)
85% for PTFE seals, any set pressure
Flow Capacity unaffected by up to 10% Back Pressure
Temperature Rating: -425º to 392º F (-254º C to 200º C)
NOTE: Temperature ratings vary by seal material (see How To Order). Valves are designed to be installed with a "vapor barrier" between the cryogenic fluid and valve inlet. See SA.TD.SSCRV001 for more info.
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, FKM or Fluorosilicone

[1] Inline Adapters utilize Viton® O-ring seals.
[2] Metal-to-Metal Face Seal connections are supplied Electro Polished to 10 Ra Max.
NOTE: Viton® and Krytox® are registered trademarks of DuPont.

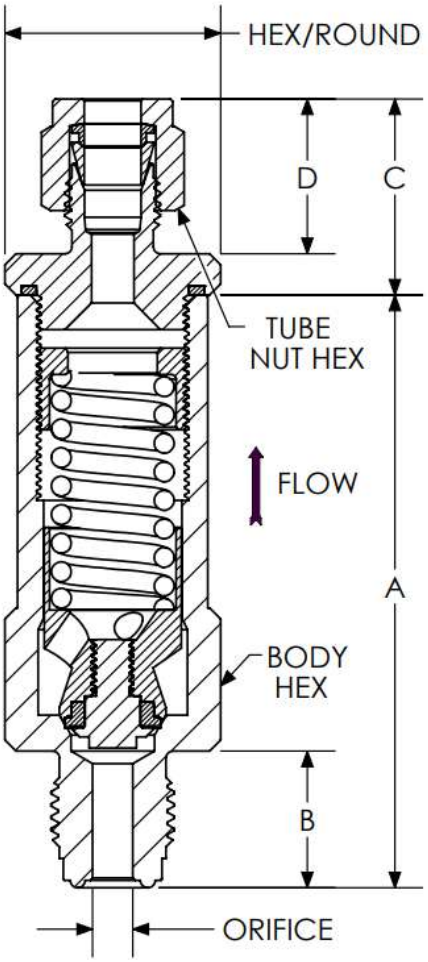
CRYOGENIC RELIEF VALVE (STAINLESS)

DIMENSIONAL DATA

Inlet Size	Inlet Code	Orifice inch (mm)	A inch (mm)	B inch (mm)	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	.192 (4.9)	2.68 (68.1)	0.62 (15.8)		
1/4" Dual Ferrule Tube	4T	.192 (4.9)	2.94 (74.7)	0.70 (17.8)		9/16"
3/8" Dual Ferrule Tube	6T	.281 (7.1)	2.94 (74.7)	0.76 (19.3)		11/16"
6SAE Male	6S	.281 (7.1)	2.45 (62.2)	0.39 (9.9)		N/A
1/2" Dual Ferrule Tube	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	Outlet Code	C inch (mm)	D inch (mm)	Hex / Round	Tube Nut Hex
Vent to Atm.	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)			
-4 Face Seal	CRV4V	0.80 (20.3)	0.62 (15.8)	7/8" Hex	
1/4" Dual Ferrule Tube	CRV4T	0.89 (22.6)	0.70 (17.8)		9/16"
3/8" Dual Ferrule Tube	CRV6T	0.65 (16.6)	0.76 (19.3)		11/16"
6SAE Female	CRV6S	0.64 (16.3)	N/A		N/A
1/2" Dual Ferrule Tube	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 dual ferrule tube fitting nuts finger-tight. Dimensions are in inches (millimeters), for reference and subject to change. NPT Threads per ASME B1.20.1.



Configuration Shown: CRV4T-4V

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" Dual Ferrule Tube Adapter
- CRV6T 3/8" Dual Ferrule Tube Adapter
- CRV8T 1/2" Dual Ferrule Tube 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" Dual Ferrule Tube
- 6T 3/8" Dual Ferrule Tube
- 6S -6SAE O'Ring Male
- 8T 1/2" Dual Ferrule Tube
- 8V -8 Metal to Metal Face Seal

Seal Material
- K PCTFE, above 50 PSIG Only (-425° to 165°F (-254° 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, above 50 PSIG Only (-425° to 375°F (-254° to 190°C))

Specify Set Pressure
10 - 750 PSIG

FLOW DATA

Set Pressure Range (PSIG)		Discharge Coefficient, K_{dr} (90% derated per ISO 4126-1)			
From	To	.192" Orifice (4.9mm)	.281" Orifice (7.1mm)	.312" Orifice (7.9mm)	.400" Orifice (10.2mm)
10	21.9	0.14	0.07	0.05	0.04
22	45.9	0.61	0.52	0.46	0.28
46	62.9	0.61	0.55	0.43	0.28
63	89.9	0.68	0.60	0.51	0.31
90	140.9	0.66	0.62	0.51	0.31
141	275.9	0.63	0.58	0.51	0.32
276	400.9	0.63	0.60	0.52	0.32
401	615.9	0.42	0.23	0.18	0.27
616	750	0.33	0.12	0.15	0.11

NOTE: Derated Discharge Coefficient (K_{dr}) is stated at 110% accumulation or 0.1 bar, whichever is greater.

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.

GENERANT
www.generant.com
1865 Route 23 South PO Box 768 Butler, New Jersey 07405 973.838.6500 Fax 973.838.4888