GENERANT
Valves & Bi-Lok Fittings

CRYOGENIC RELIEF VALVE (BRASS)
1/4", 3/8" and 1/2" NPT
10 - 750 Psig (0.7 - 51.7 Bar)

SERIES BRASS CRV

Description

The Generant Series Brass CRV, Cryogenic Relief Valve is a spring reference over pressure protection device. The CRV incorporates Generant's exclusive "Dirt Guard" feature which increases the valves ability to tolerate particulate contamination. This device is ideally suited for use as a "Blocked Line Safety" in cryogenic systems. The 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 come factory preset and permanently locked. Relief pressure can not 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 is supplied with Flourosilicone seals for set pressures from 10 – 49 Psig (0.7 – 3.4 Bar) and PCTFE seals for set pressures 50 – 750 Psig (3.5 – 51.7 Bar).

Features

- Available **CE** marked in accordance to the requirements of the PED 97/23/EC
- Exclusive "Dirt Guard" poppet incorporates screen to extend valve life and ensure reliability
- High Flow Capacity and Excellent Reseal Performance
- Supplied Factory Preset and Permanently Locked for Tamper Proof Service
- Discharge to Atmosphere or a Wide Variety of Inline Piping Configurations
- Optional Deflector Cap available for diverting exhausted gas
- 100% Factory Tested for Leakage, Crack and Reseal
- Cleaned and Packaged for Oxygen Service

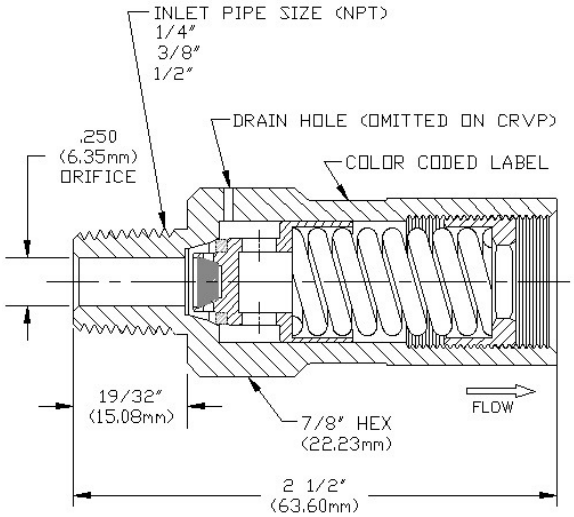
Technical Data

Nominal Set Pressure Range: 10 – 750 Psig (0.7 to 51.7 Bar)
Factory Set Tolerance*: Set Pressure ≥ 72.5 PSI, ± 3%
Set Pressure < 72.5 PSI, ± 2.175 PSI
*tolerance specifications per *EN ISO 4126-1.*
Zero Leakage to 95% of Set Pressure
Full Rated Flow @ 110% of Set Pressure
Unaffected by up to 10% Back Pressure
Reseat: 90% of set pressure
85% for PCTFE seals set below 100 Psig (6.9 Bar)
Temperature Rating: -320º to 350º F (-196º C to 176º C)
based on seal material (see How To Order)
Lubricant: Krytox®

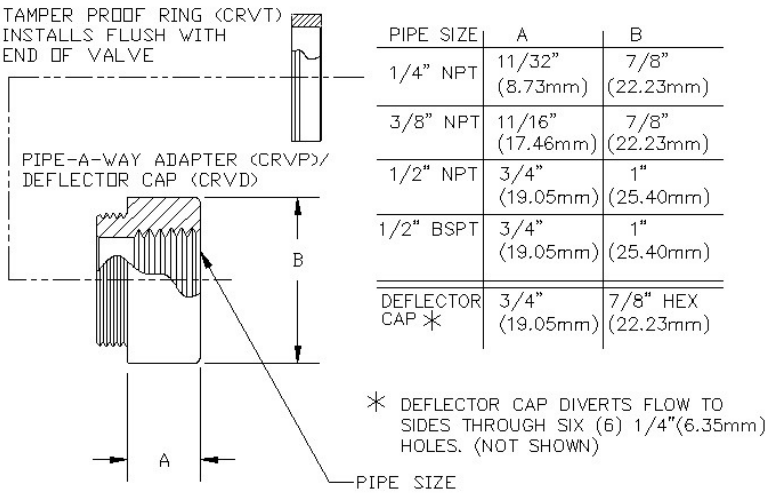
Materials of Construction

Component	Material
Body, Poppet, Adjusting Spring Retainer, Pipe-Away Adapters, Deflector Cap, Tamper Proof Ring	Brass, ASTM B16
Spring	302 (ASTM A313) or 17-4PH (ASTM A564)
Seal	PCTFE (ASTM D1430), or Fluorosilicone
Color Coded Identification Label	Mylar

CRYOGENIC RELIEF VALVE (BRASS)



CRV SHOWN WITH "DIRT GUARD" POPPET



PIPE SIZE	A	B
1/4" NPT	11/32" (8.73mm)	7/8" (22.23mm)
3/8" NPT	11/16" (17.46mm)	7/8" (22.23mm)
1/2" NPT	3/4" (19.05mm)	1" (25.40mm)
1/2" BSPT	3/4" (19.05mm)	1" (25.40mm)
DEFLECTOR CAP *	3/4" (19.05mm)	7/8" HEX (22.23mm)

* DEFLECTOR CAP DIVERTS FLOW TO SIDES THROUGH SIX (6) 1/4"(6.35mm) HOLES. (NOT SHOWN)

OPTIONAL CONFIGURATIONS (SEE HOW TO ORDER)

Flow Data

Set Pressure Range (Psig)		Discharge Coefficient Kd*
From	To	
10.0	17.0	0.62
17.1	29.0	0.62
29.1	40.0	0.53
40.1	60.0	0.53
60.1	90.0	0.61
90.1	125.0	0.76
125.1	190.0	0.76
190.1	275.0	0.67
275.1	375.0	0.61
375.1	600.0	0.48
600.1	750.0	0.40

Valve Orifice .250" (6.35mm) Diameter (same for 1/4", 3/8" and 1/2" NPT)

*Flow Coefficient Kd is stated at 110% accumulation

Relief Valve Flow Capacity can be calculated using **Generant's Online Flow Calculator** at www.generant.com or contact Customer Service at 973-838-6500.

How To Order

CRV ▯ 250B ▯ K ▯ 350

SERIES
CRV -Cryogenic Relief Valve
CRVP2 -Cryogenic Relief Valve with 1/4" Female Pipe-A-Way Adapter Installed
CRVP3 -Cryogenic Relief Valve with 3/8" Female Pipe-A-Way Adapter Installed
CRVP4 -Cryogenic Relief Valve with 1/2" Female Pipe-A-Way Adapter Installed
CRVT -Cryogenic Relief Valve with Tamper Proof Ring Installed
CRVD -Cryogenic Relief Valve with Deflector Adapter Installed
CRVB4 -Cryogenic Relief Valve with 1/2" BSPT Female Pipe-A-Way Adapter Installed

NOMINAL SET PRESSURE
10-750 Psig (0.7 - 51.7 Bar)

SEAL MATERIAL
FS ▯ Fluorosilicone for 10-49 Psig (-85° to 350° F (-65° to 176°C))
K ▯ PCTFE for Above 50 Psig (-320° to 165° F (-196° to 74° C))

INLET PIPE SIZE (NPT)
250B - 1/4" Male
375B - 3/8" Male
500B - 1/2" Male

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

SERIES 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 can not 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 (set pressures above 50 Psig (3.54 Bar)), Viton®, and Fluorsilicone seals.

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 Varity 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

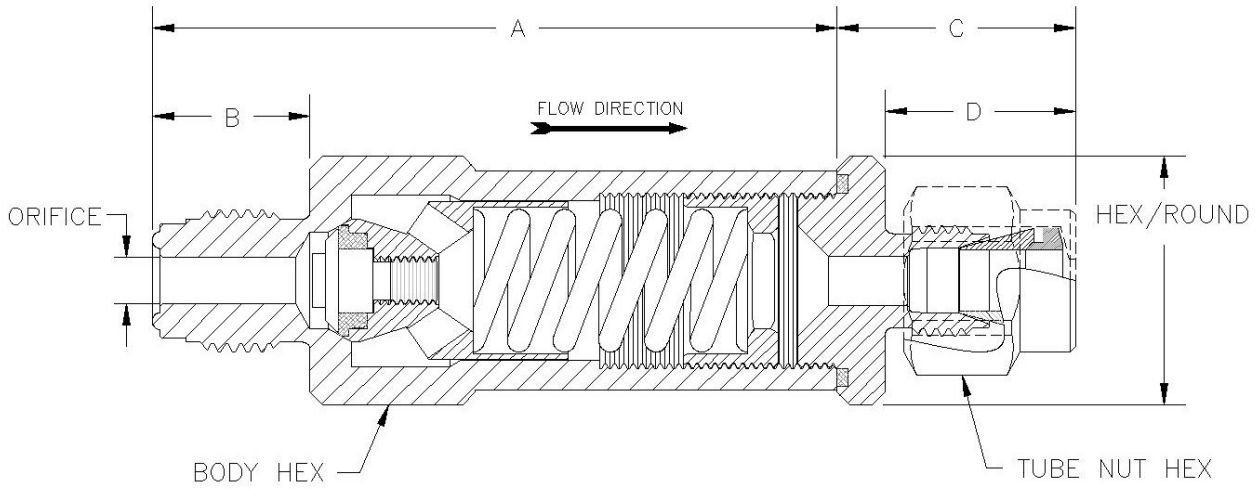
Nominal Set Pressure Range: 10 – 750 Psig (0.69 to 51.7 Bar)
Factory Set Tolerance: +/- 5% of Specified Pressure
Zero Leakage to 95% of Set Pressure
Full Rated Flow @ 110% of Set Pressure
Reseal: 90% (80% for PCTFE seals set below 100 psig (6.9 Bar))
Unaffected by up to 10% Back Pressure
Temperature Rating: -320º to 392º F (-196º C to 200º 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), Viton® or Teflon®

[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)



Configuration Shown CRV4T-4V

Dimensional Data

Inlet Size	Designation	Orifice	A	B	Body Hex	Tube Nut Hex
1/4" NPT	4	.312 (7.93)	2.65 (65.02)	0.59 (14.99)	7/8"	N/A
1/2" NPT	8	.400 (10.16)				
-4 Face Seal	4V	.180 (4.57)	2.68 (68.07)	0.62 (15.75)		
1/4" Bi-Lok	4T	.180 (4.57)	3.35 (85.09)	0.70 (17.78)		9/16"
1/2" Bi-Lok	8T	.400 (10.16)	3.51 (89.15)	0.86 (21.84)		7/8"
-8 Face Seal	8V	.400 (10.16)	2.82 (71.63)	0.75 (19.05)	1"	N/A

Configuration	Outlet	C	D	Hex/Round	Tube Nut Hex
CRV	Vent to Atmosphere	N/A			
CRVD	Deflector Cap	0.75 (19.05)	N/A	7/8" Hex	N/A
CRV4	1/4" FNPT	0.37 (9.40)		1" Rd	
CRV6	3/8" FNPT	0.67 (17.02)			
CRV8	1/2" FNPT	0.74 (18.80)			
CRV4V	-4 Face Seal	0.80 (20.32)	0.62 (15.75)	7/8" Hex	
CRV4T	1/4" Bi-Lok	0.89 (22.61)	0.70 (17.78)		9/16"
CRV8T	1/2" Bi-Lok	1.05 (26.67)	0.86 (21.84)		7/8"
CRV8V	-8 Face Seal	0.94 (23.88)	0.75 (19.05)	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 (4.57mm)	.312 Orifice (7.92mm)	.400 Orifice (10.16mm)
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" FNPT Inline Adapter
- CRV6 3/8" FNPT Inline Adapter
- CRV8 1/2" FNPT Inline Adapter
- CRV4V -4 Face Seal Inline Adapter
- CRV4T 1/4" Bi-Lok Inline Adapter
- CRV8T 1/2" Bi-Lok Inline Adapter
- CRV8V -8 Face Seal Inline Adapter

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

Seals
- K - PCTFE above 50 Psig (-320° to 165° F (-196° to 74° C))
- V - Viton® (-20° to 375° F (-29° to 190° C))
- FS - Fluorsilicone (-85° to 392° F (-65° to 200° C))

Specify Set Pressure
10-750 Psig

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