

Pressure Relief

Ratermann Manufacturing, Inc. carries a wide range of pressure reliefs.



INDEX

Pressure Relief

- Pressure Relief
 - 1/4" NPT – Liquid **19A-2**
 - 1/4" NPT – Gas **19A-2**
 - 1/2" NPT – Liquid / Gas . . . **19A-3**
- Pressure Relief
 - Candy Cane & T **19A-14**
 - Labels for Pressure Reliefs. **19A-14**

Generant Pressure Relief

- Series VRV & VRVD
 - Vent Relief Valve **19A-4-8**
- Series HPRV
 - High Pressure Relief Valve . **19A-9,11**
- Series VRVH & VRVHI
 - Vent Relief Valve **19A-12,13**



Liquid Cylinder Pressure Relief Valve

Exclusively for use on DOT 4L Cryogenic Liquid Cylinders

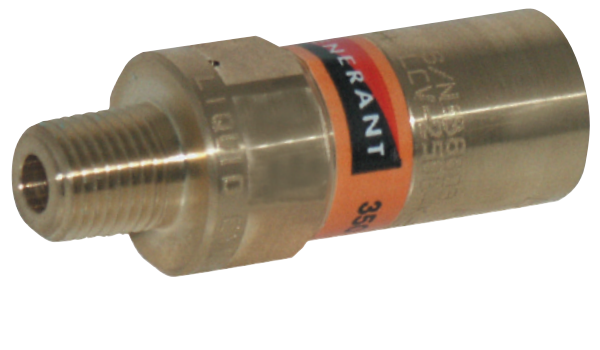
Addresses Noise Reduction Needed for Pressure Relief

DESCRIPTION

New Generant Liquid Cylinder Pressure Control/ Relief Valve is designed exclusively for use on DOT 4L Cryogenic Liquid Cylinders. Dramatically reduces the **NOISE** associated with traditional cylinder relief device discharge. Under normal operating conditions it optimizes cylinder performance by venting only what is required to maintain cylinder pressure in a tight band. In the event that circumstances demand, it has adequate flow capacity to insure safety, meeting all industry and regulatory requirements.

FEATURES AND BENEFITS

- Designed exclusively for use on DOT 4L Liquid Cylinders
- **Eliminates disruptive "pop"** historically associated with traditional cylinder relief devices
- Incorporates the customer proven "Dirt Guard" poppet
- Accurately maintains and controls cylinder pressure minimizing product loss
- Exceeds industry and regulatory flow capacity requirements
- Complies with OSHA sound level regulations
- Extensively field qualified
- OEM approved and endorsed
- Cleaned and packaged for Oxygen service standards



To Order – 1/4" NPT
22 - 500 Psig

Part #	Pressure Setting
LPR-22	22 PSI
LPR-35	35 PSI
LPR-50	50 PSI
LPR-75	75 PSI
LPR-100	100 PSI
LPR-125	125 PSI
LPR-150	150 PSI
LPR-175	175 PSI
LPR-200	200 PSI
LPR-230	230 PSI
LPR-235	235 PSI
LPR-350	350 PSI
LPR-375	375 PSI
LPR-400	400 PSI
LPR-425	425 PSI
LPR-450	450 PSI
LPR-500	500 PSI



MATERIALS OF CONSTRUCTION

Component	Valve Body Material	
Valve Body, Poppet, Spring Retainer and Screen	Brass, ASTM B16	
Spring	302 SS/17-7 PH ASTM A313	
Seal	Fluorosilicon 22 to 49 Psig	CTFE 50 to 500 Psig
Label	.004 Thick Mylar	



PRESSURE RELIEFS

CLEANED FOR OXYGEN SERVICE AND INDIVIDUALLY PACKAGED

This procedure is in full compliance, and has been audited to the following recognized industry standards and specific customer quality assurance requirements:

- Taylor-Wharton Gas Equipment Division, Quality Assurance
- Union Carbide Linde Division, Engineering Standard GS-38
- Air Products and Chemicals Inc., Class AA Oxygen Cleaned 4WPI-SW7003
- Puritan Bennett Liquid Oxygen Group, Quality Assurance
- Invacare Corporation, Inhalation Therapy Group, Quality Assurance

Testing and packaging procedures available upon request.

Packaged Safety Pressure Relief



TOP QUALITY

Generant Relief Valve is engineered to address the specific needs of Cryogenic Liquid Cylinder and non-coded Thermal Safety Relief Valve applications.

The High Flow and excellent reseal characteristics also make this valve ideally suitable for many industrial applications.

Poppet design completely retains soft seal while providing a **Metal-to-Metal back up**. This poppet, combined with a burnished seat, insures repeatable performance even when subjected to repeated cycles at cryogenic temperatures.

Valves are factory preset, 100% tested and supplied permanently locked to desired set point.

CONSIDERATIONS

- Teflon Seal, 50 P.S.I. and above
- Kel-F Seal, 100 P.S.I. and above
- Drain Hole omitted on CRVP
- Flow is unaffected with 10% Back Pressure
- Permanently Stamped with Full P/N and Pressure Setting
- Can be supplied with Color Coded Labels in PSI and BAR
- No Mounting Limitations

TECHNICAL DATA

Inlet Orifice .312 Diameter
 Flow Coefficient .45 @ 110% of nominal set pressure
 Full rated flow is achieved by 110% of nominal set pressure
 Crack pressure tolerance $\pm 5\%$ of nominal set pressure
 Zero leakage up to 95% of nominal set pressure
Brass bar stock construction with stainless steel springs
 Temperature Range -320° to $+400^{\circ}$ F
 Proof Pressure 1500 PSI



1/4" NPT Safety Pressure Relief

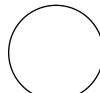
1/4" NPT Safety Pressure Relief

Part #	Description
PR-22	22 PSI
PR-35	35 PSI
PR-50	50 PSI
PR-75	75 PSI
PR-100	100 PSI
PR-125	125 PSI
PR-150	150 PSI
PR-175	175 PSI
PR-200	200 PSI
PR-230	230 PSI
PR-235	235 PSI
PR-350	350 PSI
PR-375	375 PSI
PR-400	400 PSI
PR-425	425 PSI
PR-450	450 PSI
PR-500	500 PSI
PR-700	700 PSI

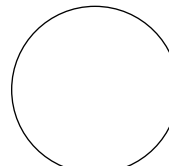
Custom Pressure Settings Also Available

TO DETERMINE THREAD SIZE

Match up outside thread base to scale below to confirm diameter



For 1/4" MNPT



For 1/2" MNPT



1/2" NPT Safety Pressure Relief

1/2" NPT Safety Pressure Relief

Part #	Description
PR-122	22 PSI
PR-1235	35 PSI
PR-1250	50 PSI
PR-1275	75 PSI
PR-12100	100 PSI
PR-12125	125 PSI
PR-12150	150 PSI
PR-12230	230 PSI
PR-12235	235 PSI
PR-12250	250 PSI
PR-12350	350 PSI
PR-12375	375 PSI
PR-12400	400 PSI
PR-12425	425 PSI
PR-12450	450 PSI
PR-12475	475 PSI
PR-12500	500 PSI
PR-12700	700 PSI

Custom Pressure Settings Also Available

POP STOP OPTION FOR PRESSURE RELIEFS

Pop Stop safely addresses the inconvenience of Liquid cylinders safety venting noise in enclosed environments. Designed to be used with Generant CRV series relief valves.

* Muffler sold separately



Pt # PR-MFLR

OPTIONS - PIPE-A-WAY ADAPTER

- Pipe-a-way Adapter
- Seal Materials
- Certified Test Results

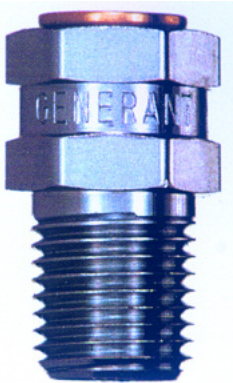


Part #	SIZE	A	B
PA-14	1/4" NPT	11/32"	7/8"
PA-38	3/8" NPT	11/16"	7/8"
PA-12	1/2" NPT	3/4"	1"

Vent Relief Valve

GENERANT

1/8" - 1" NPT
.5 - 150 Psig



Description

A compact, highly accurate, direct acting pressure relief valve. Factory preset to desired crack pressure and/or flow specifications. Internal adjustment provides tamper proof safety against inadvertent pressure changes. Available vent to atmosphere or inline configurations in brass, aluminum and 316 stainless steel. Valves feature a Quad ring seal which provides for extreme accuracy and repeatability with a narrow reseal band. Optional deflector cap increases flow capacity and provides for deflection of discharge.

Features and Benefits

- Accurate and Repeatable Cracking Pressure
- 100% Factory Present and Tested
- Zero Leakage to 95 - 98% of Set Pressure
- Tamper Proof Adjustment
- Excellent Proof Adjustment
- Compact Size

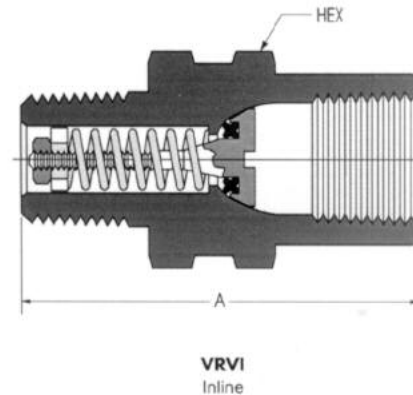
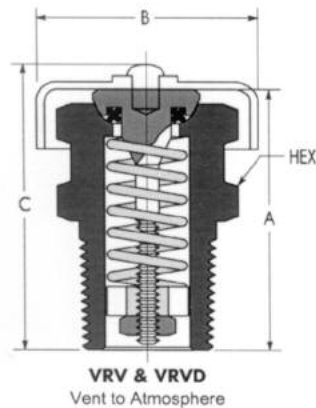
Technical Data

- Set Pressure Range: 0.5 to 150 Psig (0.3 to 10.3 bar)
- Inline Valves (Series VRVI):
 - Proof Pressure: 400 Psig (28 bar)
 - Burst Pressure: >500 Psig (34 bar)
- Reseal:
 - 80% of Set Pressure for valves specified 1-10 Psig (0.07 to 0.7 bar)
 - 92% of Set Pressure for valves specified 10-150 Psig (0.7 to 10.3 bar)
- Temperature Range: -320°F to 400°F (-195°C to 205°C)
(Based on seal selection, see ordering information)

Crack Pressure and Reseal Characteristics

- Crack Pressure Tolerance +/- 5% of desired setting
- Crack Pressure: Elastomer Seals 5cc/min Flow
Teflon Seals 0.02 SCFM Flow
- Leakage below Cracking Pressure: Elastomer Seals Zero to 98% of Crack
- Leakage below Cracking Pressure: Teflon Seals 1cc/min to 80% of Crack
- Nominal Reseal: 80% of Crack, for valves set at 1-10 PSI
- Nominal Reseal: 92% of Crack, for valves set at 10-150 PSI

SERIES VRV VENT RELIEF VALVE



Dimensional Data

Pipe Size NPT ¹	VRV & VRVD				VRVI	
	A	B	C	Hex	A	Hex
1/8"	.97	.69	1.10	1/2"	N/A	
1/4"	1.20	.92	1.32	5/8"	1.62	3/4"
3/8"	1.24	1.17	1.38	3/4"	2.12	7/8"
1/2"	1.75	1.40	1.92	1"	2.20	1"
3/4"	2.25	1.73	2.44	1 1/8"	2.72	1 1/4"
1"	3.12	1.94	3.29	1 1/2"	3.62	1 1/2" ²

¹ Available with male straight thread connections. (SAE J1926, MS33656 with cone point removed) consult factory

² Machined from 1 3/4" Round with 1 1/2" wrench flats

Dimensional data is stated in inches

Materials of Construction

Component	Valve Body Material		
	Brass	Aluminum ¹	Stainless Steel
Valve Body	Brass, ASTM B16 (Nickel Plated, ASTM B689)	2024 Aluminum ASTM B211 (Clear Anodized, ASTM B689)	316 SS ASTM A479
Stem Spring Retainer ²	Brass, ASTM B16		
Seal ³	As specified, see ordering information		
Spring	302 SS/17-7 PH, ASTM A313		
Locknut	18-8 SS		
Deflector Cap and Rivet	2024 Aluminum ASTM B211 (Clear Anodized, ASTM B580)		

¹ Available with 1/8" and 1/4" valves only

² All 1/8" and 1/4" valves have 316 stainless steel (ASTM A479) retainers

³ Lubricated with Krytox™ GPL 202

SERIES VRV VENT RELIEF VALVE

Flow Data, Series VRV (Vent to Atmosphere)

Nominal Spring		1		5		10		20		50		100		150	
Set Pressure Range		0.5 - 2.5		2.6 - 7.5		7.6 - 15		16 - 35		36 -75		76 - 125		126 - 150	
Valve Size	Orifice	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd
1/8" NPT (VRV - 125)	0.187	7.7	0.03	34	0.06	55	0.07	90	0.08	260	0.12	500	0.13	610	0.11
1/4" NPT (VRV - 250)	0.275	8	0.01	37	0.03	69	0.04	123	0.05	515	0.11	2011	0.24	2290	0.19
3/8" NPT (VRV - 375)	0.345	12	0.01	58	0.03	108	0.04	150	0.04	550	0.07	1300	0.1	1140	0.06
1/2" NPT (VRV - 500)	0.410	50	0.04	110	0.04	150	0.04	220	0.04	1458	0.14	3725	0.2	4000	0.15
3/4" NPT (VRV - 750)	0.570	Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory	
1" NPT (VRV - 1000)	0.785	Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory	

Flow Data, Series VRVD (Vent to Atmosphere, with Deflector Cap)

Nominal Spring		1		5		10		20		50		100		150	
Set Pressure Range		0.5 - 2.5		2.6 - 7.5		7.6 - 15		16 - 35		36 -75		76 - 125		126 - 150	
Valve Size	Orifice	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd
1/8" NPT (VRVD - 125)	0.187	10.3	0.04	39	0.07	95	0.12	100	0.09	280	0.13	580	0.15	780	0.14
1/4" NPT (VRVD - 250)	0.275	11	0.02	40	0.03	100	0.05	172	0.07	2340	0.5	4272	0.5	6650	0.55
3/8" NPT (VRVD - 375)	0.345	13	0.01	77	0.04	130	0.05	195	0.05	738	0.1	4353	0.33	6275	0.33
1/2" NPT (VRVD - 500)	0.410	60	0.05	246	0.09	420	0.11	658	0.12	2605	0.25	Consult Factory		Consult Factory	
3/4" NPT (VRVD - 750)	0.570	Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory	
1" NPT (VRV - 1000)	0.785	Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory	

Flow Data, Series VRVI (Inline)

Nominal Spring		1		5		10		20		50		100		150	
Set Pressure Range		0.5 - 2.5		2.6 - 7.5		7.6 - 15		16 - 35		36 -75		76 - 125		126 - 150	
Valve Size	Orifice	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd	Flow (SCFH)	Kd
1/4" NPT (VRVI - 125)	0.187	7.7	0.03	34	0.06	55	0.07	90	0.08	260	0.12	500	0.13	610	0.11
3/8" NPT (VRVI - 250)	0.275	8	0.01	37	0.03	69	0.04	123	0.05	515	0.11	2011	0.24	2290	0.19
1/2" NPT (VRVI - 375)	0.345	12	0.01	58	0.03	108	0.04	150	0.04	550	0.07	1300	0.1	1140	0.06
3/4" NPT (VRVI - 500)	0.410	50	0.04	110	0.04	150	0.04	220	0.04	1458	0.14	3725	0.2	4000	0.15
1" NPT (VRVI - 750)	0.570	Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory		Consult Factory	

Notes to Flow Data

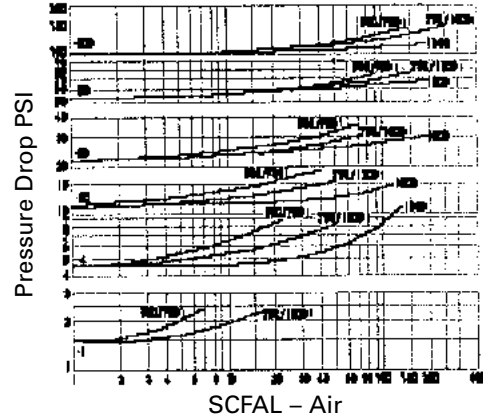
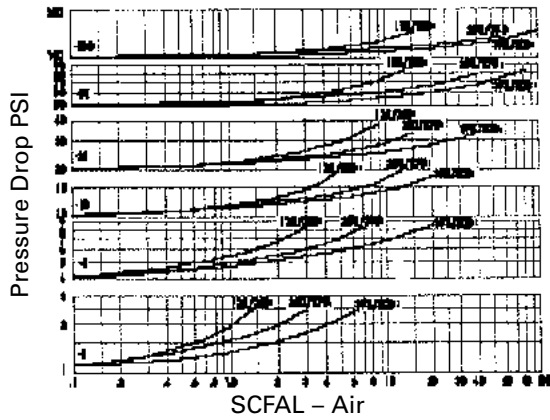
- Flow and Kd (discharge coefficient) are stated at 110% accumulation above set point with Nitrogen and Zero Downstream Pressure
- Interpolate charts for set pressures between points given
- Restrictions in the inlet or outlet piping may reduce flow
- Exceeding 115% accumulation may result in valve failure
- Generant offers complete design assistance. Consult factory for correct relief valve sizing.
- Individual flow curves available on request
- Orifice sizes are stated in inches

SERIES VRV VENT RELIEF VALVE

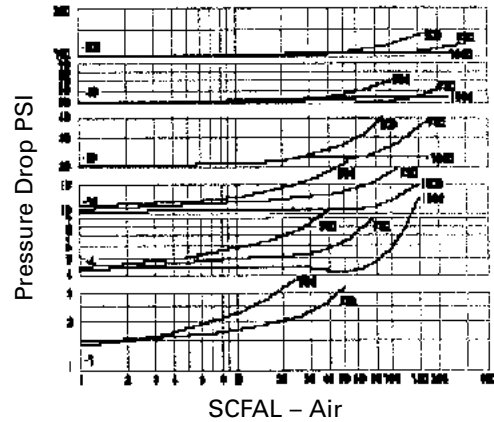
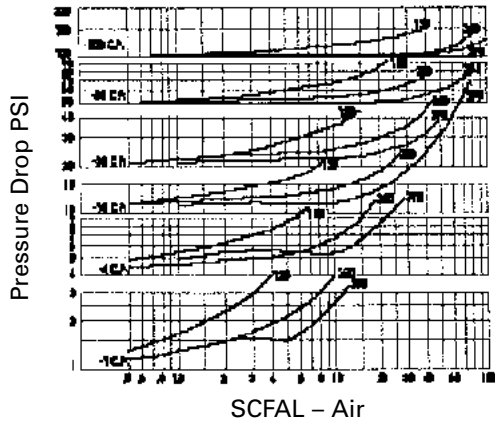
Series VRV Flow Information

Curves below represent pressure increase over crack pressure at given flow rates. Curves are presented at 1, 4, 10, 20, 50 & 100 psi crack setting to determine pressure increase for other crack pressures. Interpolate between curves to determine pressure increase for other crack pressures.

Series VRV



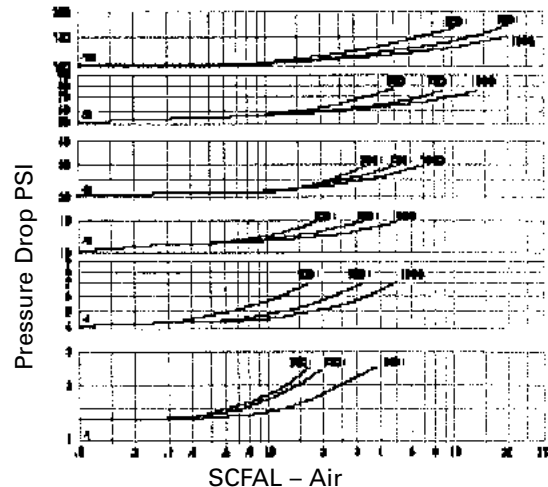
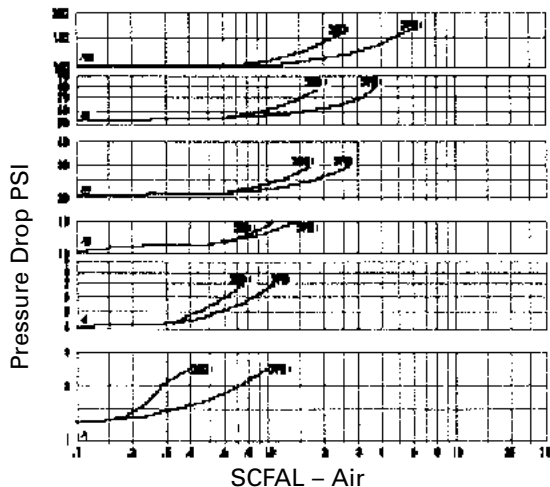
Series VRVD



1/4" & 3/8"

Series VRVI

1/2", 3/4" & 1"



SERIES VRV VENT RELIEF VALVE

Ordering Information

VRV - 125B - V - 15

SERIES

VRV – Vent to Atmosphere
VRVD – Vent to Atmosphere with Deflector Cap
VRVI – Inline Relief (Male x Female)

PIPE SIZE

125 - 1/8"
250 - 1/4"
375 - 3/8"
500 - 1/2"
750 - 3/4"
1000 - 1"

MATERIAL CODE

B - Brass
A - Aluminum
SS - 316SS

All other materials, consult factory.

NOMINAL SET PRESSURE

Specify .5 - 150 Psig
*(Teflon™ Seals not available below 20 Psig)
Valves that are not actuated for a period of time
may exhibit higher initial crack pressure
(first bubble) than subsequent cycles*

SEAL MATERIAL

V - Viton™, -20°F to 400°F (-29°C to 205°C)
B - Buna-N, -40°F to 250°F (-40°C to 121°C)
N - Neoprene, -40°F to 250°F (-40°C to 121°C)
EP - Ethylene Propylene, -65°F to 300°F (-54°C to 148°C)
FS - Fluorosilicone, -20°F to 350°F (-62°C to 176°C)
S - Silicone, -65°F to 400°F (-54°C to 205°C)
T - Teflon™, -320°F to 400°F (-220°C to 205°C)
Teflon™ seals may not reseal bubble tite

OPTIONS

Oxygen cleaning, alternative seals and other
thread configurations, consult the factory
Viton, Krytox & Teflon™ DuPont

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.

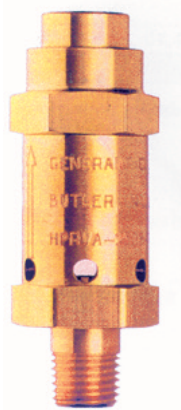
High Pressure Relief Valve

GENERANT

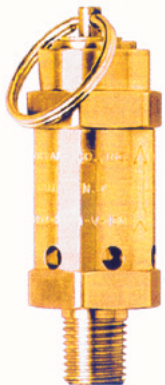
1/8" - 3/4" NPT
10 - 2400 Psig



HPRV
Inline



HPRVA
Vent to Atmosphere



HPRVM
Vent to Atmosphere
(Manual Override)

Description

The HPRV Series Relief Valve provides accurate crack pressure with zero leakage up to 98% of nominal set pressure. When properly specified, this factory preset, tamper proof design, is ideally suited for most any liquid or gas application. Encapsulating the O'ring seal within the poppet eliminates seal extrusion and cold flow characteristics. By guiding the poppet into the body, a line of contact seal is ensured and at high crack pressure settings, the O'ring is protected by a metal-to-metal stop between the poppet and the body. High flow design, combined with narrow band interchangeable springs, minimizes system pressure rise as flow demand increases. Available in brass, carbon or stainless steel, inline or discharge to atmosphere. Valves can be supplied with a manual pull ring override.

Features and Benefits

- 100% Factory Present and Tested
- Zero Leakage to 95 - 98% of Set Pressure
- Tamper Proof Adjustment
- Excellent Reseal Performance

Technical Data

- Set Pressure Range: 10 to 2400 Psig (0.7 to 166 bar)
- Set Pressure Tolerance: Factory Preset +/- 5% on increasing pressure
- Reseal: Elastomer Seals 90% - 95% of Actual Crack Pressure Teflon™ may be slightly lower
- Inline Valves (*Series HPRV*):
 - Proof Pressure: 3700 Psig (225 bar)
 - Burst Pressure: >5000 Psig (345 bar)
- Temperature Range: -320°F to 400°F (-220°C to 205°C)
(Based on seal selection, see ordering information)

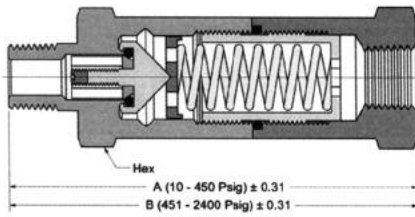
Materials of Construction

Component	Valve Body Material			
	Brass	Carbon	303 Stainless Steel	316 Stainless Steel
Inlet Body, Outlet Cap, Spring Chamber, Spring Retainer, O'ring Spreader	Brass ASTM B16	Brass ASTM B16	303 SS ASTM A582 ¹	316 SS ASTM A479 ¹
Poppet	303 SS, ASTM A582			
Spring	302 SS/17-7 PH, ASTM A313			
Locking Screw	18-8 SS			
Seals ²	As Specified, see ordering information			
Pull Stud	Brass ASTM B16	303 SS, ASTM A582	316 SS ASTM A479	
Pull Ring	Plated Steel			

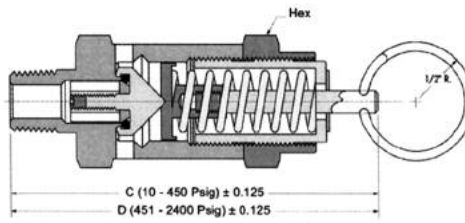
¹ PTFE dry lubricant applied to threads

² Lubricated with Krytox™ GPL 202

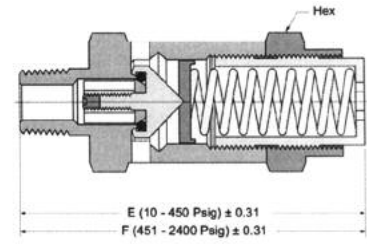
SERIES HPRV HP RELIEF VALVE



HPRV
Inline



HPRVM
Discharge to Atmosphere



HPRVA
Discharge to Atmosphere

Dimensional Data

Inlet (NPT)	HPRV		HPRVA		HPRM		Hex
	A	B	C	D	E	F	
1/8"							1"
1/4"	3.34	4.24	2.87	3.77	3.30	4.20	
3/8"							
1/2"	4.15	5.05	3.59	4.49	4.27	5.18	1 1/4"
3/4"	5.60	7.04	5.00	6.41	5.55	7.00	1 1/2"

Flow Data

Set Pressure Range	HPRV				HPRVA and HPRVM			
	10 - 1250		1251 - 2400		10 - 1250		1251 - 2400	
Inlet (NPT)	Orifice	Kd	Orifice	Kd	Orifice	Kd	Orifice	Kd
1/8"	.215	0.14	.215	0.16	.215	0.57	.215	0.65
1/4"					.215	0.65		
3/8"	.275	0.27			.275	0.65		
1/2"	.515	0.20	.275	0.27	.515	0.35	.275	0.65
3/4"	.735	0.45	.515	0.20	.735	0.42	.515	0.70

Kd is stated at 110% of Nominal Set Pressure

Orifice sizes are stated in inches

Consult factory for proper sizing or flow requirements, flow curves available on request

Ordering Information

HPRV - 250SS - V - 450

SERIES

- HPRV – Male x Female, Inline
- HPRVA – Male Inlet, Discharge to Atmosphere
- HPRVM – Male Inlet, Vent to Atmosphere w/Manual Override

STANDARD PORTING CONNECTION

- 125 - 1/8" NPT
- 250 - 1/4" NPT
- 375 - 3/8" NPT
- 500 - 1/2" NPT
- 750 - 3/4" NPT

ANSI-ASME B1.20.1
(Inlet & Outlet)

OPTIONAL PORTING CONNECTION (Consult Factory)

- | | | | | |
|--------|----------|--|---------|---------------------------|
| -6SAE | Inlet – | MS33656 with Cone Point Removed
(adapts to SAE J1926) | | |
| -8SAE | | | | |
| -10SAE | Outlet – | SAE J1926 | | |
| -12SAE | | | | |
| -16SAE | | | | |
| -6JIC | | | Inlet – | SAE J514, 37 Degree Flare |
| -8JIC | | | | |
| -10JIC | Outlet – | Corresponding SAE J1926
Size Female | | |
| -12JIC | | | | |
| -16JIC | | | | |

NOMINAL SET PRESSURE

Specify .5 - 2400 Psig

SEAL MATERIAL

- V - Viton™, -20°F to 400°F (-29°C to 204°C)
- B - Buna-N, -40°F to 250°F (-40°C to 121°C)
- N - Neoprene, -40°F to 300°F (-40°C to 148°C)
- EP - Ethylene Propylene, -65°F to 300°F (-54°C to 148°C)
- S - Silicone, -70°F to 450°F (-56°C to 232°C)
- T - Teflon™, -320°F to 400°F (-220°C to 204°C)

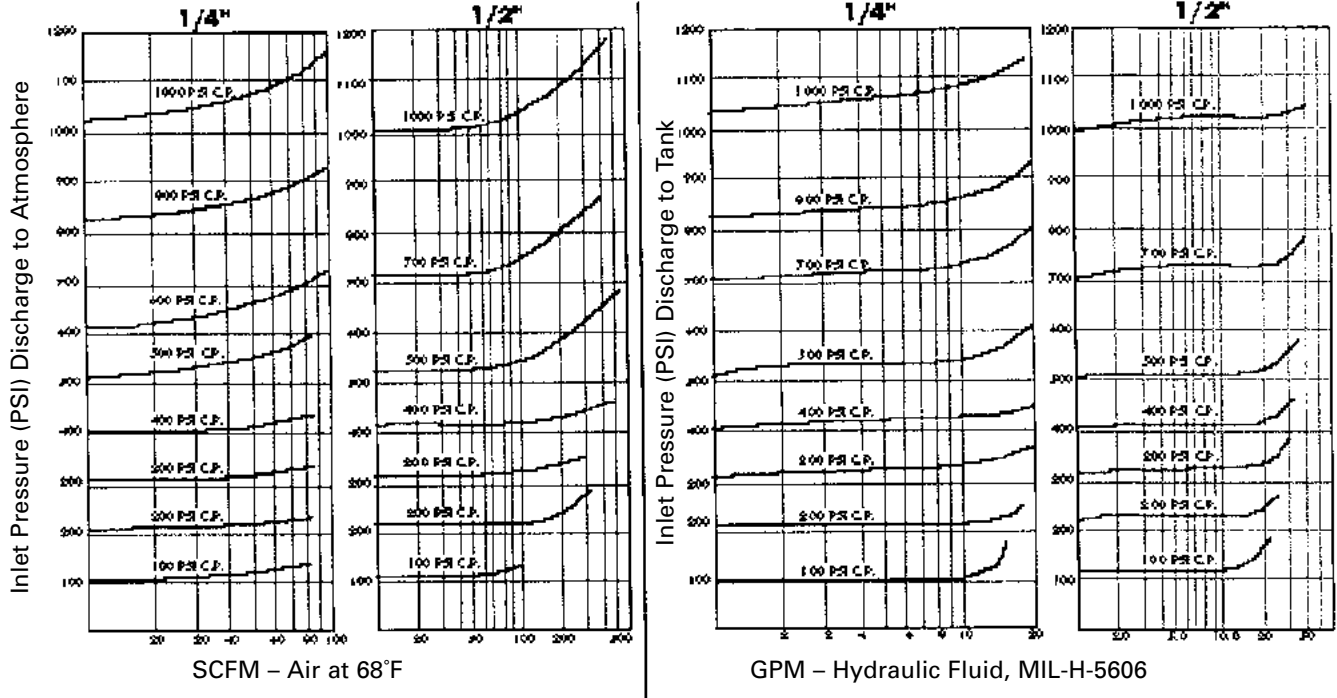
MATERIAL CODE

- B - Brass
 - C - Carbon Steel
 - S - 303 SS
 - SS - 316 SS
- Oxygen cleaning, tamper proof lockwire, alternative seals and other thread configurations, consult factory
- Viton, Krytox & Teflon™ DuPont*

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.

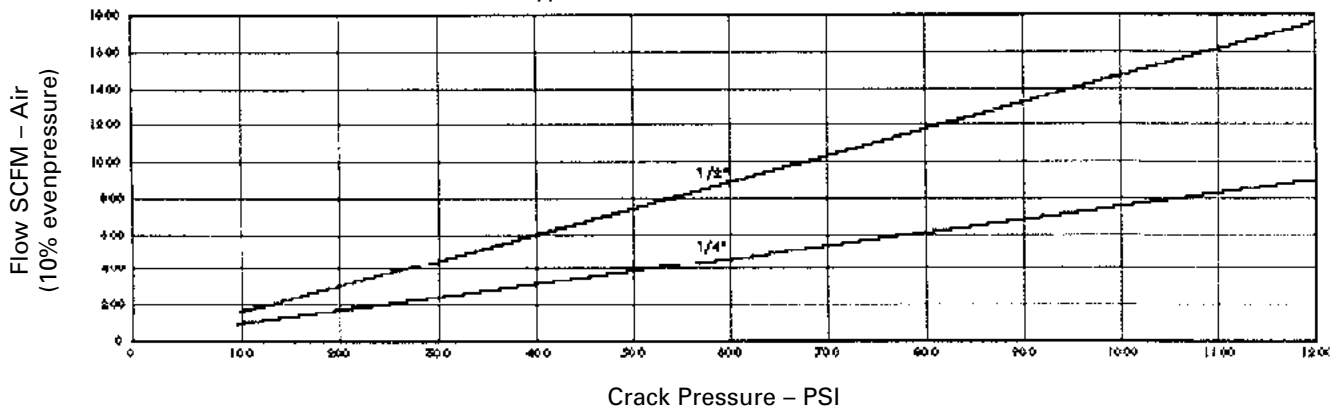
SERIES HPRV HP RELIEF VALVE

Series HPRV



Series HPRVA and HPRVM

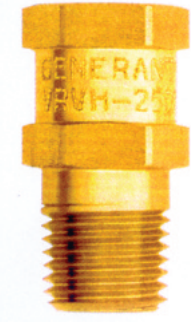
Typical Flow Curves - 1/4" and 1/2"



Vent Relief Valve

GENERANT

1/8" - 1/4" NPT
150 - 600 Psig



VRVH
Vent to Atmosphere



VRVHI
Inline

Description

A compact, highly accurate, direct acting pressure relief valve. Factory preset to desired crack pressure and/or flow specifications. Internal adjustment provides tamper proof safety against inadvertent pressure changes. Available in vent to atmosphere or inline configurations. Valves feature an encapsulated O'ring seal to prevent extrusion at higher differential pressures.

Features and Benefits

- Accurate and Repeatable Cracking Pressure
- 100% Factory Present and Tested
- Zero Leakage to 95 - 98% of Set Pressure
- Tamper Proof Adjustment
- Excellent Reseal Performance
- Compact Size

Technical Data

- Set Pressure Range: 150 to 600 Psig (10.3 to 42 bar)
- Inline Valves (Series VRVHI):
 - Proof Pressure: 750 Psig (52 bar)
 - Burst Pressure: >1000 Psig (69 bar)
- Set Pressure Tolerance:
 - Factory present +/-5% on increasing pressure
- Reseal: 90% of Set Pressure
- Temperature Range: -320°F to 350°F (-195°C to 177°C)
(Based on seal selection, see ordering information)

Materials of Construction

Component	Material
Valve Body, Stem O'ring Cup	Brass, ASTM B16
Spring Retainer	316 SS, ASTM A479
Seal ¹	As specified, see ordering information
Spring	302 SS/17-7 PH, ASTM A313
Locknut	18-8 SS

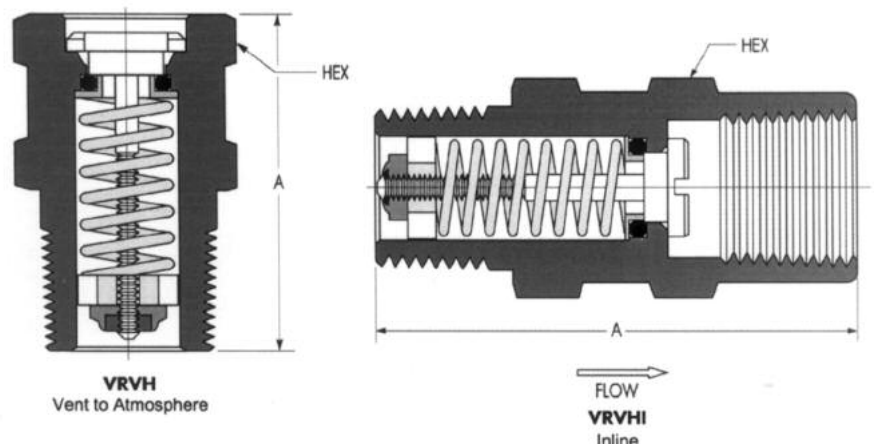
¹ Lubricated with Krytox™ GPL 202

SERIES VRVH VENT RELIEF VALVE

Dimensional Data

Pipe Size NPT	VRVH		VRVHI	
	A	Hex	A	Hex
1/8"	.94	1/2"	1.44	1/2"
1/4"	1.29	5/8"	1.75	3/4"

Dimensional data is stated in inches



Flow Data, Series VRVH (Vent to Atmosphere)

Nominal Spring		150		250		500	
Set Pressure Range (Psig)		125 - 175		175 - 350		350 - 600	
Valve Size	Orifice	Flow (SCFM)	Kd	Flow (SCFM)	Kd	Flow (SCFM)	Kd
1/8" NPT (VRVH - 125)	0.156	7.5	0.12	12.5	0.12	33	0.16
1/4" NPT (VRVH - 250)	0.293	50	0.22	90	0.24	150	0.21

Flow Data, Series VRVHI (Inline)

Nominal Spring		150		250		500	
Set Pressure Range (Psig)		125 - 175		175 - 350		350 - 600	
Valve Size	Orifice	Flow (SCFM)	Kd	Flow (SCFM)	Kd	Flow (SCFM)	Kd
1/8" NPT (VRVI - 125)	0.156	12	0.18	13.5	0.13	35	0.17
1/4" NPT (VRVI - 250)	0.250	45	0.27	80	0.30	175	0.33

Notes to Flow Data

- Flow and Kd (discharge coefficient) are stated at 110% accumulation above set point with Nitrogen and Zero Downstream Pressure
- Interpolate charts for set pressures between points given
- Restrictions in the inlet or outlet piping may reduce flow
- Exceeding 115% accumulation may result in valve failure
- Generant offers complete design assistance. Consult factory for correct relief valve sizing.
- Individual flow curves available on request
- Orifice sizes are stated in inches

Ordering Information

VRVHI - 250B - V - 450

SERIES

VRVH – Vent to Atmosphere
VRVHI – Inline Relief (Male x Female)

PIPE SIZE

125 - 1/8" Male
250 - 1/4" Male
NPT threads per ANSI/ASME B1.20.1.

MATERIAL CODE

B - Brass
All other materials, consult factory
Viton, Krytox & Teflon™ DuPont

NOMINAL SET PRESSURE

Specify 150 - 600 Psig
Valves that are not actuated for a period of time may exhibit higher initial crack pressure (first bubble) than subsequent cycles

SEAL MATERIAL

V - Viton™, -20°F to 350°F (-29°C to 176°C)
B - Buna-N, -40°F to 250°F (-40°C to 121°C)
N - Neoprene, -40°F to 250°F (-40°C to 121°C)
EP - Ethylene Propylene, -65°F to 300°F (-54°C to 148°C)
S - Silicone, -70°F to 350°F (-56°C to 176°C)
T - Teflon™, -320°F to 350°F (-220°C to 176°C)
Teflon™ seals may not reseal bubble tite

OPTIONS

Oxygen cleaning, alternative materials of construction, and other thread configurations, consult the factory

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.

LIQUID HOSES

T AND "CANDY CANE" RELIEF

1/4" NPT Safety Pressure Relief



1/4" NPT Safety Pressure Relief

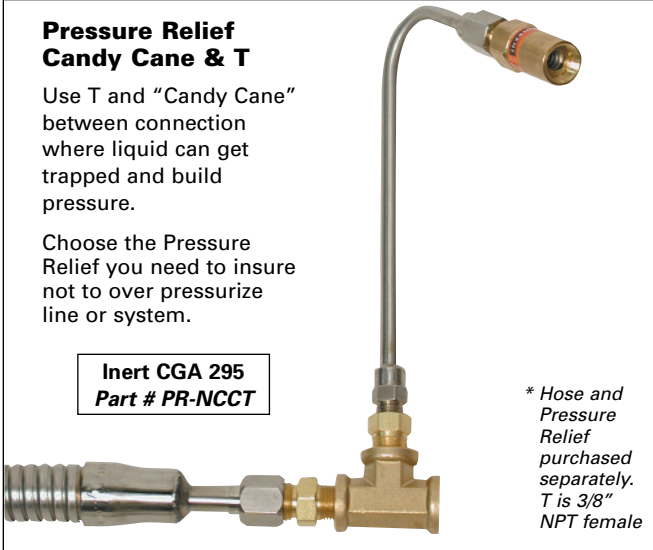
Part #	Description
PR-22	22 PSI
PR-35	35 PSI
PR-50	50 PSI
PR-75	75 PSI
PR-100	100 PSI
PR-125	125 PSI
PR-150	150 PSI
PR-175	175 PSI
PR-200	200 PSI
PR-230	230 PSI
PR-235	235 PSI
PR-350	350 PSI
PR-375	375 PSI
PR-400	400 PSI
PR-425	425 PSI
PR-450	450 PSI
PR-500	500 PSI
PR-700	700 PSI

Custom Pressure Settings Also Available

Pressure Relief Candy Cane & T

Use T and "Candy Cane" between connection where liquid can get trapped and build pressure.

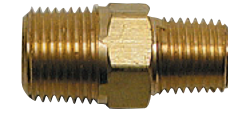
Choose the Pressure Relief you need to insure not to over pressurize line or system.



Inert CGA 295
Part # PR-NCCT

* Hose and Pressure Relief purchased separately. T is 3/8" NPT female

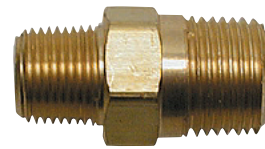
NPT Adapters



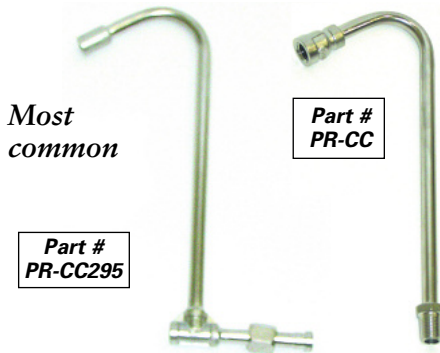
3/8" To 1/4" Male NPT
Part # FIT-M38M14



3/8" To 3/8" Male NPT
Part # FIT-M38M38



3/8" To 1/2" Male NPT
Part # FIT-M38M12



Most common

Part # PR-CC

Part # PR-CC295

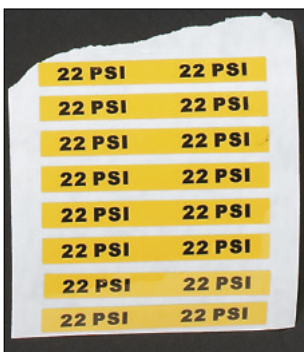
Part #	Description
*PR-CC295	For Nitrogen Candy Cane & T Pressure Relief Kit 3/8" NPT Male CGA 295
*PR-CC440	For Oxygen Candy Cane & T Pressure Relief Kit 3/8" NPT Male CGA 440
PR-CC	Candy Cane with 1/4" NPT Female for Pressure Relief
PR-CCCT	Candy Cane & T for Pressure Relief without CGA Hookup 3/8" NPT Female
FIT-M38M14	Adapter to 1/4" NPT
FIT-M38M38	Adapter to 3/8" NPT
FIT-M38M12	Adapter to 1/2" NPT

* Pressure Reliefs – Need to order desired Pressure Reliefs Separately. Not included with Candy Cane or T.



**Cannot find what you are looking for
please call Customer Service at
800-264-7793.**

LABELS FOR PRESSURE RELIEFS



Pressure I.D. Tape

Pressure Identification Labels are specially designed for cryogenic environment.

- Color coded and imprinted with pressure rating.

Pressure Identification Labels

Other pressures available please call for info.

Part #	Description	40+ Pkg. of 25	20+ Pkg. of 25	4+ Pkg. of 25	1+ Pkg. of 25	Pkg. of 10
SL-22PK25	22 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-22PK10) \$8.14 Pk
SL-50PK25	50 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-50PK10) \$8.14 Pk
SL-100PK25	100 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-100PK10) \$8.14 Pk
SL-235PK25	235 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-235PK10) \$8.14 Pk
SL-350PK25	350 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-350PK10) \$8.14 Pk
SL-500PK25	500 PSI	39¢ ea. pc. 25 to a pack	53¢ ea. pc. 25 to a pack	63¢ ea. pc. 25 to a pack	74¢ ea. pc. 25 to a pack	(Pt # SL-500PK10) \$8.14 Pk