



E11 110R-000115

SELES

- Forged Brass Body and Chamber, ASTM 377
- Brass Bar Stock Components, ASTM B16
- Phosphorous Bronze Diaphragms, ASTM B103
- PTFE Diaphragm Seal, ASTM D1710
- HNBR Valve, Valve O'ring and Bottom Plug Seals
- PCTFE Valve Stem Bearing, ASTM D1430
- 17-7PH Stainless Steel Adjusting and Valve Spring, ASTM A313
- Stainless Steel Adjustment Screw and Locknut, ASTM A276
- Stainless Steel Inlet Strainer/Filter

1/1



PILOT PRESSURE REGULATOR
1/4" NPT
Inlet 400 Psig (27.6 Bar)

PR

Description

Generant Series PR, Pilot Pressure Regulators are balanced, relieving regulators ideally suited for providing a reliable, constant pilot pressure to a Pilot Operated / Dome Loaded regulator. The balanced design allows for a consistent, regulated downstream pressure regardless of fluctuations in inlet pressure. The relieving function allows the regulator to vent when adjustments are made without the need for bleeding pressure from the pilot circuit. Materials of construction allow for compatibility with most gases. The Series PR can be ordered Cleaned & Packaged for Oxygen Service.

Features

- Balanced Design to Minimize Outlet Pressure Fluctuations upon Changing Inlet Pressure
- Relieving Design Suitable for Pilot Pressure Applications
- Optimized spring performance and patented Venturi tube provides high flow rates with low droop
- Easily cleanable by removing bottom plug
- Optional Plastic knob and Panel Mounting Configurations

Technical Data

Maximum Inlet Pressure: 400 Psig (27.6 Bar)
Effect of Inlet Pressure Variation: < 1.0 PSI / 100 PSI
Temperature Range: -20 to 200 °F (-30 to 95 °C)

Pressure Ranges

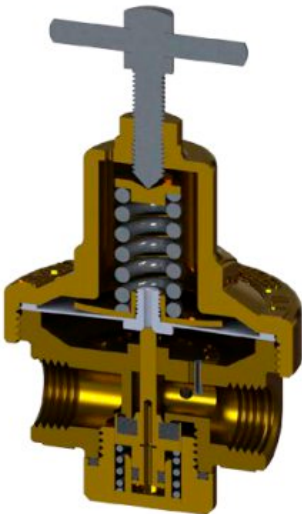
Spring Code	Outlet Pressure Range PSI (bar)
A	0 - 50 (0-3.4)
B	5 - 125 (0.3-8.5)
C	10 - 200 (0.7-13.6)

Flow Coefficient Cv

Size	Fail-Open
1/4" NPT	1.6

Materials of Construction

Component	Material
Body, Spring Chamber	Forged Brass, ASTM 377
Spring Button, Adjustment Screw Lock Nut, Bottom Plug, Panel Nut, Diaphragm Nut, Turbulence Pin	Brass, ASTM B16
Diaphragm Plate	Brass, ASTM A36
Adjustment Screw	303 Stainless Steel, ASTM A582
Valve and Stem Assembly	Brass, ASTM B16 and EPDM / FKM
Valve O-ring	EPDM / FKM
Adjustment Spring	Plated Music Wire, ASTM A228
Valve Spring	Phosphorous Bronze, ASTM B103
Bottom Plug O-ring	EPDM / FKM
Diaphragm Gasket	Red Fiber
Diaphragm	EPDM / FKM on Nylon
Diaphragm Screw	Nylon 101 (Type 66)



SERIES

SDC

SERIES

Description

The Series SDC connection system is supplied for installation into the outlet ports of most gas use, vent and fill valves on a cryogenic liquid cylinder. The system is a one-piece assembly consisting of a CGA fitting/clutch mechanism permanently mounted in a stainless steel locking bracket. Once installed, this system cannot be removed without rendering the CGA outlet connection unusable.



Features and Benefits

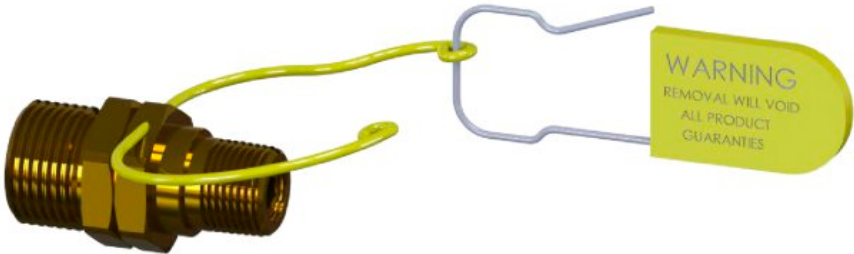
- Easily installs on most existing threaded cylinder valves using standard hex wrench.
- NPT Male connection supplied with factory applied PTFE thread sealant tape
- Suitable for both Industrial and Medical Applications
- CGA connections manufactured to industry standards
- Zero external leakage
- Cleaned and Packaged for Oxygen Service
- Optional Integral Anti-Back-Flow Check Valve
- OEM Endorsed

Materials of Construction

Component	Material
Fitting Body, Clutch Housing	Brass, ASTM B16
Spherical Locking Pawls	440 SS, ANSI 440C
Springs, Stop Washer	302 SS, ASTM A313
Locking Sleeve, Retaining Pins	304 SS, ASTM A240
Warning Label	4 Mil Laminated Vinyl

CYLINDER CHECK VALVE
3/8" - 1/2" NPT x CGA 540 or 580
0-3000 PSIG

CYLINDER CHECK



Description

The Cylinder Check Valve is used on the gas use outlet of industrial cryogenic liquid cylinders to prevent back flow into the cylinder. The optional "Tamper Evident Restraint" provides a visual indication if removal of the connection has been attempted. Available in CGA 540 & 580 configurations.

Features

- Compact and rugged one piece body construction
- Optional "Tamper Evident Restraint" - lock wire and lockout tag
- Provides visual evidence of compliance
- High flow design exceeds maximum cylinder output
- Supplied cleaned and bagged for Oxygen Service
- 100% Factory Tested for leakage
- GLT Low Temperature Viton™ Seal

Technical Data

- Nominal Crack Pressure: 1 Psig (0.07 Bar)
- External Leakage: Zero leak
- Internal Leakage: Zero leak at 0.5 PSIG (0.03 bar) Back Pressure
- Cv (flow coefficient): 0.65
- Maximum Pressure: 3000 PSIG @ 150° F (206 bar @ 66° C)
- Proof Pressure: 5,000 PSIG (345 bar)

Materials of Construction

Component	Material
Body, Poppet, Seat Insert, Seat Locking Screw	Brass, ASTM B16
Spring	Phosphor Bronze, ASTM B159
O'Ring Seal*	GLT Viton™

*Lubricated with Krytox™ GPL-205

GENERANT

VENT RELIEF VALVE 1/8" - 1" NPT .5 - 150 Psig (0.03 – 10.3 bar)

VRV

SERIES

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

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

Technical Data

- Set Pressure Range: 0.5 to 150 Psig (0.03 to 10.34 bar)
- Inline Valves (Series VRVI):
Proof Pressure: 400 Psig (28 bar)
Burst Pressure: >500 Psig (34 bar)
- Set Pressure Tolerance: Factory preset
< 2 Psig (0.14 bar): +/-10%
2 to 150 Psig (0.14 to 10.3 bar): +/- 5%
(on increasing pressure)
- Reseal:
80% of Set Pressure for valves specified 2-10 Psig
(0.14 to 0.7 bar)
92% of Set Pressure for valves specified 10-150
Psig (0.7 to 10.3 bar)

Temperature Range: -320° to 400° F (-195° C to 205° C)

(based on sealing selection, see ordering information)



VRV
Vent to Atmosphere



VRVI
Inline

GENERANT

GDR

SERIES

GAS DELIVERY REGULATOR

1/4" - 1" NPT, BSPT

Spring Reference & Pilot Operated



STANDARD CONFIGURATION



PILOT OPERATED (DOME LOADED)



PIPE-A-WAY CHAMBER



PANEL MOUNTED

Description

The GDR Series Regulator provides reliable, precise pressure control in the most demanding applications. Optimized Venturi and spring design assures high flow with extremely low droop characteristics. Solid non-tied diaphragm and all brass construction guarantees leak free long lasting performance. Fully balanced design virtually eliminates outlet pressure fluctuations due to inlet pressure variations. All GDR Series regulators are 100% factory tested.

Features

- Fully Balanced Design maintains a constant delivery pressure regardless of inlet pressure fluctuations
- Fully Supported, Solid Non-Tied Diaphragm for long leak free service life
- Flow Rates to 20,000 SCFH
- Optimized Spring Design and Unique Venturi Tube allows for high flow rates with minimal pressure droop effect
- Pilot Operated (dome loaded) Configuration maintains virtually constant outlet pressures
- Vent Chamber to Stack with Pipe-a-Way Option
- Side Venting Chamber option prevents moisture accumulation when mounted horizontally
- Cleaned and Packaged for Oxygen Service

Note: Regulators supplied with Nitrile Seals are not Cleaned and Packaged for Oxygen Service.

Materials of Construction

- Forged Brass Body and Spring Chamber ASTM 377
- Brass Adjustment Screw, Valve, Valve Stem, Spring Button, Spring Retainer and Venturi Tube ASTM B16
- 303 Stainless Steel Chamber Insert ASTM A276
- Color Coded, Chrome Vanadium Adjustment Springs ASTM A-231
- 302 Stainless Steel Valve Spring ASTM A-313
- GLT Fluoroelastomer (FKM), EPDM, or Nitrile on Nylon Diaphragm
- GLT Fluoroelastomer (FKM), EPDM, or Nitrile Seats and Seals
- Stainless Steel Trim (Flange Screws and Lock Nut)

Note: EPDM seals recommended for CO₂ service. Nitrile Seals recommended for NG service.



QUICK OPENING VALVE
1/8" & 1/4" NPT
125 Psig (8.6 Bar)

SERIES
4000

Description

The Series 4000 Quick Opening Valve functions as in-line on-off switch particularly suited to applications in Instrumentation and Control Panels to open and close circuits or isolate gauges. The unique design of these valves permits full-closed to full-open operation quickly with a 60° turn of the knob. Standard units will detent in the selected position or, if desired, can be spring loaded (Option R) to return to the off position when released. The Series 4000 is offered in 2-way and 3-way designs. The 2-way design is a snap action on-off control, while the 3-way design offers the same snap on-off action while venting the downstream pressure to atmosphere when in the off position. These valves are compact in size and can be utilized for in-line and panel mount applications. Valves can be ordered Cleaned and Packaged for Oxygen service.

Technical Data

- Max Operating Pressure: 125 Psig (8.6 Bar)
- Temperature Range: -20°F to 300°F (-29°C to 149°C)
- Flow Coefficient (C_v): 0.5
- 2-Way or 3-Way (vents downstream to atmosphere thru 3/32" orifice) Configurations
- 100% Factory Tested for Bubble Tight Shut Off
- Optional Spring Return to Close
- Standard Panel Mount:
 - Supplied with "Off – On" Aluminum Indicator Plate (1/16" thick, 1-5/8" diameter) and Panel Nut
 - 5/8" Panel Hole
 - 5/32" Maximum Panel Thickness

Materials of Construction

Component	Material
Body, Stem, Housing, Bonnet, Valve Seat, Valve Cup, Rollers, Locknut	Brass, ASTM B16
Knob	Thermosetting Phenolic
Indicator Plate	Aluminum
Spring	17-7 SS, ASTM A313
Roller Pin	Hardened Steel
Set Screw	Steel (Black Oxide)
Valve Seal, O-Ring	FKM



Model Q-44



Model Q-45



Model QE-44



SOV

SERIES

SHUT OFF VALVE
1/8" - 1/2" NPT
1/8" - 1/2" Dual Ferrule Tube
0 – 3000 Psig (207 Bar)

Description
Series SOV Shut Off Valves offers low torque, quarter turn, positive shut off of forward flow up to 3000 Psig (207 Bar). These valves feature a one piece body construction with a machined metallic replaceable plug Stem. Sealing is accomplished with a standard elastomeric O-Ring seal. Larger size valves utilize Teflon Backup Rings to reduce operating torque and provide long service life. The Series SOV can be ordered Cleaned for Oxygen Service.

- Features**
- Straight-Through Flow Path
 - Large Orifices Provide Higher Flows
 - Handle Orientation Indicates Flow
 - Optional Downstream Vent
 - Unique Soft Open Plug Stem
 - NPT or Dual Ferrule Tube Connections
 - 100% Factory Tested for Leakage

Technical Data
Maximum Operating Pressure @ 100° F
Brass and Stainless: 3000 Psig (207 Bar)
Notes: 1-1/8" (28.6 mm) Square Brass Body Valves downgraded to 2000 Psig (137 Bar) Max. If reverse flow occurs, differential pressure is limited to 150 Psid (10.3 Bar) Max. Attempting to meter flow in the reverse flow direction may damage O-Ring.
Leakage: Zero both Internal and External
100% Factory tested for leakage at 150 Psig (10.3 Bar)

Downstream Vent Option - Downstream pressure is relieved to atmosphere when valve is in the closed position. Maximum operating pressure is downgraded to 150 Psig (10.3 Bar).

Downstream Vent Orifice:
5/8" (15.9 mm) and 3/4" (19.1 mm) Square Body Valves: 0.04" (1.0 mm)
1-1/8" (28.6 mm) Square Body Valves: 0.09" (2.3 mm)

Temperature Range:
Seal Dependent (See How To Order)

Materials of Construction

Component	Brass	Stainless Steel
Body, Plug Stem, Nuts and Ferrules	Brass, ASTM B16	316SS, ASTM A479
Handle	6061 Aluminum, ASTM B211, Anodized per Mil-A-8625	
Orifice/Body Seals	Buna-N, Neoprene, Ethylene Propylene, or Viton®	
Backup Ring¹	PTFE	
Retaining Ring	PH 15-7 Mo SS, AISI 632	
Stop Pin	18-8 SS	

¹ 5/8" Square Body Valves are not supplied with PTFE Backup Rings
Plug Stem and O-Rings are lubricated with Krytox®.



INSTRUMENT BALL VALVE
1/4" - 3/4" NPT
1/4" - 3/4" Dual Ferrule Tube
0 – 6000 Psig (413 Bar)

IBV

SERIES

Description

Series IBV Instrument Ball Valves offer reliable 1/4-turn ON/OFF flow control for pressures up to 6,000 Psig (413 bar). These valves feature a Micro-Finished Floating Ball design to provide a positive seal in both directions. Series IBV Instrument Ball Valves also feature a "straight-through" flow path to ensure high flows with minimum pressure drop. The valves are designed to operate with a low operation torque while providing a long service life. All valve configurations can be panel mounted.

Features

- Bi-Directional
- Straight-Through Flow Path
- Micro-Finished Floating Ball
- Large Orifices for High Flow Efficiency
- Handle Orientation Indicates Flow
- NPT, O'ring Face Seal, or Dual Ferrule Tube Connections
- Adjustable Stem Packing for in-line maintenance
- 100% Factory Tested

• **3D CAD MODELS AVAILABLE ONLINE**

Technical Data

Pressure Rating: 6,000 PSI (413 Bar) at 100°F (3:1 SF)¹

Per NFPA 52 (2013): 4,750 PSI (328 Bar)

Per ASME B31.3 (2012): 4,400 PSI (303 Bar)

Temperature Rating: -65° to 200°F (-54° to 93°C)

Leakage: < 0.1 SCCM @ 2,100 PSIG (145 Bar)

- 100% Factory Tested for Leakage

Note: For a leak-free stem seal at pressures higher than 2,100 PSI or after prolonged use, additional tightening of the stem packing may be required.

Flow Coefficients: per size, see Dimensional Data Table

Materials of Construction

Component	Material
Body	316 Stainless Steel, ASTM A182
Valve Stem, Valve Ball, Tube Ends, Nuts, Washers, Ferrules	316 Stainless Steel, ASTM A479
Ball Seat Assembly	316 Stainless Steel, ASTM A479 and PCTFE ASTM D1430
Seat Spacer, Stem Packing, O'Rings	PTFE, ASTM D1710
Handle with Insert	Nylon with Stainless Steel Insert
Set Screw	18-8 Stainless Steel
Face Seal O'Rings ²	Standard – FKM
	Option "H" - HNBR

¹ for sustained use at temperatures higher than 100°F, pressure rating may be affected, consult factory.

² other O'Ring materials available, consult factory.

Note: All valves lubricated with perfluorinated polyether (PFPE)

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IBV-8T



IBV-4T



SCREWED BONNET NEEDLE VALVE
1/8" - 1/2" NPT
Globe and Block Configuration
Brass, 303 and 316 Stainless Steel

SERIES
3000

Description

Series 3000 bar stock, screwed bonnet type needle valves are available in brass, 303 and 316 stainless steel with working pressures to 5000 Psig in 1/8" to 1/2" sizes. The unique, externally adjustable, wear compensating, virgin PTFE stem packing offers long trouble free service life in most liquid or gas applications. A wide variety of options including panel mounting, metal to metal seat, soft stem tip and taper proof cap, the Series 3000 provides economical, quality solutions for the most demanding applications. Valves can be ordered cleaned and packaged for oxygen service.

Features

- Adjustable PTFE Stem Packing
- Excellent Gauge Isolation Valve
- Wide variety of options to suit many diverse applications
- Available in 303 SS as an economical alternative to 316 SS (where applicable)
- 100% factory tested

Technical Data

Maximum Operating Pressure @ 100° F (38 ° C)
Brass: 3000 Psig (207 Bar)
Stainless: 5000 Psig (345 Bar)
Flow Coefficient
Globe (.187" Orifice): 0.40 Cv
Block (.312" Orifice): 0.90 Cv

Temperature Ratings

Metal to Metal Stem: -320° F to 400°F (-195° C to 204°C)
Kel-F Tip Stem: -65° F to 200°F (-54° C to 93°C)

Leakage

External leakage – zero.
Maximum allowable seat leakage – 0.1 cc/min @ 3000 psig (207 Bar) Nitrogen

Materials of Construction

Component	Valve Body Material		
	Brass	303 Stainless	316 Stainless
Valve Body, Bonnet Packing Nut	Brass, ASTM B16	303 SS, ASTM A582	316 SS, ASTM A479
Stem ¹		303 SS, ASTM A582/Kel-F (CTFE)	316 SS, ASTM A479/Kel-F (CTFE)
Handle ²		Brass, ASTM B16, (Nickel Plated, ASTM 689)	
Set Screw	ANSI B18.3 (Alloy Steel)		
Packing	Virgin TFE		
Panel Nut	Brass, ASTM B16	Brass, ASTM B16, (Nickel Plated, ASTM 689)	
Tamper Proof Cap		N/A	

1. Stainless valves supplied with Kel-F stem, optional metal to metal stem, option code "Q", see ordering information. Block valves not available with soft stem tip option.
2. Optional black phenolic knob, option code "M"



Globe

(Panel Mount Option Shown)



Block

VENT RELIEF VALVE
1/8" – 1/4" NPT
150 – 600 Psig

VRVH
SERIES

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 Preset 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 preset +/- 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™



VRVH
Vent to Atmosphere



VRVHI
Inline

SERIES HPRV

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 or stainless steel and inline or discharge to atmosphere. Valves can be supplied with a manual pull ring override.

Features

- 100% Factory Preset 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. PTFE 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	303 Stainless Steel	316 Stainless Steel
Inlet Body, Outlet Cap, Spring Chamber, Spring Retainer,O'Ring Spreader	Brass, ASTM B16	303 SS, ASTM A582*	316 SS, ASTM A479*
Poppet		303 SS, ASTM A582	
Spring	302 SS / 17-7 PH ASTM A313		
Locking Screw	18-8 SS		
Seals*	As Specified, See Ordering Information		
Pull Stud	Brass, ASTM B16	303 SS, ASTM A582	316 SS, ASTM A479
Pull Ring	Plated Steel		

*Lubricated with Krytox ™



HPRV
Inline



HPRVA
Vent to Atmosphere



HPRVM
Vent to Atmosphere
(Manual Override)

SERIES
CRV
BRASS

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

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 Fluorosilicone 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: -320° to 350° F (-196° C to 176° 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



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LIQUID CYLINDER VALVE

1/4" NPT

22 - 500 Psig (1.5 – 34.5 Bar)

LCV

SERIES

Description

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

Features

- 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



Technical Data

Nominal Set Pressure Range: 22 - 500 Psig (1.5 to 34.5 Bar)

Factory Set Tolerance*: Set Pressure ≥ 72.5 PSI, $\pm 3\%$

Set Pressure < 72.5 PSI, ± 2.175 PSI

*tolerance specifications per EN ISO 4126-1.

Zero Leakage to 95% of Set Pressure

Reseat: 90% of set pressure

Temperature Rating: -320° to 350° F (-196° C to 176° C)
based on seal material (see How To Order)

Lubricant: Krytox[®]

Materials of Construction

Component	Material	
Valve, Body, Poppet, Spring Retainer, and Screen	Brass, ASTM B16	
Spring	302 (ASTM A313) or 17-4PH (ASTM A564)	
Seal	Flourosilicone 22 to 49 Psig (1.5 to 3.4 Bar)	PCTFE 50 to 500 Psig (3.5 to 34.5 Bar)
Label	.004 Thick Mylar	

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GENERANT

INDUSTRIAL 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)

IRV
STAINLESS
SERIES

Description

The Generant Series Stainless Steel IRV, Industrial Relief Valve is a spring reference over pressure protection device. 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 IRV is supplied with FKM seals. For severe service applications and set pressures above 50 Psig (3.45 Bar), specify optional PTFE seals.

Features

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

Technical Data

Set Pressure Range:
FKM: 10 - 750 Psig (0.69 to 51.7 Bar)
PTFE: 50 - 750 Psig (3.45 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, unaffected by up to 10% Back Pressure
Reseal: FKM seals 90% of Set Pressure
PTFE seals 80% of Set Pressure
Temperature Rating: -60° F to 375° F (-51° C to 190° 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
Adjustment Spring	302 or 17-7 PH Stainless Steel, ASTM A313
Seals	FKM or PTFE

¹ Inline Adapters utilize FKM 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.



SA.SL.IRV001.C.1834

GENERANT

INDUSTRIAL 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)

IRV
STAINLESS
SERIES

Description

The Generant Series Stainless Steel IRV, Industrial Relief Valve is a spring reference over pressure protection device. 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 IRV is supplied with FKM seals. For severe service applications and set pressures above 50 Psig (3.45 Bar), specify optional PTFE seals.

Features

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

Technical Data

Set Pressure Range:
FKM: 10 - 750 Psig (0.69 to 51.7 Bar)
PTFE: 50 - 750 Psig (3.45 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, unaffected by up to 10% Back Pressure
Reseal: FKM seals 90% of Set Pressure
PTFE seals 80% of Set Pressure
Temperature Rating: -60° F to 375° F (-51° C to 190° 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
Adjustment Spring	302 or 17-7 PH Stainless Steel, ASTM A313
Seals	FKM or PTFE

¹ Inline Adapters utilize FKM 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.



SA.SL.IRV001.C.1834



HIGH CAPACITY PRESSURE REGULATOR
1/4", 3/8" and 1/2" NPT
Inlet 400 Psig (27.6 Bar)

Description

The Generant Series HC, High Capacity Regulators are ideally suited for industrial applications requiring a rugged high flow pressure regulator. The Series HC features Heavy Duty all metallic body and spring chambers and are easily rebuilt in the field. The Series HC is available in Relieving and Non-Relieving configurations ideally suited for both liquid and gas service.

Features

- 3/8" and 1/2" Regulators are fully balanced to maintain constant delivery pressure regardless of inlet pressure fluctuations. 1/4" Regulators are currently available non-balanced only.
- Available Relieving or Non-Relieving
- Optimized spring performance and patented Venturi tube provides high flow rates with low droop
- Easily cleanable by removing bottom plug
- Optional Plastic knob and Panel Mounting Configurations

Technical Data

Maximum Inlet Pressure: 400 Psig (27.6 Bar)
Temperature Range: -20 to 200 °F (-30 to 95 °C)

Pressure Ranges

Spring Code	Outlet Pressure Range PSI (bar)
A	0 - 50 (0-3.4)
B	5 - 125 (0.3-8.5)
C	10 - 200 (0.7-13.6)

Flow Coefficient Cv

Size	Fail Open
1/4" NPT	1.6
3/8" NPT	2.4
1/2" NPT	2.9

Materials of Construction

Component	HC-250	HCR-250	HC-375/500	HCR-375/500
Body	Forged Brass, ASTM 377			
Spring Chamber	Forged Brass, ASTM 377		Die Cast Zinc (Zamak)	
Spring Retainer	N/A		Die Cast Zinc (Zamak)	
Spring Button	Brass, ASTM B16			
Diaphragm Screw	Brass, ASTM B16	Nylon 6-6, ASTM AD589	Brass, ASTM B16	Nylon 6-6, ASTM AD589
Diaphragm Plate / Nut	Brass, ASTM A36		N/A	
Adjustment Screw	303 Stainless Steel, ASTM A582			
Adjustment Screw Lock Nut	Brass, ASTM B16		Plated Steel	
Chamber Insert	N/A		Brass, ASTM B16	
Valve Stem	Brass, ASTM B16			
Valve Assembly	Brass, ASTM B16 and FKM, ASTM D1418			
Valve O-ring	N/A		Buna-N	
Adjustment Spring	Plated Music Wire, ASTM A228			
Valve Spring	302 Stainless Steel, ASTM A313		17-7 Stainless Steel, ASTM A564	
Turbulence Pin	18-8 SS, ASTM A276		Brass, ASTM B16	
Bottom Plug	Brass, ASTM B16			
Bottom Plug O-ring	Buna-N			
Sieve	N/A		304 SS, ASTM A276	
Diaphragm Gasket	Red Fiber		N/A	
Diaphragm	Buna-N and Nylon			
Panel Nut	Brass, ASTM B16			



HC
SERIES

GENERANT

CRYOGENIC/PRESSURE BUILD REGULATOR

3/8" and 1/2" NPT, BSPT
Inlet 400 Psig (28 Bar)

CR



SERIES

Description

The Generant Series CR Cryogenic Regulator provides high flow during Cryogenic Vessel Pressure Build function and increased sensitivity to downstream pressure changes as a function of our pre-formed all metallic diaphragm and optimized spring design. The unique diaphragm is unlike anything on the market today and results in less decrease in Cryogenic vessel pressure and faster recovery during periods of higher demand, thus decreasing the potential for flooding the pressure build coil. The unit features a 304 SS Inlet Strainer/Filter to aid in reducing contaminant related failures. Optional Cleaned and Packaged for Oxygen Service Series CR Regulators utilize Monel Inlet Strainer/Filters. All Series CR Cryogenic Regulators are 100% Factory Tested and are supplied factory pre-set.

Features

- Designed for High Flow Liquid Service
- Can be installed Upstream or Downstream of the Vaporizer
- Unique Pre-Formed Multiple Stacked Phosphorous Bronze Diaphragms
- Can be Supplied Factory Preset
- Hex Head Adjustment Screw with Locknut
- 304 SS Inlet Strainer/Filter
- Optional Cleaned and Packaged for Oxygen Service (**includes Monel Inlet Strainer/Filter**)

Materials of Construction

- Forged Brass Body and Chamber, ASTM 377
- Brass Bar Stock Components, ASTM B16
- Phosphorous Bronze Diaphragms, ASTM B103
- PTFE Valve, Diaphragm and Bottom Plug Seal, ASTM D1710
- PCTFE Valve Stem Bearing, ASTM D1430
- 17-7PH Stainless Steel Adjustment and Valve Spring, ASTM A313
- Stainless Steel Adjustment Screw and Locknut, ASTM A276
- 304 SS Inlet Strainer/Filter (**Monel Inlet Strainer/Filter when specified for Oxygen Service**)

SA.SL.CR001.D.2031

FORGED NEEDLE VALVE
1/8" - 3/8" NPT
1/8" and 1/4" Dual Ferrule Tube
Vacuum - 5000 Psig (345 Bar)

FNV
SERIES

Description

Series FNV Needle Valves feature a forged body, integral bonnet design with PTFE and metallic wafer stem packing. This provides leak-tite service from vacuum to the maximum operating pressure. Series FNV are available in Straight and Angle configurations, with NPT and Dual Ferrule Tube connections. The industry standard panel mounting allows the FNV to be a cost effective solution to many applications. Standard metal to metal stem and optional Soft Tip stem provide accurate metering over a wide range of pressures. The Series FNV can be ordered cleaned for Oxygen Service.

Features

- Metallic and PTFE Wafer Stem Packing provides low operating torque
- Panel Mounting Standard
- Metal to Metal Standard, Optional Soft Stem Tip (PCTFE)
- Straight or Angle Body Configurations
- Male and Female NPT or Dual Ferrule Tube Connections
- Suitable For Cryogenic Service
- 100% Factory Tested

Technical Data

Maximum Operating Pressure @ 100° F
Brass: 3000 Psig (207 Bar)
Stainless: 5000 Psig (345 Bar)

Temperature/Pressure Ratings

Temperature, °F (°C)	Max. Working Pressure, Psig (Bar)	
	Brass	316 SS
- 320 (-195) to 100 (38)	3000 (207)	5000 (345)
100 (38) to 250 (121)	2200 (151)	4085 (282)
250 (121) to 350 (177)	1470 (101)	3715 (256)
350 (177) to 450 (232)	-	3435 (237)

Temperature Range:

Metal to Metal Stem: -320° to 450° F (-195°C to 232°C)
PCTFE Soft Stem Tip: -20° to 200°F (-29° to 93°C)

Orifice: 0.17" (4.32 mm)

Flow Coefficient (Cv): 0.37

Testing

Every valve is factory tested with Nitrogen at 3000 Psig (207 Bar) for leakage. Maximum allowable seat leakage is 0.1cc/min.

Materials of Construction

Component	Brass	Stainless
Valve Body	Brass, ASTM 377	316 SS, ASTM A182
Packing Nut	Brass, ASTM B16	316 SS, ASTM A479
Regulating Stem	316 SS, ASTM A479	
Packing Washers	Brass, ASTM B36	316 SS, ASTM A479
Packing	PTFE, ASTM D1710	
Soft Stem Tip	PCTFE (Neoflon® M400), ASTM D1430	
Panel Nut	Brass, ASTM B16	303 SS, ASTM A582
Round Handle	Nylon 6/6 (Zytel®) with Brass Insert	
"T" Handle	303 SS, ASTM A582	
Handle Set Screw	304 SS, ASTM A182	
Lubricant	Oxygen Compatible Perfluoropolyether (PFPE) Grease	



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PMV
SERIES

PRECISION METERING VALVE
1/8" and 1/4" NPT
1/8" and 1/4" Dual Ferrule Tube
Vacuum - 1000 Psig (68.9 Bar)

Description

Series PMV Precision Metering Valves are designed for accurate and repeatable flow control of fluids and gases. Valves feature a one-piece forged body and a screwed bonnet design. Stainless steel 3 degree tapered stem seals bubble tight into an Acetal soft seat. With panel mounting and lockable adjustment standard, these valves offer cost effective solutions for precise metering.

Features

- Straight or Angle Flow Patterns
- Forged Body Brass or Stainless Steel Construction
- NPT or Dual Ferrule Tube Connections
- Unique Soft Seat Provides Positive Shut Off
- Wear Compensating Knob Adjustment
- Locking Screw Prevents Inadvertent Flow Changes
- Stem Threads are isolated from System Fluid
- 100% Factory Tested for Leakage

Technical Data

Maximum Operating Pressure @ 100° F
Brass and Stainless: 1000 Psig (68.9 Bar)
Stem Taper: 3 Degree (included angle)
Stem Pitch: 40 Threads per inch
Orifice: 0.055" (1.4 mm)
Flow Coefficient (Cv): 0.04
Panel Mounting
Panel Mount Hole: 9/16" (14.3 mm)
Max Panel Mount Thickness: 1/8" (3.3 mm)
Factory Preset for zero flow at positive stop with 150 Psig (10.34 Bar)

Temperature Range:
Seal Dependent (See How To Order)

Materials of Construction

Component	Valve Body Material	
	Brass	Stainless Steel
Body	Forged Brass, ASTM 377	Forged 316 SS, ASTM A182
Bonnet	Brass, ASTM B16, Nickel Plated	316 SS, ASTM A479
Stem	316 SS, ASTM A479	
Knob and Panel Nut	Brass, ASTM B16, Nickel Plated	
Seat Insert	Acetal CoPolymer, ASTM D4181	
O-Ring	Buna-N, Neoprene, Ethylene Propylene or Viton®	
Set Screw (2)	18-8 SS, ASTM A182	

Nickel Plating per ASTM B689
Stem Threads and O-Rings are lubricated with Krytox®





HPCV
SERIES

HIGH PRESSURE CHECK VALVE
1/4" and 1/2" NPT
10,000 Psig (690 Bar)

Description

Series HPCV is a High Pressure, One-Piece Body, Zero Leak, Check Valve for High Pressure and Severe Service applications. The unique design features a fully retained encapsulated O-ring seal with metal to metal backup for long service life. Available in Brass, 316 and 17-4 PH Stainless Steel to 10,000 psig.

Features

- One-Piece Body Design
- Encapsulated Seal with Metal Backup
- Self Purging Design prevents leakage
- Increasing Pressure Increases Sealing Efficiency

Technical Data

Maximum Operating Pressure @ 100° F

Body Material	Operating Pressure Psig (Bar)	Proof Pressure Psig (Bar)
Brass	5000 (345)	7500 (517)
316 Stainless	6000 (413)	10000 (690)
17-4 PH Stainless	10000 (690)	15000 (1034)

Minimum Burst Pressure: Greater than 3 times Operating Pressure

Leakage:
Elastomeric Seals: Zero @ 1.0 Psig (0.07 Bar) to Proof
Teflon Seals: Zero @ 75 Psig (5.2 Bar) to Proof

Nominal Crack Pressure: 2 - 5 Psig (0.14 - 0.34 Bar)

Temperature Range:
Seal Dependent (see How to Order)

Materials of Construction

Component	Valve Body Materials		
	Brass	316 Stainless Steel	17-4 PH Stainless Steel
Valve Body	Brass, ASTM B16	316SS, ASTM A479	17-4 PH SS, ASTM A564, Heat Treated to H1150D
Stem			17-4 PH SS, ASTM A564
Spring Retainer			303 SS, ASTM A582
O-Ring Shroud	303 SS, ASTM A582		
Spring	302 SS, ASTM A313		
Locknut	Corrosion Resistant Austenitic Steel (CRES)		
O-Ring	Buna-N, Teflon® or Viton®		

O-rings are lubricated with Krytox®



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DCV SERIES

DISC CHECK VALVE 1/8", 1/4" & 3/8" Female NPT 0 – 500 Psig

Description

The DCV Series' unique Floating Acetal Copolymer Disc design allows for a positive bubble tight seal with as low as one inch of water crack pressure. Rated for service up to 500 Psig, the DCV Series is available with many standard elastomer seal options, making it a versatile choice for many low pressure applications. DCV Series valves can be ordered cleaned for Oxygen service.

Features

- Ideal for High Cycling Applications
- Quick Acting: less than 10 milliseconds to seal from reversing flow
- No Spring: valve is operated solely by the flow of the media
- Bubble tight closure from zero to 500 Psig



Technical Data

Maximum Pressure: 500 Psig
Cracking Pressure: <1" H₂O
Flow Coefficient (Cv):
1/8" & 1/4" – 0.80
3/8" – 1.35
Temperature Rating: -40°F to 210°F (-40° to 100°C)
(based on seal selection, see ordering information)

Materials of Construction

Component	Valve Body Material
Body, End Cap	Brass, ASTM B16
Poppet Disc	Acetal Copolymer
O-Ring ¹	Viton™(standard)

¹ Lubricated with Krytox™