

Bulk Tank Cryogenic Parts

Ratermann Mfg. offers a comprehensive range of bulk tank parts for your piping applications.



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SAFETY & THERMAL RELIEF VALVES



HEROSE



*Most Common Bulk Tank
Thermal Relief Valve*

The unique design of many of our valves together with our continuous development and test programs allows us to offer a comprehensive range of valves with extended operating life. The options include soft and metal to metal seated valves, lifting devices, different materials etc. These are suitable for vessels, trailers, cylinders, process plant, high purity and many other piping applications. The range is fully approved for air gases and CO2 duties holding most of the approvals for the global industrial gas market.

Valves in this range have allowed customers, in agreement with local authorities, to increase the period between inspection and service intervals, reducing life-time costs.

Most Common NPT Inlet	Vendor Reference Number	To Order Part Number	Orifice	Pressure
1/2" x 1"	06388.0704.6040	SVB-A-65-FCHH	0.275"	65psi
1/2" x 1"	06388.0704.6040	SVB-A-125-FCHH	0.275"	125psi
1/2" x 1"	06388.0704.6040	SVB-A-175-FCHH	0.275"	175psi
1/2" x 1"	06388.0704.6040	SVB-A-250-FCHH	0.275"	250psi
1/2" x 1"	06388.0704.6040	SVB-A-375-FCHH	0.275"	375psi
3/4" x 1"	06388.1006.6040	SVB-D-175-FCHH	0.413"	175psi
3/4" x 1"	06388.1006.6040	SVB-D-250-FCHH	0.413"	250psi
1" x 1 1/4"	06388.1510.6040	SVB-E-250-FCHH	0.590"	250psi

*Other Styles
Also Available*



Cylinder Safety and Thermal Relief Valves
Bronze and Stainless Steel
1/4" to 1/2"
(6-12 mm)



Safety Valves
Stainless Steel
1/4" to 2"
(6-50 mm)



Flanged Safety Valves
Bronze and Stainless Steel
1/2" to 12"
(12-300 mm)

Technical Data

1/2" - 2" (12-50mm)	Screwed/Weld	Safety Valves	2-750psi (0.2-50 Bar)
1/2" - 12" (12-500mm)	Flanged	Safety Valves	750psi (0.2-50 Bar)
1/2" - 1" (12-25mm)	Screwed/Weld	High Pressure Safety Valves	750-9000psi (50-600 Bar)
1/2" - 10" (12-250mm)	Flanged	High Pressure Safety Valves	750-2400psi (50-160 Bar)
1/4" - 1/2" (6-12mm)	Screwed/Weld	Thermal Relief Valves	2-600psi (0.2-40 Bar)
1/2" - 2" (12-50mm)	Screwed	Vacuum Valves	1-15psi (0.05-0.45 Bar)
1/2" - 2" (12-50mm)	Screwed	Combination Vacuum Safety	15 to 45psi (0.95-3 Bar)

HIGH FLOW REGULATOR

HIGH FLOW REGULATOR

GENERANT



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. Virtually unaffected by inlet pressure fluctuations by its fully balanced design. All GDR Series regulators are 100% factory tested then cleaned and packaged for Oxygen service.

4 Port Gas Delivery Regulators (with 1/4" Gauge Ports)

Port Gas Delivery Regulators

Part #	Pressure Range	Part #	Pressure Range
RG-20014-A	1/4" NPT 0-55 PSIG	RG-40014-A	1/4" NPT 0-55 PSIG
RG-20014-B	1/4" NPT 50-135 PSIG	RG-40014-B	1/4" NPT 50-135 PSIG
RG-20014-C	1/4" NPT 125-225 PSIG	RG-40014-C	1/4" NPT 125-225 PSIG
RG-20012-A	1/2" NPT 0-55 PSIG	RG-40012-A	1/2" NPT 0-55 PSIG
RG-20012-B	1/2" NPT 50-135 PSIG	RG-40012-B	1/2" NPT 50-135 PSIG
RG-20012-C	1/2" NPT 125-225 PSIG	RG-40012-C	1/2" NPT 125-225 PSIG
RG-20034-A	3/4" NPT 0-55 PSIG	RG-40034-A	3/4" NPT 0-55 PSIG
RG-20034-B	3/4" NPT 50-135 PSIG	RG-40034-B	3/4" NPT 50-135 PSIG
RG-20034-C	3/4" NPT 125-225 PSIG	RG-40034-C	3/4" NPT 125-225 PSIG
RG-2001-A	1" NPT 0-55 PSIG	RG-4001-A	1" NPT 0-55 PSIG
RG-2001-B	1" NPT 50-135 PSIG	RG-4001-B	1" NPT 50-135 PSIG
RG-2001-C	1" NPT 125-225 PSIG	RG-4001-C	1" NPT 125-225 PSIG

TECHNICAL DATA

Maximum Inlet Pressure 400 PSI

Maximum Outlet Pressure 250 PSI

Flow Coefficient Cv = 1.2*

Balance Effect Variation of Outlet Pressure Less Than .25 PSI Per 100 Change in Inlet Pressure

100% Factory Tested

* Flow Coefficient stated at 10% Droop

*Add EP to end of Part # for regulators intended for carbon dioxide service.

T & "Candy Cane" Relief



Candy Cane with 1/4" NPT Female for Pressure Relief

Part #
PR-CC

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

FOR GAS AND LIQUID USE IN THE 1/2" STYLE

TECHNICAL DATA FOR 1/2" NPT

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 ± 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° F

Proof Pressure 1500 PSI

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



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

BULK TANK PRODUCTS

Sealing Compound

Pt # SC-2LB



The temporary sealer of vacuum tight connections and vacuum leaks in leak detection. Package contains 2 pounds.

Krytox Lubricant

Pt #
KRY-GPL2262OZ



Krytox is a high performance lubricant with excellent results with use on valve bonnet nuts and packing units.

Part #	Description	Size Container
KRY-GPL2262OZ	226 Grease	2 Oz. Tube
KRY-GPL2268OZ	226 Grease	8 Oz. Tube
KRY-GPL2261LB	226 Grease	1 Lb. Jar

Hastings, Model ATV 4/6 Digital Vacuum Meter

Pt # VM-BO-HPM4/6-TORR
Pt # VM-BO-HPM4/6-MBAR

This is the Hastings, Model ATV 4/6 battery powered, digital vacuum instrument. This model reads the DV6 R and DV4 R Thermocouple tubes. Specify Torr or mbar.

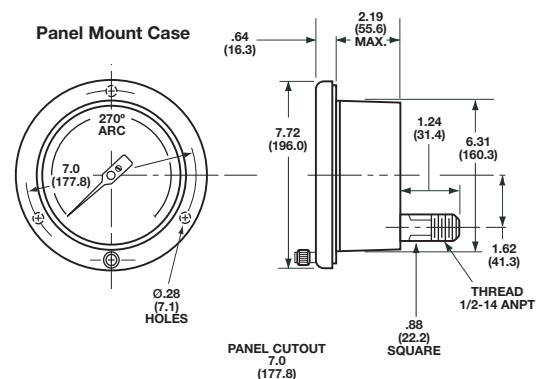
Solfrunt® 6" Process Pressure Gauges

Pressure Gauge, 0-100 PSI

Pressure Gauge, 0-400 PSI

Pressure Gauge, 0-600 PSI

SOLFRUNT®		Panel Mount Back Thread
Model Number	PB-S6BMPB	
Bourdon Tube	Phosphor Bronze	
Socket	Brass	
Size	6"	
Range	Part No.	
0-100 psi	PG-S6BMPB12-0-100	
0-400 psi	PG-S6BMPB12-0-400	
0-600 psi	PG-S6BMPB12-0-600	



Silicone Lubricant Vacuum Grease

Pt # VG-DCTUBE

A silicone lubricant used in vacuum applications such as "O"-rings and gaskets. Do not use on parts that have contact with oxygen liquid or gas.



Glyptal

Pt # RE1201

Glyptal is a special red enamel paint used for temporary vacuum sealing in conjunction with Permagem in vacuum leak detection.

RTV Vacuum Sealant

Pt # VS-8OZ

RTV is used for vacuum tight installation on the threads of Thermocouple Tubes and Thermocouple Isolation valves. RTV can easily be broken apart. RTV is flammable and special shipping arrangements are required.

Liquid Level Gauge Pt # LLG-B

0 to 60" of Water, 8" diameter Barton, Liquid Level Gauge.

THERMOCOUPLE GAUGE TUBES

Thermocouple Gauge Tubes (sensors)

Teledyne Hastings, manufacturer of the original DV-4 and DV-6 thermocouple vacuum gauge tubes, produces vacuum measurement equipment with exceptional stability, accuracy and reliability under the most demanding conditions. These vacuum sensors are calibrated for nitrogen or air, but conversion factors for other gases are available from the factory.

Features

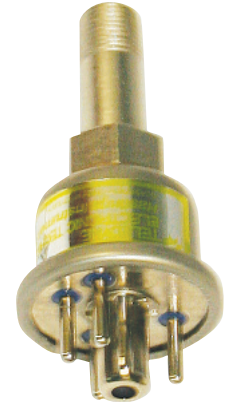
- Proven Reliability
- Three Vacuum Ranges Available
- Many Designs For Harsh Environments
- Diverse Selections of Fittings

Applications

- Cryogenic Tanks/Dewars
- Semiconductor Processes
- Refrigeration

Accessories

- NIST Traceable Calibration Tubes for Meter
- Quick Connects
- Trapes and Filters



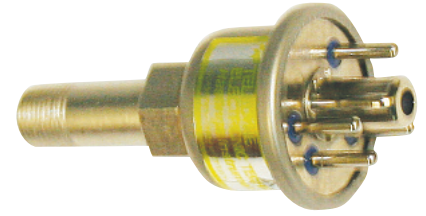
Vacuum Measurement using DV Series Vacuum Sensors

Specification	Model DV-4 Series Thermocouple Gauge Tubes Ratermann Pt # Series TGT-4	Model DV-5 Series Thermocouple Gauge Tubes Ratermann Pt # Series TGT-5	Model DV-6 Series Thermocouple Gauge Tubes Ratermann Pt # Series TGT-8
Used with Gauge/Meter	VT-4	VT-5	VT-6
Reference Tube For Calibrating meter	DB-16D	DB-18	DB-20
Vacuum Range	0.01 - 20 Torr (100 - 20,000 mTorr)	0.0001 - 0.1 Torr (0.1 - 100 mTorr)	0.001 - 1 Torr (1 - 1,000 mTorr)
Best Sensitivity Range	0.2 - 5 Torr (200 - 5000 mTorr)	0.0001 - 0.1 Torr (0.1 - 100 mTorr)	0.001 - 1 Torr (10 - 200 mTorr)
Response Time (seconds) ATM - Zero	0.16	25	2.9
Response Time (seconds) Zero - ATM	0.04	0.8	0.06
Standard	Model DV-4D	Model DV-5M	Model DV-6M
Ruggedized	DV-4R	-	DV-6R
VCR	DV-4D-VCR	DV-5M-VCR	DV-6M-VCR
VCRL (long)	-	-	DV-6M-VCRL
KF-16	DV-4D-KF 16	-	DV-6M-KF16
KF-25	DV-4D-KF 25	-	DV-6M-KF 25
Mini Conflat	-	-	DV-6M-CF
High Temperature	DV-34	-	DV-36
Rugged/Vibration resistant with Outdoor Cover	-	-	DV-6S
Pyrex	-	-	DV-20
Weight (approx)	0.1-0.2 Lbs Dependent on model	0.1-0.2 Lbs Dependent on model	0.1-0.3 Lbs Dependent on model

THERMOCOUPLE GAUGE TUBES

Thermocouple Gauge Tubes (sensors)

These vacuum sensors are calibrated for nitrogen or air, but conversion factors for other gases are available from the factory.



To Order

Refer to Ratermann Part Number under the specific gauge tube type needed for the appropriate instrument.

Selection Chart

(For Proper Accuracy and performance, THI Vacuum Gauges should always be used with the proper range of THI Vacuum Gauge Tubes.)

Instrument Series	Vacuum Range	Color Band	Standard Gauge Tube 1/8" NPT	Ruggedized Tube 1/8" NPT	VCR® SS-4-VCR-3	CF™ 1.33"	KF-16	KF-25	Stainless Steel 1/8" NPT	Glass 3/8" OD
VT-5, CVT-15/25	0-100 mTorr	Red	TGT-5M	-	TGT-5M-VCR	-	-	-	-	-
VT-6, CVT-16/26, HPM 4/6	0-1000 mTorr	Yellow	TGT-6M	TGT-6R	TGT-6M-VCR	TGT-6R-CF	TGT-6M-KF-16	TGT-6M-KF-25	TGT-36	TGT-20
VT-3, CHV-3/23	0-5 Torr	Orange	TGT-23	-	TGT-23-VCR	-	TGT-23-KF-16	TGT-23-KF-25	-	-
VT-4, CVT-14/24, HPM 4/6	0-20 Torr	Purple	TGT-4D	TGT-4R	TGT-4D-VCR	-	TGT-4D-KF-16	TGT-4D-KF-25	TGT-34	-
HVC-282	0-20 Torr	Blue	TGT-273	-	-	-	-	-	-	-
VH-4, CVH-4/24	0-50 Torr	White	TGT-24	-	-	-	TGT-24-KF-16	TGT-24-KF-25	-	-

* Note: Color band is not used on all tubes.

GAUGE TUBE TYPES

Standard Gauge Tube: Nickel-plated hermetically sealed base with glass, stainless steel, and nickel-plated components with color-coded base.

Ruggedized Gauge Tube: Nickel-plated hermetically sealed base with glass, stainless steel, and nickel-plated components.

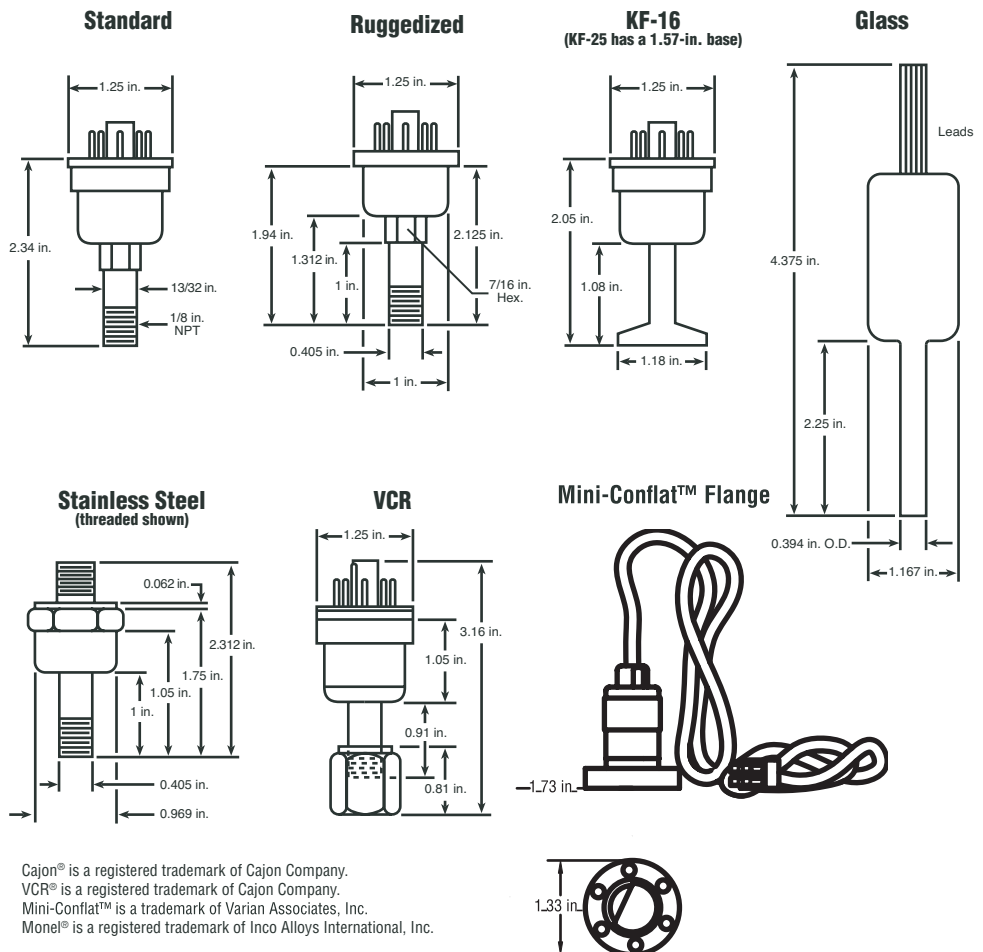
Glass Gauge Tube: Constructed of Corning #7052 type glass or equivalent. 10mm O.D. smooth tubulation.

Stainless Steel Gauge Tube: A weatherproof, corrosion-resistant tube which can withstand high temperatures as well as extremely high gas line over-pressurization.

VCR Gauge Tube: Includes female nut connection. 9/16-18 UNF, female threads with 0.75 hex, Cajon® #SS-4-VCR-3 and #SS-4-VCR-1.

KF-16 and KF-25 Gauge Tubes: Standard gauge tube with KF flanges. Simplifies installation while providing a reliable seal.

Conflat™ Flange Connection Gauge Tubes: Available for special vacuum configurations.



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Monel® is a registered trademark of Inco Alloys International, Inc.