



# CG-500 Catalog

## Cryogenic & Industrial Gas Equipment

Cryogenic Cylinder Equipment

Relief Valves

Globe Valves

Gate Valves

Check Valves

Regulators

Master High Pressure Valves

Adapters, Nipples, Pipe & Miscellaneous

Repair Kits

# Short Stem Cryogenic Valves

## T9450 Series & T9460 Series

### Application

The T9450 and T9460 series valves are designed for use on portable cryogenic cylinders and other in-line shut-off valve applications.



### Features

- Spring loaded stem seal automatically adjusts for any gasket wear, eliminating the need to constantly retighten the packing nut
- Non-rising stem and low profile allow the valve to fit into tight areas and still provide easy access
- Unique pressure-sealed moisture barrier helps prevent freeze up at cryogenic temperatures
- Conical swivel seal design helps prevent seat galling from over torquing
- Cleaned for oxygen service per CGA G-4.1
- Maximum working pressure is 600 psig (42 barg)
- Working temperature range is -320°F to +165°F (-196°C to +74°C)
- Approved for TPED in accordance with EN1626
- 100% Factory Tested

### Materials

Body .....	Brass
Bonnet .....	Brass
Seat Disc .....	PCTFE
Stem Seal Gasket.....	PTFE
Handwheel.....	Aluminum
Spring .....	Stainless Steel
Stem .....	Brass
Poppet .....	Brass

### Ordering Information

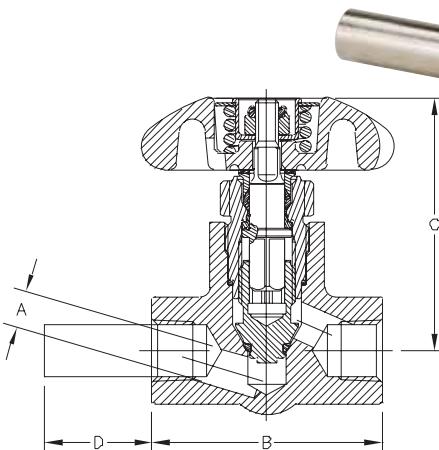
Part Number	Inlet	Outlet	Orifice A	Length B		Height (Approx.) C		Tube D	C <sub>v</sub> (Kv)
				inches	mm	inches	mm		
<b>T9452</b>	1/4" F.NPT	1/4" F.NPT	.250						.99 (0.85)
<b>T9453</b>	3/8" F.NPT	3/8" F.NPT							1.76 (1.52)
<b>T9454</b>	1/2" F.NPT	1/2" F.NPT	.406						1.79 (1.54)
<b>T9464CA</b>								1 1/8"	
<b>T9464DA</b>	.675" O.D. Tube	3/8" F.NPT						2 1/8"	
<b>T9464ADA</b>			.406					3 1/8"	1.76 (1.52)



**T9450 Series**



**T9460 Series**



### Extended Stem Retrofit Kits

#### Application

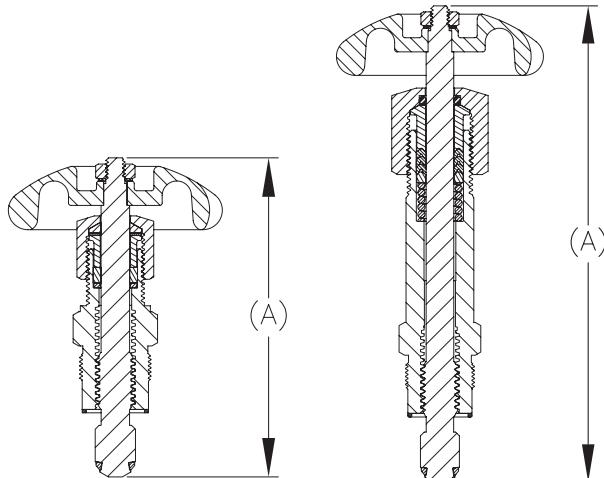
Retrofit kits may be used to convert the 9450 and 9460 series short stem shut off valves into extended stem style. The conversion can be done without removing the valve from your system. Available in two stem lengths. All kits are oxygen cleaned and packaged per CGA G-4.1.

#### Materials

Body .....	Brass
Seat Disc .....	PCTFE
Handwheel.....	Aluminum
Packing.....	PTFE
Stem .....	Stainless Steel
Stem Seal Gasket.....	PTFE

### Ordering Information

Part Number	Stem Length A	Style
<b>BK9450R</b>	6.5" (165.1mm)	Extended Bonnet and Stem, Spring Loaded Packing



# ES8450 & TES8450 Series Extended Stem Valves BK9450 & BK9470 Series Extended Bonnet Valves



## Application

For use as a trycock valve or hose drain valve on cryogenic tanks, or as a use, liquid fill, or vent valve on mini-bulk cryogenic tanks. These valves can be used also for other cold gas applications requiring extended stem valves as LNG fueling.

## Features

- Union bonnet
- One piece stainless steel stem
- Conical seat design
- Maximum working pressure is 600 psig (42 barg)
- Working temperature is -320°F to +165°F (-196°C to 74°C)
- Cleaned for oxygen service per CGA G-4.1
- 100% Factory Tested

### TES8450 Series specific feature:

- Grafoil® packing
- Approved by PED and TPED

### ES8450 Series specific feature:

- Manual torque compression packing

### BK9450 and BK9470 Series specific feature:

- Extended bonnet and spring loaded packing

### BK9470 Series specific feature:

- 304 St. Stl Tube brazed into both ends

## Materials

Body and Bonnet.....	Brass
Stem .....	Stainless Steel
Seat Disc .....	PCTFE
Handwheel.....	Aluminum
Bonnet Gasket.....	PTFE

## Conversion Kit

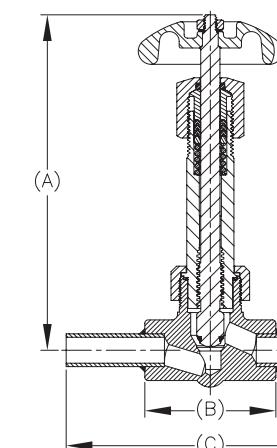
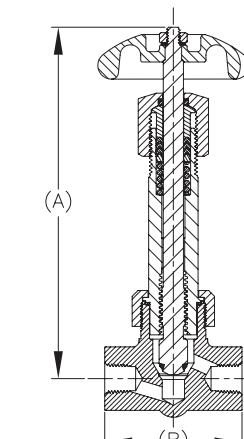
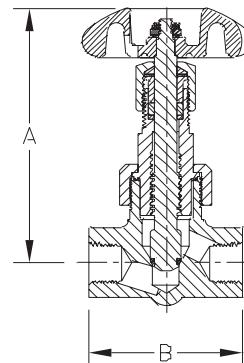
BK 9450-KIT is a bonnet and stem assembly kit to convert ES 8450 series and previous ES 9450 Series to the BK 9450 style.



**ES 8450 Series**



**BK 9450 Series**



**BK 9470 Series**

## Ordering Information

Part Number	Inlet/Outlet Connections	Packing	Height "A"		Body Width "B"		Width with Tube "C"		Cv (Kv)
			Inches	mm	Inches	mm	Inches	mm	
ES8452	1/4" FNPT	PTFE	4.2"	107	2.5"	63	N/A		0.70 (0.60)
TES8452		Grafoil							
ES8453	3/8" FNPT	PTFE	6.5"	165					1.10 (0.95)
TES8453		Grafoil							
ES8454	1/2" FNPT	PTFE							0.70 (0.60)
TES8454		Grafoil							
BK9452	1/4" FNPT	PTFE							1.10 (0.95)
BK9453	3/8" FNPT								
BK9454	1/2" FNPT								
BK9453FA	5/8" OD tubing x 3/8" FNPT								
BK9475A	5/8" OD tubing both ends								

# REGO-LOK™ for Securing CGA Fittings on Liquid Cylinders

## Application

The REGO-LOK™ is designed for installation on the RegO T9450 and T9460 Series liquid cylinder valves to deter and prevent the removal of the CGA fitting from the valve. The REGO-LOK™ retains standard CGA outlet connection so unauthorized persons do not remove the fitting. By use of a special one-way bolt, the REGO-LOK™ is secured to the valve. The REGO-LOK™ installs in a few minutes with the use of screwdrivers, without valve disassembly, brazing, welding, or drilling. The REGO-LOK™ deters and prevents fitting removal by gas customers, however allows the replacement of fittings by authorized gas supplier plant personnel.

Use The REGO-LOK™ for compliance with CGA SB-26 for medical and industrial liquid cylinders.

## Features

- Stainless Steel REGO-LOK™ with one-way bolt
- Retrofit all common liquid cylinder valves
- Can be supplied on new RegO liquid cylinder valves
- REGO-LOK™ indicates "WARNING: DO NOT REMOVE"
- Worn CGA fittings can be simply replaced by authorized personnel. Requires new 9464RL-6 Bolt
- Can fit over existing fittings for CGA 540, CGA 440, CGA 295, CGA 320, and CGA 326. Check fitting hex size

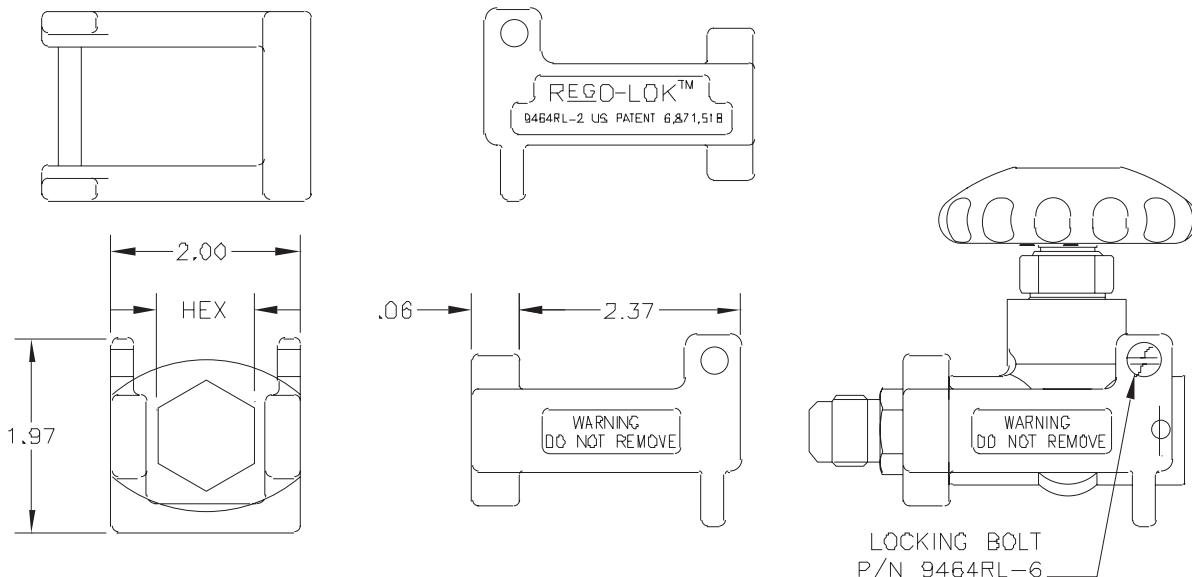
*NOTE: RegO supplied fitting P/N CGA580RL is required for REGO-LOK™ use with CGA 580 connection*

- Prevents loosening of CGA fittings on valves



**RegO-Lok™**

**Satisfies CGA SB-26 and FDA requirements for medical and industrial liquid cylinders.**



## Ordering Information

Part Number	Item Description	Typical Service Connection
9464RL-0	REGO-LOK™ for $\frac{3}{4}$ " hex fittings	N/A
9464RL-1	REGO-LOK™ for $\frac{7}{8}$ " fittings	CGA 320, CGA 326 & CGA 295
9464RL-2	REGO-LOK™ for 1" fittings	CGA 440, CGA 540
9464RL-3	REGO-LOK™ for $1\frac{1}{8}$ " hex CGA 580RL fitting by RegO	CGA 580
CGA580RL	$\frac{3}{8}$ " MNPTxCGA for use with 9464RL-3	CGA 580

# Cryogenic Pressure Builder RG Series



## Application

RG series cryogenic regulators are primarily designed to maintain pressure on cryogenic liquid within cryogenic containers. They may also be used in cryogenic lines, vaporizer and converter applications. They are especially useful in installations where space and cost limitations are important.

## Features

- All parts are copper alloy (brass), PTFE and stainless steel—materials selected specifically for compatibility with cryogenic temperatures down to -320°F (-196° C )
- PTFE seat helps assure a positive shut-off at cryogenic temperatures down to -320°F (-196° C )
- High and low pressure regulators are the same compact size—designed to fit in close quarters
- Interchangeable with existing cryogenic regulator units
- Inlet filter helps prevent foreign material from entering the regulator
- Locknut is provided to maintain adjusting screw setting
- RG090AG is available with T handle adjustment screw and gauge ports
- Maximum inlet pressure of 550 psig (37.9 barg)
- Cleaned for oxygen service per CGA G-4.1
- 100% Factory Tested



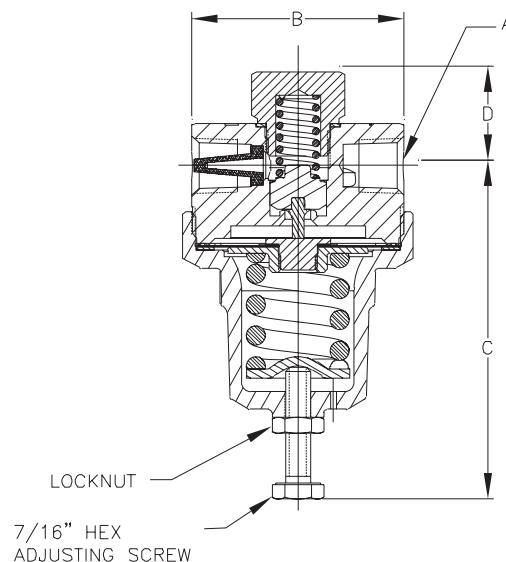
**RG Series**

**RGXXXAG with gauge port & T handle**

## Materials

Body .....	Brass
Bonnet .....	Brass
Seat .....	PTFE
Springs .....	Stainless Steel
Diaphragm Gasket.....	PTFE
Backcap Gasket .....	Copper
Diaphragm.....	Bronze

**RGXXX SER**



## Ordering Information

Part Number	Inlet / Outlet Connections (FNPT) A Inches (mm)	Width B Inches (mm)	C Inches (mm)	D Inches (mm)	Operating Range (psig)
<b>RG022A</b>	1/4" (6.35)	2 1/16" (52.32)	3" (76.20)	1" (25.40)	0-30 psig (0-2.1 barg)
<b>RG125A</b>					25-250 psig (1.7-17.2 barg)
<b>RG125C3</b>	5/8" (9.52)	2 5/8" (53.97)	3.33" (84.58)	0.80" (20.32)	25-250 psig (1.7-17.2 barg)
<b>RG175C3</b>					125-350 psig (17.2-24.2 barg)
<b>RG300A</b>	1/4" (6.35)	2 1/16" ((52.32)	3" (76.20)	1" (25.40)	25-250 psig (1.7-17.2 barg)
<b>RG90AG</b>					125-350 psig (17.2-24.2 barg)

\*Contact sales representative for additional settings.

# Cryogenic ½" Pressure Builder

## PB Series

### Application

PB series cryogenic regulators are primarily designed to maintain the pressure in cryogenic containers; they may also be used as a line regulator for cryogenic lines and cold gas lines. They are specifically useful in installations where the precision in pressure control and flow capability are important. For use with oxygen, nitrogen, argon, LNG and CO<sub>2</sub>.

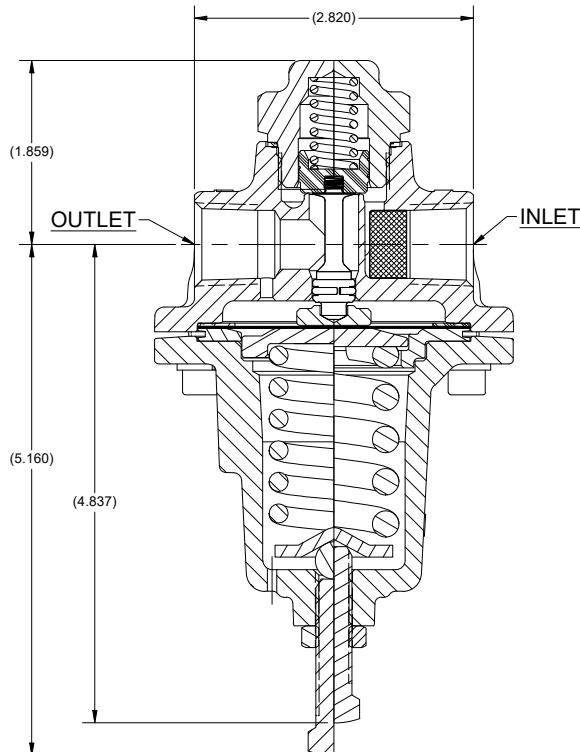


### Features

- All parts are copper alloy (brass), PTFE and stainless steel—materials selected specifically for compatibility with cryogenic temperatures down to -320°F. (-196° C.)
- One-piece PTFE Poppet seat design eliminates possible leak paths at cryogenic temperatures and provides better guidance for improved seating, ensuring a positive shutoff.
- High and low pressure regulators are the same compact size—designed to fit in close quarters
- Customizable pressure settings between 20 - 550 psig (1.4 - 37.9 barg)
- Interchangeable with existing cryogenic regulator units
- Inlet filter (150 Mesh) helps prevent foreign material from entering the regulator
- Easier to service, use an allen wrench versus large crescent wrench
- Less field repair because diaphragm is squeezed versus twisted
- Locknut is provided to maintain adjusting screw setting
- Maximum inlet pressure of 600 psig (41.4 barg)
- Cleaned for oxygen service per CGA G-4.1
- 100% Factory Tested
- Copper Backcap Gasket reduces the possibility of external leakage at cryogenic temperatures, as the contraction coefficient is similar to that of brass



**PB504**



### Materials

Body .....	Brass
Bonnet .....	Brass
Poppet .....	PTFE
Springs .....	Stainless Steel
Diaphragm Gasket.....	PTFE
Backcap Gasket .....	Copper
Diaphragm.....	Bronze

### PB504 Series part number configuration

PB504 - 205  
 └─  
 Series      Set  
               Pressure  
               psig

### Ordering Information

Part Number	Inlet / Outlet Connections (FNPT) A Inches (mm)	Delivery Pressure Setting Range psig (barg)
PB504-020 to 070	½" (12.70)	20 - 75 psig (1.4 - 5.2 barg)
PB504-071 to 175		50 - 180 psig (3.4 - 12.4 barg)
PB504-176 to 300		150 - 300 psig (10.3 - 20.7 barg)
PB504-301 to 465		250 - 465 psig (17.2 - 32.1 barg)
PB504-466 to 550		400 - 550 psig (27.6 - 37.9 barg)

Delivery pressure setting psig specified by suffix in PB regulator number. Example: An order for PB504-125 has a maximum inlet pressure rating of 600 psig (41.3 barg) and is set at an outlet pressure of 125 psig (8.6 barg).

# Cryogenic Economizers

## ECL502 Series



### Application

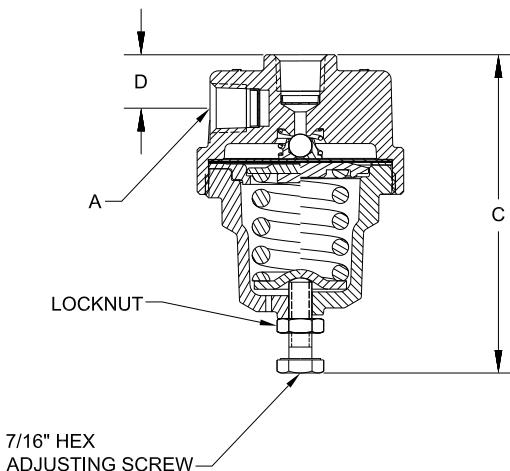
ECL502 series cryogenic economizers are designed to be used as pressure reducing valves to automatically maintain a constant inlet or back pressure, normally closed at pressures below its set point and open at pressures above its set point. The ECL502 is primarily designed to assist in maintaining a desired system pressure ideal for Nitrogen, Oxygen, Argon and other cryogenic cylinder applications with a 100% performance improvement over Rego's ECLXXX series. ECL502 series offers outstanding performance for maintaining LNG fuel line pressure.

### Features

- ECL502 series design provides premium flow characteristics allowing for fast pressure reduction while maintaining sensitive flow control at lower pressure settings
- All materials of construction- copper alloy, PTFE and stainless steel were selected for compatibility with cryogenic service
- 150 count mesh Monel screens installed into the inlet and outlet ports prevent debris from entering or damaging any downstream components
- Interchangeable with existing cryogenic economizer units.
- Bi-directional flow for LNG fuel systems
- Temperature range: -320°F to +165°F (-196°C to +74°C)  
Low Pressure Models ≤175: 375 psig (≤ 12.1: 25.3 barg)  
High Pressure Models >175: 550 psig (> 12.1: 37.9 barg)
- Pressure setting range: 10-350 psig (0.7-24.1 barg)
- Clean for oxygen service per CGA G-4.1
- Designed in accordance with UNECE.R110 19 - 340 psig (1.3-23.4 barg)



**ECL Series**



### Materials

Body .....	Brass
Diaphragm Liner .....	PTFE
Poppet Seat.....	Stainless Steel
Adjusting Screw.....	Stainless Steel
Bonnet .....	Brass
Screen .....	Monel
Diaphragm .....	Bronze
Springs .....	Stainless Steel

### Ordering Information

Part Number	Inlet / Outlet Connections (FNPT) A	Max inlet pressure	Width B	C	D	Operating Range
<b>ECL502-22</b>	1/4" NPT	235 psig (16 barg)	2.25" 57 mm	3.5" 89 mm	.58" 15 mm	10-60 psig (0.7 - 4.1 barg)
<b>ECL502-100</b>						50 - 175 psig (3.4 - 12.1 barg)
<b>ECL502-123</b>		50 - 175 psig (3.4 - 12.1 barg)				
<b>ECL502-140</b>						
<b>ECL502-175</b>	150 - 350 psig (10.3 - 24.1 barg)					
<b>ECL502-325</b>						

\*Contact sales representative for additional settings.

# Cryogenic ½" Combination Pressure Builder/Economizer for Bulk Vessels CB504

## Application

CB504 series regulators maintain the pressure of cryogenic liquid within bulk vessels combining the pressure building and economizer function in one unit, with ½" NPT inlet and outlet.



## Features

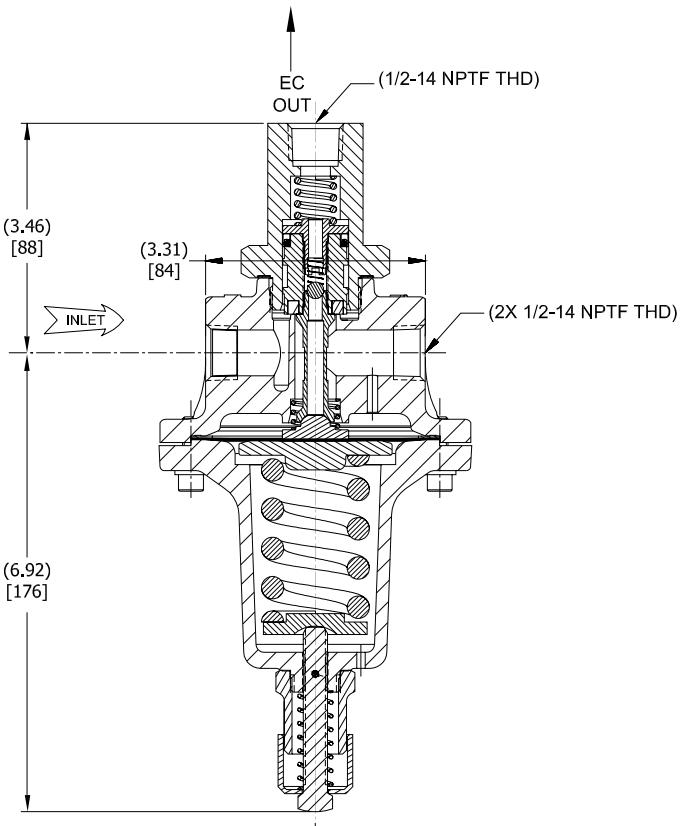
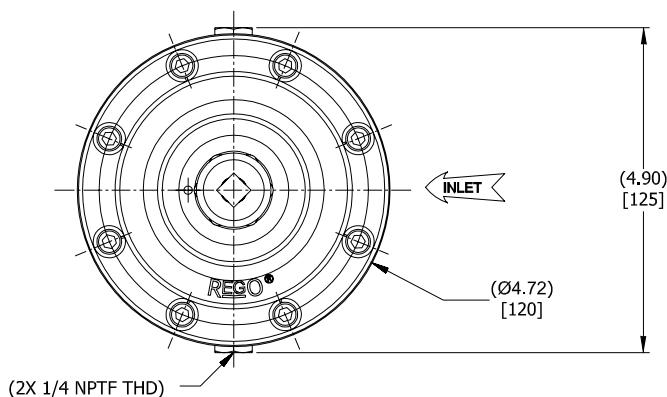
- All parts are copper alloy (brass), PTFE, and stainless steel—materials selected specifically for compatibility with cryogenic temperatures down to -320°F. (-196°C)
- Pressure setting scale on bonnet cap aids in pressure adjustment
- Maximum inlet pressure of 400 psig (27.6 barg)
- PTFE seat provides positive shut off at cryogenic temperatures
- Compact design fits well in tight plumbing geometries
- 100% factory tested
- Cleaned per CGA G-4.1 for oxygen service
- Suitable for argon, CO<sub>2</sub>, nitrogen, oxygen and LNG



**CB504**

## Materials

Body .....	Brass
Bonnet .....	Brass
Spring .....	Stainless Steel
Diaphragm Gasket.....	PTFE
Diaphragm.....	Phosphor Bronze
Seat .....	PTFE
Backcap Gasket .....	Copper



## Ordering Information

Part Number	Inlet/Outlet Connections (F.NPT) Inches (mm)	Operating Range (psig)
<b>CB504B</b>	½" (12.70)	100-200 psig (6.9-13.8 barg)

# Cryogenic ¼" Combination Pressure Builder/Economizer CBH502 & CBC502 Series



## Application

The regulator combines the function of Pressure Building and Economizer functions in one compact unit. Available in Chart and Taylor-Wharton piping geometries and a variety of pressure ratings.

## Features

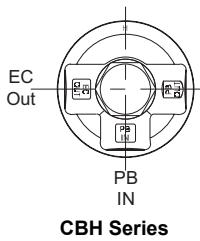
- All parts are copper alloy (brass), PTFE and stainless steel materials selected specifically for compatibility with cryogenic temperatures down to -320° F. (-196°C)
- PTFE seat helps assure a positive shut-off at cryogenic temperatures down to -320° F. (-196°C)
- High and low pressure builder/economizers are the same compact size designed to fit in close quarters.
- Interchangeable with existing cryogenic regulator units.
- Inlet screen helps prevent foreign material from entering the regulator.
- Locknut is provided to maintain adjusting screw setting.
- Maximum inlet pressure of 550 psig (37.9 barg)
- Cleaned for oxygen service per CGA G-4.1
- 100% Factory Tested.
- Suitable for argon, CO<sub>2</sub>, nitrogen, oxygen and LNG.



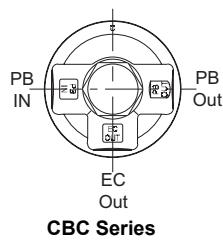
**CBH502 Series**

## Materials

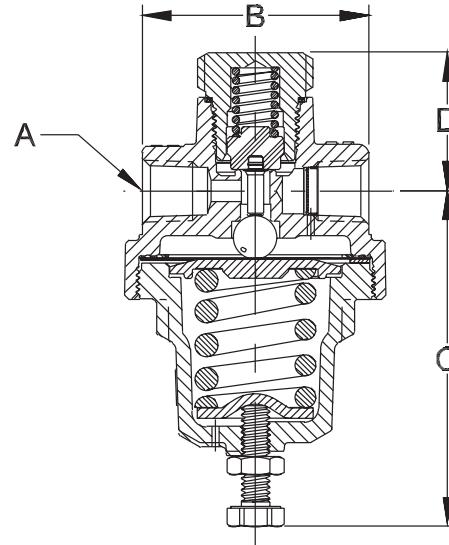
Body .....	Brass
Bonnet.....	Brass
Seat Disk .....	PTFE
Springs .....	Stainless Steel
Gaskets .....	PTFE & Copper
Diaphragm .....	Bronze



**CBH Series**



**CBC Series**



## Ordering Information

Part Number	Inlet/Outlet Connections (FNPT)	"A"	"B"	"C"	"D"	Factory Pressure Setting (psig)	Operating Range (psig)
<b>CBH502-015</b>						15 psig (1.03 barg)	10-60 psig (0.69-4.1 barg)
<b>CBH502-125</b>						125 psig (8.6 barg)	50-175 psig (3.45-12.1 barg)
<b>CBH502-300</b>						300 psig (20.7 barg)	
<b>CBH502-315</b>						315 psig (21.7 barg)	
<b>CBH502-325</b>						325 psig (22.4 barg)	150-350 psig (10.3-24.1 barg)
<b>CBH502-350</b>						350 psig (24.1 barg)	
<b>CBC502-015</b>						15 psig (1.03 barg)	10-60 psig (0.69-4.1 barg)
<b>CBC502-125</b>						125 psig (8.6 barg)	50-175 psig (3.45-12.1 barg)
<b>CBC502-300</b>						300 psig (20.7 barg)	
<b>CBC502-325</b>						325 psig (22.4 barg)	
<b>CBC502-350</b>						350 psig (24.1 barg)	150-350 psig (10.3-24.1 barg)

# Cryogenic Liquid Cylinder Regulator

## LCR Series

### Application

The RegO LCR Series pressure reducing regulator assembly controls the pressure from the gas use line or the discharge of any liquid cylinder with a flow capacity at least double the capacity of the cylinder vaporization coil. For use with oxygen, nitrogen, argon, or carbon dioxide liquid cylinders.

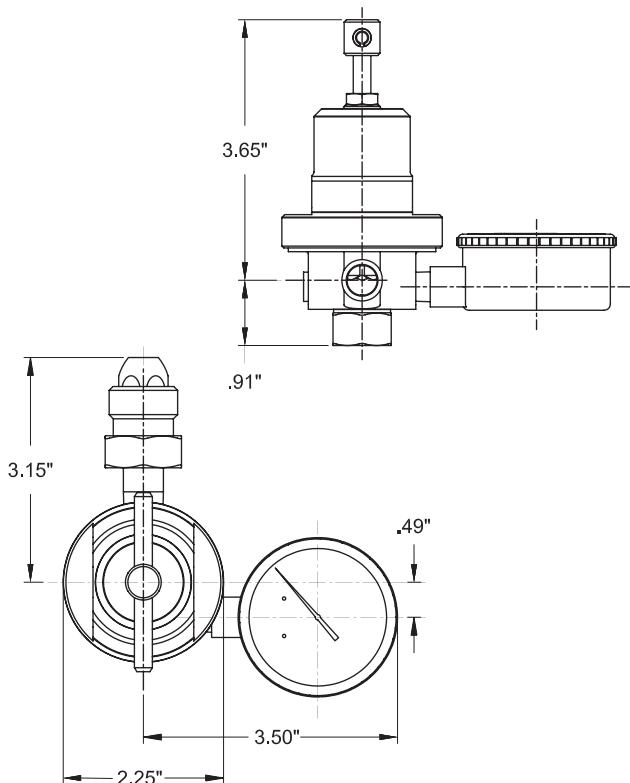


### Features

- Easy adjusting screw to maintain pressure setting
- 100% Factory tested
- CGA fitting inlet connection for ready hook-up and 1/4" F. NPT outlet.
- Gauges with applicable pressure ranges.
- Two delivery pressure ranges available.
- Clean for use in Oxygen per CGA G-4.1
- Temperature range -320°F (-196°C) to + 165°F (74°C)
- Maximum inlet pressure 550 psig (37.9 barg)
- Inlet filter helps prevent foreign material from entering the regulator.



**LCR Series**



### Materials

Body & Bonnet.....	Brass
Seat .....	PTFE
Spring & Nut.....	Stainless Steel
Diaphragm Gasket.....	PTFE
Diaphragm.....	Bronze
Backcap Gasket .....	Copper

### Ordering Information

Part Number	Gas	Liquid Cylinder Connection	Delivery Pressure Range
<b>LCR200A580</b>	Nitrogen/Argon	CGA 580	25 to 200 psig (1.7-13.8 barg)
<b>LCR200A540</b>	Oxygen	CGA 540	25 to 200 psig (1.7-13.8 barg)
<b>LCR200A320</b>	Carbon Dioxide	CGA 320	25 to 200 psig (1.7-13.8 barg)
<b>LCR350A580</b>	Nitrogen/Argon	CGA 580	100 to 350 psig (6.9-24.1 barg)
<b>LCR350A540</b>	Oxygen	CGA 540	100 to 350 psig (6.9-24.1 barg)
<b>LCR350A320</b>	Carbon Dioxide	CGA 320	100 to 350 psig (6.9-24.1 barg)

# Cryogenic Gas Relief Valves, Non-ASME

## 9400 Series

### Application

9400 series relief valves are specifically designed for vapor line safety relief applications and cryogenic liquid containers.

### Features

- Cleaned and packaged for oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Color coded labels clearly identify pressure setting range
- Tamper resistant
- Adapters provide standard pipe thread connections for venting gas to the outdoors
- Repeatable performance
- 100% factory tested
- Temperature Range (Teflon Seat) -320° to +165° F (-196°C to +74°C)  
(Fluorosilicone Seat) -60° to +165° F (-51°C to +74°C)
- Rated for gas service only
- In liquid service be sure to use with a candy cane riser  
(Sold Separately)
- Setpoint tolerance ± 3%

### Materials SS Style

Body .....	Stainless Steel
Spring .....	Stainless Steel
Seat Retainer.....	Stainless Steel
Pipe-Away Adapter.....	Stainless Steel

### Materials PRV and B-Style

Body .....	Brass
Spring .....	Stainless Steel
Seat Retainer.....	Brass
Pipe-Away Adapter.....	Brass

### Flow Performance

- For set pressures 90 - 600 psig capacity is 0.783 SCFM of air per psig of flow pressure. For set pressures 15 - 89 psig capacity is 0.750 SCFM of air per psig of flow pressure.
- B-9425N flow of 6.7 SCFM Air/psig at 120% of set pressure.
- B-9426N flow of 11.0 SCFM Air/psig at 120% of set pressure

### Ordering Information

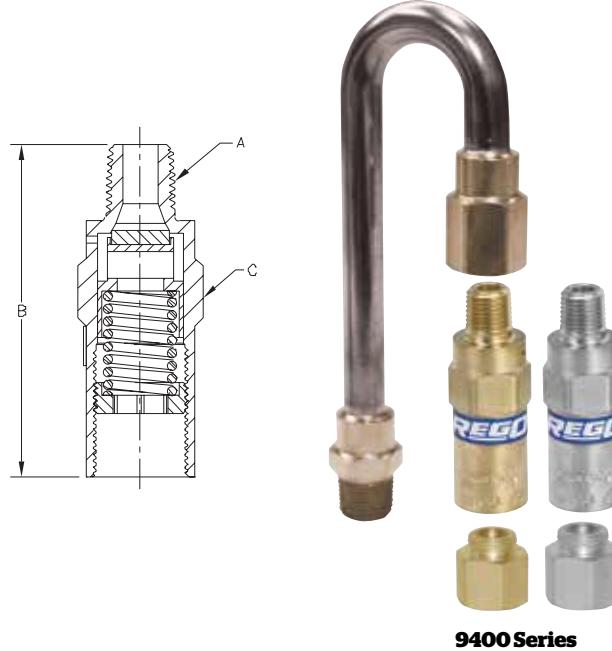
Fill in the blanks with options below.

Example: PRV9432TP350	Blank	Blank
PRV    9432      T	or "P"	Set Pressure
Style    Size      Seat Material	Drain Hole	Pipe Away Option

This example part number indicates a 1/4" M.NPT PRV style brass relief valve with PTFE seat, set at 350 psig with drain hole and no pipe away adapter.

### Ordering Information

Style	Size	Inlet M.NPT A Inches (mm)	Body and Valve Material	Pressure Setting Range psig (barg)	Height B Inches (mm)	Wrenching Hex C(mm)	Orifice Size Sq. Inch (mm)	Pipe-Away Adapter P/N	Pipe-Away Outlet F.N.P.T. Inches (mm)
PRV	9432	1/4" (6.35)	Brass	10-600 (0.68-41.36)	2.6" (66.04)	7/8" (22.35)	.062 (1.57)	B-9412-2	3/8" (9.65)
			Stainless Steel					SS9412-4	1/2" (6.35)
PRV	9433	3/8" (9.65)	Brass	10-600 (0.68-41.36)	2.8" (71.12)			B-9412-2	3/8" (9.65)
			Stainless Steel					SS9412-4	
PRV	9434	1/2" (12.70)	Brass	20-300 (1.37-20.68)	3.4" (86.36)	1 1/4" (44.45)	.44 (11.17)	B-9412-4	1/2" (6.35)
			Stainless Steel					SS9412-4	
B-	9425	3/4" (19.05)	Brass	60-300 (4.13-20.68)	5.3" (134.62)	2 1/2" (60.45)	.62 (15.74)	B-3131-10	1" (25.4)
								B-3132-10	1 1/4" (31.75)



### Seat Material Option

F for Fluorosilicone for PRV and SS styles for 16-139 psig (1.10 - 9.58 barg)

T for PTFE for PRV and SS styles for 140-600 psig (9.65 - 41.36 barg)

N for B-9425 and B-9426, Fluorosilicone seat, all set pressures.

### Drain Hole Option

Relief valves without pipeaway typically provided with drain holes, leave blank. P - for relief valves without drain hole, for example PRV9432TP350 Drain hole can not be used with pipeaway.

### Pipe Away Option

P Pipeaway included and attached, No drain hole in relief valve. For example PRV9432TP350P

Leave blank for relief valve without pipe-away attached. For example PRV9432TP350.

### Set Pressure

Specify set pressure within range specified for style and size. The B-9425 & B-9426N are available in select settings only. Special order.

For easy identification, the following standard settings have color coded labels for all PRV and SS Style sizes and settings marked in psig and barg:

**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

# Pressure Setting and Flow Data

## PRV9400

Pressure Setting and Flow Data PRV9400 Series								
Pressure Setting psig	barg	Air Flow Capacity SCFM	Pressure Setting psig	barg	Air Flow Capacity SCFM	Pressure Setting psig	barg	Air Flow Capacity SCFM
15	1.0	25	215	14.8	197	450	31.0	399
20	1.4	28	220	15.2	201	460	31.7	408
22	1.5	30	225	15.5	205	470	32.4	416
25	1.7	32	230	15.9	210	480	33.1	425
30	2.1	36	235	16.2	214	490	33.8	434
35	2.4	40	240	16.5	218	500	34.5	442
40	2.8	44	250	17.2	227	510	35.2	451
45	3.1	48	260	17.9	235	520	35.9	459
50	3.4	52	270	18.6	244	530	36.5	468
55	3.8	56	275	19.0	248	540	37.2	477
60	4.1	61	280	19.3	253	550	37.9	485
65	4.5	65	285	19.7	257	560	38.6	494
70	4.8	69	290	20.0	261	570	39.3	502
75	5.2	73	300	20.7	270	580	40.0	511
80	5.5	77	310	21.4	279	590	40.7	520
85	5.9	81	320	22.1	287	600	41.4	528
90	6.2	89	325	22.4	291			
100	6.9	98	330	22.8	296			
110	7.6	106	340	23.4	304			
120	8.3	115	350	24.1	313			
125	8.6	119	360	24.8	322			
130	9.0	123	370	25.5	330			
140	9.7	132	375	25.9	334			
150	10.3	141	380	26.2	339			
160	11.0	149	390	26.9	347			
170	11.7	158	400	27.6	356			
175	12.1	162	410	28.3	365			
180	12.4	167	420	29.0	373			
190	13.1	175	425	29.3	378			
200	13.8	184	430	29.6	382			
210	14.5	192	440	30.3	390			

### Color Identification

22 psig	230 psig
35 psig	350 psig
50 psig	450 psig
100 psig	500 psig
150 psig	

### Color Identification

1.51 barg	15.85 barg
2.41 barg	24.13 barg
3.44 barg	31.02 barg
6.89 barg	34.47 barg
10.34 barg	

### Non-ASME Ordering Information



# Cryogenic Gas Relief Valves, ASME PRV19430 & PRV29430 Series



## Application

The 19430 and 29430 relief valves are designed for oxygen and other industrial gases and for cryogenic service in the vapor space. Apply on piping systems, liquid cylinders or mini-bulk cryogenic containers where an ASME relief valve is required.

## Features

- A.S.M.E. rated, National Board Certified
- Bubble tight at 95% of set pressure
- Full flow at 110% at set pressure
- Repeatable performance
- 100% factory tested
- Temperatures Range (Teflon Seat) -320° to +165° F (-196°C to +74°C)  
(Fluorosilicone Seat) -60° to +165° F (-51°C to +74°C)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Rated for gas service only
- Color coded labels clearly identify pressure setting range
- Tamper resistant
- In liquid service be sure to use with a candy cane riser  
(Sold Separately)

## Materials SS Style

Body .....	Stainless Steel
Spring .....	Stainless Steel
Seat Retainer.....	Stainless Steel
Pipe-Away Adapter .....	Stainless Steel

## Materials PRV and B-Style

Body .....	Brass
Spring .....	Stainless Steel
Seat Retainer.....	Brass
Pipe-Away Adapter .....	Brass

## Flow Performance

For set pressures 90 - 600 capacity is 0.692 SCFM of air per psig of flow pressure. For set pressures 15 - 89 capacity is 0.750 SCFM of air per PSIA of flow pressure. Flow pressure per ASME is 10% above set pressure or +3 psig (0.2 barg), whichever is greater.

## Ordering Information

Fill in the blanks with options below.

Example: PRV019432T350      Blank  
 PRV    1    9432    T    350  
 Style   Body   Size   Seat   Drain   Set  
 Material   Material   Hole   Hole   Pressure

### Body Material Option

1 ASME approved valve made of brass

2 ASME approved valve made of stainless steel

### Seat Material Option

F for Fluorosilicone for 15 to 139 psig (6.2 - 9.5 barg) set points.

T for PTFE for 140-600 psig (9.6 - 41.4 barg) set points.

### Drain Hole Option

Leave blank for relief with drain hole. Insert P if no drain hole.

### Set Pressure

Enter number for set pressure in psig (6.2 - 41.4 barg) from 15 to 600.

## Ordering Information

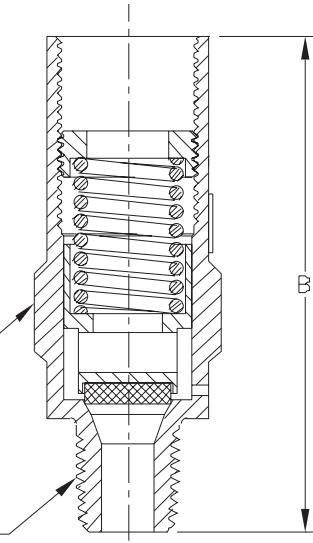
Part Number	Material	Inlet A Inches(mm)	Height B Inches (mm)	Wrenching Hex C Inches (mm)	Orifice Size
PRV19432	Brass	1/4" (6.35)			
PRV29432	Stainless Steel				
PRV19433	Brass		2.6" (66.04)		
PRV29433	Stainless Steel				
PRV19434	Brass	1/2" (12.70)		7/8" (22.35)	.062 sq. inch 1.57 sq. mm
PRV29434	Stainless Steel		2.8" (71.12)		

Pipe-away adapter options available (sold separately)

Drain hole can not be used with pipe-away



19430 Series



Setpoint tolerance is  $\pm 3\%$  of the set pressure or  $\pm 2$  psig whichever is greater.

**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

# Pressure Setting and Flow Data PRV19430 and PRV29430 Series

Pressure Setting and Flow Data PRV19430 and PRV29430 Series								
Pressure Setting psig	barg	Air Flow Capacity SCFM	Pressure Setting psig	barg	Air Flow Capacity SCFM	Pressure Setting psig	Barg	Air Flow Capacity SCFM
15	1	25	215	14.8	174	450	31	353
20	1.4	28	220	15.2	178	460	31.7	360
22	1.5	30	225	15.5	181	470	32.4	368
25	1.7	32	230	15.9	185	480	33.1	376
30	2.1	36	235	16.2	189	490	33.8	383
35	2.4	40	240	16.5	193	500	34.5	391
40	2.8	44	250	17.2	200	510	35.2	398
45	3.1	48	260	17.9	208	520	35.9	406
50	3.4	52	270	18.6	216	530	36.5	414
55	3.8	56	275	19	220	540	37.2	421
60	4.1	61	280	19.3	223	550	37.9	429
65	4.5	65	285	19.7	227	560	38.6	436
70	4.8	69	290	20	231	570	39.3	444
75	5.2	73	300	20.7	239	580	40	452
80	5.5	77	310	21.4	246	590	40.7	459
85	5.9	81	320	22.1	254	600	41.4	467
90	6.2	79	325	22.4	258			
100	6.9	86	330	22.8	261			
110	7.6	94	340	23.4	269			
120	8.3	102	350	24.1	277			
125	8.6	105	360	24.8	284			
130	9	109	370	25.5	292			
140	9.7	117	375	25.9	296			
150	10.3	124	380	26.2	299			
160	11	132	390	26.9	307			
170	11.7	140	400	27.6	315			
175	12.1	143	410	28.3	322			
180	12.4	147	420	29	330			
190	13.1	155	425	29.3	334			
200	13.8	162	430	29.6	337			
210	14.5	170	440	30.3	345			

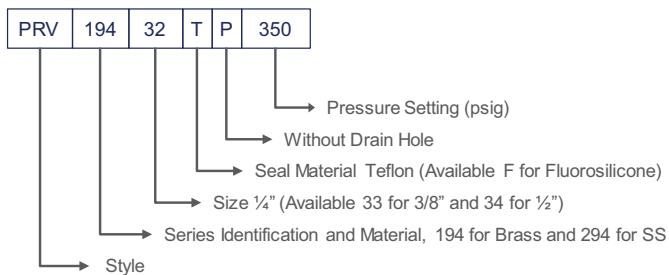
## Color Identification

22 psig	230 psig
35 psig	350 psig
50 psig	450 psig
100 psig	500 psig
150 psig	

## Color Identification

1.51 barg	15.85 barg
2.41 barg	24.13 barg
3.44 barg	31.02 barg
6.89 barg	34.47 barg
10.34 barg	

## ASME Ordering Information



# Brass High Pressure ASME Relief Valves

## PRV19534K Series



### Application

The Rego PRV19534 Series relief valves are designed for CO<sub>2</sub> and other industrial gases and for cryogenic service in the vapor space. Apply on piping systems, liquid cylinders or mini-bulk cryogenic containers where an ASME relief valve is required. Compatible with all oxygen, nitrogen, argon, helium, LNG and CO<sub>2</sub>.

### Features

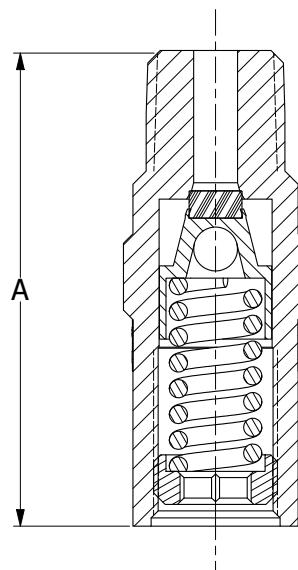
- All valves are cleaned and packaged for oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Full flow at 110% of set pressure
- Temperature range -320°F to +165°F (-196°C to +74°C)
- Rated for gas service only, not liquid
- Setpoint tolerance +/- 3%
- Available in brass with settings from 800 to 1,000 psig
- Builds off proven experience of and further extends PRV9400 series offerings
- ASME rated National Board Certified
- Easy to read color coded psig / bar labels
- Tamper resistant
- Adapters provide standard pipe thread connections for venting gas to the outdoors (B-9412-4, sold separately)
- Repeatable performance
- 100% factory tested
- In liquid service be sure to use with a candy cane riser (sold separately)
- In liquid service be sure to use with a candy cane riser (Sold Separately)

### Flow Performance

For set pressures 800-1000 psig, capacity is 0.805 SCFM of air per PSIA of flow pressure. Flow pressure per ASME is 10% above set pressure or +3 PSIG, whichever is greater.

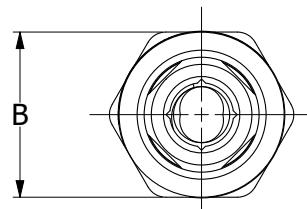


PRV19534K Series



### Materials

Body .....	Brass ASTM B16 UNS C36000
Spring .....	Stainless Steel ASTM A313
Seat Retainer.....	Brass ASTM B16 UNS C36000
Seat .....	PCTFE (Kel -F)
Pipe-Away Adapter .....	Brass ASTM B16 UNS C36000



### Ordering Information

Part Number	Material	Pressure Setting Range psig (barg)	Inlet M.NPT	"A" Inches (mm)	"B" Inches (mm)	Orifice Size Inch <sup>2</sup> (mm <sup>2</sup> )	Kd Value	Pipe-Away Adapter P/N
PRV19534K	Brass	800- 1000 (55.1 - 68.9)	1/2"	2.9 (73.1)	1.0 (25.4)	0.266 (171.6)	0.79	B-9412-4

# Pressure Setting and Flow Data

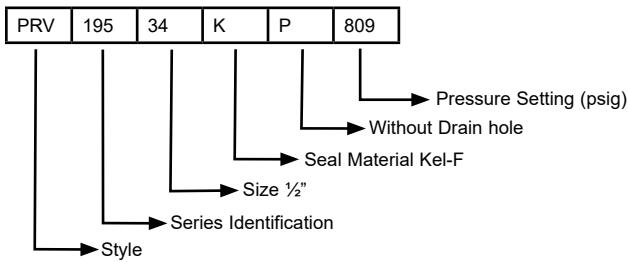
## PRV19534K Series

Pressure Setting PSIG	Pressure Setting BARG	Air Flow Capacity SCFM	Pressure Setting PSIG	Pressure Setting BARG	Air Flow Capacity SCFM
800	551.6	720	900	620.5	809
805	555	725	905	624	813
810	558.5	729	910	627.4	818
815	561.9	734	915	630.9	822
820	565.4	738	920	634.3	826
825	568.8	742	925	637.8	831
830	572.3	747	930	641.2	835
835	575.7	751	935	644.7	840
840	579.2	756	940	648.1	844
845	582.6	760	945	651.6	849
850	586.1	765	950	655	853
855	589.5	769	955	658.5	857
860	593	773	960	661.9	862
865	596.4	778	965	665.3	866
870	599.8	782	970	668.8	871
875	603.3	787	975	672.2	875
880	606.7	791	980	675.7	880
885	610.2	796	985	679.1	884
890	613.6	800	990	682.6	888
895	617.1	804	995	686	893
			1000	689.5	897

Setpoint tolerance is  $\pm 3\%$  of the set pressure or  $\pm 2$  psig whichever is greater.

**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

### ASME Ordering Information



# Noise Reduction Relief Valve

## NRF9430 Series

### Application

For use with cryogenic liquid cylinders to provide substantial reduction of discharge noise in sensitive environments. Our patent pending design allows for an efficient and environmentally friendly flow path.



### Features

- Packaged and cleaned for oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Temperature range -320°F to +165°F (-196° to +74 C°)
- 100% factory tested
- Tamper Resistant
- Repeatable Performance
- Below 90db@ 350 Set Pressure @ 2 meters away
- In liquid service be sure to use with a candy cane riser (Sold Separately)



**NRF Series**

### Pipe Away Option

P Pipeaway included and attached, No drain hole in relief valve.

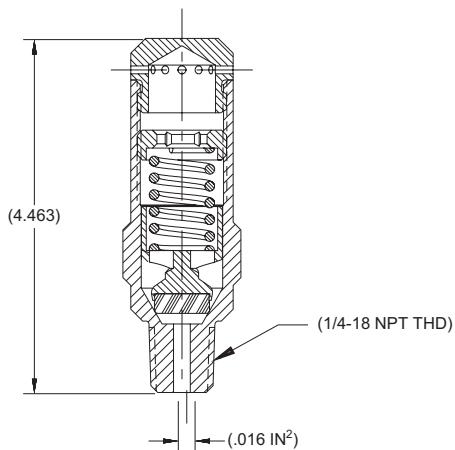
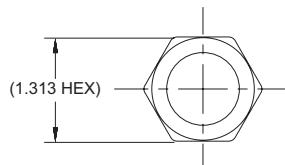
For example NRF9432T140P

Leave blank for relief valve without pipe-away attached.

Pipeaway adapter part number NRF250-4.

### Materials

Body .....	Brass
Spring .....	Stainless Steel
Seat Retainer.....	Brass



### Ordering Information

Part Number	Inlet Inches (mm)	Set Pressure	
		psig	barg
<a href="#">NRF9432T230</a>	1/4" (6.35)	230	15.9
<a href="#">NRF9432T350</a>		350	24.1
<a href="#">NRF9432T500</a>		500	34.5

# Noise Reduction Relief Valve

## NR Series

### Application

Designed especially for indoor applications such as laboratories where relief valve discharge noise is an issue. RegO's NR series PRV provides excellent flow characteristics with a 50% reduction in outlet noise related to relief valve.

### Features

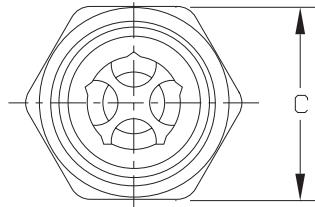
- Packaged and cleaned for oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Temperature range -320°F to +165°F (-196° to +74 C°)
- 100% factory tested
- Repeatable Performance
- Below 90db@ 350 Set Pressure @ 2 meters away
- In liquid service be sure to use with a candy cane riser (Sold Separately)

### Materials

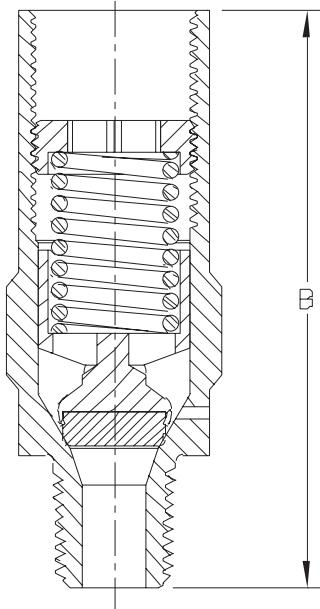
Body .....	Brass
Spring .....	Stainless Steel
Gasket .....	PTFE



**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.



NR Series



### Ordering Information

Part Number	Seat Material	Inlet Connections (M.NPT) Inches (mm)	"B" Inches (mm)	"C" Inches (mm)	Orifice Size Inches (mm)	Factory Pressure Setting		Pipe-Away Adapter
						psig	barg	
NR9432F022	Fluorosilicone	$\frac{1}{4}$ " (6.35)	2.60" (66.04)	$\frac{7}{8}$ " (22.35)	.062 (1.57)	22	1.51	B-9412-2
NR9432F050						50	3.44	
NR9432F100						100	6.89	
NR9432T230						230	15.85	
NR9432T250						250	17.23	
NR9432T300						300	20.68	
NR9432T350						350	24.13	
NR9432T360						360	24.82	

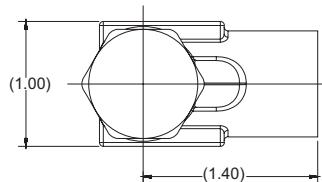
# Right Angle Relief Valves

## NG900 Series

### Application

The NG900 series is designed specifically to avoid overpressurization in LNG fuel tank applications and LNG installations. The NG900 Series is also compatible with oxygen, nitrogen, argon, helium, and hydrogen.

These valves open and close at preset pressures to ensure reliable performance at cryogenic temperatures.

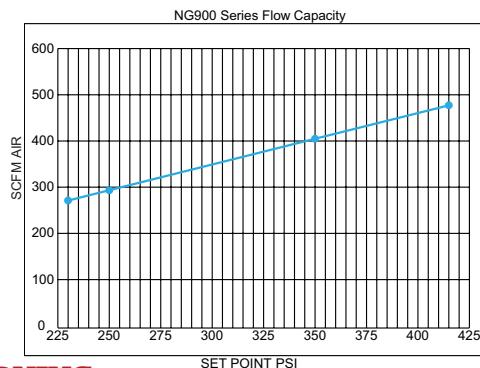
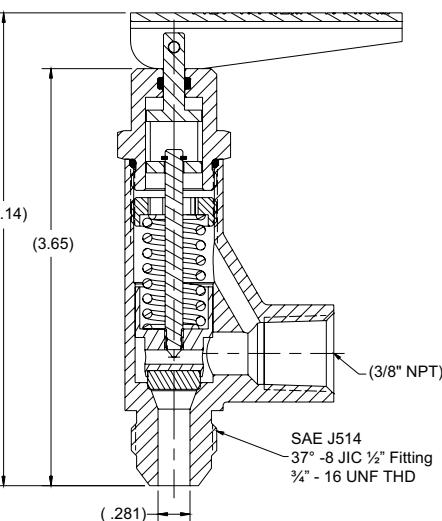
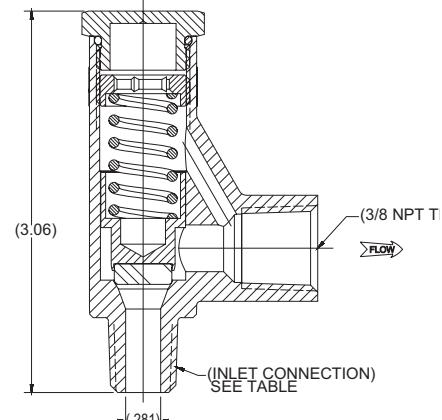


### Features

- Optional pull lever for manual override
- 100% Factory tested
- Temperature range -320°F to +196°F (-196°C to +74°C)
- Designed in accordance with & approved by ECE R110
- Approved by PED and TPED

### Materials

Spring Pin .....	Stainless Steel
Handle .....	Stainless Steel
O-rings.....	Fluorosilicone
Connector .....	Brass
Stem .....	Stainless Steel
Bonnet .....	Brass
Seat Disc .....	PTFE
Spring .....	Stainless Steel
Adjusting Screw .....	Stainless Steel
Body .....	Brass
Poppet .....	Brass



### WARNING:

Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

### Ordering Information

Part Number	Inlet Connection	Outlet Connection	Manual Override	Pressure setting	
				psig	barg
NG9002T022	1/4" MNPT (6.35 mm)	5/16" FNPT (9.65 mm)	No	22	1.52
NG9002T058				58	4.0
NG9002T230				230	15.85
NG9002T250				250	17.23
NG9002T275				275	18.96
NG9002T350				350	24.13
NG9002T415				415	28.61
NG9003T230				230	15.85
NG9003T250				250	17.23
NG9003T350				350	24.13
NG9003T415				415	28.61
NG9008M230	SAE J514 (37°-8JIC 1/2" fitting) (3/4"-16 UNF thread male)		Yes	230	15.85
NG9008M250				250	17.23
NG9008M280				280	19.30
NG9008M350				350	24.13
NG9008M415				415	28.61

\*Contact your sales representative for additional settings.

# Cryogenic Gas Relief Valves, ASME

## B-19434B Series

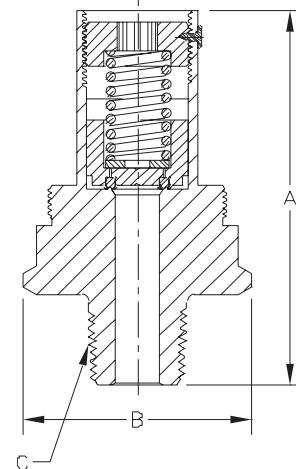
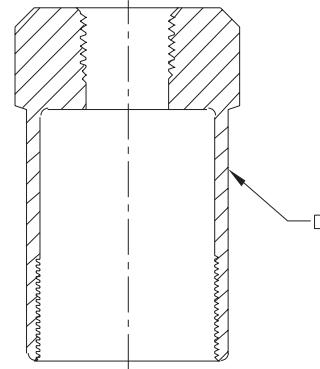
### Application

The B-19434B Series relief valves are suitable for use with oxygen and non corrosive industrial gases, such as nitrogen, argon and helium.



### Features

- The B-19434B design permits the valve to open slightly to relieve moderately excessive pressure
- When the pressure increases beyond a predetermined point, the valve opens to its full discharge capacity in order to quickly reduce excess pressure
- Pipe-away adapter for venting gas to the outdoors is available (Sold Separately)
- ASME rated, certified
- Cleaned for use in oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Full flow at 110% of set pressure
- Setpoint tolerance is  $\pm 3\%$  of the set pressure or  $\pm 2$  psig whichever is greater
- Rated for gas service only
- 100% factory tested
- Temperature range: -60° to 165° F (-51° - 74° C)



### Materials

Body .....	Brass
Spring .....	Stainless Steel
Seat Retainer.....	Brass
Seat Disc (B-19434B Series).....	Silicone
Pipe-Away Adapter .....	Brass

**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

### Ordering Information

Part Number	Pressure Setting	ASME Relief Capacity (CFM/Air)	Height A Inches (mm)	Width B Inches (mm)	Inlet Connection (M.NPT) C Inches (mm)	Pipe-Away Adapter Part Number D
<b>B-19434B235</b>	235 psig (16.2 barg)	476	2 <sup>15</sup> / <sub>16</sub> " (74.67)	1 <sup>3</sup> / <sub>4</sub> " (44.45)	1/2" (12.7)	*B-19434-5 1/2" F.NPT Outlet (12.70 mm)
<b>B-19434B250</b>	250 psig (17.2 barg)	505				
<b>B-19434B300</b>	300 psig (20.7 barg)	601				
<b>B-19434B350</b>	350 psig (24.1 barg)	711				
<b>B-19434B375</b>	375 psig (25.9 barg)	760				

\* Pipe Away Adapter is sold separately.

\*\* Contact factory for additional settings.

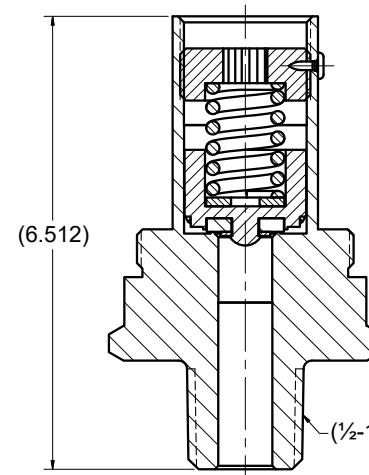
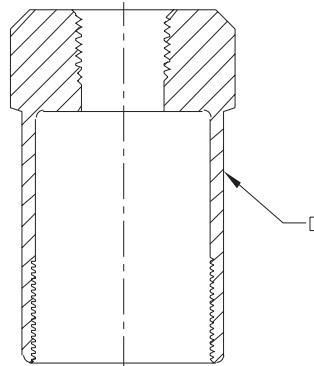
# Cryogenic Gas Relief Valves, ASME C-19434B Series

## Application

The C-19434B series relief valves are designed for use in carbon dioxide service.

## Features

- The C-19434B design permits the valve to open slightly to relieve moderately excessive pressure
- When the pressure increases beyond a predetermined point, the valve opens to its full discharge capacity in order to quickly reduce excess pressure
- Pipe-away adapter for venting gas to the outdoors is available
- ASME rated, certified
- Cleaned for use in oxygen service per CGA G-4.1
- Bubble tight at 95% of set pressure
- Full flow at 110% of set pressure
- Setpoint tolerance is  $\pm 3\%$  of the set pressure or  $\pm 2$  psig whichever is greater
- Repeatable performance guaranteed by well-proven seat design used in many other RegO relief valves for many years.
- Rated for gas service only
- 100% factory tested
- Temperature range:  $-40^\circ$  to  $165^\circ$  F ( $-40^\circ$  -  $74^\circ$  C)



**C-19434B Series**

## Materials

Body .....	Brass
Spring .....	Stainless Steel
Seat Retainer.....	Brass
Seat Disc C-19434B Series.....	EPDM Synthetic Rubber
Pipe-Away Adapter .....	Brass

**WARNING:** Inspection and maintenance of pressure relief valves is very important. Failure to properly inspect and maintain pressure relief valves could result in personal injuries or property damage. The useful safe service life of a pressure relief valve may be significantly affected by the service environment.

## Ordering Information

Part Number	Pressure Setting (psig)	ASME Relief Capacity (CFM/Air)	Height A Inches (mm)	Width B Inches (mm)	Inlet Connection (M.NPT) C Inches (mm)	Pipe-Away Adapter Part Number D
<b>C-19434B235</b>	235 psig (16.2 barg)	476				
<b>C-19434B250</b>	250 psig (17.2 barg)	505				
<b>C-19434B280</b>	280 psig (19.3 barg)	555				
<b>C-19434B285</b>	285 psig (19.6 barg)	579				
<b>C-19434B300</b>	300 psig (20.7 barg)	601				
<b>C-19434B325</b>	325 psig (22.4 barg)	649				
<b>C-19434B335</b>	335 psig (23.1 barg)	668				
<b>C-19434B350</b>	350 psig (24.1 barg)	711				
<b>C-19434B375</b>	375 psig (25.9 barg)	760				
<small>*B-19484-6 1" F.NPT Outlet (25.40 mm)</small>						

\* Pipe Away Adapter is sold separately.

\*\* Contact factory for additional settings.

# Angle Relief Valve, ASME

## AR4100 Series

### Application

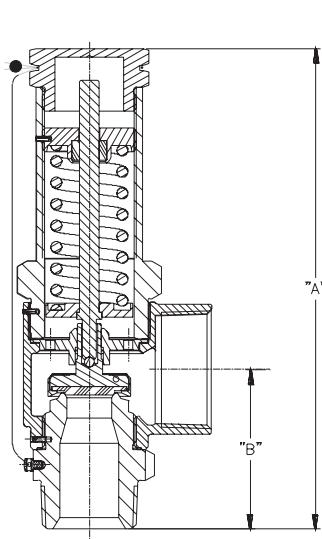
The ASME approved 90° relief valves AR Series, provide precise relief set points which protect cryogenic vessels and piping systems for over-pressurization.

### Features

- High flow rates are approved by rigorous testing to ASME BVPC Code Section VIII
- The ninety degree configuration provides relief of gases eliminating direct flow through the spring
- The ninety degree configuration allows easy incorporation to plumbing for output containment
- Bubble tight seat provides 100% shut off when reseating or static mode
- A variety of inlets and pressure settings assure adherence to application requirements
- Temperature Range: -320°F (-196°C) to +165°F (+74°C)
- Cleaned for Oxygen Service per CGA G-4.1
- 100% Factory Tested
- PED, TPED, ASME & CRN Certified



**AR4100 Series**



### Materials

Body .....	Bronze ASTM B61
Upper Body.....	Stainless Steel ASTM A582
Seat & Stem .....	Brass ASTM B16
Poppet Guide.....	Brass ASTM B16
Spring Retainer.....	Brass ASTM B16
Adjusting Screw.....	Brass ASTM B16
Cap .....	Brass ASTM B16
Ball.....	Stainless Steel
Gasket.....	Copper ASTM B152-17
Spring .....	Stainless Steel ASTM A313
Seal .....	PCTFE for < 75 psig, Fluorosilicone for ≥ 75 psig

### Certifications

- A-ASME, TPED, PED  
B-ASME, TPED, PED  
N-TPED, PED

: -B Version Assembled in Europe

### Ordering Information

Fill in the blanks with options below.

**Example:** AR4106A300

AR	4106	A	300	Set Pressure	Size
Angle	Size	Cert	Set	A,N-psig	04=1½"
Relief	Requirements	Pressure	Barg	B-barg	06=¾"
	and Pressure				08=1"
	Unit				12=1½"

Setpoint tolerance is ± 3% of the set pressure or ± 2 psig whichever is greater.

**Note:** For psig pressure settings, the part numbers end in A  
For barg pressure settings, the part numbers end in B

### Ordering Information

Part Number	Inlet Inches (mm)	Outlet Inches (mm)	Ends	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	E Inches (mm)	Set Pressure	ASME Flow Capacity (Air) at 110% Set Pressure	Weight Lbs (Kg)
<b>AR4104A</b>	1/2" (15)		Thread NPT	6.03" (153.16)	1.97" (50.04)	1.63" (41.40)	1.63" (41.40)	2.49" (63.25)	250 psig	406 SCFM *	
<b>AR4104B</b>		1" (25)							17.23 barg*	690 m³/hr	2.75 (1.25)
<b>AR4106A</b>	3/4" (20)		Thread NPT						250 psig*	451 SCFM	
<b>AR4106B</b>									17.23 barg*	766 m³/hr	
<b>AR4108A</b>	1" (25)	1 1/4" (32)	Thread NPT	6.88" (174.75)	2.37" (60.20)	2.00" (50.80)	1.90" (48.26)	3.01" (76.45)	250 psig*	1,003 SCFM	3.75 (1.70)
<b>AR4108B</b>									17.23 barg*	1704 m³/hr	
<b>AR4112A</b>	1 1/2" (40)	2" (50)	Thread NPT	9.64" (244.86)	3.20" (81.28)	2.45" (62.23)	2.60" (66.04)	3.89" (98.81)	250 psig*	2,277 SCFM	8.00 (3.63)
<b>AR4112B</b>									17.23 barg*	3869 m³/hr	

\*Various pressure settings are available within listed ranges

Note: For Non-ASME stamp, the part numbers are: AR4104N, AR4106N, AR4108N, AR4112N.

# Angle Relief Valve, ASME AR5100 Series

## Application

The ASME approved 90° relief valves AR Series, provide precise relief set points which protect cryogenic vessels and piping systems for over-pressurization.

## Features

- High flow rates are approved by rigorous testing to ASME BVPC Code Section VIII
- The ninety degree configuration provides relief of gases eliminating direct flow through the spring
- The ninety degree configuration allows easy incorporation to plumbing for output containment
- Bubble tight seat provides 100% shut off when reseating or static mode
- A variety of inlets and pressure settings assure adherence to application requirements
- Temperature Range: -320°F (-196°C) to +165°F (+74°C)
- Cleaned for Oxygen Service per CGA G-4.1
- 100% Factory Tested
- PED, TPED & ASME Certified



## Materials

Body .....	Bronze ASTM B61
Upper Body.....	Stainless Steel ASTM A582
Seat & Stem .....	Brass ASTM B16
Poppet Guide.....	Brass ASTM B16
Spring Retainer.....	Brass ASTM B16
Adjusting Screw.....	Brass ASTM B16
Cap .....	Brass ASTM B16
Ball.....	Stainless Steel
Gasket .....	Copper ASTM B152-17
Spring .....	Stainless Steel ASTM A313
Seal .....	PCTFE for < 75 psig, Fluorosilicone for ≥ 75 psig

## Ordering Information

Fill in the blanks with options below.				Certifications	
<b>Example: AR5106A300</b>				A-ASME, TPED, PED	B-ASME, TPED, PED
AR	5106	A	300	N-TPED, PED	-B Version Assembled in Europe
Angle Relief	Size Requirements	Cert Pressure	Set	Set Pressure	Size
				A,N-psig	04=½"
				B-barg	06=¾"
					08=1"
					12=1½"

Setpoint tolerance is ± 3% of the set pressure or ± 2 psig whichever is greater.

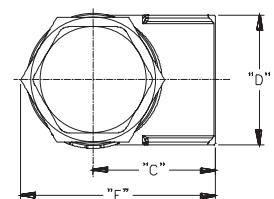
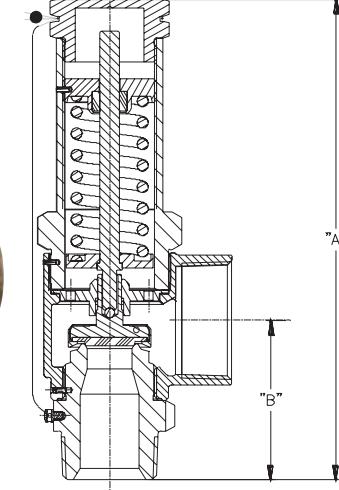
**Note:** For psig pressure settings, the part numbers end in A  
For barg pressure settings, the part numbers end in B

## Ordering Information

Part Number	Inlet Inches (mm)	Outlet Inches (mm)	Ends	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	E Inches (mm)	Set Pressure	ASME Flow Capacity (Air) at 110% Set Pressure	Weight Lbs (Kg)
AR5104A	½" (15)	1" (25)	Thread BSP	6.03" (153.16)	1.97"	1.63" (41.40)	1.63" (41.40)	2.49" (63.25)	250 psig*	406 SCFM	2.75 (1.25)
AR5104B									17.23 barg*	690 m³/hr	
AR5106A			Thread BSP						250 psig*	451 SCFM	
AR5106B									17.23 barg*	766 m³/hr	
AR5108A	1" (25)	1¼" (32)	Thread BSP	6.88" (174.75)	2.37"	2.00" (50.80)	1.90" (48.26)	3.01" (76.45)	250 psig*	1,003 SCFM	3.75 (1.70)
AR5108B									17.23 barg*	1704 m³/hr	
AR5112A	1½" (40)	2" (50)	Thread BSP	9.64" (244.86)	3.20"	2.45" (62.23)	2.60" (66.04)	3.89" (98.81)	250 psig*	2,277 SCFM	8.00 (3.63)
AR5112B									17.23 barg*	3869 m³/hr	

\*Various pressure settings are available within listed ranges

Note: For Non-ASME stamp, the part numbers are: AR5104N, AR5106N, AR5108N, AR5112N.



Air Capacity=  $m \times P$

Where:

$m$  = Slope Value

$P$  = Pressure, Absolute @10% overpressure.

**Example:** Pressure relief valve, ½" inlet x 1" outlet, at 80 psig. Part number AR5104A080.

$m$  = 1.4

$P$  = 80 psig

Air Capacity=  $1.4 \times [(80\text{psi} \times 1.10) + 14.7]$

Air Capacity= 143.8 SCFM (air)

## Flow Performance

**AR5104A** set pressures 75 - 500 capacity is 1.4 SCFM of air per psig of flow pressure.

**AR5106A** set pressures 75 - 400 capacity is 1.56 SCFM of air per psig of flow pressure.

**AR5108A** set pressures 75 - 425 capacity is 3.463 SCFM of air per psig of flow pressure.

**AR5112A** set pressures 80 - 425 capacity is 7.86 SCFM of air per psig of flow pressure.

Flow pressure per ASME is 10% above set pressure or +3 psig (0.2 barg), whichever is greater.

# RegO® - Relief Device Diverter (3-Way) Valve

## DR6100 Series



### Application

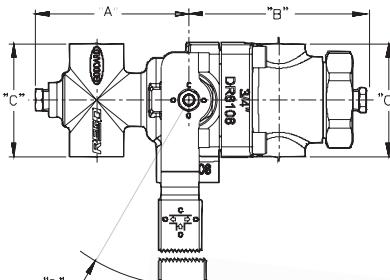
The DR Diverter Valve Series provides a simple solution for the isolation of pressure relief devices during routine change out of a relief valve and burst discs without evacuating the vessel. Excellent for protecting bulk liquid vessels, transport trailers, industrial pipelines, and LNG systems.

### Features

- High flow rates complement our AR series pressure relief valves.
- Valve side selection is accomplished with a heavy duty control arm clearly labeled for positive isolation
- RegO® needle valves accessorize for easy bleed of gas before removing pressure relief devices
- Fitted with threaded top Relief Valve ports and bottom Burst Disk connections
- Pressure Rating: 600 psig (41.37 barg) MAWP
- Temperature Rating: -320°F (-196°C) to +165°F (+74°C).
- 100% Factory tested
- Oxygen cleaned per CGA G-4.1
- PED Certified
- **Stainless Steel inlet stub available, add the letter P in the end of the part number to request this option.**

### Materials

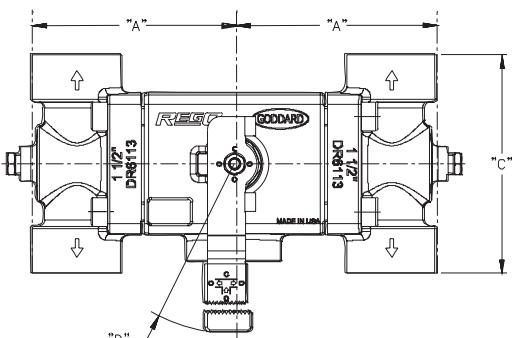
Bodies.....	Bronze ASTM B61 UNS C92200
Bushing, End Cap.....	Brass B16 C36000
Seat Rings.....	PCTFE ASTM D1430
Gasket.....	PTFE
Ball.....	316 Stainless Steel
Lever.....	Cadmium Plated Steel
Packing.....	PTFE
Stem .....	Stainless Steel ASTM A582 UNS S30300



**DR6108**



**DR6112 & DR6113**



### Ordering Information

Part Number	Inlet Inches (mm)	Outlet Inches (mm)	Connection Type	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	Height Inches (mm)	Weight Lbs (Kg)	Open Port	C <sub>V</sub> (Kv)		
<b>DR6108</b>	1" (25.4)	3/4" (19.05)	Thread NPT	4" (101.7)	4.65" (118.3)	2.94" (74.90)	R 7.36" (187.1)	5.18" (63.25)	10 (4.50)	Right	13.3 (11.50)		
				Left									
				Both	20.1 (17.38)								
<b>DR6112</b>	1 1/2" (38.1)	1" (25.4)	Thread NPT	4.12" (104.6)	-	5.70 (145.0)	R 7.36" (187.1)	5.770" (146.6)	28 (12.70)	Right	18.8 (16.26)		
										Left			
										Both	37 (32.00)		
<b>DR6113</b>	1 1/2" (38.1)	1 1/2" (38.1)	Thread NPT			5.70 (145.0)	R 7.36" (187.1)	5.770" (146.6)	30 (13.60)	Right	22.6 (19.54)		
										Left			
										Both	40.2 (34.77)		

# RegO® - Bulk Vessel Safety Assembly - Relief Valve & Diverter DA6200 Series

## Application

RegO® provides a complete unitized solution for pressure relief devices assembled in a factory setting ready for attachment to cryogenic bulk tanks. Ideal for OEM applications where pre-fabricated assemblies are favored to streamline construction. Excellent for protecting bulk liquid vessels, transport trailers, industrial pipelines and LNG systems.



## Features

- High flow rates complement our AR series pressure relief valves and burst disks
- Valve side selection is accomplished with a heavy duty control arm clearly labeled for positive isolation
- RegO® needle valves accessorize for easy bleed of gas before removing pressure relief devices
- Inlet pipe factory installed for easy assembly
- Pressure Rating: 600 psig (41.37 barg) MAWP
- Temperature Rating: -320°F (-196°C) to +165°F (+74°C)
- Oxygen cleaned per CGA G-4.1
- Packaged ready for installation
- PED Certified CE
- Copper inlet stubs available for DA6206CA.

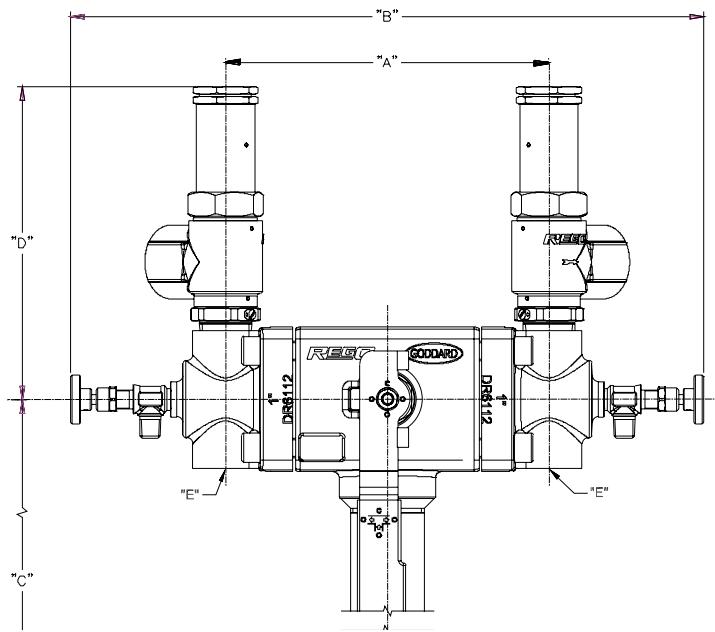


## Diverter Materials

Bodies.....	Bronze ASTM B61 UNS C92200
Bushing, End Cap.....	Brass B16 C36000
Seat Rings.....	PCTFE ASTM D1430
Gasket.....	PTFE
Ball.....	316 Stainless Steel
Lever.....	Cadmium Plated Steel
Packing.....	PTFE
Stem.....	Stainless Steel ASTM A582 UNS S30300

## Relief Valve Materials

Body .....	Bronze ASTM B61
Upper Body.....	Stainless Steel ASTM A582
Seat & Stem .....	Brass ASTM B16
Poppet Guide.....	Brass ASTM B16
Spring Retainer.....	Brass ASTM B16
Adjusting Screw.....	Brass ASTM B16
Cap .....	Brass ASTM B16
Ball.....	Stainless Steel
Gasket.....	Copper ASTM B152-17
Spring .....	Stainless Steel ASTM A313
Seal .....	PCTFE for < 75 psig, Fluorosilicone for ≥ 75 psig



## Ordering Information

Part Number*	Inlet Inches (mm)	Outlet Inches (mm)	Connection Type	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	E Inches (mm)
DA6206AXXX	1" (25.4)	¾" (19.05)	Thread NPT	4.76" (120.9)	13.25" (336.55)	9.75" (247.7)	7.00" (177.8)	¾" NPT (19.0)
DA6208AXXX	1½" (38.1)	1" (25.4)		8.33" (211.6)	16.30" (414)	16.47" (418.34)	8.06" (204.7)	1" NPT (25.0)

\* Include pressure setting in part number.

# RegO® Stainless Steel Relief Device Diverter (3-Way) Valve DV4108 Series

## Application

The DV4108 Diverter Valve Series provides a lightweight, simplified solution for the isolation of pressure relief valves during testing and change out of relief valves and burst discs without requiring evacuation of the vessel and guaranteeing that one port will be available to work during the operation. This all stainless steel diverter valve is ideal for use with oxygen, nitrogen, krypton, carbon dioxide, nitrous oxide, dinitrogen monoxide, carbon oxide, methane, ethane, ethylene, argon, and LNG.



## Features

- High flow rates complement the RegO AR and PRV series pressure relief valves
- Outlet ports sufficiently spaced to allow AR and PRV series relief valves as well as burst discs to be easily installed and removed
- Compact, lightweight design
- Unique resilient seat design with Dyneon™ TFM 1600 material provides smooth operation and bubble tight seal in cryogenic conditions
- Special seal design using proven Kold-Seal technology, live loaded PTFE in conjunction with wave springs and added sealing protection prevent internal and external leakage (EN 1626:2008 compliant)
- Clearly labeled, heavy duty lever arm and locking pin provide positive isolation verification
- Various connection and configuration options available
- Bracket included for easy installation
- Service: Liquefied and vaporized atmospheric gases, LNG
- Temperature rating: -320°F to +150°F (-196°C to +65°C)
- Pressure rating: Cold, non-shock, 720 PSIG (50 BAR) Class 300 (PN 50)
- 100% factory tested; each valve is individually bagged and boxed to arrive in factory new condition until installation
- Cleaned and packaged for oxygen service per CGA G-4.1

PED Certified

## Materials

Body .....	316 Stainless Steel ASTM A351-CF-8M (DIN 1.4408)
Ball.....	316L Stainless Steel ASTM A276 (DIN 1.4006 )
Seat .....	Dyneon TFM 1600
End caps.....	304 Stainless Steel ASTM A743 (DIN 1.4027)
Wave springs.....	Stainless Steel ASTM A313 (DIN 1.4544)
Wave spring washers	304 Stainless Steel ASTM A182 (DIN 1.5415)
Packing.....	Live Loaded PTFE
Stem .....	316L Stainless Steel ASTM A276 (DIN 1.4006)
Lever.....	304 Stainless Steel ASTM A182 (DIN 1.5415)
Bracket .....	304 Stainless Steel ASTM A182 (DIN 1.5415)

## Ordering Information

Part Number	Inlet Inches (mm)	Outlet Inches (mm)	Outlet Connection Type	Outlet Port Orientation	Bleeder Connection	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	E Inches (mm)	Open Port	Cv (Kv)
DV4108SU04	1 (DN25)	1/2 (DN15)	Thread NPTF	4 ports, all opposite of Inlet	1/4" NPTF, same side as inlet	7.29 (185)	6.42 (163)	2.98 (76)	3.34 (85)	5.90 (150)	One Side	12.0 (10.4)
DV4108SU06		3/4 (DN20)									Both Sides	21.7 (18.8)
DV4108SU08		1 (DN25)									One Side	13.3 (11.5)
DV4108SM04		1/2 (DN15)									Both Sides	22.5 (19.5)
DV4108SM06		3/4 (DN20)									One Side	16.0 (13.8)
DV4108SM08		1 (DN25)									Both Sides	25.3 (21.9)

Other outlet port orientation options available; please contact your Sales representative with inquiries.

# RegO® Stainless Steel Relief Device Diverter (3-Way) Valve

## DV4108SD Series for PRVs

### Application

The DV4108SD04 Diverter Valve Series provides a lightweight, simplified solution for the isolation of pressure relief valves during testing and change out of pressure relief valves and burst discs without requiring evacuation of the vessel and guaranteeing that one port will be available to work during the operation. This all stainless steel diverter valve is ideal for use with oxygen, nitrogen, krypton, carbon dioxide, nitrous oxide, dinitrogen monoxide, carbon oxide, methane, ethane, ethylene, argon, and LNG.

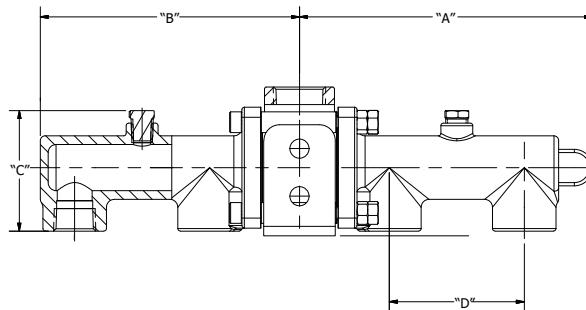
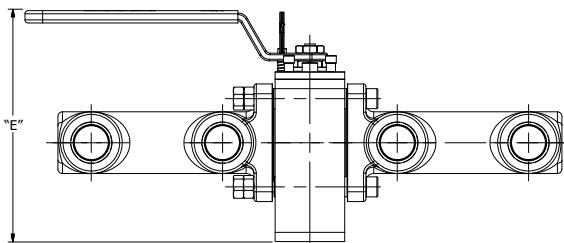
The DV4108SD04 has the inlet port in the upper position for the easy installation of the Micro-Bulk's relief pressure line, and the four-outlet port oriented at down position to avoid the humidity going into the PRVs and guarantee proper operation.

PED Certified



### Materials

Body .....	316 Stainless Steel ASTM A351-CF-8M (DIN 1.4408)
Ball.....	316L Stainless Steel ASTM A276 (DIN 1.4006 )
Seat .....	Dyneon TFM 1600
End caps.....	304 Stainless Steel ASTM A743 (DIN 1.4027)
Wave springs.....	Stainless Steel ASTM A313 (DIN 1.4544)
Wave spring washers	304 Stainless Steel ASTM A182 (DIN 1.5415)
Packing.....	Live Loaded PTFE
Stem .....	316L Stainless Steel ASTM A276 (DIN 1.4006)
Lever.....	304 Stainless Steel ASTM A182 (DIN 1.5415)
Bracket .....	304 Stainless Steel ASTM A182 (DIN 1.5415)



### Ordering Information

Part Number	Inlet Inches (mm)	Outlet Inches (mm)	End Connection Type	Outlet Port Orientation	Bleeder Port Orientation	A Inches (mm)	B Inches (mm)	C Inches (mm)	D Inches (mm)	E Inches (mm)	Open Port	Cv (Kv)
<b>DV4108SD04</b>		1/2 (DN15)									One Side	12.0 (10.4)
											Both Side	21.7 (18.8)
<b>DV4108SD06</b>	1" (DN25)	3/4" (DN20)	Thread NPTF	4 ports, all opposite of inlet	1/4" NFPT, same side as inlet	7.29 (185)	6.42 (163)	2.98 (76)	3.34 (85)	5.90 (150)	One Side	13.3 (11.5)
											Both Side	22.5 (19.5)
<b>DV4108SD08</b>		1" (DN25)									One Side	16.0 (13.8)
											Both Side	25.3 (21.9)

Other outlet port orientation options available; please contact your Sales representative with inquiries.

# Carbon Dioxide Relief Valves, ASME UA3149A Series



## Application

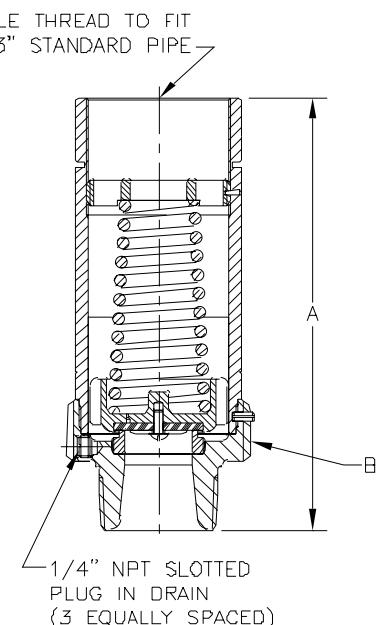
The UA3149A series "pop-type" relief valves are especially designed for use as a secondary relief valve in carbon dioxide transports and stationary storage tanks. The relief valve is designed to protect the tank from excessive over pressure in the event of fire or other emergencies. A small throttling-type primary relief valve must also be provided to control boil-off and maintain tank pressure. Provisions must be made to prevent the accumulation and build-up of water and foreign material in the valve by use of protective cap included.

## Features

- "Pop-type" design permits the relief valve to open slightly to relieve moderately excessive pressures
- Relief valve "pops" open to full discharge capacity when pressure exceeds a predetermined point
- UA3149A relief valves incorporate integral pipeaway adapter with break off groove that protects the valve from piping stress damage.
- Optional pipeaway adapters have grooves that will break off to protect the relief valve from damage should excess stress be applied to the piping.
- UA3149A relief valves include weep hole deflectors, installed to guard against flame impingement on adjacent containers.
- 100% Factory Tested
- Temperature Rating: -40°F (-37°C) to 85°F (29°C)
- Tamper Resistant
- Repeatable Performance
- ASME Rated
- Rated for Gas Service
- Resilient seat disc provides "bubble-tight" seal.



**UA3149A Series**



## Materials

Body .....	Steel and Ductile Iron
Liner.....	Stainless Steel
Seat Insert.....	Stainless Steel
Spring Guide.....	Brass
Adjusting Screw.....	Ductile Iron
Seat Disc .....	Urethane Compound
Spring .....	Corrosion Resistant Steel

## Ordering Information

Part Number	Pressure Setting psig (barg)**	Flow Capacity (SCFM/Air)	Inlet Connection (M.NPT) Inches (mm)	Height A Inches (mm)	Wrenching Hex B Inches (mm)
UA3149A303	303 psig (20.9 barg)	9,883*	2½" (63.50)	10½" (266.70)	4½" (104.90)
UA3149A330	330 psig (22.7 barg)	10,726*			
UA3149A350	350 psig (24.1 barg)	11,351*			
UA3149A358	358 psig (24.7 barg)	11,601*			

\*Capacity certified by National Board of Boiler and Pressure Vessel Inspectors at 10% above set pressure.

\*\*Other Settings not ASME/NB Certified

# Multiport® Pressure Relief Valve Manifold Assemblies For Large CO<sub>2</sub> Containers, ASME UA8560, UA8570 Series

## Application

Designed especially for use as a primary relief device on large stationary pressurized storage containers with flanged openings. These manifolds incorporate an additional relief valve, not included in the flow rating, allowing for servicing or replacement of any one of the relief valves without evacuating the container. The handwheel on the manifold selectively closes off the entrance port to the relief valve being removed while the remaining relief valves provide protection for the container and its contents. All manifold flow ratings are based on flow through the relief valves after one has been removed for service or replacement.

## Features

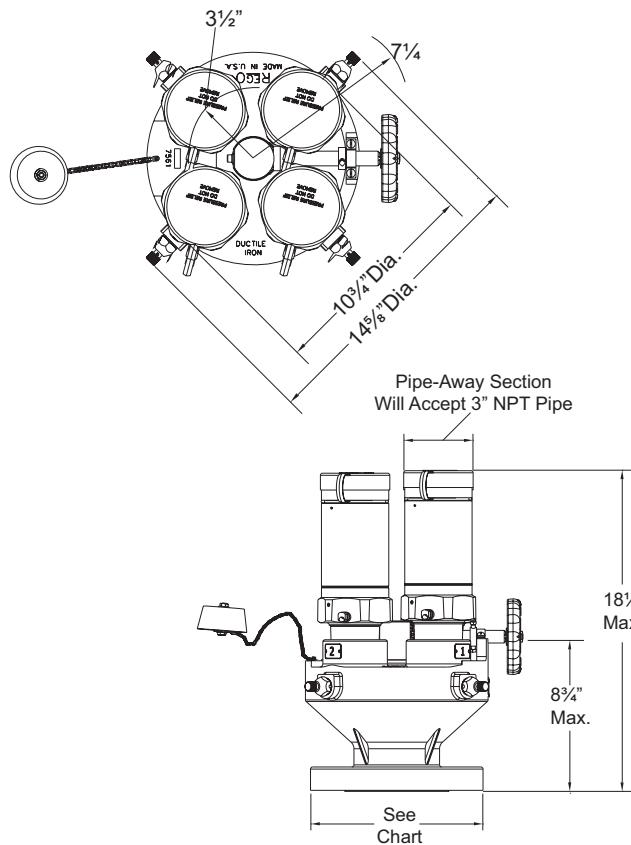
- Allows for relief valve removal and replacement on a periodic basis without shutting down and evacuating the container
- "Pop-action" design of relief valves insures maximum protection with only minimal product loss at moderately excessive pressures
- A rubber plug with chain is provided to protect manifold outlet threads where the relief valve has been removed
- May be mounted directly to a welding neck flange or manway cover plate. Requires no inlet piping
- Relief valves designed to automatically reseat firmly after discharge
- Resilient relief valve seat disc provides "bubble-tight" seal
- Relief valves are ASME rated, UA3149 Series
- Certified CE

## Materials

Body .....	Ductile Iron
Resilient Parts .....	Teflon
Clapper Disc.....	Stainless Steel
Bleeder Valve .....	Stainless Steel



**A8560 A8570**



## Bolt Stud and Nut Assemblies

Part Number	Consists of	For Use With:	For Connection To:	Number Required
<b>7560-55</b>	1-Bolt Stud and Nut	All RegO Multiports™	Modified 3" - 300# and 4"-ASA 300# Welding Neck Flange	8
<b>7560-56</b>			Manway Cover Plate	

## Ordering Information

Part Number	Start To Discharge Setting	Container Flange Connection	Relief Valve		
			Max Quantity	Part Number	Inlet Connection M. NPT Inches (mm)
<b>UA8564A330</b>	330 psig (22.7 barg)	3"-300#*	4	UA3149A330	2 1/2" (63.5)
<b>UA8574A290</b>	290 psig (20.0 barg)	4"-300#		UA3149A290	

\* For use with modified 300# ANSI flange with 4" port.

\*\* Outlet 3 1/2-8N (F) thread, will accept 3" M. NPT pipe thread.

# Bronze Globe Valve for Cryogenic Service

## BB Series

### Application

The BB Series globe valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Internal components are identical with the SKB Series. The BB Series globe valves are offered with brazed-in schedule 10 and 40 stainless steel pipe stubs. Also available in short stem version.

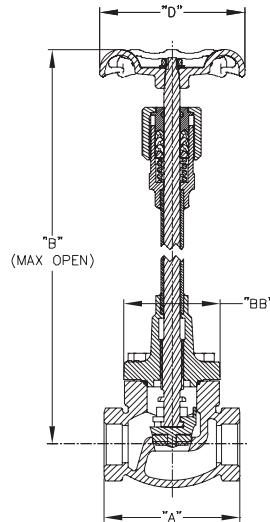


### Features

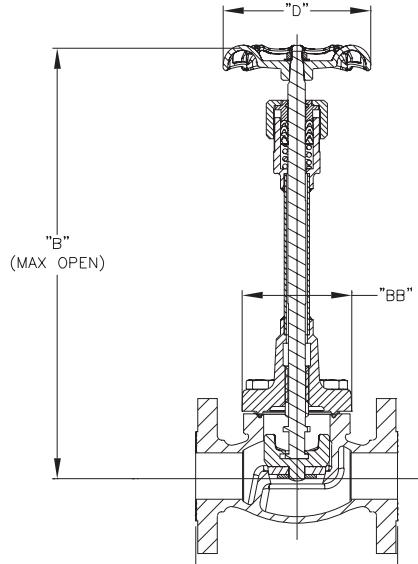
- Superior Flow: Provides high Cv for rapid and reliable loading and unloading
- V-Ring spring loaded packing: provides extended service life without constant packing adjustment
- Conical PCTFE Seat: provides exceptional flow; bubble tight seal; less chance of debris trapped in the seat and longer service life
- Ideal for loading & unloading cryogenic bulk tanks and trucks. The 1½" & 2" valves are designed to be operator friendly, opening and closing completely with only four 360° rotations
- Connections: NPT, SBT & Flange
- Sizes: ¼" to 2"
- Bonnet Type: Bolted
- Pressure Rating: 720 psig (50 barg)
- Temperature Rating: -325°F (-198°C) to +150°F (+65°C)
- Service: Liquefied & Vaporized Atmospheric Gases and LNG for Trailers, Bulk Tanks, Iso-Containers and Piping Configurations.
- Cleaned for Oxygen Service per CGA G-4.1

### Materials

Body	.....	Bronze ASTM B61
Upper Bonnet	.....	Brass ASTM B16
Lower Bonnet	.....	Brass ASTM B283
Stem	.....	Stainless Steel ASTM A582
Spring	.....	Stainless Steel ASTM A313
Packing	.....	PTFE
Gasket	.....	PTFE 25% Glass Fill
Seat Disc	.....	PCTFE ASTM D1430
Seat Retainer	.....	Brass ASTM B16
Bonnet Screws	.....	Stainless Steel ASTM A320
Handwheel	.....	Chromated Coated Ductile Iron ASTM A395



BB9412T



BB9412F

### Ordering Information

Part Number	Size Inches	Size mm	Connection	A		B		D		BB		Cv	Kv	Weight lbs.	Weight kg.
				Inches	mm	Inches	mm	Inches	mm	Inches	mm				
BB9402S	1/4"	8	Silver Brazed Tube	2.68	68	14.40	366	3.00	76	2.00	51	1.7	1.47	8.30	3.7
BB9404S	1/2"	15		2.88	73			4.00	102	2.66	67	5.0	4.30		
BB9406S	3/4"	20		3.55	90			4.75	121	3.44	87	9.4	8.1		
BB9408S	1"	25		3.75	95	14.60	371	5.25	133	4.06	103	14.0	12.10	12.90	5.8
BB9412S	1½"	40		4.78	121			4.75	121	3.44	87	28.3	21.60		
BB9416S	2"	50		5.88	149			5.25	133	4.06	103	53.0	47.41		
BB9402T	1/4"	8	Threaded NPT	2.68	68	14.40	366	3.00	76	2.00	51	1.7	1.47	8.30	3.7
BB9404T	1/2"	15		2.88	73			4.00	102	2.66	67	5.0	4.30		
BB9406T	3/4"	20		3.55	90			4.75	121	3.44	87	9.4	8.1		
BB9408T	1"	25		3.75	95			5.25	133	4.06	103	14.0	12.10	12.90	5.8
BB9412T	1½"	40		4.78	121			4.75	121	3.44	87	28.3	21.60		
BB9416T	2"	50		5.88	149			5.25	133	4.06	103	53.0	47.41		
BB9412F	1½"	40	Flanged RF	6.50	165	14.60	371	4.75	121	3.44	87	28.3	21.60	18.56	8.4
BB9416F	2"	50		8.00	203	16.21	412	5.25	133	4.06	103	53.0	47.41	30.00	13.6

# Bronze Globe Valve for Cryogenic Service with Pipe Ends

## BB Series

### Application

The BB Series globe valves with pipe ends are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO containers and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Internal components are identical with the SKB Series.

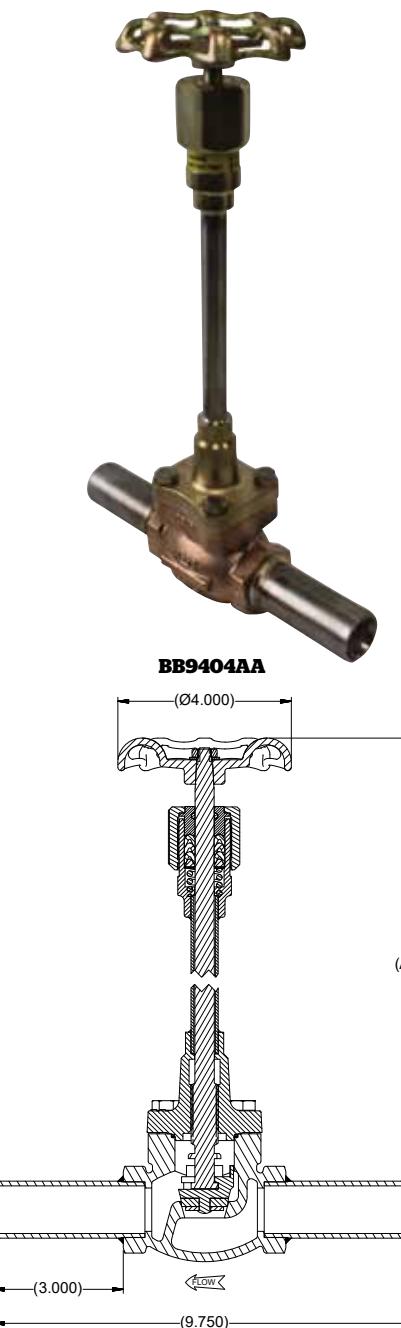


### Features

- Superior Flow: Provides high Cv for rapid and reliable loading and unloading
- V-Ring spring loaded packing: provides extended service life without constant packing adjustment
- Conical PCTFE Seat: provides exceptional flow; bubble tight seal; less chance of debris trapped in the seat and longer service life
- Connections: SS pipe extension SCH 10 and SCH 40
- Sizes:  $\frac{1}{2}$ " to 2"
- Bonnet Type: Bolted
- Pressure Rating: 720 psig (50 barg)
- Temperature Rating: -320°F (-196°C) to +150°F (+65°C)
- Service: Liquefied & Vaporized Atmospheric Gases and LNG for Trailers, Bulk Tanks, Iso-Containers and Piping Configurations
- Cleaned for Oxygen Service per CGA G-4.1

### Materials

Body .....	Bronze ASTM B61
Upper Bonnet .....	Brass ASTM B16
Lower Bonnet .....	Brass ASTM B283
Stem .....	Stainless Steel ASTM A582
Spring .....	Stainless Steel ASTM A313
Packing .....	PTFE
Gasket .....	PTFE 25% Glass Fill
Seat Disc .....	PCTFE ASTM D1430
Seat Retainer .....	Brass ASTM B16
Bonnet Screws .....	Stainless Steel ASTM A320
Handwheel.....	Chromated Coated Ductile Iron ASTM A395



### Ordering Information

Part Number	Size Inches	Size mm	Connection	A1		A2		B		C		D		Cv (Kv)	Weight lbs.	Weight Kg.	
				Inches	mm												
BB9404AA	$\frac{1}{2}$ "	15	SCH 10 Pipe	13.9	353.06	14.4	365.76	3.00	76.2	8.88	225.55	2.00	50.8	5.0 (4.30)	9.13	4.14	
BB9406AA	$\frac{3}{4}$ "	20						4.00	101.6	9.55	242.57	2.60	66.04	9.4 (8.10)			
BB9408AA	1"	25						4.75	120.65	10.79	274.06	2.68	68.07	14.0 (12.10)	14.19	6.43	
BB9412AA	$\frac{1}{2}$ "	40		15.27	387.85	16.21	411.73	5.25	133.35	11.88	301.75	3.26	82.80	28.3 (21.60)			
BB9416AA	2"	50	SCH 40 Pipe	13.9	353.06	14.4	365.76	3.00	76.2	8.88	225.55	2.00	50.8	5.0 (4.30)	23.76	10.77	
BB9404BB	$1\frac{1}{2}$ "	15						4.00	101.6	9.55	242.57	2.60	66.04	9.4 (8.10)			
BB9406BB	$\frac{3}{4}$ "	20						4.75	120.65	10.79	274.06	3.47	88.13	28.3 (21.60)	14.48	6.56	
BB9408BB	1"	25						5.25	133.35	11.88	301.75	3.26	82.80	53.0 (45.80)			
BB9412BB	$\frac{1}{2}$ "	40						15.27	387.85	16.21	411.73	15.27	387.85	16.21	411.73	24.19	10.97
BB9416BB	2"	50						5.25	133.35	11.88	301.75	3.26	82.80	53.0 (45.80)			

# Bronze Globe Valve Short Stem for Cryogenic Service

## BBS Series

### Application

The BB Series globe valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Internal components are identical with the SKB Series.

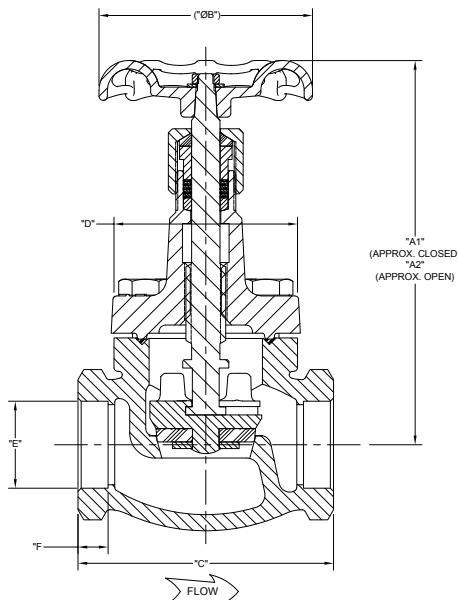


### Features

- Superior Flow: Provides high Cv for rapid and reliable loading and unloading
- Designed with the unique Kold-Seal
- Conical PCTFE Seat: provides exceptional flow; bubble tight seal; less chance of debris trapped in the seat and longer service life
- Ideal for loading & unloading cryogenic bulk tanks and trucks. The 1½" & 2" valves are designed to be operator friendly, opening and closing completely with only four 360° rotations
- Connections: NPT & SBT
- Sizes: ¼" to 2"
- Bonnet Type: Bolted
- Pressure Rating: 720 psig (50 barg)
- Temperature Rating: -320°F (-196°C) to +150°F (+65°C)
- Service: Liquefied & Vaporized Atmospheric Gases and LNG for Trailers, Bulk Tanks, Iso-Containers and Piping Configurations
- Cleaned for Oxygen Service per CGA G-4.1
- Recommended for vapor phase and non-permanent cryogenic liquid use



**BBS9404S**



### Materials

Body	Bronze ASTM B61
Upper Bonnet	Brass ASTM B16
Lower Bonnet	Brass ASTM B283
Stem	Stainless Steel ASTM A582
Spring	Stainless Steel ASTM A313
Packing	PTFE
Gasket	PTFE 25% Glass Fill
Seat Disc	PCTFE ASTM D1430
Seat Retainer	Brass ASTM B16
Bonnet Screws	Stainless Steel ASTM A320
Handwheel	Chromated Coated Ductile Iron ASTM A395

### Ordering Information

Part Number	Size Inches	Size mm	Connection	A1		A2		B		C		D		E		F		Cv (Kv)	Weight lbs.	Weight Kg
				Inches	mm	Inches	mm	Inches	mm											
<b>BBS9402S</b>	¼"	15	Silver Brazed Tube	5.75	146	6.24	158	3.00	76	8	203	2.00	51	0.38	9	0.30	8	1.7 (1.47)	5.2	2.3
<b>BBS9404S</b>	½"					2.88	73			0.63	16			0.40	10			5.0 (4.30)		
<b>BBS9406S</b>	¾"			6.07	154	6.6	168	4.00	101	3.55	90	2.60	66	0.88	22			9.4 (8.10)		
<b>BBS9408S</b>	1"					3.75	95			1.13	29	0.50	13			14 (12.10)				
<b>BBS9412S</b>	1½"			7.20	183	7.93	201	4.75	121	4.79	121	3.47	88	1.63	41	0.56	14	28.3 (21.60)	7.25	3.2
<b>BBS9416S</b>	2"			8.85	225	9.84	250			5.87	149	3.96	100	0.38	9	0.30	8	53 (45.80)	11.96	5.4
<b>BBS9402T</b>	¼"	15	Threaded NPT	5.75	146	6.24	158	3.00	76	8	203	2.00	51	0.63	16			1.7 (1.47)	5.2	2.3
<b>BBS9404T</b>	½"					2.88	73			0.63	16			0.40	10			5.0 (4.30)		
<b>BBS9406T</b>	¾"			6.07	154	6.6	167	4.00	101	3.55	90	2.60	66	0.88	22			9.4 (8.10)		
<b>BBS9408T</b>	1"					3.75	95			1.13	29	0.50	13			14 (12.10)				
<b>BBS9412T</b>	1½"			7.20	183	7.93	201	4.75	121	4.79	121	3.47	88	1.63	41	0.56	14	28.3 (21.60)	7.25	3.2
<b>BBS9416T</b>	2"			8.85	225	9.84	250			5.87	149	3.96	100	2.13	54	0.63	16	53 (45.80)	11.96	5.4

# Extended Bonnet Cryogenic Globe Valves

## BK and BKA Series Valves

### Application

The BK and BKA Series valves are designed exclusively for the handling of cryogenic liquids on bulk storage tanks, transports, and pipelines. These globe valves provide positive shutoff and offer a long, low-maintenance service life. The valves are available with a variety of inlet and outlet connections and stem lengths. Certain BK valves are offered with brazed-in schedule 5 and schedule 10 Stainless Steel Pipe Stubs.



### Features

- PCTFE seat disc and swivel seat design offer positive shutoff, minimal seat wear, and a long service life
- Unique spring-loaded upper packing provides extended service life without constant packing adjustment
- One piece slip-on seat assembly for easy replacement
- Each valve is cleaned and packaged for oxygen service per CGA G-4.1
- Maximum working pressure is 600 psig (41.37 barg) MAWP (-196°C)
- Working temperature range is -320°F to +165°F (196°C to +79°C)
- 100% Factory Tested

### Materials

Body .....	ASTM B61
Upper Bonnet .....	ASTM B16
Lower Bonnet .....	Brass ASTM B16 for up to 1" Valve Size .....BRASS ASTM B283 For Larger Sizes
Seat Disc .....	PCTFE
Seat Retainer Assembly .....	Brass ASTM B16
Stem and Bonnet Extension Tube .....	Stainless Steel ASTM A582
Spring .....	Stainless Steel ASTM AB13
Jam Ring and Pressure Seal Rings .....	PTFE
Handwheel .....	Aluminum for up to 1" valve size, .....Coated Malleable Iron for larger size



**BK8408T**



**BK9412S**



**BKA8412S**

### Bonnet Design

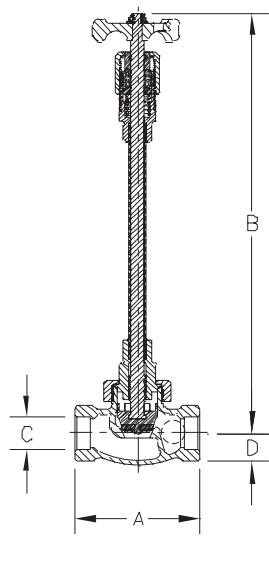
Union Bonnet for  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1" valve sizes and on both the 1" model BKA8408S and 1 $\frac{1}{2}$ " model BKA8412S angle valves. Bolted Bonnet design is used on the BK9416 (2") models.



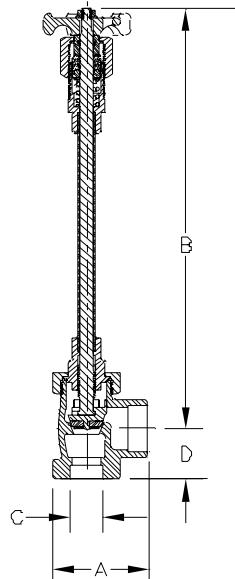
**BK9408AA**

# Extended Bonnet Cryogenic Globe Valves

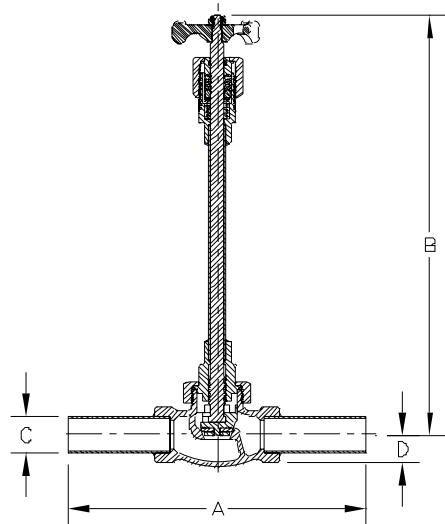
## BK and BKA Series Valves



**Straight Globe Valve**



**Angle Globe Valve**



**Straight Globe Valve with Pipe Stubs**

### Ordering Information

Part Number	Body Style	A Length Inches (mm)	B Max Open (Approx) Inches (mm)	C Inlet / Outlet Connections INCHES (MM)	D Inches (mm)	Cv (Kv)	
<b>BK8404S</b>	Straight	3 11/16" (94)	9 5/32" (233)	.631"-.634" (16.02-16.10)	1" (25)	4.7 (4.06)	
<b>BK8404T</b>				1/2" F.NPT (12.7)			
<b>BK8404ST</b>				.631"-.634"x 1/2" F.NPT (16.02-16.10x12.7)			
<b>BK9404S</b>		9 11/16" (246)	15" (381)	.631"-.634" (16.02-16.10)			
<b>BK9404T</b>				1/2" F.NPT (12.7)			
<b>BK9404AA</b>				1/2" SCH10 Pipe (12.7)			
<b>BK9404PT-F30</b>		6 11/16" (170)		1/2" Sch5 Pipe x 1/2" F.NPT (12.7)			
<b>BK9404ST</b>				.631"-.634"x 1/2" F.NPT (16.02-16.10x12.7)			
<b>BK8406S</b>		3 11/16" (94)	9 5/32" (233)	.881"-.884" (22.37-22.45)			
<b>BK8406T</b>				3/4" F.NPT (19)			
<b>BK9406S</b>			15" (381)	.881"-.884" (22.37-22.45)			
<b>BK9406T</b>				3/4" F.NPT (19)			
<b>BK9406AA</b>		9 11/16" (246)	14.9 (378)	3/4" SCH10 Pipe (19)			
<b>BK8408S</b>		4 5/16" (109)	9 1/8" (232)	1.131"-1.134" (28.72-28.80)		11.2 (9.68)	
<b>BK8408T</b>				1" F.NPT (25)			
<b>BK9408S</b>			15" (381)	1.131"-1.134" (28.72-28.80)			
<b>BK9408T</b>				1" F.NPT (25)			
<b>BK9408AA</b>		10 5/16" (262)	15" (381)	1" SCH10 Pipe (25)			
<b>BK9408PT-F30</b>		7 5/16" (185)		1" Sch5 Pipe x 1" F.NPT (25)			
<b>BK9412AA</b>		11 3/16" (284)	16 9/16" (420)	1 1/2" SCH10 Pipe (38)	1 1/2" (38)	25.1 (21.71)	
<b>BK9412PT-F30</b>		8 3/16" (208)		1 1/2" Sch5 Pipe x 1 1/2" F.NPT (38)			
<b>BK9416S*</b>		6" (152)	16" (406)	2.131" - 2.134" (54.12-54.20)	15/8" (41)	41 (35.46)	
<b>BK9416AA</b>		11.88" (302)		2" SCH10 Pipe (51)			
<b>BK9416T*</b>		6" (152)		2" F.NPT (51)			
<b>BK9416PT-F30</b>		9" (229)		2" Sch5 Pipe x 2" F.NPT (51)			
<b>BKA8408S</b>	Angle	3 1/4" (82)	9 5/11" (240)	1.131"-1.134" x 1.631"-1.634" (28.72-28.80 x 41.42-41.50)	1 3/4" (44)	14.5 (12.54)	
<b>BKA8408S</b>			14 5/8" (371)	1.631"-1.634" (41.42-41.50)			
<b>BKA8412S</b>		4 1/4" (108)	13" (330)	1.631"-1.634" (41.42-41.50)		30.0 (25.95)	

\* Valves with bolted bonnet design.

BB Available for 1 1/2".

# Brass Angle Globe Valves

## B-226BLA

### Application

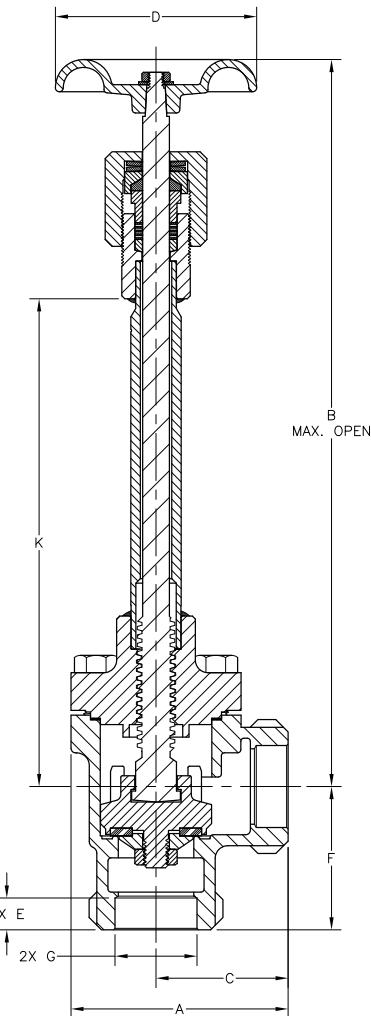
RegO/Goddard brass angle globe valves are designed for handling cryogenic liquids. Designed for fill manifolds applications of bulk tanks. RegO Kold-Seal™ stem seal technology assures a tight seal preventing gas loss. Maintenance on the packing and seat is quick and easy. Ideal service medium includes oxygen, nitrogen, argon, carbon dioxide, nitrous oxide, methane, ethane, ethylene, krypton, and carbon oxide.

### Features

- Sizes: 1½"
- Connection: Silver Brazed Tube
- Service: Liquefied and vaporized atmospheric gases
- Temperature rating: -325°F to +150°F (-198°C to +65°C)
- Pressure rating: Cold, Non-Shock, 600 psig (41.4 barg)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Soft Seat: PCTFE material which is the most widely specified cryogenic seat material in the industry
- Stem Packing: Proven Kold-Seal technology, live loaded PTFE
- Flat seat
- 100% factory tested. Each valve is individually bagged and boxed to arrive in factory new condition until installation



**B-226BLA-12S6**



### Materials

Body .....	Brass ASTM B61
Bonnet and Tube .....	Stainless Steel ASTM A269
Seat Disk .....	PCTFE
Seat Retainer.....	Brass ASTM B61
Packing.....	Live Loaded PTFE Packing
Handwheel.....	ASTM A395
Bonnet Gasket.....	PTFE 25% Glass Fill Virgin Grade

Part Number	Size Inches	Nominal Size DN	Connection	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G inches (mm)	K inches (mm)	Cv (Kv)	Weight lbs (kg)
<b>B-226BLA-12S6</b>	1- ½"	40	Silver Braze Tube	14.63 (371)	1.63 (41.4)	2.63 (67)	4.00 (102)	63 (67)	2.85 (72)	1.63 (41)	9.7 (246)	30 (25.95)	10.50 (4.76)

# Bronze Globe Valve for Cryogenic Service 222 Series Including 226LL, 226GF, 226ULL, 226BLL, 222X, 226LL, 226BLL

## Application

The 222 Series valves are designed exclusively for the handling of cryogenic liquids on bulk storage tanks, transports, and pipelines. These globe valves provide positive shutoff and offer a long, low-maintenance service life. The valves are available with a variety of inlet and outlet connections and stem lengths.



## Features

- Top Entry:** This union bonnet valve can be permanently installed in the line and serviced from the top. The stainless steel tube prevents stem distortion. Also available in bolted bonnet configuration.
- Construction:** Bronze cast body and bonnet  
Rugged construction for long life
- Designed with the unique Kold-Seal™** and high Cv. standard PTFE seat design assures bubble tight seating and high cycle life
- Oxygen cleaned per CGA G-4.1
- Sizes:**  $\frac{1}{4}$ " through 3" (8mm through 80mm)
- Ends:** Threaded (FNPT), Sil Braze Tube (SBT), Silver Braze Pipe and back brazed threaded pipe nipples
- Service:** Liquefied and vaporized atmospheric gases, LNG
- Temperature Rating:** -320°F to 150°F (-196°C to +65°C)
- Pressure Rating:** (Cold, Non-shock)  
400 and 600 psig (28 and 42 barg)  
Sizes  $1\frac{1}{2}$ " to 3" PED approved
- Kold-Seal™ Technology assures tight seal preventing cryogen gas loss**
- Extended stem suitable for cold box, transport vehicles, pipelines, and customer service applications
- Live (LL) loaded option improves life of asset and minimizes service costs
- Replaceable top works equates to low maintenance costs



**B-226ULL**



**B-226BLL**

## Ordering Information

### 222X

Bronze Globe Valves, Extended Stem - Conical Seat, 400 psig (28 barg) Cold Working Pressure  
Threaded End

Part Number	NPT size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
B-222X-2T4	$\frac{1}{4}$ "	8 mm	Threaded	1.50	0.70	1.30 (1.12)
B-222X-4T4	$\frac{1}{2}$ "	15 mm		1.50	0.70	3.25 (2.81)
B-222X-6T4	$\frac{3}{4}$ "	20 mm		3.00	1.40	6.25 (5.40)
B-222X-8T4	1"	25 mm		4.00	1.80	10.00 (8.65)
B-222X-12T4	$1\frac{1}{2}$ "	40 mm		7.75	3.50	26.00 (22.49)
B-222X-16T4	2"	50 mm		12.50	5.70	45.00 (38.92)
B-222X-20T4	$2\frac{1}{2}$ "	63.5 mm		61.00	27.70	50.00 (43.25)
B-222X-24T4	3"	80 mm		61.00	27.70	100.00 (86.5)

### Sil Brazed End

Part Number	SBT size Inches	SBT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
B-222X-4S4	$\frac{1}{2}$ "	15 mm	Silver Braze	2.00	0.90	3.25 (2.81)
B-222X-6S4	$\frac{3}{4}$ "	20 mm		2.75	1.30	6.25 (5.40)
B-222X-8S4	1"	25 mm		3.75	1.70	10.00 (8.65)
B-222X-12S4	$1\frac{1}{2}$ "	40 mm		7.25	3.30	26.00 (22.49)
B-222X-16S4	2"	50 mm		11.50	5.20	45.00 (38.92)
B-222X-24S4	3"	80 mm		58.00	26.40	100.00 (86.5)

# Bronze Globe Valve for Cryogenic Service 222 Series Including 226LL, 226GF, 226ULL, 226BLL, 222X, 226LL, 226BLL

## Ordering Information

### SB-222X

Stainless Steel Body, Bronze Topworks, Conical Seat, 450 psig Cold Working Pressure

Part Number	NPT size Inches	NPT Size mm	Ends
SB00222X-12SW	1½"	40 mm	Socket Weld

### 226LL

Bronze Globe Valves, Live Load Packing, Extended Stem, 600 psig (42 barg) Cold Working Pressure

#### Threaded End

Part Number	NPT size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-0226LL-2T6	¼"	8 mm	Threaded	1.50	0.70	1.30 (1.12)
B-0226LL-3T6	¾"	10 mm		1.50	0.70	2.40 (2.07)
B-0226LL-4T6	½"	15 mm		1.50	0.70	3.25 (2.81)
B-0226LL-6T6	¾"	20 mm		3.00	1.40	6.25 (5.40)
B-0226LL-8T6	1"	25 mm		4.00	1.80	10.00 (8.65)

#### Sil Brazed Ends

Part Number	SBT size Inches	SBT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-0226LL-4S6	½"	15 mm	Silver Braze	2.00	0.90	3.25 (2.81)
B-0226LL-6S6	¾"	20 mm		2.75	1.30	6.25 (5.40)
B-0226LL-8S6	1"	25 mm		5.8	1.70	10.00 (8.65)

### 226ULL

Bronze Globe Valves, Live Loaded Packing - Union Bonnet, Extended Stem, 600 psig (42 barg) Cold Working Pressure

#### Threaded End

Part Number	NPT size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-226ULL-12T6	1½"	40 mm	Threaded	7.75	3.50	26.00 (22.49)
B-226ULL-16T6	2"	50 mm		12.50	5.70	45.00 (38.92)

#### Sil Brazed Ends

Part Number	SBT size Inches*	SBT Size mm*	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-226ULL-12S6	1½"	40 mm	Silver Braze	7.25	3.30	26.00 (22.49)
B-226ULL-16S6	2"	50 mm		11.50	5.20	45.00 (38.92)

\*Nominal Size

### 226XGF

Bronze Globe Valves, Extended Stem - Conical Seat Grafoil® Packing, Gasket and PFA Seat

600 psig (42 barg) Cold Working Pressure Temperature Range -325°F to +300°F (-198°C to +149°C)

#### Threaded End

Part Number	NPT size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
VB-226XGF-4T6	½"	15 mm	Threaded	1.50	0.70	3.25 (2.81)
VB-226XGF-6T6	¾"	20 mm		3.00	1.40	6.25 (5.40)
VB-226XGF-8T6	1"	25 mm		4.00	1.80	10.00 (8.65)
VB-226XGF-12T6	1½"	40 mm		7.75	3.50	26.00 (22.49)

### 226BLL

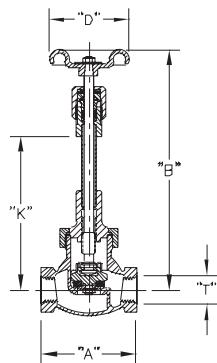
Bronze Globe Valves, Live Loaded Packing - Bolted Bonnet, Extended Stem, 600 psig (42 barg) Cold Working Pressure

#### Threaded End

Part Number	NPT size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-226BLL-12T6	1½"	40 mm	Threaded	7.75	3.50	26.00 (22.49)
B-226BLL-16T6	2"	50 mm		12.50	5.70	45.00 (38.92)

Bronze valves standard connection are for tube, not pipe.

# Bronze Globe Valve for Cryogenic Service 222 Series Including 226LL, 226GF, 226ULL, 226BLL, 222X, 226LL



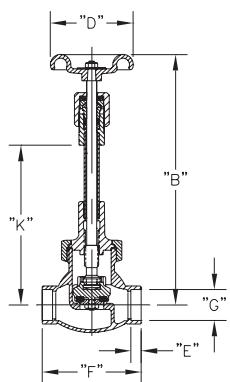
## 226ULL

Pressure Rating 600 psig (42 barg)  
Temperature Rating -325°F to +150°F (-198°C to +56°C)

Dimensional data

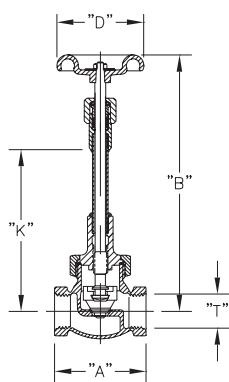
### Threaded Ends

Size		"A"		"B"		"D"		"T" NPT		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1½"	38	4¾"	121	14⁹/₁₆"	372	4"	102	1½"	38	9¹¹/₁₆"	246
2"	51	5³/₄"	146	15¹/₈"	384	4³/₄"	121	2"	51		



## Sil Brazed End

Size		"B"		"D"		"E"		"F"		"G"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1½"	38	14⁹/₁₆"	372	4"	102	⁵/₈"	16	5¼"	133	1.63"	41	9¹¹/₁₆"	246
2"	51	15¹/₈"	384	4³/₄"	121	²¹/₂₃"	16	6½"	165	2.13"	54		



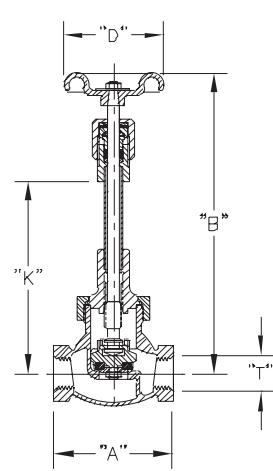
## 226XGF

Pressure Rating 600 psig (42 barg)  
Temperature Rating -325°F to +300°F (-198°C to +149°C)

Dimensional data

### Threaded Ends

Size		"A"		"B"		"D"		"T" NPT		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
½"	13	2⁵/₈"	67	8¹/₄"	209	2⁵/₈"	60	½"	13	4⁷/₈"	124
¾"	19	3³/₁₆"	81	8⁵/₈"	219	2³/₄"	70	¾"	19	4¹³/₁₆"	122
1"	25	3¾"	95	10½"	267	3"	76	1"	25	6½"	165



## 226LL

Pressure Rating 600 psig (42 barg)  
Temperature Rating +150°F to -325°F (+65°C to -198°C)

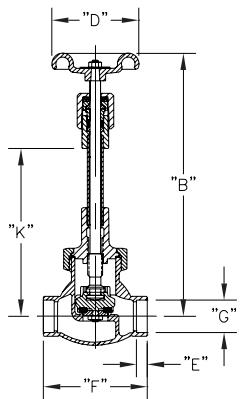
Dimensional Data

### Threaded Ends

Size		"A"		"B"		"D"		"T" NPT		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
¼"	6	2⁹/₁₆"	59	7⁹/₁₆"	192	2"	51	¼"	6	4¹⁹/₃₂"	117
⅜"	10							¾"	10		
½"	13	2⁵/₈"	67	8¹/₄"	209	2⁵/₈"	61	½"	13	4⁷/₈"	124
¾"	19	3³/₁₆"	81	8⁵/₈"	219	2³/₄"	70	¾"	19	4¹³/₁₆"	122
1"	25	3¾"	95	10½"	267	3"	76	1"	25	6½"	165

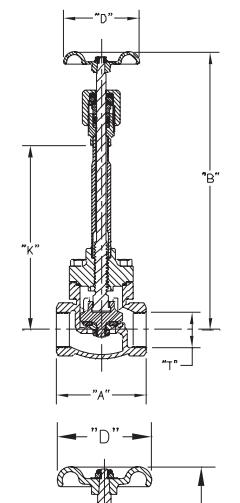
\*Bolted Bonnet

# Bronze Globe Valve for Cryogenic Service 222 Series Including 226LL, 226GF, 226ULL, 222X, 226LL



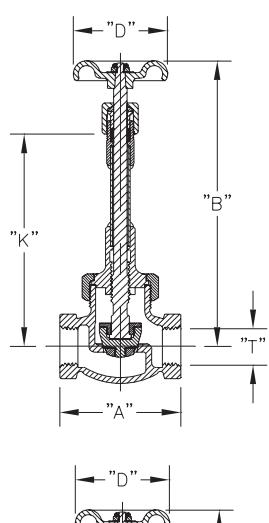
Sil Brazed Ends

Size		"B"		"D"		"E"		"F"		"G"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	8 1/4"	209	2 3/8"	60	3/8"	9	3 1/4"	82	.63	16	4 7/8"	124
3/4"	19	8 5/8"	219	2 3/4"	70	13/32"	10	3 3/4"	83	.88	22	4 13/16"	122
1"	25	10 1/2"	267	3"	76	7/16"	11	4 1/4"	108	1.13	29	6 1/2"	165



226BLL Threaded Ends - Bolted Bonnet

Size		"A"		"B"		"D"		"T" NPT		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1 1/2"	38	4 3/4"	121	14 5/8"	371	4"	101	1 1/2"	38	9 11/16"	246
2"	51	5 3/4"	146	14 15/16"	379	4 3/4"	121	2"	51		



222X

Pressure Rating 400 psig (28 barg)

Temperature Rating -325°F to +150°F (-198°C to +65°C)

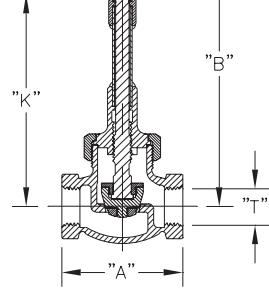
Part Number	Size		"A"		"B"		"D"		"T" NPT		"K"	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
B-222X-2T4	1/4"	6	2.63"	67	8.38"	213	2.38"	60	1/4"	6	4.8"	122
B-222X-4T4	1/2"	13			15.54"	395			1/2"	13	12.2"	310
B-222X-4T4A												
B-222X-6T4	3/4"	19	3.19"	81	8.63"	219	2.75"	70	3/4"	19	4.9"	124
B-222X-6T4A					15.79"	401					12"	305
B-222X-8T4	1"	25	3.75"	95	10.50"	267	3"	76	1"	25	6.5"	165
B-222X-8T4A					16.01"	407					12"	305
B-222X-12T4	1 1/2"	38	4.75"	121	14.63"	372	4"	102	1 1/2"	38	9.7"	246
B-222X-12T4A					18.44"	468					13.5"	343
B-222X-16T4	2"	51	5.75"	146	15.13"	384	4.75"	121	2"	51	9.7"	246
B-222X-16T4A					22.43"	570					14.2"	361
B-222X-20T4	2 1/2"	64	8.5"	216	22.75"	578	8"	203	2 1/2"	64	16"	406
B-222X-24T4	3"	76							3"	76		

SB-222X

Pressure Rating 400 psig (28 barg)

Temperature Rating -325°F to +150°F (-198°C to +65°C)

Size		"A"		"B"		"D"		"BB"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1 1/2"	38	4 3/4"	121	14 5/8"	372	4"	102	3"	76	9.7"	246



# Bronze Globe Valve for Cryogenic Service

## 202X Series Including 206LL, 206GF, 206ULL, 206BLL

### Features

- Top Entry: This union bonnet valve can be permanently installed in the line and serviced from the top
- Construction: Rugged construction for long life, bronze cast body and bonnet
- Designed with the unique Kold-Seal™ and high CV. Standard PCTFE seat design assures bubble tight seating and high cycle life
- Sizes: 1/4" through 2" (8mm through 50mm)
- Ends: Threaded (FNPT), Sil Braze Tube (SBT), or with stainless steel pipe nipples brazed in
- Service: Liquefied and vaporized atmospheric gases, LNG
- Temperature Rating: -320°F to 150°F (-196°C to +65°C)
- Pressure Rating: (Cold, Non-shock)  
202 Series Rated for 400 psig (28 barg)  
206 Series Rated for 600 psig (42 barg)  
Sizes 1.5" to 2.0" PED approved per EN10204, 3.1
- Kold-Seal™ Technology assures tight seal preventing cryogen gas loss. Non-extended stem for selective cold gas service.
- Cleaned for Oxygen Service per CGA G-4.1



**206ULL**



**206BLL**



### Ordering Information

#### 202X

Bronze Globe Valves  
Non-Extended Stem - Conical Seat  
400 psig (28 barg) Cold Working Pressure  
For selective Cold Gas Applications

#### Threaded End

Part Number	NPT Valve size Inches	NPT Valve Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-202X-12T4</b>	1 1/2"	40 mm	Threaded	6.50	3.00	29.00 (25.08)
<b>B-202X-16T4</b>	2"	50 mm		10.50	4.80	50.00 (43.25)

#### Sil Braze Ends

Part Number	SBT Valve size Inches *	SBT Valve Size mm *	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-202X-4S4</b>	1/2"	15 mm	Silver Braze	1.50	0.7	3.90 (3.37)
<b>B-202X-8S4</b>	1"	25 mm		3.25	1.50	11.50 (9.94)
<b>B-202X-12S4</b>	1 1/2"	40 mm		6.50	3.00	29.00 (25.08)
<b>B-202X-16S4</b>	2"	50 mm		10.50	4.80	50.00 (43.25)

\* Nominal Size

# Bronze Globe Valve for Cryogenic Service

## 202X Series Including 206LL, 206GF, 206ULL, 206BLL

### 206GF

Bronze Globe Valves

Non-Extended Stem - PFA seat with high temperature, low permeability GRAFOIL® packing and gasket.

600 psig (42 barg) Cold Working Pressure, For Selective Cold Gas Applications, High Temperature Service Rating +350°F (+176°C)

#### Threaded Ends

Part Number	NPT Valve size Inches	NPT Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
VB-206GF-2T6	1/4"	8 mm	Threaded	1.25	0.6	1.30 (1.12)
VB-206GF-4T6	1/2"	15 mm		1.50	0.7	3.90 (3.37)
VB-206GF-6T6	3/4"	20 mm		2.50	1.1	7.10 (6.14)
VB-206GF-8T6	1"	25 mm		3.50	1.6	11.50 (9.94)
VB-206GF-12T6	1 1/2"	40 mm		7.00	3.2	29.00 (25.08)
VB-206GF-16T6	2"	50 mm		11.75	5.3	50.00 (43.25)

### 206LL

Bronze Globe Valves, Non-Extended Stem, Live Loaded Packing, 600 psig (42 barg) Cold Working Pressure

For Selective Cold Gas Applications

#### Threaded Ends

Part Number	NPT Valve size Inches	NPT Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-206LL-2T6	1/4"	8 mm	1/4" NPT	1.25	0.6	1.30 (1.12)
B-206LL-3T6	5/8"	10 mm				2.40 (2.07)
B-206LL-4T6	1/2"	15 mm	1/2" NPT	1.75	0.8	3.90 (3.37)
B-206LL-6T6	3/4"	20 mm	3/4" NPT	2.5	1.1	7.10 (6.14)
B-206LL-8T6	1"	25 mm	1" NPT	3.5	1.6	11.50 (9.94)

#### Sil Brazed Ends

Part Number	SBT Valve size Inches *	SBT Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-206LL-4S6	1/2"	10 mm	Silver Braze	1.25	0.6	3.90 (3.37)
B-206LL-6S6	3/4"	15 mm		1.75	0.8	7.10 (6.14)
B-206LL-8S6	1"	20 mm		2.5	1.1	11.50 (9.94)

\* Nominal Size

### 206ULL

Bronze Globe Valves, Non-Extended Stem, Live Loaded Packing - Union Bonnet, 600 psig (42 barg) Cold Working Pressure For Selective Cold Gas Applications

#### Sil Brazed Ends

Part Number	SBT Valve size Inches	SBT Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-206ULL-12S6	1 1/2"	40 mm	Silver Braze	7	3.2	29.00 (25.08)
B-206ULL-16S6	2"	50 mm		11.75	5.3	50.00 (43.25)
B-206ULL-12T6	1 1/2"	40 mm	1 1/2" NPT	7	3.2	29.00 (25.08)
B-206ULL-16T6	2"	50 mm	2" NPT	11.75	5.3	50.00 (43.25)

### 206BLL

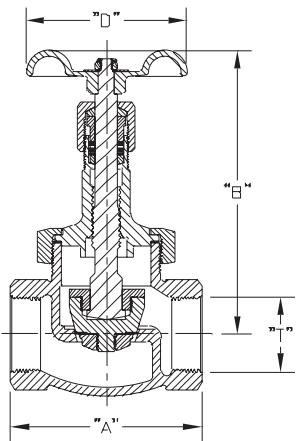
Bronze Globe Valves, Non-Extended Stem, Live Loaded Packing - Bolted Bonnet, 600 psig (42 barg) Cold Working Pressure For Selective Cold Gas Applications

#### Sil Brazed Ends

Part Number	SBT Valve size Inches	SBT Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
B-206BLL-12S6	1 1/2"	40 mm	Silver Braze	7	3.2	29.00 (25.08)
B-206BLL-12T6			1 1/2" NPT			

# Bronze Globe Valve for Cryogenic Service

## 202X Series Including 206LL, 206GF, 206ULL, 206BLL



### 202 Series

#### 202X

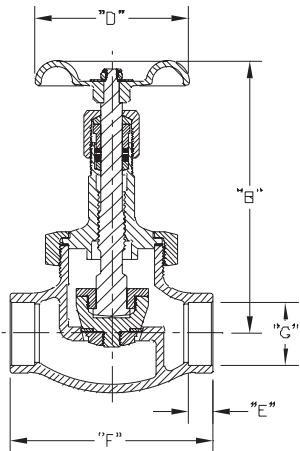
Pressure Rating 400 psig (28 barg)  
 Temperature Rating -325°F to +150°F (-198°C to +65°C)  
 Non-Extended Valve for Cold Gas Applications  
 Conical Seat

Dimensional data

All Dimensional Data are in inches.

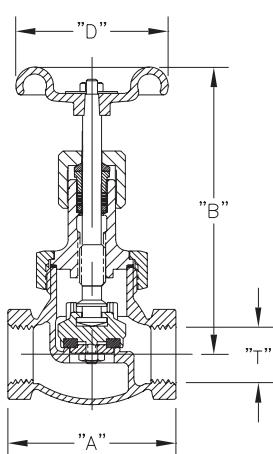
### Threaded Ends

Size		"A"		"B"		"D"		"T" NPT	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1½"	38	4¾"	121	8½"	219	4"	102	1½"	38
2"	51	5¾"	146	9½"	241	4¾"	121	2"	51



### Silver Brazed Ends

Size		"B"		"D"		"E"		"F"		"G"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
½"	13	4½"	117	2"	51	.38	10	3¼"	82	.63/.63	16/16
						.44	11	4¼"	108	1.13/1.13	29/29
1"	25										
1½"	38	5"	127	2¾"	60	.62	16	5¼"	133	1.63/1.63	41/41
2"	51	5¾"	146	2¾"	70	.66	17	6½"	159	2.13/2.13	54/54



### 206GF

Pressure Rating 600 psig (42 barg)  
 Temperature Rating -325°F to +350°F (-198°C to +22°C)  
 Non-Extended Stem - GRAFOIL® Packing, Gasket and PFA Seat  
 Dimensional data

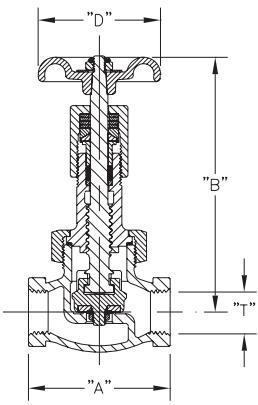
All Dimensional Data are in inches.

### Threaded Ends

Size		"A"		"B"		"D"		"T" NPT	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
¼"	6	2½"	67	4½"	117	2"	51	¼"	6
				5"	127	2¾"	60	½"	13
½"	13								
¾"	19	3³/₁₆"	81	5¾"	146	2¾"	70	¾"	19
1"	25	3¾"	95	6¾"	171	3"	76	1"	25
1½"	38	4¾"	121	8½"	219	4"	102	1½"	38
2"	51	5¾"	146	9½"	241	4¾"	121	2"	51

# Bronze Globe Valve for Cryogenic Service

## 202X Series Including 206LL, 206GF, 206ULL, 206BLL

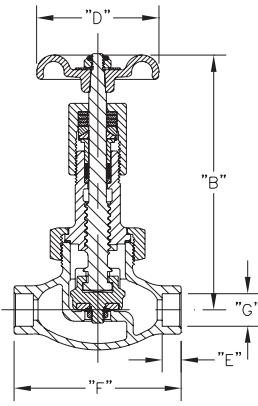


### 206LL

Pressure Rating 600 psig (42 barg)  
 Temperature Rating +150° F to -325° F (+65°C to -198°C)  
 Live Load Packing  
 Union Bonnet

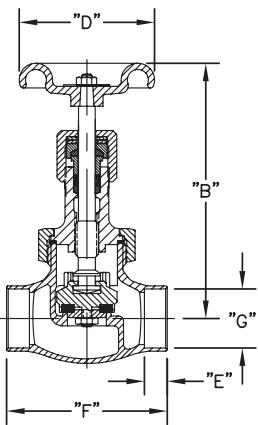
#### Dimensional Data Threaded Ends

Size		"A"		"B"		"D"		"T" NPT	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/4"	6	2 5/8"	67	5"	127	2 5/8"	60	1/4"	6
5/8"	9							5/8"	9
1/2"	13							1/2"	13
3/4"	19	3 3/16"	81	5 3/4"	146	2 3/4"	70	3/4"	19
1"	25	3 3/4"	95			3"	76	1"	25



#### Sil Brazed Ends

Size		"B"		"D"		"G"		"E"		"F"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/4"	6	5"	127	2 5/8"	60	.38/.38	10/10	.26	7	2 5/8"	60
1/2"	13					.63/.63	16/16	.38	10	3 1/4"	82
1"	25					1.13/1.13	29/29	.44	11	4 1/4"	108



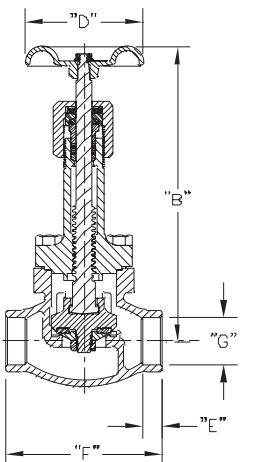
### 206ULL

Pressure Rating 600 psig (42 barg)  
 Temperature Rating +150° F to -325° F (+65°C to -198°C)  
 Live Load Packing - Union Bonnet

#### Dimensional Data

#### Sil Brazed Ends

Size		"F"		"B"		"D"		"T" NPT	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1 1/2"	38	4 3/4"	121	8 5/8"	219	4"	102	1 1/2"	38
2"	51	5 3/4"	146	11 3/4"	298	4 3/4"	121	2"	51



### 206BLL

Pressure Rating 600 psig (42 barg)  
 Temperature Rating +150°F to -325°F (+65°C to -198°C)  
 Live Load Packing - Bolted Bonnet

#### Dimensional Data

#### Sil Brazed Ends

Size		"B"		"D"		"G"		"E"		"F"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1 1/2"	38	8 5/8"	219	4"	102	1.62/1.64	41/42	.63	16	5 1/4"	133

# Bronze/Stainless Steel Body Globe Valve for Cryogenic Service

## SKB Series

### Application

The SKB Series globe valves are designed for the handling of cryogenic liquids through trailer, bulk tanks and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Internal components are the same for BB Series. Also available in short stem version.

### Features

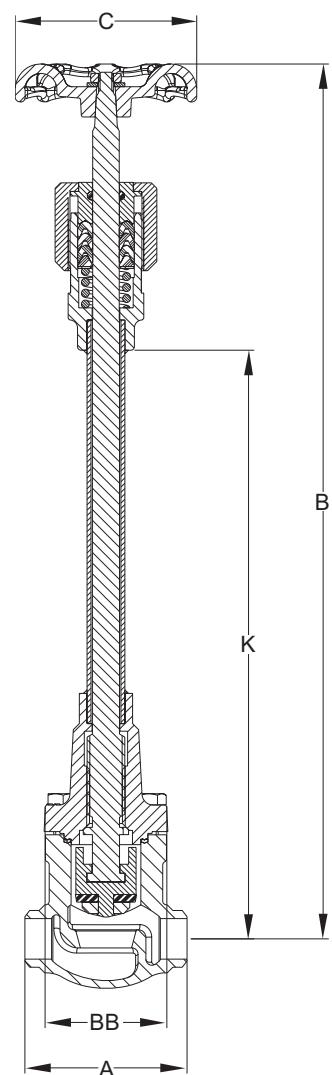
- Superior Flow:** Provides high Cv for rapid and reliable trailer and tank loading and unloading
- Top Entry:** This valve can be permanently installed in the line and serviced from the top. Bolted bonnet style provides secure integrity
- Soft Seated:** Conical PCTFE seat provides a bubble tight seal. Less chance of debris trapped in the seat and longer service life
- Stem Packing:** V-Ring spring loaded packing provides extended service life without constant packing adjustment
- Sizes:** 1/4"through 2" - (20mm through 50mm)
- Ends:** Butt weld and Socket Weld
- Service:** Liquefied and vaporized atmospheric gases, LNG for trailers, bulk tanks ISO containers and piping configurations
- Temperature Rating:** -325°F to +150°F (-198°C to +65°C)
- Pressure Rating:** (Cold, Non-Shock) 720 psig (50 barg)
- Cleaned for oxygen service per CGA G-4.1

### Materials

Body .....	Stainless Steel ASTM A351
Upper Bonnet .....	Brass ASTM B16
Lower Bonnet .....	Bronze ASTM B283
Seat Disk .....	PCTFE ASTM D1430
Seat Retainer.....	Brass ASTM B16
Stem .....	Stainless Steel ASTM A582
Spring .....	Stainless Steel ASTM A313
Packing.....	PTFE
Handwheel.....	Chromate Coated Ductile Iron ASTM A395
Bonnet Gasket.....	PTFE, 25% Glass Filled
Fasteners.....	Stainless Steel ASTM A320

### Ordering Information

Part Number	Size Inches	Size mm	Connection	A		B		C		BB		K		Cv (Kv)
				Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
<b>SKB9402BW</b>	1/4"	DN 6	Butt Weld	2.68	68	14.4	366	3	76	2	51	9.7	246	1.7 (1.47)
<b>SKB9402SW</b>			Socket Weld					5.0 (4.30)						
<b>SKB9404BW</b>	1/2"	DN 15	Butt Weld	3.62	92	14.6	371	4	102	2.66	67	9.5	241	9.4 (8.10)
<b>SKB9404SW</b>			Socket Weld					14.0 (12.10)						
<b>SKB9406BW</b>	3/4"	DN 20	Butt Weld	4.75	121	14.6	371	4.75	121	3.44	87	9.3	236	28.3 (21.60)
<b>SKB9406SW</b>			Socket Weld											
<b>SKB9408BW</b>	1"	DN 25	Butt Weld	5.75	146	16.21	412	5.25	133	4.06	103	9.9	251	53 (45.80)
<b>SKB9408SW</b>			Socket Weld											
<b>SKB9412BW</b>	1 1/2"	DN 40	Butt Weld	7.75	200	16.21	412	7.25	133	5.06	103	11.9	271	120 (85.50)
<b>SKB9412SW</b>			Socket Weld											
<b>SKB9416BW</b>	2"	DN 50	Butt Weld	9.75	247	16.21	412	9.25	133	6.06	103	13.9	291	160 (115.00)
<b>SKB9416SW</b>			Socket Weld											



# RegO - Goddard Bronze/Stainless Steel Body Globe Valve for Cryogenic Service. Short Stem SKB Series

## Application

The SKB Series globe valves short stem are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Internal components are the identical with the BBS Series and SKB short Stem Series.



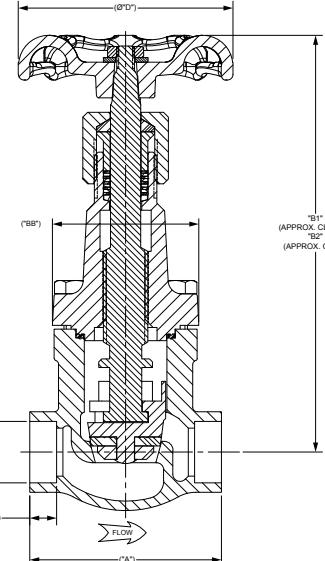
SKB9406BWS

## Features

- Superior Flow: Provides high Cv for rapid and reliable loading and unloading
- Designed with the unique Kold-Seal™
- Conical PCTFE Seat: provides exceptional flow; bubble tight seal; less chance of debris trapped in the seat and longer service life.
- Connections: NPT & SBT
- Sizes:  $\frac{1}{4}$ " to 2"
- Bonnet Type: Bolted
- Pressure Rating: 720 psig (50 barg)
- Temperature Rating: -325°F (-198°C) to +150°F (+65°C)
- Service: Liquefied & Vaporized Atmospheric Gases and LNG for Trailers, Bulk Tanks, Iso-Containers and Piping Configurations
- Cleaned for Oxygen Service per CGA G-4.1
- Recommended for vapor phase and non-permanent cryogenic liquid use

## Materials

Body .....	Stainless Steel ASTM A351
Upper Bonnet .....	Brass ASTM B16
Lower Bonnet .....	Brass ASTM B283
Stem .....	Stainless Steel ASTM A582
Spring .....	Stainless Steel ASTM A313
Packing .....	PTFE
Gasket .....	PTFE 25% Glass Fill
Seat Disc .....	PCTFE ASTM D1430
Seat Retainer .....	Brass ASTM B16
Bonnet Screws .....	Stainless Steel ASTM A320
Handwheel .....	Chromated Coated Ductile Iron ASTM A395



## Ordering Information

Part Number	Size		Connection	A		B1		B2		C		D		E		BB		Cv (Kv)	Weight lbs. (Kg)
	Inches	mm		Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
SKB9402BWS	$\frac{1}{4}$ "	8	Butt Weld	2.68	68	5.79	147	6.24	158	0.56	14	3.00	76	0.37	9	2.05	52	1.7 (1.47)	5.72 (2.59)
SKB9404BWS	$\frac{1}{2}$ "	15								0.86	22							5 (4.30)	
SKB9406BWS	$\frac{3}{4}$ "	20		3.62	92	6.15	156	6.68	170	1.07	27	4.00	102	0.50	13	2.65	67	9.4 (8.10)	
SKB9408BWS	1"	25								1.33	34							14 (12.10)	
SKB9412BWS	$\frac{1}{1/2}$ "	40		4.75	121	7.2	183	7.93	201	1.92	49	4.75	121			3.54	90	28.3 (21.60)	7.97 (3.61)
SKB9416BWS	2"	50		5.75	146	8.85	225	9.84	250	2.41	61	5.25	133	0.62	16	4.04	103	53 (45.80)	13.15 (5.96)
SKB9402SWS	$\frac{1}{4}$ "	8	Socket Weld	2.68	68	5.79	147	6.24	158	0.56	14	3.00	76	0.37	9	2.05	52	1.7 (1.47)	5.72 (2.59)
SKB9404SWS	$\frac{1}{2}$ "	15								0.86	22							5 (4.30)	
SKB9406SWS	$\frac{3}{4}$ "	20		3.62	92	6.15	156	6.68	170	1.07	27	4.00	102	0.50	13	2.65	67	9.4 (8.10)	
SKB9408SWS	1"	25								1.33	34							14 (12.10)	
SKB9412SWS	$\frac{1}{1/2}$ "	40		4.75	121	7.2	183	7.93	201	1.92	49	4.75	121			3.54	90	28.3 (21.60)	7.97 (3.61)
SKB9416SWS	2"	50		5.75	146	8.85	225	9.84	250	2.41	61	5.25	133	0.62	16	4.04	103	53 (45.80)	13.15 (5.96)

# Stainless Steel Globe Valves for Cryogenic Service

## SK Advantage Series Long Stem



### Application

The SK Advantage Series of Stainless Steel Globe Valves are designed for handling cryogenic liquids through trailer, bulk vessels and piping configurations. Ideal service medium includes oxygen, nitrogen, krypton, carbon dioxide, dinitrogen monoxide, carbon dioxide, methane, ethane, ethylene, argon and LNG. Our Kold-Seal stem seal technology assures a tight seal preventing cryogen gas loss. The conical seat design allows exceptional flow, positive shutoff and less chance of debris accumulation in the flow path, all resulting in an overall longer service life. Maintenance on the packing and seat is quick and easy.

### Features

- Soft Seat:** PCTFE material which is the most widely specified cryogenic seat material in the industry
- Construction:** Bolted bonnet allows easy access to the valve internals for servicing
- Stem Packing:** Proven Kold-Seal technology, Live Loaded PTFE
- Sizes:** 1/4" through 2"
- Connection:** Socket weld and butt weld
- Service:** Liquefied and vaporized atmospheric gases, LNG
- Temperature Rating:** -320°F to +150°F (-198°C to +65°C)
- Pressure Rating:** Cold, Non-Shock, 725 psig (50 barg) Class 300 (PN 50)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Application:** Multiple stem lengths available for selected service
- Packaging:** Each valve is individually bagged and boxed to arrive in factory new condition until installation

### Materials

Body .....	Stainless Steel ASTM A351 CF8
Bonnet and Tube ..	Stainless Steel ASTM A351 CF8/ASTM A479 type 304
Stem .....	Stainless Steel ASTM A582 S30300
Spring.....	Stainless Steel ASTM A313 S30200
Packing.....	Live Loaded PTFE Packing
Gasket.....	PTFE 25% Glass Fill
Seat Disc.....	PCTFE ASTM D1430
Seat Retainer.....	Brass ASTM B16
Bonnet Screws.....	ASTM B16 C36000
Handwheel.....	Painted Aluminum

### Quality / Facility Features

- Material traceability in accordance with BS EN 10204 3.1
- CE Marking per European Pressure Equipment Directive

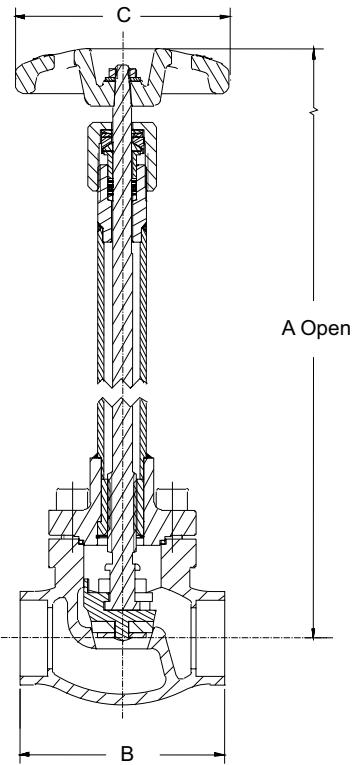
TPED & PED Certified



### Ordering Information

Part Number	Size Inches	Size dn	Connection	A Inches	A mm	B Inches	B mm	C Inches	C mm	Cv	Kv	Weight lbs	Weight kg
SKL9402SW	1/4"	8	Socket Weld	14.6	370	2.7	68	4	102	1.7	1.47	3.76	1.70
SKL9404SW	1/2"	15				3.6	92			5	4.30	3.47	1.68
SKL9406SW	3/4"	20				4.7	121	5	127	9.4	8.10	5.17	2.34
SKL9408SW	1"	25		14.5	368	5.7	146			14	1.16	5.34	2.42
SKL9412SW	1 1/2"	40				2.7	68	4	102	28.3	21.9	9.48	4.30
SKL9416SW	2"	50				3.6	92			53	45.8	16.3	7.39
SKL9402BW	1/4"	8	Butt Weld	14.6	370	4.7	121	5	127	1.7	1.47	3.76	1.70
SKL9404BW	1/2"	15				5.7	146			5	4.30	3.47	1.68
SKL9406BW	3/4"	20				2.7	68	4	102	9.4	8.10	5.17	2.34
SKL9408BW	1"	25		14.5	368	3.6	92			14	12.10	5.34	2.42
SKL9412BW	1 1/2"	40				4.7	121	5	127	28.3	21.60	9.48	4.30
SKL9416BW	2"	50				5.7	146			53	45.80	16.3	7.39

SW = Socket Weld; BW = Butt Weld



SK Advantage

# Stainless Steel Globe Valves for Cryogenic Service

## SK Advantage Series Medium Stem

### Application

The SK Advantage Series of Stainless Steel Globe Valves are designed for handling cryogenic liquids through trailer, bulk vessels and piping configurations. Ideal service medium includes oxygen, nitrogen, krypton, carbon dioxide, dinitrogen monoxide, carbon oxide, methane, ethane, ethylene, argon and LNG. Our Kold-Seal stem seal technology assures a tight seal preventing cryogen gas loss. The conical seat design allows exceptional flow, positive shutoff and less chance of debris accumulation in the flow path, all resulting in an overall longer service life. Maintenance on the packing and seat is quick and easy.

### Features

- Soft Seat:** PCTFE material which is the most widely specified cryogenic seat material in the industry
- Construction:** Bolted bonnet allows easy access to the valve internals for servicing
- Stem Packing:** Proven Kold-Seal technology, Live Loaded PTFE
- Sizes:** 1/4" through 2"
- Connection:** Socket weld and butt weld
- Service:** Liquefied and vaporized atmospheric gases, LNG
- Temperature Rating:** -325°F to +150°F (-198°C to +65°C)
- Pressure Rating:** Cold, Non-Shock, 725 psig (50 barg) Class 300 (PN 50)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Application:** Multiple stem lengths available for selected service
- Packaging:** Each valve is individually bagged and boxed to arrive in factory new condition until installation

### Materials

Body .....	Stainless Steel ASTM A351 CF8
Bonnet and Tube ..	Stainless Steel ASTM A351 CF8/ASTM A479 type 304
Stem .....	Stainless Steel ASTM A582 S30300
Spring .....	Stainless Steel ASTM A313 S30200
Packing.....	Live Loaded PTFE Packing
Gasket .....	PTFE 25% Glass Fill
Seat Disc .....	PCTFE ASTM D1430
Seat Retainer.....	Brass ASTM B16
Bonnet Screws .....	ASTM B16 C36000
Handwheel.....	Painted Aluminum

### Quality / Facility Features

- Material traceability in accordance with BS EN 10204 3.1
- CE Marking per European Pressure Equipment Directive

TPED & PED Certified

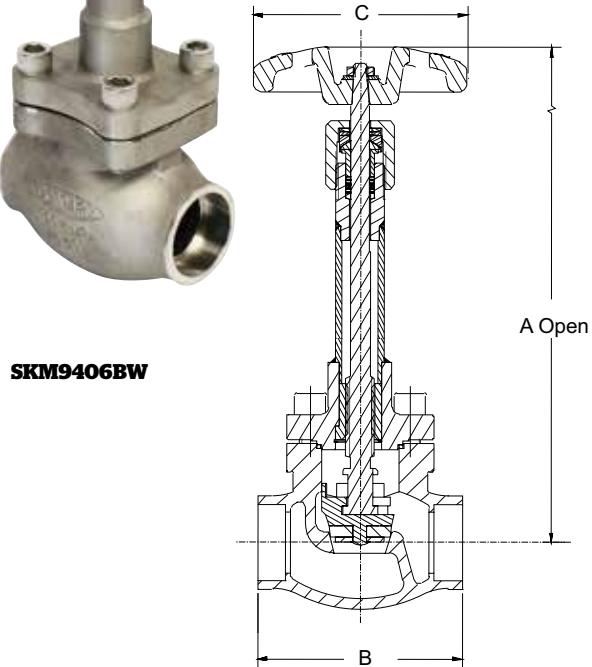


### Ordering Information

Part Number	Size Inches	Size dn	Connection	A Inches	A mm	B Inches	B mm	C Inches	C mm	Cv	Kv	Weight lbs	Weight kg
SKM9402SW	1/4"	8	Socket Weld	10.6	270	2.7	68	4	102	1.7	1.47	3.31	1.50
SKM9404SW	1/2"	15				3.6	92			5	4.30	3.29	1.48
SKM9406SW	3/4"	20				4.7	121	5	127	9.4	8.10	4.86	2.20
SKM9408SW	1"	25				5.7	146			14	12.10	5.02	2.27
SKM9412SW	1 1/2"	40				2.7	68	4	102	28.3	21.60	8.92	4.04
SKM9416SW	2"	50				3.6	92			53	45.80	15.30	6.94
SKM9402BW	1/4"	8	Butt Weld	270	5	4.7	121			1.7	1.47	3.31	1.50
SKM9404BW	1/2"	15				5.7	146			5	4.30	3.29	1.48
SKM9406BW	3/4"	20				2.7	68			9.4	8.10	4.86	2.20
SKM9408BW	1"	25				3.6	92			14	12.10	5.02	2.27
SKM9412BW	1 1/2"	40			5	4.7	121	127	127	28.3	21.60	8.92	4.04
SKM9416BW	2"	50				5.7	146			53	45.80	15.30	6.94

SW = Socket Weld; BW = Butt Weld

50



SKM9406BW

# **Stainless Steel Globe Valves for Cryogenic Service**

## **SK Advantage Series Short Stem**



### **Application**

The SKS Series globe valves short stem are designed for handling of vapor phase and cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Our time tested spring loaded stem packing and superior seat design provide for long life and easy maintenance. Recommended for vapor phase and intermittent cryogenic liquid use.

### **Features**

- Superior Flow: Provides high Cv for rapid and reliable loading and unloading
- Designed with the unique Kold-Seal™
- Conical PCTFE Seat: provides exceptional flow; bubble tight seal; less chance of debris trapped in the seat and longer service life
- Connections: Socket Weld & Butt Weld
- Sizes:  $\frac{1}{4}$ " to  $1\frac{1}{2}$ "
- Bonnet Type: Bolted
- Pressure Rating: 720 psig (50 barg)
- Temperature Rating: -320°F (-196°C) to +150°F (+65°C)
- Service: Liquefied & Vaporized Atmospheric Gases and LNG for Trailers, Bulk Tanks, Iso-Containers and Piping Configurations
- Cleaned for Oxygen Service per CGA G-4.1

### **Materials**

Body .....	Stainless Steel ASTM A351 CF8
Bonnet and Tube ..	Stainless Steel ASTM A351 CF8/ASTM A479 type 304
Stem .....	Stainless Steel ASTM A582 S30300
Spring .....	Stainless Steel ASTM A313 S30200
Packing.....	Live Loaded PTFE Packing
Gasket.....	PTFE 25% Glass Fill
Seat Disc .....	PCTFE ASTM D1430
Seat Retainer.....	Brass ASTM B16
Bonnet Screws .....	ASTM B16 C36000
Handwheel.....	Painted Aluminum

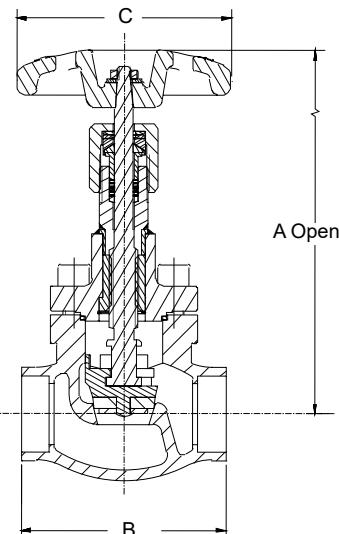
### **Quality / Facility Features**

- Material traceability in accordance with BS EN 10204 3.1
- CE Marking per European Pressure Equipment Directive

PED Certified



**SKS9406BW**



### **Ordering Information**

Part Number	Size Inches	Size mm	Connection	A Inches	A mm	B Inches	B mm	C Inches	C mm	Cv	Kv	Weight lbs	Weight kg	
SKS9402SW	$\frac{1}{4}$ "	8	Socket Weld	6.7	170	2.7	68	4	102	1.7	1.47	2.64	1.20	
SKS9404SW	$\frac{1}{2}$ "	15								5	4.30	2.62	1.19	
SKS9406SW	$\frac{3}{4}$ "	20		7.0	178	4.7	120	5		9.4	8.10	4.21	1.91	
SKS9408SW	1"	25								14	12.10	4.10	1.86	
SKS9412SW	$1\frac{1}{2}$ "	40								28.3	21.60	7.16	3.25	
SKS9402BW	$\frac{1}{4}$ "	8	Butt Weld	6.7	170	2.7	68	4	102	1.7	1.47	2.64	1.20	
SKS9404BW	$\frac{1}{2}$ "	15								5	4.30	2.62	1.19	
SKS9406BW	$\frac{3}{4}$ "	20		7.0	178	4.7	120	5		9.4	8.10	4.21	1.91	
SKS9408BW	1"	25								14	12.10	4.10	1.86	
SKS9412BW	$1\frac{1}{2}$ "	40								28.3	21.60	7.16	3.25	

# Stainless Steel Angle Globe Valves for Cryogenic Service

## SKA Advantage Series

### Application

RegO/Goddard stainless steel angle globe valves are designed for handling cryogenic liquids. Designed for fill manifolds applications of bulk tanks. RegO Kold-Seal™ stem seal technology assures a tight seal preventing gas loss. The conical seat design allows exceptional flow, positive shut off and less chance of debris accumulation in the flow path—resulting in an overall longer service life. Maintenance on the packing and seat is quick and easy. Ideal service medium includes oxygen, nitrogen, argon, carbon dioxide, nitrous oxide, methane, ethane, ethylene, krypton, and LNG.



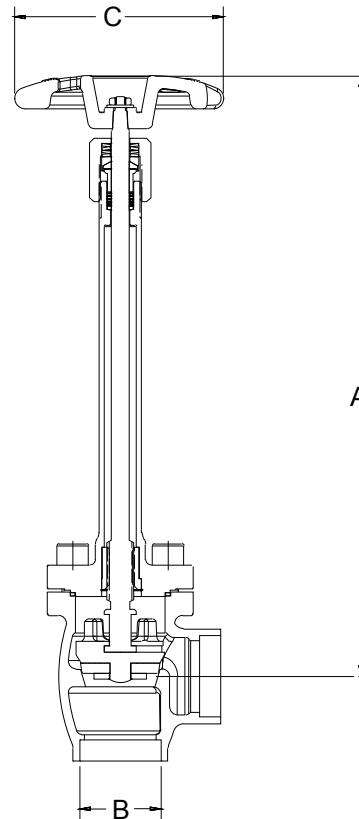
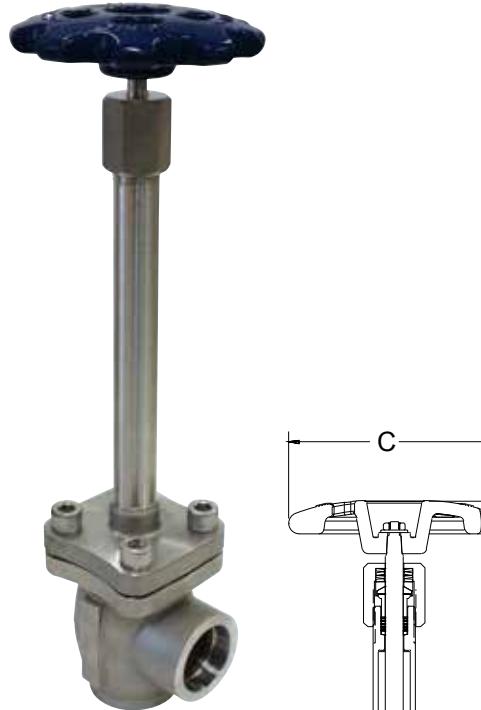
### Features

- Sizes: 1" through 1½"
- Connection: Socket Weld
- Service: Liquefied and vaporized atmospheric gases, LNG
- Temperature rating: -320°F to +150°F (-196°C to +65°C)
- Pressure rating: Cold, Non-Shock, 720 psig (50 barg) Class 300 (PN 50)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Soft Seat: PCTFE material which is the most widely specified cryogenic seat material in the industry
- Stem Packing: Proven Kold-Seal technology, live loaded PTFE.
- Conical seat, provides more Cv
- Seat assembly without nut and washer. No loose materials from vibration. Less chance of failure
- Pressure relief system of the bonnet increases life of packing system
- Ergonomics handwheels for ease of use
- 100% factory tested. Each valve is individually bagged and boxed to arrive in factory new condition until installation

### Materials

Body .....	Stainless Steel ASTM A351 CF8
Bonnet and Tube ....	Stainless Steel ASTM A351 CF8/ASTM A479 type 304
Stem .....	Stainless Steel ASTM A582 S30300
Spring .....	Stainless Steel ASTM A313 S30200
Packing.....	Live Loaded PTFE Packing
Gasket.....	PTFE 25% Glass Fill
Seat Disc.....	PCTFE ASTM D1430
Seat Retainer.....	Brass ASTM B16
Bonnet Screws .....	ASTM B16 C36000
Handwheel.....	Painted Aluminum

PED Certified



### Ordering Information

Part Number	Size Inches	Size dn	Connection	A Inches	A mm	B Inches	B mm	C Inches	C mm	Weight lbs	Weight kg
SKA9408LSW	1"	25	Socket Weld	370	1.33	33.78	4	102	5.41	2.45	
SKA9412LSW	1½"	40			1.92	48.77	5	127	8.85	4.01	
SKA9408MSW	1"	25		270	1.33	33.78	4	102	5.0	2.2	
SKA9412MSW	1½"	40			1.92	48.77	5	127	8.0	3.6	

# Stainless Steel Globe Valve for Cryogenic Service

## 210 Series

### Features

- **Top Entry:** This valve can be permanently installed in the line and serviced from the top
- **Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- **Construction:** Body and Bonnet ASTM A351 J92600 Stainless steel
- **Sizes:**  $\frac{1}{2}''$  - 4" (15mm - 100mm)
- **Ends:** RF Flange, Butt weld, Socket weld, Threaded (FNPT)
- **Service:** Liquefied and vaporized atmospheric gases, LNG
- **100% Factory Tested**
- **Clean for use in oxygen** per CGA G-4.1
- **Temperature Rating:** -320°F - 150°F (-196°C +65°C)
- **Pressure Rating:** (Cold, Non-shock)
  - Class 150 valve - 275 psig (19 barg)
  - Class 300 valve - 720 psig (50 barg)

$\frac{1}{2}''$  - 4" Class 150

PED Approved

$\frac{1}{2}''$  - 4" Class 300

PED Approved

Our investment cast stainless steel is specified by leading industrial gas companies for storage tank and yard operations. Special order bonnet extensions are available for cold box applications. Valves for hydrogen use can be supplied



210 Series



### Ordering Information

Stainless Body • RF Flange Ends

150# Part Number	300# Part Number	Valve Size		Ends	150# Weight		300# Weight		Estimated Cv (Kv)
		Inches	MM		Lbs.	Kg.	Lbs.	Kg.	
GS-00210W-8F	GS-00210W-8F3	1"	25 mm	Flange	15	6.80	20	9.07	11.50 (9.94)
GS-00210W-16F	GS-00210W-16F3	2"	50 mm		35	15.88	40	18.14	40.00 (34.60)
GS-00210W-24F	GS-00210W-24F3	3"	80 mm		65	29.48	70	31.75	60.00 (51.90)
GS-00210W-32F	GS-00210W-32F3	4"	100 mm		95	43.09	100	45.35	175 (151.37)

150# ANSI Class (275 psig (19 barg) Cold Working Pressure)

300# ANSI Class (720 psig (50 barg) Cold Working Pressure)

Stainless Body • Butt Weld, Socket Weld, Threaded Ends

300# Part Number	Valve Size		Ends	Weight		Estimated Cv (Kv)
	Inches	MM		Lbs.	Kg	
GS-00210W-4S3	$\frac{1}{2}''$	15 mm	Socket Weld	15	6.80	3.90 (3.37)
GS-00210W-4T3	$\frac{1}{2}''$	15 mm				
GS-00210W-6S3	$\frac{3}{4}''$	20 mm				
GS-00210W-6T3	$\frac{3}{4}''$	20 mm				
GS-00210W-8S3	1"	25 mm	Socket Weld	25	11.34	29.00 (25.08)
GS-00210W-8T3	1"	25 mm	Threaded			
GS-00210W-12S3	$1\frac{1}{2}''$	40 mm	Socket Weld			
GS-00210W-16W3A	2"	50 mm	Butt Weld SCH10	35	15.88	40.00 (34.60)
GS-00210W-16W3J	2"	50 mm	Butt Weld SCH40			
GS-00210W-24W3A	3"	80 mm	Butt Weld SCH10			
GS-00210W-24W3J	3"	80 mm	Butt Weld SCH40			
GS-00210W-32W3A	4"	100 mm	Butt Weld SCH10	80	36.29	175.00 (151.37)
GS-00210W-32W3J	4"	100 mm	Butt Weld SCH40			
LOX00210W-24W3A**	3"	80 mm	Butt Weld SCH10			
LOX00210W-32W3A**	4"	100 mm	Butt Weld SCH10			

\* Second number indicates part number for 300# valve.

\*\* LOX valves specifically for Liquid Oxygen Service, for more information on LOX valves see page 62

150# ANSI Class (275 psig (19 barg) Cold Working Pressure)

300# ANSI Class (720 psig (50 barg) Cold Working Pressure)



# Stainless Steel Globe Valve for Hydrogen Cryogenic Service

## 231 Series

### Application

The RegO Goddard 231 Series Stainless Steel globe valves are designed for handling of cryogenic liquids through bulk tanks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, hydrogen, helium and argon.



### Features

- Top Entry:** Rugged stainless steel ASTM A351-CF3M (316L) soft seated cryogenic globe valve. This valve can be permanently installed in the line and serviced from the top
- Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- Construction:** One piece investment cast bonnet eliminates welded joint in topworks
- Stem Packing:** Proprietary Goddard system utilizing GRAFOIL® flexible graphite
- Sizes:**  $\frac{1}{4}$ " through  $1\frac{1}{2}$ " (6mm through 40mm)
- Ends:** Socket weld, Butt weld
- Service:** Liquefied and Gaseous hydrogen service only (see series 232 for non-hydrogen service)
- Temperature Rating:** -425°F to 150°F (-254°C to +65°C)
- Pressure Rating:** (Cold, Non-shock)
  - 300 psig (20 barg)
  - 400 psig (27 barg)

PED Approved  
Designed to ASME B16.34

A rugged construction and easy access are design features which provide minimum installation and maintenance cost while maintaining superior performance and operator safety. This valve replaces higher cost bellows-seated valves in many applications. The proprietary Goddard GRAFOIL® stem packing system provides excellent performance when the valve operates in liquid hydrogen service.



**231 Series**

### Ordering Information

**Stainless Body • 400 psig (28 barg) Socket Weld Ends**

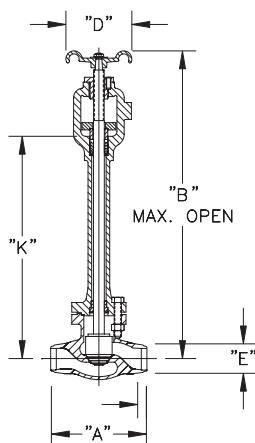
Part Number	Valve size Inches	Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>S-231-2S4</b>	$\frac{1}{4}$ "	6	Socket Weld	6	2.72	1.30 (1.12)
<b>S-231-4S4</b>	$\frac{1}{2}$ "	15				3.90 (3.37)
<b>S-231-6S4</b>	$\frac{3}{4}$ "	20		10	4.54	7.10 (6.14)
<b>S-231-8S4</b>	1"	25				10.50 (9.08)
<b>S-231-12S4</b>	$1\frac{1}{2}$ "	40		15	6.80	25.00 (21.62)

**Stainless Body • 300 psig (20 barg) Butt Weld Ends**

Part Number	Valve size Inches	Valve Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>S-231-4WA</b>	$\frac{1}{2}$ "	15	Butt Weld	6	2.72	3.90 (3.37)
<b>S-231-8WA</b>	1"	25		10	4.54	10.50 (9.08)
<b>S-231-12WA</b>	$1\frac{1}{2}$ "	40		15	6.80	25.00 (21.62)

# Stainless Steel Globe Valve for Cryogenic Service

## 231 Series



Pressure Rating 400 psig (28 barg)

Temperature Rating - 425° F to +150° F (-25°C to 65°C)

This valve is not approved for gaseous and/or liquid oxygen service

For oxygen service use Goddard series 232H cryogenic globe valve

Dimensional data

### Socket Weld Ends

Size		"A"		"B"		"D"		"E"		"F"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
$\frac{1}{4}$ "	6	$4\frac{1}{4}$ "	108	$14\frac{9}{16}$ "	370	$2\frac{3}{8}$ "	60	0.560	14	0.375	9	$10\frac{3}{16}$ "	259
								0.860	22				
$\frac{1}{2}$ "	13	$5\frac{3}{8}$ "	137	17"	432	3"	76	1.070	27	0.500	13	$11\frac{1}{2}$ "	292
								1.335	34				
$\frac{3}{4}$ "	19	$6\frac{1}{2}$ "	165	$18\frac{14}{16}$ "	479	4"	102	1.920	49	$12\frac{15}{16}$ "	329	$10\frac{3}{16}$ "	259
1"	25	$5\frac{1}{2}$ "	127	17"	432	3"	76	1.135	34	$11\frac{1}{2}$ "	292	$1\frac{1}{2}$ "	25
$1\frac{1}{2}$ "	38	$6\frac{1}{2}$ "	165	$18\frac{7}{8}$ "	479	4"	102	1.920	49	$12\frac{5}{16}$ "	313	$1\frac{1}{2}$ "	38

Pressure Rating 300 psig (20 barg)

Temperature Rating - 425° F to +150° F (-253°C to 65°C)

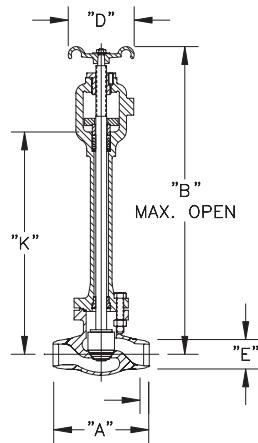
This valve is not approved for gaseous and/or liquid oxygen service

For oxygen service use Goddard series 232H cryogenic globe valve

Dimensional data

### Butt Weld Ends

Size		"A"		"B"		"D"		"E"		"K"		"E"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
$\frac{1}{2}$ "	13	$4\frac{1}{4}$ "	108	$14\frac{9}{16}$ "	370	$2\frac{3}{8}$ "	60	$10\frac{3}{16}$ "	259	$\frac{1}{2}$ "	13	$10\frac{3}{16}$ "	259
1"	25	5"	127	17"	432	3"	76	$11\frac{1}{2}$ "	292	1"	25	$11\frac{1}{2}$ "	292
$1\frac{1}{2}$ "	38	$6\frac{1}{2}$ "	165	$18\frac{7}{8}$ "	479	4"	102	$12\frac{5}{16}$ "	313	$1\frac{1}{2}$ "	38	$12\frac{5}{16}$ "	313



# Stainless Steel Globe Valve for Cryogenic Service

## 232 Series

### Application

The RegO Goddard 232 Series Stainless Steel globe valves are designed for handling of cryogenic liquids through bulk tanks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, helium and argon.

### Features

- Top Entry:** Rugged stainless steel ASTM A351-CF3M (316L) soft seated cryogenic globe valve. This valve can be permanently installed in the line and serviced from the top
- Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- Construction:** One piece investment cast bonnet eliminates welded joint in topworks.
- Sizes:**  $\frac{1}{2}$ " through  $1\frac{1}{2}$ " (15mm through 40mm)
- Ends:** Socket weld and Butt weld
- Service:** Liquefied and vaporized atmospheric gases, LNG
- Temperature Rating:** -325°F to 150°F (-198°C to +65°C)
- Pressure Rating:** (Cold, Non-shock)
  - 300 psig (20 barg)
  - 400 psig (27 barg)

PED Approved,

A rugged construction and easy access are design features which provide minimum installation and maintenance cost while maintaining superior performance and operator safety.



### Ordering Information

#### Stainless Body Socket Weld Ends 400 psig (28 barg)

Part Number	Valve size Inches	Valve Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
S-232-4S4	$\frac{1}{2}$ "	15	Socket Weld	6	2.72	3.90 (3.37)
S-232-8S4	1"	25		10	4.54	10.50 (9.08)

#### High Purity Cryogenic Bonnet Nickel Plated Naval Brass Yoke Bushing Stainless Steel Body Butt Weld Ends 300 psig (20 barg)

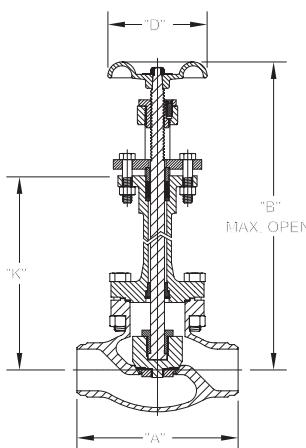
Part Number	Valve size Inches	Valve Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
S-232HCB-4WA	$\frac{1}{2}$ "	15	Butt Weld	6	2.72	3.90 (3.37)
S-232HCB-8WA	1"	25		10	4.54	10.50 (9.08)
S-232HCB-12WA	$1\frac{1}{2}$ "	40		15	6.80	25.00 (21.62)

#### High Purity Cryogenic Bonnet Nickel Plated Naval Brass Yoke Bushing, Stainless Steel Body Socket Weld Ends 400 psig (28 barg)

Part Number	Valve size Inches	Valve Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
S-232HCB-4S4	$\frac{1}{2}$ "	15	Socket Weld	6	2.72	3.90 (3.37)
S-232HCB-8S4	1"	25		10	4.54	10.50 (9.08)
S-232HCB-12S4	$1\frac{1}{2}$ "	40		15	6.80	25.00 (21.62)

# Stainless Steel Globe Valve for Cryogenic Service

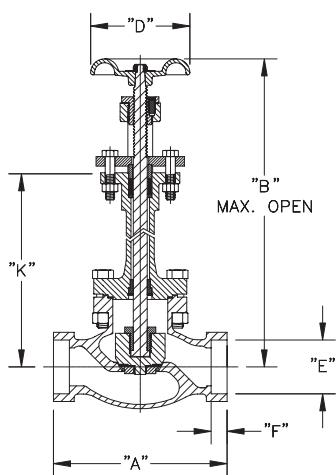
## 232 Series



Pressure rating 300 psig (20 barg) non-shock cold  
Temperature rating +150° F to -325° F (+65°C to -198°C)  
Dimensional Data

### Butt Weld Ends

Size		"A"		"B"		"D"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	4 1/4"	108	14 9/16"	370	2 5/8"	60	10 3/16"	259
1"	25	5"	127	17"	432	3"	76	11 1/2"	292
1 1/2"	38	6"	152	18 7/8"	479	4"	102	12 5/16"	313



Pressure rating 400 psig (28 barg) non-shock cold  
Temperature rating +150° F to -325° F (+65°C to -198°C)  
Dimensional Data

### Socket Weld Ends

Size		"A"		"B"		"D"		"E"		"F"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	4 1/4"	108	14 9/16"	370	2 5/8"	60	0.86	22	0.37	9	10 3/16"	259
1"	25	5 5/8"	136	17"	432	3"	76	1.33	34	0.50	13	11 1/2"	292
1 1/2"	38	6 1/2"	165	18 7/8"	479	4"	102	1.92	49			12 5/16"	313

# Cryogenic Fill Manifold CSB & CSM Series

## Application

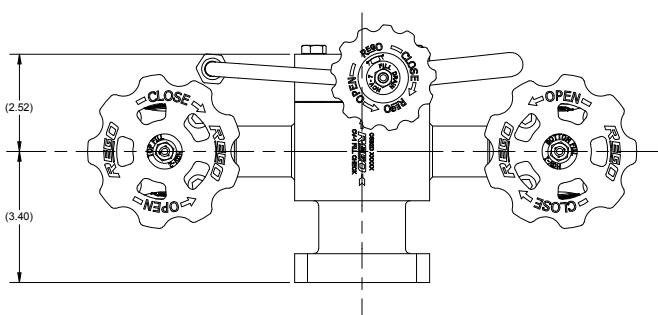
RegO® Goddard high quality welded and welded assemblies are ideal for the manufacturer of original equipment for bulk cryogenic vessels. Using the same technology of our globe valves with SK Series bolt cap, stainless steel bodies and superior works and stainless steel construction pipes are available as a production unit with stainless steel control block and control block brass. Ideal for all cryogenic liquids including Liquefied Nitrogen, Oxygen Argon, and CO<sub>2</sub>. Safe and reliably used in LNG Systems. In addition, RegO® can custom design configurations that are welded and brazed in a factory setting.

## Features

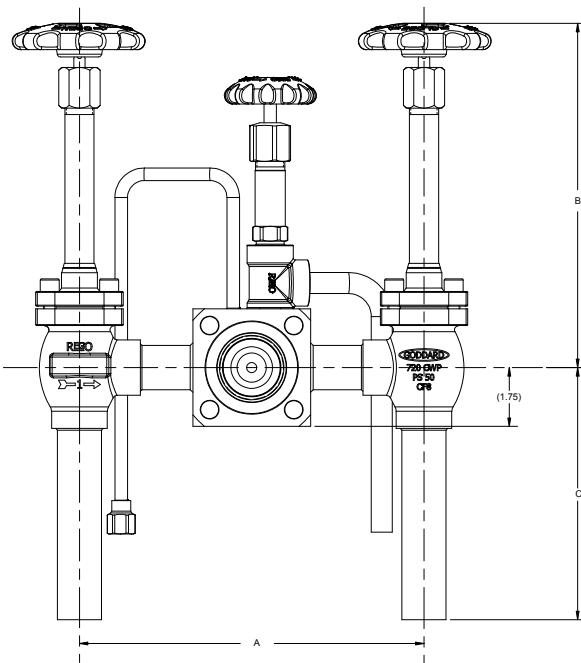
- Unitized construction eliminates leaks and provides easy fit-up to tank piping
- Modules commonly include top and bottom fill valves, fill check with strainer and hose bleed and relief valve
- Many options are available which can include specific end user dimensions and specifications
- Our valve products stand up to high cycle environments, without the need for field adjustment of valve packing
- Available alone or as a unitized welded assembly for bulk tank filling
- Repeatable performance and geometry
- Precision silver brazed assembly
- Cleaned for Oxygen Service per CGA G-4.1
- Pressure Rating: 600 psig (41 barg)
- Temperature Rating: -320°F (-196°C) to +165°F (+74°C)
- 100% Factory tested

## Materials

Globe Valve .....	Stainless Steel ASTM A351
Check Valve.....	Stainless Steel ASTM A351
Bleed Valve .....	Brass ASTM B16
Check Valve .....	Brass ASTM B16
Bleed Valve .....	Stainless Steel ASTM A351
Tube .....	304L Stainless Steel ASTM A312



CSM2D



## Ordering Information

Part Number	Size Inches	Size mm	Check Valve And Bleed Valve Material	Dimensions					
				A Inches	A mm	B Inches	B mm	C Inches	C mm
CSB2D	1"	25	Brass	10.3	260	10.6	269	7.5	190.5
CSB4D	1½"	40						15	381
CSM2D	1"	25	Stainless Steel					7.5	190.5
CSM4D	1½"	40						15	381



# Cryogenic Fill Manifold CFM, AFM & PFM Series

## Application

RegO® Goddard high quality brazed and welded assemblies are ideally suited for the original equipment manufacturer of bulk cryogenic vessels. A wide variety of valve types including union or bolted bonnet, bronze bodies & top works and piping of stainless steel or copper construction are available as production unit.

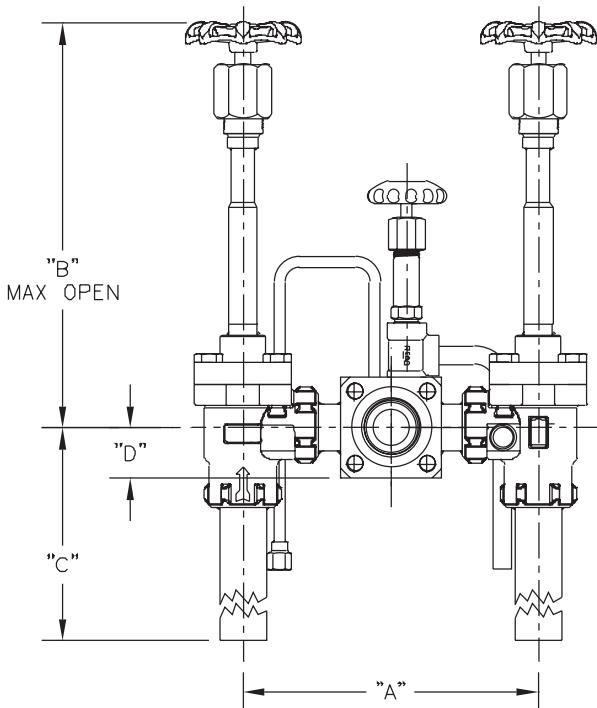
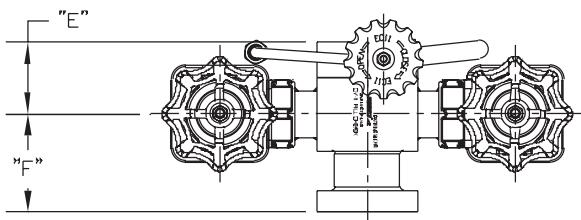
Ideal for all cryogenic liquids including Liquefied Nitrogen, Oxygen, Argon, and CO<sub>2</sub>. In addition RegO® can custom design configurations that are welded and brazed in a factory setting.

## Features

- Unitized construction eliminates leaks and provides easy fit-up to tank piping
- Modules commonly include top and bottom fill valves, fill check with strainer and hose bleed and relief valve
- Many options are available which can include specific end user dimensions and specifications
- Our valve products stand up to high cycle environments, without the need for field adjustment of valve packing
- Available alone or as a unitized welded assembly for bulk tank filling
- Repeatable performance and geometry
- Precision silver brazed and welded assembly
- Cleaned for Oxygen Service per CGA G-4.1
- Pressure Rating: CFM, AFM & PFM Series 600 psig (41 barg)
- Temperature Rating: -320°F (-196°C) to +165°F (+74°C)
- 100% Factory tested

## Materials

Globe Valve	Brass ASTM B16
Check Valve	Brass ASTM B16 "F" Bleed
Valve	Brass ASTM B16
Tube	304L Stainless Steel or Copper



## Ordering Information

Part Number	Size Inches	Size mm	Pipe Material	Bonnet Type	Dimensions						Cv (Kv)				
					A Inches	A mm	B Inches	B mm	C Inches	C mm	One side open	Both sides open			
CFM2D	1"	25	Stainless Steel	Union	10.25	260.35	14.64	371.85	7.5	190.5	10.8 (9.34)	20.8 (17.99)			
CFM4D	1½"	40					15	381	9.5	241.3					
CFM4E		Bolted		15	381	13	330.2								
AFM4D						14.64	371.85	20	508						
PFM4D			Copper												

# Diaphragm Type Globe Valves

## 2500 Series

### Application

The 2500 series valves are designed for use in hospital and industrial piping systems where gases are supplied from a central source to branch outlets throughout the system.



### Features

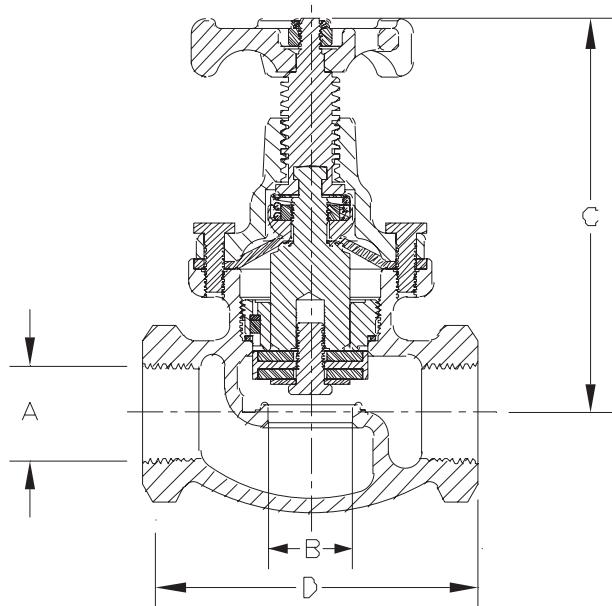
- UL listed for use with air, argon, acetylene, helium, hydrogen, LP-Gas, nitrogen, inert gases and oxygen service
- Leakage is prevented by a dependable diaphragm stem seal
- A resilient seat disc provides positive shut-off
- Heavy duty ACME stem threads assure easy operation and long working life
- Unique back seat design enabling the diaphragm assembly to be repaired while the valve remains in service
- Maximum working pressure is 400 psig (27.5 barg)
- Working temperature range is -40°F to +165°F (-40°C to +74°C)
- 100% Factory Tested
- All valves clean for use in oxygen per CGA G-4.1
- 2505AC and 2507AC are UL Listed.



**2505AC**

### Materials

Body 2507AC, 2511AC & 2513AC .....	Cast Bronze, Tin Plated
Body 2505AC .....	Cast Red Brass, Tin Plated
Bonnet .....	Brass
Stem .....	Manganese Bronze
Seat Disc .....	Neoprene
Diaphragm .....	Neoprene



### Ordering Information

Part Number	Inlet/Outlet Thread (Female NPT) A		Port Diameter B		Height C		Length D		Cv (Kv)
	inches	mm	inch	mm	inch	mm	inch	mm	
<b>2505AC</b>	3/4"	19.05	15/16"	23.87	5 1/4"	133.35	4"	101.60	9.0 (7.78)
<b>2507AC</b>	1"	25.40	1 1/8"	28.57	5 3/8"	136.65	4 3/8"	111.25	15.0 (12.97)
<b>2511AC</b>	1 1/2"	38.10	1 11/16"	42.92	6 3/4"	171.45	5 3/8"	136.65	33.4 (28.89)
<b>2513AC</b>	2"	50.80	2 5/16"	58.67	7 1/8"	180.97	6 1/4"	158.75	51.7 (44.72)

# Diaphragm Type Globe Valves

## 2550 Series

### Application

The 2550 series valves are designed for use in hospital and industrial piping systems where gases are supplied from a central source to branch outlets throughout the system.



### Features

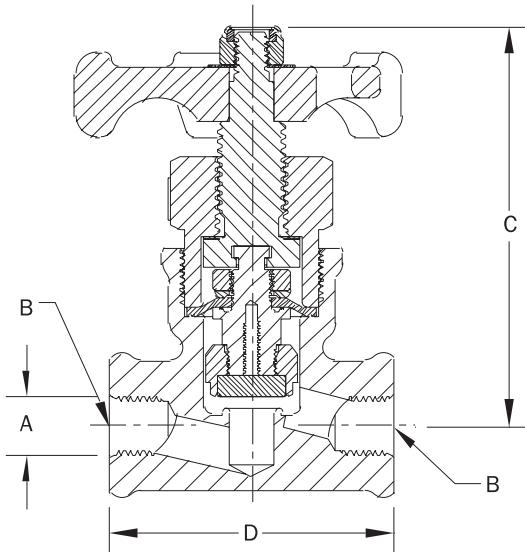
- UL listed for use with acetylene, hydrogen, nitrogen, oxygen service and compressed air
- Leakage is prevented by a dependable diaphragm stem seal
- A resilient seat disc provides positive shut-off
- Heavy duty ACME stem threads assure easy operation and long working life
- Maximum working pressure is 250 psig (17.2 barg)
- Working temperature range is -40°F to +165°F (-40°C to +74°C)
- 100% Factory Tested
- All valves clean for use in oxygen per CGA G-4.1



**2554AC**

### Materials

Body (2554 series) .....	Cast Red Brass, Tin Plated
Seat Disc .....	Filled Teflon
Diaphragm.....	Neoprene
Bonnet.....	Brass
Stem .....	Manganese Bronze
Handwheel.....	Aluminum



### Ordering Information

Part Number	Inlet/Outlet Thread (Female NPT) A		Port Diameter B		Height C		Length D		Cv (Kv)
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
<b>2554AC</b>	1/2"	13	21/32"	17	3 3/8"	86	3 1/8"	79	4.3 (3.71)
<b>2554AAC</b>	3/4"	19							

# Extended Bonnet Bronze Gate Valve for Cryogenic Service

## 322 and 326 Series



### Application

The RegO Goddard 322 and 326 Series gate valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, and argon.

### Features

- **Top Entry:** This union bonnet valve can be permanently installed in the line and serviced from the top
- **Construction:**
  - Bronze cast body and Internals
  - Rugged construction for long life
  - Straight through construction for high CV
  - Designed with unique KOLD-SEAL™ packing
  - Standard split wedge design provides better sealing and cycle life
- **Sizes:** ½" - 3" (15mm - 80mm)
- **Ends:** Threaded (FNPT), Sil Braze Tube (SBT), Silver Brazed Pipe (SBP) or with stainless steel pipe nipples brazed in
- **Service:** Liquefied and vaporized atmospheric gases, LNG
- **Temperature Rating:** -320°F to +150°F (-196°C + 65°C)
- **Pressure Rating:** (Cold, Non-shock)
  - 322 Series 400 psig (28 barg)
  - 326 Series 600 psig (42 barg)
- Cleaned for Oxygen Service per CGA G-4.1

Designed to MSS SP-80 and ASME B31.3  
Series 1.5" to 3" PED Approved per EN 10204, 3.1

**Ideal for cryogenic supply and storage handling applications.  
Straight-through flow for highest CV rating in the industry.**

Also available with GRAFOIL® packing



**322 Series**

# Extended Bonnet Bronze Gate Valve for Cryogenic Service

## 322 and 326 Series

### Ordering Information

#### 322 Series

Bronze Gate Valves

400 psig (28 barg) COLD WORKING PRESSURE

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<a href="#">B-322-20T4</a>	2½"	65 mm	Threaded	19.00	8.64	372.00 (321.78)
<a href="#">B-322-24T4</a>	3"	80 mm		28.00	121.73	588.00 (508.62)

Part Number	SBT Size Inches*	SBT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<a href="#">B-322-4S4</a>	½"	15 mm	Silver Braze	1.75	0.80	19.80 (17.12)
<a href="#">B-322-6S4</a>	¾"	20 mm		2.25	1.02	36.00 (31.14)
<a href="#">B-322-8S4</a>	1"	25 mm		3.50	1.59	60.80 (52.59)
<a href="#">B-322-12S4</a>	1½"	40 mm		7.50	3.41	152.00 (131.48)
<a href="#">B-322-16S4</a>	2"	50 mm		11.25	5.11	245.00 (211.92)
<a href="#">B-322-20S4</a>	2½"	65 mm		17.00	7.73	372.00 (321.78)
<a href="#">B-322-24S4</a>	3"	80 mm		24.00	10.91	588.00 (508.62)

\*Nominal Size

#### 326 Series

Bronze Gate Valves

600 psig (42 barg) COLD WORKING PRESSURE

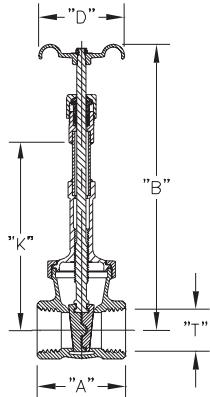
Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<a href="#">B-326-4T6</a>	½"	15 mm	Threaded	1.75	0.80	19.80 (17.12)
<a href="#">B-326-6T6</a>	¾"	20 mm		2.25	1.02	36.00 (31.14)
<a href="#">B-326-8T6</a>	1"	25 mm		4.00	1.82	60.80 (52.59)
<a href="#">B-326-12T6</a>	1½"	40 mm		8.25	3.75	152.00 (131.48)
<a href="#">B-326-16T6</a>	2"	50 mm		12.50	5.68	245.00 (211.92)

# Extended Bonnet Bronze Gate Valve for Cryogenic Service

## 322 and 326 Series

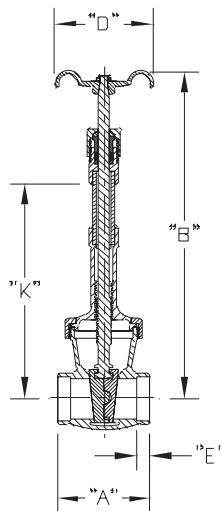
### 322 Series

MAWP: 400 psig (28 barg) Non-Shock Cold  
 Temperature Rating +150° F to -325° F (+65°C to -198°C)  
 Dimensional Data



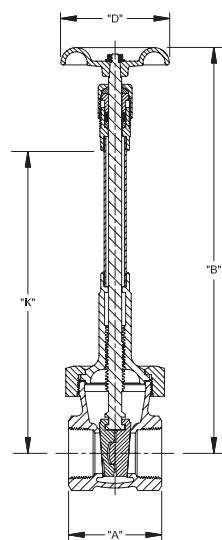
#### Threaded End (NPT)

Size		"A"		"B"		"D"		"K"		"T"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
2½"	63	4.68"	119	22.5"	571	5.25"	133	14.5"	368	2½"	63
3"	76	5.12"	130	24.87"	632	6.12"	155	16.31"	414	3"	76



#### Sil Braze End

Size		"A"		"B"		"D"		"K"		"E"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
½"	13	2.5"	63	9.38"	238	2.37"	60	5.5"	140	.38"	10
¾"	19	3"	76	10.56"	268	2.75"	70	6.12"	155	.40"	10
1"	25	3.25"	83	12.38"	314	3"	76	7.68"	195	.43"	11
1½"	38	4"	102	17"	432	4"	102	10.87"	276	.62"	16
2"	51	4.5"	114	19.62"	498	4.75"	121	12.38"	314	.65"	16
2½"	63	5.25"	133	22.5"	571	5.25"	133	14.5"	368	.78"	20
3"	76	6"	152	24.87"	632	6.12"	155	16.31"	414	.82"	21



### 326 Series

MAWP: 600 psig (42 barg) Non-Shock Cold  
 Temperature Rating +150° F to -325° F (+65°C to -198°C)  
 Dimensional Data

#### Threaded End (NPT)

Size		"A"		"B"		"D"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
½"	13	2.34"	59	9.37"	238	2¼"	57	5.5"	140
¾"	19	2.5"	63	10.56"	268	2¾"	70	6.12"	155
1"	25	2.34"	59	12.37"	314	3"	76	7.6"	193
1½"	38	3.43"	87	17"	432	4"	102	10.87"	276
2"	51	3.81"	97	19.62"	498	4¾"	121	12.37"	314

# Bronze Gate Valves for Cryogenic Service

## 302, 306, 310 & 310X Series

### Application

The RegO Goddard 302, 306, 310, & 310X Series gate valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, and argon.

### Features

- **Top Entry:** This union bonnet valve can be permanently installed in the line and serviced from the top
- **Construction:**  
Bronze cast body and bonnet  
Rugged construction for long life  
Straight through design for high Cv  
Designed with unique KOLD-SEAL™
- **Sizes:** ½" - 3" (15mm - 80mm)
- **Ends:** Threaded (FNPT), Sil Braze Tube (SBT), or with stainless steel pipe nipples brazed in
- **Service:** Liquefied and vaporized atmospheric gases, LNG
- **Temperature Rating:** -320°F - +150°F (-196°C +65°C)
- Cleaned for Oxygen Service per CGA G-4.1
- **Pressure Rating:** (Cold, Non-shock)  
310, 310x Series 300 psig  
302 Series 400 psig (28 barg)  
306 Series 600 psig (42 barg)

Designed to MSS SP-80 and ASME B31.3  
Sizes 1.5" - 3.0" PED approved

- **Soft Seated** Series 310 & 310X: Solid wedge with PCTFE (Neoflon®) provides a bubble tight seal and is replaceable
- **Metal Seated** Series 302 & 306: Split wedge made of Bronze and also replaceable

Gate design for high flow applications.

Straight-through flow for highest Cv rating in the industry.

**302, 306 Non-Extended stem for selective cold gas applications**

**310, 310X Extended stem ideal for cryogenic supply applications**



**302 Series**

# Bronze Gate Valves for Cryogenic Service

## 302, 306, 310 & 310X Series

### Ordering Information

#### 302 Series

Bronze Gate Valves

Bronze Body Non-Extended Bonnet, Split Wedge

For selected cold gas operations

400 psig (28 barg) COLD WORKING PRESSURE

Temperature Rating -325°F to +150°F (-198°C TO +65°C)

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-302-4T4</b>	1/2"	15	Threaded	1.50	0.70	19.80 (17.12)
<b>B-302-20T4</b>	2 1/2"	65		17.50	8.00	372.00 (321.78)
<b>B-302-24T4</b>	3"	80		26.00	11.80	588.00 (508.62)
Part Number	SBT Size Inches*	SBT Size mm*	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-302-4S4</b>	1/2"	15	Silver Braze	1.25	0.60	19.80 (17.12)
<b>B-302-6S4</b>	3/4"	20		2.25	1.00	36.00 (31.14)
<b>B-302-8S4</b>	1"	25		3.00	1.40	60.80 (52.59)
<b>B-302-12S4</b>	1 1/2"	40		6.00	2.70	152.00 (131.48)
<b>B-302-16S4</b>	2"	50		9.50	4.30	245.00 (211.92)
<b>B-302-20S4</b>	2 1/2"	65		14.50	6.60	372.00 (321.78)
<b>B-302-24S4</b>	3"	80		22.00	10.00	588.00 (508.62)

\*Nominal Size

#### 306 Series

600 psig (42 barg) Bronze Body, Non-Extended Bonnet, Split Wedge

Temperature Rating -325°F to +150°F (-198°C TO +65°C)

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>B-306-6T6</b>	3/4"	20	Threaded	2.25	1.00	36.00 (31.14)
<b>B-306-8T6</b>	1"	25		3.00	1.40	60.80 (52.59)
<b>B-306-12T6</b>	1 1/2"	40		6.00	2.70	152.00 (131.48)
<b>B-306-16T6</b>	2"	50		9.50	4.30	245.00 (211.92)

#### 310 Series

300 psig (20 barg) Bronze Body, Extended Bonnet, Solid Wedge, Soft Seat

Temperature Rating -325°F to +150°F (-198°C TO +65°C)

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>B-310-20T</b>	2 1/2"	65	Threaded	14.50	6.60	372.00 (321.78)
<b>B-310-24T</b>	3"	80		22.00	10.00	588.00 (508.62)
Part Number	SBT Size Inches *	SBT Size mm *	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>B-310-24S</b>	3"	80	Silver Braze	22.00	10.00	588.00 (508.62)

\*Nominal Size

#### 310X Series

Short Top Works for Trailer Service

300 psig (20 barg) Bronze Body, Extended Bonnet, Solid Wedge, Soft Seat

Temperature Rating -325°F to +150°F (-198°C TO +65°C)

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>B-310X-20T</b>	2 1/2"	65	Threaded	14.50	6.60	372.00 (321.78)
<b>B-310X-24T</b>	3"	80		22.00	10.00	588.00 (508.62)
Part Number	SBT Size Inches *	SBT Size mm *	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>B-310X-24S</b>	3"	80	Silver Braze	22.00	10.00	588.00 (508.62)

\*Nominal Size

#### SB-00310X

Stainless Steel Body - Bronze Topworks

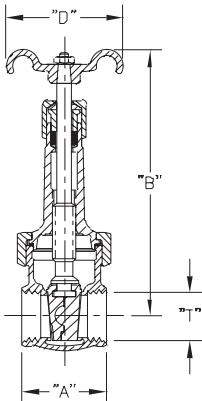
Temperature Rating -325°F to +150°F (-198°C TO +65°C)

Part Number	SBT Size Inches *	SBT Size mm *	Ends	Weight Lbs.	Weight Kgs.	Estimated Cv (Kv)
<b>SB-310X-24SW</b>	3"	80	Socketweld	22.00	10.00	588.00 (508.62)

# Bronze Gate Valves for Cryogenic Service

## 302, 306 Series

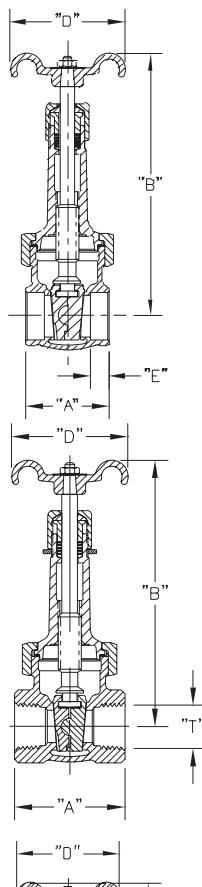
### 302 Series



MAWP: 400 psig (28 barg) Non-Shock Cold  
Temperature Rating +150° F to -325°F (+65°C to -198°C)  
Non-Extended Valve for selective cold gas applications  
Dimensional Data

#### Threaded End (NPT)

Size		"A"		"B"		"D"		"T" NPT	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	2.34"	59	5.81"	147	2.37"	60	1/2"	13
2 1/2"	63	4.68"	119	15.81"	401	5.25"	133	2 1/2"	63
3"	76	5.12"	130	18.25"	463	6.12"	155	3"	76



#### Sil Braze End

Size		"A"		"B"		"D"		"E"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	2.50"	63	5.81"	147	2.37"	60	.38"	10
3/4"	19	3"	76	6.94"	176	2.75"	70	.40"	10
1"	25	3.25"	82	8.43"	214	3"	76	.43"	11
1 1/2"	38	4"	102	11.19"	284	4"	102	.62"	16
2"	51	4.5"	114	13.19"	335	4.75"	121	.65"	17
2 1/2"	63	5.25"	133	15.81"	401	5.25"	133	.78"	20
3"	76	6"	152	18.25"	463	6.12"	155	.82"	21

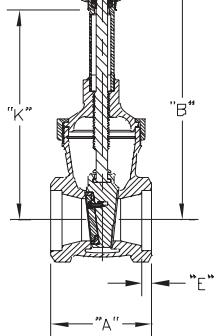
### 306 Series

MAWP: 600 psig (42 barg) Non-Shock Cold-  
Temperature Rating +150° F to -325°F (+65°C to -198°C)  
Non-Extended Valve for selective cold gas applications  
Dimensional Data



#### SB-00310X-24SW Sil Braze End (Stainless Steel Body)

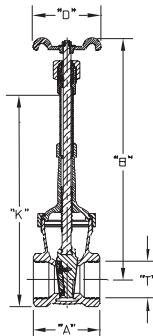
Size		"A"		"B"		"D"		"E"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
3"	76	6"	152	20.38"	518	6.12	155	0.63	16	12.5	317



# Bronze Gate Valves for Cryogenic Service

## 310 & 310X Series

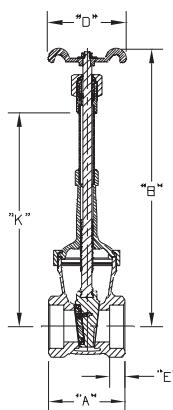
### 310 Series



MAWP: 300 psig (20 barg) Non-Shock Cold-Temperature Rating +150° F to -325°F (+65°C to -198°C)  
Extended Valve for selective cold gas applications  
Dimensional Data

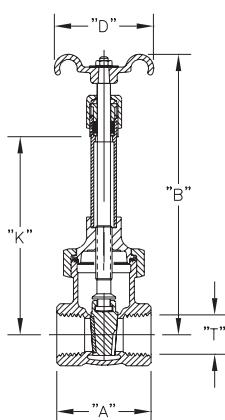
#### Threaded End (NPT)

Size		"A"		"B"		"D"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
3"	76	6"	152	25.38"	645	6.12"	155	16.30"	414



#### Sil Braze End

Size		"A"		"B"		"D"		"E"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
2½"	64	6"	152	25.38"	645	6.12"	155	.03"	1	16.30"	414
3"	76										

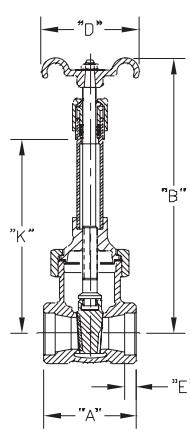


### 310X Series

MAWP: 300 psig (20 barg) Non-Shock Cold-Temperature Rating +150° F to -325°F (+65°C to -198°C)  
Extended Valve for selective cold gas applications, Ideal for Trailer Service  
Dimensional Data

#### Threaded End (NPT)

Size		"A"		"B"		"D"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
2½"	64	6"	152	20.38"	518	6.12"	155	11.5"	292
3"	76								



#### Sil Braze End

Size		"A"		"B"		"D"		"E"		"K"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
3"	76	6"	152	20.38"	518	6.12"	155	0.83"	21	16.3"	414

# Stainless Steel Gate Valve for Cryogenic Service

## 110 Series

### Application

RegO Goddard gate valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, argon and LNG.

### Features

- Top Entry:** This valve can be permanently installed in the line and serviced from the top
- Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- Construction:** Body and Bonnet ASTM A351-CF8 J92600 Stainless steel
- Sizes:**  $\frac{1}{2}$ " - 6" (15mm - 150mm)
- Ends:** RF Flange, Butt weld, Socket weld, Threaded (FNPT)
- Service:** Liquefied and vaporized atmospheric gases, LNG
- WHZ valves with Grafoil® stem packing available
- Temperature Rating:** -320°F - 150°F (-196°C +65°C)
- 100% Factory Tested
- Clean for use in oxygen per CGA G-4.1
- PED Approved
- Pressure Rating:** (Cold, Non-shock)
  - Class 150 valve - 275 psig (19 barg)
  - Class 300 valve - 720 psig (50 barg)



110 Series

### Ordering Information

Stainless Body • RF Flange Ends

150# Part Number	300# Part Number	Valve Size		Ends	Weight 150#		Weight 300#		Estimated Cv (Kv)
		Inches	mm		Lbs.	Kg	Lbs.	Kg.	
GS-110W-8F	-	1"	25 mm	Flange	15	6.80	-	-	30.00 (25.95)
GS-110W-12F	GS-110W-12F3	1½"	40 mm		35	15.88	45	20.41	85.00 (73.52)
GS-110W-16F	GS-110W-16F3	2"	50 mm		35	15.88	50	22.68	100.00 (86.50)
GS-110W-24F	GS-110W-24F3	3"	80 mm		65	29.48	85	35.56	310.00 (268.15)
GS-110W-32F	GS-110W-32F3	4"	100 mm		90	40.82	120	54.43	700.00 (605.50)
GS-110W-48F	GS-110W-48F3	6"	150 mm		150	68.04	200	90.72	850.00 (735.25)

150# ANSI Class (275 psig (19 barg) Cold Working Pressure) 300# ANSI Class (720 psig (50 barg) Cold Working Pressure)

### Ordering Information

Stainless Body • Butt Weld, Socket Weld, Threaded Ends

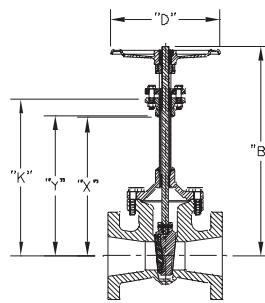
150# Part Number	300# Part Number	Valve Size		Ends	Weight		Estimated Cv (Kv)
		Inches	mm		Lbs.	Kg.	
GS-110W-4WA	-	½"	15 mm	Butt Weld SCH10	10	4.54	7.00 (6.05)
-	GS-110W-4S3			Socket Weld	15	6.80	
GS-110W-4T	-			Threaded	10	4.54	
GS-110W-6WA	-	¾"	20 mm	Butt Weld SCH10	10	4.54	23.00 (19.89)
-	GS-110W-6S3			Socket Weld	15	6.80	
GS-110W-8WA	-	1"	25 mm	Butt Weld SCH10	10	4.54	30.00 (25.95)
-	GS-110W-8S3			Socket Weld	15	6.80	
GS-110W-8T	-			Threaded	10	4.54	
GS-110W-12WA	-	1½"	40 mm	Butt Weld SCH10	30	13.61	85.00 (73.52)
-	GS-110W-12S3			Socket Weld	35	15.88	
-	GS-110W-16W3A	2"	50 mm	Butt Weld SCH10	35	15.88	100.00 (86.50)
-	GS-110W-16W3J			Butt Weld SCH40	30	13.61	
GS-110W-16S	-	3"	80 mm	Socket Weld	65	29.48	310.00 (268.15)
-	GS-110W-24W3A			Butt Weld SCH40	65	29.48	
-	GS-110W-24W3J	4"	100 mm	Butt Weld SCH10	80	40.82	700.00 (605.50)
-	GS-110W-32W3A			Butt Weld SCH40	80	40.82	
-	GS-110W-32W3J	6"	150 mm	Butt Weld SCH10	120/150*	54.43/68.04*	850.00 (735.25)
-	GS-110W-48W3A			Butt Weld SCH40	120/150*	54.43/68.04*	
-	GS-110W-48W3J			Butt Weld SCH40	120/150*	54.43/68.04*	

150# ANSI Class (275 psig (19 barg) Cold Working Pressure) 300# ANSI Class (720 psig (50 barg) Cold Working Pressure)\* Second number indicates valve for 300# part number. Service: 300#/720 psig (50 barg) Non-shock Cold • Service: 150#/275 psig (19 barg) Non-shock Cold

• Temperature Rating +150°F - 325°F (+65°C to -198°C) • Mounting plate option available

# Stainless Steel Gate Valve for Cryogenic Service

## 110 Series

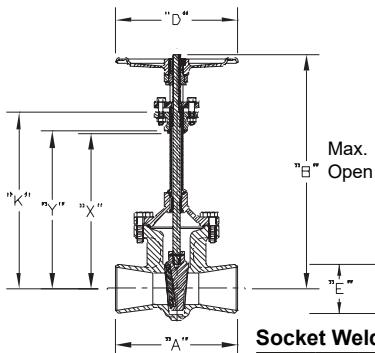


**Raised Face Flange Ends\***

Size		'A' 150#		'A' 300#		'B'		'D'		'K'		'X'		'Y'	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1"	25	4 1/8"	105	N/A	-	17 1/4"	451	4 1/2"	114	12 3/4"	324	11 1/16"	281	11 5/8"	289
1 1/2"	38	4 5/8"	118	6 1/8"*	156			21 1/8"	556	7"	178	14"	356	12 5/16"	313
2"	51	7"	178	7 1/4"*	184							12"	305	20"	508
3"	76	8"	203	8 3/4"*	222	31 1/2"	800					17 3/4"	451	18 1/16"	459
4"	102	9"	229	12"	305	33 3/4"	857					21 1/2"	546	19 1/4"	489
6"	152	10 1/2"	267	15 5/8"	403	41 1/2"	1054	16"	406	26"	660	23 9/16"	598	23 7/8"	606

\*Face-to-face dimensions (A) are Goddard standard not to ANSI standard.

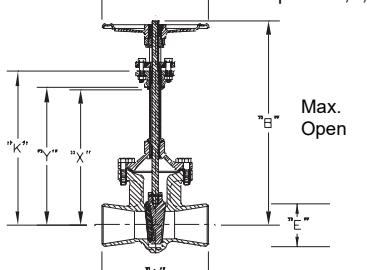
- Special B,K,X & Y Dimensions Available



**Socket Weld Ends**

Size		'A' 150#		'A' 300#		'B'		'D'		'E'		'F'		'K'		'X'		'Y'	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	3 3/4"	95	3 3/4"	95					.855	21	3/8"	10						
3/4"	19					17 1/4"	451	4 1/2"	114	1.065	27			12 3/4"	324	11 1/16"	281	11 5/8"	284
1"	25	3 1/2"	89	4"	102					1.330	34			1/2"	13				
1 1/2"	38	4 5/8"	118	5"	127	21 1/8"	556	7"	178	1.915	49			14"	356	12 5/16"	313	12 5/8"	321
2"	51	8 1/2"	216	N/A	-					2.406	61	5/8"	16						

- Special B,K,X & Y Dimensions Available



**Butt Weld Ends**

Size		'A' 150#		'A' 300#		'B'		'D'		'K'		'X'		'Y'		'Y'	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	4 1/4"	108														
3/4"	19	4 5/8"	117														
1"	25	5"	127														
1 1/2"	38	6"	152	6"	152												
2"	51	8 1/2"	216	8 1/2"	216	21 1/8"	556	7"	178	14"	356	12 5/16"	313	12 5/8"	321		
3"	76	11 1/8"	282	11 1/8"	282	31 1/2"	800					20"	508	17 3/4"	451	18 1/16"	459
4"	102	12"	305	12"	305	33 3/4"	857					21 1/2"	546	19 1/4"	489	19 9/16"	497
6"	152	15 5/8"	403	15 5/8"	403	41 1/2"	1054	16"	406	26"	660	23 9/16"	598	23 7/8"	606		

- Special B,K,X & Y Dimensions Available

• Unless otherwise specified, Schedule 10 weld ends are supplied

# Stainless Steel Gate Valve for Cryogenic Service

## 110WHZ Series

### Application

RegO Goddard gate valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, argon and LNG.

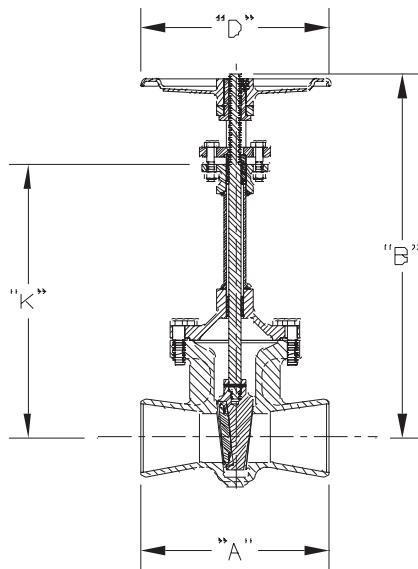


### Features

- Top Entry:** This valve can be permanently installed in the line and serviced from the top
- Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- Construction:** Stainless steel body and bonnet
- Sizes:**  $\frac{1}{2}''$  - 6" (15mm - 150mm)
- Ends:** RF Flange, Butt weld, Socket weld, Threaded (FNPT)
- Service:** Liquefied and vaporized atmospheric gases, LNG
- Grafoil® stem packing.
- Temperature Rating:** -320°F - 150°F (-196°C +65°C)
- 100% Factory Tested
- Clean for use in oxygen per CGA G-4.1
- Grafoil® Stem Packing
- Pressure Rating:** (Cold, Non-shock)  
Class 300 valve - 720 psig (50 barg)

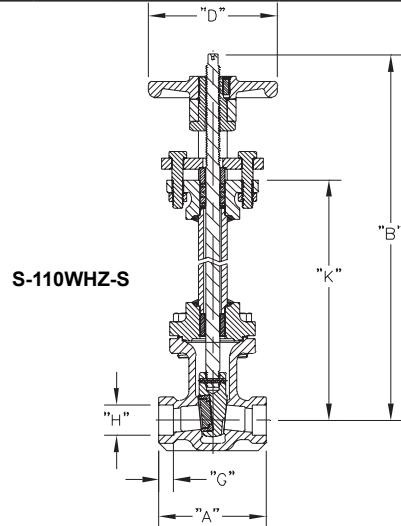
$\frac{1}{2}''$  - 6" Class 300  
PED Approved

S-110WHZ-W



### Ordering Information

Part Number	Ends	Size		"A"		"B"		"D"		"K"		Estimated Cv (Kv)	Weight Lbs.(Kg)
		Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
GS-110WHZ-16W3A	S10	2"	51	8.50	216	21.88	556	7	178	14	356	100 (86.5)	35 (16)
GS-110WHZ-16W3J	S40												
GS-110WHZ-24W3A	S10	3"	76	11.12	282	31.5	800			20	508	310 (268.15)	65 (29)
GS-110WHZ-32W3A	S10	4"	102	12	305	33.75	857			21.5	546	700 (605.50)	80 (36)
GS-110WHZ-48W3A	S10												
GS-110WHZ-48W3J	S40	6"	152	15.88	403	41.5	1054	16	406	26	660	850 (735.25)	150 (68)



### Ordering Information

Part Number	Size		"A"		"B"		"D"		"G"		"H"		"K"		Estimated Cv (Kv)	Lbs. (Kg.)
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
GS-110WHZ-4S3	$\frac{1}{2}''$	13							.38	10	.86	22		7 (6.05)	15 (6.80)	
GS-110WHZ-6S3	$\frac{3}{4}''$	19	3.75	95										23 (19.89)		
GS-110WHZ-8S3	1"	25	4	102										30 (25.95)		
GS-110WHZ-12S3	$1\frac{1}{2}''$	38	5	127	21.88	556	7	178			1.92	49	14	356	85 (73.52)	

# Stainless Steel Gate Valve for Cryogenic Service

## LOX Series

### Application

RegO LOX Series gate valves are designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ASU plants and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, argon and LNG. Specifically designed for liquid oxygen (LOX) service.

### Features

- Top Entry:** This valve can be permanently installed in the line and serviced from the top
- Soft Seated:** PCTFE Seat provides a bubble tight seal and is replaceable
- Construction:** Body and Bonnet ASTM A351-CF8 J92600 Stainless steel
- Sizes:** ½" - 6" (15mm - 150mm)
- Ends:** RF Flange, Butt weld, Socket weld, Threaded (FNPT)
- Service:** Liquefied and vaporized atmospheric gases, LNG
- WHZ valves with Grafoil® stem packing available
- Temperature Rating:** -320°F - 150°F (-196°C +65°C)
- 100% Factory Tested
- Clean for use in oxygen per CGA G-4.1
- Pressure Rating:** (Cold, Non-shock)  
Class 300 valve - 720 psig (50 barg)



**LOX Series**

### Ordering Information

**Stainless Body • Butt Weld, Socket Weld, Threaded Ends**

300# Part Number	Valve Size		Ends	Weight		Estimated Cv (Kv)
	Inches	MM		Lbs.	Kg.	
LOX110W-4S3	½"	15 mm	Socket Weld	15	6.80	7.00 (6.05)
LOX110W-6S3	¾"	20 mm	Socket Weld	15	6.80	23.00 (19.89)
LOX110W-8S3	1"	25 mm	Socket Weld	15	6.80	30.00 (25.95)
LOX110W-12S3	1½"	40 mm	Socket Weld	35	15.88	85.00 (73.52)
LOX110W-16W3A	2"	50 mm	Butt Weld SCH10			100.00 (86.50)
LOX110W-24W3A	3"	80 mm	Butt Weld SCH10	65	29.48	310.00 (268.15)
LOX110W-24W3J			Butt Weld SCH40			
LOX110W-32W3A	4"	100 mm	Butt Weld SCH10	80	40.82	700.00 (605.50)
LOX110W-32W3J			Butt Weld SCH40			
LOX110W-48W3A	6"	150 mm	Butt Weld SCH10	120/150*	54.43/68.04*	850.00 (735.25)
LOX110W-48W3J			Butt Weld SCH40			

300# ANSI Class (720 psig (50 barg) Cold Working Pressure)\* Second number indicates valve for 300# part number.

Service: 300#-720 psig (50 barg) Non-shock Cold • Service: 150#-275 psig (19 barg) Non-shock Cold

- Temperature Rating +150°F - 325°F (+65°C -198°F) • Mounting plate option available
- Custom sizes and connections available.

# Horizontal Lift Check Valves

## 8500 Series

### Application

8500 series valves are designed for use as a check valve on cryogenic bulk stations and pipelines.



### Features

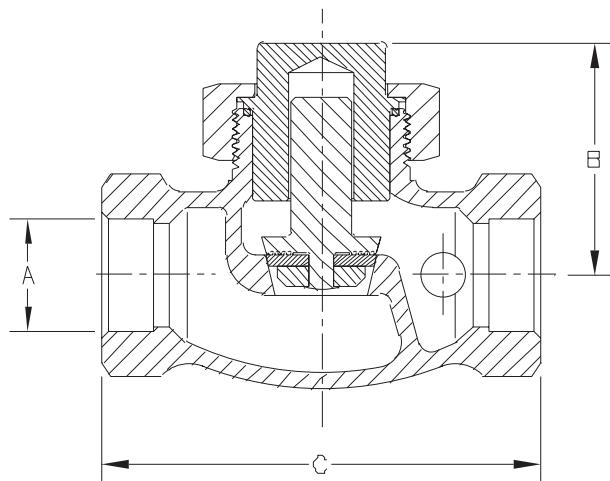
- Replaceable Kel-F seat discs
- Self-centering cap holds plunger in position
- Each valve is cleaned and packaged for liquid oxygen service per CGA G-4.1
- 100% Factory Tested
- Working temperature range is -320°F to +165°F (-196°C to +74°C)
- Maximum working pressure is 600 psig MAWP (41.3 barg)
- 2 psig opening pressure



**BK8508S**

### Materials

Body .....	Bronze
Cap.....	Brass
Plunger .....	Brass
Seat .....	PCTFE



**BK8512S**

### Ordering Information

Part Number	Inlet / Outlet Connection A	B		Length C		$C_V (Kv)$
		inches	mm	inches	mm	
<b>BK8508S</b>	1.128"-1.130"	2 1/4"	57.15	4 15/16"	125.47	10 (8.65)
<b>BK8508T</b>	1" F.NPT					
<b>BK8512S</b>	1.629"-1.631"	3 1/4"	82.55	5 3/16"	131.82	27 (23.35)
<b>BK8512T</b>	1 1/2" F.NPT					

# Bronze Swing Check Valve for Cryogenic Service

## Including 846M Goddard 840 Series



### Application

The RegO Goddard 846M and 840 series check valve is designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub>, argon and LNG.

### Features

- Top Entry:** This swing check valve can be permanently installed in the line and serviced from the top
- Construction:** Designed to prevent back flow in cryogenic systems. Higher fluid capacity (Cv) than poppet or lift check valves. Bronze body and internals. Rugged construction for long life and minimal down time
- Sizes:**  $\frac{1}{2}$ " through 2" (15mm through 50mm)
- Ends:** Threaded (FNPT), or with Sil Brazed Tube (SBT)  
SCH-10, Threaded back brazed pipe nipples in 1" increments up to 6"  
SCH-40, Threaded back brazed pipe nipples in 1" increments up to 6"  
SCH-80, Threaded back brazed pipe nipples in 1" increments up to 6"
- Temperature Rating:** -320°F to +150°F (-196°C to +65°C)
- Cleaned for Oxygen Service per CGA G-4.1.
- Pressure Rating:** (Cold, Non-shock)  
840 Series 400 psig (27.6 barg)  
846M Series 600 psig (41.4 barg)  
Sizes  $\frac{1}{2}$ " to 2" PED Approved

**Note: Do not use for reciprocating gas service.**

- Cracking Pressure:** 0.5 psig (.03 barg)



**840 Series**

### 840

Bronze Swing Check Valves - Soft Seated, Threaded, Sil Brazed Ends, Threaded and Back Brazed Pipe Nipples  
400 psig (28 barg) Cold Working Pressure

#### Threaded Ends

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-840-4T</b>	$\frac{1}{2}$ "	15	Threaded	2.00	0.91	4.50 (3.89)
<b>B-840-6T</b>	$\frac{3}{4}$ "	20		4.00	1.81	7.00 (6.05)
<b>B-840-8T</b>	1"	25		4.50	2.04	10.00 (8.65)
<b>B-840-12T</b>	$1\frac{1}{2}$ "	40		8.50	3.86	40.00 (34.6)
<b>B-840-16T</b>	2"	50		14.50	6.58	100.00 (86.5)

#### Silver Brazed - Pipe Nipple

Part Number	SBT Size Inches*	SBT Size mm*	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-840-4S</b>	$\frac{1}{2}$ "	15	Silver Braze	2.50	1.13	4.50 (3.89)
<b>B-840-6S</b>	$\frac{3}{4}$ "	20		4.5	2.05	7.00 (6.05)
<b>B-840-8S</b>	1"	25		5.25	2.38	10.00 (8.65)
<b>B-840-12S</b>	$1\frac{1}{2}$ "	40		10.75	4.88	40.00 (34.6)
<b>B-840-16S</b>	2"	50		17.50	7.94	100.00 (86.5)

\* Nominal Size

### 846M

Bronze Swing Check Valves - Metal Seated, Threaded, Sil Brazed Ends, Threaded and Back Brazed Pipe Nipples  
600 psig (42 barg) Cold Working Pressure

#### Threaded Ends

Part Number	NPT Size Inches	NPT Size mm	Ends	Weight Lbs.	Weight Kg	Estimated Cv (Kv)
<b>B-846M-4T6</b>	$\frac{1}{2}$ "	15	Threaded	2.00	0.91	4.50 (3.89)
<b>B-846M-8T6</b>	1"	25		4.50	2.04	10.00 (8.65)
<b>B-846M-12T6</b>	$1\frac{1}{2}$ "	40		8.50	3.86	40.00 (34.6)
<b>B-846M-16T6</b>	2"	50		14.50	6.58	100.00 (86.5)

# Bronze Swing Check Valve for Cryogenic Service

## Including 846M 840 Series

### Silver Brazed - Pipe Nipple

Part Number	SBT Size Inches*	SBT Size mm*	Ends	Weight Lbs.	Weight Kg	Estimated CV
<b>B-846M-4S6</b>	1/2"	15	Silver Braze	2.50	1.13	4.50
<b>B-846M-6S6</b>	3/4"	20		4.50	2.04	7.00
<b>B-846M-8S6</b>	1"	25		5.25	2.38	10.00
<b>B-846M-12S6</b>	1 1/2"	40		10.75	4.88	40.00
<b>B-846M-16S6</b>	2"	50		17.50	7.94	100.00

\* Nominal Size

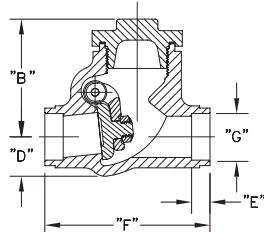
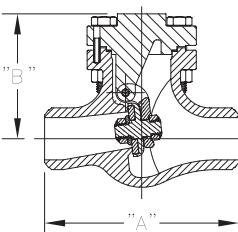
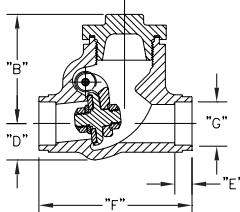
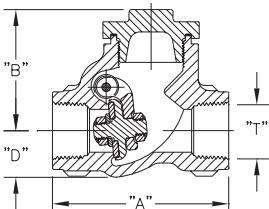
• Contact company for threaded, back brazed pipe nipple information

### 840 Series

Pressure Rating MSS SP-80 Class 200  
 MAWP 400 psig (28 barg) Non-Shock Cold  
 Temperature Rating +150°F to -325°F (+65°C to -198°C)

#### Dimensional data

Size		"A"		"B"		"D"		"T" NPT		"E"		"F"		"G"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	3.00"	76	2.13"	54	3/4"	19	1/2"	13	.38"	10	2.94"	75	.63"	16
3/4"	19	3.69"	94	2.81"	71	1.12"	28	3/4"	19	.41"	11	3.60"	91	.88"	22
1"	25	4.00"	102			1.13"	29	1"	25	.45"	11	4.00"	102	1.13"	29
1 1/2"	38	5.03"	128	3.63"	92	1.44"	36	1 1/2"	38	.63"	16	5.03"	128	1.63"	41
2"	51	6.35"	161	4.34"	110	1.84"	47	2"	51	.66"	17	6.35"	161	2.13"	54



### 846M Series

Pressure Rating MSS SP-80 Class 300  
 MAWP 600 psig (42 barg) Non-Shock Cold  
 Temperature Rating +150°F to -325°F (+65°C to -198°C)

#### Dimensional data

Size		"A"		"B"		"D"		"T" NPT		"E"		"F"		"G"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1/2"	13	3.00"	76	2.13"	54	3/4"	19	1/2"	13	.38"	10	2.94"	75	.63"	16
3/4"	19	3.69"	94	2.81"	71	1.12"	28	3/4"	19	.41"	11	3.60"	91	.88"	22
1"	25	4.00"	102			1.13"	29	1"	25	.45"	11	4.00"	102	1.13"	29
1 1/2"	38	5.03"	128	3.63"	92	1 7/16"	36	1 1/2"	38	.63"	16	5.03"	128	1.63"	41
2"	51	6.35"	161	4.34"	110	1 27/32"	47	2"	51	.66"	17	6.35"	161	2.13"	54

# Stainless Steel Spring-Loaded Piston Lift Check Valves

## CV9400 Series

### Application

The CV9400 Series of Stainless Steel Lift Check Valves are designed with a spring-loaded piston for installation in various piping configurations in liquid cryogenic applications, including bulk tanks, trailers and ISO tanks. Ideal service medium includes oxygen, nitrogen, krypton, carbon dioxide, nitrous oxide, dinitrogen monoxide, carbon oxide, methane, ethane, ethylene, argon, and LNG.



### Features

- Soft Seat: Dyneon™ TFM1600 material enables bubble tight sealing performance under cryogenic conditions
- Seat Disc: Conical seat design provides higher Cv and a bubble tight seal
- Seat Assembly: One-piece assembly with no small pieces prevent possible dislodge of material during vibration that could damage downstream equipment or potentially cause an explosion
- Seat Holder: Lower position guiding ensures repeatability of tight reseal
- Spring: 316Ti material provides repeatable, lasting performance when exposed to cryogenic liquid
- Opening Pressure: 1.5 PSIG (0.1 BARG)
- Sizes:  $\frac{1}{2}$ " through 2"
- Connection: SCH 10 Socket Weld & Butt Weld per ASTM A312 & ASME B16.25 standards
- Temperature rating: -320°F to +185°F (-196°C to +85°C)
- Pressure rating: Cold, non-shock, 720 PSIG (50 BARG) Class 300 (PN 50)
- 100% Factory Tested
- Each valve is individually bagged and boxed to arrive in factory new condition until ready for installation
- Cleaned and packaged for oxygen service per CGA G-4.1



**CV9416SW**

### Materials

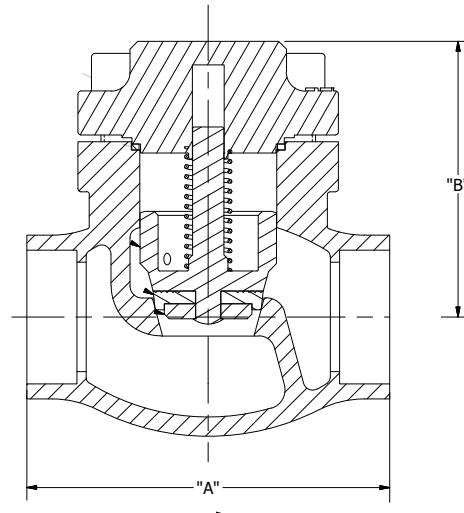
Body .....	316 Stainless Steel ASTM A351-CF-8M (DIN 1.4408)
Bonnet.....	304 Stainless Steel ASTM A182 (DIN 1.5415)
Spring .....	316Ti Stainless Steel ASTM A313 (DIN 1.4544)
Gasket .....	PTFE 25% Glass Fill
Seat Disc .....	Dyneon TFM 1600
Seat Retainer.....	Brass ASTM B16 (DIN 2.0375)
Bonnet Screws .....	Stainless Steel ASTM 240 (DIN 1.4006)

PED Certified



### Ordering Information

Part Number	Size Inches	Size DN	Connection Type	A Inches	A mm	B Inches	B mm	Cv	Kv	Weight lbs	Weight kg
<b>CV9404SW</b>	$\frac{1}{2}$ "	15	Socket Weld	2.7	67	2.7	68	5.0	4.3	1.9	0.9
<b>CV9406SW</b>	$\frac{3}{4}$ "	20		2.8	70	3.6	92	9.4	8.1	3.4	1.5
<b>CV9408SW</b>	1"	25		2.8	70	3.6	92	14.0	12.1	3.6	1.6
<b>CV9412SW</b>	$1\frac{1}{2}$ "	40		3.1	79	4.8	121	28.3	21.6	7.0	3.2
<b>CV9416SW</b>	2"	50		4.2	106	5.8	146	53.0	45.8	12.2	5.6
<b>CV9404BW</b>	$\frac{1}{2}$ "	15	Butt Weld	2.7	67	2.7	68	5.0	4.3	1.9	0.9
<b>CV9406BW</b>	$\frac{3}{4}$ "	20		2.8	70	3.6	92	9.4	8.1	3.4	1.5
<b>CV9408BW</b>	1"	25		2.8	70	3.6	92	14.0	12.1	3.6	1.6
<b>CV9412BW</b>	$1\frac{1}{2}$ "	40		3.1	79	4.8	121	28.3	21.6	7.0	3.2
<b>CV9416BW</b>	2"	50		4.2	106	5.8	146	53.0	45.8	12.2	5.6



**CV9416SW**

# Stainless Steel Swing Check Valve for Cryogenic Service

## 886 Series

### Application

The RegO Goddard 886 Series check valve is designed for handling of cryogenic liquids through bulk tanks, trucks, trailers, ISO-containers and piping configurations. Compatible with oxygen, nitrogen, CO<sub>2</sub> argon and LNG.



### Features

- Top Entry:** This bolted bonnet valve can be permanently installed in the line and services from the top
- Construction:** Designed to prevent back flow in cryogenic systems. Higher fluid capacity (C<sub>v</sub>) than poppet or lift check valves. 316L stainless steel investment cast body, cap and arm, according to ASME B16.34
- Sizes:** ½" through 4" (15mm through 100mm)
- Ends:** Socket weld and butt weld schedule 10 and 40
- Temperature Rating:** -320°F to 150°F (-196°C to +66°C)
- Cleaned for Oxygen Service per CGA G-4.1.
- Pressure Rating:** (Cold, Non-shock)
  - 400 psig (27 barg) ½" - 2"
  - 275 psig (19 barg) 150# ANSI Class 3" and 4"
  - 720 psig (50 barg) 300# ANSI Class 3" and 4"
- PED Approved
- Note: Do not use for reciprocating gas service**
- Our investment cast stainless steel is specified by leading industrial gas companies for storage tank and yard operations**
- Ideal for liquid atmospheric gases and LNG storage and handling**
- High cycle life and superior sealing**
- Valves for hydrogen service can be supplied (-425°F to +350°F) (-254°C to 176°C.)**
- Cracking Pressure:** 0.5 psig (0.03) barg



886 Series

### Ordering Information

#### 886

Stainless Steel Swing Check Valves  
Soft Seat

#### GRAFOIL® Gasket - Hydrogen Service - Socket Weld

Part Number	Valve Size		End Connection	Seat	Pressure Rating	Estimated C <sub>v</sub> (Kv)	Weight	
	Inches	mm					Lbs.	Kg
<b>S-886GF-4S</b>	½"	15 mm	Socket Weld	Soft	400 (27.5 barg)	4.50 (3.89)	3	1.36
<b>S-886GF-8S</b>	1"	25 mm				18.00 (15.57)	11	4.98
<b>S-886GF-12S</b>	1½"	40 mm				61.00 (52.76)	17	7.71

#### PTFE Gasket - Socket Weld

Part Number	Valve Size		End Connection	Seat	Pressure Rating	Estimated C <sub>v</sub> (Kv)	Weight	
	Inches	mm					Lbs.	Kg
<b>S-886-4S</b>	½"	15 mm	Socket Weld	Soft	400 (27.5 barg)	4.50 (3.89)	3	1.36
<b>S-886-8S</b>	1"	25 mm				18.00 (15.57)	11	4.98
<b>S-886-12S</b>	1½"	40 mm				61.00 (52.76)	17	7.71

# Stainless Steel Swing Check Valve for Cryogenic Service

## 886 Series

### PTFE Gasket - Butt weld

Part Number	Valve Size		End Connection	Seat	Butt Weld Schedule	Pressure Rating	Estimated Cv (Kv)	Weight	
	Inches	mm						Lbs.	Kg
S-886-4WA	1/2"	15 mm	Butt Weld	Soft	10	400 (27.5 barg)	4.50 (3.89)	3	1.36
S-886-8WA	1"	25 mm					18.00 (15.57)	11	4.98
S-886-12WA	1 1/2"	40 mm					61.00 (52.76)	17	7.71
S-886-16W3A	2"	50 mm				720 (50 barg)	99.00 (85.63)	47	21.31
S-886-24WA	3"	80 mm			40	275 (19 barg)	225.00 (194.62)	46	20.86
S-886-24WJ	3"	80 mm				720 (50 barg)	475.00 (410.87)	95	43.09
S-886-32W3J	4"	100 mm			10	275 (19 barg)			
S-886-32WA	4"	100 mm							

**886M**

Stainless Steel Swing Check Valves - Metal Seat

### PTFE Gasket - Socket Weld

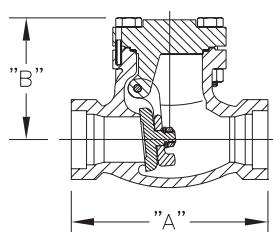
Part Number	Valve Size		End Connection	Seat	Pressure Rating	Estimated Cv (Kv)	Weight	
	Inches	mm					Lbs.	Kg
S-886M-4S3	1/2"	15 mm	Socket Weld	Metal	720 (50 barg)	4.50 (3.89)	3	1.36
S-886M-8S3	1"	25 mm				18.00 (15.57)	11	4.98
S-886M-12S3	1 1/2"	40 mm				61.00 (52.76)	17	7.71

### Butt Weld Ends

Part Number	Valve Size		End Connection	Seat	Butt Weld Schedule	Pressure Rating	Estimated Cv (Kv)	Weight	
	Inches	mm						Lbs.	Kg
S-886M-16W3A	2"	50 mm	Butt Weld	Metal	10	720 (50 barg)	99.00 (85.63)	17	7.71
S-886M-24W3J	3"	80 mm			40		225.00 (194.62)	46	20.86
S-886M-24W3A	3"	80 mm			10		275 (19 barg)	475.00 (410.87)	95
S-886M-32WA	4"	100 mm			40	720 (50 barg)			
S-886M-32W3J	4"	100 mm							

### Butt Weld Ends with GRAFOIL® Gasket for Hydrogen Service

Part Number	Valve Size		End Connection	Seat	Butt Weld Schedule	Pressure Rating	Estimated Cv (Kv)	Weight Lbs.	
	Inches	mm						Lbs.	Kg
S-886MGF-16W3A	2"	50 mm	Butt Weld	Metal	10	720 (50 barg)	99.00 (85.63)	17	7.71
S-886MGF-24W3A	3"	80 mm					225.00 (194.62)	46	20.86



**886**

Pressure Rating 300 psig (20 barg) Non-Shock Cold,  
Temperature Rating +150° F to -325° F (+65°C to -198°C)

Size		"A"		"B"	
inches	mm	inches	mm	inches	mm
1/2"	12.7	4 1/4"	107.95	2 1/2"	63.5
3/4"	19.05	5"	127	3 1/4"	82.55
1"	25.4	6 1/2"	165.1	4"	101.6
1 1/2"	38.1	8"	203.2	4 1/2"	107.95
2"	50.8				

**886M**

Service 300 Class 720 psig (50 barg) Non-Shock Cold,  
Temperature Rating +150° F to -325° F (+65°C to -198°C)

Size		"A"		"B"		Butt Weld End Schedule
inches	mm	inches	mm	inches	mm	
1 1/2"	38.1	6 1/2"	165.1	4"	101.6	10
2"	50.8	8"	203.2	4 1/2"	107.95	
3"	76.2	9 1/2"	241.3	5 3/4"	146.05	10 & 40
4"	101.6	11 1/2"	292.1	8 3/8"	212.85	
		14"	355.6			40

Size		"A"		"B"		End	End Dimension
inches	mm	inches	mm	inches	mm		
1/2"	12.7	2 7/16"	61.97	4 1/4"	107.69	Socket Weld	SCH 10
							1/2" Pipe Socket

# Inline Check Valves

## CG Series Gas and Cryogenic Check Valves

### Application

Inline check valves with metal seat option for cryogenic service or with soft seat option for leak free operation in gas service.



### Features

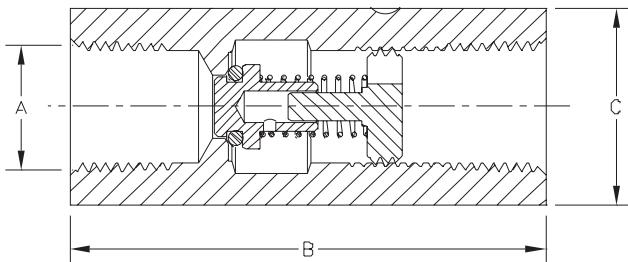
- One directional flow indicated by arrow on body
- Large Cv for high flow capability and low pressure drop
- Working temperature range:  
-320° F to +165° F (-195°C to +74°C) for metal seats  
-20° F to +165° F (-20°C to +74°C) for soft seats
- 1 psig opening pressure
- Cleaned for use in oxygen service per CGA G-4.1



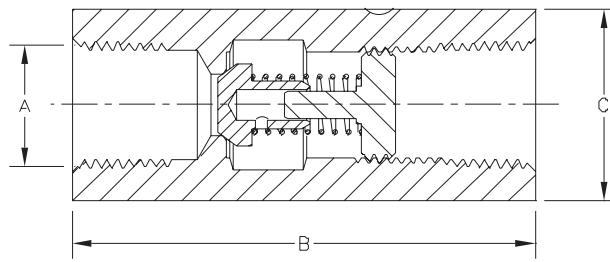
**CG Series**

### Materials

Body (B and BL suffix)	ASTM B16 Brass
Body (SS and SSL suffix)	203 Stainless Steel
Spring	Stainless Steel
Piston	Stainless Steel
O-Ring (soft seat option units only)	Viton
Metal Seat	303 Stainless Steel



**Soft Seat Option**



**Metal Seat Option**

### Ordering Information

Part Number	Seating Option	Inlet/Outlet Connections FNPT A	Length B		Wrenching Hex Size C		Cv (Kv)	Maximum Operating Pressure
			inches	mm	inches	mm		
<b>Stainless Steel Check Valves</b>								
<b>CG250SS</b>	Metal	1/4"	2 5/8"	60.45	13/16"	20.57	.87 (0.75)	5000 psig (345 barg)
<b>CG375SS</b>		5/8"	2 1/2"	63.50	1"	25.4	2.3 (1.98)	
<b>CG500SS</b>		1/2"	3"	76.20	1 1/8"	28.575	3.5 (3.02)	
<b>CG750SS</b>		3/4"	3 5/8"	92.20	1 1/2"	38.1	5.2 (4.49)	
<b>CG250SSL</b>	Soft	1/4"	2 5/8"	60.45	13/16"	20.57	.87 (0.75)	250 psig (17.2 barg)
<b>CG375SSL</b>		5/8"	2 1/2"	63.50	1"	25.4	2.3 (1.98)	
<b>CG500SSL</b>		1/2"	3"	76.20	1 1/8"	28.575	3.5 (3.02)	
<b>CG750SSL</b>		3/4"	3 5/8"	92.20	1 1/2"	38.1	5.2 (4.49)	
<b>Brass Body Check Valves</b>								
<b>CG250B</b>	Metal	1/4"	2 5/8"	60.45	13/16"	20.57	.87 (0.75)	3000 psig (207 barg)
<b>CG375B</b>		5/8"	2 1/2"	63.50	1"	25.4	2.3 (1.98)	
<b>CG500B</b>		1/2"	3"	76.20	1 1/8"	28.575	3.5 (3.02)	
<b>CG750B</b>		3/4"	3 5/8"	92.20	1 1/2"	38.1	5.2 (4.49)	
<b>CG250BL</b>	Soft	1/4"	2 5/8"	60.45	13/16"	20.57	.87 (0.75)	250 psig (17.2 barg)
<b>CG375BL</b>		5/8"	2 1/2"	63.50	1"	25.4	2.3 (1.98)	
<b>CG500BL</b>		1/2"	3"	76.20	1 1/8"	28.575	3.5 (3.02)	
<b>CG750BL</b>		3/4"	3 5/8"	92.20	1 1/2"	38.1	5.2 (4.49)	

# RegO® Check Valves

## NG304 Series



### Application

The NG304 series is specifically designed to prevent backflow (reverse flow) in applications of LNG fuel tanks and LNG facilities. These valves permit the safe refill operation of the LNG tanks and the maintenance process of the fill receptacle, ensure reliable performance at cryogenic temperatures.

### Features

#### NG304

- Maximum inlet pressure 1000 psig (69 barg)
- 100% factory tested
- Temperature Range: -320° F to 165°F (-196°C to 74°C)
- Designed in accordance with & approved by ECE R110

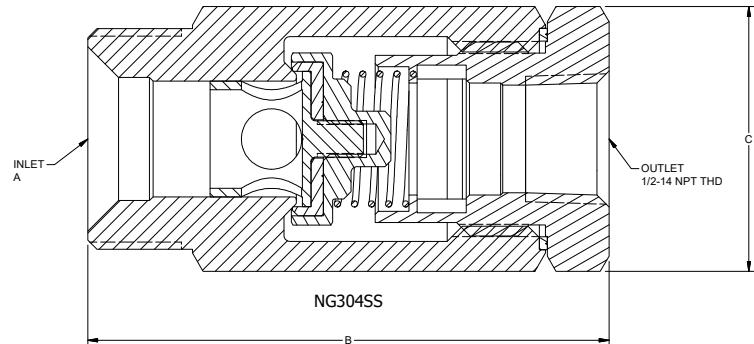
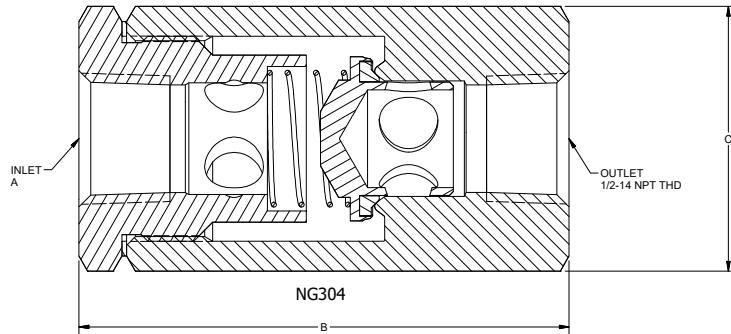
### Materials for NG304

Body .....	Brass ASTM B16 C36000
Spring .....	Stainless Steel 302 ASTM A313
Gasket .....	Copper ASTM B152 UNS C11000
Poppet .....	Brass ASTM B16 UNS C36000
Seat Disc .....	PTFE Virgin Teflon



### Materials NG304SS

Body .....	Stainless Steel 304 ASTM276
Spring .....	Stainless Steel 302 ASTM A313
Gasket .....	Copper ASTM B152 UNS C11000
Poppet .....	Brass 360 FC (UNS C36000 PER ASTM B16)
Seat Disc .....	UHMWPE (ASTM D4020)



### Ordering Information

Part Number	Body Material	Connection (A)	B		C		Weight Lbs		Silver Plated End Piece			
			Inches	mm	Inches	mm	Lbs	Kg				
<b>NG304</b>	Brass	Threaded FNPT F 1/2	3.135	80	1.5 (Hex)	38	1.25	0.6	N/A			
<b>NG304SSA</b>	Stainless Steel	M36x2 Male	3.346	85			1.10	0.5				
<b>NG304SSB</b>		M30x1.5 Male	2.953	75					Yes			
<b>NG304SSC</b>		1/2"-14 NPT Female										
<b>NG304SSAP</b>		M36x2 Male	3.346	85					Yes			
<b>NG304SSBP</b>		M30x1.5 Male										
<b>NG304SSCP</b>		1/2"-14 NPT Female	2.953	75								

# Heavy Duty Gas Line Regulator

## 1780 Series

### Application

The 1780 Series Regulators are designed for final line pressure regulation on gas distribution systems. They are suitable for a variety of gases in medical or industrial applications. The 1780 Series Regulators have a balanced seat, are constructed with oxygen compatible materials, and have the same valve design, brass body, and internal parts as the premium BR-1780 Series. Flow performance is equal to the BR-1780 Series. Compatible with oxygen, nitrogen, argon, hydrogen, helium, CO<sub>2</sub>, and LNG.



### Features

- Maintains a steady downstream pressure across a range of inlet pressures commonly provided by a cryogenic bulk tank
- Large seat and diaphragm areas provide high capacity with sensitive control of delivery pressure with low falloff
- Two 1/4" FNPT delivery pressure gauge ports are located (plugged) on each side of the valve
- Two bonnet drain/vent holes to allow for different mounting orientation
- T-handle adjusting screw
- Maximum inlet pressure is 500 psig (34.5 barg)
- Available in four delivery pressure ranges (A-D)
- Temperature range: -40° F to +165° F. (-40°C to +74°C)
- Cleaned per CGA G-4.1 for oxygen service
- 100% Factory Tested

### Materials

Body .....	Forged Brass
Bonnet .....	Nickel Plated Aluminum
Diaphragm .....	Nitrile with PTFE liner
Springs and Fasteners .....	Stainless Steel
Other valve parts .....	Brass
Seat Disc & O-Rings.....	Viton is standard

For Carbon Dioxide or Nitrous Oxide service: Specify EPDM material for seat disc and O-rings, add "E" to end of part number.

### Ordering Information

Part Number	Delivery Pressure Range	Pressure Gauge*		Inlet & Outlet (F.N.P.T.)		Dimensions								Cv (Kv)	
		Range (psig)	P/N			"A"		"B"		"C"		"D"			
				Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
1784A	5-55 psig (0.3-3.8 barg)	1-100	1286												
1784B	40-110 psig (2.8-7.6 barg)	1-200	S1679												
1784C	100-200 psig (6.9-13.8 barg)	1-400	15578												
1784D	175-300 psig (12.1-20.7 barg)														
1786A	5-55 psig (0.3-3.8 barg)	1-100	1286												
1786B	40-110 psig (2.8-7.6 barg)	1-200	S1679												
1786C	100-200 psig (6.9-13.8 barg)	1-400	15578												
1786D	175-275 psig (12.1-19.0 barg)														
1788A	5-55 psig (0.3-3.8 barg)	1-100	1286												
1788B	40-110 psig (2.8-7.6 barg)	1-200	S1679												
1788C	100-200 psig (6.9-13.8 barg)	1-400	15578												
1788D	175-275 psig (12.1-19.0 barg)														

\*Regulator sold without gauge. Order gauge separately.

# Heavy Duty Brass Final Line Pressure Regulator

## BR-1780 Series

### Application

BR-1780 Series Regulators are designed for final line pressure regulation on medical oxygen systems. They are equally suitable for a variety of gases in medical or industrial applications. The BR-1780 Series Regulators have a balanced seat, are constructed with oxygen compatible materials, and offer a tamper resistant adjustment screw cap. Flow performance is impressive as well offering up to 30,000 SCFH for the  $\frac{3}{4}$ " and 1" model and up to 20,000 SCFH for the  $\frac{1}{2}$ " model. Compatible with oxygen, nitrogen, argon, hydrogen, helium, CO<sub>2</sub>, and LNG.



### Features

- Maintains a steady downstream pressure across a range of inlet pressures commonly provided by a cryogenic bulk tank
- Large seat and diaphragm areas provide high capacity with sensitive control of delivery pressure with low falloff
- Two  $\frac{1}{4}$ " FNPT plugged delivery pressure gauge ports are located on each side of the valve
- Two bonnet drain/vent holes to allow for various mounting orientations
- Bonnet cap covering adjusting screw for tamper protection
- Maximum inlet pressure is 500 psig (34.5 barg)
- Available in four delivery pressure ranges. (A-D)
- Temperature range: -40° F to +165° F. (-40°C to +74°C)
- Cleaned per CGA G-4.1 for oxygen service
- 100% Factory Tested

### Materials

Body .....	Forged Brass
Bonnet .....	Forged brass
Diaphragm.....	Nitrile with PTFE liner
Springs, fasteners, and adjusting screw.....	Stainless Steel
Other valve parts .....	Brass
Seat Disc & O-Rings.....	Viton is standard



BR-1784



BR1786 and BR1788

Part Number	Delivery Pressure Range	Pressure Gauge*		Inlet & Outlet (F.N.P.T.)		Dimensions								Cv (Kv)	
		Range (psig)	P/N	inches	mm	"A"		"B"		"C"		"D"			
						inches	mm	inches	mm	inches	mm	inches	mm		
BR-1784A	5-55 psig (0.3-3.8 barg)	1-100	1286											3.1 (2.68)	
BR-1784B	40-110 psig (2.8-7.6 barg)	1-200	S1679												
BR-1784C	100-200 psig (6.9-13.8 barg)														
BR-1784D	175-300 psig (12.1-20.7 barg)	1-400	15578												
BR-1786A	5-55 psig (0.3-3.8 barg)	1-100	1286												
BR-1786B	40-110 psig (2.8-7.6 barg)	1-200	S1679											4.8 (4.15)	
BR-1786C	100-200 psig (6.9-13.8 barg)														
BR-1786D	175-275 psig (12.1-19.0 barg)	1-400	15578												
BR-1788A	5-55 psig (0.3-3.8 barg)	1-100	1286												
BR-1788B	40-110 psig (2.8-7.6 barg)	1-200	S1679												
BR-1788C	100-200 psig (6.9-13.8 barg)													5.5 (4.75)	
BR-1788D	175-275 psig (12.1-19.0 barg)	1-400	15578												

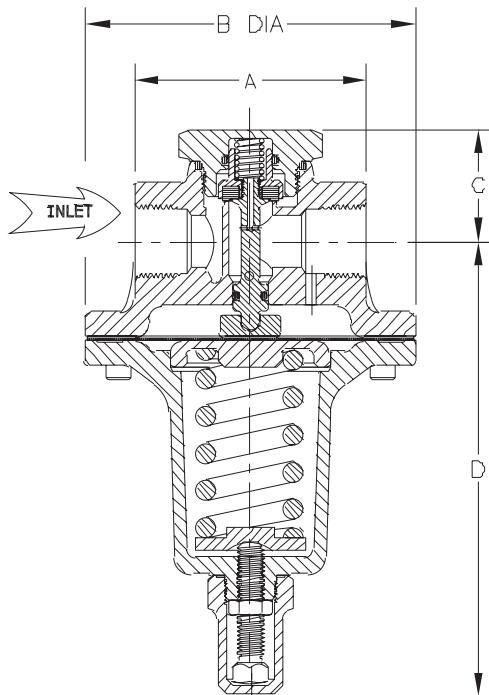
\*Regulator sold without gauge. Order gauge separately.

# Heavy Duty Brass Final Line Pressure Regulator BR-1780 Series

## Flow Performance

See the RegO Flow Performance Curves section of the catalog for more detailed flow curves.

For Carbon Dioxide or Nitrous Oxide Service, add "E" to end of part number.



## Maintenance and Options Kits

Regulator Models	BR1784	BR1786	BR1788
Repair Kit Part Number	BR-1784-80	BR-1786-80	BR-1788-80
Spring Kit Part Numbers:			
"A" spring 5 –55 psig (.34-3.79 barg)	BR-1784-7SKA	BR-1786-7SKA	BR-1788-7SKA
"B" spring 40-110 psig (2.75-7.58 barg)	BR-1784-7SKB	BR-1786-7SKB	BR-1788-7SKB
"C" spring 100-200 psig (6.89-13.78 (barg)	BR-1784-7SKC	BR-1786-7SKC	BR-1788-7SKC
"D" spring 175-275 psig (12-19 barg) 300 psig (20 barg) for 1784	BR1784-7SKD	BR-1786-7SKD	BR-1788-7SKD
T-Handle Screw Option Kit	BR-1784ST	BR-1786ST	BR-1788ST

# Aluminum Pressure Regulators

## 1682M Series & C-1682M Series

### Application

The 1682M Series Regulators are designed primarily for second stage regulation of a variety of gases in industrial and hospital piping systems and manifolds. The C-1682M Series is specifically designed for use with Carbon Dioxide.

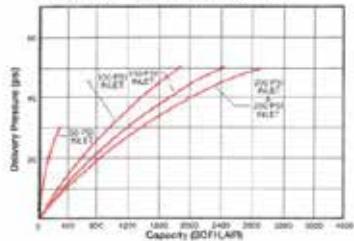
### Features

- Maximum inlet pressure is 400 psig (28 barg)
- Two 1/4" F.NPT gauge ports are located 180° apart to allow for gauge mounting in convenient positions
- Each 1680M Series regulator is cleaned and packaged for oxygen per CGA G-4.1
- 100% Factory Tested
- T-handle adjusting screw
- Available in three delivery pressure ranges
- Temperature Range: -40° F to +165°F (-40°C to +74°C)

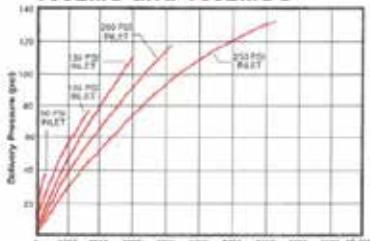
### Materials

Body .....	Forged Aluminum
Bonnet.....	Aluminum
Seat Disc (1682M).....	Neoprene
Seat Disc (C-1682M).....	EPDM
Diaphragm (1682M).....	Neoprene
Diaphragm (C-1682M).....	EPDM

### 1682ML and 1682MLG



### 1682MS and 1682MSG



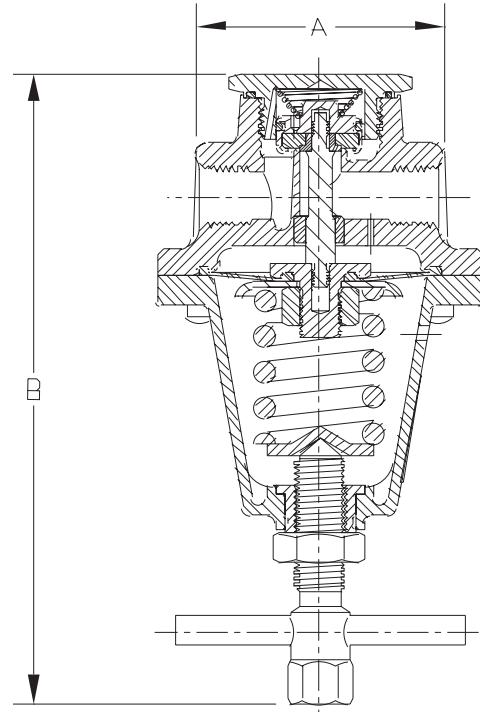
### Ordering Information

Part Number		Delivery Pressure Range (psig)	Pressure Gauge		Inlet & Outlet Connection (F.NPT)		Width A		Maximum Height B	
Range psig (barg)	Part Number		Inches	mm	Inches	mm	Inches	mm	Inches	mm
1682ML	C-1682ML	5-50 psig (0.3-3.4 barg)	*	*	1/4"	6	23/16"	56	4 1/8"	105
1682MLG	C-1682MLG		1-100 (6.89)	1286						
1682M	C-1682M	50-125 psig (3.4-8.6 barg)	*	*	1/4"	6	23/16"	56	4 1/8"	105
1682MG	C-1682MG		1-200 (13.78)	S1679						
1682MS	C-1682MS	100-250 psig (6.9-17.2 barg)	*	*	1/4"	6	23/16"	56	4 1/8"	105
1682MSG	C-1682MSG		1-400 (27.57)	15578						

\* Pressure gauge not included.



**C-1682M**



# Automatic Changeover Regulators

## M2523HP Series

### Application

M2523HP series automatic changeover regulators are designed especially for use in systems where a reserve cylinder is used to provide a continuous, uninterrupted supply of gas. These regulators are suitable for use with carbon dioxide, hydrogen, oxygen, industrial air, nitrous oxide, nitrogen, helium and argon.

### Features

- Automatically withdraws from the reserve cylinder after exhausting the "service" cylinder
- Cylinder pressure gauges let you know at a glance the contents of each cylinder is in use. There is no need to shutdown the system to replace empty cylinders
- Nickel plated
- 100% Factory Tested
- Cleaned per CGA G-4.1 for oxygen service
- Porous bronze filters are installed in each inlet to minimize the entry of foreign particles
- Back pressure check valves are installed in each inlet to help assure positive shut-off in case of reverse flow
- Each unit comes complete with mounting bracket and a special delivery pressure adjustment wrench
- Factory set at 50 psig (3.44 barg) on service side. CO<sub>2</sub> and N<sub>2</sub>O regulators are factory set at 100 psig (6.89 barg) on service side

### Conversion Table

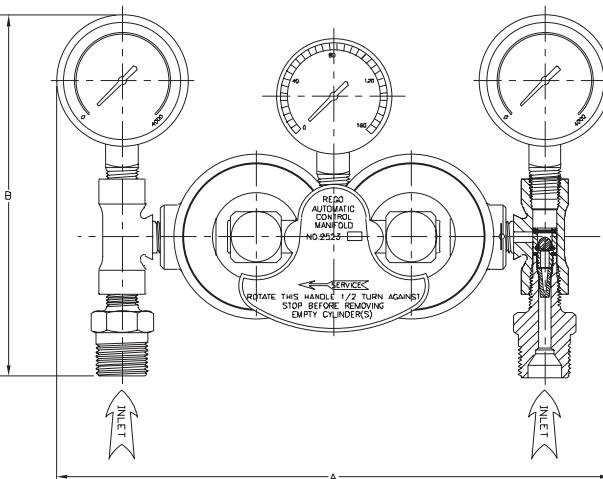
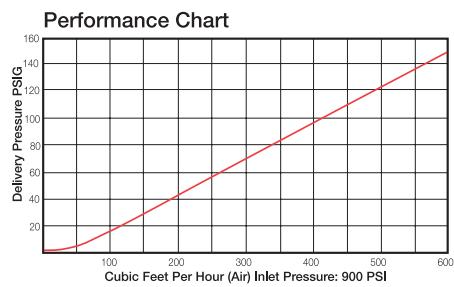
Source	Multiply
Carbon Dioxide	.81
Nitrogen	1.02
Nitrous Oxide	.81
Argon	.85
Oxygen	.95
Helium	2.69
Hydrogen	3.79



**M2523HP Series**

### Materials

Body .....	Brass
Bonnet .....	Brass
Seat Disc (all gases except CO <sub>2</sub> ) .....	Viton
Seat Disc (CO <sub>2</sub> Only).....	Butyl Rubber
Diaphragm (all gases except CO <sub>2</sub> ) .....	Neoprene
Diaphragm (CO <sub>2</sub> Only) .....	Buna N
Handle .....	Aluminum
Bonnet Spring.....	Steel
Backcap Spring .....	Stainless Steel



### Ordering Information

Part Number	Gas Service	CGA Inlet Connection	Outlet Connection		Width A		Height B		Maximum Inlet Pressure	Delivery Pressure Range	Accessory Regulators
			Inches	mm	Inches	mm	Inches	mm			
<b>M2523HP320</b>	Carbon Dioxide	320	1/4" F.NPT	6	7 1/4"	196	5 1/8"	130	1800 psig (124.2 barg)	30-130 psig (2.1-8.9 barg)	BR-1784E, 1784E C-1682 M Series
<b>M2523HP326</b>	Nitrous Oxide	326									
<b>M2523HP350</b>	Hydrogen	350									
<b>M2523HP540</b>	Oxygen	540							3000 psig (202 barg)	1784 Series 1682 M Series BR 1784 Series	
<b>M2523HP580</b>	Nitrogen, Argon, Helium	580									
<b>M2523HP590</b>	Industrial Air	590									

# Low Pressure Line Regulators

## 4403 Series

### Application

The 4403 series regulators provide very sensitive control of a variety of gases at low pressures. The large molded diaphragm assures responsive regulation with inlet pressures up to 250 psig.



### Features

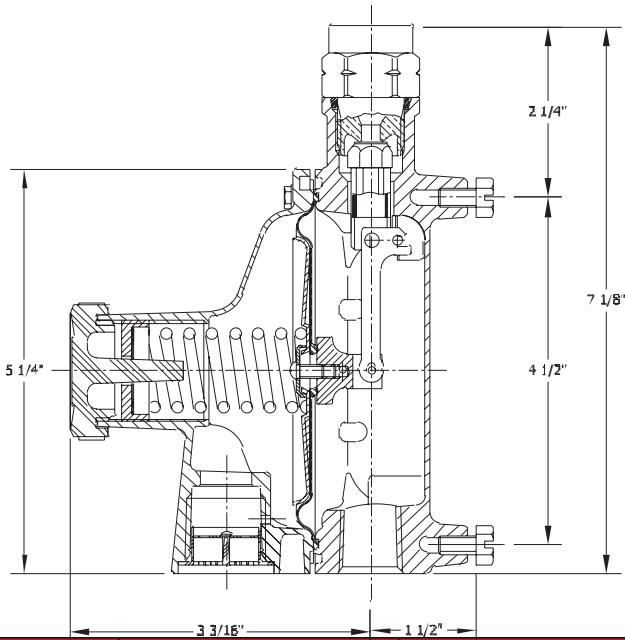
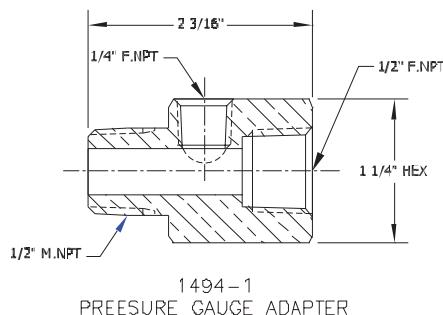
- Large molded diaphragm provides highly sensitive and accurate low pressure control
- Zinc body and bonnet resist corrosion and provide longer life
- Teflon seat disc, teflon faced diaphragms, and stainless steel nozzles make the T4403J regulators compatible with a variety of gases
- LV4403C2H42 features integral relief valve set at 3 psig (0.2 barg)
- Adjusting screw is concealed by a plastic cap which helps prevent pressure adjustments by unauthorized personnel
- Pressure gauge adapter available part # 1494-1
- Working temperature range is -40°F to +165°F. (-40°C to +74°C)
- Not suitable for oxygen applications



**LV4403C2H42**

### Materials

Body .....	Zinc
Bonnet .....	Zinc
Diaphragm .....	T4403J, 4403W, S4, T4, U4 Teflon Faced Buna N 4403WP4, R4.....
(LV4403C).....	Buna N Integrated Fabric and Synthetic Rubber
Spring .....	Steel
Seat (T4403J).....	PTFE
(4403W) (LV4403C).....	Buna N
Nozzle (T4403J).....	Stainless Steel
(4403W, LV4403C).....	Brass



### Ordering Information

Part Number	Inlet Connection		Outlet Connection		Factory Delivery Pressure*	Delivery Adjustment Range	Relief Setting
	Inches	mm	Inches	mm			
<b>4403W-P4</b>	1/2" F.N.P.T.	13	1/2" F.N.P.T.	13	5" w.c.	3.5 - 6" w.c.	None
<b>4403W-R4</b>					25" w.c.	15 - 28" w.c.	
<b>4403W-S4</b>					5 psig (0.34 barg)	1-5 psig (0.07-0.34 barg)	
<b>4403W-T4</b>					10 psig (0.69 barg)	5-10 psig (0.34-0.69 barg)	
<b>4403W-U4</b>					15 psig (1.03 barg)	10-15 psig (0.69-1.03 barg)	
<b>LV4403C2H42</b>					1.5 psig (0.1 barg)	1.5 psig (0.1 barg)	3 psig (0.21 barg) ± 20%
<b>T4403JS2</b>	1/2" F.N.P.T.	6	1/2" F.N.P.T.	13	5 psig (0.34 barg)	1-5 psig (0.07-0.34 barg)	None
<b>T4403JT2</b>					10 psig (0.69 barg)	5-10 psig (0.34-0.69 barg)	

\* Based on 50 psig inlet pressure. LV4403C2H42 based on 100 psig inlet pressure.

# Inertrol Outfits

## 4286 Series, 4289 Series & 4291 Series

### Application

The 4286, 4289, and 4291 series Inertrol outfits are three stage nitrogen regulators especially designed to maintain oil filled transformer atmospheres at 0.5 psig (.03 barg). Each Inertrol outfit consists of a two-stage regulator connected in series to a highly sensitive single-stage regulator which maintains the 0.5 psig (.03 barg) pressure. A built-in pressure relief valve in the third stage regulator helps protect against over-pressurization of the system. Inertrol units are designed for oil-filled transformers manufactured by ABB, Inc., General Electric, and Cooper Power. Some outfits are equipped with an alarm switch that activates a customer equipped warning device should the cylinder pressure drop below 300 psig (20 barg).



### Features

- Heavy duty brass and aluminum construction resists corrosion and provides for longer life
- The 4289 series incorporates a special by-pass valve to allow for quick filling of the transformer
- Hidden pressure adjusting screw helps protect against tampering by unauthorized personnel
- Large diameter diaphragm in the third-stage regulator provides for sensitive and precise control of the gas flow
- Maximum inlet pressure - 3000 psig (206 barg)

### Materials

#### Two-Stage Regulator:

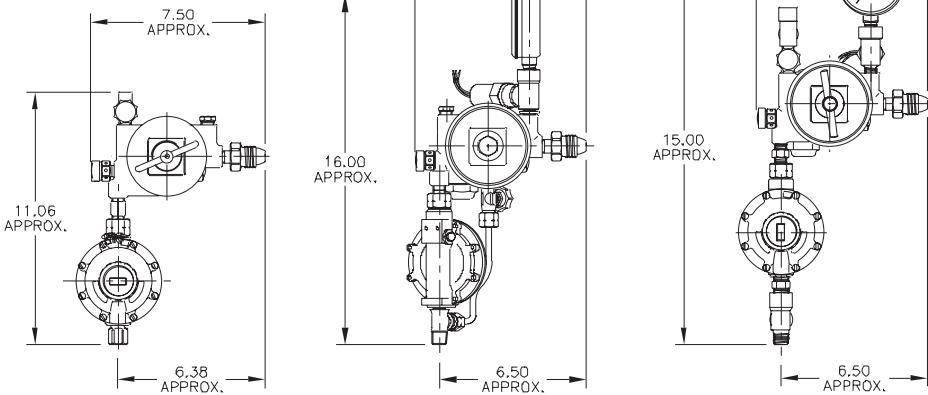
Body .....	Brass
Bonnet .....	Brass
Diaphragms .....	Synthetic Rubber
1st Stage Seat Disc.....	Nylon
2nd Stage Seat Disc.....	Neoprene

#### Third-Stage Regulator:

Body .....	Zinc
Bonnet .....	Zinc
Diaphragm.....	Buna N
Seat Disc .....	Buna N



**Inertrol Outfit**



### Ordering Information

4286A580

4289 Series

4291A

Part Number	Gas Service	Inlet	Outlet		Two Stage Regulator Part number	Third Stage Regulator Part Number	Alarm Gauge	Transformer Manufacturer
			Inches	mm				
4286A580	Nitrogen	CGA580	1/8" NPT	3	4286A-2NW	LV4286-10-8	None	ABB, Inc.
4289AG			9/16" -18 L.H.	14	4289A-2G	LV4289-10	4285-9B	General Electric
4289G							None	
4291A			3/8" NPT	.9	4291B-2P	LV4286-10-8	4285-9B	Cooper Power

# High Pressure Gas Regulator 4200 Series



## Application

4200 Series high-pressure regulators are designed especially for use in high-pressure cylinders and are used to provide the supply of gas. These regulators are suitable for use with industrial air, nitrogen, helium, and argon.

## Features

- Cylinder pressure gauges let you know at a glance whether the contents of the cylinder is in use and the supply pressure
- Temperature rating: -40° F to +165°F (-40°C to +74°C)
- MAWP: 3000 psig (206 barg)
- Cleaned and packaged for oxygen service per CGA G-4.1
- Pressure relief valve incorporate or protection of the low pressure system
- 100% factory tested. Each valve is individually bagged and boxed to arrive in factory new condition until installation

## Materials

Body .....	Brass
Bonnet .....	Brass
Seat Disc .....	Neoprene
Diaphragm .....	Nitrile
Bonnet Spring.....	Stainless Steel
Blackcap Spring.....	Stainless Steel



**4291B-2P with 5563 & 15578**

## Ordering Information

New Part Numbers	Adjustment Screw Cap	Inlet Pressure	Inlet Connection	Outlet Connection	Inlet Pressure Gauge	Outlet Pressure Gauge	Gas Use
<b>4291B-2P</b>	No	3000 psig (206 barg)	CGA 580	1/4" FNPT	5563	15578	Nitrogen, Argon, Helium, CO <sub>2</sub> /Argon mixture.
<b>4289A-2GP</b>	Yes						

\* Pressure gauges sold separately.

## Low Pressure Regulators LV4286-10 Series & LV4289-10 Series

### Application

The LV4286 and LV4289 series Inertrol third-stage low pressure regulators are designed especially for secondary regulation of gaseous nitrogen on electrical transformer systems.

Factory preset at 14" to 15" water column delivery pressure with an inlet pressure of 5 to 10 psig.

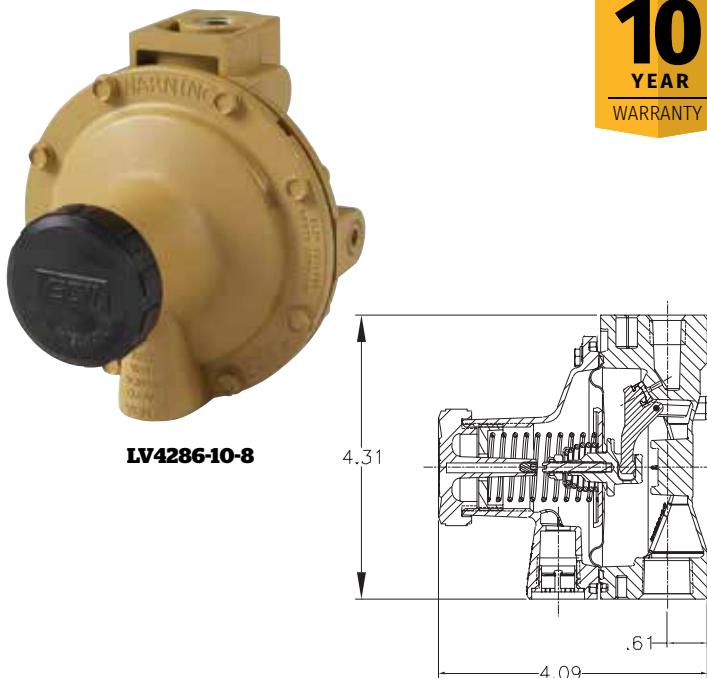


### Features

- Large diaphragm allows for highly sensitive and accurate low pressure control
- Incorporates integral relief valves (except on LV4289-10)
- Zinc body and bonnet resist corrosion and provide longer life
- Adjusting screw is concealed by a cap to help prevent against tampering by unauthorized personnel
- Operating temperature range is -40°F to +160°F (-40°C to +71°C)

### Materials

Body .....	Zinc
Bonnet .....	Zinc
Diaphragm.....	Buna N
Seat Disc.....	Buna N
Spring .....	Steel



### Ordering Information

Part Number	Inlet (NPT)	Outlet (NPT)	Delivery Pressure Setting	Relief Valve Setting
LV4286-10-5	1/4"	1/2"	14"-15" w. c.	5 psig (.34 barg)
LV4286-10-8				8 psig (.55 barg)
LV4289-10				None

## Alarm Gauges 4285-9B

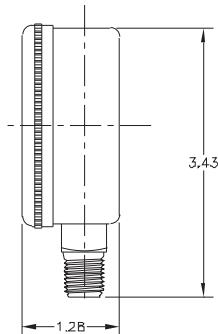
### Application

The 4285-9B inertrol alarm gauges are designed to alert the user when pressure has fluctuated  $\pm 90$  psig (6.2 barg) from the 300 psig (20 barg) factory setting. Under these conditions, electrical contacts in the switch will close and set off a user-furnished alarm system.



### Features

- Solid brass gauge casing resists corrosion and provides for longer life
- Equipped with a heavy-duty, 36" long, 3-wire electrical cable
- Each gauge is factory pre-set at 300 psig (20 barg), then sealed to help prevent against tampering once in service
- Electrical circuit is rated for a maximum of 3 AMPS at 460 volts AC



### Materials

Gauge Case .....	Brass
------------------	-------

### Ordering Information

Part Number	Inlet MNPT	Diameter		Pressure Range psig	Adjustable	Alarm Furnished
		Inches	mm			
4285-9B	1/4"	2 1/2"	63.5	0 - 4000 (0 - 275 barg)	No	None

# High Pressure Gas Master Valves

## HP9560 Series

### Application

The HP9560 Series high pressure brass valves are used on cylinder filling panels, tube trailers, and high pressure manifolds and piping systems. The HP9560 Series exhibits a very low operating torque under pressure for ease of manual operation.

### Features

- 5600 psig (386 barg) maximum working pressure
- Non-rising stem design with O-Ring Seal for durable service
- Large brass handwheel for easy low torque operation under pressure
- All valves cleaned for use in oxygen per CGA G-4.1
- Temperature range -40°F to +165°F(-40°C to +74°C)
- 100% Factory Tested



**STANDARD BONNET VALVE**



**PANEL MOUNT VALVE**

### Materials

Body, bonnet, stem, and seat retainer, stem seal retaining rings and washer .....	Brass
Stem O-ring .....	Viton
Thrust bearing .....	PCTFE

### Soft Seat Option

The soft seat valves use a PCTFE seat disc in the seat retainer to create a "bubble-tight" seal against a machined seat surface on the brass body. Valve Cv is 2.6. The soft seat option is especially useful for small molecule gases like hydrogen and helium, but can be used for a variety of non-corrosive industrial gases including argon, nitrogen, carbon dioxide, nitrous oxide, and acetylene.

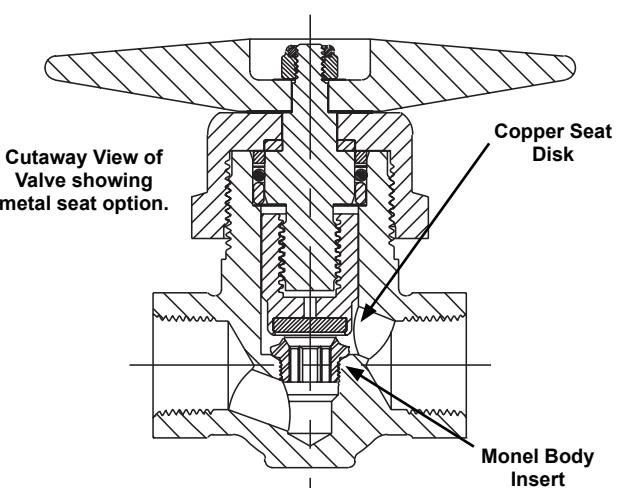
### Metal Seat Option:

A copper seat disc is used in the seat retainer to create a seal against a Monel body seat, which is installed into the body and can be replaced. Valve Cv is 2.3. The metal seat option minimizes the possibility of seat decomposition or ignition in oxygen service under adiabatic compression. The metal seat option is recommended for oxygen, and can also be used for other non-corrosive industrial gases. The metal seat option is not to be used for acetylene due to the copper seat. Not to be applied in hydrogen or helium service or where a "bubble-tight" seal is essential. (Note: C in part number)

**Nylon seat option:** available also (ex. HP9560NB).

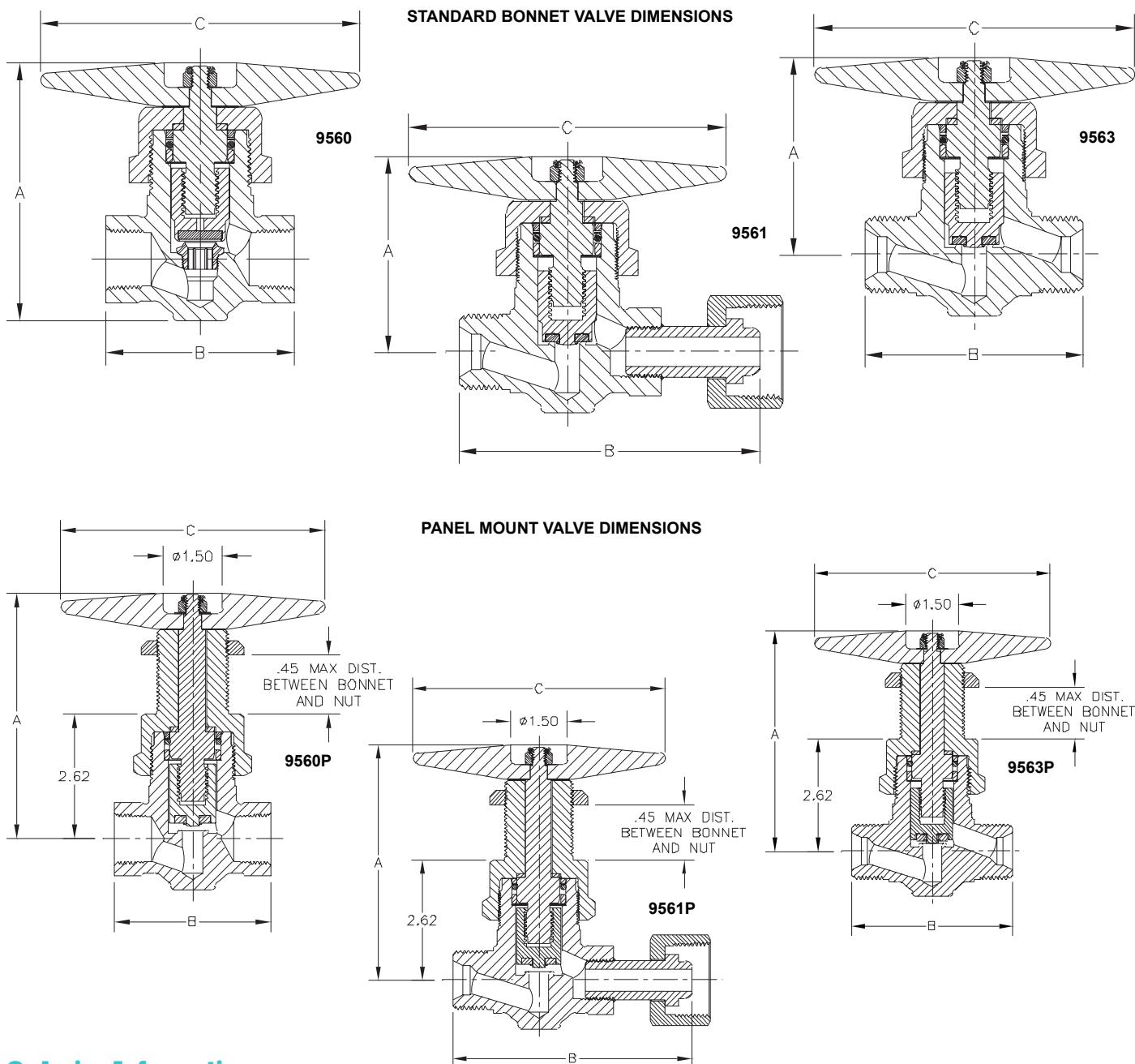
### Bonnet Versions

- Standard Bonnet for low profile.
- Panel Mount Bonnet for ease of panel installation. Includes threaded bonnet and nickel plated brass mounting nut. Metal Seat Option 1.625" diameter panel hole required for mounting. (Note: P in part number)



# High Pressure Gas Master Valves

## HP9560 Series



### Ordering Information

Part Number		Inlet Connection	Outlet Connection	Height A		Length B		Handwheel Length C	
Soft Seat	Metal Seat			Inches	mm	Inches	mm	Inches	mm
HP9560A	HP9560CA	.5" F. NPT	.5" F. NPT	4.36" *[6.19" for panel mount version]	111 *[157 mm for panel mount version]	3.25"	82	5.5"	140
HP9560B	HP9560CB	3/4" F. NPT	3/4" F. NPT			5.27"	134		
HP9561R	HP9561CR	1"-11½" NPSM R.H.	1"-11½" R.H. Female Swivel			3.79"	96		
HP9561RL	HP9561CRL	1"-11½" NPSM R.H.	1"-11½" NPS L.H. Female Swivel			3.25"	82		
HP9561L	HP9561CL	1"-11½" NPSM L.H.	1"-11½" L.H. Female Swivel			5.27"	134		
HP9563R	HP9563CR	1"-11½" NPSM R.H.	1"-11½" NPSM R.H.			3.79"	96		
HP9563L	HP9563CL	1"-11½" NPSM L.H.	1"-11½" NPSM L.H.			3.25"	82		
HP9560ASE	HP9560CASE	.843 - .847	.843 - .847						
HP9560BSE	HP9560CBSE	1.053 - 1.057	1.053 - 1.057						
HP9560BSE-B	HP9560CBSE-B	1.053 - 1.057	3/4" F. NPT						

Note: Place "P" at end of part number for panel mount version.

Nylon seat option is also available (ex: HP9560NBP)

For different handwheel size consult factory.

# Line Station Valves 7160 Series

## Application

7160 series valves are designed for use with oxygen and all fuel gases at station outlets of line distribution systems such as welder's benches, cutting stations, hospital rooms, etc.

## Features

- UL Listed Approved for oxygen and all fuel gas services at 400 psig (28 barg) maximum working pressure
- All valves cleaned for use in oxygen per CGA G-4.1
- O-ring stem seal works with the pressure causing a tighter seal as pressure increases
- A reverse flow check valve installed in the valve outlet connection helps prevent reverse flow
- Available with brass cap and chain protection
- Meets the requirements of National Fire Protection Association (NFPA) Pamphlet No. 51
- Temperature range -40° F to +165° F (-40°C to +74°C)

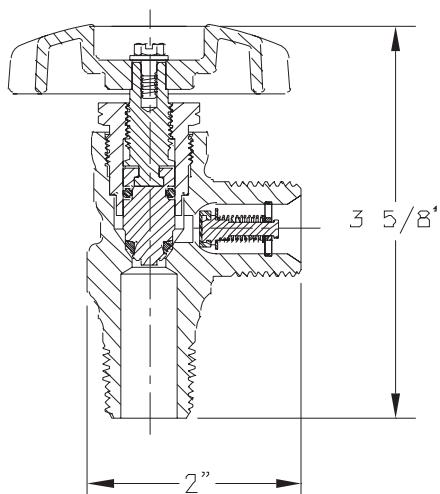
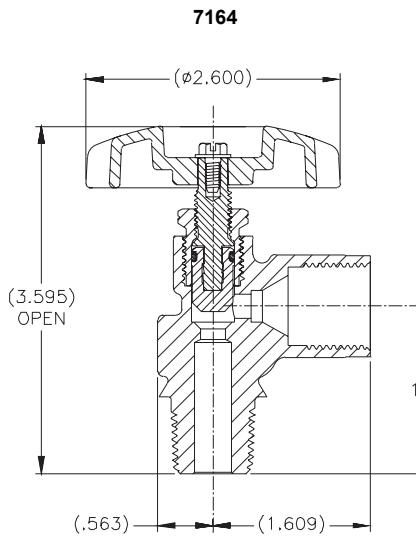


**7160 Series**

## Materials

Body .....	Brass
Stem and Seat Retainer .....	Brass
O-ring.....	Neoprene
Seat Disc .....	Nylon
Reverse Flow Check Seat .....	Neoprene

**7160 and 7161 Series**



## Ordering Information

Part Number	Gas Service	Inlet Thread	Outlet Thread	CGA Connection	C <sub>v</sub> (Kv)	Outlet Protection*	
<b>7160V</b>	Oxygen and Inert Gases	$\frac{1}{2}$ " NGT	$\frac{7}{8}$ " - 14 M. R.H.	024	.76 (0.65)	10663 Brass Cap & Chain	
<b>7160VL</b>			$\frac{7}{8}$ " - 14 M. L.H.			None	
<b>7161V</b>	Fuel Gases		$\frac{7}{8}$ " - 14 M. L.H.	025		10664 Brass Cap & Chain	
<b>7161VL</b>			$\frac{7}{8}$ " - 14 F. R.H.	034		None	
<b>7164</b>	Inert Gases	$\frac{1}{2}$ " NPT	$\frac{7}{8}$ " - 14 F. R.H.				

\*Outlet Protection is recommended.

## Pressure Gauges

### Application

Gauges are available in a variety of popular pressure ranges for gas plant applications.

Gauges should be selected so that the maximum working pressure of the particular system represents 66% to 75% of the maximum gauge reading. Greater safety and accuracy may be realized by following these guidelines.



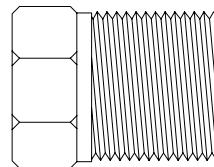
**15578**

### Ordering Information

Part Number	Maximum Calibration (psig)	Size	M. NPT	Increment Division (psig)	Case Material
<b>1286</b>	100 psig (6.89 barg)	2"	1/4"	2 psig (0.14 barg)	Steel
<b>2523HP-7</b>	160 psig (11.03 barg)		1/8"	5 psig (0.34 barg)	
<b>S1679</b>	200 psig (13.79 barg)		1/4"	10 psig (0.69 barg)	
<b>15578</b>	400 psig (27.58 barg)			50 psig (3.45 barg)	Brass
<b>5562C</b>	4000 psig (275.8 barg)				Steel

## Brass Plugs

(for pressures to 3000 psig)  
Safety factor = 5:1

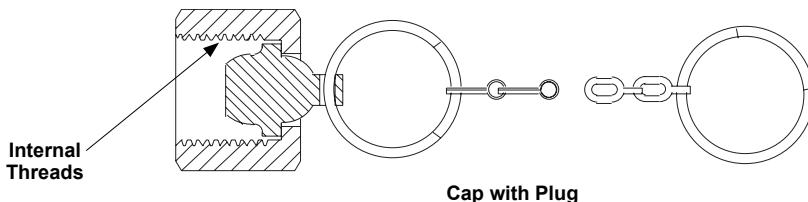


**Typical Plug**

### Ordering Information

Part Number	Thread Connection	Hex Flats
<b>985B</b>	1/4" NPT	9/16"
<b>985D</b>	1/2" NPT	7/8"
<b>985E</b>	3/4" NPT	1 1/8"
<b>985F</b>	1" NPT	1 3/8"

## Brass Outlet Cap and Chain Assemblies



**Cap with Plug**

### Ordering Information

Part Number	Thread Connection	End Ring Fits Pipe
<b>10663</b>	7/8"-14NF-RH	1/2"
<b>10664</b>	7/8"-14NF-LH	1/2"

# Needle Valves

## CMM250 Series and CFF250 Series

### Application

Ideal for use as a gauge isolation valve or applications requiring accurate throttling of pressure or in bulk vessel gauging lines.

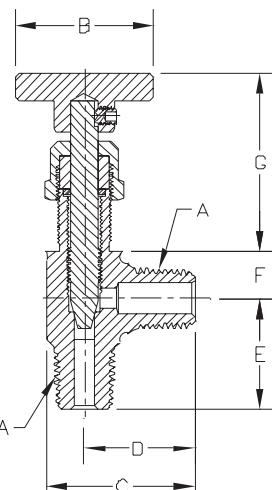
### Features

- Compact design provides easy installation
- Fine stem threading and long taper allow precise metering and leak-free shut-off
- Internal stop prevents the stem from being accidentally unscrewed from the body
- Rugged forged brass bodies withstand higher pressures
- Unbreakable brass handwheel
- Valves come equipped for panel mounting
- Working temperature range is -40°F to +165°F (-40°C to +74°C)
- Maximum operating pressure: 2000 psig air (137.9 barg)
- Cleaned for oxygen service per CGA G-4.1
- Female ports available - consult factory

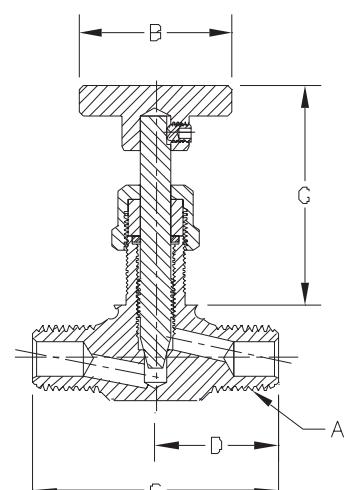


**CMM250A**

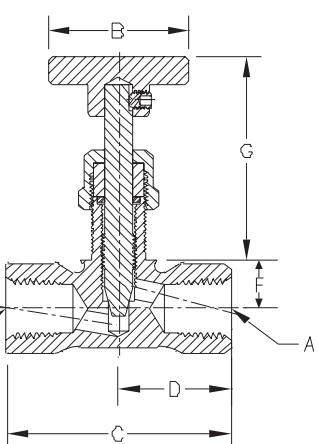
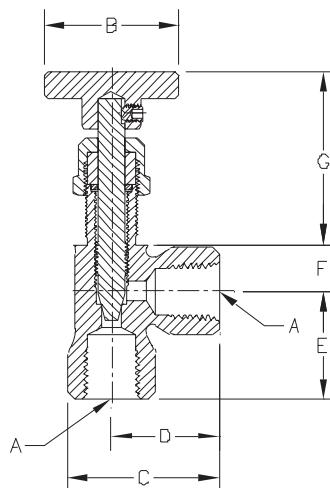
**CMM250G**



**CFF250A**



**CFF250G**



### Materials

Body .....	ASTM B283 Brass
Stem .....	Brass
Knob .....	Brass
Bonnet Nut.....	Brass
Panel Mount Nut (Optional).....	Brass
Set Screw .....	Steel
Stem Packing .....	PTFE with Brass Gland

### Ordering Information

Part Number	A (NPT)		B		C		D		E		F		G Open		G Closed		Cv (Kv)
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
<b>CMM250A</b>	1/4	6	1 1/4	32	1 11/32	35	1	25	1	25	7/16	11	25/32	29	1 19/32	40	.7 (0.60)
<b>CMM250G</b>					2	51			-	-			2 3/8	60	1 13/16	46	.5 (0.43)
<b>CFF250A</b>					1 13/32	36			1	25			25/32	55	1 19/32	40	.7 (0.60)
<b>CFF250G</b>					2	51			-	-			2 3/8	60	1 13/16	46	.5 (0.43)