High Pressure Gas Master Valves

9560 Series

**Application**
The 9560 Series high pressure brass valves are used on cylinder filling panels, tube trailers, and other high pressure manifolds and piping systems. The 9560 Series exhibits a very low operating torque under pressure for ease of manual operation.

**Features**
- 4200 psig maximum working pressure with a 5 to 1 safety factor.
- 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.

**Materials**
- Body, bonnet, stem, and seat retainer, stem seal retaining rings and washer: Brass
- Stem O-Ring: Viton
- Handwheel washer: PTFE

**Soft Seat Option**
The soft seat valves use a CTFE 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 oxygen, 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)

**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

9560 Series

STANDARD BONNET VALVE DIMENSIONS

PANEL MOUNT VALVE DIMENSIONS

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Connection</th>
<th>Outlet Connection</th>
<th>Height A</th>
<th>Width B</th>
<th>Handwheel Width C</th>
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<td>Metal Seat</td>
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<tr>
<td>9560A</td>
<td>9560CA</td>
<td>½&quot; F. NPT</td>
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<td>3.25&quot;</td>
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<td>9560B</td>
<td>9560CB</td>
<td>¾&quot; F. NPT</td>
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<tr>
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<td>9561CR</td>
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<td>9563CR</td>
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<td>9563CL</td>
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<td>9560CASE</td>
<td>.843 -.847</td>
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<tr>
<td>9560BSE</td>
<td>9560CBSE</td>
<td>1.053 - 1.057</td>
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<td>9560CBSE-B</td>
<td>1.053 - 1.057</td>
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</table>

*Place "P" at end of part number for panel mount version. 1.625" diameter panel hole required for mounting.
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 air, acetylene, hydrogen, LP-Gas, nitrogen, 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.
- Maximum working pressure is 250 PSIG.
- Working temperature range is -40°F to +165°F.

Materials
Body (2553 series) .............................................Forged Brass
(2554 series)..............................Cast Bronze, Tin Plated
Handwheel ..............................................................Aluminum
Seat Disc ..............................................................Filled Teflon
Diaphragm...............................................................Neoprene
Bonnet...........................................................................Brass
Stem.........................................................Manganese Bronze

Ordering Information

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<thead>
<tr>
<th>Part Number</th>
<th>Inlet / Outlet Thread (Female NPT)</th>
<th>Port Diameter B</th>
<th>Height C</th>
<th>Length D</th>
<th>Cv Factor</th>
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<td>1/8&quot;</td>
<td>3/4&quot;</td>
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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 allows the diaphragm assembly to be repaired while the valve remains in service.
- Maximum working pressure is 400 PSIG.
- Working temperature range is -40°F to +165°F.

Materials
Body ..................................................Cast Bronze, Tin Plated
Bonnet ........................................................Brass
Stem .........................................................Manganese Bronze
Seat Disc ........................................................Neoprene
Diaphragm ..................................................Neoprene

Ordering Information

<table>
<thead>
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<td>1¼”</td>
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<td>1⅜”</td>
<td>6¼”</td>
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<td>2⅜”</td>
<td>7¼”</td>
<td>6½”</td>
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**Line Station Valves**

**7160 Series**

Application
The 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 maximum working pressure.
- 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.

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

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Gas Service</th>
<th>Inlet Thread</th>
<th>Outlet Thread</th>
<th>CGA Connection</th>
<th>Cv Factor</th>
<th>Outlet Protection</th>
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<tr>
<td>7160V</td>
<td>Oxygen and Inert Gases</td>
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*Outlet protection is recommended.*

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**Nitrogen Cylinder Valves**

**CW6900 Series**

Application
The CW6900 series valves incorporate a built-in gauge that tells the user at a glance how much pressure is in the cylinder. This is especially important in the fire protection industry.

Features
- 0 to 3000 PSIG gauge built into the valve.
- Chrome whitened finish.
- Non-rising stem design provides easy operation and positive shut-off.
- UL listed.

Materials
- Body: Brass, Chrome Whitened
- Bonnet: Brass, Chrome Whitened
- Seat Disc: Nylon
- Stem: Brass, Chrome Plated
- Stem Packing: Brass, Chrome Plated
- TFE

Ordering Information

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<th>Part Number</th>
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Pressure Gauges

Pressure 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.

All pressure gauges have a $\frac{1}{4}''$ NPT male bottom inlet connection.

**Ordering Information**

<table>
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<tr>
<th>Part Number</th>
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<th>Size</th>
<th>Increment Division (PSIG)</th>
<th>Case Material</th>
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<td>2523HP-7</td>
<td>160</td>
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<td>Steel</td>
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<tr>
<td>S1679</td>
<td>200</td>
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<td>15578</td>
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</table>

Brass Plugs

*(for pressures to 3000 PSIG)*

Safety factor = 5:1

**Ordering Information**

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<td>985D</td>
<td>$\frac{1}{4}''$ NPT</td>
<td>$\frac{1}{4}''$</td>
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<td>985E</td>
<td>$\frac{1}{4}''$ NPT</td>
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<td>985F</td>
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Brass Outlet Cap and Chain Assemblies

**Ordering Information**

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<td>$\frac{1}{4}''$-14NF-RH</td>
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<tr>
<td>10664</td>
<td>$\frac{1}{4}''$-14NF-LH</td>
<td>$\frac{1}{4}''$</td>
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</table>
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 Sch 5 Stainless Steel Pipe Stubs.

Features
- CTFE seat disc and swivel seat design offer positive shut-off, 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 pressure tested to be leak free.
- Each valve is cleaned and packaged for oxygen service per CGA G-4.1.
- Maximum working pressure is 600 psig CWP.
- Working temperature range is -320 F to +165 F.

Materials
Body.............................................................................Bronze
Body and Bonnet................................................................Brass
Seat Disc............................................................................CTFE
Seat Retainer Assembly ..................................................Brass
Stem and Bonnet Extension Tube......................Stainless Steel
Packing Spring, Washer ....................................Stainless Steel
Jam Ring and Pressure Seal Rings .........................PTFE
Upper Bonnet, Packing Gland.........................................Brass
Handwheel............................Aluminum for up to 1” valve size,
Coated Malleable Iron for larger sizes

Bonnet Design
Union Bonnet for 1/2”, 3/4”, 1” valve sizes and on both the 1” model BK8408S and 1 1/2” model BKA8412S angle valves.

Bolted Bonnet design is used on the BK9410, BK9412, and BK9416 models.
## Extended Bonnet Cryogenic Globe Valves

### BK and BKA Series Valves

![Straight Globe Valve](image1)

![Angle Globe Valve](image2)

![Straight Globe Valve with Stubs](image3)

### Ordering Information and Dimensions

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Body Style</th>
<th>Inlet / Outlet Connections</th>
<th>Height Open A</th>
<th>Height Open B (Approx.)</th>
<th>Length C</th>
<th>D</th>
<th>Cv Factor</th>
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<tbody>
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<td>3½&quot;</td>
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* Valves with bolted bonnet design.
Extended Stem Cryogenic Valves

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

Application
These valves are designed for use as a trycock valve or hose drain valve on cryogenic tanks. Another application is as a use, liquid fill, or vent valve on mini-bulk cryogenic tanks. These valves can be used likewise for other cold gas applications requiring extended stem valves.

Features
• Union bonnet.
• One piece stainless steel stem
• Conical seat design.
• Maximum working pressure is 600 psig.
• Working temperature is –320°F to +165°F.
• Cleaned for oxygen service per CGA G-4.1.

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 one or both ends.

Materials
Body and Bonnet............................................................Brass
Stem ...........................................................................Stainless Steel
Seat disc .................................................................CTFE
Handwheel ...............................................................Aluminum
Packing and 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.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet/Outlet Connections</th>
<th>Height “A”</th>
<th>Body Width “B”</th>
<th>Width with Tube “C”</th>
<th>Cv</th>
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<td>BK 9454</td>
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<td>BK 9453FA</td>
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**Needle Valves**

**CMM250 Series and CFF250 Series**

**Application**
Ideal for use as a gauge isolation valve or applications requiring accurate throttling of pressure.

**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.
- Maximum operating pressure: 2000 psig air.
- Cleaned for oxygen service per CGA G-4.1.
- Female ports available - consult factory.

**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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (In.)</th>
<th>B (In.)</th>
<th>C (In.)</th>
<th>D (In.)</th>
<th>E (In.)</th>
<th>F (In.)</th>
<th>G (In.) Open</th>
<th>G (In.) Closed</th>
<th>Cv</th>
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<td>CFF250A</td>
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<td>1⁄8</td>
<td>2⁄32</td>
<td>1 19⁄32</td>
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**Angled Extended Bonnet Cryogenic Globe Valve**

**BKY8408 Series**

**Application**
The BKY8408 valve is designed for the handling of cryogenic liquids on bulk storage tanks, transports, and pipelines. It provides positive shut-off, offers a long, low maintenance service life, and gets up to 40% more flow over a standard 1” globe style valve.

**Features**
- KEL-F seat disc and swivel design offer positive shut-off and a long service life.
- Unique spring loaded upper packing extends service life.
- One piece slip-on seat assembly for easy replacement.
- Each valve is cleaned and packaged for liquid oxygen service per CGA G-4.1
- Maximum working pressure is 600PSIG CWP
- Working temperature is -320°F to +165°F.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet / Outlet Connections A</th>
<th>Height Open B</th>
<th>Length</th>
<th>D</th>
<th>Cv Factor</th>
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<tbody>
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<td>BKY8408S</td>
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<td>BKY8408T</td>
<td>1” F.NPT</td>
<td>8.4</td>
<td>4.56”</td>
<td>1”</td>
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Short Stem Cryogenic Valves

9450 Series
9460 Series

Application
The 9450 and 9460 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 liquid oxygen service per CGA G-4.1.
- Maximum working pressure is 600 PSIG.
- Working temperature range is -320°F to +165°F.

Materials
Body.................................................................Brass
Bonnet...............................................................Brass
Seat Disc.........................................................CTFE
Stem Seal Gasket................................................PTFE
Handwheel......................................................Aluminum
Spring.............................................................Stainless Steel
Upper Stem.....................................................Brass
Lower Stem....................................................Manganese Bronze

Ordering Information

Extended Stem Retrofit Kits

Ordering Information

Application
These retrofit kits can 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
Bonnet.................................................................Brass
Seat Disc.........................................................CTFE
Handwheel......................................................Aluminum
Packing..........................................................PTFE
Stem...............................................................Stainless Steel
Stem Seal Gasket..............................................PTFE

Ordering Information

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<thead>
<tr>
<th>Part Number</th>
<th>Stem Length A</th>
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<tr>
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<td>Extended Stem, Std. Bonnet, Manual Packing</td>
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<tr>
<td>BK9450R</td>
<td>6.5”</td>
<td>Extended Bonnet and Stem, Spring Loaded Packing</td>
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