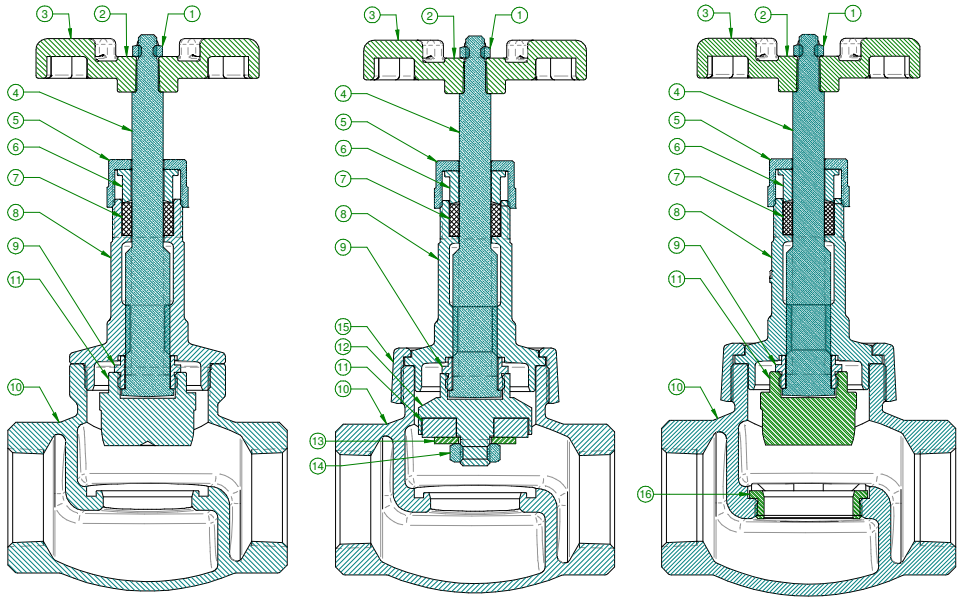
# BRONZE GLOBE VALVE
# INSTALLATION
# OPERATION
# MAINTENANCE
# GUIDE

## 33 & 33LF SERIES

## MODELS:
## 120T/120TLF
## 120S/120SLF
## 121T/121TLF
## 122T
## 127T
## 128T

## INTRODUCTION

The Apollo® Bronze seat Class 125/150/300 Globe valves are designed to operate at the fully closed or fully open position to stop or start the flow of fluid by means of rotating the hand wheel (counter-clockwise to open and clockwise to close) . Disc or disc holders are fastened securely to the end of the stem in such a manner as to allow these parts to swivel freely. Valve sizes ½" and smaller, have the disc or disc holder formed on the end of the stem. Discs, plugs or disc holders of the slip-on type are adequately guided for self-centering in relation to the body and bonnet, that when the valve is fully opened, they will not slip off the stem.



Type 1 Globe Valve Type 2 Globe Valve Type 3 Globe Valve

| Item | Part Name | Material | | |
|---|---|---|---|---|
| | | Class 125/150 | Class 300 (BRZ Seat) | Class 300 (SS Seat) |
| 1 | Hand Wheel Nut | Brass | Brass | Brass |
| 2 | Nameplate | Aluminum | Aluminum | Aluminum |
| 3 | Hand Wheel | Malleable Iron | Malleable Iron | Malleable Iron |
| 4 | Stem | ASTM B371 Bronze | ASTM B371 Bronze | ASTM B371 Bronze |
| 5 | Packing Nut | ASTM B16 Brass | ASTM B16 Brass | ASTM B16 Brass |
| 6 | Gland | ASTM B16 Brass | ASTM B16 Brass | ASTM B16 Brass |
| 7 | Packing | Grafoil ® | Grafoil ® | Grafoil ® |
| 8 | Bonnet | ASTM B62 Bronze | ASTM B61 Bronze | ASTM B61 Bronze |
| 9 | Lock Nut | ASTM B16 Brass | ASTM B16 Brass | ASTM B16 Brass |
| 10 | Body | ASTM B62 Bronze | ASTM B61 Bronze | ASTM B61 Bronze |
| 11 | Disc (Type 1) | ASTM B505 Bronze | ASTM B61 Bronze | N/A |
| 11 | Disc (Type 2) | Virgin PTFE | N/A | N/A |
| 11 | Disc (Type 3) | N/A | N/A | ASTM A276 Stainless Stl. |
| 12 | Disc Holder | ASTM B505 Bronze | N/A | N/A |
| 13 | Washer | Stainless Steel | N/A | N/A |
| 14 | Nut | ASTM B16 Brass | N/A | N/A |
| 15 | Union Nut | ASTM B62 Bronze | ASTM B61 Bronze | ASTM B61 Bronze |
| 16 | Seat Ring | N/A | N/A | ASTM A276 Stainless Stl. |

**Table 1 Apollo Series & Model Numbers**

| SERIES | MODEL | DESCRIPTION |
|---|---|---|
| 33-13x | 120T | Class 125 PTFE Disc, Threaded bonnet, NPT connection |
| 33-14x | 120S | Class 125 PTFE Disc, Threaded bonnet, Solder connection |
| 33-16x | 121T | Class 125 Bronze Disc, Threaded bonnet, NPT connection |
| 33-22x | 122T | Class 150 PTFE Disc, Union bonnet, NPT connection |
| | | |
| 33LF-13x | 120TLF | Class 125 PTFE Disc, Threaded bonnet, NPT connection Lead Free |
| 33LF-14x | 120SLF | Class 125 PTFE Disc, Threaded bonnet, Solder connection Lead Free |
| 33LF-16x | 121TLF | Class 125 Bronze Disc, Threaded bonnet, NPT connection Lead Free |
| | | |
| 33-66x | 127T | Class 300 Bronze Disc, Union bonnet, NPT connection |
| 33-74x | 128T | Class 300 Renewable Stainless Steel Disc and Seat, Union bonnet, NPT connection |

x – indicates pipe size.

**Table 2 Pressure Ratings**

| | |
|---|---|
| Class 125 | |
| Saturated Steam | 125 psi (8.6 Bar) to 353°F (178°C) |
| Cold Water | 200 psi (13.8 Bar) at 100°F |
| | |
| Class 150 | |
| Saturated Steam | 150 psi (10.3 Bar) to 366°F (185°C) |
| Cold Water | 300psi (20.7 Bar) at 100°F |
| | |
| Class 300 | |
| Saturated Steam | 300 psi (20.7 Bar) to 423°F (217°C) |
| Cold Water | 1000 psi (68.9 Bar) to 100°F |

These ratings are the maximum allowable, non-shock pressures at the temperatures shown and allowable pressures may be interpolated between temperatures shown. Use of a pressure rating at a material temperature other than the temperature of the contained fluid is the responsibility of the user, and subject to the requirements of applicable codes. The safe pressure-temperature rating of a solder joint valve is dependent on the composition of the solder used. All valves are 100% pneumatically shell and seat tested at a pressure of 80 psi in accordance with MSS-SP-80 Manufacturers Standardization Society requirements.

## INSTALLATION

**Inspection**
Threads of mating pipe must be clean and machined to appropriate ANSI/ASME specifications.
Ends of mating copper tubing or pipe must be square and free of burrs. Use emery cloth to clean and remove grease and/or oxidation before soldering**.** Inspect sealing surfaces of valve for cleanliness prior to installing.

**Mounting**
Globe valves can be mounted in either vertical or horizontal position. Flow is recommended by arrow in body.

**NPT connection**
It is recommended that the valve is mounted in the closed position. Gently thread valve to mating pipe by hand until resistance is felt. Using a wrench tighten the valve using the hex flats at the joint being tightened. Do not tighten through the valve body using hex flats on opposite end of joint being tightened.

**Solder connection**
It is recommended that the valve be in the open position. Care must be taken to apply the proper amount of solder so that it does not flow into valve seat area. During soldering, the mid-portion of the valve body should not exceed 300°F. This can be monitored using Tempilstik® or an infra-red temperature sensor. Depending on the fuel selected and the orientation of the installation it may be necessary to wrap the valve body with wet rags or employ other heat absorbing techniques. The flame must be directed away from the valve body, concentrated on the solder cup. The cup should be heated evenly. Once one of the joints is complete, the valve should be allowed to cool until "cool to the touch" before beginning the second joint.

| Fuel | Flame temp w/Oxygen |
|---|---|
| Propane | 5122°F (2828°C) |
| Propylene | 5245°F (2896°C) |
| MAPP Gas | 5389°F (2976°C) |
| Acetylene | 5720°F (3160°C) |

***WARNING:*** *Excessive heat input will damage the body seal resulting in leaks at the valve body joint. In extreme cases, seats and stem packing may also be damaged.*

**Press connection**
Valve can be in either closed or open position. Piping must be properly supported so that valve fits squarely before pressing. Do not solder any joint within 12" of press connection.
Compatible piping: Copper water tube per ASTM B88, Types K, L, & M.
(Not for use with steam service)

**Push connection**
Valve can be in either closed or open position.
Compatible piping: Copper water tube per ASTM B88, Types K, L, & M, both hard drawn
(Not for use with steam service)

## OPERATION

Globe valves are intended to provide years of reliable service throttling applications.
Globe valves have high flow restriction and not recommended where pressure drop is critical.
Globe valves with metal seated disc have a permissible leakage rate per MSS SP-80 of 10ml of water per hour per inch of pipe size. Soft-seated/resilient disc have bubble-tight shut off.

## MAINTENANCE

Valves must be actuated frequently depending on fluid corrosiveness to assure contamination or deposits do not collect causing seizure and seat leak.

**Seat leakage can be resolved by:**
- □ Flushing seat area with high rate of flow through the valve.
- □ Additional torque using hand wheel maybe needed.
- □ Disassembly and cleaning of seat area. Minor scratches can be corrected by evenly polishing the disc face using 400 grit sand paper. If body sealing surfaces are damaged it is recommended replacing valve due to difficulty of correcting damaged area.
- □ Replacement of disc.

**Bonnet/Body joint leakage can be resolved by:**

□ **Union Bonnet Globe Valves**

.1 Remove bonnet after valve has been depressurized.
.2 Inspect body and bonnet sealing area for minor scratches and defects.
.3 Minor scratches and defects on body sealing surface can be corrected by sanding on a flat plate using 400 grit sandpaper.
.4 Once imperfections have been corrected reassemble bonnet to body.

□ **Threaded Bonnet Globe Valves**

.1 Remove bonnet after valve has been depressurized.
.2 Add Loctite 246 to threaded portion of bonnet and reassemble.

**Stem/Bonnet leakage can be resolved by:**
- □ Tighten packing gland nut. Hand wheel torque is affected by the tightness of this packing, so care must be taking to not over-tighten.
  If there is no travel left on the packing gland, packing should be replaced. Backseat feature can be used to reduce leakage until system can be isolated and depressurized for packing replacement.

  **CAUTION:** Packing should not be replaced while valve is under pressure. This could lead to serious injury.