BRONZE GATE VALVE
INSTALLATION
OPERATION
MAINTENANCE
GUIDE

30 & 30LF SERIES

MODELS:
101T/101TLF
102T/102TLF
102S/102SLF
103T/103TLF
106T
107T
111T
116T
102TK

INTRODUCTION

The Apollo Bronze Gate valves covered in these guidelines are bronze, threaded and union bonnet; rising stem and non rising stem valve types. They are used to start or stop the flow of fluid in a piping system. The valves are operated from a handwheel. These valves should be used in the full open or full closed position only. Flow through the valve is stopped by forcing a wedge (disc) down between the tapered body seats.

Table 1 Apollo Series & Model Numbers

SERIES	MODEL	DESCRIPTION
30-00x-01	101T	Class 125 Rising stem, Threaded bonnet, NPT connection
30-03x-01	102T	Class 125 Non rising stem, Threaded bonnet, NPT connection
30-04x-01	102S	Class 125 Non rising stem, Threaded bonnet, Solder connection
30-05x-01	103T	Class 125 Rising stem, Union bonnet, NPT connection
30-20x-01	107T	Class 150 Rising stem, Union bonnet, NPT connection
30-28x-01	106T	Class 150 Non rising stem, Threaded bonnet, NPT connection
30-44x-01	111T	Class 300 Rising stem, Union bonnet, Integral seat, NPT connection
30-45x-01	116T	Class 300 Rising stem, Union bonnet, Stainless steel seat, NPT connection
30-03x-01K	102T-K	Class 125 Non rising stem, Threaded bonnet, NPT connection, Irrigation

x – indicates pipe size.

Table 2 Lead Free Apollo Series & Model Numbers

SERIES	MODEL	DESCRIPTION
30LF-00x	101TLF	Class 125 Rising stem, Threaded bonnet, NPT, Lead Free
30LF-03x	102TLF	Class 125 Non rising stem, Threaded bonnet, NPT, Lead Free
30LF-04x	102SLF	Class 125 Non rising stem, Threaded bonnet, Solder, Lead Free
30LF-05x	103TLF	Class 125 Rising stem, Union bonnet, NPT, Lead Free

x – indicates pipe size.

Table 3 Material Specifications

Part Name	Material	
	Class 125/150	Class 300
Body	ASTM B62 Bronze	ASTM B61 Bronze
Bonnet	ASTM B62 Bronze	ASTM B61 Bronze
Stem	ASTM B371 Bronze	ASTM B371 Bronze
Disc	ASTM B62 Bronze	ASTM B61 Bronze
Packing	Grafoil®	Grafoil®
Hand Wheel	Malleable Iron	Malleable Iron
Nameplate	Aluminum	Aluminum

Table 4 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) at 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

Gate valves are bi-directional and can be installed for flow in either direction. Gate valves can be mounted in either stem vertical upward or horizontal position. Vertical mounting position is recommended as horizontal positioning will not allow valve to fully drain leading to contamination.

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

Gate valves are intended to provide years of reliable service in an on/off application. They are used to restrict flow when needed. Gate valves are not to be used for throttling as seat damage may result. They should always be operated in a fully open or fully closed position. Gate valves have a permissible leakage rate per MSS SP-80 of 10ml per hour per inch of pipe size.

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 Gate 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 Gate 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.