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**FORGED BRASS VALVES INSTALLATION,
OPERATION AND MAINTENANCE GUIDE**

**INTRODUCTION** Considerations for media, pressure, flow, and temperature should be made prior to valve installation, as well as the conditions for pipe line expansion and contraction. When choosing valves, proper sizing, seat, stem, and body materials will greatly increase performance and reduce the chance of failure. Properly installed in piping systems, Bonomi ball valves are suitable for applications including potable water (Lead Free valves), hot water, gas, steam, oil, and vacuum.

**WARNING** To avoid personal injury to yourself and fellow workers, or to avoid property damage due to accidental release of fluid from the system, before installation please utilize the following procedure:

a. Shut off all operating lines to the valve site.

b. Isolate the valve site from the line fluid.

c. Relieve the pressure of the fluid in the system.

d. Drain the fluid in the system around the valve site.

1. Prior to installation the valve should be inspected for any exterior deformations, and the interior or porting area inspected for any foreign matter or damage to the treads or soldering cups.

2. Prior to installation, inspect the pipeline and the mating pipe making sure both are free of foreign material. In addition, inspect these piping components ensuring they are clean, and there are zero burrs or pits that could cause leakage.

3. Make sure it piping system is tension free before and after installation.

4. The valve should be manually cycled a couple of times prior to installation.

5. Make sure the valve is installed in the OPEN position.

6. Brass ball valves are NOT to be installed at or BELOW GROUND LEVEL.

**THREADED ENDS** Unless otherwise specified, ball valve pipe threads are American National Standard Taper Pipe Threads [NPT] to ANSI/ASME B1.20.1. All pipe and valve connections should be free of dirt, grease, and metal. Unclean pipe/valve connections are the number one cause of connection leakage. Proper connection and thread seal is generally made by the use of any Teflon™ products, including P.T.F.E formulated pipe compound. Teflon pipe compound is recommended on all pipe installations that are not Teflon-restricted applications because of the excellent sealing capabilities at all temperatures and pressures of threaded brass ball valves. Do not use Teflon in applications restricting its use (oxygen, etc.). All pipe-joint tape and compounds must be non-toxic, NSF/UPC listed to maintain certifications (UL157). Be sure to apply enough sealant to fill the first 3 to 4 threads, as the screwing action will move the sealant up and around the threads. Brass is a soft metal. When using a bench vice to hold the valve, be aware that excessive pressure can deform and damage the valve body. Always tighten valve components with two wrenches; one holding the valve end closest to the pipe joint/fitting being tightened, and the other around the pipe/fitting to tighten the connection. This prevents transmitting torque through the valve body joint. To avoid damage to valve, seal, or seat, NEVER over-tighten a valve connection. Twist valve on until it stops, and use the wrenches to make 1-1/2 more turns. Wipe or cut any extra, unused sealant from the connection for a clean, professional result. For ease of maintenance, two-piece valve connections usually have a union connection close to the valve in the pipe system. Always leak test the system before using.

**SOLDER ENDS**

After cutting tubing square, use 100-180 grit emery cloth to burnish the end of the tube. Clean and prepare the pipe and valve with a clean rag.

For drinking water systems (Lead Free valves), apply a non-toxic, water-based solder/flux compliant with NSF 61 to maintain certification throughout the piping system. Never use lead-based, acid flux on drinking water systems. Apply to the pipe and valve, and make connection.

Always open the valve before heating the joint. Use only solders with melt points below 500°F.

During soldering, the mid-portion of the valve should not exceed 300°F. Heat absorbing techniques are recommended to protect the valve components and seats. Excessive heat input will damage the valves seals and seats.

Apply heat directly to, and away from the valve end and the pipe. Continue heating from the bottom of the valve while placing non-toxic solder to the top of the connection.

Move the torch up and around both sides of the joint while maintaining pressure on the solder at the top.

When the solder melts rapidly and is sucked into the joint, continuing applying solder until it drips from the bottom of the connection.

Remove heat and wipe excess flux/solder from connection for a clean, professional connection. Once the first joint is evenly soldered, allow it to cool down before beginning the second joint.

Maintaining copper pipe systems is less critical of valve required unions than with ordinary, steel piping systems. Cramped or difficult to maintain areas are generally fitted with 2 unions between the longest span incorporating the valves. If a failure exists, or maintenance is required, the entire section can be removed to make the necessary adjustments. Always leak test the system before using.

**MAINTENANCE**

To avoid personal injury to yourself, fellow workers, or damage to property from release of process fluids, before performing any maintenance:

a. Shut off all operating lines to the valve.

b. Isolate the valve completely from the process.

c. Release process pressure.

d. Drain the process fluid from the valve.

1. Ball valves, if properly used, do not require internal lubrication or maintenance. However, a visual inspection should be part of a regular maintenance program. A higher frequency of inspection is recommended for valves operating under extreme conditions. Also, for proper operation it is recommended that the valve be opened and closed at least twice a year.

2. Before any maintenance, open and close the valve at least once to release the pressure completely from the valve body.

****3. The packing glands on Ball Valves are adjustable. If a leak should occur, you may adjust the packing gland by tightening it slightly in a clockwise manner.

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