



TWO-PIECE BALL VALVES

INSTALLATION, OPERATION, & MAINTENANCE GUIDE

GENERAL INFORMATION

American Valve's Two-Piece ball valves are produced in a wide range of ratings and connections suitable for various applications.

American Valve Inc. assumes no liability for any damages or injuries resulting from non-compliance with installation instructions or standard good practices when installing, operating, or maintaining the valves, even if not explicitly mentioned in this document.

This document covers the following model families:

G102T	G100S	G200BxB
G102S	G200W	G200VL
G102PR	G200SW	2A
G103	G101	2A-IRR
G100	G101S	G111

VALVE SELECTION

American Valve offers ball valves made of different materials: brass, lead free* brass, Dezincification Resistant (DZR) brass, lead free DZR brass, bronze, iron, ductile iron, and stainless steel. We recommend using valves made of a material suitable for the specific application. Stainless steel, bronze and DZR brasses are recommended to reduce risk of de-zincification and stress corrosion. Details of the materials used for each model are listed in the specific valve technical sheet. Please refer to your local water authority for compatibility with brass products. American Valve cannot be held responsible for failures caused by the quality of the water in combination with an unsuitable material chosen for the valve.

PRESSURE & TEMPERATURE RATINGS

Specific information on pressure and temperature ratings of each valve model are provided in the American Valve technical sheets, those can be obtained through American Valve's website or by contacting American Valve. All contact information is provided in the last page of these instructions.

The operative conditions given in the technical sheets are intended for non-shock operating conditions. Applications subject to water hammer, impacts, stress loads, corrosive or erosive external environmental elements, or the transport of fluids with abrasive properties should be avoided.

VALVE INSTALLATION

Prior to installation, confirm that the valve is suitable for the pressures, temperatures, operating fluids and environment in which it will be installed. It is the responsibility of the installer and/or of the facility designer to ensure that the application does not exceed the limits of pressure and temperature of the valve and is carried out in accordance with local current laws and regulations.

All models referred to in the above table (with the exception of model 2A-IRR) can be installed in any position (vertical, horizontal, inclined), with flow going in either direction. The position chosen for the installation should allow for accessibility to the valve during operation, inspection and maintenance.

Pipe ends should be void of any burrs and not protrude inside the bore or obstruct any part of the flow. Lines should be flushed after installation or after performing maintenance on the system.

Do not subject the valve to any twisting, bending or tension. Pipe brackets or supports should be installed at a distance suitable to properly support the valve. Do not to overload the valve with any additional stress.

THREADED CONNECTIONS

Valves shall be installed on pipes using a sealant suitable for the application and the expected type of fluid.

- All connecting threads shall be in accordance with the applicable standard requirements (please refer to the valve technical sheet). Pipe threads must be free of damage that could impair the connections.
- Additional stresses on the valve's body to cap connection must be avoided during installation. Always use a wrench to grasp the hexagon/octagon portion of valve end while attaching to the pipe. In order to avoid additional stress on the valve, be careful not to tighten the pipe at an excessive distance from the threaded area.
- Avoid over-insertion of male threaded fittings into the valve. This could result in damage to the valve seats, or exert undue stress on the valve body, leading to failure.

SOLDER CONNECTIONS

American Valve sweat connections are designed to be soft soldered without disassembling the valve.

- Ball valves contain polymer materials such as o-rings and PTFE seals. These seals can be damaged by excessive heat, therefore the use of heat sinks (for example a wet towel around the valve) is required. The flame must be directed away from the center of the valve body.
- Ball valves must be placed in the closed position prior to soldering. After the installation wait for the valve to cool to room temperature before operating it.
- Ensure that the pipe is cut square free from burrs or rough edges. Clean both the valve socket and pipe end with a suitable tool until they are made polished.
- Coat both the valve socket and pipe with non-corrosive solder flux. In cold weather this should be done with the parts at ambient temperature. After applying the flux, slide the pipe to the shoulder of the socket then rotate a few times to insure flux properly covers the connection prior to soldering.
- When soldering a union tailpiece remove it from the valve before the installation to prevent damage to the o-ring. Slide the union nut over the pipe before soldering the tailpiece.

PRESS CONNECTIONS

American Valve press connections are designed to be used with copper tube types "K", "L" and "M". Valves sizes 2-1/2" to 4" valves are compatible with either XL or XLC series press jaws. If in doubt on which jaw to use please contact American Valve for technical support.

- To ensure proper operation, a minimum distance of 5 pipe diameters is required between any solder connections and a press joint. Extreme care should be taken to ensure that any heat applied to nearby fittings does not reach the EzPress® joint. It's preferable to perform all solder connections first, allowing the pipe to cool completely before installing any EzPress® joint. A minimum distance of 2 pipe diameters spacing is recommended between any two press joints to ensure proper sealing of the copper pipe.
- Ensure that the pipe is cut square free from burrs or rough edges. If installing on existing pipe, it may be necessary to lightly sand the pipe ends to remove any scale or buildup.
- Ensure the valve ends are free from any foreign material or debris. Special care should be taken to also ensure that the o-ring in the valve end is seated correctly. For sizes 2-1/2" to 4" (both XL and XLC series press jaws) also verify correct seating of metal or segment rings.
- Using a twisting motion, slide the valve onto the pipe. Do not use any lubricant or sealant.
- Mark the insertion depth of the pipe to ensure that the joint doesn't move prior to the crimping process. American Valve press connections have internal stops to limit the insertion depth of the pipe.
- Press using the appropriate tool, following the tool manufacturer's instructions for proper calibration and use. Take care to ensure that the tool is in proper working condition and that the crimping jaws are clean and free from damage or defects.

PEX F1807 (CRIMP) CONNECTIONS

American Valve PEX connections are manufactured in accordance with the ASTM1807 standard. For more information please refer to American Valve technical sheets.

- A. Ensure that the pipe is cut square free from burrs or rough edges.
- B. Slide crimp ring over end of tubing.
- C. Insert valve to end of tubing until it stops.
- D. Position the crimp ring 1/8" to 1/4" from the end of the tubing and over the ribs of the valve.
- E. Place the tool around the crimp ring and press the handles together.
- F. Check for proper crimp with a go/no-go gauge.

VIPERLOK® CONNECTIONS

Viperlok® valves are designed to be used with copper K,L & M hard drawn tubing, copper tube sized (CTS) CPVC pipe, and PEX A,B & C tubing (ASTM F876 & F877). A required support insert for PEX installations is built into every Viperlok® valve. Viperlok® valves are NOT suitable for service on PEX tubing with an oxygen barrier on the outer layer or PEX-AL-PEX tubing.

- To ensure proper installation and operation, a minimum distance of 5 pipe diameters is required between any solder connections and an Viperlok® joint. Extreme care should be taken to ensure that any heat applied to nearby fittings does not reach the Viperlok® joint. It is preferable to perform all solder connections first, allowing the pipe to cool completely before installing any Viperlok® joint. A minimum of 2 pipe diameters spacing is recommended between any Viperlok® joints to ensure proper sealing and the ability to remove the valve.
- Using an appropriate pipe cutting tool, ensure that the pipe is cut square free from burrs or rough edges.
- Ensure that the pipe is perfectly round and there are no scratches, gouges or any form of damage on the circumference of the tubing within 1 inch of the cut ends. Damage in this area may cause leakage. Lightly sand the outside pipe edge to protect the o-ring seal from damage during installation.
- Using a straight pushing movement, push the tubing fully into the valve and ensure that it is engaged properly. Note: The tubing must be pushed completely inside the valve and fully engage the metal teeth as well as the O-Ring seal to obtain a proper joint.
- Rotate the valve to the desired orientation.
- To remove the valve, use only the included removal tool. Push the removal tool against the exposed plastic collar of the valve to release the tubing.

USE AND MAINTENANCE

Valves need to be operated on a regular basis with a complete open/close cycle. Valves must be replaced when there is visible leakage or damage. For models with adjustable packing nuts, stem leakage may be stopped by tightening the packing nut. Rotate the nut clockwise taking care not to damage the valve body with excessive strength. Wear proper protection gear when performing any maintenance.

While all American Valve ball valves feature blow-out proof stems, you must depressurize the line prior to adjusting the valve packing. If leakage doesn't stop, the valve should be replaced.

Ball valves are designed shut-off valves. They should be used only in the fully open or closed position. Throttling will damage the seats and over time compromise the valve's ability to seal.

American Valve 2-piece ball valves must only be operated by handles and accessories supplied by American Valve.

American Valve bears no responsibility for improper use, tampering, modification, or disassembly of its valves.

COMMON VALVE TERMINOLOGY

WOG (Water, Oil, Gas) is a non-shock static pressure rating, expressed in PSI (Pounds per Square Inch) for valves at ambient temperature. Oil refers to a free-flowing liquid containing higher viscosity than water and lubricating characteristics. Gas refers to compressed air and does not cover combustible gases.

CWP (Cold Working Pressure) is a non-shock static pressure rating, expressed in PSI for valves operating at temperatures between 20F and 100F.

WSP (Working Steam Pressure) indicates the maximum steam pressure expressed in PSI for valves in either the fully open or closed position. Caution must be exercised when cycling quarter-turn valves in steam service to avoid damage, injury, or death.

For detailed information pertaining to valve construction and ratings, please consult the relevant ASME standard for a particular valve.

GAS RATINGS

- **½ PSIG (PSI gauge):** A low pressure rating is used for gas valves for appliances.
- **5G:** Higher pressure rating for valves used in household gas piping systems.
- **CAN/CGA-3.16:** The Canadian gas pressure rating for both outdoor and indoor valves used in gas piping systems.
- **BRS125G:** The US gas pressure rating for valves in shutoff applications.

“Lead-Free” Brass is a term describing material that is compliant with NSF/ANSI/CAN 372 and the U.S. Safe Drinking Water Act. Lead content in this material is reduced such that the product's wetted surfaces contain less than 0.25% lead by weighted average.