

SECTION 22 05 23.12

BALL VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bronze ball valves.
2. Steel ball valves.

1.2 DEFINITIONS

- A. CWP: Cold working pressure.
- B. RPTFE: Reinforced polytetrafluoroethylene.
- C. WOG: Water, oil, gas.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of valve.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, and soldered ends.
3. Set ball valves open to minimize exposure of functional surfaces.

B. Use the following precautions during storage:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher-than-ambient-dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

- C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use operating handles or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain each type of valve from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Standards:

- 1. Domestic water valves intended to convey or dispense water for human consumption must comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or must be certified to be in compliance with NSF 61 and NSF 372 (by an ANSI-accredited third-party certification body) that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

- B. ASME Compliance:

- 1. ASME B1.20.1 for threads for threaded end valves.
- 2. ASME B16.18 for cast copper solder-joint connections.
- 3. ASME B16.22 for wrought copper and copper alloy solder-joint connections.
- 4. ASME B16.34 for flanged and threaded end connections

- C. Provide bronze valves made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.

- D. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

- E. Valve Sizes: Same as upstream piping unless otherwise indicated.

- F. Valve Actuator Type:

- 1. Hand Lever: For quarter-turn valves smaller than NPS 2 .

- G. Valves in Insulated Piping:

- 1. Provide 2-inch extended neck stems.
- 2. Extended operating handles with nonthermal-conductive covering material and protective sleeves that allow operation of valves without breaking vapor seals or disturbing insulation.
- 3. Memory stops that are fully adjustable after insulation is applied.

2.3 BRONZE BALL VALVES

- A. Bronze Ball Valves, Two Piece with Regular Port and Stainless Steel Trim, Threaded Ends:

- 1. Standard: MSS SP-110; MSS SP-145.

2. CWP Rating: 600 psig.
3. Body Design: Two piece.
4. Body Material: Bronze.
5. Ends: Threaded.
6. Seats: PTFE.
7. Stem: Stainless steel.
8. Ball: Stainless steel, vented.
9. Port: Regular.

2.4 STEEL BALL VALVES

A. Steel Ball Valves with Regular Port, Class 150, Flanged or Threaded Ends:

1. Standard: MSS SP-72; MSS SP-110.
2. CWP Rating: 285 psig.
3. Body Design: Uni-body.
4. Body Material: Carbon steel, ASTM A216/A216M, Type WCB.
5. Ends: Flanged or threaded.
6. Seats: PTFE.
7. Stem: Stainless steel.
8. Ball: Stainless steel, vented.
9. Port: Regular.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Examine threads on valve and mating pipe for form and cleanliness.
- D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- E. Do not attempt to repair defective valves; replace with new valves. Remove defective valves from site.

3.2 INSTALLATION OF VALVES

- A. Install valves with unions or flanges at each piece of equipment arranged to allow space for service, maintenance, and equipment removal without system shutdown.

- B. Provide support to piping adjacent to valves such that no force is imposed upon valves.
- C. Locate valves for easy access.
- D. For valves in horizontal piping, install valves with stem at or above center of pipe.
- E. Install valves in position to allow full valve actuation movement.
- F. Valve Tags: Comply with requirements in Section 22 05 53 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.
- G. Adhere to manufacturer's written installation instructions. When soldering or brazing valves, do not heat valves above maximum permitted temperature. Do not use solder with melting point temperature above valve manufacturer's recommended maximum.

3.3 ADJUSTING

- A. Adjust or replace valve packing after piping systems have been tested and put into service, but before final adjusting and balancing. Replace valves exhibiting leakage.

3.4 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valves with specified CWP ratings are unavailable, provide the same types of valves with higher CWP ratings.
- B. Select valves with the following end connections:
 - 1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option or press-end option is indicated in valve schedules below.
 - 2. For Copper Tubing, NPS 2-1/2 to NPS 4: Flanged ends except where threaded valve-end option is indicated in valve schedules below.

3.5 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

- A. Pipe NPS 2 and Smaller:
 - 1. Bronze ball valves, two piece with regular port, and stainless steel trim. Provide with threaded, solder or press-connection-joint ends.
- B. Pipe NPS 2-1/2 and Larger:
 - 1. Steel Valves, NPS 2-1/2 to NPS 4: May be provided with threaded ends instead of flanged ends.

END OF SECTION 22 05 23.12