

SECTION 220523.12 - BALL VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Brass ball valves.
2. Bronze 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:

1. Brass ball valves.
2. Bronze ball valves.

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 B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
 - 3. ASME B16.18 for cast copper solder-joint connections.
 - 4. ASME B16.22 for wrought copper and copper alloy solder-joint connections.
 - 5. ASME B16.34 for flanged and threaded end connections
 - 6. ASME B31.9 for building services piping valves.

- 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. Gear Actuator: For quarter-turn valves NPS 4 and larger.
 - 2. Hand Lever: For quarter-turn valves smaller than NPS 4.

- 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 BRASS BALL VALVES

A. Brass Ball Valves, Two Piece with Full Port and Stainless Steel Trim, Threaded or Soldered Ends:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. A.Y. McDonald Mfg. Co.
 - b. American Valve, Inc.
 - c. Apollo Valves; a part of Aalberts Integrated Piping Systems.
 - d. Hammond Valve.
 - e. Jenkins Valves; a Crane Co. brand.
 - f. Jomar Valve.
 - g. KITZ Corporation.
 - h. Lance Valves.
 - i. Marwin Valve; Richards Industries.
 - j. Milwaukee Valve Company.
 - k. Red-White Valve Corp.
 - l. Stockham; a Crane Co. brand.
 - m. Viega LLC.
 - n. WATTS; A Watts Water Technologies Company.
2. Standard: MSS SP-110; MSS SP-145.
3. CWP Rating: 600 psig.
4. Body Design: Two piece.
5. Body Material: Forged brass.
6. Ends: Threaded or soldered.
7. Seats: PTFE.
8. Stem: Stainless steel.
9. Ball: Stainless steel, vented.
10. Port: Full.

B. Brass Ball Valves, Two Piece with Full Port and Stainless Steel Trim, Press Ends:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Valve, Inc.
 - b. Apollo Valves; a part of Aalberts Integrated Piping Systems.
 - c. Center Line; a Crane Co. brand.
 - d. Hammond Valve.
 - e. Jomar Valve.
 - f. Lance Valves.
 - g. Legend Valve & Fitting, Inc.
 - h. Milwaukee Valve Company.
 - i. NIBCO INC.
 - j. Red-White Valve Corp.
 - k. Stockham; a Crane Co. brand.
 - l. Viega LLC.
 - m. WATTS; A Watts Water Technologies Company.
2. Standard: MSS SP-110; MSS SP-145; IAPMO/ANSI Z1157.
3. CWP Rating: Minimum 200 psig.

4. Body Design: Two piece.
5. Body Material: Forged brass.
6. Ends: Press.
7. Press-End Connections Rating: Minimum 200 psig.
8. Seats: PTFE or RPTFE.
9. Stem: Stainless steel.
10. Ball: Stainless steel, vented.
11. Port: Full.
12. O-Ring Seal: Buna-N or EPDM.

2.4 BRONZE BALL VALVES

A. Bronze Ball Valves, Two Piece with Full Port and Stainless Steel Trim, Threaded or Soldered Ends:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Apollo Valves; a part of Aalberts Integrated Piping Systems.
 - b. Center Line; a Crane Co. brand.
 - c. DynaQuip Controls.
 - d. Hammond Valve.
 - e. Jenkins Valves; a Crane Co. brand.
 - f. Milwaukee Valve Company.
 - g. NIBCO INC.
 - h. Red-White Valve Corp.
 - i. Stockham; a Crane Co. brand.
 - j. Viega LLC.
 - k. WATTS; A Watts Water Technologies Company.
2. Standard: MSS SP-110; MSS SP-145.
3. CWP Rating: 600 psig.
4. Body Design: Two piece.
5. Body Material: Bronze.
6. Ends: Threaded or soldered.
7. Seats: PTFE.
8. Stem: Stainless steel.
9. Ball: Stainless steel, vented.
10. Port: Full.

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. Valves are required at the following locations:
 - 1. The main water service, where the domestic water supply enters the building.
 - 2. Each piece of equipment requires regular maintenance.
 - a. E.G. Water Heater, Pumps, Water meters, Pressure regulators etc.
 - 3. At each floor level of a multi-story building, where the floors main supply piping begins and/or returns to.
 - 4. All branch lines serving individual fixtures or groups of fixtures.
 - a. Stop valves located at or below an individual fixture are not an equal to the valves specified in this section.
 - 5. Building service fixtures (mop basins, service sinks, clinical sinks) shall be provided with their own dedicated branch piping and valves.
- G. Where valves are installed in a location that will become inaccessible (e.g. above hard drywall ceilings, in chases, in masonry walls) a lockable access panel shall be provided. The finish and color of the access panel shall be coordinated with the Architect prior to installation.
- H. 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 3 (DN 76) 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 4 (DN 100) and larger: 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 3 (DN 76) and Smaller:
 - 1. Brass ball valve, one piece. Provide with threaded solder or press-connection-joint ends.
 - 2. Bronze ball valve, one piece with stainless steel trim. Provide with threaded, solder or press-connection-joint ends.
 - 3. Brass ball valves, two piece with full port, and stainless steel trim. Provide with threaded, solder or press-connection-joint ends.
 - 4. Bronze ball valves, two piece with full port, and stainless steel trim. Provide with threaded, solder or press-connection-joint ends.
- B. Note about Press connections: It is the intent that Press Connections are for connections and installations into EXISTING piping and systems only. All new water distribution piping is to be soldered or threaded.

END OF SECTION 220523.12