

**SECTION 22 05 23.12**  
**BALL VALVES FOR PLUMBING PIPING**

**PART 1 - GENERAL**

**1.1 STIPULATIONS**

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

**1.2 SUMMARY**

- A. Section Includes: Ball valves for plumbing piping systems which includes potable and non-potable water supply piping.
  - 1. Bronze ball valves.

**1.3 DEFINITIONS**

- A. CWP: Cold working pressure.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of valve.
  - 1. Certification that products comply with NSF 61 Annex G and NSF 372.
  - 2. Bronze valves and fittings shall be made with dezincification-resistant materials. Bronze valves and fittings made with copper alloy (brass) containing more than 15 percent zinc are not permitted.

**1.5 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.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL REQUIREMENTS FOR VALVES**

- A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.
- 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 solder-joint connections.
  - 4. ASME B31.9 for building services piping valves.
- C. NSF Compliance: NSF 61 Annex G and NSF 372 for valve materials for potable-water service.
- D. Bronze valves shall be made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.
- E. Valves for potable-water supply shall bear the manufacturers "no lead" symbol stamp, marking or tag along with white handles or lever that provides visual identification.
- F. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- G. Valves with mechanical pressure seal (Press-Fit) ends shall match the installed piping system and be in accordance to the manufacturer's installation instructions, requirements and certifications. The pressure-temperature ratings shall not be less than the indicated and required system pressures and temperatures.
- H. Valve Sizes: Same as upstream piping unless otherwise indicated.
- I. Valve Actuator Types:
  - 1. Hand lever: For quarter-turn valves smaller than NPS 4.
- J. Valves in Insulated Piping:
  - 1. Include 2-inch stem extensions.
  - 2. Extended operating handles of non-thermal-conductive 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.

### **2.2 BRONZE BALL VALVES**

- A. Two-Piece, Bronze Ball Valves with Full Port and Stainless-Steel Trim:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Apollo Flow Controls; Conbraco Industries, Inc.
    - b. Hammond Valve.
    - c. Milwaukee Valve Company.
    - d. NIBCO INC.

- e. WATTS.
  - f. Or equal as approved by the Professional.
2. Description:
- a. Standard: MSS SP-110.
  - b. CWP Rating: 600 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Bronze.
  - e. Ends: Threaded or soldered.
  - f. Seats: PTFE.
  - g. Stem: Stainless steel.
  - h. Ball: Stainless steel, vented.
  - i. Port: Full.
- B. Three-Piece, Bronze Ball Valves with Full Port and Stainless-Steel Trim:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Apollo Flow Controls; Conbraco Industries, Inc.
  - b. Hammond Valve.
  - c. Milwaukee Valve Company.
  - d. NIBCO INC.
  - e. WATTS.
  - f. Or equal as approved by the Professional.
2. Description:
- a. Standard: MSS SP-110.
  - b. CWP Rating: 600 psig.
  - c. Body Design: Three piece.
  - d. Body Material: Bronze.
  - e. Ends: Threaded.
  - f. Seats: PTFE.
  - g. Stem: Stainless steel.
  - h. Ball: Stainless steel, vented.
  - i. 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.

### **3.2 VALVE INSTALLATION**

- A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- B. Locate valves for easy access and provide separate support where necessary.
- C. Install valves in horizontal piping with stem at or above center of pipe.
- D. Install valves in position to allow full stem movement.
- E. Mechanical Pressure Seal (Press-Fit) Valves: Mechanical Seal (Press Fit) valves shall match the installed piping system and be in accordance to the manufacturer's installation instructions, requirements and certifications. The pressure-temperature ratings shall not be less than the indicated and required system pressures and temperatures.
- F. Install valve tags. Comply with requirements in Section 220553 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.

### **3.3 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS**

- A. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.
- 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 is indicated in valve schedules below.
  - 2. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where mechanical pressure seal (press-fit) valve-end option is indicated in valve schedules below.
  - 3. For Copper Tubing, NPS 2-1/2 to NPS 4: Flanged ends except where threaded valve-end option is indicated in valve schedules below. The mechanical pressure seal (press-fit) valve-end option is indicated in valve schedules below.

### **3.4 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE**

- A. Pipe NPS 2 and Smaller:
  - 1. Bronze Valves: May be provided with solder-joint ends, mechanical pressure seal joint (press-fit) ends, instead of threaded ends.
  - 2. Two-piece, brass bronze valves with full port and stainless-steel trim.
  - 3. Three-piece, bronze ball valves with full port and stainless-steel trim.

B. Pipe NPS 2-1/2 and Larger:

1. Bronze Valves: May be provided with solder-joint ends, mechanical pressure seal joint (press-fit) ends, instead of threaded or flanged ends.
2. Three-piece, bronze ball valves with regular port and stainless-steel trim.

**END OF SECTION**