

**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 ACTION SUBMITTALS

- A. Product Data: For each type of valve.
1. Certification that products comply with NSF 61 and NSF 372.

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 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. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- F. Valve Sizes: Same as upstream piping unless otherwise indicated.
- G. Valve Actuator Types:
1. Gear Actuator: For quarter-turn valves NPS 4 and larger.
  2. Handlever: For quarter-turn valves smaller than NPS 4.

H. Valves in Insulated Piping:

1. Include 2-inch stem extensions.
2. Extended operating handles of nonthermal-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 BRASS BALL VALVES

A. Brass Ball Valves, One-Piece:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - a. KITZ Corporation.
  - b. Or approved equal
2. Description:
  - a. Standard: MSS SP-110.
  - b. CWP Rating: 400 psig.
  - c. Body Design: One piece.
  - d. Body Material: Forged brass or bronze.
  - e. Ends: Threaded and soldered.
  - f. Seats: PTFE.
  - g. Stem: Brass or stainless steel.
  - h. Ball: Chrome-plated brass or stainless steel.
  - i. Port: Reduced.

B. Brass Ball Valves, Two-Piece with Full Port and Brass Trim, Threaded or Soldered Ends:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. American Valve, Inc.
  - b. Apollo Flow Controls; Conbraco Industries, Inc.
  - c. Crane; a Crane brand.
  - d. Elkhart Products Corporation.
  - e. Or approved equal
2. Description:
  - a. Standard: MSS SP-110 or MSS SP-145.
  - b. CWP Rating: 600 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Forged brass.
  - e. Ends: Threaded and soldered.
  - f. Seats: PTFE.
  - g. Stem: Brass.

- h. Ball: Chrome-plated brass.
- i. Port: Full.

C. Brass Ball Valves, Two-Piece with Full Port and Brass Trim, Press Ends:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. American Valve, Inc.
  - b. Apollo Flow Controls; Conbraco Industries, Inc.
  - c. Crane; a Crane brand.
  - d. NIBCO INC.
  - e. WATTS.
  - f. Or approved equal
2. Description:
  - a. Standard: MSS SP-110 or MSS SP-145.
  - b. CWP Rating: Minimum 200 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Forged brass.
  - e. Ends: Press.
  - f. Press Ends Connection Rating: Minimum 200 psig.
  - g. Seats: PTFE or RPTFE.
  - h. Stem: Brass.
  - i. Ball: Chrome-plated brass.
  - j. Port: Full.
  - k. O-Ring: Buna-N or EPDM.

D. Brass Ball Valves, Two-Piece with Regular Port and Brass Trim:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Apollo Flow Controls; Conbraco Industries, Inc.
  - b. Milwaukee Valve Company.
  - c. NIBCO INC.
  - d. WATTS.
  - e. Or approved equal
2. Description:
  - a. Standard: MSS SP-110.
  - b. CWP Rating: 600 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Forged brass.
  - e. Ends: Threaded and soldered.
  - f. Seats: PTFE.
  - g. Stem: Brass.

- h. Ball: Chrome-plated brass.
- i. Port: Regular.

### 2.3 BRONZE BALL VALVES

#### A. Bronze Ball Valves, One-Piece:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Apollo Flow Controls; Conbraco Industries, Inc.
- b. NIBCO INC.
- c. WATTS.
- d. Or approved equal

2. Description:

- a. Standard: MSS SP-110.
- b. CWP Rating: 400 psig.
- c. Body Design: One piece.
- d. Body Material: Bronze.
- e. Ends: Threaded.
- f. Seats: PTFE.
- g. Stem: Bronze.
- h. Ball: Chrome-plated brass.
- i. Port: Reduced.

#### B. Bronze Ball Valves, Two-Piece with Full Port, and Bronze or Brass Trim, Threaded or Soldered Ends:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Apollo Flow Controls; Conbraco Industries, Inc.
- b. Crane; a Crane brand.
- c. Milwaukee Valve Company.
- d. NIBCO INC.
- e. WATTS.
- f. Or approved equal

2. Description:

- a. Standard: MSS SP-110 or MSS-145.
- b. CWP Rating: 600 psig.
- c. Body Design: Two piece.
- d. Body Material: Bronze.
- e. Ends: Threaded and soldered.
- f. Seats: PTFE.

- g. Stem: Bronze or brass.
- h. Ball: Chrome-plated brass.
- i. Port: Full.

**C. Bronze Ball Valves, Two-Piece with Full Port, and Bronze or Brass Trim, Press Ends:**

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Apollo Flow Controls; Conbraco Industries, Inc.
  - b. Milwaukee Valve Company.
  - c. NIBCO INC.
  - d. WATTS.
  - e. Or approved equal
2. Description:
  - a. Standard: MSS SP-110 or MSS-145.
  - b. CWP Rating: Minimum 200 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Bronze.
  - e. Ends: Press.
  - f. Press Ends Connections Rating: Minimum 200 psig.
  - g. Seats: PTFE or RTPFE.
  - h. Stem: Bronze or brass.
  - i. Ball: Chrome-plated brass.
  - j. Port: Full.
  - k. O-Ring Seal: EPDM or Buna-N.

**D. Bronze Ball Valves, Two-Piece with Regular Port and Bronze or Brass Trim:**

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Apollo Flow Controls; Conbraco Industries, Inc.
  - b. DynaQuip Controls.
  - c. NIBCO INC.
  - d. WATTS.
  - e. Or approved equal
2. Description:
  - a. Standard: MSS SP-110.
  - b. CWP Rating: 600 psig.
  - c. Body Design: Two piece.
  - d. Body Material: Bronze.
  - e. Ends: Threaded.
  - f. Seats: PTFE.
  - g. Stem: Bronze or brass.

- h. Ball: Chrome-plated brass.
- i. Port: Regular.

### PART 3 - EXECUTION

#### 3.1 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.

#### 3.2 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 Steel Piping, NPS 2 and Smaller: Threaded ends.

#### 3.3 LOW-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 PSIG OR LESS)

- A. Pipe NPS 2 and Smaller:
  - 1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
  - 2. Brass ball valves, one piece.
  - 3. Bronze ball valve, one piece with bronze trim.
  - 4. Brass ball valves, two-piece with full port and brass trim.
  - 5. Bronze ball valves, two-piece with full port and bronze or brass trim.

#### 3.4 HIGH-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 TO 200 PSIG)

- A. Pipe NPS 2 and Smaller:
  - 1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
  - 2. Brass ball valve, one piece.
  - 3. Bronze ball valve with bronze trim, one piece.
  - 4. Brass ball valves, two-piece with full port and brass trim.

5. Bronze ball valves, two-piece with full port and bronze or brass trim.

3.5 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:

1. Brass ball valve, one piece. Provide with threaded or solder-joint ends.
2. Bronze ball valve, one piece with bronze trim. Provide with threaded or solder-joint ends.
3. Brass ball valves, two-piece with full port and brass trim. Provide with threaded solder or press connection-joint ends.
4. Bronze ball valves, two-piece with full port and bronze or brass trim. Provide with threaded solder or press-connection-joint ends.

END OF SECTION 220523.12