

**SECTION 22 05 23
GENERAL DUTY VALVES**

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose, Inch; 2013 (Reaffirmed 2018).
- B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2020.
- C. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2022, with Errata (2023).
- D. ASME B16.34 - Valves — Flanged, Threaded, and Welding End; 2025.
- E. ASME B31.1 - Power Piping; 2024.
- F. ASME B31.9 - Building Services Piping; 2025.
- G. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; 2017.
- H. MSS SP-45 - Drain and Bypass Connections; 2020.
- I. MSS SP-80 - Bronze Gate, Globe, Angle, and Check Valves; 2019.

1.02 RELATED DOCUMENTS

- A. This Section is to coordinate with and be complementary to the General Requirements for Plumbing Work, Section 22 00 10..
- B. Section 01 00 00 General Requirements shall apply.
- C. Examine all Drawings and all Sections of the Specifications for requirements and provisions affecting the Work of this Section.

1.03 SUMMARY

- A. Section Includes:
 - 1. Ball valves.
 - 2. Swing check valves.
 - 3. Gate valves.
 - 4. Plug valves.

1.04 DEFINITIONS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene copolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- D. NRS: Non-rising stem.
- E. OS&Y: Outside screw and yoke.
- F. RS: Rising stem.
- G. SWP: Steam working pressure.

1.05 SUBMITTALS

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

1.06 QUALITY ASSURANCE

- A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.
- B. ASME Compliance:

1. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
2. ASME B31.1 for power piping valves.
3. ASME B31.9 for building services piping valves.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 1. Protect internal parts against rust and corrosion.
 2. Protect threads, flange faces, grooves, and weld ends.
 3. Set gate valves closed to prevent rattling.
 4. Set plug valves open to minimize exposure of functional surfaces.
 5. Block check valves in either closed or open position.
- 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

2.01 GENERAL REQUIREMENTS FOR VALVES

- A. Refer to valve schedule articles for applications of valves.
- B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- C. Valve Sizes: Same as upstream piping unless otherwise indicated.
- D. Valve Actuator Types:
 1. Handlever: For quarter-turn valves NPS 6 (DN 150) and smaller except plug valves.
 2. Wrench: For plug valves with square heads. Furnish Owner with 1 wrench for every 10 plug valves, for each size square plug-valve head.
- E. Valve-End Connections:
 1. Flanged: With flanges according to ASME B16.1 for iron valves.
 2. Threaded: With threads according to ASME B1.20.1.
- F. Valve Bypass and Drain Connections: MSS SP-45.
- G.

2.02 BRONZE SWING CHECK VALVES

- A. Class 125, Bronze Swing Check Valves with Bronze Disc:
 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. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Hammond Valve.
 - c. Kitz Corporation.
 - d. Milwaukee Valve Company.
 - e. NIBCO INC.
 - f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
 2. Description:
 - a. Standard: MSS SP-80, Type 3.
 - b. CWP Rating: 200 psig.
 - c. Body Design: Horizontal flow.
 - d. Body Material: ASTM B62, bronze.
 - e. Ends: Threaded.
 - f. Disc: Bronze.

2.03 BRONZE GATE VALVES

- A. Class 125, RS Bronze Gate Valves:
 - 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. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Hammond Valve.
 - c. Kitz Corporation.
 - d. Milwaukee Valve Company.
 - e. NIBCO INC.
 - f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
 - 2. Description:
 - a. Standard: MSS SP-80, Type 2.
 - b. CWP Rating: 200 psig.
 - c. Body Material: ASTM B62, bronze with integral seat and screw-in bonnet.
 - d. Ends: Threaded.
 - e. Stem: Bronze.
 - f. Disc: Solid wedge; bronze.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.

2.04 BALL VALVES

- A. Gas Equipment Shutoff Valves (Ranges and Boiler Pilot Lights)
 - 1. Equipment stopcocks 2 inches and smaller shall be bronze standard port one piece ball valve having stop check with valves 3/4 inch in size having lever handle, and larger sizes having square (or "T") head. Stopcocks 3/4" in size shall be tested as per ANSI Z21.15 at 3 psi for one hour, AGA/CSA certified and OTCR approved.
 - 2. Manufacturers.
 - a. Legend model T-3000.
 - b. Legend model T-3001.

2.05 CONTROL VALVES

- A. Building Shutoff Valves
 - 1. Building shutoff valves shall be iron body plug valve with threaded or flanged ends having lockwing for closed position and be of type approved by the Utility serving the area.
 - 2. Manufacturers.
 - a. Nordstrom Valves, Inc.
 - b. Walworth.
 - c. or equal.
- B. Riser Valves and Meter Valves
 - 1. Valves shall be iron body plug valve or brass ball valve having lockwing for closed position and be of type approved by the Utility serving the area.
 - 2. Manufacturers.
 - a. Jomar,
 - b. Mueller,
 - c. Rockford-Eclipse,
 - d. A.Y. McDonald,
 - e. Nordstrom Valves, Inc.
 - f. or equal.

2.06 PLUG VALVES

- A. Type AA: 200 psig WOG, lubricated type with standard port opening, cast iron or semi-steel body, sealed lubrication system with lubricant fitting and dial indicator, cylindrical plug or teflon tapered plug, lubricant grooves in body or plug, threaded or flanged ends depending on size, and capable of lubrication with valve under pressure and plug in any position.
 - 1. Acceptable Valves:
 - a. 1/2 inch to 1 inch size: Dresser Industries 175GTO and Nordstrom Valves, Inc. Fig. 142T.
 - b. 1 inch size to 2 inch size: Dresser Industries 175GTO, Nordstrom Valves, Inc. Fig. 142T and Walworth Company 1796T.
 - c. 3 inch size to 4 inch size: Nordstrom Valves, Inc. Fig. 142T Threaded End or Fig 143T Flanged End and Walworth 1797F.
 - 2. Operators:
 - a. 6 inch size and Less: Wrench operator.
- B. Type AB: 100 psig WOG, gas cock type with cast iron or bronze body, bronze plug, square head, wrench operator, and threaded ends. Acceptable Manufacturers:
 - 1. Crane.
 - 2. Eclipse Combustion.
 - 3. A. Y. McDonald.
 - 4. Nordstrom Valves, Inc.

PART 3 - EXECUTION

3.01 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.

3.02 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. Install check valves for proper direction of flow and as follows:
 - 1. Swing Check Valves: In horizontal position with hinge pin level.

3.03 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valve applications are not indicated, use the following:
 - 1. Shutoff Service: Gate valves.
 - a. NPS 2 and Smaller: Bronze swing check valves with bronze or nonmetallic disc.
- B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP classes or CWP ratings may be substituted.

- C. Lubricated plug valves 2" and smaller shall be short pattern threaded, 2½" and larger shall be regular pattern flanged.

END OF SECTION 22 05 23 22 05 23