

**SECTION 22 05 23.15
GATE VALVES FOR PLUMBING PIPING**

GATE VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and division of specification sections apply to this section.

1.03 SUMMARY

- A. Section Includes:
 - 1. Bronze gate valves.
 - 2. Iron gate valves.
 - 3. Chainwheels.

1.04 DEFINITIONS

- A. CWP: Cold working pressure.
- B. NRS: Non-rising stem.
- C. OS&Y: Outside screw and yoke.
- D. RS: Rising stem

1.05 ACTION SUBMITTALS

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

1.06 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.

- 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 handwheels or stems as lifting or rigging points.

REFERENCE STANDARDS

- 1.07 ASME B1.20.1 - PIPE THREADS, GENERAL PURPOSE, INCH; 2013 (REAFFIRMED 2018).
- 1.08 ASME B16.1 - GRAY IRON PIPE FLANGES AND FLANGED FITTINGS: CLASSES 25, 125, AND 250; 2020.
- 1.09 ASME B16.10 - FACE-TO-FACE AND END-TO-END DIMENSIONS OF VALVES; 2022, WITH ERRATA (2023).
- 1.10 ASME B16.18 - CAST COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS; 2021.
- 1.11 ASME B16.34 - VALVES — FLANGED, THREADED, AND WELDING END; 2025.
- 1.12 ASME B31.9 - BUILDING SERVICES PIPING; 2025.
- 1.13 MSS SP-45 - DRAIN AND BYPASS CONNECTIONS; 2020.
- 1.14 MSS SP-70 - GRAY IRON GATE VALVES, FLANGED AND THREADED ENDS; 2011.
- 1.15 MSS SP-80 - BRONZE GATE, GLOBE, ANGLE, AND CHECK VALVES; 2019.
- 1.16 NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS; 2024.
- 1.17 NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT; 2024.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR VALVES

- A. Source Limitations for valves: Obtain each type of valve from single source from single manufacturer.
 - 1. 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 B16.1 for flanges on iron valves.
 - 3. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
 - 4. ASME B16.18 for solder joint.
 - 5. 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. 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. RS Valves in Insulated Piping: With 2-inch (50-mm) stem extensions.

- H. Valve Bypass and Drain Connections: MSS SP-45.

2.02 BRONZE GATE VALVES

- A. Bronze Gate Valves, NRS, Class 125:
 - 1. Description:
 - a. Standard: MSS SP-80, Type 1.
 - b. CWP Rating: [200] psig.
 - c. Body Material: Bronze with integral seat and screw-in bonnet.
 - d. Ends: Threaded or solder joint.

- e. Stem: Bronze.
 - f. Disc: Solid wedge; bronze.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.
- B. Bronze Gate Valves, RS, Class 125:
- C. Description:
- a. Standard: MSS SP-80, Type 1.
 - b. CWP Rating: 200 psig.
 - c. Body Material: Bronze with integral seat and screw-in bonnet.
 - d. Ends: Threaded or solder joint.
 - e. Stem: Bronze.
 - f. Disc: Solid wedge; bronze.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.
- D. Bronze Gate Valves, RS, Class 125:
1. Description:
 2. Standard: MSS SP-80, Type 2.
 - a. CWP Rating: 200 psig.
 - b. Body Material: Bronze with integral seat and screw-in bonnet.
 - c. Ends: Threaded or solder joint.
 - d. Stem: Bronze.
 - e. Disc: Solid wedge; bronze.
 - f. Packing: Asbestos free.
 - g. Handwheel: Malleable iron, bronze, or aluminum.
- E. Bronze Gate Valves, NRS, Class 150:
1. Description:
 - a. Standard: MSS SP-80, Type 1.
 - b. CWP Rating: 300 psig.
 - c. Body Material: Bronze with integral seat and union-ring bonnet.
 - d. Ends: Threaded.
 - e. Stem: Bronze.
 - f. Disc: Solid wedge; bronze.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.
- F. Bronze Gate Valves, RS, Class 150:
1. Description:
 - a. Standard: MSS SP-80, Type 2.
 - b. CWP Rating: 300 psig.
 - c. Body Material: Bronze with integral seat and union-ring bonnet.
 - d. Ends: Threaded.
 - e. Stem: Bronze.
 - f. Disc: Solid wedge; bronze.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.

2.03 IRON GATE VALVES

- A. Iron Gate Valves, NRS, Class 150:
1. Description:
- B. Description:
1. Standard: MSS SP-70, Type I.

2. Standard: MSS SP-70, Type I.
 3. CWP Rating: 200 psig.
 4. Body Material: Gray iron with bolted bonnet.
 5. Ends: Flanged.
 6. Trim: Bronze.
 7. Disc: Solid wedge.
 8. Packing and Gasket: Asbestos free.
 9. Iron Gate Valves, NRS, Class 250:
- C. Description:
1. Standard: MSS SP-70, Type I.
 2. CWP Rating: 500 psig.
 3. Body Material: Gray iron with bolted bonnet.
 4. Ends: Flanged.
 5. Trim: Bronze.
 6. Disc: Solid wedge.
 7. Packing and Gasket: Asbestos free.
 8. Iron Gate Valves, OS&Y, Class 250:
- D. Description:
1. Standard: MSS SP-70, Type I.
 2. CWP Rating: 500 psig.
 3. Body Material: Gray iron with bolted bonnet.
 4. Ends: Flanged.
 5. Trim: Bronze.
 6. Disc: Solid wedge.
 7. Packing and Gasket: Asbestos free.

2.04 CHAINWHEELS

- A. Description: Valve actuation assembly with sprocket rim, chain guides, chain, and attachment brackets for mounting chainwheels directly to hand wheels.
1. Sprocket Rim with Chain Guides: Ductile or cast iron, Bronze, of type and size required for valve. Include zinc or epoxy coating.
 2. Chain: Stainless steel, of size required to fit sprocket rim.

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 chainwheels on operators for gate valves NPS 4 (DN 100 and larger and more than 96 inches above floor. Extend chains to 60 inches above finished floor.
- F. Install valve tags. Comply with requirements in Section 220553 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.

3.03 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 if persistent leaking occurs.

3.04 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. Use gate valves for shutoff service only.
- B. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.
- C. For Grooved-End Copper Tubing and Steel Piping: Valve ends may be grooved.

3.05 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

- A. Pipe NPS 2 (DN 50) and Smaller: Bronze gate valves, Class 125, Class 150 with threaded ends.
- B. Pipe NPS 2-1/2 (DN 65) and Larger: Iron gate valves, OS&Y, Class 125, Class 250 with flanged ends.

END OF SECTION 22 05 23.15

NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS; 2024.

NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT; 2024.