
SECTION 22 10 07
PLUMBING GENERAL DUTY VALVES FOR PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General Valves. For other systems refer to individual Division 21 and 22 Sections.

1.2 RELATED REQUIREMENTS

- A. Section 00 62 33.14 - Material and Product Certificate of Compliance Form.
B. Section 22 00 00 - Plumbing Common Work Results; for administrative requirements
C. Section 22 00 00 - Plumbing Common Work Results; for closeout requirements
D. Section 22 00 00 - Plumbing Common Work Results
E. Division 22.

1.3 REFERENCE STANDARDS

- A. ASME B1.20.1- This Standard covers dimensions and gaging of pipe threads.
B. ASME B16.1- Standards covers pipes and fittings in cast iron, cast bronze, wrought copper.
C. ASME B16.8 - Standards covers pipe flanges.
D. ASME B16.10 for ferrous valve dimensions and design criteria.
E. ASME B16.34 for ferrous valve dimensions and design criteria.
F. ASME B31.1 for power piping valves.
G. ASME B31.9 for building services piping valves.
H. AWWA C606 - American Water Works Association.
I. MSS SP-67 Butterfly Valves.
J. MSS SP-72 Ball valves with flanged or butt - welding ends for general service.
K. MSS-SP-80 Bronze Gate, globe angle and check valves.
L. MSS-SP-110 Ball Valves Threaded Socket-Welding Solder Joint Grooved and Flared Ends.
M. NSF - National Sanitation Foundation.

1.4 SUBMITTALS

- A. See Section 22 00 00 - Plumbing Common Work Results; for submittal procedures.
B. Listed manufacturers and series are for reference only and do not promote any single product. Series are provided for reference, and should not be used as an ordering model number. Accessories and options may be custom components purchased separately.
C. Product Data: Provide manufacturer's most current catalog data sheet for equipment indicating rough-in size, finish, and accessories. Manufacturer's data sheets on each item of equipment and device, shall be clearly marked up to identify the items, accessories and options to be used on the project.
 1. Valves (22 10 07 - 001 - A)
 2. Check valves (22 10 07 - 002 - A)
 3. Hose end valves (22 10 07 - 003 - A)
D. Submit a Certificate of Compliance, Section 00 62 33.14, together with supporting data, from the materials supplier(s) attesting that valves, accessories, and specialties meet or exceed specification requirements and are designed for the system specified.
 1. Valves (22 10 07 - 001 - A)
 2. Check valves (22 10 07 - 002 - A)
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- 3. Hose end valves (22 10 07 - 003 - A)
 - E. Project Record Documents: Record actual locations of valves.
 - 1. Refer to Section 22 00 00 - Plumbing Common Work Results; for additional requirements
 - 2. Record Documents (22 00 00 - 005 - A)
 - F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Provide Owner with one operating wrench for every ten (10) valves of each type (but not less than 2 wrenches) not equipped with hand wheels or levers.

1.5 **QUALITY ASSURANCE**

- A. Valves: Manufacturer's name and pressure rating marked on valve body.

1.6 **DELIVERY, STORAGE, AND HANDLING**

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.

PART 2 PRODUCTS

2.1 **VALVES**

- A. Furnish and install valves as specified herein and as scheduled in Part 3 – Execution, of this Section. Insofar as possible all valves shall be of a single manufacturer.
 - B. Packings, gaskets, discs, seats, diaphragms, lubricants, etc., shall conform to recommendations of the valve manufacturer for the intended service.
 - C. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
 - D. Valve Sizes: Same as upstream piping unless otherwise indicated.
 - E. Valve Actuator Types:
 - 1. Hand Wheel: For valves other than quarter-turn types.
 - 2. Hand Lever: For quarter-turn valves NPS 6 and smaller.
 - 3. Wrench: For plug valves with square heads. Furnish Owner with 1 wrench for every 10 plug valves, for each size square plug-valve head.
 - F. Valves in Insulated Piping: With 2-inch stem extensions and the following features:
 - 1. Ball Valves: With extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.
 - G. Valve-End Connections:
 - 1. Flanged: With flanges according to ASME B16.1 for iron valves.
 - 2. Grooved: With grooves according to AWWA C606.
 - 3. Valve solder-joint connections are common in smaller sizes of plumbing piping. Soldering and brazing methods used to achieve required pressure-temperature ratings may damage internal valve parts. Special installation requirements for soldered valves may make threaded valves more cost-effective.
 - H. Caution: Use solder with melting point below 840 deg F (454 deg C) for angle, check, gate, and globe valves and below 421 deg F (216 deg C) for ball valves.
 - 1. Solder Joint: With sockets according to ASME B16.18.
 - 2. Threaded: With threads according to ASME B1.20.1.
 - I. If space permits, install valves with stems horizontal or extending vertically upward unless specifically shown otherwise. Valves shall be installed in accessible locations for operation as well as for removal,
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repair, or replacement.

2.2 BALL VALVES

- A. Ball Valve 1 (BA-1):
 - 1. Size: 2" and smaller.
 - 2. Pressure (psig): 150S, 400WOG.
 - 3. Description: NSF approved for potable water (Domestic water systems); bronze, 3 piece breakdown style body; stainless steel ball; teflon seats; full port design.
 - 4. Manufacturer: Anvil International, Apollo, Nibco, or equal.
- B. Ball Valve 2 (BA-2):
 - 1. Size: 2" and smaller.
 - 2. Pressure (psig): 150S, 400WOG.
 - 3. Description: NSF/AWWA approved for potable water (Domestic water systems); chlorinated polyvinyl chloride (CPVC) body; ball Teflon seats, O-ring seals; teflon seats; true union; full port design.
 - 4. Manufacturer: Nibco, R.G. Sloane, or equal.
- C. Ball Valve 3 (BA-3):
 - 1. Size: 2" through 8"
 - 2. Pressure (psig): 200WC, 200 degrees F.
 - 3. Description: NSF approved for potable water (domestic water systems); epoxy coated A126 Class B iron body; teflon-fused solid ball; full port; 100 percent lead free.
 - 4. Manufacturer: American Valve, or equal.

2.3 CHECK VALVES

- A. Check Valve 2 (CK-2):
 - 1. Size: 2" and smaller.
 - 2. Pressure (psig): 125S, 200WOG.
 - 3. Description: Bronze body; renewable bronze disc swing type.
 - 4. Manufacturer: Crane, Nibco, Hammond, Anvil International, Milwaukee, or equal.
- B. Check Valve 3 (CK-3):
 - 1. Size: 2-1/2" through 12".
 - 2. Pressure (psig): 125S, 200WOG.
 - 3. Description: Iron body; bronze trim; bronze disc swing type.
 - 4. Manufacturer: Crane, Nibco, Hammond, Anvil International, Milwaukee, or equal.

2.4 BUTTERFLY VALVES

- A. Butterfly Valve 4 (BF-4):
 - 1. Size: 2-1/2" through 6", ANSI / NSF 61.
 - 2. Pressure (psig): 300 WOG.
 - 3. Description: Brass casting, aluminum-bronze disk, stainless steel stem.
 - 4. Handle: Less than 4", position locking handle, 4" and greater, gear operator with position indicator.
 - 5. Manufacturer: Victaulic or equal.

2.5 GATE VALVES

- A. Gate Valve 2 (GA-2):
 - 1. Size: 2-1/2" through 12".
 - 2. Pressure (psig): 250WWP.
 - 3. Description: AWWA C509 approved; iron body; resilient wedge; bronze trim; OS&Y.
 - 4. Manufacturer: Kennedy Valve, Nibco, or equal.

2.6 PLUG VALVES

2.7 HOSE END VALVES:

- A. Hose Valve:
 - 1. Size: 3/4".
 - 2. Description: Bronze Body; two piece; full port; hose connection with cap and bead chain.
 - 3. Manufacturer: Watts, Apollo, Nibco, or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Perform work in accordance with the following:
 - 1. Federal, State and Local Codes.
 - 2. Manufacturer's Requirements.
- B. All valves shall be carefully inspected for defects in workmanship prior to installation. Any item found unsuitable, cracked, or otherwise defective shall be rejected and removed from the job site. All valves shall have factory applied markings, stampings, or nameplates with sufficient data for identification to determine their conformance with specified requirements.
- C. Provide flanges or unions at all final connections to valves to facilitate dismantling.
- D. Unless otherwise indicated, install all shutoff valves to fixture or equipment at line size with reduction in size being made only at inlet to equipment or fixture.
- E. Furnish and install Valve Tags per Section 22 05 53 - Plumbing Identification for Piping and Equipment.
- F. Furnish and install access doors for concealed valves per Section 22 00 00 - Plumbing Common Work Results.
- G. Furnish and install valves rated and compatible with system type and pipe type per Section 22 10 05 - Plumbing Piping.

3.2 SCHEDULE

- A. Valves shall be installed in accordance with the following valve schedule:
 - 1. Valve Service: Shut-Off:
 - a. Domestic Water, Copper: BA-1, BA-3, GA-2, or BF-4
 - b. Domestic Water, PVC: BA-2
 - 2. Valve Service: Check:
 - a. Domestic Water, Copper: CK-2 or CK-3
 - b. Domestic Water, PVC: CK-2
 - 3. Valve Service: Hose End:
 - a. Strainer blow down.
 - b. System drain valve.

END OF SECTION 22 10 07