

SECTION 220523 - PLUMBING PIPING VALVES AND SPECIALTIES

PART 1 - GENERAL

1.01 BUY AMERICAN REQUIREMENTS

- A. Provide certificates to show that all products meet the following requirements.
 - 1. American Iron and Steel (AIS)
 - 2. Build America, Buy America Act
- B. See Supplementary Conditions for details.

1.02 SUMMARY

- A. Section Includes:
 - 1. Backflow preventers.
 - 2. Wall hydrants.
 - 3. Ball Valves
 - 4. Drain Valves
 - 5. Trap-seal primer device.

1.03 REFERENCES

- A. ASTM International:
 - 1. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - 2. ASTM D4101 - Standard Specification for Propylene Injection and Extrusion Materials.
- B. Manufacturers Standardization Society of the Valve and Fittings Industry:
 - 1. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
 - 2. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.04 SUBMITTALS

- A. Section 013300 "Submittal Procedures": Requirements for submittals.
- B. Product Data: Submit manufacturer's catalog information with valve data and ratings for each service.
- C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures.

- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.05 CLOSEOUT SUBMITTALS

- A. Section 017700 "Closeout Procedures": Requirements for submittals.
- B. Project Record Documents: Record actual locations of valves and specialties.
- C. Operation and Maintenance Data: Submit installation instructions, spare parts lists, exploded assembly views.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Section 014000 "Quality Requirements": Requirements for transporting, handling, storing, and protecting products.
- B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- C. Provide temporary protective coating on cast iron and steel valves.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Section 014000 "Quality Requirements": Environmental conditions affecting products on site.
- B. Do not install valves underground when bedding is wet or frozen.

1.09 WARRANTY

- A. Section 017700 "Closeout Procedures": Requirements for warranties.
- B. Furnish five year manufacturer warranty for specialties and valves excluding packing.

1.10 EXTRA MATERIALS

- A. Section 017000 "Closeout Procedures": Requirements for extra materials.

- B. Furnish two packing kits for each size valve.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR PIPING VALVES AND SPECIALTIES

- A. Domestic water piping specialties intended to convey or dispense water for human consumption are to comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or to be certified in compliance with NSF 61 and NSF 372 by an American National Standards Institute (ANSI)-accredited third-party certification body that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

2.02 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig unless otherwise indicated.

2.03 BACKFLOW PREVENTERS

- A. Double-Check, Backflow-Prevention Assemblies:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. WATTS; A Watts Water Technologies Company.
 - 2. Standard: ASSE 1015, AWWA C510.
 - 3. Operation: Continuous-pressure applications unless otherwise indicated.
 - 4. Pressure Loss: 7 psig maximum, through middle third of flow range.
 - 5. Size: 1-inch.
 - 6. Design Flow Rate: 6 gpm.
 - 7. Selected Unit Flow Range Limits: 10 gpm
 - 8. Pressure Loss at Design Flow Rate: 4 psig for sizes NPS 2 and smaller.
 - 9. In "Body" Subparagraph below, not all manufacturers offer certified lead-free for "Bronze" option. If certified lead-free bronze is required, consult manufacturers.
 - 10. Body: Bronze for NPS 2 and smaller.
 - 11. End Connections: Threaded for NPS 2 and smaller.
 - 12. Configuration: Designed for horizontal, straight-through flow.
 - 13. Accessories:
 - a. Valves NPS 2 (DN 50) and Smaller: Ball type with threaded ends on inlet and outlet.

2.04 WALL HYDRANTS / HOSE BIBBS

- A. Reference section 224000 "Plumbing Fixtures".

2.05 BALL VALVES

- A. Manufacturers:
 - 1. Tyco Flow Control
 - 2. Conbraco Industries
 - 3. Nibco, Inc
 - 4. Milwaukee Valve Company
- B. Construction, 3 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze, two piece body, chrome plated brass ball, full port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends. Solder ends acceptable only on smaller than 1-inch size. Lead Free.

2.06 DRAIN VALVES

- A. Ball-Valve-Type, Hose-End Drain Valves:
 - 1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
 - 2. Pressure Rating: 400-psig minimum CWP.
 - 3. Size: NPS 3/4.
 - 4. Body: Copper alloy.
 - 5. Ball: Chrome-plated brass.
 - 6. Seats and Seals: Replaceable.
 - 7. Handle: Vinyl-covered steel.
 - 8. Inlet: Threaded or solder joint.
 - 9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.
- B. Gate-Valve-Type, Hose-End Drain Valves:
 - 1. Standard: MSS SP-80 for gate valves.
 - 2. Pressure Rating: Class 125.
 - 3. Size: NPS 3/4.
 - 4. Body: ASTM B62 bronze.
 - 5. Inlet: NPS 3/4 threaded or solder joint.
 - 6. Outlet: Garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

2.07 TRAP-SEAL PRIMER DEVICE (TP-1)

- A. Supply-Type, Trap-Seal Primer Device:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Precision Plumbing Products.
2. Standard: ASSE 1018.
3. Pressure Rating: 80 psig maximum.
4. Body: Brass.
5. Inlet and Outlet Connections: NPS 1/2 threaded, union, or solder joint.
6. Gravity Drain Outlet Connection: NPS 1/2 threaded or solder joint.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Section 017300 "Execution": Verification of existing conditions before starting work.
- B. Verify piping system is ready for valve installation.

3.02 INSTALLATION

- A. Backflow Preventers: Install in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
 1. Do not install bypass piping around backflow preventers.
- B. Supply-Type, Trap-Seal Primer Device: Install with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.
- C. Install valves with stems upright or horizontal, not inverted.
- D. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- E. Install 3/4-inch ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.
- F. Install valves with clearance for installation of insulation and allowing access.
- G. Provide access where valves and fittings are not accessible.
- H. Locate isolation valves near equipment so that they can be easily seen and operated from access points.
- I. For installation of valves in fuel oil systems refer to Section 231113 "Facility Fuel-Oil Piping."

3.03 PIPING CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. When installing piping specialties adjacent to equipment and machines, allow space for service and maintenance.

3.04 ELECTRICAL CONNECTIONS

- A. Connect wiring in accordance with Section 260523 "Control Voltage Electrical Power Cables."
- B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."
- C. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

3.05 CONTROL CONNECTIONS

- A. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."

3.06 IDENTIFICATION

- A. Plastic Labels for Equipment: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
 - 1. Backflow preventers.
 - 2. Wall hydrants.
 - 3. Trap-seal primer device.
- B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.07 VALVE APPLICATIONS

- A. Provide ball valves for pipe sizes 2 inches and smaller. Provide ball or gate valves for pipe sizes larger than 2 inches.
- B. Install shutoff and drain valves at locations indicated on Drawings in accordance with this Section.
- C. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

- D. Install ball valves for throttling, bypass, or manual flow control services.
- E. Install ball valves in domestic water systems for shut-off service.
- F. Install ball valves in domestic water systems for throttling service.

END OF SECTION

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