

SECTION 15110 - VALVES

PART 1 - GENERAL

0.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

0.2 SUMMARY

- A. This Section includes valves for building services piping.

0.3 REFERENCES

- A. AGA Z21.22 – Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems.
- B. ASME B16.3 – Malleable Iron Threaded Fittings.
- C. AWS – Welding and Brazing Qualifications.
- D. MSS SP - 67 – Butterfly Valves.
- E. MSS SP - 71 – Cast Iron Swing Check Valves, Flanged and Threaded Ends.
- F. MSS SP – 78 – Cast Iron Plug Valves, Flanged and Threaded Ends.
- G. MSS SP – 80 – Bronze Gate, Globe, Angle and Check Valves.
- H. MSS SP – 85 – Cast Iron Globe & Angle Valves, Flanged and Threaded Ends.
- I. MSS SP – 110 – Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

0.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain valves of same type through one source from a single manufacturer.
- B. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

0.5 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.

0.6 WARRANTY

- A. Provide five year manufacturer warranty for valves excluding packing.

0.7 EXTRA MATERIALS

- A. Supply two packing kits for each size valve.

PART 2 - PRODUCTS

0.1 GATE VALVES

- A. Up to and Including 3 inches: MSS SP – 80, bronze body, bronze trim, rising stem, hand-wheel, inside screw, solid wedge disc, threaded ends.
- B. 2 inches and Larger: MSS SP – 70, iron body, bronze trim, outside screw and yoke, hand-wheel, solid wedge disc, flanged ends. Provide chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

0.2 GLOBE VALVES

- A. Up to and Including 3 inches: MSS SP – 80, bronze body, bronze trim, hand-wheel, bronze disc, threaded ends.
- B. 2 inches and Larger: MSS SP – 85, iron body, bronze trim, outside screw and yoke, hand-wheel, renewable bronze plug-type disc, renewable seat, flanged ends. Provide chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

0.3 BALL VALVES

- A. Construction, 4 inches and Smaller: MSS SP – 110, bronze, two piece body, chrome plated brass ball, regular port, Teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded ends with union.

0.4 PLUG VALVES

- A. Construction 2 ½ inches and Larger: MSS SP – 78, cast iron body and plug, pressure lubricated, Teflon or Buna N packing, flanged ends. Provide lever operator with setscrew.

0.5 BUTTERFLY VALVES

- A. Construction 1 ½ inches and Larger: MSS SP – 67, cast or ductile iron body. Aluminum bronze disc, resilient replaceable Buna N seat, grooved ends, extended neck, 10 position lever handle. Provide gear operators for valves 8 inches and larger, and chain-wheel operators for valves mounted over 8 feet above floor.

0.6 SWING CHECK VALVES

- A. Up To and Including 3 inches.
 - 1. MSS SP-80 bronze body and cap, bronze swing disc with rubber seat, threaded ends.
- B. 2 inches and Larger:
 - 1. MSS SP – 71, iron body, bronze swing disc, renewable disc seal and seat ends.

0.7 SPRING LOADED CHECK VALVES

- A. Construction: Class 125 or Class 150, iron body, bronze trim, stainless steel springs, bronze disc, Buna N seals, wafer style ends.

0.8 WATER PRESSURE REDUCING VALVES

- A. Up to 2 inches:
 - 1. Construction: MSS SP – 80, bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded ends.
- B. Over 2 inches:
 - 1. Construction: MSS SP – 85, cast iron body, bronze fitted, elastomeric diaphragm and seat disc, flanged.

0.9 RELIEF VALVES

- A. Pressure Relief:
 - 1. Construction: AGA Z21.22 certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
- B. Temperature and Pressure Relief:
 - 1. Construction: AGA Z21.22 certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME SEC IV certified and labeled.

0.10 FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe 2 inches and Under:
 - 1. Ferrous Piping: 150 psig malleable iron, threaded.
 - 2. Copper Piping: Bronze.

- B. Flanges for Pipe Over 2 inches:
 - 1. Ferrous Piping: 150 psig forged steel, slip-on.
 - 2. Copper Piping: Bronze.
- C. Gaskets: 1/16 inch thick preformed neoprene.
- D. Grooved and Shouldered Pipe End Couplings:
 - 1. Housing Clamps: Malleable iron to engage and lock designed to permit some angular deflection, contraction, and expansion.
 - 2. Sealing Gasket: C-shape elastomer composition for operating temperature range from minus 30 degrees F to 230 degrees F.
- E. Accessories: Steel bolts, nuts, and washers.
- F. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

PART 3 - EXECUTION

0.1 EXAMINATION

- A. Verify Piping System is ready for installation.

0.2 INSTALLATION

- A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Install valves with stems upright or horizontal, not inverted.
- C. Use grooved mechanical couplings and fasteners only in accessible locations.
- D. Install unions downstream of valves and at equipment or apparatus connections. Do not use direct welded or threaded connections to valves, equipment or other apparatus.
- E. Install gate, ball, or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- F. Install globe, ball or butterfly valves for throttling, bypass, or manual flow control services.
- G. Provide plug valves in natural, **[propane]** gas systems for shut-off service.
- H. Use lug end butterfly valves to isolate equipment.
- I. Use ¾ inch gate, ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

0.3 INTERFACE WITH OTHER PRODUCTS

- A. Conform to applicable piping specification for hangers and insulation.

END OF SECTION 15110