

SECTION 15111

GENERAL DUTY VALVES FOR PLUMBING

PART 1 –GENERAL

1.1 SUMMARY

A. Section includes valves for building services piping.

1.2 REFERENCES

A. AGA Z21.22 (American Gas Association) - Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems.

B. ASME B16.3 (American Society of Mechanical Engineers) - Malleable Iron Threaded Fittings.

C. AWS (American Welding Society) - Welding and Brazing Qualifications.

D. MSS SP-67 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Butterfly Valves.

E. MSS SP-71 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Cast Iron Swing Check Valves, Flanged and Threaded Ends.

F. MSS SP-78 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Cast Iron Plug Valves, Flanged and Threaded Ends.

G. MSS SP-80 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Bronze Gate, Globe, Angle and Check Valves.

H. MSS SP-85 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Cast Iron Globe & Angle Valves, Flanged and Threaded Ends.

I. MSS SP-110 (Manufacturers Standardization Society of the Valve and Fittings Industry) - Ball Valves Threaded, Socket-Welding, Solder

1.3 SUBMITTALS

A. Section 01330: Submittal Procedures.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01770 – Closeout and Turnover Procedures: Closeout procedures.
- B. Project Record Documents: Record actual locations of valves.
- C. Operation and Maintenance Data: Submit installation instructions, spare parts lists, exploded assembly views.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes and laws as well as the School of Medicine Guidelines, Stanford University Facilities Design and Construction Standards, and all Stanford University Contract documents.
- B. Maintain one copy of each document on site.

1.6 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 three years documented experience.

1.7 PRE-INSTALLATION MEETING

- A. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store and protect equipment.
- 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.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Store and protect equipment.
- B. Do not install valves underground when bedding is wet or frozen.

1.10 WARRANTY

- A. Section 01770 - Execution Requirements: Product warranties and product bonds.
- B. Provide a minimum of one year manufacturer's warranty for valves excluding packing.

1.11 EXTRA MATERIALS

- A. Section 01770 - Execution Requirements: Spare parts and maintenance products.
- B. Supply two packing kits for each size valve.

PART 2 –PRODUCTS

2.1 GATE VALVES

- A. Up to and including 3 inches:
 - 1. MSS SP-80, Class 125, bronze body, bronze trim, rising stem, hand-wheel, inside screw, solid wedge disc, solder ends.
- B. 4 inches and larger:
 - 1. MSS SP-70, Class 125, 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.

2.2 GLOBE VALVES

- A. Up to and including 3 inches:
 - 1. MSS SP-80, Class 125, bronze body, bronze trim, hand-wheel, teflon disc, threaded ends.
- B. 4 inches and larger:
 - 1. MSS SP-85, Class 125, iron body, bronze trim, hand-wheel, outside screw and yoke, 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.

2.3 BALL VALVES

- A. 4 inches and smaller, valves over 4 inches shall be gate valves:
 - 1. MSS SP-110, Class 150, 400 psi CWP, bronze, two piece body, chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, threaded ends.

2.4 PLUG VALVES

A. Construction 2-1/2 inches and larger:

1. MSS SP-78, 175 psi CWP, cast iron body and plug, pressure lubricated, teflon or Buna N packing, flanged ends. Provide lever operator with setscrew.

2.5 BUTTERFLY VALVES

A. Construction 1-1/2 inches and larger:

1. MSS SP-67, 200 psi CWP, cast or ductile iron body. Nickel-plated ductile iron disc, resilient replaceable EPDM seat, lug ends, extended neck, lever handle
Provide gear operators for valves 8 inches and larger, and chainwheel operators for valves mounted over 8 feet above floor.

2.6 FLOW CONTROLS

A. Construction: Class 125, Brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blow-down/back-flush drain.

- ### B. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.

2.7 SWING CHECK VALVES

A. Up to and including 3 inches:

1. MSS SP-80, Class 125, bronze body and cap, bronze swing disc with rubber seat, threaded ends.

B. 4 inches and larger:

1. MSS SP-71, Class 125, iron body, bronze swing disc, flanged ends.

2.8 SPRING LOADED CHECK VALVES

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

2.9 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 double union ends.

B. Over 2 inches:

1. Construction: MSS SP-85, cast iron body, bronze fitted, elastomeric diaphragm and seat disc, flanged.

2.10 RELIEF VALVES

A. Pressure Relief:

1. Construction: AGA Z21.22 certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
2. Construction: Bronze body, Teflon seat, steel stem and springs, automatic, direct pressure actuated at maximum 60 psi, UL listed for fuel oil, capacities ASME certified and labeled

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.

PART 3 –EXECUTION

3.1 EXAMINATION

- A. Section 01330 - Administrative Requirements: Coordination and project conditions.
- B. Verify Piping System is ready for installation.

3.2 INSTALLATION

- A. Provide brass transition fittings at connections wherever joining 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 ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- F. Install globe valves for throttling, bypass, or manual flow control services.
- G. Provide spring loaded check valves on discharge of water pumps.
- H. Provide plug valves in natural or propane gas systems for shut-off service.

- I. Provide flow controls in water re-circulating systems where indicated.
- J. Use all bronze valves for fuel oil service.
- K. Use 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.
- L. Provide ball valves at each room with plumbing fixtures at an accessible location for easy isolation from mains.

3.3 INTERFACE WITH OTHER PRODUCTS

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

END OF SECTION