

**SECTION 22 05 23**  
**GENERAL-DUTY VALVES FOR PLUMBING PIPING**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. General-duty valves for domestic water and sewer systems.

**1.2 RELATED WORK**

- A. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

**1.3 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Manufacturer's Literature and Data:
  - 1. Valves.
  - 2. Backflow Preventers.
  - 3. Pressure Reducing Valves.
  - 4. All items listed in Part 2 - Products.

**1.4 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
  - A536-84(R1999) E1 .....Ductile Iron Castings
- C. National Association of Plumbing - Heating - Cooling Contractors (PHCC):
  - National Standard Plumbing Code - 1996
- D. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
  - SP-67-02 .....Butterfly Valve of the Single flange Type (Lug Wafer)
  - SP-70-98 .....Cast Iron Gate Valves, Flanged and Threaded Ends.
  - SP-72-99 .....Ball Valves With Flanged or Butt Welding For General Purpose
  - SP-80-03 .....Bronze Gate, Globe, Angle and Check Valves.
  - SP-110-96 .....Ball Valve Threaded, Socket Welding, Solder Joint, Grooved and Flared Ends
- E. American Society of Sanitary Engineers (ASSE):
  - 1013-99 .....Reduced Pressure Principle Backflow Preventers
  - 1015-99 .....Double Check Backflow Prevention Assembly

**PART 2 - PRODUCTS**

**2.1 VALVES**

- A. Asbestos packing is prohibited.
- B. Shut-off:

1. Cold, Hot and Recirculating Hot Water:
    - a. Fifty millimeter (2 inches) and smaller:
      - 1) Ball, Mss SP-72, SP-110, Type II, Class 125, Style 1, three piece or double union end construction, full ported, full flow, with solder end connections, 2750 kPa (400 psi) WOG, MSS-SP-67.
    - b. Less than 100 mm (4 inches): Butterfly, iron body, aluminum bronze disc, 416 stainless steel stem, EPDM seat, wafer design, lever operator to six 150 mm (6 inch )size, , 1375 kPa (200 pound) WOG, Fed. Spec WW-V-1967.
  2. Reagent Grade Water: Shall be ball type of same material as used for pipe.
- C. Balancing:
1. Hot Water Recirculating, 50 mm (2 inches) and smaller: Combination type, calibrated, bronze with bronze disc, equipped with readout valves with integral check valve, indexing position pointer and calibrated name plate, internal EPT O-ring seals and factory molded insulating enclosures.
  2. Larger than 50 mm (2 inches): Combination balancing and shut-off, non-lubricated eccentric plug type with cast iron or semi-steel body, electroless nickel plated cast iron plug, with resilient facing suitable for continuous water service up to 80 °C (180 °F), bronze bearings, 1200 kPa (175 pound) WOG rating and an adjustable open position memory stop and lever.
- D. Check:
1. Less than 100 mm (3 inches) and smaller): Bronze body and trim, swing type, MSS-SP-80, 850 kPa (125 pound) WSP.
- E. Globe:
1. Eighty millimeters (3 inches) or smaller: Bronze body and bonnet, MSS-SP-80, 850 kPa (125 pound) WSP. Disk shall be free to swivel on the stem. Composition seating surface disk construction may be substituted for all metal disk construction. Packing shall be a woven non-asbestos material, impregnated with not less than 25 percent, by weight, tetrafluoroethylene resin.

## **2.2 WATER PRESSURE REDUCING VALVE AND CONNECTIONS**

- A. Single-seated, for dead end service for 200 to 850 kPa (30 to 125 pounds) range on low pressure side. Composition diaphragm and stainless steel springs, bronze body with threaded connections for sizes 15 to 55 mm (1/2 to 2 inch).
- B. Operation: Diaphragm and spring to act directly on valve stem. Delivered pressure shall vary not more than one kPa for each 10 kPa (one pound for each 10 pounds) variation on inlet pressure.
- C. Setting: Entering water pressure, discharge pressure, capacity, size, and related measurements shall be as shown on the drawings.
- D. Connections Valves and Strainers: Install shut off valve on each side of reducing valve and full sized bypass with globe valve. Install strainer on inlet side of, and same size as pressure reducing valve. Install pressure gage on low pressure side of line.

## **2.3 AIR PRESSURE REDUCING VALVE AND CONNECTIONS**

- A. Under seventy-five millimeters (3 inches), bronze body and trim, 75 mm (3 inches) and over, cast-iron body with bronze trim. Single seated, for dead end service for 200 to 1025 kPa (30 to 150 pounds) range on low pressure side. Composition diaphragm and bronze

spring to act directly on valve stem. Delivered pressure shall not vary more than one kPa for each 10 kPa (one pound for each 10 pounds) variation in inlet pressure.

## **2.4 BACKWATER VALVE**

- A. Flap type, hinged or pivoted, with revolving disc. Cast iron body with cleanout of sufficient size to permit removal of interior parts. Hinge, pivot, disc and seat shall be nonferrous metal. Normal position of disc shall be slightly open. Extend the cleanout to the finished floor and fit with threaded countersunk plug. Provide clamping device wherever the cleanout extends through the membrane waterproofing.

## **2.5 BACKFLOW PREVENTERS**

- A. Provide a backflow prevention device at any point in the plumbing system where the potable water supply comes in contact with a potential source of contamination. Device shall be certified by the American Society of Sanitary Engineers. Listed below is a partial list of connection to the potable water system which shall be protected against backflow or back siphonage.
  - 1. Water make-up to heating systems, cooling tower, chilled water system, and generators.
  - 2. Dental equipment.
  - 3. Print washer.
- B. Pressure Type: ASSE 1020
  - 1. Water make-up to heating systems, cooling tower, chilled water system, and generators.
  - 2. Dental equipment.
  - 3. Print washer.
- C. Atmospheric Vacuum Breaker: ASSE 1001
  - 1. Hose bibs and sinks w/threaded outlets.
  - 2. Disposers.
  - 3. Ventilating hoods w/ wash-down system.
  - 4. Dental equipment.
  - 5. Fume hoods.
- D. Double Check Detector Backflow Prevention Assembly: Fire service. ASSE 1015.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. General: Comply with the PHCC National Standard Plumbing Code and the following:
  - 1. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible. Install valve in each water connection to fixture.
  - 2. Install union and shut-off valve on pressure piping at connections to equipment.
  - 3. Backflow prevention device shall be installed in an accessible location, 5 (five) feet above finish floor.

**END OF SECTION 22 05 23**