

**SECTION 220523 - GENERAL-DUTY VALVES FOR PLUMBING PIPING****PART 1 - GENERAL****1.1 SUBMITTAL REQUIRMENTS**

- A. Product Data: For each type of product.
  - 1. Include rated capacities, operating characteristics, material descriptions, and finishes.
  - 2. Clearly state model numbers on all submittals.

**1.2 GENERAL REQUIREMENTS FOR VALVES**

- A. Source Limitations for Valves: Provide project valves from a single source and manufacturer.
- B. 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.

**PART 2 - PRODUCTS****2.1 BRONZE BALL VALVES**

- A. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Conbraco Industries, Inc.; Apollo Valves.
    - b. Milwaukee Valve Company.
    - c. NIBCO INC.
  - 2. Description:
    - a. Standard: MSS SP-110.
    - b. Pressure Rating: 200 psi @ 250°F.
    - c. Body Design: Two piece.
    - d. Body Material: Bronze, lead-free dezincification-resistant.
    - e. Seats: PTFE or TFE.
    - f. Stem: Bronze, blowout-proof.
    - g. Ball: Chrome-plated brass.
    - h. Port: Full.
    - i. Adjustable packing gland.

- j. Vinyl-covered steel handle.

## 2.2 BRONZE SPRING CHECK VALVES

- A. Y-pattern, Bronze Spring Check Valves with Bronze Disc rated 250 psi non-shock CWP:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. American Valve, Inc.
    - b. Crane Co.
    - c. Hammond Valve.
    - d. Milwaukee Valve Company.
    - e. NIBCO INC.
    - f. Red-White Valve Corporation.
    - g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
  - 2. Description:
    - a. Standard: MSS SP-80, Type 3.
    - b. CWP Rating: 250 psig.
    - c. Body Material: ASTM B 62, bronze.
    - d. Ends: Threaded or solder-type.
    - e. Disc: Bronze.

## 2.3 WATER PRESSURE-REDUCING VALVES

- A. Water Regulators:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cash Acme; a division of Reliance Worldwide Corporation.
    - b. Conbraco Industries, Inc.
    - c. Honeywell International Inc.
    - d. Watts; a division of Watts Water Technologies, Inc.; Watts Regulator Company.
    - e. Zurn Industries, LLC; Plumbing Products Group; Wilkins Water Control Products.
  - 2. Standard: ASSE 1003.
  - 3. Pressure Rating: Initial working pressure of 150 psig.
  - 4. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approve for NPS 2-1/2 and NPS 3.
  - 5. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and NPS 3.

B. Water-Control Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. CLA-VAL.
  - b. Flomatic Corporation.
  - c. OCV Control Valves.
  - d. Watts; a division of Watts Water Technologies, Inc.; Control Valves (Watts ACV).
  - e. Zurn Industries, LLC; Plumbing Products Group; Wilkins Water Control Products.
2. Description: Pilot-operated, diaphragm-type, single-seated, main water-control valve.
3. Pressure Rating: Initial working pressure of 150 psig minimum with AWWA C550 or FDA-approved, interior epoxy coating. Include small pilot-control valve, restrictor device, specialty fittings, and sensor piping.
4. Main Valve Body: Cast- or ductile-iron body with AWWA C550 or FDA-approved, interior epoxy coating; or stainless-steel body.
  - a. Trim: Stainless steel.

## 2.4 PRESSURE INDEPENDENT BALANCING VALVES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Conbraco Industries, Inc
  2. Crane Co.
  3. Hammond Valve.
  4. Milwaukee Valve Company.
  5. NIBCO Inc.
  6. Red-White Valve Corp.
  7. Watts Inc.
- B. Body: Bronze
- C. Piston and Spring Assembly: Stainless steel, tamper proof, self cleaning and removable.
- D. Combination Assemblies: Include bronze or brass-alloy ball valve.
- E. Size: Same as pipe in which installed.
- F. Performance: Maintain constant flow, plus or minus 5 percent over system pressure fluctuations.
- G. Minimum CWP rating: 300 psi

- H. Maximum Operating Temperature: 260 deg. F.

## **2.5 AUTOMATIC BALANCING VALVES**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Acorn Engineering Co.
  - 2. Caleffi, North America, Inc.
  - 3. ThermOmegaTech
- B. Body: Bronze
- C. Adjustable cartridge: stainless steel & copper
- D. Piston and Spring Assembly: 302 Stainless steel, tamper proof, self-cleaning and removable.
- E. Maximum CWP rating: 200 psi
- F. Maximum Operating Temperature: 195 deg. F.
- G. Standard: NSF/ANSI 61
- H. Integral and cartridge-style check with accessible screens to prevent backflow and to filter debris from entering the valve.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Examine threads on valve and mating pipe for form and cleanliness.
- D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- E. Do not attempt to repair defective valves; replace with new valves.

### **3.2 VALVE INSTALLATION**

- A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- B. Set ball and plug valves open to minimize exposure of functional surfaces.
- C. Orient check valves in correct direction of flow.
  - 1. Mount swing checks in a horizontal position so the check will swing into closed position in a no-flow situation.
  - 2. Spring checks can be mounted in the horizontal and vertical position.
- D. Locate valves for easy access and provide separate support where necessary.
- E. When feasible, install ball valves in horizontal piping with stem at or above center of pipe.
- F. Install valves in position to allow full stem and handle movement.
- G. Install water-control valves with inlet and outlet shutoff valves and bypass with globe valve. Install pressure gages on inlet and outlet.
- H. Install check valves for proper direction of flow and as follows:
  - 1. Spring Check Valves: In horizontal or vertical position.
- I. Provide union and isolation valve immediately upstream and downstream of each balancing valve.

### **3.3 ADJUSTING**

- A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.
- B. Set field-adjustable flow set points of balancing valves. Refer to drawings.

### **3.4 DOMESTIC WATER VALVE SCHEDULE**

- A. Isolation/Control Valves
  - 1. All valves installed in domestic water piping 3" and smaller shall be ball valves.
    - a. Ball Valves - 2 Inch and Smaller: 2-piece body. Provide extended valve stems for valves used on insulated lines. Provide equal to Nibco Series 585-80-LF.
- B. Check Valves

1. Provide solder end check valves on each domestic hot and cold water service piping. Provide check valves equal to Nibcon T-480-Y-LF.
2. Provide a spring (silent) check valve immediately downstream of the main water service reduced pressure backflow preventer when a booster pump is installed on the domestic water system.
3. Provide check valve on each domestic Provide solder end check valves on domestic hot and cold water service piping. Provide check valves equal to Nibcon T-480-Y-LF.
4. hot and cold water supply to thermostatic mixing valves, mop sinks and three compartment sinks.

**END OF SECTION 220523**