

VALVES AND METERS

1. SCOPE

The work shall consist of furnishing and installing valves and meters including all required appurtenances as shown on the drawings and specified in the Special Provisions. This specification governs the quality of valves and meters for use in water distribution systems.

2. MATERIALS

Valves and meters shall be designed to withstand the specified internal pressure (psi). The material used in manufacturing valves and meters, and the methods of fabrication shall conform to the requirements of the following Specifications or ASTM applicable to the material type of valve or meter.

- a. Gate Valves: AWWA Standard C500, C509 or Federal Specification WW-V-58. Bottoms and top edges of the tanks shall be installed to within one half inch across the tank.
- b. Butterfly Valves, Air-Release Valves, Air-Vacuum Relief Valves, Combination Air and Vacuum Relief Valves, Pressure Reducing Valves, and Pressure Relief Valves:

(1) Cast Iron:

ASTM A-48, Class 30, 40 or
ASTM A-126, Class B

(2) Ductile Iron:

ASTM A-536

(3) Bronze:

ASTM-B-61 or ASTM B-584
ASTM B-62, Grade I

(4) Cast Steel:

ASTM A-216

(5) Brass:

Federal Specification QQ-B-626
ASTM B-124

(6) Stainless Steel:

ASTM A-167, A-276, A-582, A-351
Type 302, 303, 304 or 304L, 316

(7) Cast Aluminum:

ASTM B-179, C-356
ASTM B-148

(8) Reinforced (glass filled) Nylon:

ASTM D-6679

(9) Reinforced Polypropylene:

ASTM D-5857, F-2389

- c. Meters: AWWA Standard C-704 for cold water propeller type. Shall be bolt-on saddle type meters. Meter head shall indicate instantaneous flow rate, and flow volume. The meter shall be accurate within plus or minus two percent of true flow with the flow range of the meter head. Flow meter impeller shall be located according to the Manufacturer's recommendations for laminar flow.

3. CONNECTIONS

The connections may have internal or external ANSI threads or flanges conforming to AWWA C-207, ANSI 125/150 or plain ends.

Bolts for flanged connections may be either steel (ASTM A-307, A-325), stainless steel, or galvanized (ASTM A-153, B-633, B-766).

4. MANUFACTURER'S IDENTIFICATION

The manufacturer's identification and model shall be clearly identifiable. The

performance rating shall be in the manufacturer's literature and may be stamped or painted on the valve or meter.

5. EXTERIOR COATING

Valves and meters shall be coated with:

- a. Two coats of coal tar polyimide epoxy paint in accordance with Paint Specification No. 16, type 1, Class II, of the Steel Structure Paint Council.
- b. A factory applied vinyl coating at least 12 mils thick.
- c. Reinforced Nylon and Polypropylene, needs no further coating if they have UV inhibitors.

6. INSTALLATION

Valves and meters shall be installed according to the manufacturer's recommendations with no leakage at the maximum operating pressure specified. Valves and meters shall be carefully aligned to the adjoining pipe to prevent damage to threads or flanges during installation.

The Contractor shall take all necessary precautions to protect the factory applied coatings on valves and meters so that no damage will occur during storage, handling and/or installation. All necessary repairs to coating shall be made prior to payment.

Operational Tests

After the valves, meters, and appurtenances have been installed they shall be cleaned, lubricated, and otherwise serviced by the Contractor in accordance with the manufacturer's instructions. The Contractor shall test the valves, and/or meters and appurtenances by operating the system several times throughout it full range of operation. Any changes and adjustments as are necessary to insure satisfactory operation

of the valve or meter in the system shall be made. Hand wheel stops on valves shall be set after all adjustments are completed.

7. MEASUREMENT AND PAYMENT
(Used only if applicable)

For items of work for which specific unit prices are established each item will be measured to the nearest unit applicable. Payment for each item will be made at the agreed-to payment rate for that item.

Such payment will constitute full compensation for all labor, equipment, tools and materials necessary for completion of the work.

Compensation for any item of work shown on the drawings or described in the special provisions but not listed on the bid schedule will be considered incidental to and included in the pay items listed on the bid schedule.

8. ITEMS OF WORK AND CONSTRUCTION DETAILS