

## **OPEN DISCHARGE SLEEVE VALVES**

### **PART 1 - GENERAL**

#### **1.1 THE REQUIREMENT**

- A. The CONTRACTOR shall furnish and install horizontal in-line, sleeve-type valve assemblies complete and operable as shown and specified herein including electric motor or hydraulic operators, epoxy coating, and appurtenances and accessories, in accordance with the requirements of the Contract Documents.

#### **1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A. Section Valves, General.
- B. Section Valve Operators.
- C. Section Painting

#### **1.3 CONTRACTOR SUBMITTALS**

- A. The CONTRACTOR shall submit layout drawings with complete information as outlined in Section "Valves, General."
- B. With the layout drawings, the contractor shall submit:
  - 1) Layout drawings shall be drawings of the valve showing all envelope dimensions including material callout.

#### **1.4 SUBSTITUTION**

- A. Where horizontal in-line sleeve valves are shown or specified, the contractor shall not substitute globe style valves that are not pre-approved.

#### **1.5 QUALITY ASSURANCE**

- A. The sleeve valves shall be shop tested prior to shipment per the following minimum standards:
  - 1) Hydrostatic test to 1.5 times valve pressure rating.
  - 2) Leakage rate must be less than 2.0 oz. per inch of valve diameter per hour tested at valve pressure rating.

3) Functional test of five (5) complete cycles of operation with the valve actuator settings in place (limit switches, torque switches, pilot pressure settings, etc...).

- B. Certified shop test reports shall include appropriate information such as handwheel rotation direction, valve stroke length, stroke calibration data, pilot pressure settings, operating times and visual inspection notes.

**PART 2 - PRODUCTS**

**2.1 OPERATING REQUIREMENTS**

- A. Performance: The valve shall be designed and guaranteed for at least one year to operate throughout its range without cavitation damage, excessive noise or vibration, for the conditions stated below. Material stresses shall not exceed 1/5 of the ultimate or 1/3 of the yield strength of the material. Extra capacity, as determined by the valve manufacture based on water quality, shall be designed in to the drill pattern.

Valve ID	Flange (in)	Qmax	Pin @ Qmax	Pout @ Qmax	Qmin	Pin @ Qmin	Pout @ Qmin

\*Include Units

- B. Valve Operation: In the closed position, the sliding sleeve gate shall be fully advanced in the downstream direction with a resilient sealing surface seated against the gate. In the fully open position the sliding sleeve gate shall be fully-extracted in the upstream direction to release water through the fixed sleeve. Flow from the valve will move from inside out. The advance and retract strokes shall be activated through the operating mechanism by means of two (2) electrically actuated power screws threaded into drive tubes that are mechanically restrained to the gate or by hydraulic cylinders attached to the gate. The hydraulic cylinders or electric actuator shall operate per Section “Valve Operators”. The valve must be a minimum of 8% open under maximum head loss and minimum flow conditions.

## 2.2 EQUIPMENT REQUIREMENTS

- A. **Valve Assembly Components:** The assembly shall consist of a flanged cylindrical sleeve that is mounted to a bulkhead flange. All surfaces of the valve that may come in contact with water shall be 300 Stainless Steel, Monel, Bronze or epoxy coated carbon steel.
1. The inlet body section shall consist of a flanged cylinder mounted to a carbon steel bulkhead. The inlet body shall be fabricated from carbon steel. The upstream flange shall be designed for connection to the supply pipeline. The downstream end shall be flanged for connection of the valve sleeve.
  2. The valve body shall be removable and shall be fabricated of stainless steel and shall have flow control nozzles. Each control nozzle shall be tapered and shall have sharp edges and a nozzle coefficient of at least 0.94. The manufacturer shall determine the number and size of the nozzles. A removable stainless steel seat shall be provided at the discharge end of the sleeve to provide a seal for the valve gate.
  3. The valve gate shall be fabricated of stainless steel and shall have a stellite hard facing on the downstream end over the internal bearing surface and the seating surface. The seat surface shall be machined to a 32 micro-inch finish. The valve gate shall have a bronze bearing and seal attached by cap screws at the inlet side.
  4. A packing box for the upstream end of the valve gate shall be located on the bulkhead. The packing box seal shall provide a leak tight seal for the operating stem.
- B. Actuation: The valve shall be actuated by the type specified in Section "Valve Operators". The maximum design operating force shall be five (5) times the normal operating force required at maximum inlet head conditions.
- C. Valve manufacturer:
1. Inline Sleeve Valve Model B-14 as manufactured by Bailey Valve Inc.

## 2.3 MATERIAL REQUIREMENTS

- A. Assembly components shall be manufactured from the following materials:
1. Valve body - Carbon Steel  
ASTM A516 Gr 70  
ASTM A36
  2. Fixed sleeve - Type 304 stainless steel  
ASTM A182 Gr 304L  
ASTM A240 Type 304L  
ASTM A516 Gr 70
  3. Valve Gate - Type 304 stainless steel  
ASTM A240 Type 304L
  4. Seat holder - Type 304 stainless steel  
ASTM A240/A276 Type 304L
  5. Fasteners - All studs, bolts, washers, and nuts in contact with water shall be Type 304 stainless steel.
- B. All materials of moving components in contact with each other shall be of dissimilar hardness to prevent galling. The valve shall be moved through an open-close-open cycle three (3) times after final assembly and prior to shipment to insure this requirement.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Valve installation shall be in strict accordance with the manufacturer's printed recommendations, and the Contract Documents.
- B. Four (4) copies of Operations and Maintenance Manuals are to be provided. The manuals shall include installation instructions, maintenance procedures and operation parameters.

### 3.2 WORKMANSHIP

- A. Valves shall be free from manufacturing defects and shall be manufactured in a workman like manner. Welds shall conform to ASME Section VIII or IX standards for pressure vessels and be free from mill and scale.
- B. Painting shall be per the painting section of this specification.
- C. All carbon steel components shall be painted with Epoxy paint.

### **3.3 FIELD TESTING AND PERFORMANCE**

- A. Valves shall be field leak tested to the specified operating pressure in the closed position and shall not leak more than 2 oz per inch of valve size per hour. Any additional field leakage shall be corrected by the manufacturer at the manufacturer expense.
- B. Field leakage test shall be certified by the engineer, manufacturer and contractor.
- D. Any excessive noise or vibration shall be resolved by the manufacturer including possible replacement of the valve at the manufacturers expense.