

HORIZONTAL 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: Each inline sleeve valve assembly shall consist of a flanged Ductile Iron or Fabricated steel body and a sliding cylindrical sleeve which contains a helical sweep of tapered nozzles. The sliding sleeve shall be provided with a seal at the upper end and a seat seal at the downstream end. A stainless steel seat ring with stellite hardfacing shall be bolted to the body of the main valve and shall be removable without removing the valve from the line. The valve shall be operated by means of a rising stem. The stem shall be connected to a double acting cylinder or threaded for a multi turn actuator as specified in section, valve actuators.

2.2 EQUIPMENT REQUIREMENTS

- A. Valve Assembly Components: All interior surfaces, which come in contact with water, shall be fabricated of stainless steel, bronze, stellite, epoxy coated Ductile Iron or epoxy coated carbon steel.

The seat ring shall be of stainless steel with stellite facing to resist wear and wire drawing. It shall be attached to the body with cap screws for ease of maintenance. The seating surface of the seat ring shall be machined with a 32 micro-inch finish or better. The body shall be a Ductile Iron casting or fabricated steel with flanged inlet and outlet. The sleeve shall be fabricated from stainless steel and shall contain the control nozzles. Each tapered nozzle shall be machined to have a co-efficient of discharge of at least 0.94 for increased capacity and shall be designed to eliminate the effects of cavitation damage. The seat shall be a rubber compound ring type seal and shall be held in place with a type stainless steel seal holder.

- 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-5 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 or Ductile Iron
ASTM A516 Gr 70
ASTM A536 Gr 65-42-12 |
| 2. | Sleeve | - Type 304 stainless steel
ASTM A182 Gr 304L
ASTM A240 Type 304L |
| 3. | Power Screw Shaft | - 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.

3.2 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.