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SECTION _____
TELESCOPING VALVE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall furnish all labor, materials, equipment and incidentals required to install and ready for operation telescoping valves and appurtenances as shown on the Contract Drawings and as specified herein.

1.02 SUBMITTALS

- A. Provide the following information to confirm compliance with the specification in addition to the submittal requirements specified in Section _____.
 - 1. Complete description of all materials including the material thickness.
 - 2. Installation drawings showing all details of construction, details required for installation, dimensions and anchor bolt locations.
 - 3. The location of the company headquarters and the location of the principle manufacturing facility. Provide the name of the company that manufactures the equipment if the supplier utilizes an outside source.

1.03 QUALITY ASSURANCE

- A. Qualifications
 - 1. All of the equipment specified under this Section shall be furnished by a single manufacturer with a minimum of 20 years experience designing and manufacturing telescoping valves. The manufacturer shall have manufactured telescoping valves for a minimum of 100 projects.
 - 2. The specification is based on the Series 310 Telescoping Valve as manufactured by Whipps, Inc. of Athol, Massachusetts.

PART 2 EQUIPMENT

2.01 GENERAL

- A. Telescoping valves shall be as specified herein and have the characteristics and dimensions shown on the Contract Drawings.
- B. The valve shall utilize a low friction seal to mount to engage the slip tube and mount to the flange of the receiving pipe.
- C. All welds shall be performed by welders with AWS certification.
- D. Finish: Mill finish on stainless steel. Welds shall be sandblasted to remove weld burn and scale.
- E. Materials:

Components

Slip Tube and Bail
Stem
Anchor Studs, Fasteners and Nuts
Seal
Lift Nuts
Pedestals and Wall Brackets
Operator Housing

Materials

Stainless Steel, Type 304L, ASTM A240
Stainless Steel, Type 304, ASTM A276
Stainless Steel, Type 316, ASTM A276
Urethane or Neoprene
Bronze ASTM B584
Stainless Steel, Type 304L, ASTM A276
Cast aluminum

2.02 SLIP TUBE AND BAIL

- A. The slip tube shall be constructed of Schedule 10 minimum thickness stainless steel pipe. V-notched weirs, U-notched weirs, scum baffles and/or funnel tops shall be provided as shown on the Contract Drawings.
- B. The bail shall be constructed of stainless steel and shall be bolted to the stem and welded to the slip tube.

2.02A SLUDGE BOX

- A. The sludge box shall be provided as shown on the drawings. Fabricated from 1/4 inch stainless steel material. Designed to be mounted to tank wall with stainless steel anchors.

2.03 SEAL

- A. The telescoping valve shall be provided with a self-adjusting seal system to restrict leakage between the slip tube and the receiving pipe.
 - 1. The seal shall be a one-piece molded urethane seal with an upper lip type seal and an integral companion flange.
 - 2. If a neoprene seal and separate companion flange is provided, the neoprene seal shall have a minimum thickness of 1/2-inch and the companion flange shall be stainless steel and shall have a minimum thickness of 3/8-inch.
 - 3. The companion flange shall be provided with a bolt pattern suitable for attachment to the flange on the receiving pipe.

2.05 STEM

- A. A threaded operating stem shall be utilized to connect the operating mechanism to the bail which in turn is attached to the slip tube. On rising stem valves, the threaded portion shall engage the operating nut in the manual operator or motor actuator. On non-rising stem valves, the threaded portion shall engage the nut attached to the bail.
 - 1. The threaded portion of the stem shall have a minimum outside diameter of 1-1/2 inches. Stem extension pipes are not acceptable.
 - 2. The stem shall be constructed of solid stainless steel bar for the entire length, the metal having a tensile strength of not less than 75,000 psi.
 - 3. Maximum L/R ratio for the unsupported part of the stem shall not exceed 200.
 - 4. In compression, the stem shall be designed for a critical buckling load caused by a 40 lb effort on the crank or handwheel with a safety factor of 2, using the Euler column formula.
 - 5. The stem shall be designed to withstand the tension load caused by the application of a 40 lb effort on the crank or handwheel without exceeding 1/5 of the ultimate tensile strength of the stem material.

6. The threaded portion of the stem shall have machine rolled double lead threads of the full Acme type with a 16 microinch finish or better. Stub threads are not acceptable.
7. Stems of more than one section shall be joined by stainless steel or bronze couplings. The coupling shall be pinned and bolted to the stems.
8. Stems, on manually operated valves, shall be provided with adjustable stop collars to prevent over travel.

2.06 STEM GUIDES

- A. Stem guide shall be provided when necessary to ensure that the maximum L/R ratio for the unsupported part of the stem is 200 or less.
 1. Stem guide brackets shall be fabricated of stainless steel and shall be outfitted with UHMW or bronze bushings.
 2. Adjustable in two directions.

2.08 MANUAL OPERATORS

- A. Unless otherwise shown on the Drawings, valves shall be operated by a manual handwheel or a manual crank-operated gearbox. The operator shall be mounted on a pedestal.
 1. The valve manufacturer shall select the proper gear ratio to ensure that the valve can be operated with no more than a 40 lb effort.
 2. An arrow with the word "OPEN" shall be permanently attached or cast onto the operator to indicate the direction or rotation to open the valve.
 3. Handwheel operators shall be fully enclosed and shall have a cast aluminum housing.
 - a. Handwheel operators shall be provided with a threaded cast bronze lift nut to engage the operating stem.
 - b. Handwheel operators shall be equipped with roller bearings above and below the operating nut.
 - c. Positive mechanical seals shall be provided above and below the operating nut to exclude moisture and dirt and prevent leakage of lubricant out of the hoist.
 - d. The handwheel shall be removable and shall have a minimum diameter of 15 inches.
 4. Crank-operated gearboxes shall be fully enclosed and shall have a cast aluminum housing.
 - a. Gearboxes shall have either single or double gear reduction depending upon the lifting capacity required.
 - b. Gearboxes shall be provided with a threaded cast bronze lift nut to engage the operating stem.
 - c. Bearings shall be provided above and below the flange on the operating nut to support both opening and closing thrusts.
 - d. Gears shall be steel with machined cut teeth designed for smooth operation.
 - e. The pinion shaft shall be stainless steel and shall be supported on ball or tapered roller bearings.
 - f. Positive mechanical seals shall be provided on the operating nut and the pinion shafts to exclude moisture and dirt and prevent leakage of lubricant out of the hoist.
 - g. The crank shall be cast aluminum with a revolving nylon grip.
 - h. The crank shall be removable.
 5. Pedestals shall be constructed of stainless steel. Aluminum pedestals are not acceptable.
 - a. The pedestal height shall be such that the handwheel or pinion shaft on the crank-operated gearbox is located approximately 36-in above the operating floor.
 - b. Wall brackets shall be used to support floor stands where shown on the Drawings and shall be constructed of stainless steel.
 - c. Wall brackets shall be reinforced to withstand the maximum operating loads mentioned herein.

- d. The design and detail of the brackets and anchor bolts shall be provided by the valve manufacturer and shall be approved by the ENGINEER. The valve manufacturer shall supply the bracket, anchor bolts and accessories as part of the valve assembly.
- 6. Operators shall be equipped with fracture-resistant clear butyrate or lexan plastic stem covers.
 - a. The top of the stem cover shall be closed.
 - b. The bottom end of the stem cover shall be mounted in a housing or adapter for easy field mounting.
 - c. Stem covers shall be complete with indicator markings to indicate valve position.

2.09 ELECTRIC MOTOR ACTUATORS

- A. See Section _____.

2.10 ANCHOR BOLTS

- A. Anchor bolts shall be provided by the valve manufacturer for mounting the pedestal and appurtenances.
 - 1. Quantity and location shall be determined by the valve manufacturer.
 - 2. If epoxy type anchor bolts are provided, the valve manufacturer shall provide the studs and nuts.
 - 3. Anchor bolts shall have a minimum diameter of 1/2-inch.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Installation of the valves and appurtenances shall be done in a workmanlike manner. It shall be the responsibility of the CONTRACTOR to handle, store and install the equipment specified in this Section in strict accordance with the manufacturer's recommendations.
- B. The CONTRACTOR shall review the installation drawings and installation instruction prior to installing the valves.
- C. The valve assemblies shall be installed in a true vertical plane, square and plumb.

3.02 FIELD TESTING

- A. After installation, all valves shall be field tested in the presence of the ENGINEER and OWNER to ensure that all items of equipment are in full compliance with this Section. Each valve shall be cycled to confirm that they operate without binding, scraping, or distorting.

END OF SECTION