

SECTION 11293 - SLUICE AND SHEAR GATES

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing sluice and shear gates, where indicated, with [manual] [and] [electric] operators, frames, wall thimbles, bracing, mountings and coatings
- B. The WORK requires that one manufacturer accept responsibility for furnishing all gates of one type as indicated but without altering or modifying the CONTRACTOR'S responsibilities under the Contract Documents.
- C. The WORK additionally requires that the one manufacturer who accepts the indicated responsibility for a certain type of gate shall manufacture all gates of that type.

1.2 RELATED SECTIONS

- A. The WORK of the following Section applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 11290 Hydraulic Gates, General

1.3 SHOP DRAWINGS AND SAMPLES

- A. In addition to the requirements of Section 11290, the following shall be submitted in compliance with Section 01300:
 - 1. Manufacturer's certification that frames and slides have been tested and withstand the maximum heads indicated.

PART 2 -- PRODUCTS

2.1 SLUICE GATES

- A. **General:** Gates shall be new and of current manufacture and they shall be adequately braced to prevent warping and bending under the intended usage. Gates shall be [furnished with a handwheel,] [crank-operated] [or] [electrically operated] floor-stand mounted and shall have 2:1 gear ratio. Gates shall comply with ANSI/AWWA C501, except as otherwise indicated.
- B. **Coating:** Gates, wall thimbles, and accessories shall be epoxy-coated complying with Section 09800. Machined surfaces shall be protected during sandblasting and coating.
- C. **Frames and Slides:** Gate frames and slides shall be manufactured of cast iron. Slides and frames shall have machined seating faces, and the maximum clearance between seating surfaces, with the slide in the closed position, shall be 0.004 inches. Sufficient adjustable

wedging shall be included to ensure proper watertightness complying with ANSI/AWWA C-501. Seating faces shall be of Naval bronze complying with ASTM B21 and fasteners, anchor bolts, studs, and adjusting screws shall be stainless steel complying with Section 05500. Operating nuts shall be of bronze conforming to ASTM B 584.

- D. **Stems:** Stems shall be of [Type 316] [Type 304] stainless steel conforming to ASTM A 276 and shall be provided with adjustable bronze bushed stem guides designed to ensure that the L/R ratio of the stem does not exceed 200.

E. **Operating Mechanism:**

1. General: Operators shall be weatherproof, equipped with stem covers, and shall be mounted on cast-iron or fabricated steel pedestals. The pedestal shall have base or bracket area designed to distribute the load to the supporting concrete structure. The center line of a manual operator shall be approximately 3 feet above the base of the pedestal. Sluice gate hoist heads shall be cast iron. The operating nut shall be of solid bronze conforming to ASTM B 584. Roller or ball bearings shall be included for thrust. Bearings and stem shall be provided with a lubrication system. Clockwise movement of the handwheel shall close the gate.

- [2. Crank: The unit shall be designed for a maximum of 40 lb on the crank to operate the gate. The operating crank shall be readily removable to facilitate the use of a portable power operator. The direction of crank rotation to open the gate shall be indicated on the lifting mechanism.]

- [3. Handwheel: Handwheel shall have a minimum 18-inch diameter and shall have the direction of rotation to open the gate cast thereon. All sharp protrusions shall be ground smooth.

Where indicated, the shaft shall terminate in a 2-inch square operating nut in lieu of the handwheel.]

- [4. Electric Motor Operators: Electric motor operators shall be provided, where indicated, as per recommendations of the gate manufacturer and in accordance with the provisions of Section 15101.]

- F. **Wall Thimbles:** Except as otherwise indicated, sluice gates shall be provided with cast iron, F-pattern, wall thimbles to match the thickness of the walls in which they are installed. These thimbles shall be supplied by the manufacturer of the gates, and they shall fit the bolt dimensions of the gates. All studs shall be of stainless steel Type [304] [316] complying with Section 05500.

- G. **Sealant:** The sealant shall be a Butyl Rubber Acetate mastic as recommended by the manufacturer of the gates.

- H. **Grout:** Gates mounted against concrete walls without wall thimbles shall be installed with one inch of non-shrink grout between the wall and the gate flange. The anchor bolts and nuts shall be of Type [304] [316] stainless steel.

2.2 SHEAR GATES

- A. **Construction:** Shear gates shall be constructed with cast iron and include bronze seat and disc rings, and flanged frame equipped with a minimum 3-ft handle with wall hook. Ferrous parts of the gate and frame shall be shop coated with epoxy complying with Section 09800. Mounting hardware, if required, shall be stainless steel Type [304] [316] complying with Section 05500.

2.3 MANUFACTURERS

- A. Gates shall be manufactured by one of the following (or equal):

- 1. Sluice Gates:

- Rodney Hunt;
Hydro Gate Corp.;

Waterman Industries.

- 2. Shear Gates:

- Mueller, [model A-2520-6]

Waterman

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Installation shall comply with the manufacturer's written instructions and as indicated.
- B. Prior to setting each gate, a 1/8-inch thick layer of mastic grade polysulfide elastomeric sealant shall be applied to the back of the gate frame. After setting the gate, the nuts shall be run down on the anchor bolts far enough to make them snug and to cause the rubber sealant to begin to ooze out but without stress on to the frame. Excess sealant at the edges shall be removed. The sealant shall be allowed to cure for at least 7 days, after which the anchor bolt nuts shall be tightened to their final positions. If gaskets are being used, they shall be installed over the studs in one piece, or dovetailed and cemented with a liquid-type gasket material.

3.2 FIELD TESTING

- A. Sluice gates shall be tested for leakage in accordance with the provisions of ANSI/AWWA C501. Leakage allowance for gates shall not exceed 0.1 gpm/ft of seating perimeter under 20 feet of seating head, and 0.2 gpm/ft under 20 feet of unseating head.
- B. If leakage exceeds the indicated criteria, modifications and corrections shall be made under the supervision of manufacturer's representative at no additional cost to the OWNER.

** END OF SECTION **