

**SECTION 15260  
SLIDE GATES**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. This Section includes wall thimbles, gate frames, slide gates, floor stands, extension stems, stem guides, operating devices, position indicators, wall brackets, floor boxes, anchors, and all appurtenances.
- B. Motors and electrical work incidental to installation and operation of the gates shall be included herewith unless specified otherwise.

**1.02 SUBMITTALS**

- A. Submittals shall be in accordance with the requirements of Section 01300 and shall include:
  - 1. Shop Drawings for Review:
    - a. Scaled dimensional drawings.
    - b. Wiring schematics with termination point identification.
    - c. Materials of construction.
    - d. Manufacturer's catalog data.
    - e. Motor information per Section 11050.
  - 2. Information for the Record:
    - a. Operation and maintenance manual.

**1.03 QUALITY ASSURANCE**

- A. Slide gates and their appurtenances shall conform to applicable portions of AWWA C560, C561, C562 or C563, depending upon materials of construction.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Slide Gates (Stainless Steel)
  - 1. All slide gates shown on the Drawings or listed in the specifications shall conform in all respects to the latest version of AWWA C561, with the noted

changes and additions. Slide gates shall be manufactured by Waterman Valve, LLC, WACO Products, Inc. or approved equal. Materials used in construction of slide gates and appurtenances shall conform to the following specifications **(Addendum 1, Issued December 15, 2020)**:

- a. Frame, Slide, Yoke, and Reinforcing: Stainless Steel, ASTM A240/A240M, Type 304L, or ASTM A240/A240M, Type 316L
  - b. Stainless Steel for stems: ASTM A276, Type 304.
  - c. Stainless Steel for fasteners: F593/F594, Alloy Group 1, 2 (SS304, SS316)
  - d. Invert seals and compression load pad: Neoprene, ASTM D2000, 60 Durometer, with a stainless-steel ASTM A276, Type 304L, or Type 316L retainer bar.
  - e. Side Seals: Ultra High Molecular Weight (UHMW) Polymer, ASTM D4040
  - f. Top Wedges: Type 316 stainless steel ASTM A351-CF8M.
2. The gate frame shall be an integral unit of structural shapes, rigidly assembled to form the waterway opening. The head channels shall be welded or bolted to the gate frame. The channels shall be sufficiently spaced to allow removal of the gate slide. The primary slot of the frame shall contain polymer guide liner retained in grooves, to prevent metal-to-metal contact between slide and frame.
  3. Gate slide shall be not less than 1/4-inch thickness and shall be reinforced such that deflection under full head shall be limited to 1/720 of the span. Gates over 24 inches wide shall have adjustable top wedges in order to prevent deflection in the slide resulting from over closure.
  4. Slide gates where required shall incorporate a flush-bottom seal of neoprene that is mechanically fastened to the bottom frame invert member.
  5. Side seals of UHMW polymer shall be provided. Seals shall be securely fastened to the frame with non-corrosive retainers and shall be replaceable and adjustable without removing the gate from the installed position. A compression device shall be set behind the UHMW seal to allow for a self-adjusting seal system.
  6. The operating stem shall be of a size to safely withstand, without buckling or permanent distortion, the stresses resulting from at least two times the rated output of the floor stand or bench stand with a 40-pound effort on the crank or handwheel. The threaded portion of the stem shall have cold rolled threads. Stainless steel couplings, threaded and keyed to the stems, shall join stems of more than one section. Manually operated, rising stem type gates will be provided with an adjustable stop collar on the stem to prevent over-opening of the gate.

7. On slide gates with a width greater than twice the height and the width is greater than 48 inches, a tandem stem arrangement shall be used.
8. Gate lifts shall be handwheel or geared crank type as shown on the Drawings. Lifts shall operate the gate with a maximum pull of 40 pounds on the handwheel or crank, the center of which shall be located approximately 36 inches above the operating floor. All lifts shall have thrust bearings, bronze lift nuts, and an aluminum stop nut to limit the downward travel of the stem and slide. All geared lifts shall have cast or ductile iron housings and pedestals. All lifts shall be rising stem type. Stem covers made of clear polycarbonate with position indication shall be furnished for all lifts. Lifts shall be grease lubricated through grease zerck fittings.
9. Where indicated on the Drawings or specified, motorized gate operators shall be furnished and installed.

## **2.02 LIFT ASSEMBLIES**

- A. Floor stands shall be of the enclosed gear pedestal lift type with single or double gears as required, and with thrust bearings above and below the flange on the bronze lifting nut. Bevel and pinion gears shall be steel with cut teeth, and spur gear shall be cast iron with cut teeth. Bearings for the gear and pinion shaft shall be bronze brushed. The lift shall operate on a 40-pound pull on the crank. A heavy duty translucent PVC pipe stem cover shall be provided.
- B. The guides on self-contained gates shall extend above the operating floor. They shall be sufficiently strong so that additional reinforcing is not necessary. The yoke to support the operating bench stand will be formed by two channels across the top of the guides. They shall be sufficiently spaced to allow removal of the gate slide. All lifts shall have thrust bearings, bronze lift nut and a stop nut.
- C. Where the head frame extends higher than 4-feet above the operating floor, the gate operator shall include a bevel gear assembly. The center of a crank or handwheel operator shall be centered approximately 36 inches above the operating floor and shall have a maximum pull of 40 pounds.

## **2.03 RESERVED**

## **2.04 GATE OPERATION**

- A. Opening Direction - Unless otherwise specified in Part 4, gates with screw stems shall open by turning counterclockwise, the direction being indicated by an arrow cast where easily visible to operator.

**2.05 ACCESSORIES**

- A. Operating stems and extensions shall be ASTM A276 stainless steel with high finish corrosion-resistant restraint threads and shall operate without binding or jamming in the lift nut. Stems shall be of sufficient cross section to withstand the normal forces created during gate operation.
- B. Adjustable cast iron stem guides with bronze bushings shall be provided at the spacing recommended by the manufacturer.
- C. All gates which are to be operated by T-wrench shall have 2-inch square operating nut at the top of the extension stem. Where the operating nut extends through a concrete slab, a cast iron floor box with bronze bushing shall be cast in the concrete.
- D. All fasteners and hardware for mounting shall be 304 stainless steel.

**2.06 SHOP PAINTING**

- A. Shop painting shall be in accordance with the requirements of Section 01350.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Installation shall be as shown on the Drawings and in conformance with AWWA C560 for cast iron slide gates, AWWA C561 for fabricated stainless-steel slide gates, AWWA C562 for fabricated aluminum slide gates or AWWA C563 for fabricated composite slide gates.
- B.

**3.02 TESTING**

- A. After installation, the Contractor shall test each gate for satisfactory operation and water tightness against maximum operating pressure insofar as practicable.

**PART 4 SPECIAL PROVISIONS**

**4.01 SCHEDULE**

- A. The following letter designations are used in the Gate Schedule:

<b>Bottom Type</b>	<b>Operation Designation</b>
CON - Conventional	OS - Operating Stand
F - Flush	HC - Hand Crank
<b>Mount Type</b>	<b>Material Designation</b>
F - Face	SS - Stainless Steel

Mark Designation	(in.)	Bottom Type	Mount Type	Material Designation	Operation	Location Designation	Remarks
SG-1	Opening 30" x 48"	F	F	SS	OS, HC	UV Bldg	Submerged

- B. Schedules are not guaranteed to be complete. All gates shown on the Drawings or specified shall be furnished and installed by the Contractor whether or not listed in the following schedule.

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