



**SPECIAL PROVISIONS
FOR
FABRICATED METAL SLIDE GATES**

**Scott County
HDP-1827(704)--71-82
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**Effective Date
October 20, 2026**

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

236089.01 DESCRIPTION.

A. Summary.

Furnish slide gates complete with stainless steel frames, slides, seals, actuators, operating stems, anchor bolts, and appurtenances.

B. Related Documents.

- ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
- ASTM B211 - Standard Specifications for Aluminum and Aluminum-Alloy Bar, Rod, and Wire
- ASTM B221 - Standard Specifications for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
- ASTM F594 – Standard Specification for Stainless Steel Nuts.
- AWWA C513 – AWWA Standard for Open-Channel, Fabricated-Metal Slide Gates and Open-Channel, Fabricated-Metal Weir Gates.
- AWWA C560 – AWWA Standard for Cast-Iron Slide Gates.

C. General.

1. Equipment furnished and installed under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer, unless exceptions are noted by the Engineer.
2. Gates shall be furnished with all necessary parts and accessories indicated on the drawings, specified, or otherwise required for a complete, properly operating installation and shall be

the latest standard products of a manufacturer regularly engaged in the production of slide gates.

3. Number Plates.

Each slide gate shall be provided with a number plate. Numerals shall be at least 1 inch high and shall be black baked enamel on anodized aluminum plate. The location of number plates and the method of attachment shall be acceptable to the Engineer. The number assigned to each slide gate shall be as indicated in the plans.

4. Governing Standard.

Except as modified or supplemented herein, all slide gates and manual actuators shall conform to the applicable requirements of AWWA C561.

D. Submittals.

1. Complete drawings, details, and specifications covering the slide gates and appurtenances shall be submitted in accordance with the contract documents. Each drawing shall be identified with the corresponding slide gate equipment tag number.
2. Manufacturer's Certificate: Certify that the products of this section meet or exceed specified requirements.
3. Manufacturer's Instructions: Submit instructions needed for equipment installation.
4. Certificate of Proper Installation.
5. Operations and Maintenance Manuals.

E. Shop Testing.

Gates shall be completely assembled in the shop to ensure that all parts fit together properly.

F. Service Conditions.

Slide gates will be used to isolate the storm sewer from the Mississippi River. Specific conditions shall be as specified herein.

G. Performance and Design Requirements.

1. Gates shall be designed for seating and unseating head as specified on the plans. Actuators, regardless of type, shall be sized to produce the torque or thrust required to operate the applicable gate when the gate is subject to the seating and unseating operating heads specified.
2. Slide gates, actuators, and appurtenances shall be designed for the conditions and requirements specified herein.
3. **Design.**
 - a. Liberal factors of safety shall be used throughout the design, especially in the design of parts subject to intermittent or alternating stresses. In general, working stresses shall not exceed one-third of the yield point or one-fifth of the ultimate strength of each material.
 - b. Gates shall be designed to fit into the structures indicated on the drawings.
4. **Leakage.**

Maximum allowable leakage of slide gates shall not exceed 0.10 gallon per minute per foot of wetted perimeter at any head up to the maximum seating head specified.
5. **Service.**

Gate shall open/ close upward.

6. Mounting.

Gates shall be non-self-contained mounted utilizing common wall thimble frames

236089.02 MATERIALS.

A. Components.

1. **Frames, Guides, Slides, Reinforcing Members and Yoke Beams:** 304 Stainless Steel.
2. **Flush Bottom Closure Seal:** Compressible Neoprene.
3. **Seal Retainer Bar:** Aluminum, ASTM B211 or B221, Alloy 6061-T6.
4. **Slide Seats and Bearing Bars:** UHMW polyethylene bearing bars and neoprene J-bulb seals.
5. **Top of Slide Seals:** Self-adjusting seals.
6. **Operating Stems:** Non-rising, Stainless steel, ASTM A276 AISI Type 304 or 316.
7. **Stem Covers:** Transparent butyrate plastic pipe.
8. **Assembly Fasteners:** Stainless steel, ASTM F593 and F594 AISI Type 316.
9. **Anchor Bolts, Nuts, and Washers:** Stainless steel, ASTM F593 and F594 AISI Type 316.
10. **Grout:** Comply with Iowa DOT Materials I.M 491.13.
11. **Manual Actuators.**
 - a. Manual actuators shall conform to the requirements of Section 3.14 of AWWA C513 and shall be of the types listed in the Gate Schedule.
 - b. Manual actuators shall be vertical pinion gear box with MDPI, manual actuator located immediately below the grating with a 2 inch nut for portable drill operator.
 - c. All bearings and gears shall be totally enclosed in a weather-tight housing having a sufficient number of fittings to permit periodic lubrication of all internal moving components without partial or total disassembly of the mechanism. The pinion shaft of crank-operated mechanisms shall be supported by roller bearings or needle bearings.
 - d. Each manual actuator shall be designed to operate the gate when a 40 pound effort is applied to the crank or the handwheel and shall be able to withstand, without damage, an effort of 200 pounds.

B. Manufacturers.

1. **Slide Gates.**
 - a. RW Gate.
 - b. Hydro Gate.
 - c. Whipps.
 - d. Engineer approved equivalent.
2. **Manual Gearbox.**
 - a. Rotork IS
 - b. SAMBO
3. **Mechanical Dial Position Indicator (MDPI).**

a. SAMBO

C. Warranty.

Full warranty against defects in materials and workmanship for 2 years after substantial completion, including all parts, labor and expenses

236089.03 CONSTRUCTION.

A. Components.

1. Frames.

- a.** Each frame shall be an integral unit of formed structural shapes at least 1/4 inch thick. Frames shall be designed for installation on the face of concrete walls as indicated in the Gate Schedule.
- b.** Guides shall be provided on each side of each frame. Guides shall be sufficiently strong to require no further reinforcing where they extend above the operating floor and shall support the entire height of the slide in all positions.
- c.** The seat/seals shall extend to accommodate the 1 1/2 times the height of the slide when the slide is in the fully closed or fully opened position. All upward opening gates shall be provided with a resilient seal to seal the bottom portion of the gate. The seal shall be attached to the invert member or the bottom of the slide and it shall be held in place with stainless steel attachment hardware. All seals must be bolted or otherwise mechanically fastened to the frame or slide. Arrangement with seals that are force fit or held in place with adhesives are unacceptable. Gates that utilize rubber "J" seals or "P" seals are not acceptable. The seal system shall have been factory tested to confirm negligible wear (less than 0.01 inch) and proper sealing. The factory testing shall consist of an accelerated wear test comprised of a minimum of 25,000 open-close cycles using a well-agitated sand/water mixture to simulate fluidized grit.

2. Slides.

Slides shall be at least 1/4 inch thick and shall be provided with welded stiffeners to limit deflection to 1/360 under the maximum seating or unseating head specified. Slides shall be adequately reinforced to withstand, without permanent distortion, the maximum thrust which can be transmitted by the operating stem. Each slide shall have a reinforced pocket or an internally threaded nut welded to the slide for connection of the stem. The pocket or nut shall be designed to withstand the maximum thrust which can be transmitted by the operating stem.

3. Closures.

The bottom of each slide gate frame shall be recessed so that the waterway is not obstructed. A compressible seal shall be securely attached to the bottom of the slide or to the frame invert. The seal shall be of sufficient length to seal the bottom corners of each slide.

4. Operating Stems.

Operating stems shall conform to the requirements of Section 3.11 of AWWA C513. Contact surfaces of threads shall be polished to a 63 microinch finish, or smoother. Each stem shall be securely attached to the slide.

5. Welding: Passivate all welds.

B. Installation.

- 1.** Each gate shall be carefully installed and shall be so adjusted that it does not bind or leak in excess of specified requirements. The threaded portion of each plastic stem cover shall be wrapped in at least two layers of Teflon tape, and the threaded portion of steel pipe stem

- covers shall be coated with Teflon thread sealer immediately prior to installation of the cover on the actuator.
- a. Service: open/close, upward opening
 - b. Mounting: non-self-contained, common wall thimble.
2. All bolts shall be tightened and all items requiring lubrication shall be lubricated. Anti-seize thread lubricant shall be liberally applied to the threaded portion of stainless-steel anchor bolts during the installation and tightening of nuts. Excess lubricant shall be thoroughly removed following final tightening.
 3. After installation, each gate shall be operated through at least two complete open-close cycles, readjusted and reoperated as necessary, and left in a condition acceptable to the Engineer.

C. Service Representative.

1. Provide qualified service representative to perform functions described under "Installation" and to sign the Certificate of Proper Installation.
2. Include necessary trips by the Manufacturer's representative to provide one 8 hour workday(s) on-site (travel time not included) for startup and training of operations personnel.
3. Any additional trips required by the Contractor before or after final startup and training shall not be charged to the Contracting Authority.

236089.04 METHOD OF MEASUREMENT.

The Fabricated Metal Slide Gates are incidental to each gatewell structure and will not be individually measured.

236089.05 BASIS OF PAYMENT.

The contractor will be paid the lump sum price for the gatewell structure. This shall be considered full compensation for furnishing all tools, equipment, labor, and materials necessary to install the gatewell structure in accordance with the contract documents.