**SECTION \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**TYPICAL SPECIFICATIONS FOR A-250 SERIES FABRICATED SLIDE GATE**

PART 1 GENERAL

* 1. SCOPE OF WORK
1. The equipment provided under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer unless exceptions are noted by the engineer.

Gates and operators shall be supplied with all the necessary parts and accessories indicated on the drawings, specified or otherwise required for a complete and properly operating installation, and shall be the latest standard product of a manufacturer regularly engaged in the production of fabricated water control gates.

1. Unit Responsibility: To insure compatibility of all components directly related to the slide gates unit responsibility for the slide gates, actuators and accessories as described in this section shall be the responsibility of the slide gate manufacturer unless specified otherwise.
	1. SUBMITTALS
2. Submittals shall be in accordance with Sections \_\_\_\_\_\_ and as specified herein.

Submittals shall include as a minimum:

1. Shop Drawings
2. Manufacturer’s operation and maintenance manuals and information.
3. Manufacturer’s installation certificate.
4. Manufacturer’s equipment warranty.
5. Manufacturer’s performance affidavit in accordance with Section .
6. Design calculations demonstrating lift loads and deflection in conformance to the application requirements. Design calculations shall be approved by a licensed engineer (PE) and shall be available upon request.
	1. QUALITY ASSURANCE
7. Qualifications
8. All of the equipment specified under this Section shall be furnished by a single manufacturer with a minimum of 20-years of experience designing and manufacturing slide gates. The manufacturer shall have manufactured aluminum slide gates of the type described herein for a minimum of 20 similar projects.
9. The sealing system shall be certified and tested for operation and performance to leakage specifications compliant with AWWA C-562.
10. The project design is based on the Waterman A-250 Series Fabricated Slide Gate as manufactured by Waterman Industries of Exeter, California. Proposed alternates must be pre-approved, per addendum, at least 14-days prior to close of bid. Requests for alternates must be supplemented with detailed drawings, specifications, and references. Any/all additional costs for structure modifications or other changes associated with utilizing a brand other than Waterman are to be borne by the contractor.
11. To insure quality and consistency, the slide gates listed in this section shall be manufactured and assembled in a facility owned and operated by the slide gate manufacturer. Third-party manufacturers contracted for fabrication and assembly of the slide gates will not be permitted.

PART 2 EQUIPMENT

2.01 GENERAL

1. The gates shall be either self-contained with yoke and bench stand operators, or non-self-contained with separate stem guides and operator, in accordance with the requirements of these specifications.
2. The gates shall be compliant with the latest version of AWWA C562, or as described below.
3. Specific configurations shall be as noted on the gate schedule or as shown on the plans.
4. Materials:

|  |  |
| --- | --- |
| COMPONENTS | MATERIALS |
| Frame, Yoke, Cover Slide | Choose an item. |
| Seat/Seals & Stem Sleeves | Choose an item. |
| Cord Seal | Choose an item. |
| Flush Bottom Seals | Choose an item. |
| Stems | Choose an item. |
| Stem cover | Choose an item. |
| Stem Guides | Choose an item. |
| Wall Brackets | Choose an item. |
| Pedestals | Choose an item. |
| Fasteners and Anchor Bolts | Choose an item. |
| Finish | Choose an item. |

E. Gate Schedule:

| Equipment Number | GateSize, inch1 | Gatetype2 | OpeningDirection3 | BottomSeating4 | Design Head, feet | OperatorType |
| --- | --- | --- | --- | --- | --- | --- |
| Seating | Unseating |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Notes:

1. Clear opening width by height.
2. E = embedded frame, W = wall mounted, Y = self-contained, F = flatback
3. U = upward, D = downward
4. FB = flush bottom

2.02 FRAME AND GUIDE RAILS

1. The gate frame shall be composed of aluminum guide rails with UHMW seat/seals upstream and downstream. The seat/seals shall form a tight seal between the frame and the slide (disc). The guides will be of sufficient length to support ½ the height of the slide when in the full open position.
2. Yoke shall not deflect more than 1/360th of the span under full head break load.
3. Seals shall be replaceable without removing the frame from the wall. In the case of embedded gates, they shall be constructed in a manner that allows replacement of the seals without removal of the gate frame from the embedment.

2.03 STEM AND STEM GUIDE

1. Material
	1. The stem shall be solid stainless steel of the specified grade.
2. Design
	1. Guides shall be adjustable with split stem sleeves. Guides shall be spaced per the manufacturer’s recommendations. The stem L/r ratio shall not exceed 200.
	2. Stem threads shall be machine cut 29-degree full Acme or stub Acme type.
	3. Nominal diameter of the stem shall not be less than the crest of the threaded portion.

2.04 SEALS

1. The seals shall be self-adjusting. Seals requiring periodic maintenance and adjustments to maintain specified leakage rates will not be permitted.
2. The top seal design on upward opening gates consisting of four side seals shall incorporate a self-cleaning wiping function that prevents debris from building-up above the top seal and causing premature wear of the seats, seals, and gate face.
3. The UHMW seats shall impinge on the slide (disc) by way of a continuous loop cord seal. Seal designs incorporating resilient seals such as “J-bulb” or “P” seals that come in direct contact with the friction surface of the slide will not be considered.
4. The cord seal shall function as a seal between the frame and the UHMW, and as a spring force to maintain contact between the UHMW and the slide (disc).
5. The resilient bottom seal shall be set into the invert member of the frame which shall be formed in a manner to protect 3 sides of the seal only exposing the side that will come in contact with the slide. Disc-mounted invert seals exposing additional surface area will not be permitted.
6. The self-adjusting seal system shall provide an allowable leakage rate of no more than .05 gpm per peripheral foot of sealing perimeter for both seating and unseating heads.

2.05 SLIDE COVER (DISC)

1. The slide cover (disc) shall be aluminum plate reinforced with structural shapes welded to the plate.
2. The slide cover shall not deflect more than 1/720th of the span, or 1/32” at the sealing surface of the gate under maximum specified head.
3. The stem to gate connection shall be either the clevis type, with structural members welded to the slide and a bolt or bolts to act as a securing method, or a threaded and bolted (or keyed) thrust nut supported in a welded nut pocket.
4. The clevis, or pocket and yoke, of the gate shall be capable of taking, without damage, at least twice the rated thrust output of the operator at 40 pounds of pull on a hand wheel or hand crank, and at locked-rotor stall of a motor operator.
5. The slide cover shall be constructed with vertical and horizontal reinforcement ribs.
6. All welds shall be performed by an AWS-certified welding technician.

2.06 ANCHOR BOLTS

A. Anchor hardware shall be provided by the slide gate manufacturer.

1. The size, quantity, and location of the anchor hardware shall be engineered by the slide gate manufacturer. Upon client request manufacturer shall provide calculations for anchor bolt sizing and quantity.
2. Anchor hardware consisting of studs, nuts and washers shall be provided by the manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION

1. Installation of the gates shall be performed in accordance with standard industry practices. 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.
2. The CONTRACTOR shall review the installation drawings and installation instructions prior to installing the gates.
3. The gate frames shall be installed in a true vertical plane, square and plumb, with no twist, convergence, or divergence between the vertical legs of the guide frame.
4. The CONTRACTOR shall fill any void between the guide frames and the structure with non-shrink grout as shown on the installation drawing and in accordance with the grout manufacturer’s recommendations.
5. The frame cross rail shall be adjusted as required to maintain consistent seal compression across the full width of the gate.

3.02 FIELD TESTING

1. After installation, all gates will 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 gate assembly shall be water tested by the CONTRACTOR at the discretion of the ENGINEER and OWNER, to confirm that leakage does not exceed the specified allowed leakage.

END OF SECTION

NOTHING FOLLOWS