SPECIFICATIONS - DETAILED PROVISIONS
Section 11293 - Slide Gates

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SLIDE GATE SCHEDULE

SECTION 11293
SLIDE GATES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Slide gates and accessories.

1.02 DESIGN REQUIREMENTS

A. Gates:

1. Design gate slides, frames, and yokes with a minimum safety factor of 5 for tensile, compressive, and shear stresses under design seating and unseating heads specified herein.

2. Design gates to meet seating and unseating heads specified in the Slide Gate Schedule. Modify gates as necessary to meet specified design requirements.

3. Gates shall meet leakage requirements of AWWA C 501 latest edition.

B. Slide: Maximum deflection under design seating and unseating head shall equal l/320 of span.

C. Yoke: Maximum deflection under design seating and unseating head and at full operating load shall equal l/360 of span.

D. Stem:

1. Maximum slenderness ratio shall equal 200.

2. Compressive strength shall equal a minimum of 2 times the rated output of the bench stand.

1.03 SUBMITTALS

A. Shop Drawings.

B. Manufacturer's Installation Instructions: Include installation and adjustment instructions from gate manufacturer for every type of gate.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. One of the following or equal:

1. Waterman Industries, Inc., Model R.

2. Rodney Hunt Company, Series 700.

3. H. Fontaine, Series 20.

B. Operators and Anchor Bolts: Provided by slide gate manufacturer.

C. All gates in Sections 11293 and 11294: Supplied by 1 manufacturer.

D. Resin manufactured by one of the following or equal:

1. Derakane 411

2. Hetron 922

3. Reinchhold Dion VER 9100

4. Interplastic VE 8300

E. Fiberglass Slide:

Warminster Fiberglass or equal

2.02 MATERIALS

A. Stainless steel, ASTM A 276, Type 316. All components or structural shapes which are welded shall be Type or 316L stainless steel.

B. Neoprene, ASTM D 2000, Grade 2 BC 510.

C. Ultra-high molecular weight polyethylene, ASTM D 1248.

D. Fiberglass reinforced polyester resin with resin-rich surface, ribbed as necessary to withstand maximum water heads to be encountered, using molded-structural members.

E. Resin: Premium grade vinyl ester as recommended by the resin manufacturer for the specific operating environment.

2.03 COMPONENTS

A. Gate Slide:

1. Fabricate using Type 316 stainless steel plate with welded structural shapes reinforcement.

2. Fiberglass reinforced polyester resin with resin-rich surface, ribbed as necessary to withstand maximum water heads to be encountered, using molded-in structural members. Bolted or bonded ribs will not be acceptable.

a) Gates up to 24 inches wide by 36 inches high: 1/4 inch thick, minimum.

b) Gates between 24 and 72 inches wide and between 36 and 96 inches high: 3/8 inch thick, minimum

c) Color: White

d) Color: Turquoise

B. Fiberglass: Cut edges shall be resealed with polyester resin prior to shipment, and no unsealed edges may be exposed to the process fluid. Laminate shall have a nominal glass content of 30 percent, with the following minimal physical properties:

1. Tensile strength (ASTM D-638): 14,000 psi

C. Frames: Guides, invert members and yokes welded to form one-piece:

1. Material:

a) Type 316 stainless steel.

b) Capable of providing true dimensions within tolerances and preventing binding and excessive wear of sliding parts.

2. Mounting: Embedded or face mounted as scheduled in Slide Gate Schedule.

3. Guide Length: Sufficient to retain at least 2/3 of gate slide when gate is in fully open position.

4. Additional Supports: Not required in members above operating floor.

5. Yoke to Support Bench Stand Operator: Form by 2 angles welded to gate frame.

6. Yoke Arrangement: Capable of allowing removal of slide.

D. Stem:

1. Material: Type 316 stainless steel.

2. Diameter: Capable of withstanding anticipated opening and closing thrusts under head scheduled.

3. Length: Capable of permitting easily installation and removal.

E. Frame Seals:

1. Self-adjusting ultra-high molecular weight polyethylene or adjustable J-bulb seals around perimeter of gate slide. Use only J-bulb seals when an unseating head condition exists.

2. Hold seals in place by Type 316 stainless steel bar and fasteners.

3. Set seals to be slightly compressed with slide in closed position.

4. Seals shall be fully field adjustable and replaceable.

5. Provide invert seal for all downward (weir) gates.

6. Provide top seal for all standard upward opening gates.

F. Bottom Seal: Resilient neoprene or Buna N seal compressed by closing action of gate slide against stop plate for all standard upward opening gates.

G. Fasteners: Type 316 stainless steel.

H. Operators: As scheduled in Slide Gate Schedule and as specified in accordance with Section 13446.

I. Anchor Bolts: Type 316 stainless steel, hooked end type, of sufficient quantity and length to anchor the gate.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

A. After installation and checking, run each gate through at least 2 full cycles from closed position to fully open and back to closed position.

3.02 SLIDE GATE SCHEDULE (SEE ATTACHED)

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SLIDE GATE SCHEDULE

EQUIP. MARK NO.	REF. DWG. NO.	REF. STANDARD DWG. NO.	QTY	"A" WIDTH INCHES	"B" HEIGHT INCHES	"C" HEIGHT INCHES	"D"HEIGHT INCHES	"E" HEIGHT INCHES	MAX. DEPTH OF WATER FROM GATE SEAT, FEET	TYPE OF FRAME	TYPE OF CLOSURE	OPER-ATOR	REMARKS
1.	SD-8755	326	2	SEE REFERENCE DRAWING FOR DIMENSIONS						SS	FB	FS	Aeration Tanks 1 & 2
2.	SD-2579	326	1							SS	FB	FS	Aeration Tank 5
3.	SD-8755	P710	12							- -	FB	- -	Replace Seals only on Primary Clarifier
4.	SD-2579 *	P710	2							SS	FB	HW	Chlorine Contact Tank

Footnotes

1. Refer to Typical Detail P710 , 326
2. Type of Frame:
   SC = Self-Contained
   NSC = Non Self-Contained
   SB = Spigot Back
3. Type of Closure:
   FB = Flush Bottom
   DO = Downward Opening
4. Operator
   HW = Handwheel
   CO = Crank Operator
   IFS = Interconnected Floor Stands
   MOD = Modulating Motorized Operator
   FS = Fiberglass Slide
5. Contractor shall verify dimensions and configuration of existing gate openings before submitting shop drawings for gates. All dimensions are nominal.

TVRWRF

1. Remove existing gates and install new gates on designated Aeration Tanks
2. Remove existing gates and install new gates on Chlorine Contact Tank
3. Replace seals on existing gates in Primary Clarifiers

* Modify handrail and grating to accommodate new gate, if necessary, as required by gate manufacturer

END OF SECTION 11293