

# SERIES 3000 SLUICE GATE

CAST IRON  
MEDIUM DUTY

- Cast Iron Standard Flangeback, Extended Flangeback or Spigotback Frame
- Rectangular or Circular Openings
- Rectangular, Ribbed Slide for Rising or
- Non-Rising Stems
- Finished Iron or Bronze Seat Faces
- Galvanized or Optional Stainless Steel Structural Guide Rails and Fasteners
- Adjustable Side Wedge Assemblies
- Optional Adjustable Top and Bottom Wedge Assemblies (for gates wider than 24")
- May be Thimble, Wall or Flange Mounted

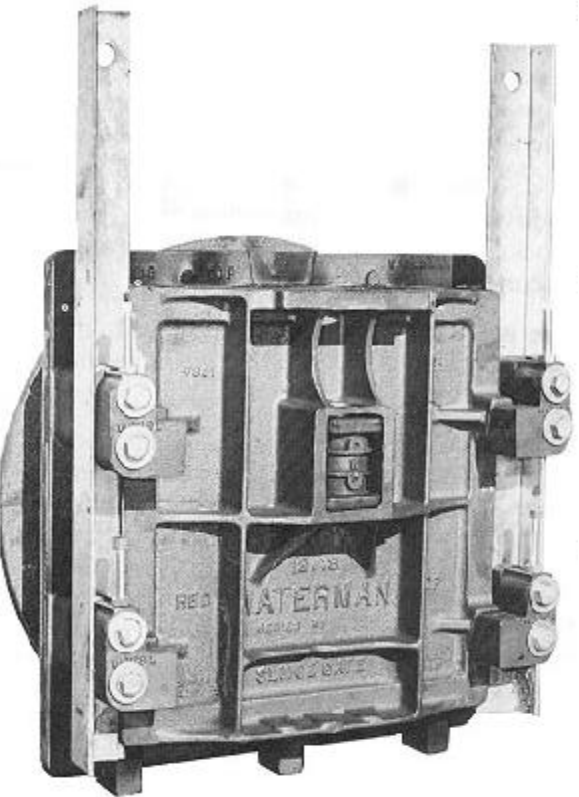
Waterman Series 3000 Sluice Gates have been designed to give maximum water control service, operating at seating heads up to 50 feet and unseating heads up to 20 feet.

Gates have one-piece cast iron, standard flangeback, extended flangeback or spigotback frames. Slides (covers) have horizontal and vertical ribs, and cast side wedges. Fully adjustable, positive locking wedge blocks force the smoothly machined seats into a practical water tight closure (maximum clearance between faces: .004 inch). Adjustable top and bottom wedges augment the side wedges for unseating heads.

Heavy galvanized structural steel guide angles and bolts are furnished as standard. Stainless steel guides and bolts are optional and recommended for corrosive water conditions.

Bronze seat facings should be specified where the gate will not be operated for long periods of time or where salt water, industrial wastes or sewage will be handled.

## APPLICATIONS



SC-3000ff

- Flood control projects
- Industrial and municipal treatment plants
- Drainage systems
- Reservoirs
- Fish hatcheries
- Canal and irrigation systems

Similar projects where operating conditions will be moderate and first cost is an important factor.

# SERIES 3000 SLUICE GATE

## FEATURES:

Gates with non-rising stems, flushbottom closures, self-contained frames and special downward opening models are available.

Side wedges are cast integrally with the cover. Wedge blocks are cast ductile iron. They easily adjust and are securely locked in position.

Top and bottom wedges are provided to meet higher unseating heads, are bolted to the frame and slide, and are adjustable.

A cast iron or bronze thrust nut is shipped with each gate and is threaded to fit the stem ordered with the gate. The thrust nut located in a reinforced pocket cast in the slide, is prevented from turning on the stem in rising stem model gates by set screws. (Pins or keys are optional.)

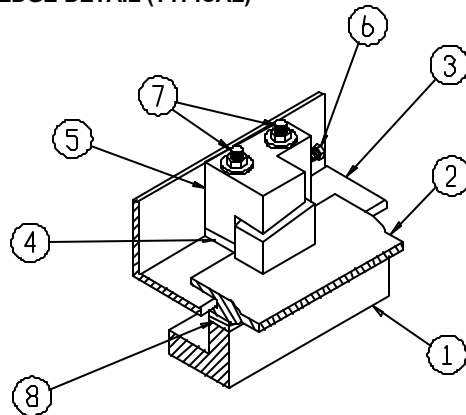
Slides for non-rising stem gates are supplied with a nut pocket located so as to provide a full gate opening without allowing the stem to extend into the waterway. The thrust nut on these units is threaded to receive the gate stem and travels up or down, operating the slide, as the stem is rotated.

Gates with a self-contained frame (yoke) and lift are available with rising or non-rising stems. Flushbottom seals can be provided (see page 6). Downward opening models, special material combinations and coatings are also available.



SIDE WEDGE DETAIL (TYPICAL)

PARTS LIST	
Nb.	Name
1	Frame
2	Slide w/Cast-in Wedge
3	Guide Rail
4	Wedge Spacer
5	Adjustable Wedge Blocks
6	Adjusting Screw w/Lock Nut
7	Wedge Bolts
8	Seat Facings



# SERIES 3000 SELF- CONTAINED SLUICE GATE

- Galvanized or Stainless Steel Rails
- Rising Stem or Non-rising Stem

The Series 3000-Y Sluice Gate (Y indicates self-contained frame and yoke) can be furnished with any of the options noted for the standard units and includes extended side rails, a structural steel yoke (headrail), stem, and lift. The thrust of operation is transferred directly to the yoke. Both rising stem (S-3000-RSY) and non-rising stem gates (S-3000 NRS-Y) are available.

Standard units feature galvanized steel structural guide rails and fasteners. Stainless steel may be substituted as an extra cost item. Minimum frame heights for openings are provided unless extended heights are specified.

Self-contained gates with rising stems can be installed where it is impractical to have independently mounted handwheel and pedestal lifts and can project above a headwall to give necessary operating clearance. Stems are cold finished steel with modified acme threads, secured to the slide (cover) with a thrust nut and operated by a cast bronze lift nut with suitable handwheel or geared crank lift. Stainless steel stems are optional.

Self-contained gates with non-rising stems are similar to rising stem units, but have a cast bronze thrust nut threaded to match the stem threads which travel up and down (operating the slide) as the stem is rotated. Non-rising stems are stainless steel unless specified otherwise. The thrust of the stem is transferred directly to the yoke (headrail) through a flange and thrust collar. Ball or roller bearings should not be used at the thrust flange if they will be submerged.

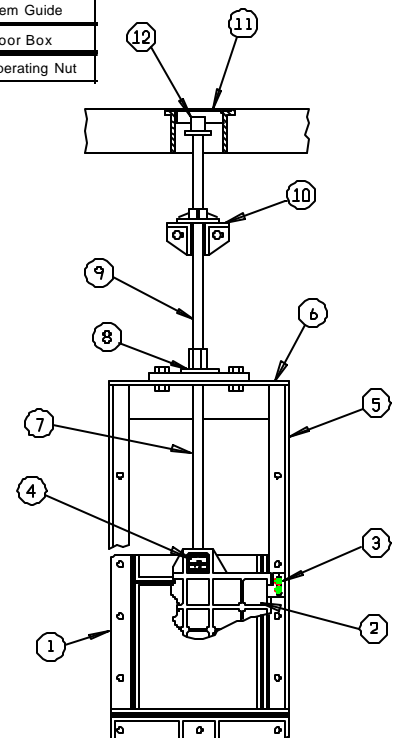
## APPLICATION

A non-rising stem gate is used where a standard Series 3000 gate is required, and where it is desirable not to have the stem rise into walk-ways, roads, or other obstructions.



MODEL S-3000-NRS-Y (NON-RISING STEM)

PARTS LIST			
No.	Name	No.	Name
1	Frame	7	Stem
2	Cover	8	Lift
3	Wedge	9	Extension Stem
4	Thrust Nut	10	Stem Guide
5	Guide Rail	11	Floor Box
6	Headrail	12	Operating Nut



Typical installation of S-3000-NRS-Y Gate with floor box, stem extension and coupling.

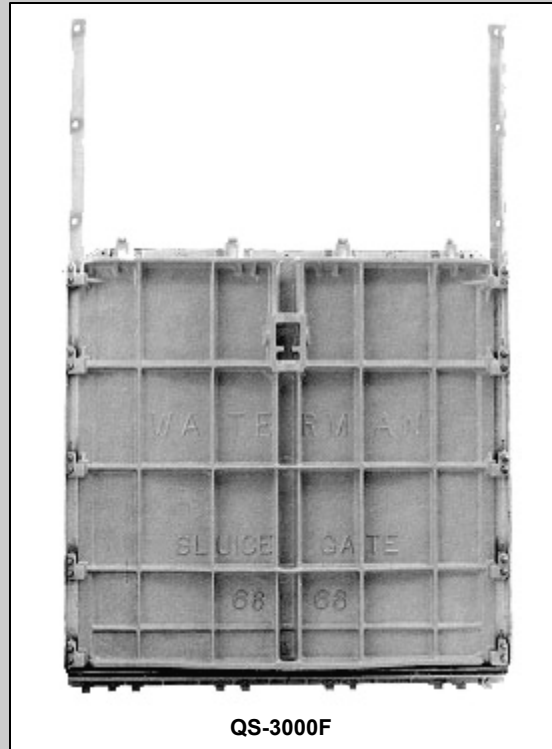
# QS-3000 FLUSHBOTTOM SLUICE GATES

- Maximum Flow
- Flushing Action
- Complete Drainage
- Lowest Invert
- Maximum Hydraulic Gradient
- Fully Contained Neoprene Bottom Seal

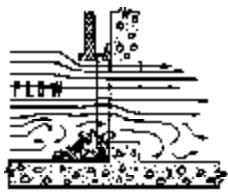
Use anywhere that an unimpeded flow, free of debris, is required. Use for maximum flow and minimum clearances in sewage disposal plants, filtration plants, drainage projects, settling tanks, flood control, distribution systems, etc.

Waterman Series 3000 Cast Iron Sluice Gates in both rising and non-rising stem models are available with flushbottom openings. A neoprene seal confined on three sides in the frame bottom compresses upon contact with the blunt bottom edge of the slide, providing a tight seal. When open, the flat plane across the bottom provides unobstructed high capacity flow and flushing action.

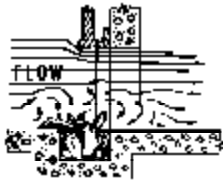
The prefix "Q" indicates a flushbottom seal on your Waterman gate, i.e. - a "QS-3000-f" indicates a rectangular Sluice Gate with a flushbottom seal.



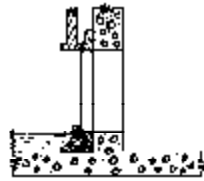
QS-3000F



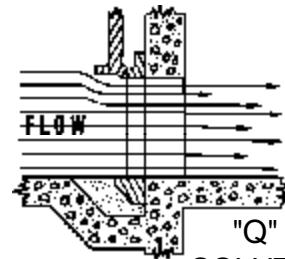
PROBLEM



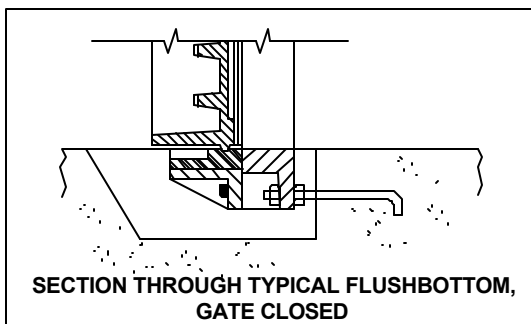
PROBLEM



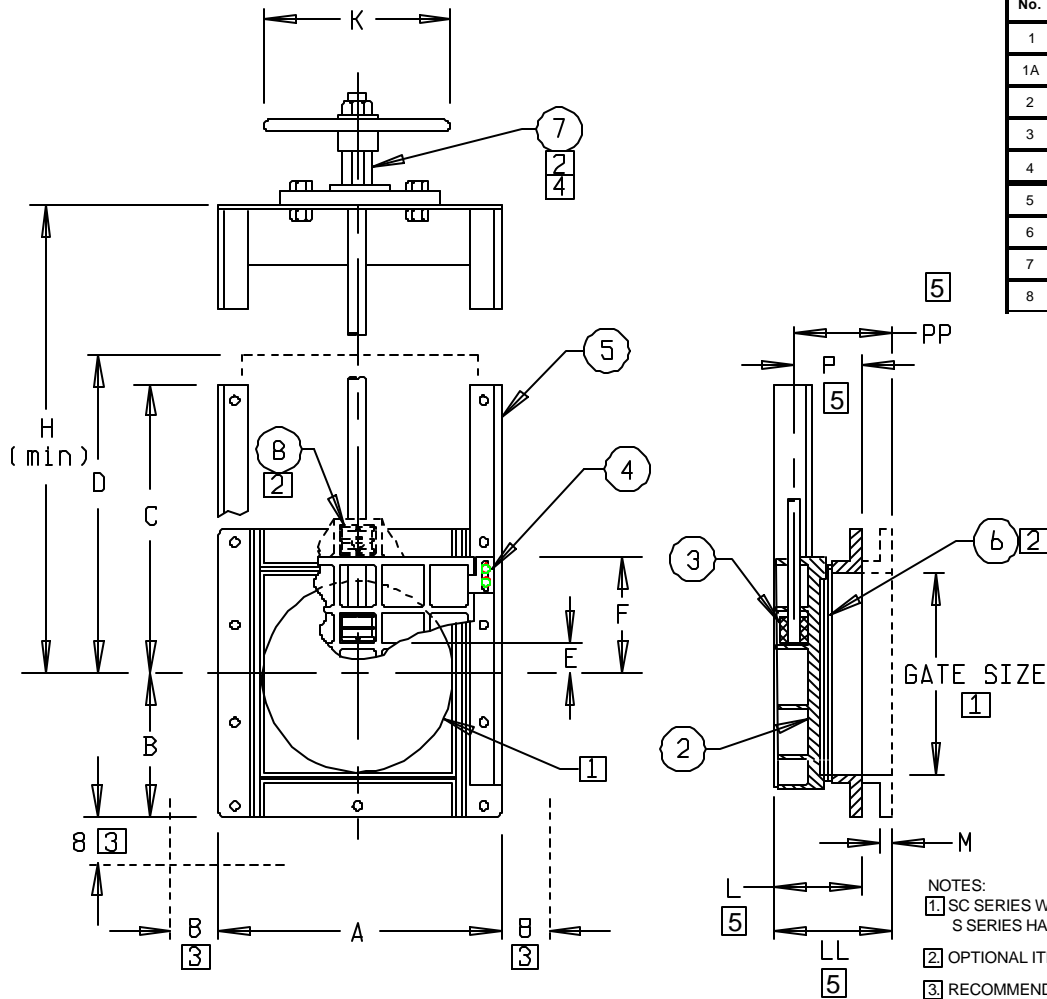
PROBLEM



"Q"  
SOLUTION



**SERIES 3000 SLUICE GATE**



PARTS LIST	
No.	Name
1	Standard Flangeback
1A	Extended Flangeback
2	Cover
3	Thrust Nut
4	Wedge Assembly
5	Guide Rail
6	Bronze Seats (Optional)
7	Self-Contained Frame w/Lift (Optional)
8	Non-Rising Stem (Optional)

- NOTES:
- [1] SC SERIES WITH CIRCULAR OPENING SHOWN; S SERIES HAS SQUARE OPENING
  - [2] OPTIONAL ITEMS
  - [3] RECOMMENDED CLEARANCE TO ALLOW INSTALLATION OF ANCHOR BOLTS.
  - 4. GEARED, CRANK TYPE LIFTS REQUIRED ON 54" AND LARGER GATES.
  - [5] IF GROUT PAD MOUNTING IS USED, ADD GROUT THICKNESS TO DIMENSION.

GATE DIMENSIONS IN INCHES

GATE SIZE	A	B	C	D	E	F	H	J	K	L	M	P	LL	PP
12 X 12	19	9½	18	29	3½	6½	30	4¼	15	8	⅝	5	11	8
14 X 14	20¾	10%	21	33	1½	8	34	4¼	15	7½	⅝	4½	10½	7½
15 X 15	20¾	10%	21	33½	1½	8	34	4¼	15	7½	⅝	4¼	10½	7½
16 X 16	23¼	11%	21	35	2	8½	36	4¼	15	8	¾	5¼	11½	8½
18 X 18	24	12	22	38	6¼	9½	40	6	18	8½	¾	5½	12	9
20 X 20	26¾	13%	29	42	1½	12	44	6	18	8½	¾	5½	12	9¼
21 X 21	26¾	13%	29	42½	7½	12	44	6	18	8½	¾	5½	12	9¼
24 X 24	30	16	32	47	9	12½	48	6	24	9	¾	5¾	12¾	9½
30 X 30	38	19	37	56	5¾	16½	58	6	24	10	⅞	6	14	10
36 X 36	44	22	42	65	7	20	67	6	30	10	⅞	6¼	14½	10½
42 X 42	50¼	25⅝	45¾	74	8	23	76	NA	NA	11½	1	7	15½	11
48 X 48	57	28½	47¼	83	5½	26	85	NA	NA	12	1	7¾	16	11½
54 X 54	62½	31¼	64	93	15	29½	95	NA	NA	12½	1	7½	16½	11½
60 X 60	69	34½	70½	102	17¼	32	104	NA	NA	12½	1¼	7	16½	11
66 X 66	82	41	83	112	21	35	116	NA	NA	13½	1½	8½	17½	12½
72 X 72	81	40½	83	120	21	38	124	NA	NA	13	1½	8	17	12

## TYPICAL SPECIFICATIONS FOR WATERMAN MODEL S-3000 SLUICE GATE

The sluice gates shall be Waterman Model S-3000 or approved equal.

### General

The gates shall be self-contained with yoke and bench stand operators; self-contained with either non-rising stem extension (NRE) or rising stem extensions (RSE); or gates with minimum height frames and separate stem guides and operators, in accordance with requirements of these specifications. Grooves shall be cast on the vertical sides of the cover to match guide angles. The cover shall have horizontal and vertical stiffening ribs to withstand a maximum seating head of 50 feet or specific gate design and configuration shall be noted in gate schedule or as shown on plans.

### Frame and Cover

The frame and cover (slide) shall be cast iron with machined seating faces. The frame shall be flatback, spigot back, or flangeback configuration as specified.

Grooves shall be cast on the vertical sides of the cover to match guide angles. The cover shall have horizontal and vertical stiffening ribs to withstand a maximum seating head of 50 feet or unseating head from 5 to 20 feet. For unseating head conditions greater than 5 feet, gates 24 inches wide or wider shall have adjustable bronze top and bottom wedges.

The guide rails and head rails shall be minimum ¼-inch thick galvanized steel, designed and built to withstand the total thrust of the gate slide due to water pressure and wedge action.

There shall be adjustable cast ductile iron wedges located along side of gate as required to insure proper sealing. The wedges, located on the cover shall be integrally cast with the cover. The frame wedges shall be attached to the guide rails with two bolts. The wedges shall have smooth bearing surfaces and shall be adjustable to insure effective contact between gate seating surfaces.

### Flushbottom Closure

When a flushbottom closure is specified, a resilient seal shall be attached to the frame so that it is flush with the invert. It shall be supported by a cast iron bracket which shall be bolted to machined pads provided on the frame. The seal shall be held in place by a stainless steel bar which shall be bolted through the seal to the bracket with stainless steel fasteners. The cover (slide) shall be shortened and provided with a smooth, rounded surface along the bottom to depress the seal. When unseating heads are to be acting on a flushbottom gate, top wedges shall be added, but bottom wedges will not be required. Sealing pressure shall be varied by adjusting side and top wedges.

### Stem

The stems shall be cold finished steel of suitable length and ample strength for the intended service. The stem diameter shall be capable of withstanding twice the rated output of the operator at 40 pound pull, and shall be supported such that the l/r ratio for the unsupported part of the stem shall not exceed 200.

When a rising stem extension is used, the stem extension shall be supported such that a rigid installation shall be provided. Stem guides shall be spaced so that the l/r ratio of the stem does not exceed 200.

### Operators

Manual operated lifting mechanisms shall be indicated on the plan drawings or specified in the gate schedule. Handwheel type lifts shall have threaded bronze lift nut to match stem. Threads shall be machine cut, acme type. An arrow shall be cast on the handwheel to indicate the direction of rotation to open the gate. A maximum effort of 40 pounds shall be required to operate the gate after it is unseated, based on the maximum specified operating head.

### Materials

Frame, Cover (Slide), Handwheel - Cast Iron - ASTM A-126; Class B

Rails and Yoke - Galvanized Structural Steel - ASTM A-36, Galvanized per ASTM-A-123

Stem - Leaded Cold Rolled Steel - CF Steel ASTM A-108 Gr. 12L14  
Assembly Hardware and Fasteners - Galvanized per ASTM A-153  
Paint - Manufacturer's Standard or as specified.

**Optional Items Include:**

Bronze Seating Faces  
Type 304 or 316 Stainless Steel Rails and Yokes  
Stainless Steel (Type 304 or 316) or Brass Stems  
Stainless Steel Assembly Hardware  
Structural Steel pipe (w/cast iron brackets) NRE & RSE Stem Extensions  
Total Galvanizing per ASTM-A-123 (Frame, Cover, Rails, Lift, Etc.)  
Special Paint Finish; Coal Tar Epoxy, Polyamide Epoxy, Etc.