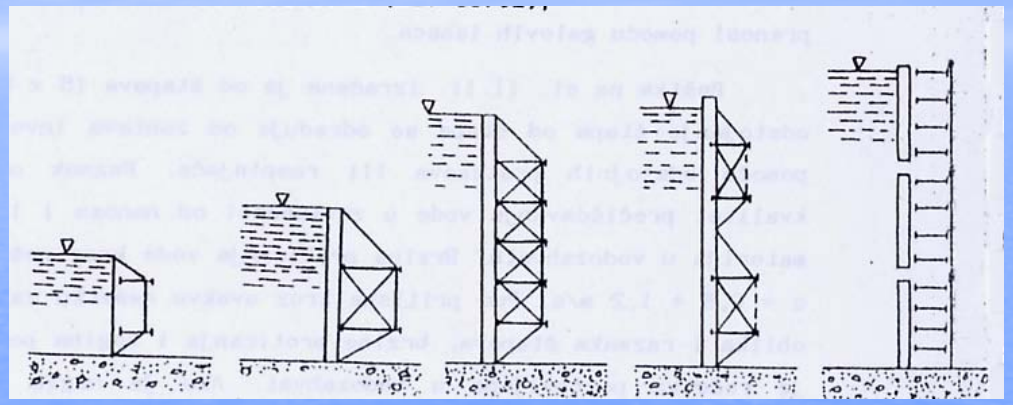
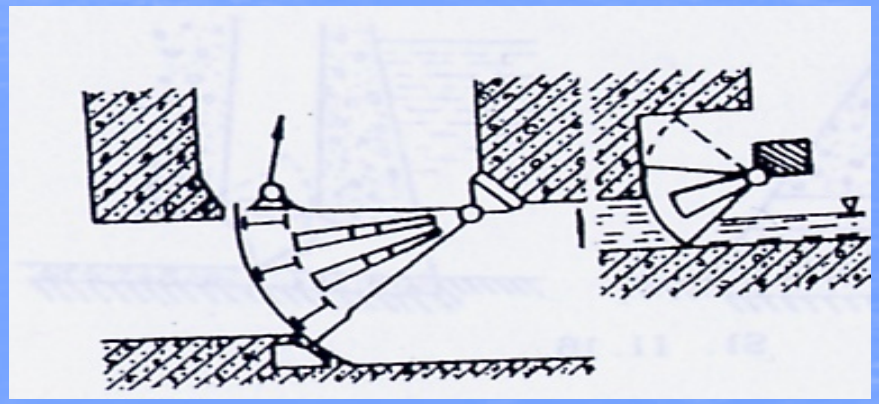
# ТАБЛАСТИ И СЕГМЕНТНИ ЗАТВАРАЧИ КАЈ ХИДРОЕНЕРГЕТСКИТЕ ОБЈЕКТИ

# Ги разгледуваме следните два вида на затварачи

а) табласти



б) сегментни



# Slide Gates

Fabricated steel Slide Gates are provided with neoprene seals to minimize leakage, and are operated using manual gear drives, electric actuators or hydraulic cylinders for operation.

- (4) 11' x 17' electrically operated slide gates

- (2) 9' x 12' manually operated intake slide gates

# Roller Gates

Roller gates are typically used where opening sizes are too large to efficiently use slide gates, or applications where gravity closure is a requirement. The use of a wheeled gate results in significantly lower operating loads thereby providing an effective means for emergency closure applications.

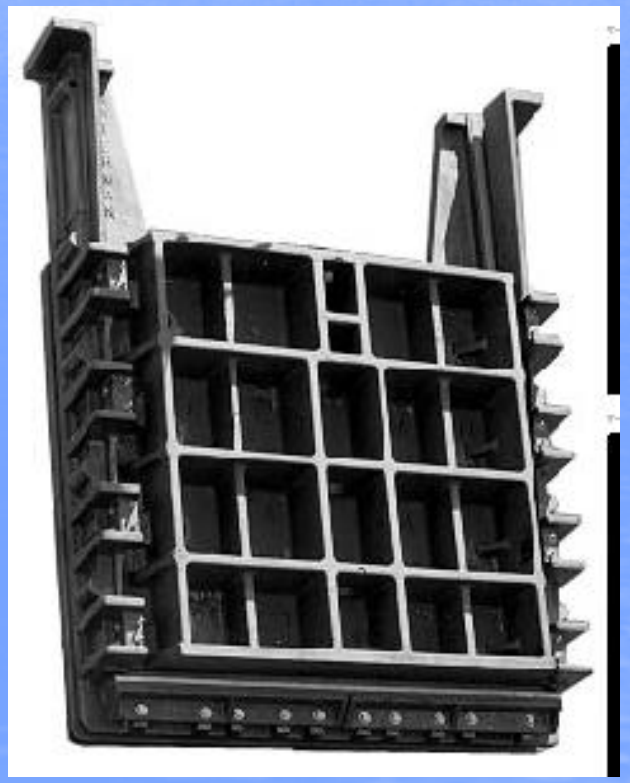
- 12' x 15' hydraulically operated roller gate

- 42" x 72" hydraulically operated roller gates

# HEAVY DUTY, CAST IRON

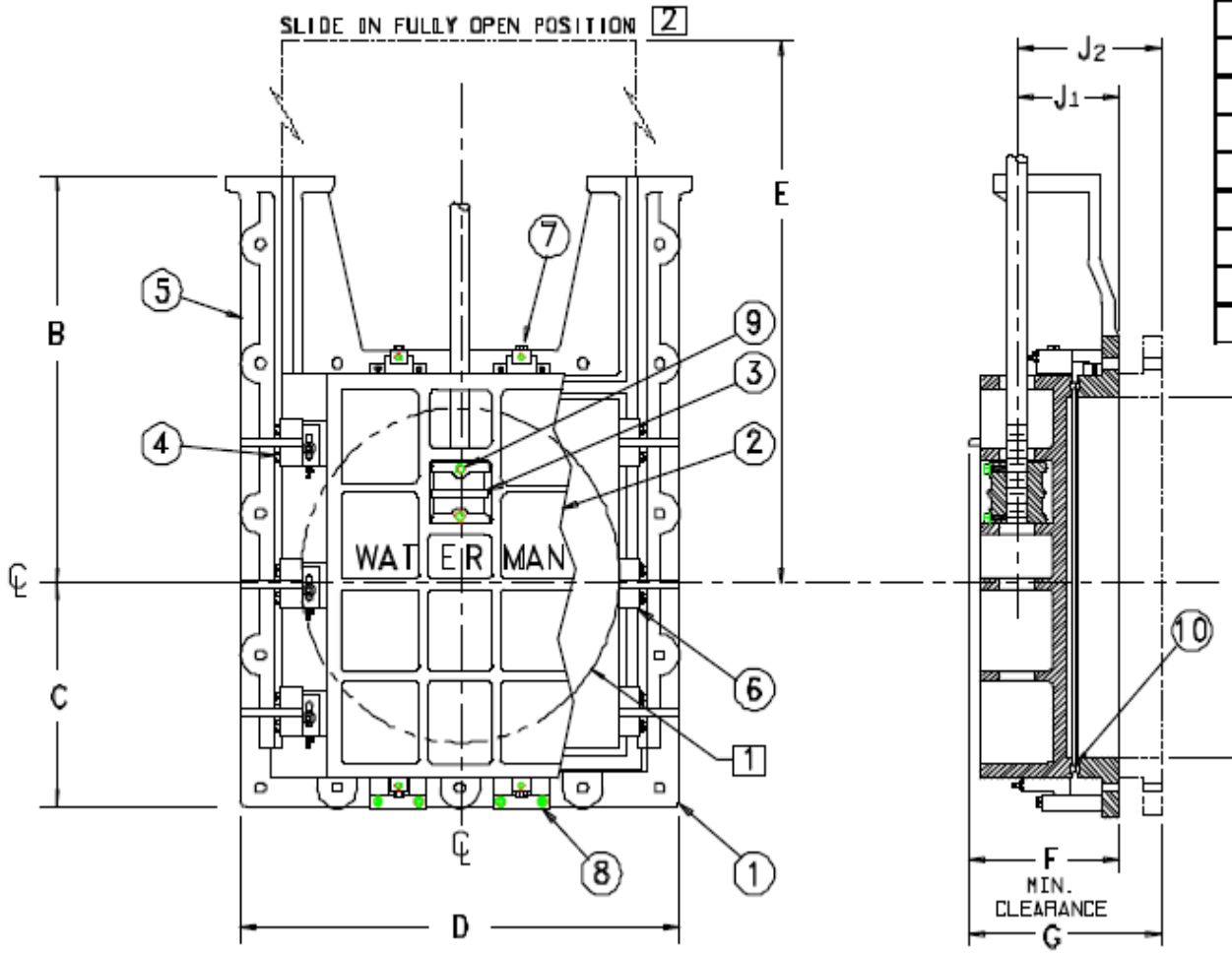
# SERIES 5000 AND 7000 SLUICE GATES

Gate shapes include square or rectangular with square, rectangular or circular opening.



S-7000

# S-7000 SQUARE, ROUND & RECTANGULAR SLUICE GATES




| PARTS | |
|---|---|
| No. | Name |
| 1 | Frame |
| 2 | Cover |
| 3 | Thrust Nut |
| 4 | Cover Wedge Assembly |
| 5 | Guide Rails |
| 6 | Guide Rail Wedge Assembly |
| 7 | Top Wedge Assembly |
| 8 | Bottom Wedge Assembly |
| 9 | Fasteners |
| 10 | Seats |

NOTES:

# SEATING AND UNSEATING HEADS

Heads are measured from the horizontal center line of the gate opening to the surface of the water.

- with SEATING HEADS (or face pressure), the water is on the front of the gate and helps to press the seating surfaces together.
- with UNSEATING HEADS, the water is on the back of the gate and tends to push the slide away from the frame.

| SERIES | Seating Heads, Feet (1) | Unseating Heads, Feet (2) |
|---|---|---|
| 5000 | 55 to 200 (varies with size) | 10 to 150 or higher (varies with size) |
| 7000 | | |

P-32

SLUICE GATE

- HEAVY DUTY
- SELF CONTAINED
- MEETS AWWA

SPECIFICATIONS*

- 60 FOOT SEATING, 20 FOOT

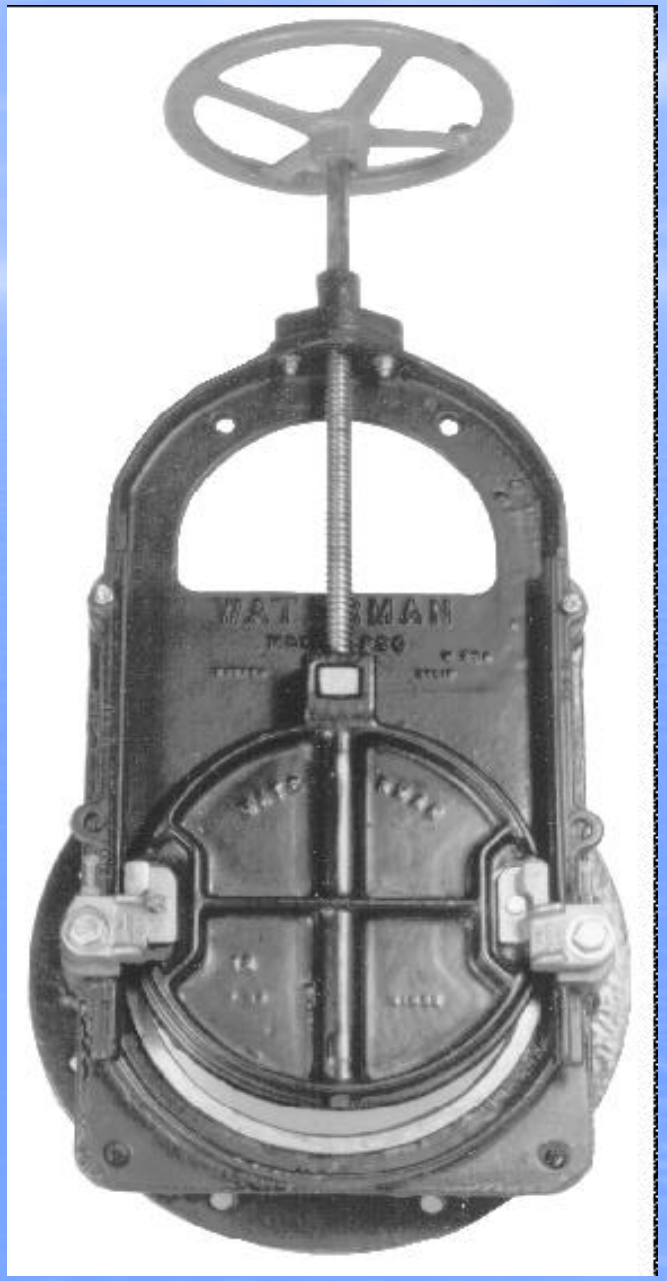
UNSEATING PRESSURE

- 6" THRU 14" SIZES

APPLICATION:

Sluice Gate Model P-32 is ideally suited for pipe end shut-off applications.

Commonly used for pumping stations, effluent ponding installations, and distributing boxes.

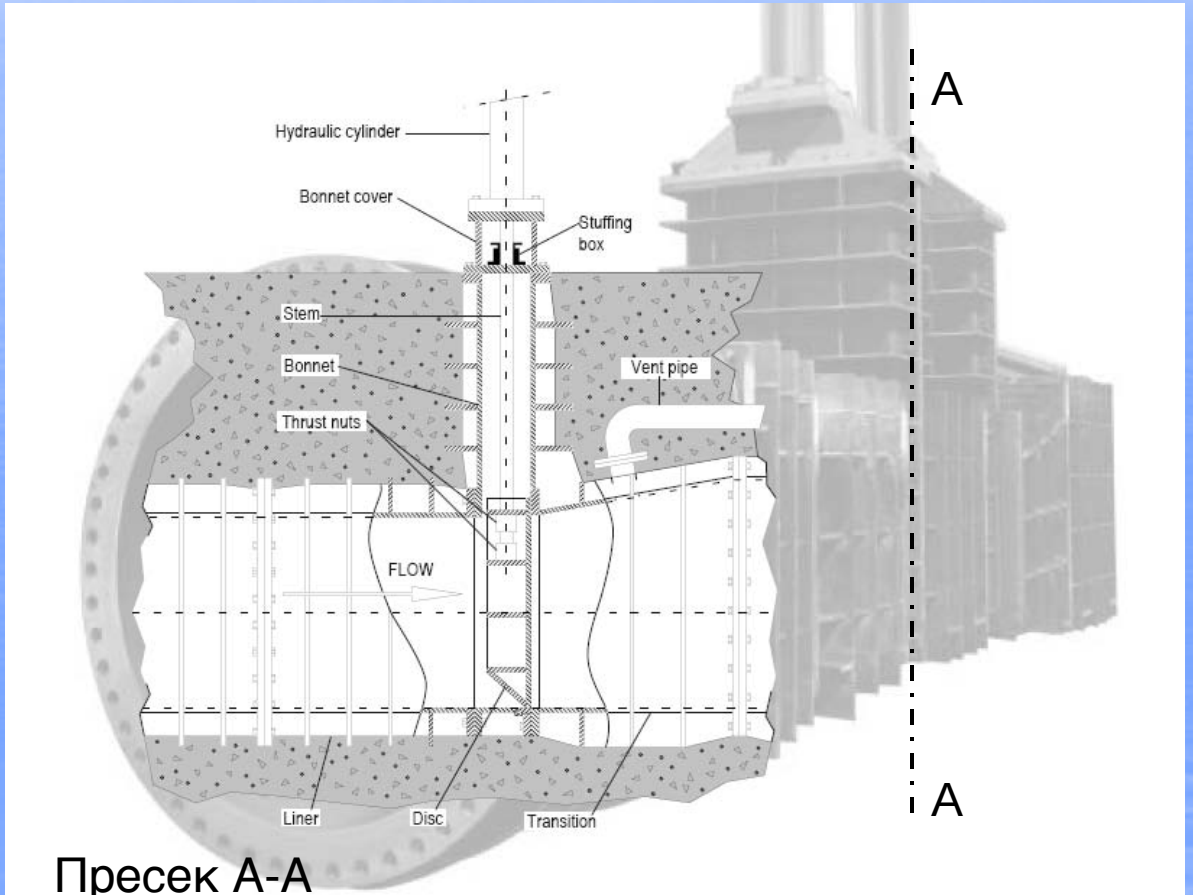


# Bonneted Gates

Bonneted Slide Gates are normally used for regulating flow through the outlet works of dams.

They are essentially a completely enclosed slide gate that is anufactured and designed to be embedded (except for the actuator) in oncrete.

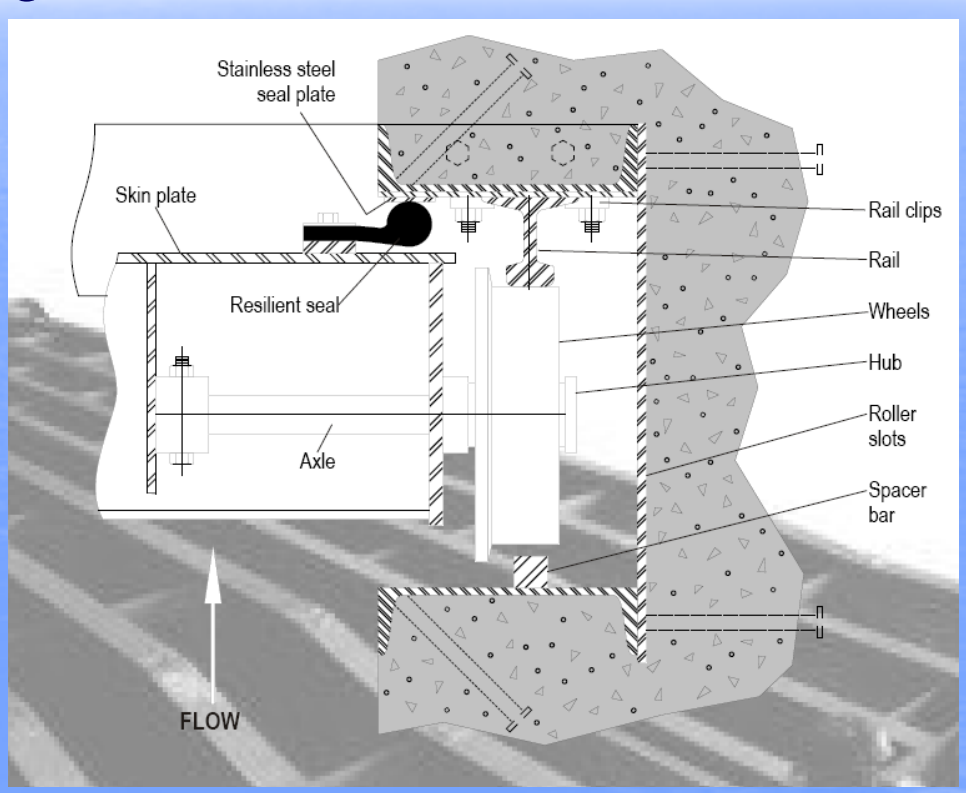
Bonneted Gates can be operated manually, electrically, or hydraulically.



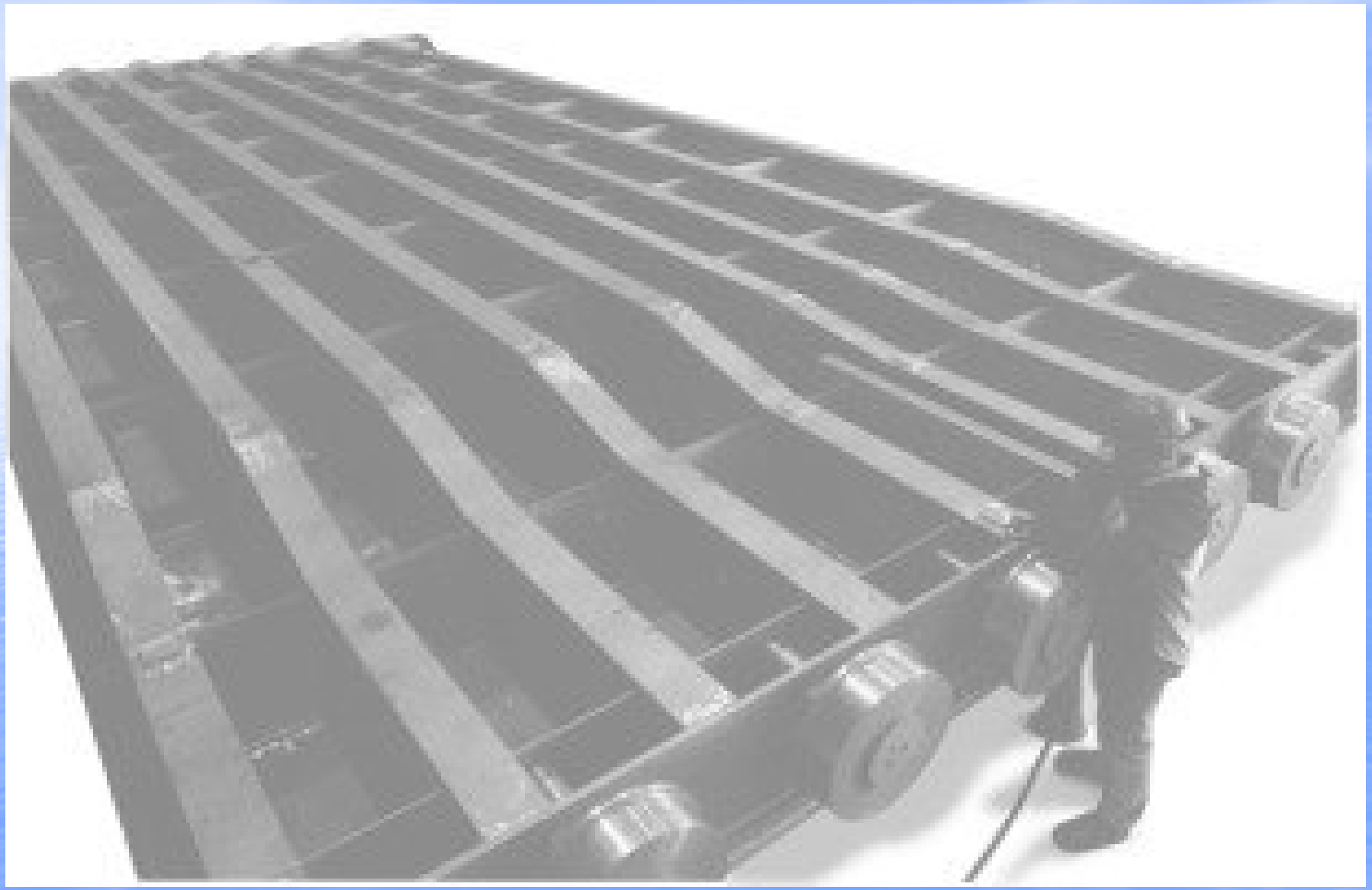

Пресек А-А

# Roller Gates

- Emergency (Gravity) Closure
- Wheels Reduce Operating Thrust
- Manual or Power Operation

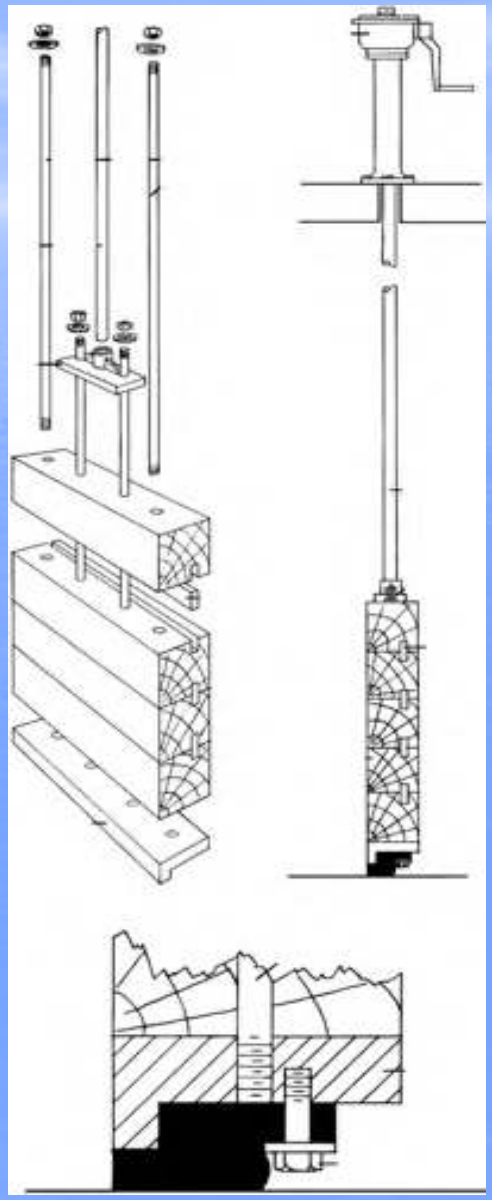


# Roller Gate



# Timber Gates

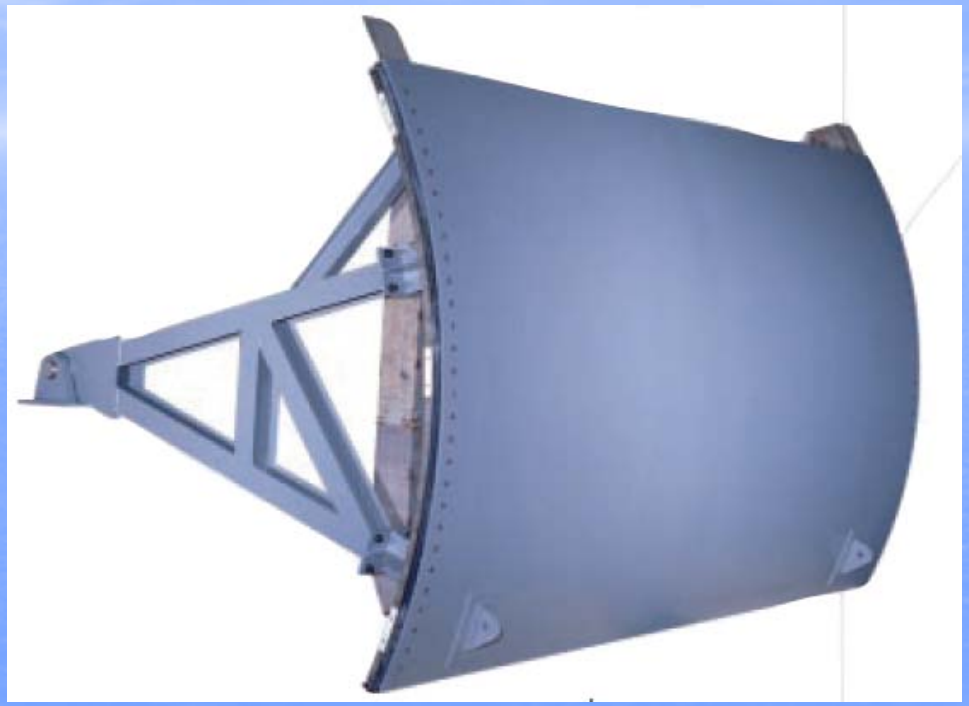
- timber gates are designed in widths to 7 feet for 25-foot seating head applications.
- timber Gates areeconomical, durable and have unique corrosion resistant properties.
- metal tie rods extend from top to bottom of the gates and are fastened at each end to hold the individual timbers securely together.



# RADIAL GATES

RADIAL GATES USES:

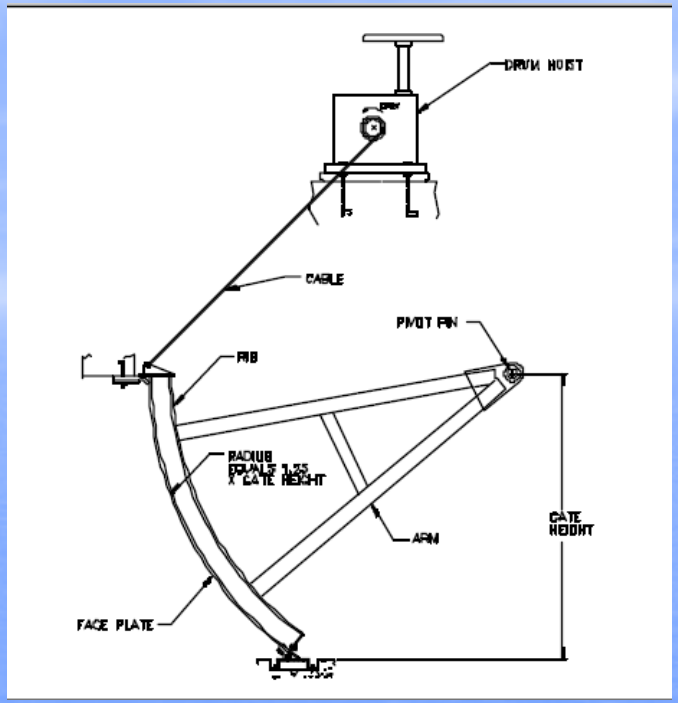
- maintenance of water elevations in canals or spillways
- increased storage capacity for reservoirs
- diversion of water for irrigation
- flow control preserving wide, clear waterways
- other areas requiring economical water control



# CONSTRUCTION FEATURES

- **the face plate is accurately curved on a required radius to an engineered pivot point.**

- **the plate is stiffened with horizontal support beams along the backside total width of the plate. They transfer the pressure from the face plate to the radial arms.**




# Characteristics of radial gates

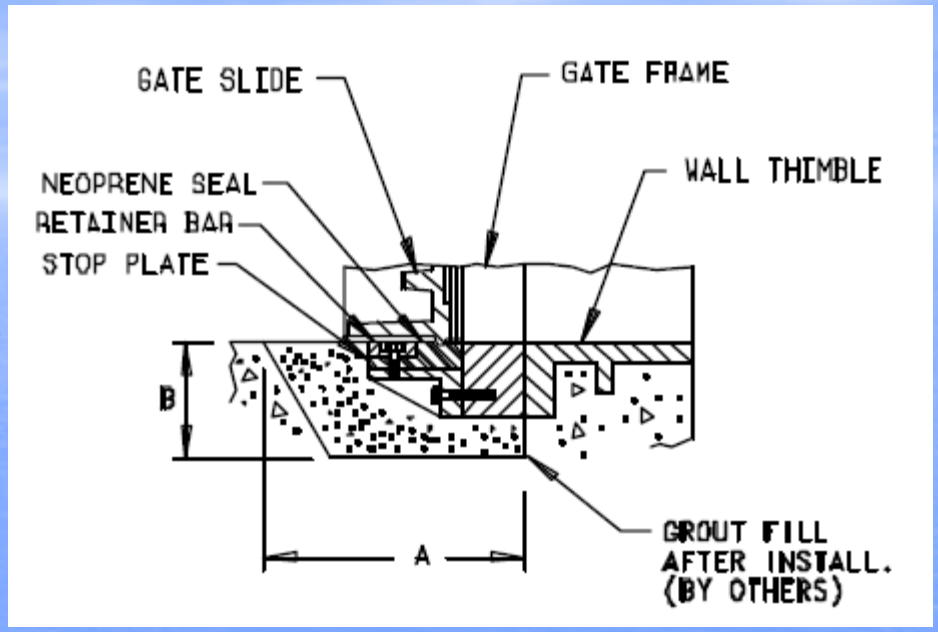
- **light-weight economical gate**
- **water pressure applies a pressure upward lowering the amount of lift required.**
- **a smaller hoist is used compared to other types of gates.**

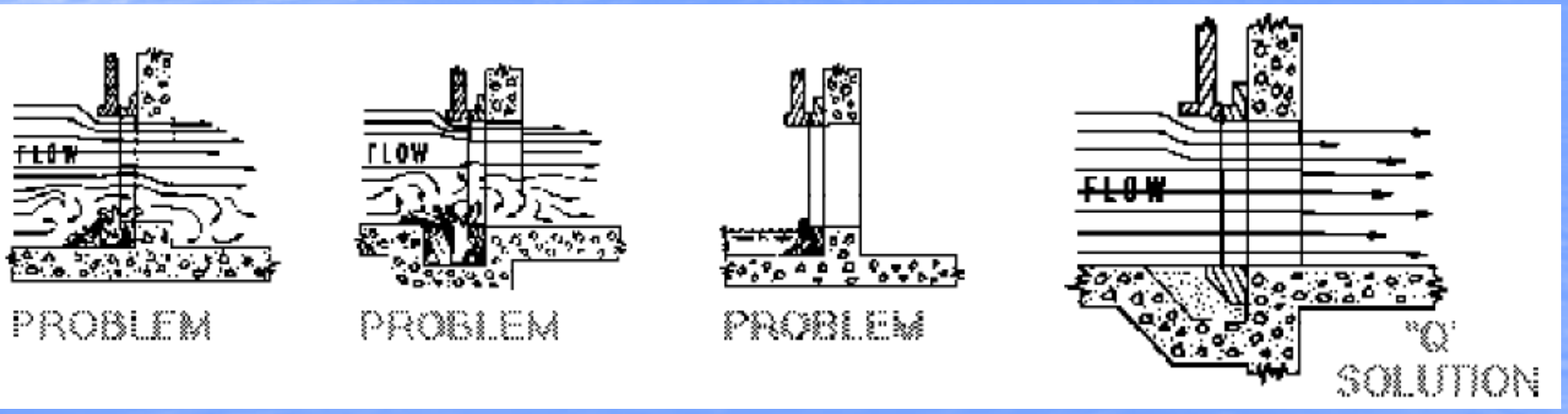
- **flow is always one-way, against the face of the gate.**
- **widths up to 8.0 metres and with heights up to 3.5 metres.**

# SEALING

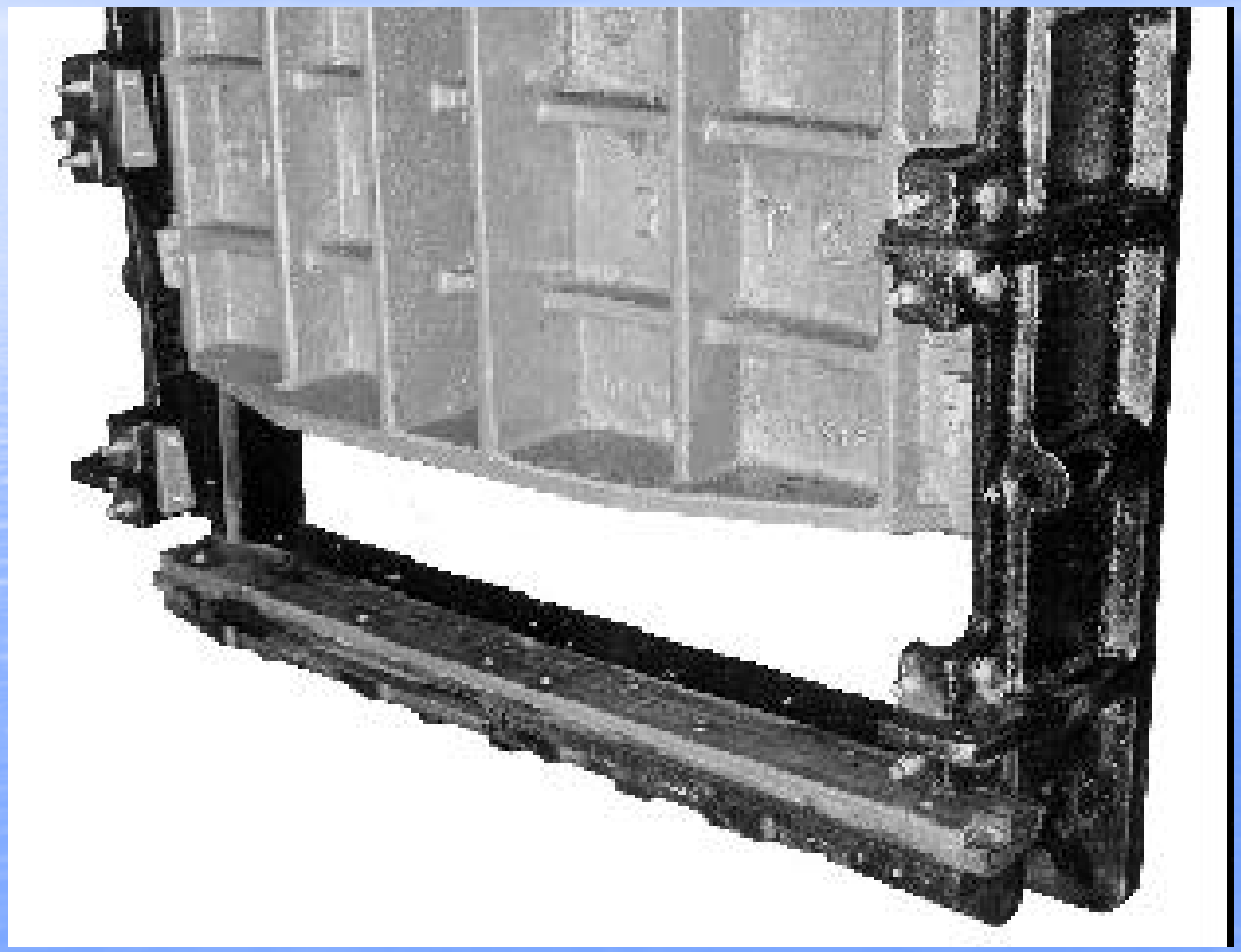
**CAST IRON SLUICE GATE WITH "Q-SEAL“ FLUSHBOTTOM SEAL**

- **flat plane across the bottom of the gate without projections into the opening to obstruct flow.**



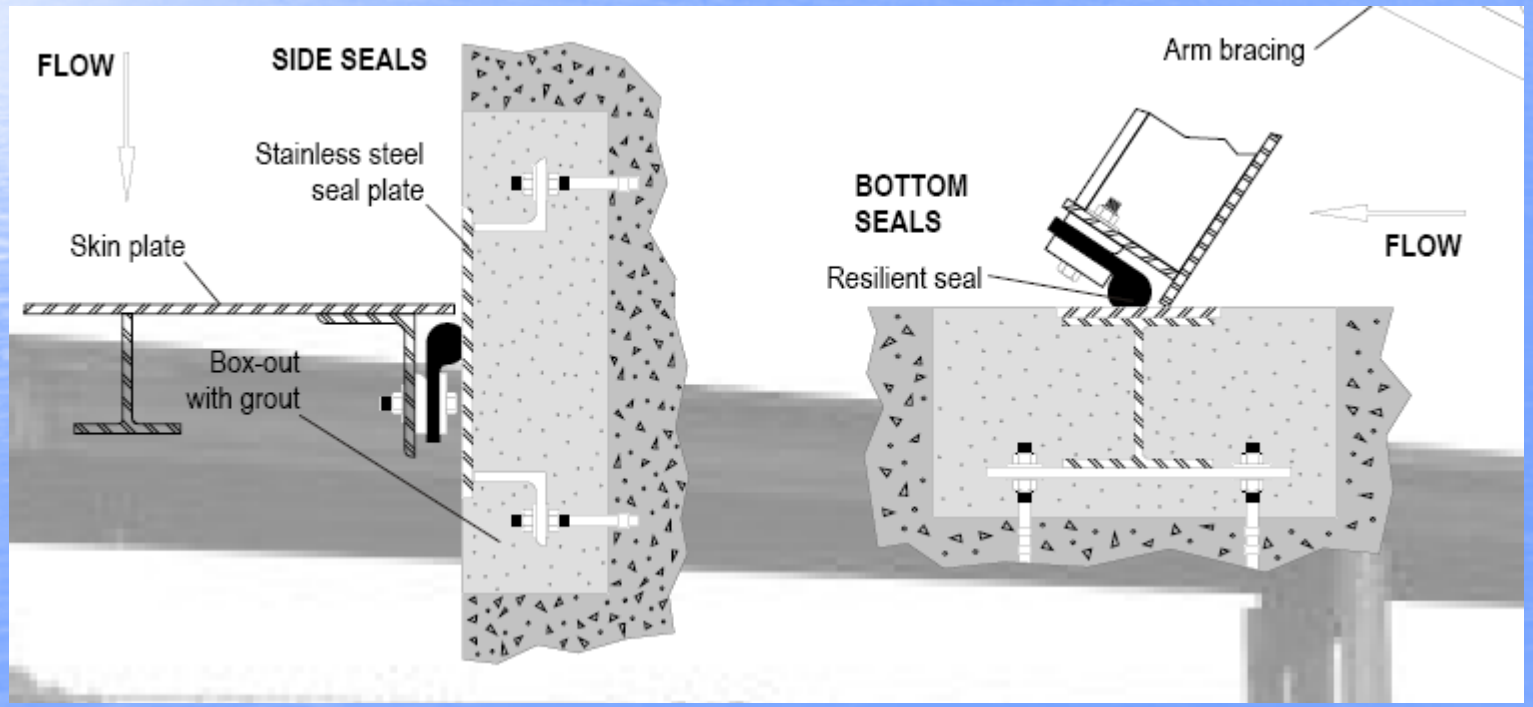
- **when a flushbottom “Q” seal is used, a smooth rounded projection on the bottom of the slide replaces the normal metal seat and seat facing.**



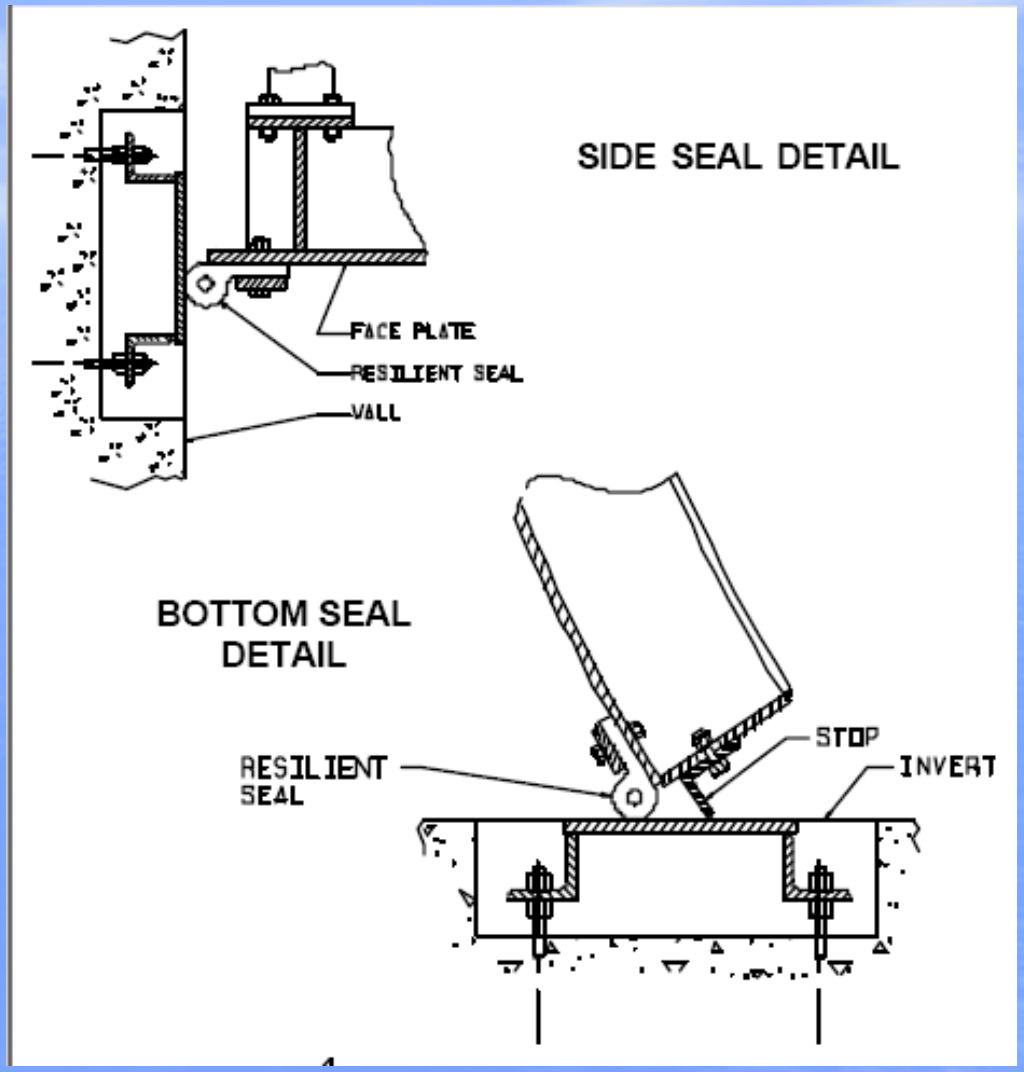
**Q seal**

# “J “ Sealing at radial gates

- side and bottom seals  of the “J “ type to prevent leakage.
- side and bottom seal plates from stainless steel



- **galvanized or stainless steel rubbing plates to provide a smooth contact surface for the side and bottom seals throughout the full range of movement of the gate.**



# GATE OPERATING SYSTEMS

**Screw Stem Actuators**

- manually or with electric motor driven steel handweels

**Drum hoists**

- electrically operated chain or cable drum hoists for large gates

**Hydraulic systems**

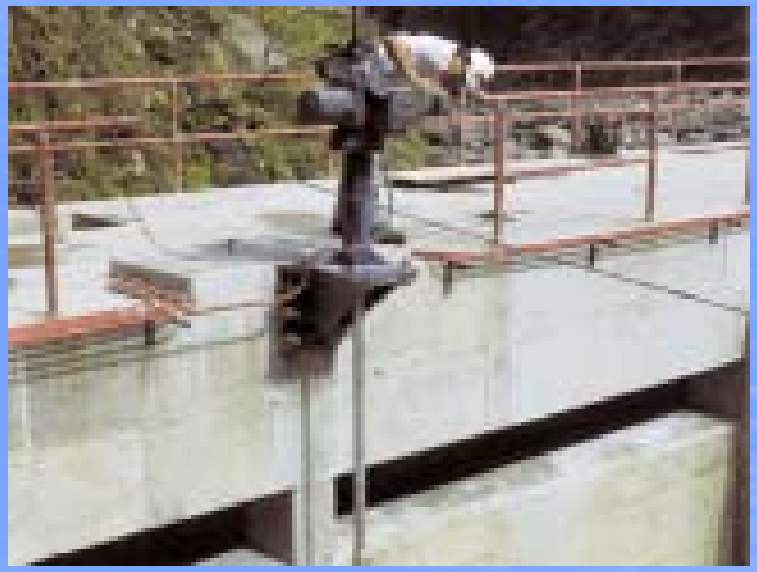
- hydraulic power units for local, remote or automatic operation of gates.

## MANUAL MECHANICAL LIFTS

- used where infrequent operation of gates is required and where speed of opening/closing is not critical.

## ELECTRICAL MECHANICAL LIFTS

- either for direct drive using steel stems or through cables.



## CABLE HOIST SYSTEMS

- designed for use with Roller gates, radial gates and overshot gates.

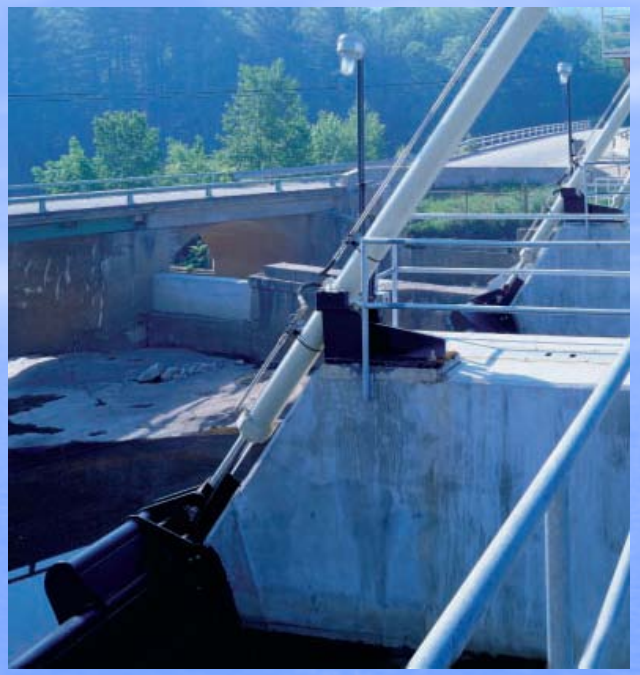
- used when gates are able to close by means of their own weight

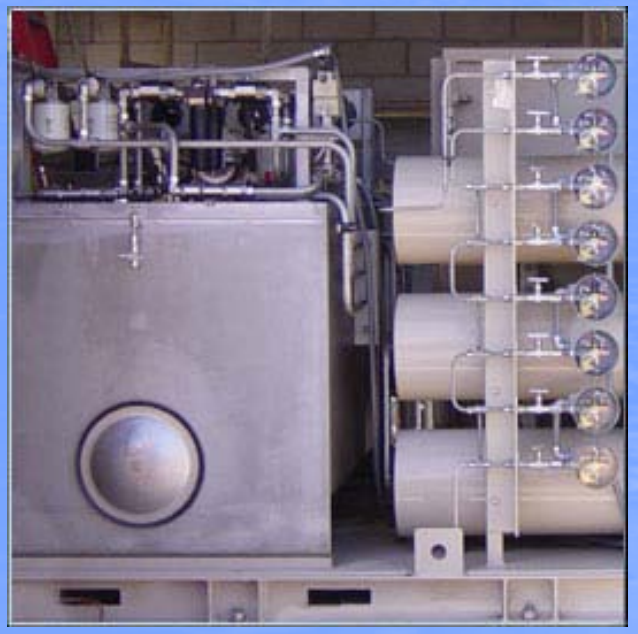
## HYDRAULIC OPERATING SYSTEMS

- hydraulic cylinder operation is provided when there is a requirement for fast opening/closing of gates.

- suitable for automatic operation.

- cylinders are available for oil or water actuation.





**Some manufacturers of water control gates and gate operating systems:**

- Armtec
- Steel - fab.
- Waterman
- Rodney Hunt
- Bergschenhoek civiele techniek
- Coldwell - Wilcox
- Creft Machine Works
- Fontaine
- Golden Harvest