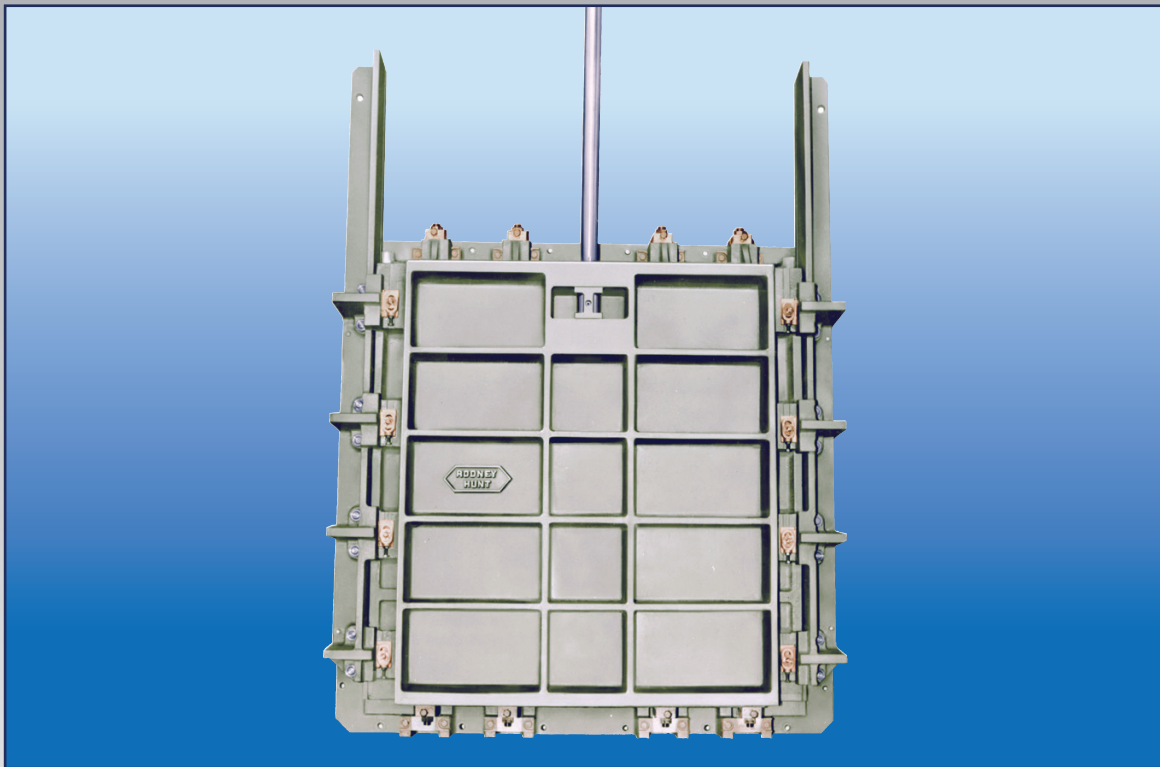




Cast Iron Sluice Gates

Rugged Dependability in Demanding Applications





A Proud Tradition

Since 1840, the team at Rodney Hunt has pioneered safe and reliable flow control systems to help communities and owners control the transmission, distribution, and reclamation of water and wastewater.

Superior Quality

We offer one of the most flexible and comprehensive metal fabrication, machining, and testing operations in North America. This allows us to monitor and ensure quality in all aspects of production. We are ISO-9001:2008 certified.

Experience

Our total product offering is unrivaled in the flow control marketplace, and this enables us to bring an impressive range of expertise to your planning and decision-making process. We're specialists in flow control. Our products make it easier for municipalities, engineering firms, and contractors to bring their water management projects in on-time, on-budget, and trouble-free.

Responsive Service

We pride ourselves on responding to your needs throughout the design, manufacturing, and installation processes. Our engineering team is available for consultation during all phases of your project. Dedicated project managers serve as a single point of contact once the order is in-house, and our knowledgeable field service team is always ready to provide on-site support.

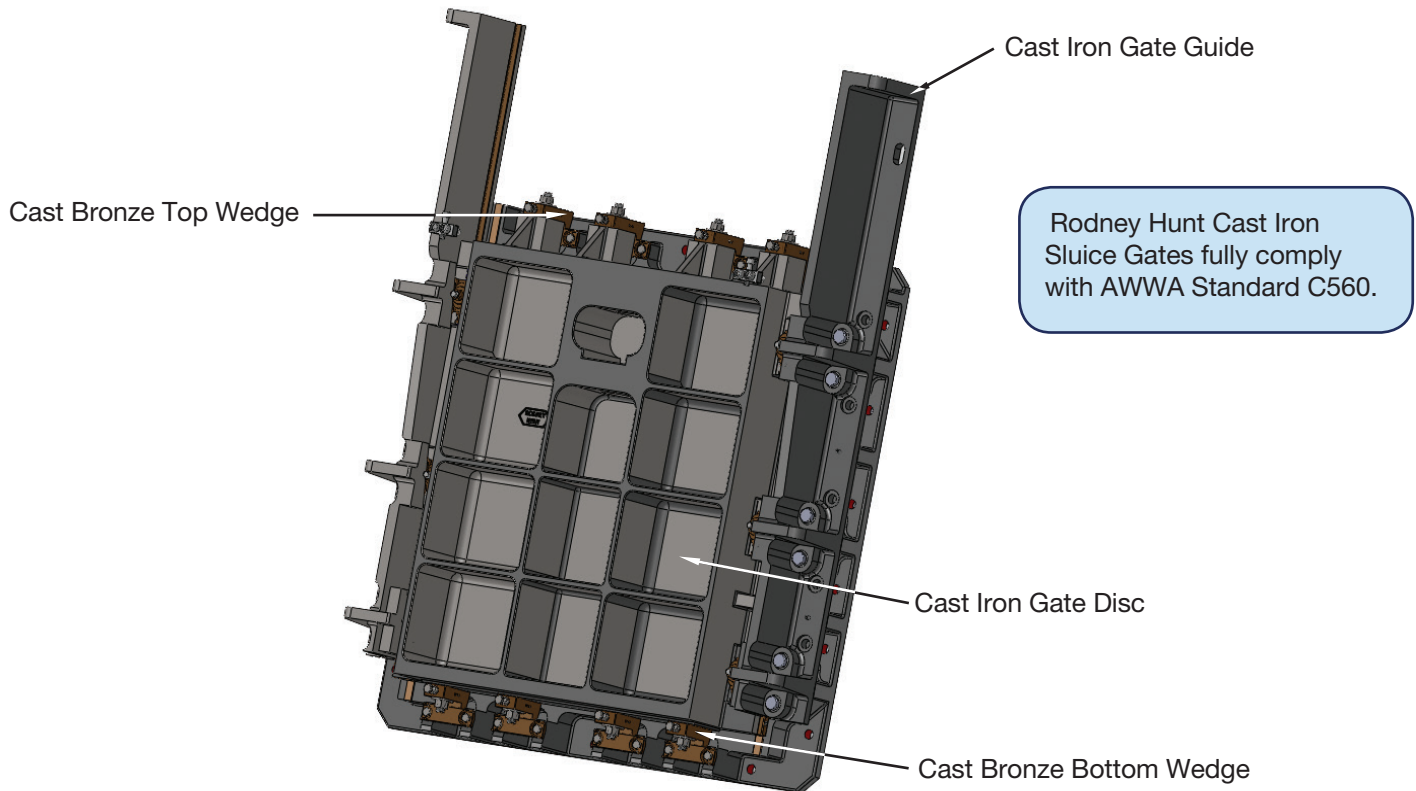


Imperial Irrigation, All American Canal, Arizona, USA — Three 120" x 120" (3M x 3M) Cast Iron Sluice Gates

Cast Iron Sluice Gates

Rugged Dependability for Demanding Applications

Rodney Hunt Cast Iron Sluice Gates are rugged and dependable with a long history of proven performance in demanding flow control applications throughout the world. Cast gates are best suited for submerged applications with high head, where there are large amounts of debris, corrosive environments, and for critical plant operations, such as key gateways. The Rodney Hunt design features bronze to bronze seating surfaces and an adjustable wedge system, which provides maximum performance and minimum wear for long life.



Rugged Dependability

Cast iron sluice gates provide the rigidity — minimum $\frac{3}{4}$ " thickness on the disc face — required to handle high heads and to resist deformation from large floating objects and uneven mounting surfaces. In saltwater or other aggressive fluids, Ni-Resist cast iron (18% to 22% nickel) provides additional corrosion resistance.

Proven Performance

Rodney Hunt Cast Iron Sluice Gates have a long history of successful performance. Many gates installed more than 100 years ago remain in service today.

Bronze to Bronze Seating Surfaces

The uniquely designed bronze seats lock into a dovetailed groove in the gate frame and disc, creating a tight seal for low leakage.

Adjustable Wedge System

High tensile strength adjustable bronze wedges are furnished with all gates. Side wedges are keyed directly to the sluice gate disc to prevent rotation. This system allows for the gates to operate without the seats interfacing until the last inches of travel, reducing seat wear (see page 7).

Design Flexibility

Rodney Hunt Cast Gates can be custom designed to meet your application needs. Several different gate designs are available (see pages 4-5).

Mounting Flexibility

Gates are available for submerged service, wall mounting, downward-opening, embedded, round man-hole, gate-within-a-gate and flange mount applications with manual, hydraulic, or electric actuation options.



ISO 9001:2008

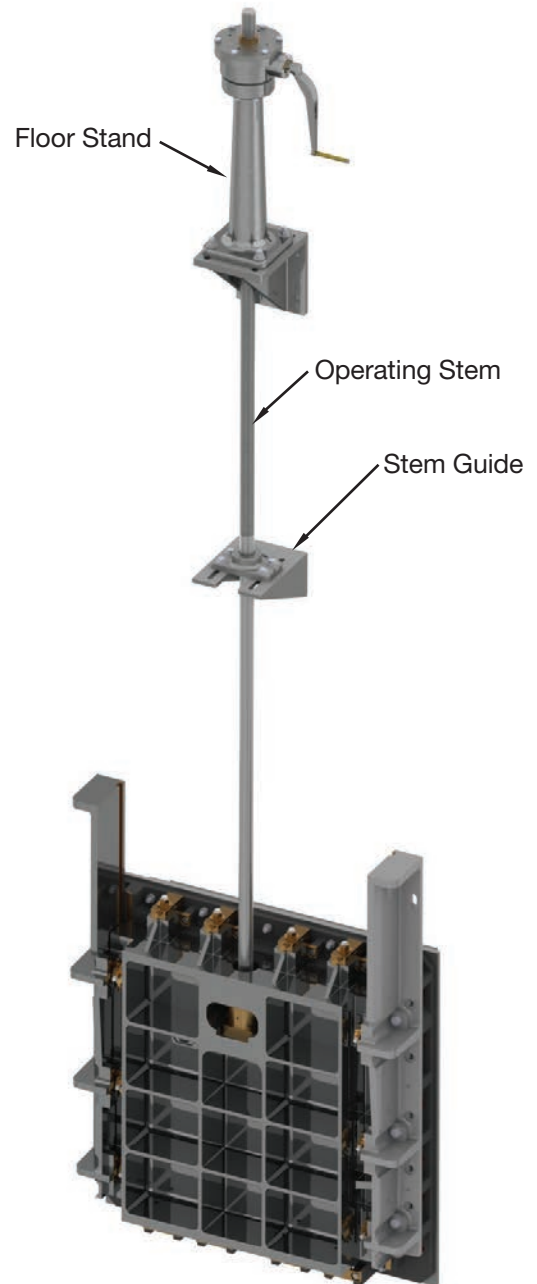
Gate Designs

Sluice gates can be furnished for conventional closure, with bronze seats completely around the periphery, or for flush-bottom closure, with a resilient seal across the bottom of the gate. In the normal gate installation, the operating thrust is taken on the floor or a separate support above the gate. Most sluice gates can be furnished as self-contained gates in which the operating device is mounted on the yoke of the gate that is, in turn, attached to the top of the guides. With self-contained gates, the operating thrust is carried by the gate frame.

Non Self-Contained Gate

The non self-contained sluice gate assembly (shown at right) consists of a frame, guides, and a disc. The round, stainless steel operating stem is threaded at the top to engage the floorstand lift nut. Sections of the stem are joined together with cast bronze threaded and keyed couplings. An adjustable bronze bushed stem guide is furnished if the operating stem requires intermediate support. Although the crank operated floorstand is the most common method of controlling the gate, handwheel, motor driven, and hydraulic actuators can also be used. The crank operated floorstand has a geared head with roller bearings to support the opening and closing thrust loads. The head is enclosed and mounted on a pedestal secured to a concrete floor or structural support.

Non Self-Contained Gate



Self-Contained Gate

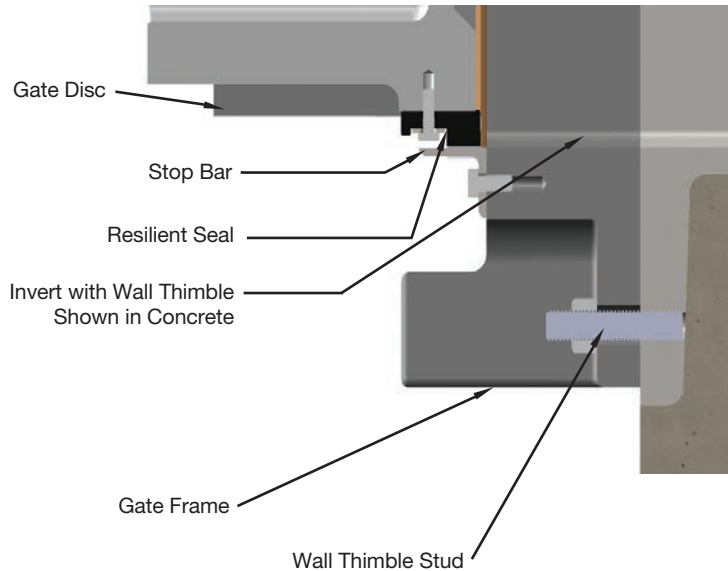


Self-Contained Gate

The self-contained sluice gate (shown at left) is specifically designed to absorb the operating load created during opening and closing. This is accomplished through the use of a yoke, a supporting member mounted on the top of the extended guides. The thrust required to operate the gate is transmitted by the yoke and guides directly to the gate frame — unlike conventional designs where the load is absorbed by the floor or structure above the gate. The self-contained gate is useful where space above the gate installation — or the absence of structural supports — limits the use of a separate operating floorstand or benchstand.

HY-Q®

When it is desired or necessary to avoid a cut-out in the floor or wall beneath the gate — and to allow complete drainage and flushing of the chamber — the bottom seal of the HY-Q® gate provides the solution. The HY-Q® gate can be used in any application where conventional gates are used. Its distinguishing design features a wide and heavy resilient strip attached to the bottom of the gate disc, making an extremely effective wide invert seal when compressed against the stainless steel stop bar attached to the gate frame. It also eliminates debris accumulation in recesses below the gate, and offers a high coefficient of discharge resulting in maximum flow for any head condition.

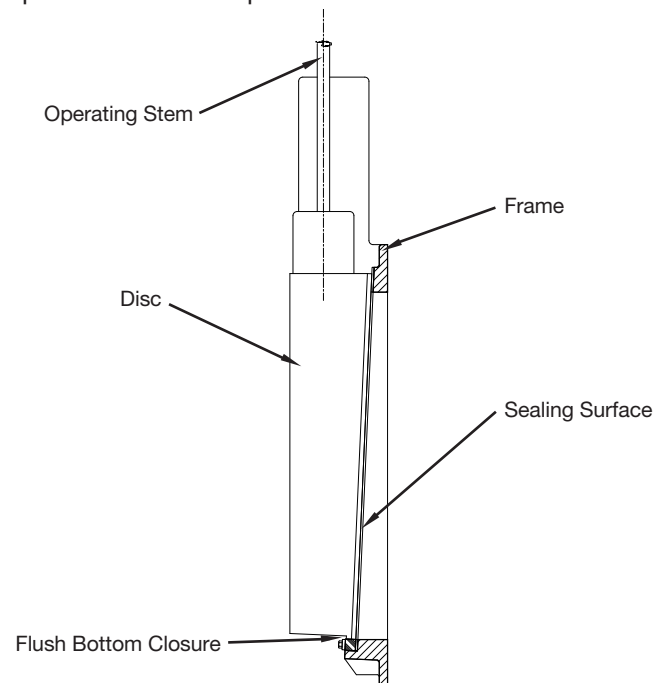


Glydaseal®

The Glydaseal® gate is used in applications where extremely low leakage is required. The difference between the Glydaseal® sluice gate and the standard gate is in the seating materials and the way the wedging action for tight sealing is achieved. Very low leakage (1% of AWWA C560 maximum allowable leakage or 0.001 gal./minute/foot of perimeter; or 0.0124 L/Min./M) is obtained by using a resilient seal in the disc, which, in the closed position, seats against a PVC seating surface on the frame. This sealing takes place across the top and down both sides of the gate.

Wedging Action: With the seating surface at an angle to the vertical, a wedging action results when the gate is fully closed, compressing the neoprene seal against the PVC seat.

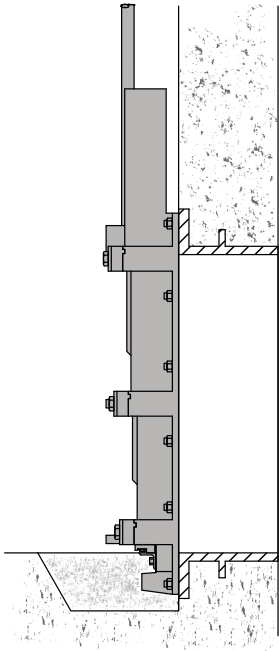
Flush-Bottom Closure: When the opening of the gate is at the bottom of a wall, the Glydaseal® gate provides a flush type seal across the invert. This arrangement results in complete drainage, smoother flow through, and low head loss.



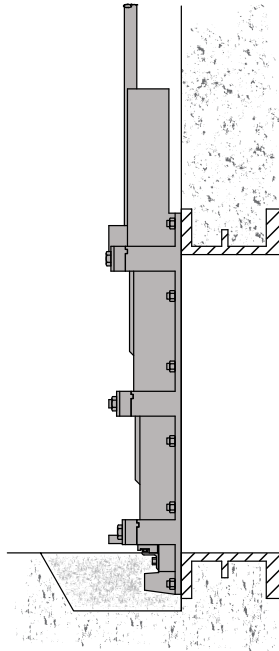
Wall Thimbles

All wall thimbles are supplied with rectangular or circular openings that match the gate frame. The depth of the wall thimble normally conforms with the depth and shape of the concrete wall. Variations to the standard designs presented here are also available.

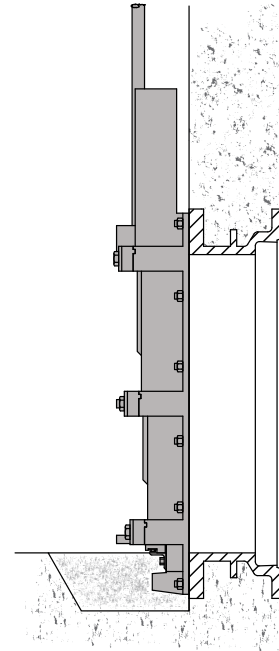
Type F



Type E



Flange and Mechanical Joint



Type F: Suitable for mounting cast sluice gates subject to any seating or moderate unseating pressures.

Type E: Recommended for sluice gates subject to high unseating pressures and for very large gates. An E section thimble provides maximum strength and rigidity for even the largest sluice gates operating under the most severe conditions. The back side of a Type E thimble can also be drilled to accommodate connection to a flanged pipe.

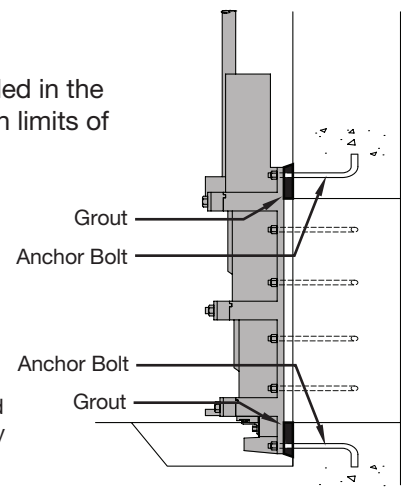
Flange and Mechanical Joint: Flange and mechanical joint bell thimbles attach to the spigot end of a standard cast iron or cast ductile iron pipe. Adaptations are also available for concrete, plastic and steel pipe.

Anchor Bolts

Sluice gates can be mounted on hook type anchor bolts that have been embedded in the concrete structure. Drilled epoxy anchors can also be used, subject to the design limits of the product.



A typical installation of a HY-Q® sluice gate with anchor bolts. Note the use of 1" of grout between the flange of the gate and the concrete wall. This is to prevent mounting the gate directly to the concrete surface, which may not be flat.

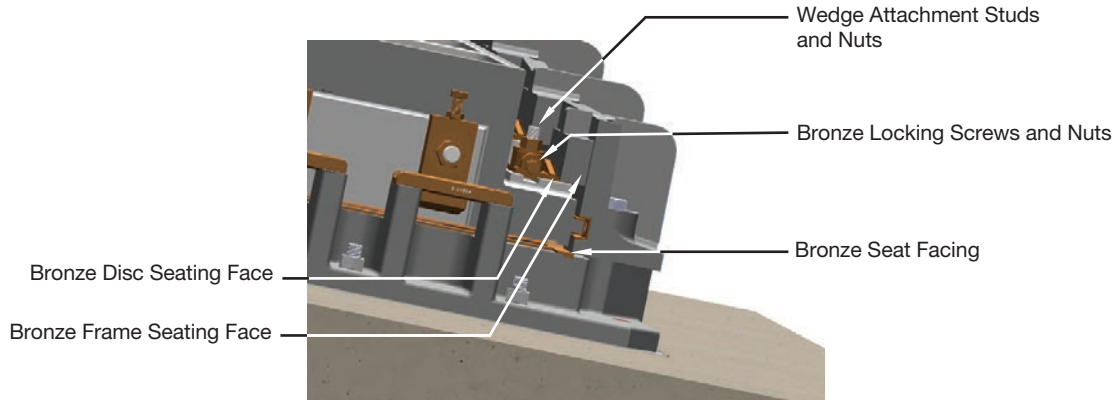


The Wedge System

High tensile strength bronze adjustable wedges provide proper closure at the top, bottom, and side of the gate in any service application. Bottom wedges are not required with the Hy-Q® seal.

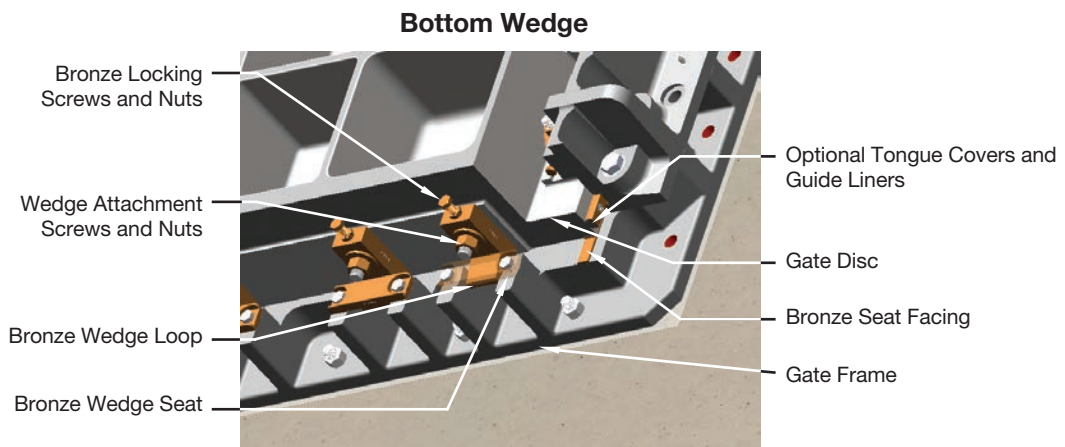
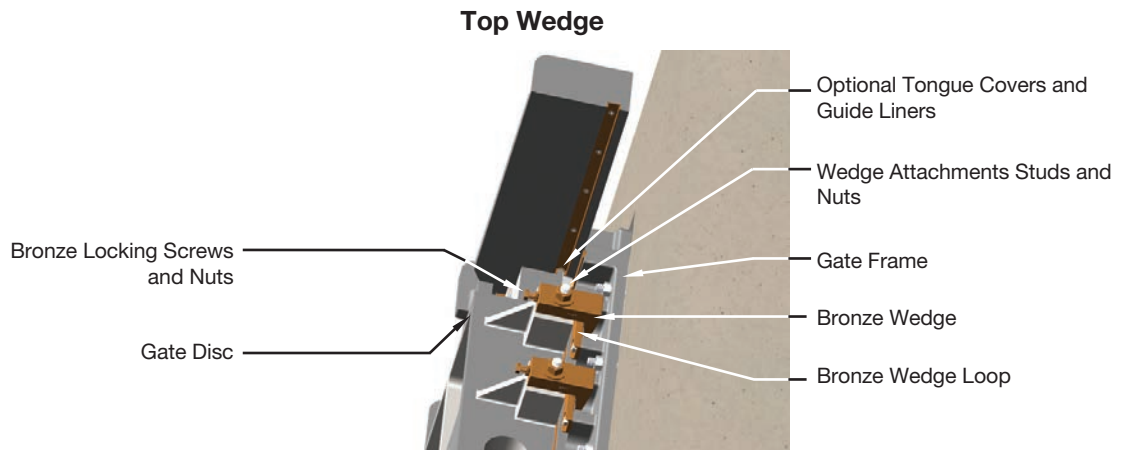
Side Wedge

Side wedges are keyed directly to the sluice gate disc to prevent rotation. Exact alignment is ensured. Low unit pressures are uniformly distributed over bearing surfaces.



Top and Bottom Wedge

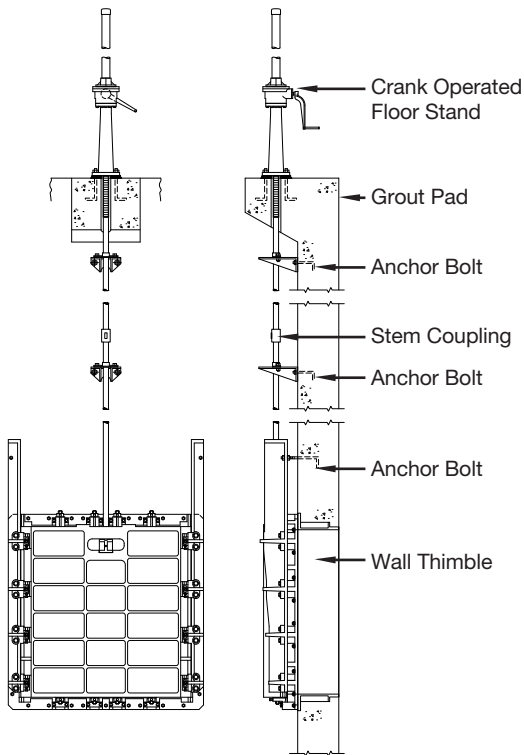
Both top and bottom wedges utilize a bronze hook and loop that are bolted directly to the cast iron frame and keyed to remain immovable under force. Wedge hooks are provided with an adjusting bolt and lock nut.



Installation Variations

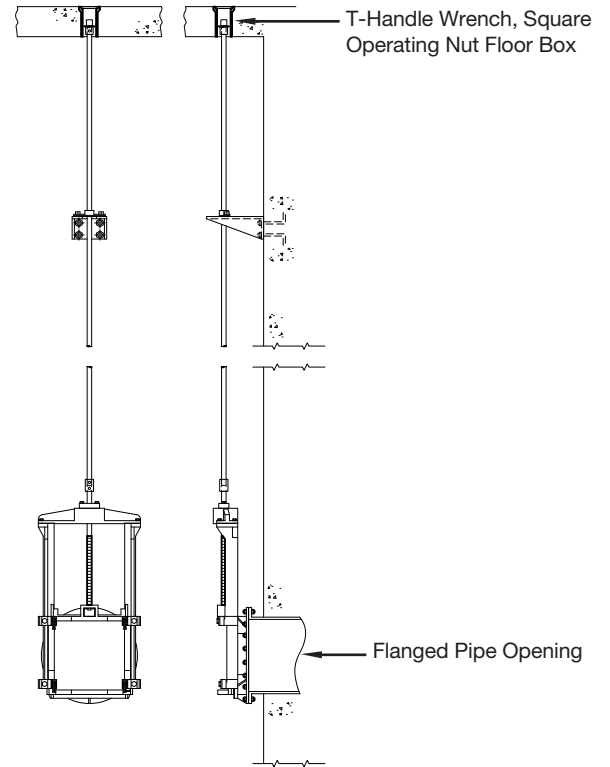
Example A

This diagram shows a non-self-contained side wedge sluice gate with a two-piece operating stem and crank operated, single-speed floorstand. The gate is installed on an F section wall thimble (page 6) extending completely through the concrete wall. Also note that a grout pad is used under the hoist to insure proper alignment between hoist and operating stem.



Example B

This 16" diameter gate is mounted on a flanged pipe extending from the wall. It is a flange frame, side wedge, self-contained sluice gate using a non-rising stem. A T-handle wrench, engaging a 2" square operating nut in the floorbox is used to raise and lower the gate. Non-rising stem gates should not be used when it can be avoided — because the stem threads are in the medium where they cannot be regularly cleaned and lubricated.



Projects

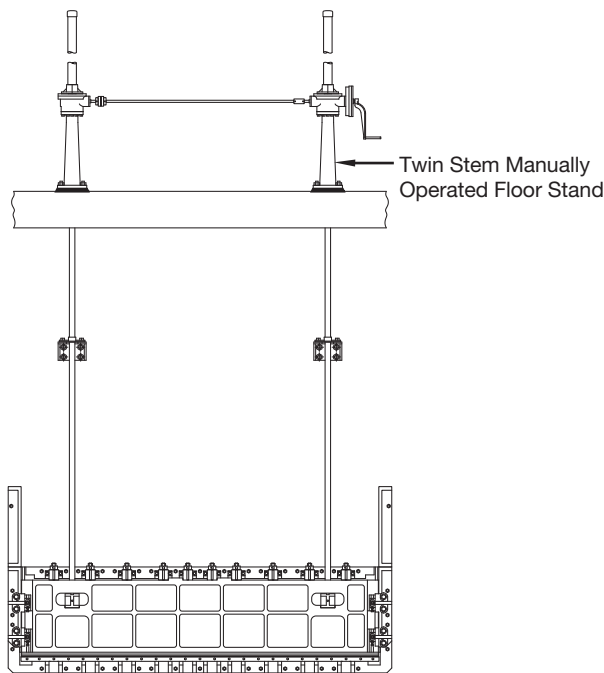
Rodney Hunt Cast Iron Sluice Gates are designed for use in a wide variety of water and waste water applications. Our gates can be found in water filtration facilities, intake wells, pumping stations, drainage and irrigation canals, water and sewage treatment plants, dams, flood control, thermal power stations and water cooling plants, and in many other facilities throughout the world.



Flow through a partially open 10' x 10' (3M x 3M) Cast Iron Sluice Gate with unseating head

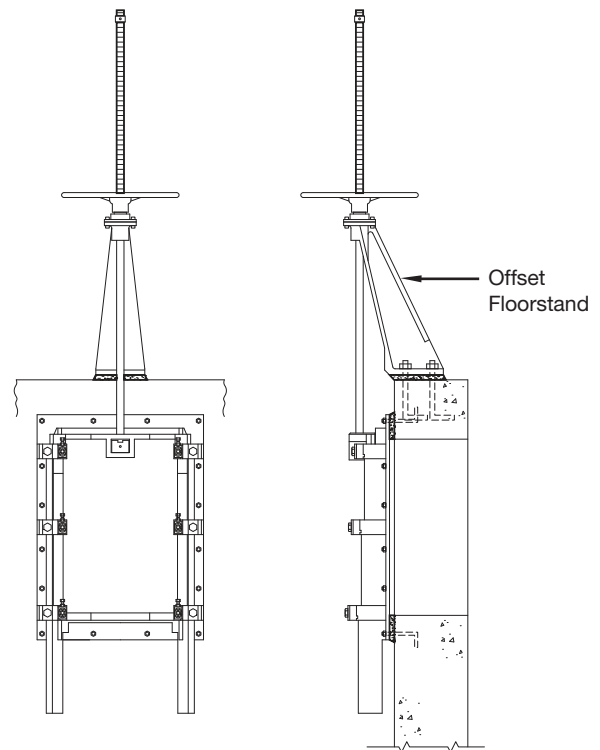
Example C

When there is limited headroom — or insufficient clearance above the gate restricts the height of the gate — an extra wide sluice gate may be necessary. This flush bottom sluice gate with side and top wedges is arranged for two stem operation with two interconnected, two-speed, manually-operated floorstands. This arrangement can also be supplied with electric motor operation, providing torque protection and geared limit switches or with two hydraulic cylinders. Whenever the gate width is more than double the gate height, dual stems should be considered



Example D

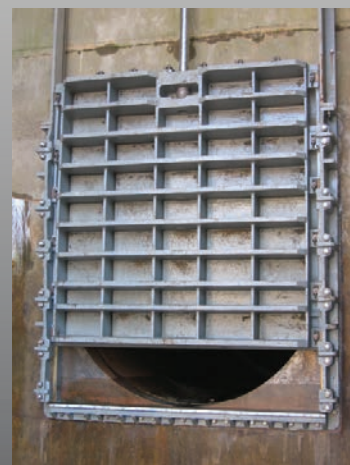
An inverted gate may be used when weir-type operation is desired for level-control. The gate is lowered to open and raised to close — with an offset handwheel operated floorstand. The offset floorstand eliminates the need for a special concrete support or wall bracket.



Waste Water Treatment Plant, Missouri, USA 72" x 48" (1.8M x 1.2M) Cast Iron Sluice Gate



Stormwater Pumping Station, Louisiana, USA 144" x 108" (3.7M x 2.7M) Cast Iron Sluice Gate



8' x 8' (2.4M x 2.4M) Cast Iron Sluice Gate mounted directly to the concrete wall

Standard Materials

Frame, Disc, Stem Guides	ASTM A126 Class B Cast Iron ¹ (Standard) A536, Grade 65-45-12 Ductile Iron (Optional) A436, Type 2 Ni-Resist (Optional)
Wall Thimbles, Floorstands	ASTM A126 Class B Cast Iron ¹ (Standard) A536, Grade 65-45-12 Ductile Iron (Optional) A436, Type 2 Ni-Resist (Optional)
Wedges, Thrust Nut, Lift Nut and Coupling	B-584, C86500 Bronze ²
Seat Facing	B-21, C46400 Bronze
Tongue and Guide Liners	B-98, C65500 Bronze
Stem	A-276, Type 304 or 316 Stainless Steel
Fasteners	A-276, Type 304 or 316 F593 or F594 Stainless Steel

NOTES: 1. For castings with 2% nickel, A-126, Class B
2. For Bronze castings if dezincification exists: B-584, C87300

Actuation

Rodney Hunt is your single-source for design, construction, actuation, and start-up. We will assist you in selecting the right actuation system for your needs, whether it's manual, electric, or hydraulic.



Waste Water Pumping Station, Alexandria, Egypt –
108" (2.7 M) x 108" (2.7 M) Cast Iron Sluice Gate
with hydraulic actuation

Hydraulic Actuation Systems

- Central or dedicated hydraulic power units
- Operate multiple gates or valves from a single system
- Linear operation of cylinders matches the linear operation of the gates
- Less wear, ideal for frequent cycling
- Precise positioning
- Ease of speed control, fully field-adjustable
- Operation during power failure

SCUBA® Actuators

- Self-contained, low maintenance power actuation
- Rugged stainless steel design
- Low maintenance
- Available for explosion proof, submersible, and fail-safe service
- Independent speed and thrust control
- Remote control capability

Hoisting Equipment

- Crank or handwheel actuated floor stands and bench stands
- Offset-type floor stands
- Interconnected floor stands
- Electric or liquid-powered hydraulic portable actuators

Cast or Fabricated?

Gate selection guide

The guide below illustrates where cast or fabricated gate designs are an option, and where cast gates are recommended. In some applications, depending on gate size and seating/unseating head, a Rodney Hunt Roller Gate or other specialty gate is recommended. Please contact Rodney Hunt for assistance with gate selection for applications in corrosive environments and at critical plant locations, such as key gateways.

Seating/Unseating Head	Gate Type by Size and Head													
	2' x 2' (0.6M x 0.6M)		4' x 4' (1.2M x 1.2M)		6' x 6' (1.8M x 1.8M)		8' x 8' (2.4M x 2.4M)		10' x 10' (3.0M x 3.0M)		12' x 12' (3.7M x 3.7M)		14' x 14' (4.3M x 4.3M)	
100' (31M)	SS	CI	SS	CI	CI	CI	CI	SA	CI	SA	SA			
90' (28M)	SS	CI	SS	CI	CI	CI	CI	SA	CI	SA	SA			
80' (24M)	SS	CI	SS	CI	CI	CI	CI	CI	SA	CI	SA			
70' (21M)	SS	CI	SS	CI	CI	CI	CI	CI	SA	CI	SA			
60' (18M)	SS	CI	SS	CI	CI	CI	CI	CI	CI	CI	CI			
50' (15M)	SS	CI	SS	CI	SS	CI	CI	CI	CI	CI	CI			
40' (12M)	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	CI	CI		
30' (9M)	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	CI	
20' (6M)	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI
10' (3M)	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI	SS	CI

SS	Fabricated Stainless Steel
CI	Cast or Ductile Iron
SA	Special Application, Roller Gate for Seating applications

How to Specify

Because of the number of gates involved, the heads for which the gates are suitable, and the several configurations in which gates can be furnished, Rodney Hunt does not generally describe gates by series or figure numbers. When specifying, it is best to describe the gate by the size and head which it is designed to handle. For example: 60" x 72", 130-45 (1.5M x 1.8M, 40-14). If the gate is to be flush-bottom closure, the words HY-Q®, for example, can be used following the design heads.

For more information about sluice gate specifications and standard dimensions, please see our website (www.rodneyhunt.com) or call us at 978-633-4362.



**RODNEY
HUNT**

®

Engineered Flow Control Products

Gates

- Sluice Gates
- Bonneted Gates
- Channel Gates
- Weir Gates
- Crest Gates (including Bascule® and Pelican® designs)
- Tainter Gates
- Slide Gates
- Roller Gates
- Hinged Crest Gates
- Bulkhead Gates
- Velocity Control Gates
- Stop Logs
- Flap Gates

Actuation

Manual, electric, and hydraulic actuation systems are available.

For more information about Rodney Hunt products or to contact a sales representative, visit the Rodney Hunt website (www.rodneyhunt.com) or call 978-633-4362