

## ROLLER GATES

## SERIES: A-515 / 535

### APPLICATION

Roller gates are used for flood control, irrigation, industrial water control, dams, water treatment plants, sewage treatment plants & power plants, etc.

Rodney Hunt offers size range up to 240" x 240" square or rectangular with head range as per the client requirement / up to 200 feet head in series mentioned below:

Series: A-515 Stainless Steel Roller Gates

A-535 Structural Steel Roller Gates

The Rodney Hunt Roller gates are designed to control flow and reduce operating loads for large openings, high head applications, or where frequent operation is required. Roller gates have lower operating loads under differential heads than other types of vertically operating gates as wheels provide a more efficient mechanism than the sliding surfaces of other gate types.

The overall configuration of Roller gates along with operating hoists is the cost-effective solution for high-water head applications. Thrust caused by water pressure on the gate is transmitted to frame and embedded components through roller on the leaf. Rollers or wheels reduce the operating load compared to the sliding friction of the other gate types resulting in smaller actuators for a given application.

### CONSTRUCTION

Roller gate comprises gate leaf, wheels, sealing system, and lifting arrangement as the main structural members of the whole assembly.

Gate leaf is box-type fabricated construction to suit environmental conditions or casted construction upon specific requirements. The wheel assemblies, sealing system, and lifting attachment are mounted on it.

Generally, wheels are sized and spaced on the sides of the gates to support equal portions of the hydrostatic load with self-lubricating bearings and seals.



94.5" x 191" Stainless steel roller gate for C834 Doha South Terminal Pumping Station and Regional Odor control, Qatar



84" x 120" Structural steel roller gate for Bradshaw Interceptor Marques Pipeline, Sacramento, CA

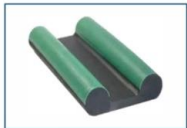
For high head application, bearings are the self-alignment type to compensate for minor deflection of the gate and uniform load transfer on frame or embedded parts during operation.

Axles are eccentric to allow for final adjustment at the site on very large gates to ensure wheels always touch the rails or tracks during operation to gate.

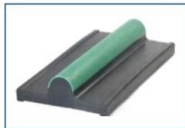
Resilient seals can be configured for seating heads, unseating heads, or for both. The seals are attached across the periphery of the gate with stainless steel strips and retaining bolts for long-term tight sealing. Seals can be used with cladding as shown here to reduce sliding friction during the operation of the gate.



Music note / P type seal for unidirectional water head



Double dome type seal for bidirectional water head



Center dome / Double stem type seal for high water head

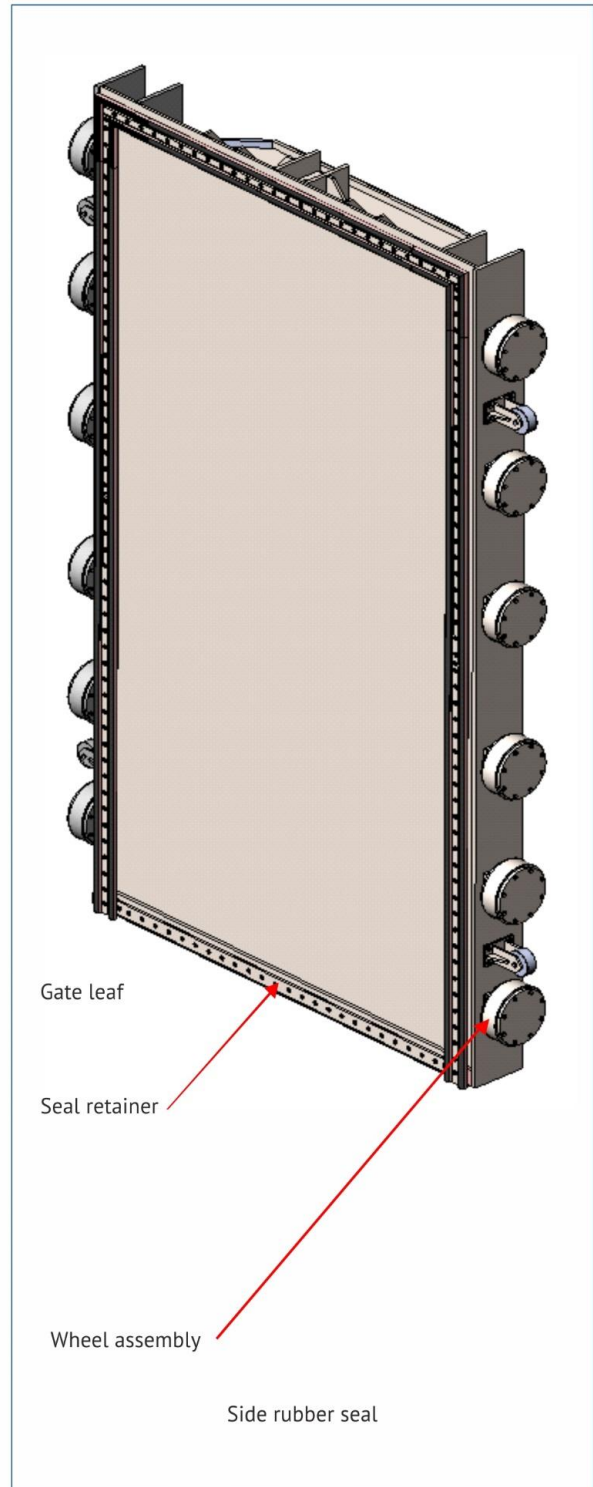
## ACTUATION

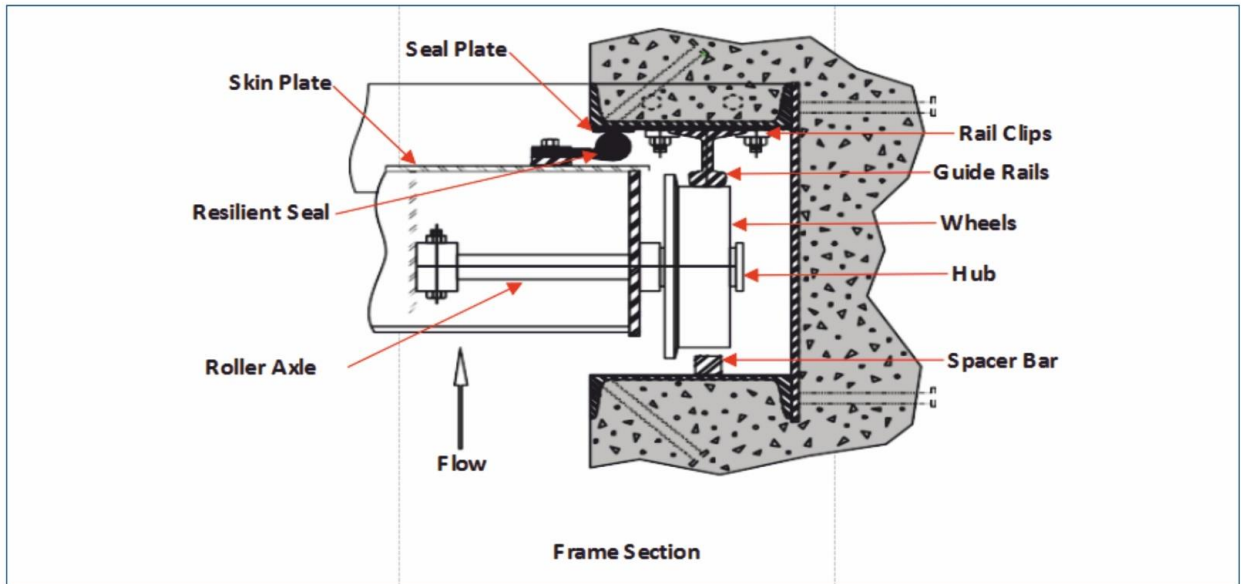
Typically, Roller gates are operated with either electric/manual actuators or hydraulic cylinders, providing down thrust to close the gate under the differential head. However, roller gates also can be designed for self-closing by adding ballast to shutter when operated with a cable drum hoist or crane.

## MATERIAL

Historically, roller gates were just structural steel with the track literally a railroad track and the wheels either ductile iron or hardened steel. That has changed because of the increased availability of corrosion-resistant materials providing longer service life under corrosive environments without significant maintenance.

Today, roller gates are manufactured from a variety of materials, ranging from Carbon steel to Super Duplex steel. Regardless of the materials for the gate, the wheels, axles, track, seal plates and all embedded items should be stainless steel to ensure a long service life. Load-bearing members such as the wheels, axles and track may require high strength corrosion resistant materials.





### Material Options:

The client to select and specify material of construction of various components from the following alternatives based on the application and requirement. If required, material of construction other than that specified below can also be offered upon specific request.

Components	Material
Gate disc / Leaf, Frame / Embedded parts	Carbon steel (A36) / Stainless steel (304, 316, 304L, 316L) / Duplex steel (2205) / Super duplex steel (2507)
Seal seats for seals	Stainless steel (304, 316, 304L, 316L) / Duplex steel (2205) / Super duplex steel (2507)
Track for wheels	Stainless steel (304, 316, 304L, 316L) / Duplex steel (2205) / Super duplex steel (2507)
Retainer bars for Seals	Stainless steel (304, 316, 304L, 316L) / Duplex steel (2205) / Super duplex steel (2507)
Assembly fasteners, studs and anchors	Stainless steel (304, 316)
Wheels / Rollers	Stainless steel (304, 316, 304L, 316L, 17-4PH) / Duplex steel (2205) / Super duplex steel (2507)
Bearings	Self-lubricating bronze bearing (B584 with graphite or PTFE inserts) / HDPE D4020 / Roller bearings
Wheel axles, Stems, Stem couplings	Stainless steel (304, 316, 304L, 316L, 17-4PH) / Duplex steel (2205) / Super duplex steel (2507)
Stem guides	Bronze (B584) / HDPE (D4020)



480" x 240" Stainless Steel Roller Gate for Quail Creek Reservoir, UT, USA  
Comprised of two 480" x 120" Gates, Operating Independently to Provide Overflow or Aperture Discharge



240" x 81" Structural Steel Roller Gate for Hillsboro Dam, UT, USA