

# HYDRO GATE®

a **MUELLER** brand

## HYDRO GATE® LINE CARD



**MUELLER**

# PIONEERS IN GATE DESIGN



With more than 100 years of experience in gate design, we have built a long-standing reputation of providing superior quality water control gates for a variety of industries. Our manufacturing expertise revolves around making big, heavy-duty gates that are 100% custom-built to match specific applications.

## **COMMITMENT TO YOU... OUR CUSTOMER**

Customer satisfaction is our top priority. Bring your special requirements to our engineers who have years of experience in gate design. Our dedicated customer service staff is accustomed to custom requests, because that is what we do best. From your first contact through final delivery, our team of engineers and service experts are here to make sure you have the right gates to suit your needs.

## **YOUR SOURCE FOR WATER CONTROL GATES**

No matter what type of gates your project demands, chances are excellent our Hydro Gate® product line has the right gates for your specific application. Our product offering is vast and can suit applications for a wide variety of industries. Choose from cast iron slide or flap gates, fabricated slide or flap gates, rectangular butterfly gates, stop logs, wall thimbles, lifts and accessories.

## **INDUSTRIES WE SERVE**

Whether you need gates for flood control, wastewater treatment, environmental water treatment, irrigation, dam projects or hydroelectric plants, we can help. From standard configurations to custom designs, we offer a wide variety of water control gates as well as a full complement of actuators to meet your specific application.

## **SERVICE WELL BEYOND SHIPMENT**

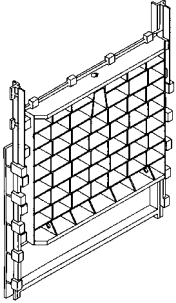
Our services extend beyond manufacturing. Our field service technicians can help you with repair and refurbishment projects. If you have existing, yet serviceable gates, we can perform a retrofit that will extend their life and durability.

## **FOCUS ON QUALITY**

Our expansive manufacturing facilities utilize precision equipment that allows us to merge time-tested gate design with cutting edge technology. We offer large scale manufacturing capabilities with the ability to produce cast iron gates up to 12' x 12' in size, and fabricated gates up to and over 20' in width or height.



# Heavy Duty Sluice Gates



## Hydro Gate® Model HG560

55' minimum seating head rating  
20' minimum unseating head rating

## Available Sizes

6" to 96" Round  
6" x 6" to 144" x 144" Square or  
Rectangular

## Stock Sizes

6" to 36" Round  
6" x 6" to 60" x 60"  
Square

## AWWA C560 COMPLIANT HEAVY DUTY CAST IRON SLIDE GATES HYDRO GATE SERIES HG 560

Cast iron slide gates are used to control the flow of fluid through openings under seating and unseating head.

With seating or face pressure, fluid exerts a force on the front of the gate. The pressure of the water forces the gate slide against the frame. In the design of a structure where cast iron slide gates are used, place the gate so that it will be subjected to a higher seating head whenever possible. When this is done, a lighter gate can be used, and is usually more watertight.

Unseating or back pressure is encountered when the depth of fluid is greater on the back side of the gate. Under these conditions, the fluid force pushes the slide away from the frame and the total force must be resisted by the wedging devices and assembly bolts of the gate. Therefore, gates are designed for considerably less back pressure than they are for face pressure. The possibility of leakage increases with the fluid pushing the slide away from its seating surfaces.

Most cast iron slide gates are used with square openings; however, many standard sizes of rectangular gates are available. It is standard practice throughout the gate industry to first designate the width of the rectangular gate opening, followed by its height. Openings are normally shown in inches. Gates with circular openings are manufactured with a round flange back for attaching to pipe flanges. Stock sizes are available with very short lead times.

## PRESSURE (HEAD) RATINGS

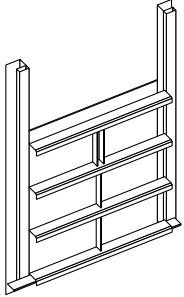
Heads are measured from the horizontal centerline of the gate openings to the surface of the water. The majority of gate applications can be handled by Hydro Gate Series HG560, which has a minimum seating rating of 55' and 20' unseating. This series was developed using a finite element analysis which qualified for use in nuclear power plant safety systems.

The High Head Class of Cast Iron Sluice Gates is designed to withstand heads of greater than 55' - 20' on a per application basis. These Cast Iron Slide Gates have the same basic design as the Series HG560.

## APPLICATIONS

- Sewage treatment plants
- Power plants
- Dams
- Fish hatcheries
- Water treatment plants
- Flood control projects
- Industrial water control projects

# Fabricated Stainless Steel Gates



## Hydro Gate® Model HG561

up to 50' face pressure (seating)  
up to 50' back pressure (unseating)

Available in 304 or 316 stainless steel  
Low leakage polymer sealing  
Fabricated wall thimbles available  
Modified materials and designs upon request  
Self contained or non self contained

## Sizes

6" to 144" Square or Rectangular

*Larger sizes and higher pressure ratings available per application. Please call one of our experienced engineers at 800-678-8228 for additional options and a quotation.*

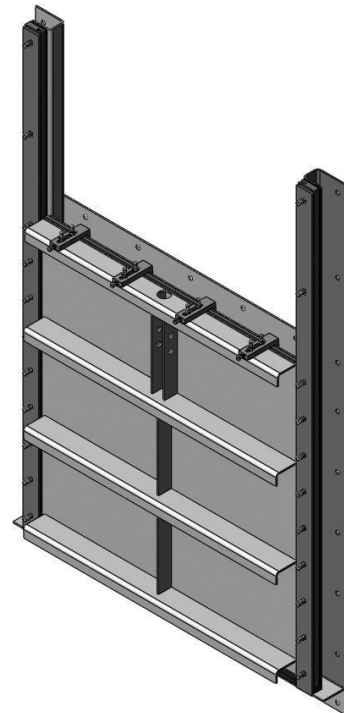
## AWWA C561 COMPLIANT STAINLESS STEEL SLIDE GATES HYDRO GATE SERIES HG 561

The Hydro Gate HG561 Stainless Steel Slide Gate is an exceptional design for low leakage requirements in corrosive environments. The frame, slide, stem and fasteners are all stainless steel type 304 and 316 dependent on your application. The slide guide seal assembly utilizes an ultra high molecular weight polymer molded and milled to positively retain the slide and form a watertight seal. The UHMWPE polymer provides a surface with a very low co-efficient of friction, ensuring smooth operation. The guide seal assembly is designed for positive retention allowing the compression force applied to the slide to be completely adjustable. All Hydro Gate seals are self adjusting and after years of service the design provides the ability to readjust the compression force applied to the slide ensuring years of reliable service.

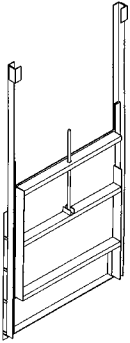
A top wedge system is utilized on gates 24 inches and wider. The Hydro Gate wedge system incorporates a similar design used on cast iron slide gates. Each wedge is securely fastened to the top of the slide, which when in the closed position provides a contact with the top seal of the frame. Both flush-bottom and standard bottom closures are available with this model. The flush-bottom design features a rubber seal attached to the frames eliminating the need for a recessed floor.

## APPLICATIONS

- Water treatment plants
- Low-head reservoirs
- Wastewater treatment plants
- Power plants



# Aluminum Slide Gates



## Features

- 20' face pressure (seating)
- 20' back pressure (unseating)
- Self contained or non self-contained
- With or without rubber seals
- Upward or downward opening

## Sizes

6" to 240" Square or Rectangular

## AWWA C513 COMPLIANT

## AWWA C562 COMPLIANT

Hydro Gate® fabricated slide gates are designed and fabricated from special shaped extrusions or structural angles, flats, and plates are assembled by welds and bolts. Through years of fabricating experience, our team has developed techniques for fabricating parts to a close tolerance and straightness. Fabricated slide gates are usually furnished with rubber seals to improve water-tightness. They are designed for either open channel use or aperture type applications. Open channel gates have no frame member or seal at the top of the slide. These gates will overflow. Aperture gates (over an opening) have top frame member and J-seals to shut off flow at depths greater than the slide height.

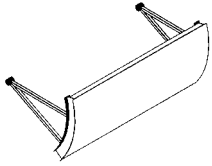
Head capacity is dependent on opening size and availability of structural members. The most common head rating is 10 ft. seating and unseating, with 20 ft. seating being a practical limit for most sizes. Higher heads require special designs. Consult our Engineering Department for additional information.

## APPLICATIONS

- Flood control
- Low-head reservoirs
- Sewer treatment plant
- Irrigation projects
- Drainage systems
- Water treatment plants
- Fish Hatcheries



# Radial (Taintor) Gates



## Features

Overflow - 1' Overflow Head  
Breastwall - 10' - 50' of head capacity

## Sizes

up to 240" x 144"  
up to 240" x 144"

*Special sizes and designs available upon request. Please call one of our experienced engineers at 303-288-7873 for additional options and a quotation.*

Hydro Gate® standard radial gates are designed for a wide, clear waterway opening. A radial (or taintor) gate acts similar to a section of drum. Pressure is transferred from the curved face through the horizontal support beams to the radial arms at the sides of the opening. The arms act as columns and transfer thrust to a common bearing located on either side of the gate opening. Flow is underneath the curved face as the gate is opened. This design results in a lightweight, economical gate that can be opened and closed with minimum effort and with comparatively small number of turns of the hand wheel on the hoist.

Hydro Gate radial gates are made for two types of installations. The first, and most commonly used, is an overflow type. This gate is designed for 1 ft. of water flowing over the top of the gate when the gate is closed. Adequate safety factors prevent damage to the gate if there is a moderate, additional overflow beyond that limit for a short period of time.

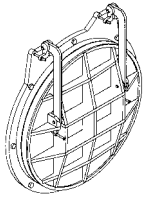
The second type employs the use of a breast wall. This is a vertical concrete wall above the top of the gate opening that results in additional storage capacity in front of the gate. Most radial gates are raise-to-open type; a variation is the lower-to open type. This requires a weir wall for mounting a seal that must make contact with the curved face plate.

## APPLICATIONS

- Diversion of water for irrigation
- On top of dams to increase reservoir capacity
- Spillways or in drainage canals to maintain water elevations
- Locations where wide, clear waterway openings are necessary and where economical control of water is important



## HEAVY DUTY



### Hydro Gate® Model 50C

50' minimum seating head

### Available Sizes

6" to 144" Round

### Stock

4" to 60" Round

### Hydro Gate Model 50

50' minimum seating head

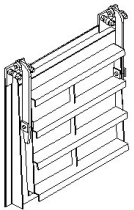
### Available Sizes

12" to 144" Square or Rectangular

### Stock

None

## FABRICATED FLAP GATES



### Features

Application specific designs for face pressure  
Stainless steel, carbon steel, or aluminum

### Sizes

Per application

Hydro Gate flap gates are constructed predominantly of cast iron though other materials are available for special applications. A small differential pressure on the back of the gate causes it to open automatically to allow discharge through levees, sewer lines or drainage conduits. When water on the face side of the gate rises above water on the back side, the gate closes automatically to prevent backflow.

Flap gates are equipped with flat-back seats for attaching to wall thimbles, new concrete headwalls, existing walls or pipe flanges. The seat or frame of the flap gate is attached to a wall or pipe flange and forms the opening through which water passes. Since the gate opens or closes automatically, a mechanical lifting device is not necessary. Automatic drainage gates must be kept clean if they are to function correctly. The hinged flap acts as a natural skimmer to cause timber, logs or trash to catch between the flap and the seat at low flow. Periodic inspection and cleaning should be scheduled when the water flowing through the flap gate carries floating material. To make the gate more self-cleaning, it should be mounted 12 to 18" above the apron in front of the gate. This allows room at the bottom for floating material to work its way out and make the gate flap somewhat self-cleaning.

## APPLICATIONS

- Flood control
- Farm levees
- Industrial waste lines
- Tidal drainage
- Pump discharge control
- Municipal projects
- Sewer outfalls
- Water and sewage treatment plants
- Irrigation systems

# Flexible (Rubber) Flap Gates



## Features

Minimum back pressure required for opening  
Stainless steel frame and reinforcements

## Sizes

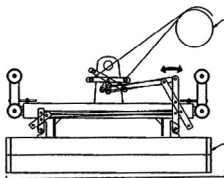
12" x 12" to 144" x 144"

These gates are available in a variety of sizes. For the minimum and maximum gate sizes available, please consult our engineering staff. When specifying Hydro Gate® Flexible Flap Gates, be sure to consider the characteristics of the water, the gate's function, the opening size and the maximum head requirements. Our engineering staff is experienced in answering any of the questions you may have concerning the design and use of the Flexible Flap Gate.

## APPLICATIONS

- Very low unseating head requirements
- Coastal tide basin drainage
- Pump discharge
- Combined sewage overflow requirements

# STOP LOGS



## Features

Available in Stainless Steel and Aluminum.  
Adjustable lifting beam provided.

## Sizes

Sizes and designs available upon request.

Stop logs are used for level control in open channels. Logs are beams inserted in grooves cast in a channel wall or fabricated guides bolted to a channel wall. Aluminum is now the material of choice for stop log and slot construction. Typical nominal height of a stop log is in 6 inch increments, i.e., the log can be 6, 12, 18 inches in height, or any custom height as specified. Hydro Gate stop logs have rubber lip type seals on each side (end) to seal at the wall and across the bottom to seal at the sill or with the next log. The preferred sill is an embedded metal sill. Aluminum is a strong lightweight material allowing some logs to be "manhandled." Stainless Steel logs can be used in more corrosive environments. The typical stop log is equipped with lifting lugs for use with a stop-lifting beam. The beam is a self-engaging log handling device for underwater retrieval and manual lanyard release of the log. The lifting beam is wheel guided by the stop log slot. An overhead crane, davit crane, or mobile crane is needed to lift and install / remove most stop logs.

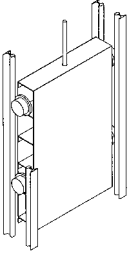
## APPLICATIONS

- Open channel service
- Water level regulation
- Equipment isolation

Stop logs cannot be installed in high flowing water. They can be removed against low flowing water and against very low heads (some over flow). Stop logs can be stacked and used for equipment isolation; however, there may be considerable leakage due to the greater amount of sealing perimeter compared to a single bulk head type arrangement. Stop logs are directional sealing. The log should be installed with the rubber seal downstream.



# Roller Gates



## Features

Overflow - 1' overflow  
Breastwall - up to 200' of head capacity

## Sizes

up to 360" x 144"  
up to 240" x 144"

*Special sizes and designs available upon request.*

Hydro Gate® roller gates are designed to control flow through large waterway openings where economy and ease of operation are important. They may be designed as either upward or downward (skimmer) opening. A roller or fixed wheel gate consists of a fabricated steel slide with cast iron rollers and rubber seals. The gate leaf is a box-like design of welded construction. It varies in width and height as required by the size of the opening in the concrete and varies in thickness depending on the depth of water. Recesses at the sides of the gate opening are provided with rails and with contact faces for side seals. The thrust developed from water pressure against the gate is transmitted through the rollers to the rails and into the structure. The lift capacity required to open the gate under maximum operating conditions is minimized as the thrust caused by the water pressure is transferred to rolling friction (in lieu of sliding friction as with other types of gates).

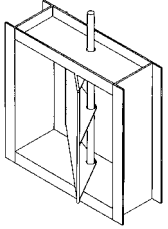
## TYPES OF ROLLER GATES

The Hydro Gate product line offers two types of roller gates: the overflow type for use where the water depth is the same as the height of the gate slide; and the breast wall type where water is considerably deeper than the height of the gate and / or where complete closure of the opening is required.

## APPLICATIONS

- Power plant cooling water systems
- Flood control projects
- Industrial water control projects
- On top of dams to increase reservoir capacity
- Municipal waterworks
- Municipal sewage treatment plants
- Irrigation systems
- Penstock & Draft Tubes

# Butterfly Gates



## Features

- 25' face pressure
- 25' back pressure

*Available wall mounted or channel mounted.*

## Sizes

12" to 192" square or rectangular

Whatever the application, the Hydro Gate® rectangular butterfly gate can be manufactured to meet your specific size, location and operating requirements. If manual actuation is required, we can supply a hand wheel, chain wheel or a worm gear actuator. When automatic actuation is required, we can provide an electric actuator, or a pneumatic or hydraulic cylinder actuator, with or without manual override for open / close service, throttling or modulating service. Regardless of type, actuators may be mounted in a variety of positions for maximum convenience in installation and operation. All Hydro Gate actuators are designed for long life with minimal maintenance, backed by decades of experience and industry know-how.

## APPLICATIONS

- Water filtration plants
- Flood control
- Industrial applications
- Sewage treatment plants
- Power plants

## SPECIALTY ITEMS

- Bulkhead gates
- Trash racks
- Overshot gates
- Combination gates (slide & flap)
- Dual leaf slide & roller gates

Our Engineering staff has years of experience in designing solutions and providing assistance for the most challenging gate applications. Please contact our Engineering Team at 800-678-8228 for all of your gate needs.

# NOTES

# HYDRO GATE®

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**OUR MISSION IS TO BE THE LEADING WATER CONTROL GATE MANUFACTURER IN THE WORLD, THROUGH CONTINUOUS DEVELOPMENT OF AN ORGANIZATION WHICH PROMOTES EXTRAORDINARY CUSTOMER SERVICE, SUPERIOR ENGINEERING, QUALITY PRODUCTS AND ON-TIME DELIVERY.**

***For more information about us or to view our full line of water products, please visit [www.hydrogate.com](http://www.hydrogate.com) or call Hydro Gate® customer service at 1.800.423.1323.***

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