



Waterman
INDUSTRIES OF EGYPT

THE COMPANY

WATERMAN INDUSTRIES OF EGYPT WAS INCORPORATED IN 1996 TO MANUFACTURE WATER CONTROL GATES, PENSTOCKS, SPECIAL TYPES OF VALVES AND WATER TREATMENT EQUIPMENT. IN LESS THAN 20 YEARS, THE COMPANY HAS BEEN RECOGNIZED AS ONE OF THE TOP MANUFACTURERS OF HIGH QUALITY WATER CONTROL EQUIPMENT.

Our product line covers a vast range of sluice gates, slide gates, penstocks, radial gates, automatic level control gates, roller gates, weir gates, flap gates, mud valves, telescoping valves, special valves and stop logs in either standard sizes or custom-tailored sizes; for use in a wide variety of applications including:

- Potable water purification
- Sewage and industrial waste treatment
- Power generation
- Drainage and flood control
- Spillways and water control in reservoirs and canals
- Irrigation schemes
- Barrages and dams

Waterman Industries of Egypt is one of the few manufacturers in the industry who perform a complete "in-house" production process starting

from the raw material in its very basic form to the packaging of the finished product, all under one roof. The company runs an ultra-modern manufacturing facility equipped with heavy duty, precise and modern CNC production and testing machinery, ensuring reliable control over quality, timely delivery and ability to meet challenging custom requirements. Our major investment is in our precious qualified engineering team and application experts, who are able to assist the customers specify and select the right product with the right configuration to fit their needs.

The company's expertise is to manufacture large gates; we have built gates up to 8 meters wide and up to 14 meters high to control water in large intake structures, pumping stations and barrages.



Waterman



WORLDWIDE PRESENCE

Waterman Industries of Egypt products are exported to many countries in the Middle East, Africa, Asia, Latin America and Australia. Our international presence is a commitment of conducting professional business ethically, with virtue and passion in what we do. Thousands of our quality gates and valves are installed and operating flawlessly in projects in:

AUSTRALIA

ALGERIA

ARGENTINA

BAHRAIN

BRAZIL

BRUNEI

COLUMBIA

DJIBOUTI

ECUADOR

EGYPT

GUYANA

HONG KONG

IRAQ

JORDAN

KENYA

KUWAIT

LEBANON

LIBERIA

MACAU

MALAYSIA

MALI

NIGERIA

OMAN

PAPUA NEW GUINEA

RWANDA

SAIPAN ISLAND

SAUDI ARABIA

SINGAPORE

SUDAN

TRINIDAD AND TOBAGO

UNITED ARAB EMIRATES

URUGUAY

VENEZUELA

JOB SITE:
JOB NO.:
ITEM NO.:

ANALYSIS OF A SPECIFIC SLIDE GATE (CONT.)

DESIGN ASSUMPTIONS (CONT.)

REACTIONS: $R_1 = R_2 = \frac{P}{2}$
SHEAR: $V_x = \frac{P}{L} [\frac{L}{2} - x]$

BENDING STRESS: $S_x = \frac{PX}{2LZ} [L - X]$ AND $S_{MAX} = \frac{PL}{8Z}$ @ CENTER
MAXIMUM DEFLECTION: $D = \frac{5PL^3}{384EI}$ @ CENTER

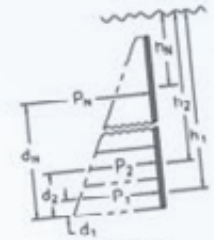


FIGURE 1

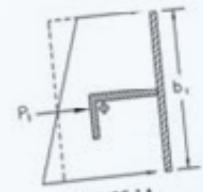


FIGURE 1A

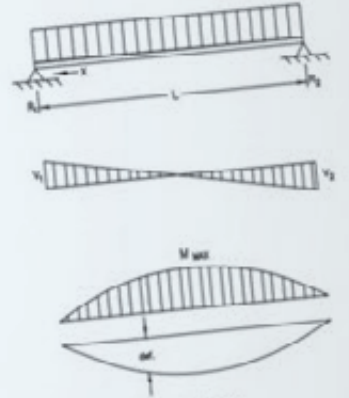


FIGURE 2

LOAD/SUPPORT DISTRIBUTION

THE GATE HEIGHT IS DIVIDED INTO 6 LOAD AREAS, EQUAL LOAD AREAS. SECTIONS ARE IDENTIFIED FROM BOTTOM (INVERT) AND RESULTS ARE TABULATED IN TABLE 1

- bi = HEIGHT OF INDIVIDUAL LOAD AREA
- di = DISTANCE FROM INVERT TO LOAD AREA CENTER OF PRESSURE. THIS IS ALSO LOCATION OF RESULTANT LOAD AND SUPPORT NEUTRAL AXIS
- H_i = HEAD FROM WATER SURFACE TO CENTROID OF AREA
- pi = HYDROSTATIC LOAD ON EACH AREA
- W = WEIGHT DENSITY OF WATER = 62.4 lb/ft³

TABLE 1 - LOAD DISTRIBUTION RESULTS

SECTION	pi (lb)	bi (in)	di (in)	H _i (ft)
1-BOT	6046	10.11	5.01	17.53
2	6046	10.63	15.37	15.76
3	6046	11.24	26.30	14.79
4	6046	11.98	37.90	13.75
5	6046	12.88	50.32	12.63
6-TOP	6046	14.03	63.75	

$pi = W \cdot H_i = W \cdot \frac{a \cdot b}{144 \text{ in}^2/\text{ft}^2} \cdot H_i$

DESIGN AND ENGINEERING

DESIGN AND ENGINEERING

Waterman's designs are well known as being "state of the art" in gate design and have proven over decades to be one of the highest in the industry. We have the most complete line of standard designs for all types of gates, penstocks and special valves and their accessories. Our design library has more than 25,000 standard drawings for our different products and their components.

In addition to our standardized designs, Waterman Egypt has its own software programs which calculate and analyze every part of every product for full compliance with industry standards and particular project specification requirements as well as for non-standard size inquiries. Our engineers use the latest in computer aided design tools in CAD, CAM, 3D

Modeling and finite element analysis interfaces. The use of such software allows us to get into every small detail of the gate design and visualize the gate behavior under the different loading and operating conditions to ensure the gate design provides a rugged solution for heavy duty operation.

On some challenging requests when the customer has a complex structure where the gate is required to be installed, we are able to give a helping hand by providing various options of our gate configurations fitted on the customer exact structure in 3D models, showing how the structure needs to be shaped to allow for fitment of the gate and for easy access during installation and further during operation.

BUREAU VERITAS
Certification



Certification
Awarded to

WATERMAN INDUSTRIES OF EGYPT

Factory # 53B/1 Fourth Industrial Zone – Sadat City, Egypt

Bureau Veritas Certification Holding SAS – UK Branch certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARD

ISO 9001:2008

SCOPE OF CERTIFICATION

**DESIGN, MANUFACTURE AND SALES OF WATER CONTROL PENSTOCKS,
GATES AND TELESCOPIC VALVES.**

BUREAU VERITAS
Certification



Certification
Awarded to

WATERMAN INDUSTRIES OF EGYPT

Factory # 53B/1 Fourth Industrial Zone – Sadat City, Egypt

Bureau Veritas Certification Holding SAS – UK Branch certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARD

ISO 14001:2004

SCOPE OF CERTIFICATION

BUREAU VERITAS
Certification



Certification
Awarded to

WATERMAN INDUSTRIES OF EGYPT

Factory # 53B/1 Fourth Industrial Zone – Sadat City, Egypt

Bureau Veritas Certification Holding SAS – UK Branch certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARD

OHSAS 18001:2007

SCOPE OF CERTIFICATION

QUALITY PROGRAMS

Waterman Industries of Egypt as a leading brand has implemented and developed a quality management system that meets the international standards regulations, establishing total quality control and assurance throughout the company functional areas in all the stages of material sourcing, manufacturing, assembly, testing, packing and shipping processes to maintain the level of excellence the company and its products are famous for.

PRODUCT QUALITY POLICY

Our principal goal at Waterman Industries of Egypt is to manufacture the best quality gates and valves. We carefully plan steps, take quick decisions and perform proactive actions for the continuous improvement in all our company activities to ensure that the quality of every Waterman product made in our factory is of the highest degree possible. Waterman Industries of Egypt quality management system is certified to the ISO 9001 and is continuously audited for improvement, underlining the company commitment to provide a maintained quality level of products to our customers.

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT POLICIES

We maintain health, safety and environmental management policies that meet the international standards regulations. With our products being primarily used in the fields of water treatment and environmental care for the well being of human life, we understand the importance of clean water and healthy environment. We also strongly believe that the most valuable asset of a company lies in its employees. Our QHSE team lays out and monitors rigorous safety procedures for the daily operations and stringent policies for minimizing impact on the environment. This has resulted in the company policies being certified to the ISO 14001 and the OHSAS 18001.



SS-250 SLIDE GATES

SERIES PENSTOCKS



THE BEST OF TECHNOLOGY FOR STRENGTH AND LONGEVITY IN CORROSIVE ATMOSPHERES

Waterman SS-250 series slide gates (penstocks) feature standardized design customized to the customer application for use in water, wastewater, sewage treatment facilities, industrial waste treatment as well as irrigation canals, industrial cooling systems, canal flow control, hydropower plants and many other uses. They are manufactured from stainless steel in a variety of grades: 304L, 316L, Duplex 2205 or Super Duplex 2507.

Advantages:

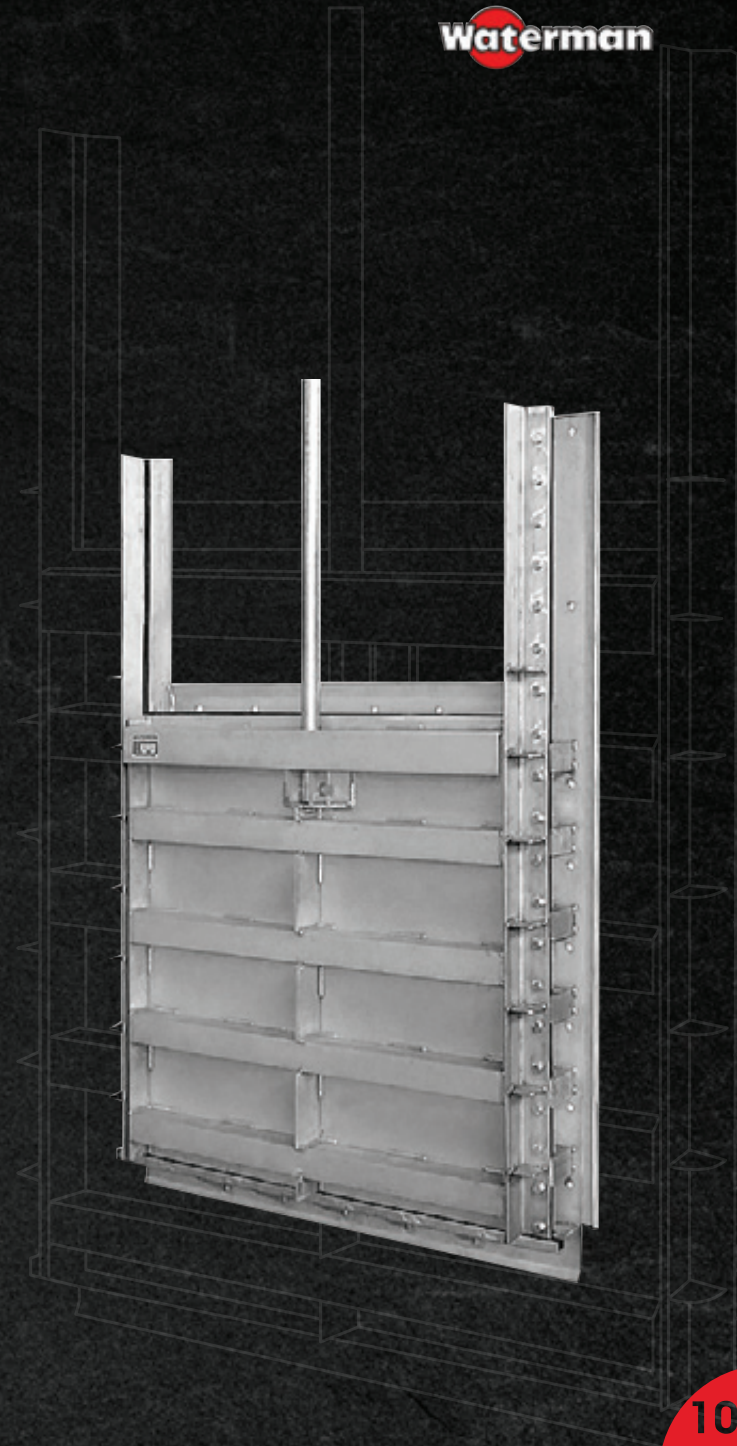
- **Rugged heavy duty design**
- **Meets leakage requirements of AWWA and BS standards**
- **UHMWPE sealing/seating surfaces**
- **Standardized design**
- **Manual, Electric or Pneumatic operation**
- **Standard sizes up to 3000x3000mm**
- **Unlimited range of custom sizes**

The Waterman series SS-250 slide gates (penstocks) are engineered for excellent sealing while providing maximum resistance to corrosion. UHMWPE sliding and seating surfaces

provide low coefficient of friction while maintaining the superior resistance to corrosion.

With a vast variety of in-house standard configurations and styles, the slide gates (penstocks) can be customized to virtually fit any structure. Configurations include square/rectangular flange back for wall mounting, with side and bottom frames for embedment in channel grooves, with four side sealing around an aperture, with three side sealing for applications where water level is limited to the gate height, or any combination of these. Special configurations are also available for installation to existing channel faces without requiring grooves. The gates can be ordered in either versions of open top frame for deep installations or in a self-contained yoke assembly with the lifter mounted on top for ease of installation.

All models include rising stems as standard but can be specially ordered in non-rising design, for such a case when there is a low roofing requirement or installation is in roads or recreational areas.





T | RADIAL SERIES | GATES



Radial gates are used for control or maintenance of upstream water levels in canals and spillways. They are composed of a radially shaped leaf ruggedly stiffened with ribs at its back, connected to two radial arms at the sides to transfer the load to the pivot pins and ultimately to the bearing housings which are firmly anchored into the concrete structure. Typical application includes:

- **Hydropower projects**
- **Irrigation schemes**
- **Increasing storage in reservoirs**
- **Diversion of water in canals**
- **Irrigation large conveyance systems**

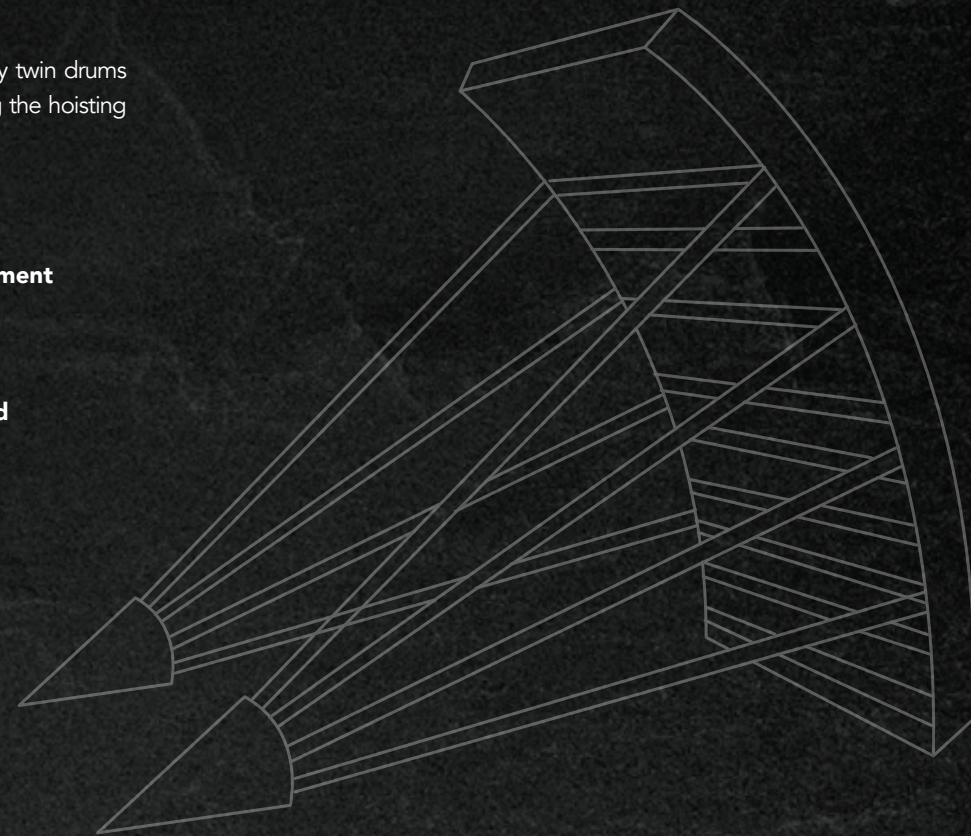
Waterman Overflow or Breastwall-type Radial Gates can be engineered for special applications or can be

manufactured from a standardized Waterman design. In either case, they are always made to the customer's exact specifications. Both types provide economical gate that can be operated with minimum effort.

The Radial gate hoisting is accomplished by twin drums connected in tandem by a shaft for winding the hoisting cables simultaneously.

Features:

- **Heavy duty design**
- **Custom-tailored to project requirement featuring standardized design**
- **Electrically or manually controlled**
- **Smooth operation**
- **Durable resilient seals for sides and bottom**





A,B,C | AUTOMATIC LEVEL SERIES | CONTROL GATES



DOWNSTREAM AUTOMATIC LEVEL CONTROL GATES TYPE "A" AND TYPE "B"

Types "A" and "B" Automatic level control gates are a revolutionized concept of the simple radially shaped radial gate, fundamentally that they don't require operators, motors, power supply, control, monitoring or any human influence like any gate would do. They work on their own. THEY ARE JUST AUTOMATIC! The simplicity of only one moving part provides for nearly maintenance-free and reliable operation for many years of service.

Types "A" and "B" Automatic downstream level control gates provide a constant downstream water level regardless of upstream level conditions or downstream demands. They are well known for being "state of the art" for flow automation and flood control. Typical applications include:

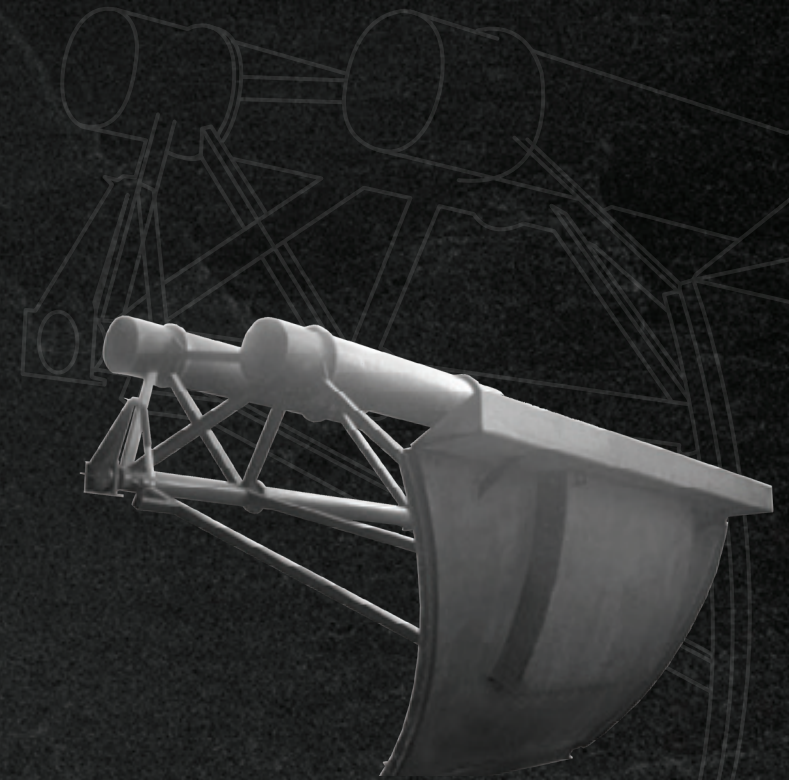
- **"Demand control" on open canals**
- **Control of head (head breaking)**
- **Canal and network automation and water level maintenance**
- **Flood Control**
- **Control of detention basins and reservoirs**

- **"Constant source" flow for cooling and recirculation systems and in water and wastewater treatment facilities.**

Sizes are available for controlling flows up to 56 CMS. Type "A" gates are used for surface (open top) applications while Type "B" gates are used with an orifice through a breastwall or dam, permitting a higher upstream head.

UPSTREAM AUTOMATIC LEVEL CONTROL GATES TYPE "C"

Another JUST AUTOMATIC! Level control gate by Waterman Industries of Egypt. These gates provide a constant upstream water level on the upstream side of the gate section. The gate will automatically rise to pass an increase in flow or automatically lower to compensate for a reduction in flow, effectively maintaining the upstream level constant. Typical applications include drainage canals, recreation lakes, water supply reservoirs, clarifier effluent trough and UV channel control in wastewater treatment plants and head control on turnouts in irrigation canals.





SSF | FLAP SERIES | GATES

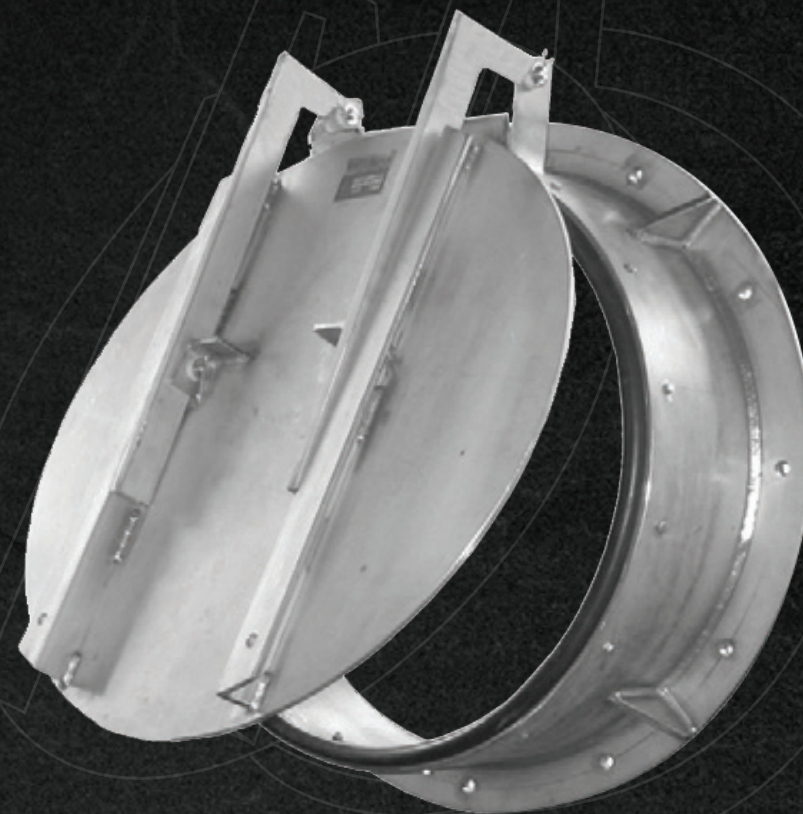


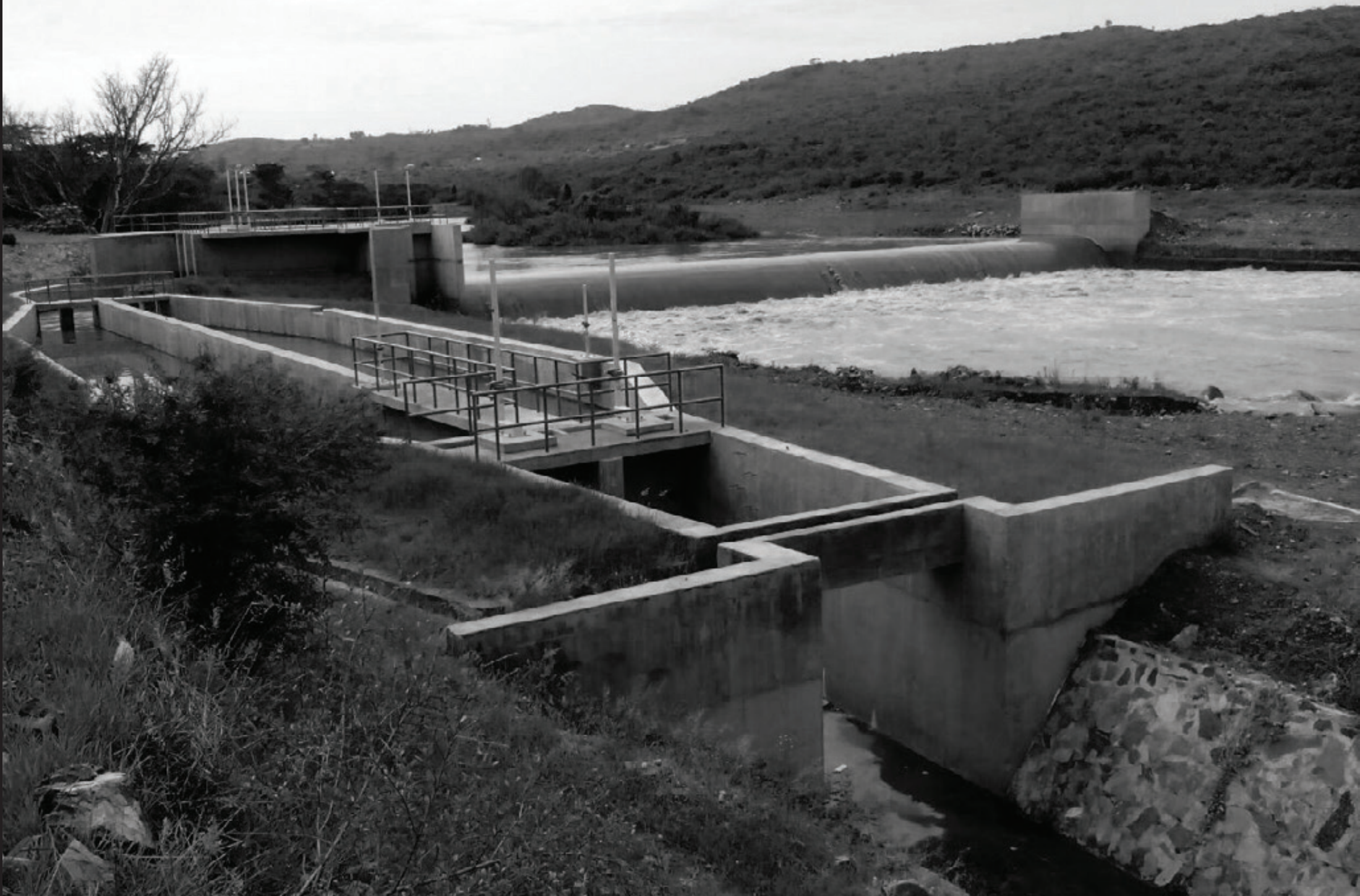
Flap gates are installed at the end of pipe lines to allow free outflow and prevent backflow.

Waterman flap gates can be made of either Stainless steel (304L, 316L, Duplex 2205 or Super Duplex 2507) or Aluminum to provide a corrosion-resistant rust-proof automatic drainage and backflow prevention system. With J-bulb neoprene adjustable seats, they assure excellent sealing against return flow. Waterman provides various shapes of flap gates depending on the shape of the opening (round, rectangular or square openings). Flap gates can be designed flat back for wall mounted applications or flange back to mate with a pipe flange. Size ranges from 12" to 84" pipe diameters.

Features:

- **Free outflow with excellent sealing against return flow**
- **Available with flat back, spigot back or flange back frame**
- **Heavy duty design, automatic operation, maintenance free**
- **Circular sizes up to 2000mm diameters, square/rectangular sizes up to 2000x2000mm**
- **Can be used in municipal sewage and water plants and irrigation projects**





SS-252 WEIR SERIES GATES

Weir gates are used in many water and wastewater treatment plants to adjust the water level on one side of the gate. Weir gates are also referred to as "downward opening slide gates (penstocks)" because they function like slide gates except that the door moves downwards to allow the water to overflow the top of the gate, and by that provide direct means of controlling the water level in reservoirs, channels, aeration tanks or settling basins.

Waterman Weir Gates are custom made to exact specifications and are available in plain style, V-notch (triangular), Cipolletti, Rectangular, and Sutro or Proportional types to provide rough estimates of the flow. They are manufactured from stainless steel in a variety of grades: 304L, 316L, Duplex 2205 or Super Duplex 2507.

Advantages and features:

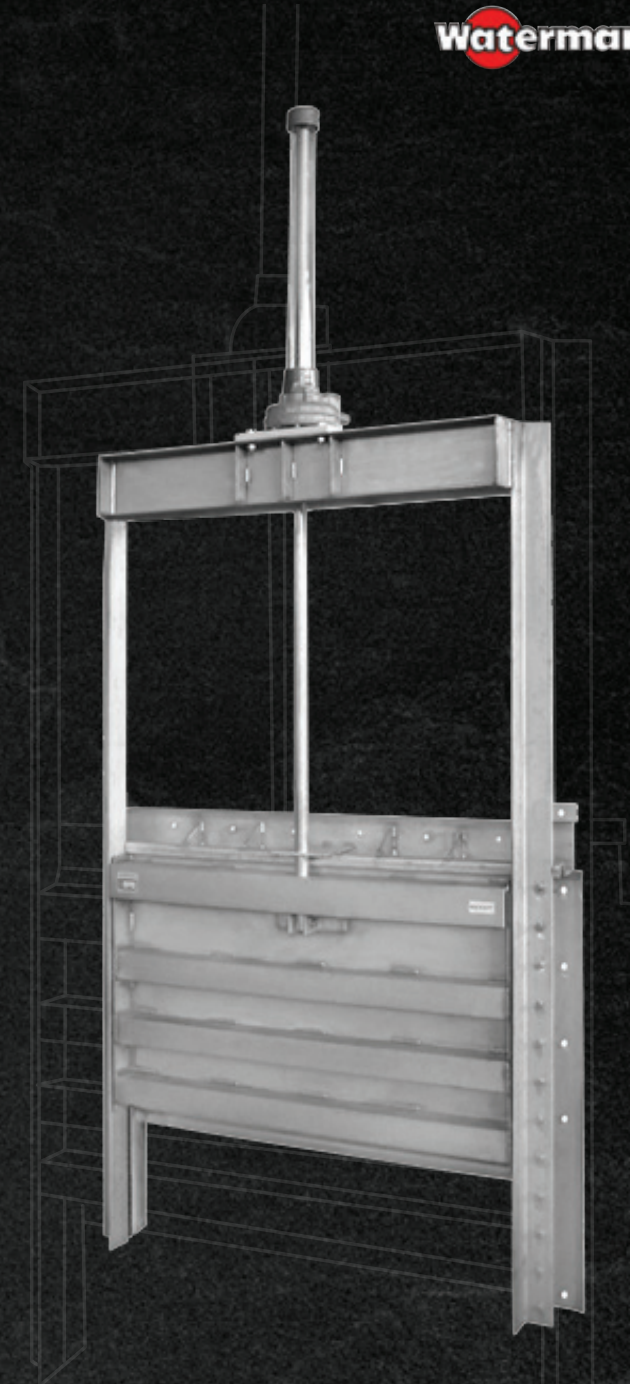
- **Rugged heavy duty design**
- **UHMWPE sealing/seating surfaces**
- **Works against both seating or unseating pressures**
- **Three or four-side seals**
- **Single or dual stem arrangement**
- **Meets leakage requirements of AWWA and BS standards**
- **Manual, Electric or Pneumatic operation**
- **Limitless range of custom sizes**

SS-254 WEIR SERIES GATES

In a similar way like the Waterman Series SS-250 slide gates (penstocks), the weir gates feature UHMWPE sliding and seating surfaces that provide low coefficient of friction while maintaining the superior resistance to corrosion.

Waterman Weir gates are available in two styles, namely SS-252 and SS-254. The SS-254 weir gate comes with three-side sealing on sides and bottom, to be wall mounted at the end of a channel or on a U-shaped opening. SS-252 weir gate is a special version by Waterman which has four-side seals on sides, top and bottom and is wall mounted on a square or rectangular aperture that has a breast wall above it. This weir gate allows complete isolation when the gate is in closed position, even if the water level exceeds the gate door height.

The weir gates are constructed as standard in a self-contained yoke assembly configuration with the lifter mounted on top, but can be custom ordered in an open top configuration along with a pedestal on the operating floor for deep installations. On some applications where the weir gate is required with a width that is substantially more than the height, the weir gate is manufactured with tandem stem arrangement, interconnecting shaft and flex couplings to ensure proper alignment and smooth operation.





SL | STOP SERIES | LOGS



Stop logs are used to temporarily isolate spillways, canals and intake structures. They are typically used in power plants, spillways, water treatment pumping stations and treatment plants.

Waterman stop logs and guide rails are of an extremely heavy duty design specially suited for "deep channels" with high water heads. The logs can be manufactured in either stainless steel grades 304L, 316L, Duplex 2205 or Super Duplex 2507, or in painted mild steel construction. The frames are typically made in stainless steel due to their being continuously submerged.

Waterman Industries of Egypt has supplied stop logs along with their guide rails for channels of up to 12 meters in width and up to 15 meters in depth in irrigation, petrochemical and power plant intakes projects.

Advantages and Features:

- **For use in wide openings, deep channels and high head installations**
- **Custom sized to fit application requirement**
- **Directional or Bi-directional designs**
- **Embedded or in-channel installation designs**
- **Manufactured from stainless steel, mild steel or aluminum alloy**
- **Resilient seals for sides and bottom**
- **UHMWPE bearing surfaces**
- **Guided lifting beam**



A-200 SERIES | **SLIDE GATES** | PENSTOCKS

SC SERIES | **SHEAR GATES**



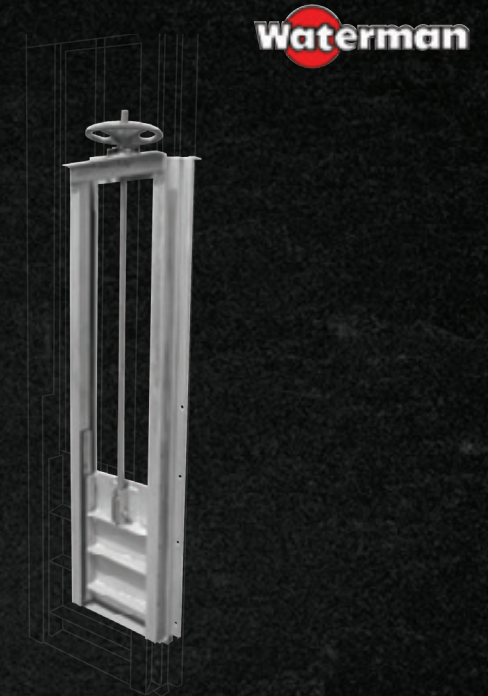
A-200 SLIDE GATES

SERIES PENSTOCKS

Waterman A-200 series slide gates (penstocks) are manufactured from Aluminum Alloy 6061-T6, ASTM B-209 and ASTM B-211. Typically referred to as "Aircraft Grade Aluminum", Alloy 6061-T6 is a high strength alloy of Aluminum commonly used in the building of ships, airplanes and aerospace components, with a very good resistance to corrosion. It is specified by the AWWA standard for the Aluminum slide gates (penstocks) for use in water and wastewater applications.

These gates are specially suitable for corrosion-resistant and rust-proof demands. Applications include use in open channels and wall openings for some processes in water and wastewater purification plants and in maritime shipping terminals.

They have optimum sealing against leakage using UHMWPE sliding and seating surfaces. They can be made in different sizes for circular, square and rectangular openings to suit customer's application.



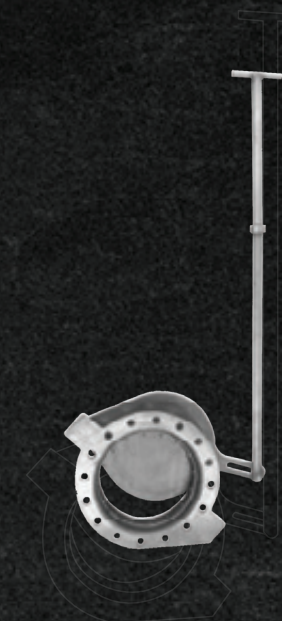
SC SHEAR

SERIES GATES

Shear gates are used for filling or emptying tanks in both water and sewage plants, for low pressure drainage lines and other similar operations. They feature removable wedge design for easy replacement. These gates are only suitable for low seating pressure applications.

Advantages and Features:

- **Heavy duty design**
- **Quick opening/closing operation**
- **Available with flat back or flange back frame**
- **Standard lifting handle or custom length**





RT ROLLER SERIES GATES

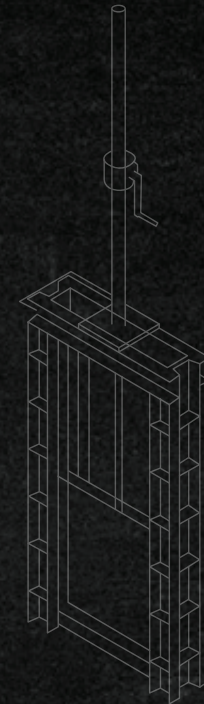
Ideally suited for controlling water in large openings such as in power plants, water and sewage treatment facilities, flood control projects, irrigation systems, and on top of dams to increase reservoir capacity. The gate features rollers mounted on each side and operate against rails attached to the concrete or embedded members at the sides of the gate opening. J-bulb seals are often used to enhance water tightness. Operating friction is reduced by the rolling action of the rollers.

Waterman Roller Gates are available in either overflow or breast wall type. They are manufactured to be upward or downward opening. They may be engineered to take pressure from one or both sides of the gate.

Advantages and Features:

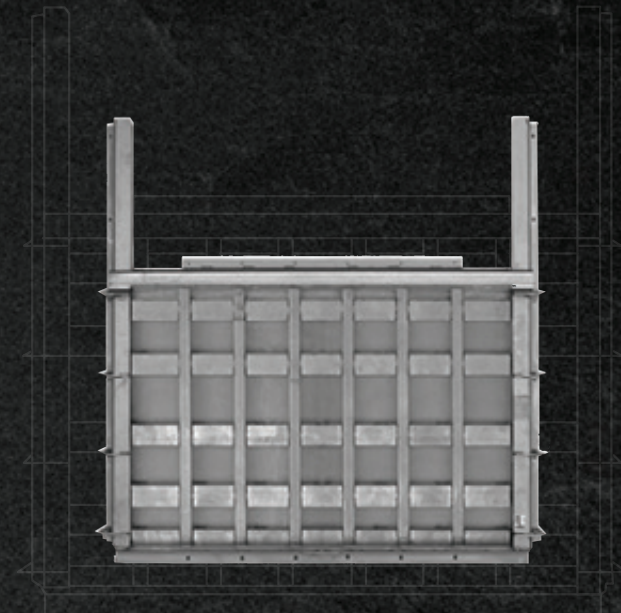
- **Heavy duty design**
- **Stainless steel material of construction**
- **Single or double guide rail design**
- **Water tight within allowable leakage**
- **Manual, electric actuator or pneumatic operation**

Waterman



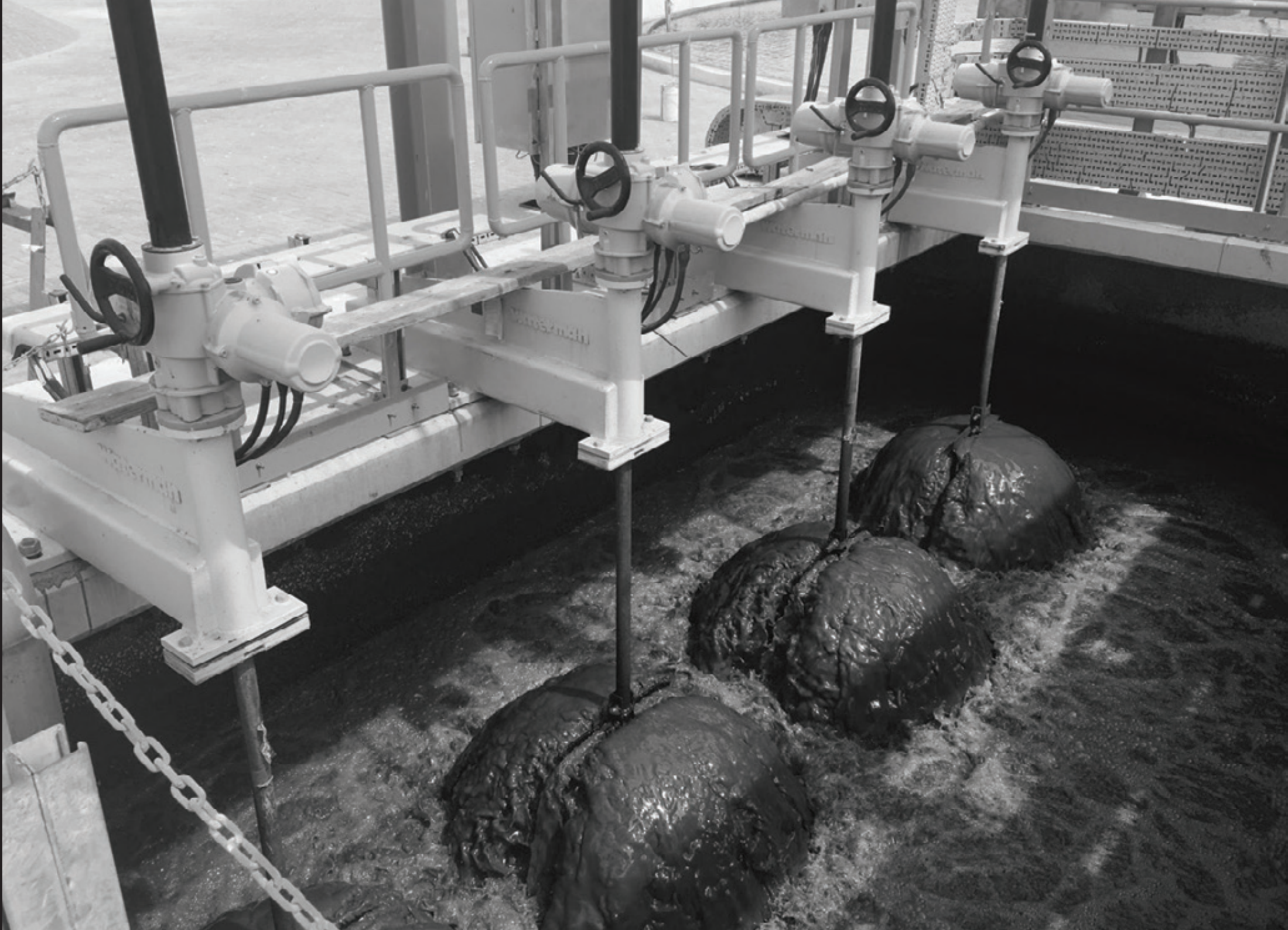
SSW WEDGED SERIES SLIDE GATES

Waterman wedged slide gates are engineered for excellent sealing while providing maximum resistance to chemical corrosion. The design incorporate the use of UHMWPE sliding and seating surfaces to provide a low coefficient of sliding friction while attaining superior tightness. They can be made of type 304L, 316L Duplex 2205 or Super Duplex 2507 stainless steel for use in unusually corrosive environments. They are typically used in applications with high water pressures, where each gate is designed specifically for the job requirement.



TS SERIES | TELESCOPING VALVES

MV SERIES | MUD VALVES

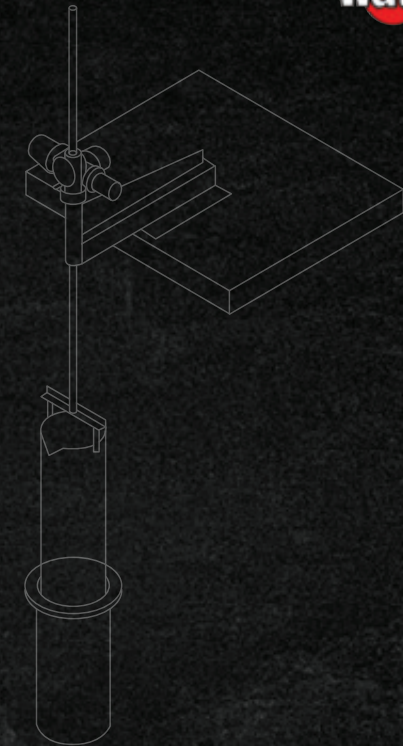


TS | TELESCOPING SERIES VALVES

Waterman Egypt telescoping valves are designed to control the height of liquid within a pond, reservoir, or other holding chamber. In modern sewage treatment facilities, one specific use is to control the level of effluent in settling basins. Also called Decanting Valves or Sludge draw-off Valves, the assembly consists of a drain pipe which slips up and down inside a stationary vertical pipe. Through a lifting device, the inner pipe is raised and lowered to maintain the desired level within the chamber.

Advantages and Features:

- **Heavy duty design**
- **Sizes up to 36 inch diameter**
- **Constructed from "true mill" schedule pipes**
- **Substantially water tight with neoprene gasket**
- **Manual, electric actuator or pneumatic operation**
- **Stainless steel material of construction**
- **Plain or V-notch style tops**
- **On-floor or offset type pedestal installation**



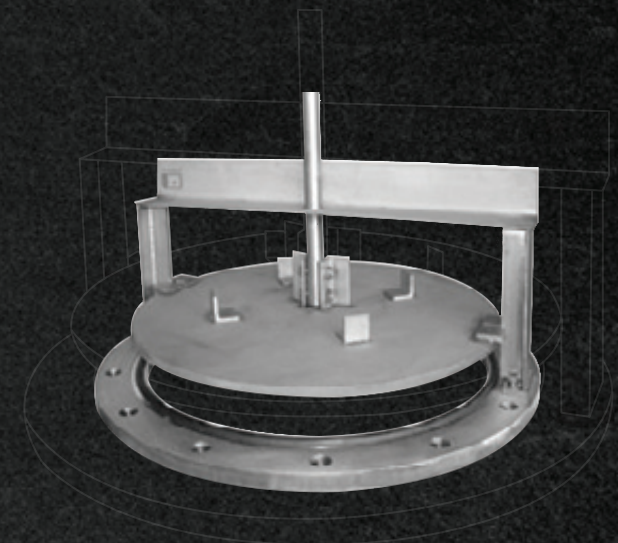
Waterman

MV | MUD SERIES VALVES

Waterman fabricated Mud Valves (also called Plug Drain Valves) are used for settling basin lines, waterworks, sewage treatment plants and similar industrial applications where sediment materials must be flushed from the system. They can be manufactured from stainless steel type 304L, 316L, Duplex 2205 and Super Duplex 2507 with Sizes from 4 to 36 inches.

Advantages and Features:

- **Heavy duty design**
- **Sizes up to 36 inch diameter**
- **Flatback for floor mounting with anchors**
- **Flangeback for riser flange mounting with fasteners**
- **Rising or non-rising stem designs**
- **Manual, electric actuator or pneumatic operation**



SPECIALITY

PRODUCTS

SLUICE GATES

SAND MEDIA FILTERS

BUTTERFLY VALVES

ALFALFA VALVES

OVERFLOW VALVES

DAIRY FLUSH VALVES

SURGE VALVES

UNIVERSAL HYDRANTS

AIR VENTS

VACUUM RELIEF VALVES

PRESSURE RELIEF VALVES

CHEMIGATION CHECK VALVES

SWING CHECK VALVES

SPLIT DISC CHECK VALVES



Universal Hydrants



Line Gate Valves



Air Vent & Vacuum Relief Valves



Air Vent & Vacuum Relief Valves



Butterfly Valves



Air Vent & Vacuum Relief Valves



Pressure Relief Valves

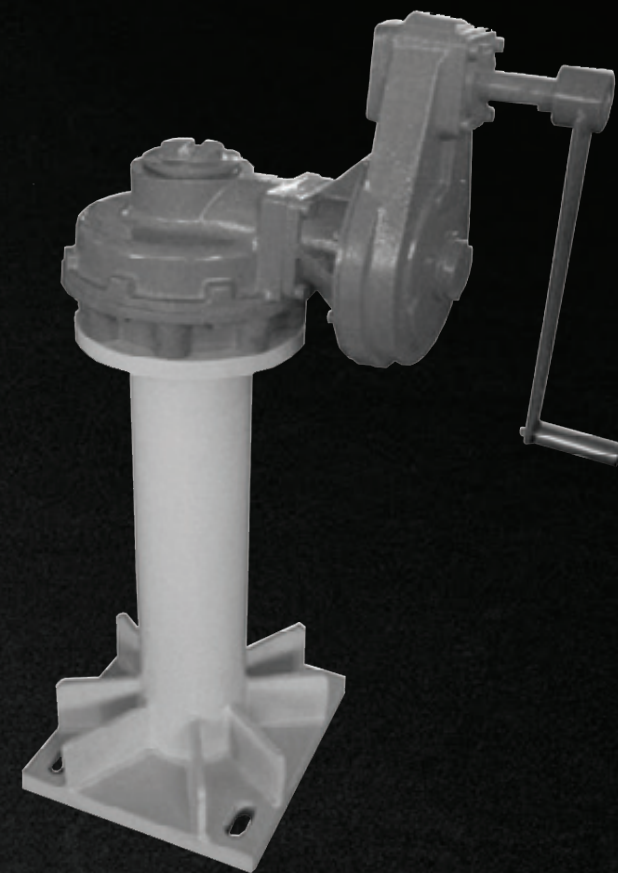
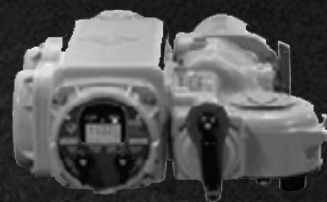


Pressure Relief Valves

LIFT OPERATORS

Waterman Industries of Egypt furnishes a wide range of gate lifts for almost any gate application. Waterman lifts are precisely selected by specially designed Waterman computer programs to meet various criteria such as lifting loads, material capacities, operational conditions and conformance to international standards or project specific requirements. The completeness of the line insures the availability of the optimum lift selection for any particular project demand. Lift designs include bench, pedestal, tandem, drum, side wheel, electric motor, pneumatic and hydraulic.

Our manual, electric actuators and pneumatic lifts are manufactured by Waterman Industries of Egypt, Rotork Gears (Leeds, England), Rotork Controls (Bath, England), Auma (USA/Germany), EIM (USA) and Festo (Germany) and other major producers.



WATERMAN INDUSTRIES OF EGYPT


HEADQUARTERS: Factory 53B/1, Fourth Industrial Zone, Sadat City, Egypt

CAIRO BRANCH: 20 Ezz El Din Omar street, from Pyramids street, Giza, Greater Cairo, Egypt

PHONE: +20 2 3386 6163 | FAX: +20 2 3383 9698

EMAIL: sales@waterman-industries.com

WEBSITE: www.waterman-industries.com

The image features a dark background with two large, overlapping, light-colored curved lines on the right side, resembling stylized 'C' shapes or arcs. These lines are positioned in the upper right quadrant and curve downwards and to the left.

www.waterman-industries.com