Aqseptence Group

Water and Wastewater Treatment

North American Market

Passavant®

Noggerath®

Johnson Screens®

Contra-Shear®

Reliable Performance. Sustainable Results.

About Aqseptence Group

Aqseptence Group is a leading global supplier of specialized products, equipment and system solutions for filtration and separation in the water technology market that are used for various applications.

Uniting some of the most renowned brands in the water technology market — Passavant, Diemme Filtration, Roediger, Noggerath, Johnson Screens, Geiger and Airvac - Aqseptence Group brands has serviced industrial and municipal customers for more than 100 years.

Aqseptence Group's North America headquarters, located in New Brighton, Minnesota, employs approximately 275 people in sales, engineering, support, service and manufacturing.

Global headquarters in Aarbergen, Germany, Aqseptence Group employs approximately 1,600 people worldwide. Aqseptence Group offers a comprehensive range of services for the entire value chain — from engineering all the way to startup and maintenance.

Aqseptence Group name combines the terms "Aqua" and "Separation", referring to the company's core business — separation (and filtration) and water technology. At the same time the name demonstrates an expertise in the water treatment and filtration industries.

This attribute is an integral part of Aqseptence Group and vast brand history — describing best what has been driving our brands for decades.

Experience and expertise

- Comprehensive high-quality product, solutions and service portfolio
- Experience and know-how of more than 100 years
- Capability to deliver complex technological solutions
- Global presence – local knowledge
- Proven quality and reliability standards
- High degree of customized solutions
- Strong, internationally renowned, long-established product brands

Water Process Technologies

Passavant®

Noggerath®

Johnson Screens®

Contra-Shear®

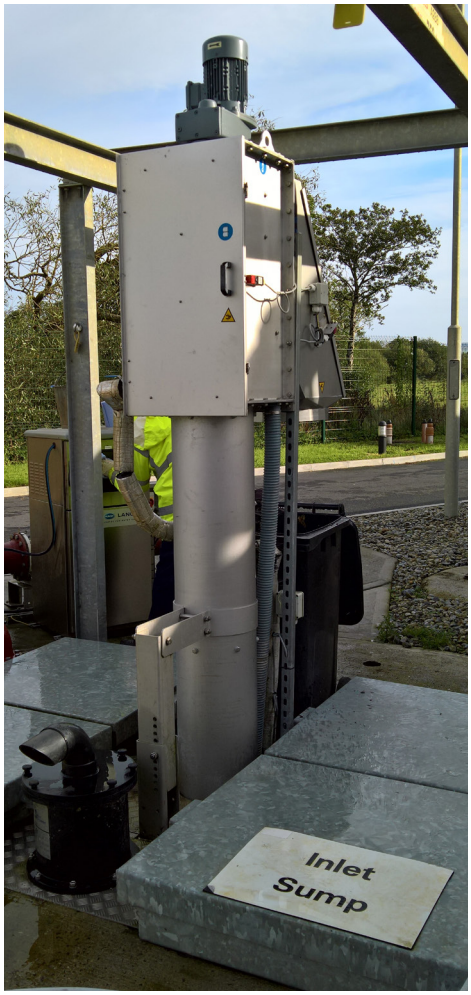
Passavant, Noggerath Johnson Screens,and Contrashear are all well-known brands in the field of water and wastewater treatment, providing a broad range of product and solution portfolio for municipal and industrial screening applications.

Through these brands, Aqseptence Group is able to provide screen designs based on specific application requirements for coarse and fine screening, septage and sludge screening, combined systems, MBR's pre-screening and more.

Other Water and Wastewater Technologies
Passavant, Noggerath Johnson Screens,and Contrashear aren't just known for screens and screening handling technology. These brands also offer their high-quality and superior technology to other parts of the water and wastewater process in both municipal and industrial applications.

The following products are available in the North American market and supported by local sales, engineering and after sales support.

Noggerath® Spiral Sieve Screen (NSI)



The Noggerath® Spiral Sieve Screen (NSI) is designed to be installed in municipal and industrial wastewater treatment plants. NSI screens provide the ability for small facilities to screen, wash, dewater and compact solids out of a waste water stream — whether it be municipal or industrial waste, improving the performance and reliability of downstream treatment processes.

How it works

The NSI combines a screen panel, spiral conveyor and press unit. During operation, untreated wastewater flows into the screen basket where solids larger than the opening size are captured. A continuous layer of solids is formed on the surface of the screen basket resulting in a blinding effect, resulting in reduced open surface area and causing the upstream water level to increase. A level measuring device monitors the respective level of the liquid and at a preset level the drive of the spiral screen is automatically activated to convey the solids up through the screenings wash zone and to the compaction zone prior to being discharged. Brushes fixed to the periphery at the lower section of the spiral clean the screen basket surface resulting in the water level to drop, and the spiral screen drive to automatically shut-off.

Product Variants and Design Sizes

- Capacity: up to 57MGD
- Channel, tank or wetwell installations
- Channel Width: 8 in. – 28 in.
- Channel depth: 30 in. – 78 in.
- Discharge height: customizable based on channel depth
- Opening type: perforations or Vee-Wire
- Opening sizes:
  - 1/8 in. – 1/4 in. (perforation)
  - 0.01" - 1/8" (Vee-Wire)
- Installation angle: 35 – 45° and 90°

Noggerath® Inclined Rotary Drum Screen (RSI)

The Noggerath® Rotary Drum Screen (RSI) is a machine with a revolutionary drive concept. Contrary to conventional technology drives, the drum screen, via its discharge conveyor, drives the drum directly.

How it works
The solids in the wastewater blind the inner surface of the drum basket installed at 35°. The resulting headloss is detected by a differential level control sensor and the drum begins to rotate. The captured solids are removed from the drum by a combination of gravity and spray bar, and are deposited into a conveyor trough located in the center of the drum. The conveyor transports the solids upwards through the washing, dewatering and compaction zones before being discharged into a dumpster or bagging device.

In addition to the channel version for installation in open channels (gravity flow feed) the NTS can also be supplied as a tank version (pump infeed). Depending on the specific application, the screen surface can be perforated, Vee-Wire or mesh (in stainless steel or plastic). In the case of small perforations or respectively mesh covering, the drum screen consists of several drum basket segments which are individually fitted onto the drum and are, therefore, easy to dismantle or replace – e.g. for repair and maintenance.

Product Variants and Design Sizes
- Capacity: up to 57MGD
- Channel width: 36 in. – 120 in.
- Opening Sizes:
  - 1/8 in. – 1/4 in. (perforation)
  - 0.01 in. - 1/8 in. (Vee-Wire)
  - 200 – 1,000 µm (mesh)
- Discharged screenings: up to 35% d.s

Noggerath® Complete Headworks Unit (TOP)

The Noggerath® Complete Headworks Unit (TOP) replace conventional headworks structures in wastewater treatment plants.

The TOP range of complete headwork systems, integrates screening and grit separation' with the option of fat, oil and grease (FOG) removal, all within a single package. The TOP is available with a wide range of screenings process, aerated or non-aerated designs.

How it works
Pumped or gravity feed wastewater enters in the screen section where gross solids are removed from the effluent, washed, compacted and dewatered prior to be discharged into a container. Then screened effluent discharges to a sand trap where grit and sand settlement is included. The grit is conveyed to a grit classifier and can be further washed prior to disposal into a container. The TOP can be combined with a wide range of screens, such as spiral sieves, rotary drum screens and multi-rake bar screens.

Screenings and grit washing systems can also be integrated in a fully encapsulated design.

Noggerath® Band Screen Centre-Flo™ (CF)

The Noggerath® Center-Flo Band Screen is a fully customizable screen suitable for coarse and fine screening of fresh water, sea water and municipal and industrial wastewater. With best in class hydraulic efficiency, integral by-pass, stainless steel enclosure and the ability to utilize slotted, perforated or our new patented honeycomb screen element, the Center-Flo can be designed specifically to A projects design.

How it works

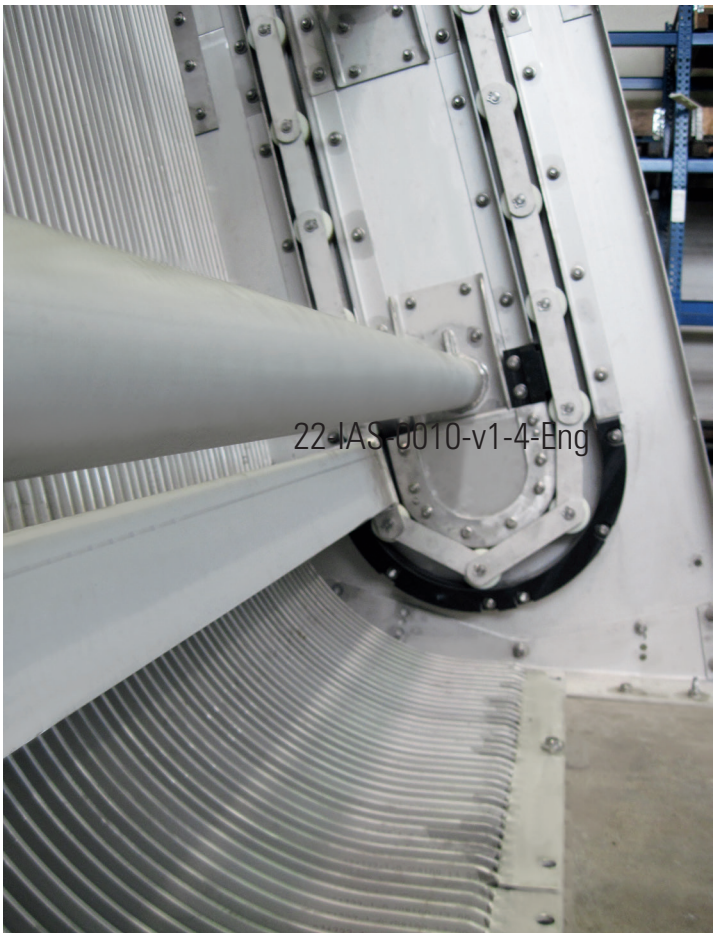
Diverter plates direct incoming flow into the submerged section of the screen, where it undergoes a 90° change in direction to flow through the screen panels. Solids are retained while the screened water passes through for further treatment downstream. Center-Flo band screens are typically controlled via upstream water level or differential level, allowing the band screen to remain stationary in order to build up a mat of screened solids - improving the overall capture rate.

With proven screening capture rates in excess of 85% when using 5 mm openings or less, the Center-Flo band screen is ideal for pre-screening in front of delicate MBR systems. In addition the patented honeycomb panel provides the industry's best hydraulic performance with over 90% open surface area representing from 20 to 40% more hydraulic capacity compared with standard perforated panels.

Product Options

- Screen openings from 1—10 mm (depending on opening type)
- Channel Depth: up to 32 ft.
- Flow rates: up to 68 MGD

Passavant® Multi Rake Bar Screen (KUR)



The Passavant® Multi Rake Bar Screen (KUR) is an update on a proven design. The innovative production processes creates a quality product which is characterized by its economic efficiency and cleaning performance. This is achieved by the utilization of flow-optimized screen bar profiles, which are tailored to hydraulic requirements, together with variably adaptable cleaning elements which can be adjusted, both in type and number, to suit the respective transport task and the requirements of the cleaning cycle.

How it works

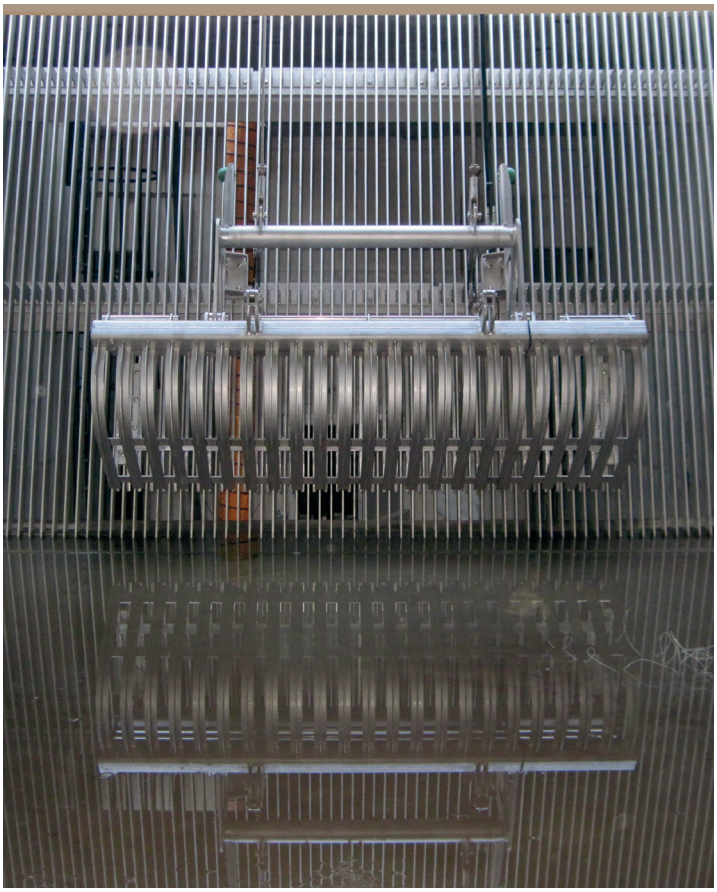
The cleaning cycle starts as soon as the drive is activated, in order to reduce the difference in water levels caused by screenings accumulating in the bar rack. During the ascending cycle, screenings are removed by the cleaning elements which enter into the screen bars. The screenings are then collected and conveyed to the discharge point from where they are pushed, by means of an automatic stripping device, down a discharge chute to the screenings collection tank and conveyor belt. The screen cleaning cycle is repeated until the difference in water levels has been completely removed.

Product Variants and Design Sizes

- Channel width: 24 in. – 234 in.
- Channel depth: up to 65 ft.
- Discharge height: customizable
- Bar spacing :With cleaning combs: 6 – 60 mm
  With brush/scraper: 2 – 5 mm
- Installation angle: 75° - 90°

Passavant® Cable Operated Bar Screen (COB)

The Passavant® Cable Operated Bar Screen (COB) is used as a coarse or fine screen for the mechanical pre-treatment of wastewater. The COB design and PLC control system makes it suitable for heavy screening removal and is able to efficiently remove bulky screenings repeatedly in any position, sand deposited in front of the screen, and screenings trapped between the screen bars which may be impeding the downward flow.



How it works

As screenings build-up on the bar rack, the drive is activated and cleaning of the COB starts in order to adjust a difference in water levels. The grab cleaner is lowered to the screen bars in an open position. When it reaches the channel bottom, it swings into the screen bars. During the cleaning cycle the screenings are collected, transported to the discharge position and then pushed by the scraper device into the container, conveyor belt, etc. The screen cleaning cycle is repeated until the difference in water levels has been adjusted. The grab cleaner then returns to the parking position above operation floor.

Product Variants and Design Sizes

- Channel width: 1.0 – 6.0 m
- Bar spacing: 10 – 150 mm
- Inclination of bar screen: 75° / 82.5° / 90°

Noggerath® Screening Wash Press (NWP)

The Noggerath® screenings wash press offers a simple and reliable solution for washing, dewatering and compacting screenings from any screen. The versatility and flexible manner of the NW makes it ideal to be retrofitted into existing plants.

How it works

The material, which is introduced via the infeed section, is taken up by the conveying screw and moves in the direction of the wash and compacting section. The slotted, or perforated, bottom of the conveyor section enables a static dewatering of the material. In the washing section, fecals are broken up and washed out. In the compacting section, the material is compacted, dewatered further and forced through the friction pipe.

Product Features

- High drainage capacity due to:
  - Vee shaped bars in drainage trough
  - Slots run the length of the Wash Press
- Reduced blockage risk of the drainage section due to direct contact between screw and slotted bottom
- Wear resistant drainage trough bottom
- No "shear forces" as there are no wear rails

Noggerath® Shaftless Spiral Conveyor (SC)

The Noggerath® Spiral Conveyor (SC) is used as a transport device in municipal wastewater treatment plants and industrial applications. The Aqseptence Group has vast experience in the production, design and operation of spirals and spiral conveying systems, for both horizontal and vertical conveyance.

Options

- Support construction (respectively suspension)
- Infeed hopper
- Gate valves for vertical discharge
- Hinged lid
- Swivel discharge chute
- Direct feed from one conveyor into another
- "Live-bottom" systems
- Multiple infeeds and/or discharges
- Bi-directional conveyance
- Heating/insulation

Noggerath® Externally Fed Rotary Drum Screen (RSH-E)

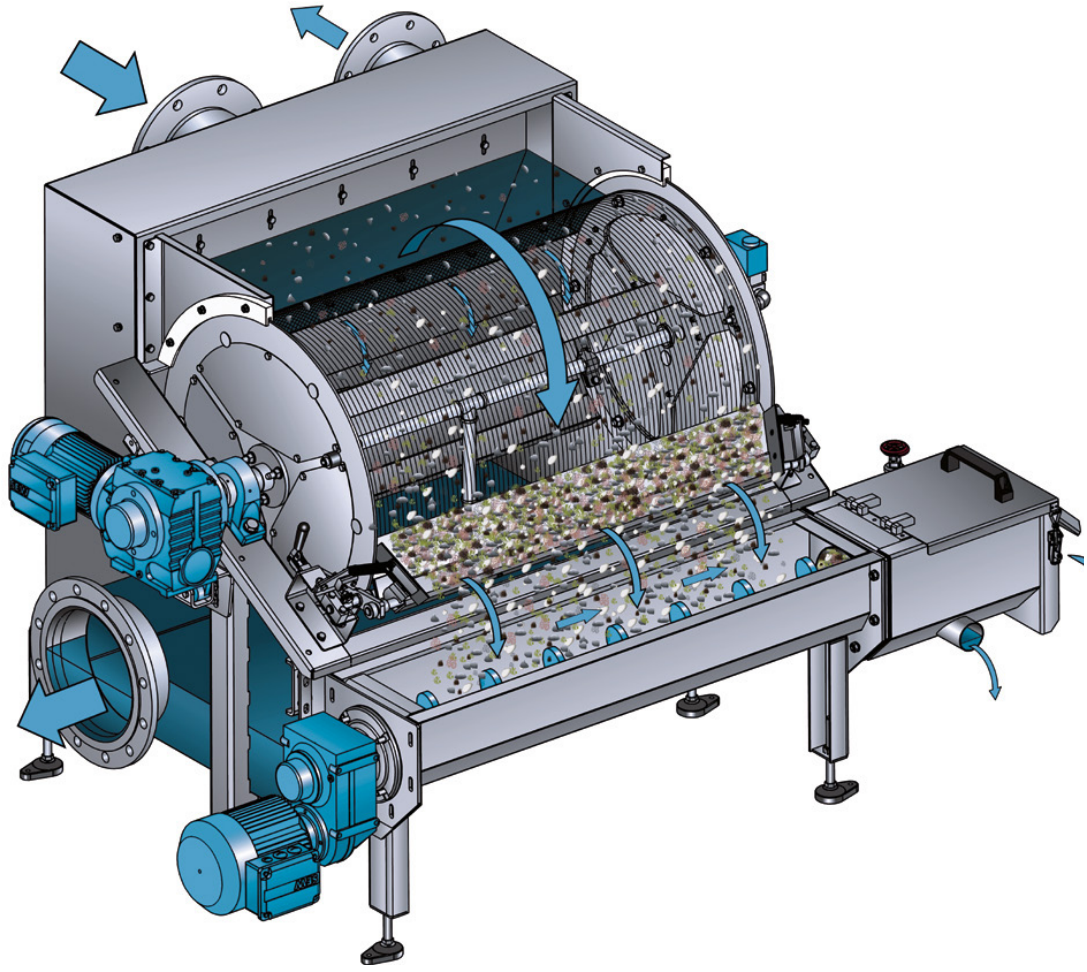
The Noggerath® Rotary Drum Screen (RSH-E) is a continuously operating screening system, with an automatic cleaning device, which separates floating, greasy and sticky solids. The RSH-E is driven by a side-mounted geared motor and an internal water spraying system is integrated into the screening drum (motor shaft designed as a hollow shaft).

How it works

Process water, or wastewater, enters the RSH-E from the rear, via the headbox, onto the Vee-Wire screen drum, where the solids content is separated. The separated solids are then transported from the Vee-Wire screen drum to the solids scraper blade by a continuous gentle rotation and dropped into a solids container, a press or a conveyor.

Product Features

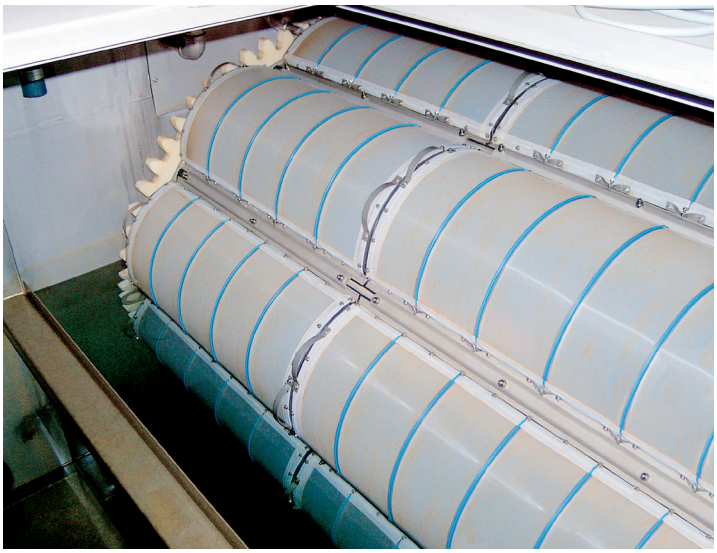
- Vee-Wire openings 0.25—2.5mm
- Throughput up to 4400 gpm
- Integral spray bar
- Completed enclosed
- Bronze solids scraper
- 304 or 316 stainless steel enclosure
- Integrated emergency overflow
- Stainless Steel bearings



Noggerath® Internally Fed Micro Drum Screen (RSH-MG)

Aqseptence Group offers a versatile micro screening drum system which has proven itself as both effective and economical in a wide range of applications. The heart of the RSH-MG is a rotary drum consisting of multiple sieve baskets. Each sieve basket is individually covered with polyester mesh. The system can be installed either in a concrete chamber or in a steel tank. With the Micro-Giant Plus design, Aqseptence Group is focused on the growing demand for water and wastewater treatment and also the increasing application of membrane technology.

The Internally Fed Micro Drum Screen System offers an effective and very economical alternative to conventional sieving and screening systems in municipal wastewater applications.



How it works
The raw water passes through the screen drum cage from the inside to the outside, leaving solid particles on the inner surface of the screen. The resulting blinding effect causes the upstream water level to increase Once a preset differential with the downstream water level is reached the drum begins to rotate.

During the rotating movement, the screen mesh is backwashed with a spraying device from the outside inwards. This spraying device is located in the upper apex of the screen drum. The cleaning of the screen improves the filtration performance and reduces the water level differential, thus stopping the drums rotation.

Noggerath®Grit Washer (GW)

The Grit Washer is designed to wash out the organic matter from pre-dewatered grit trap settings or from sewer sand. The organic materials are mechanically dissolved by means of an integrated agitator, or are swirled up and washed out by an in-feed of washing water in an up current flow process. The washed material is flushed out with rinsing water through the outlet connections and returned to the wastewater treatment plant for further processing. The washed grit is discharged from the washing tank by means of a spiral conveyor, which operates in an interval mode.

Product Features

- Systems for feeding with pre-dewatered material or with liquid/solid mix
- Organic removal rates up to 97%
- Cost saving of up 90% depending on disposal methods
- Reduction in volume of material for disposal due to organic removal
- Increase of organic nutrient supply in the wastewater treatment plant
- Improved gas production in anaerobic sludge digestion

Max Throughputs

- 31 cu.ft/hr at a max infeed of 253 gpm for combined settling and washing vessel
- 35 cu.ft/hr at a max infeed of 950 gpm for separated settling and washing vessels

Contra-Shear® Milliscreen

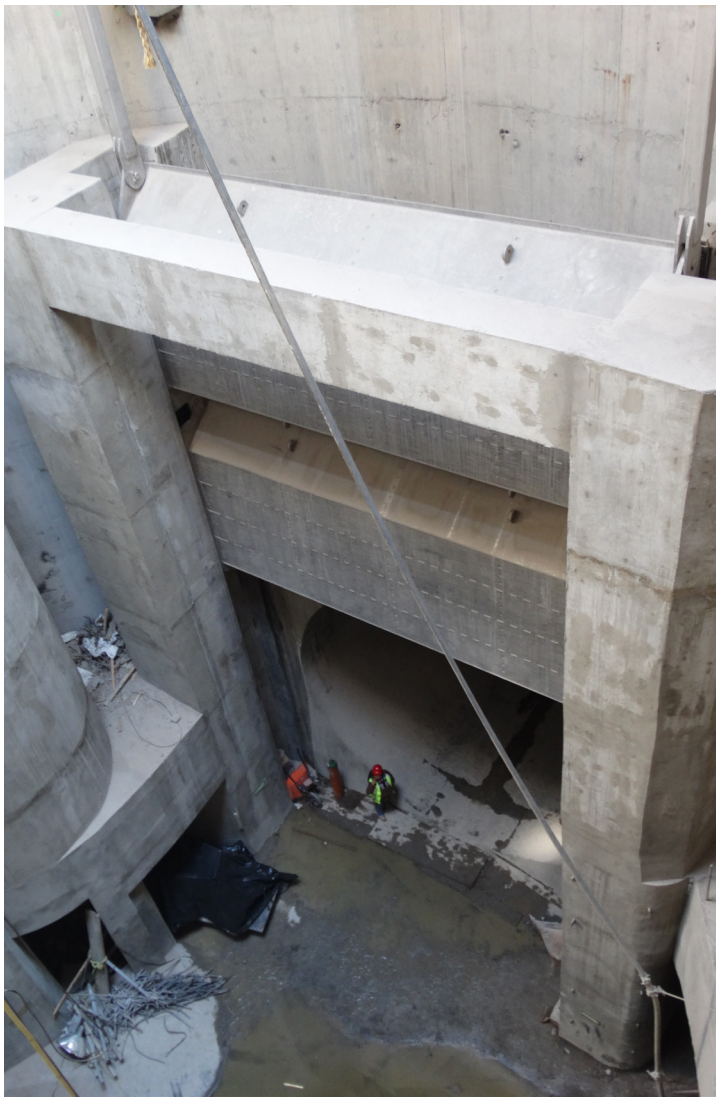
For more than 40 years, the rugged and dependable Contrashear® has provided the ability to separate fine solids from many wastewater types.

The Contra-Shear Milliscreen operates by rotating a screen cylinder against the direction of flow of the incoming liquid. This resistance is achieved through a single weir positioned opposite the movement direction and enhances the shear effect — increasing the separation efficiency. Typical capture rates are around 95% of materials matching the slot size and larger, with even finer materials being captured at rates as high as 50%.

Product Features

- Flows up to 23 MGD
- Drum sizes: 24in to 79in diameter and 24 in to 158 in lengths available
- Continuous slot, Vee-Wire screen
- 304 or 316 stainless steel construction
- Unique long-life trunnions
- Positive drive through chain and sprocket
- Automatic chain oiler
- Scientifically designed infeed tank for smooth flow entry and maximum solids recovery
- Single and dual spray systems
- Anti-friction bearings with relieved grease lubrication

Passavant® Shut-off Devices

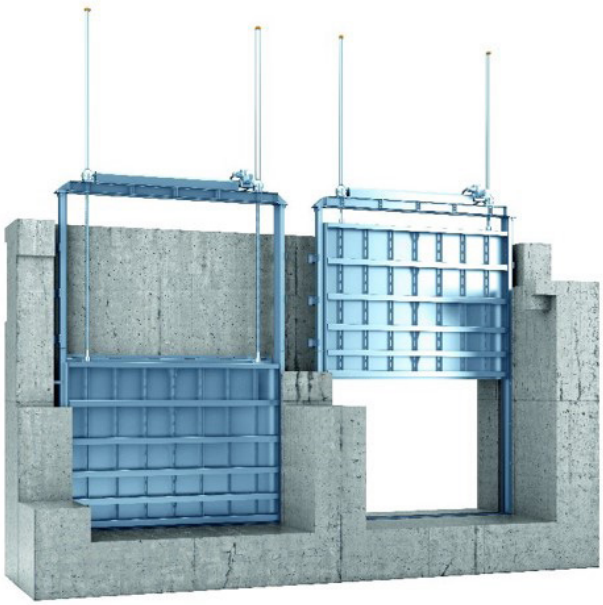


For over 100 years, Passavant® has been designing and building shut-off gates for water and wastewater streams. Stringent quality standards, provide reliable and safe operation for gates of all sizes. Constructed from high strength carbon steel, or varying grades of stainless steel (304, 316 and Duplex), allows for an optimal design for the application.

Stop Plates (sealed on three sides) - For grouting in concrete or for doweling into or in front of the channel. Complies with DIN 18202 & 19569-4, leakage class 2. Suitable for both flow directions. Seal profile double lip or music note shaped profile. Designed to meet static requirements. With crane hooks or lifting beams to lift up/insert the gate. Frame welded from special profiles for grouting or doweling

Sluice Gates (sealed on three sides) - With straight/round/triangular/trapezoid sill. For grouting in concrete or for doweling into or in front of the channel. Complies with DIN 18202 & DIN 19569-4, leakage class 3. Suitable for both flow directions. Designed to meet static requirements. Frame with yoke made of welded stainless steel profiles with double lip seal attached to the side. Flat seal mounted flush in straight sill. Drive on yoke with one or two spindles. All types of actuating possible. Also can be used as a Weir Sluice Gate. Spindles are rolled not cut.

Penstocks (sealed on four sides) - With straight or rounded sill. For grouting in concrete or for doweling in front of the channel. Complies with DIN 18202 & 19569-4, leakage class 4/5. Suitable for both flow directions. Steel welded design in compliance static specifications. Edged profile frame with fixation clamps all around (in the version used with dowels). With replaceable profile seal on all sides (standard double lip). Pressing of seals via sliding strips. Moss rubber sealing between frame and structure. Spindle drive for various below ground and above ground level drives. All types of actuating possible.



Passavant Swing Check Valves (sealed on four sides)
Swing Check Valves for grouting in concrete, doweling or with flange connection. For mounting to the end of a pipe or channel. Sealing on four sides. Design in compliance with DIN 19569-4, leakage class 2. Suitable for both flow directions. Designed to meet static requirements. With elastic seal. Versions with single cap, hollow float cap and with lever/counterweight. Versions for gravity pipelines or as an option with impact dampening for pump pressure lines.

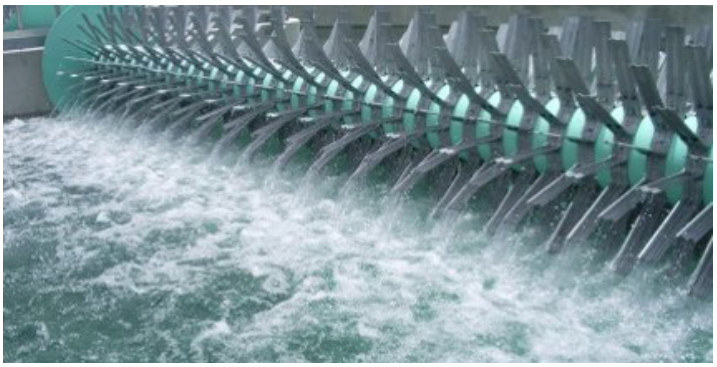
Passavant® Surface Aerator - Mammoth Rotor®

The Mammoth Rotor® provides reliable and efficient oxygen transfer, with effective horizontal mixing and activated sludge circulation, for the optimal activity of microorganisms and extraction of pollutants in biological wastewater treatment systems.

- Robust operation and long service life
- Consistent oxygen input throughout the entire service life
- Maintenance can be done above the waterline
- No negative influence on oxygen input through wastewater content -α-factor is 1

How it works

With the Mammoth Rotor, oxygen transfer occurs by means of intensive mixing and turbulence of the phase boundary between the air and the wastewater/activated sludge, directly at the rotor. This ensures sedimentation-free operation in tanks with a depth of up to 11 ft. In deeper tanks, up to 26 ft., the mixing process is supported by additional agitators which allow an intermittent mode of operation, in addition to the continuous mode. The oxygen enrichment efficiency and the cost effectiveness of the system, are further enhanced by the optional installation of guide baffles mounted transversely to the outflow of the aeration rotors.



Design Features

The heart of the Mammoth Rotor is the rotor itself; a central shaft with clamped star blades made of fiberglass reinforced plastic. The offset arrangement of the blades ensure quiet, shock-free operation. The straight bevel gear drive and end bearing allow for a low-maintenance operation. The gear unit – just as the end bearing – are made by Passavant for this demanding application.

Johnson Screens® Triton® Underdrains Gravity Sand Filter

The Triton® Underdrain is designed for the collection and backwash distribution of water and air, all while directly retaining filtering media. With its large open surface area, the lowest headloss, and world-renowned Vee-Wire screen technology, Johnson Screens' Triton Underdrains offer a unique design suitable for any filter media.

With simple installation, and low headloss, Triton Underdrains are less expensive to install, operate and maintain. The uniform bubble pattern of the Triton underdrain system allows for vigorous air/water backwashing without media upsets. Improved backwashing results in longer filter runs, less backwash water used and a cleaner, and a more efficient filter bed.

The combination of Triton's Vee-Wire having a 6% open area and 108% basin floor coverage with a scalloped shape, allows for the lowest headloss across the underdrain, which translates to lower power costs for backwash pumps. The Vee-Wire design offers an essentially plug-free media support surface, allowing for an expanded selection of media, compared with alternative underdrain designs, allowing for greater operational flexibility.

Product Variants

- PVC, 304/316 Stainless Steel Construction
- Standard slot width: 0.005 in
- Filtration rates: 2-10gpm/sq.ft.

Johnson Screens® 120° Sieve Bend Screen

Johnson Screens' 120° Sieve Bend Screen are used in static sieves for either dewatering or classification.

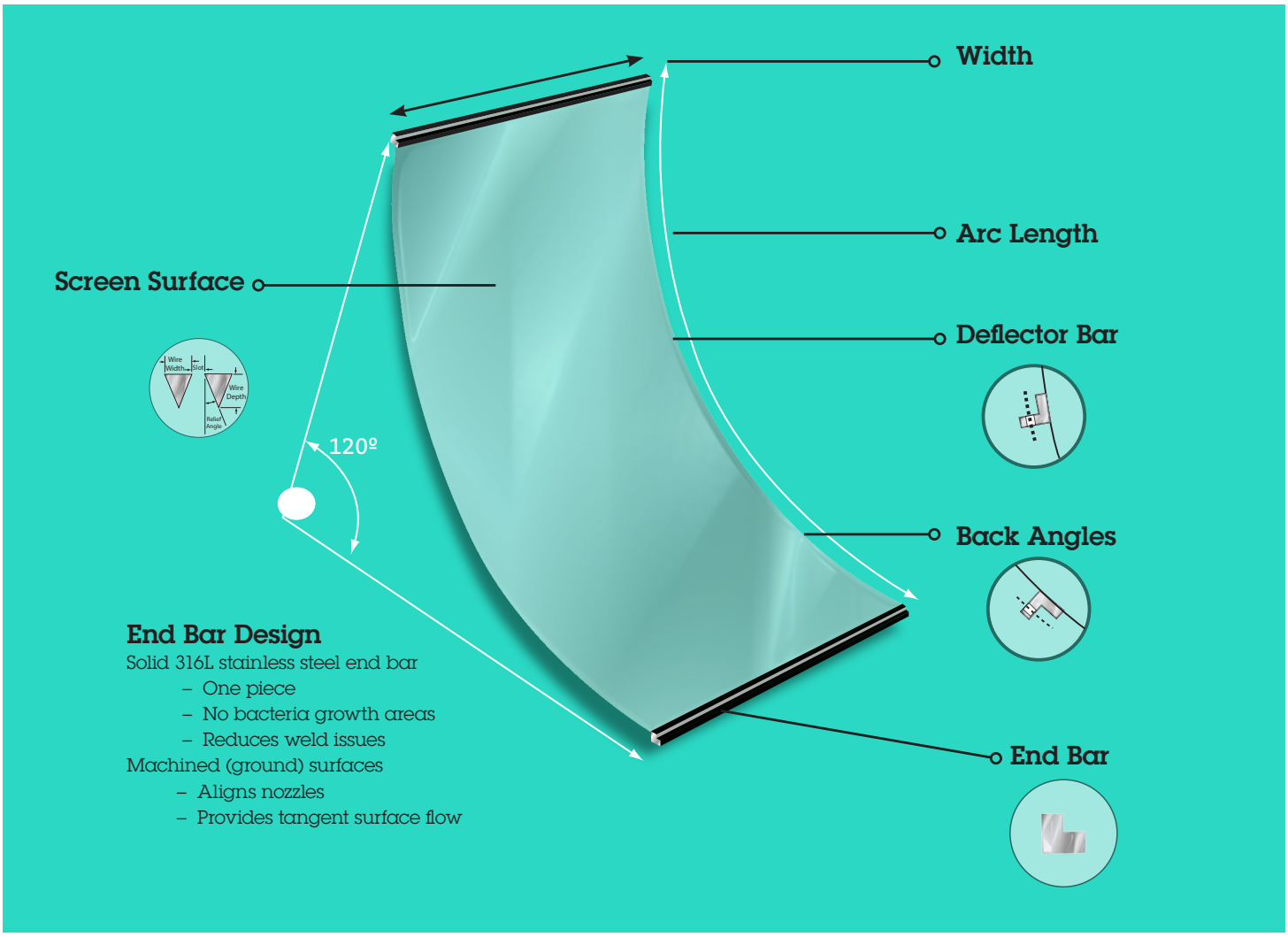
As the slurry flows over the inclined screen surface, the perpendicular layout of the wires to the flow, allows for solids to be retained while liquid passes through the screen.

Made from Vee-Wire screens, the 120° Sieve Bend Screen can provide up to 50 percent more open area with a narrower wire profile.

With a number of manual-handling restrictions, Johnson Screens has developed an innovative split-sieve design. This design offers a simple, economical benefit by reducing the physical size and the weight of the screen.

Design Features

- Reduced equipment and installation costs
- Low maintenance costs
- Better flow rate and finer fiber removal
- Wide range of applications
- Longer screen life
- Slot sizes range from 25 µm to 0.394 in. (10 mm)
- Made with 300 series stainless steel



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