



PARTNERING WITH MUNICIPALITIES AND
INDUSTRY TO IMPROVE THE QUALITY OF
OUR WATER RESOURCES SINCE 1928



Cleaner Water for a Brighter Future®





Experts in Treatment Equipment and Process Solutions since 1928

Lakeside Equipment Corporation is a proven provider of reliable, efficient, cost-effective equipment for the treatment of municipal and industrial wastewater. With a wide range of systems and products for virtually all stages of wastewater treatment, from influent to discharge, Lakeside offers consulting engineers and plant operators the assurance of the highest quality performance. When Lakeside equipment is specified for their projects they know they will receive the correct equipment to meet their plant's requirements in all phases of water treatment.

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Screw Pumps

Bearing design and trouble-free operation are hallmarks of Lakeside screw pumps. The built-in variable capacity automatically adjusts the pumping rate and power consumption while operating at a constant speed to match the incoming flow. Lakeside's screw pumps have a high rate of acceptance by engineers for their ability to lift wastewater efficiently at any stage of the treatment process in a wide variety of applications.

- Wastewater plant lift stations
- Return activated sludge
- Stormwater pumping
- Land drainage
- Industrial applications

Effective Operation and Greater Savings

- Lower operating costs
- Reduced maintenance and repair
- Non-clogging operation
- Minimal head
- Elimination of variable-speed electrical controls

Lakeside screw pumps efficiently lift large quantities of water at low heads in a variety of applications—from return activated sludge to stormwater pumping.

Patterned after the Archimedean screw, the pump's assembly consists of a simply designed screw, upper bearing, lower bearing and drive arrangement. Because bearing construction is critical to the life of the screw pump, we have developed the best bearing assemblies available for long life and reduced costs. By determining the maximum flow and the maximum lift and the inclination and screw speed required, our engineers can design a screw pump to meet every need.



▲ Type C Screw Pumps



▲ Type S Screw Pumps

▼ Open Screw Pumps



Raptor® Screening Products

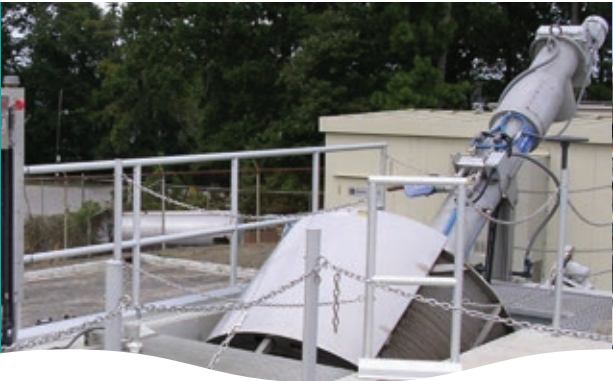
Highly efficient Lakeside screening systems offer multiple functions in each product. It's no wonder that our equipment is preferred among plant operators for its simple operation and minimal maintenance. Our innovative screen solutions and technology are designed to serve a wide range of applications:

- Wastewater
- Septage, sludge and scum screening
- Screenings washing and compaction
- Package headworks

Raptor® – Around the World

Often exceeding the expectations of plant operators and consulting engineers, our *Raptor®* products meet the varying needs of municipalities and industries in installations around the globe.

- Maximum removal efficiency
- Minimal head loss
- Screen, wash, compact and dewater in one operational unit
- Controls included
- Minimal maintenance
- All stainless steel construction
- Long service life



Raptor® Fine Screen



Raptor® Micro Strainer



Raptor® Rotating Drum Screen

Raptor® Fine Screen

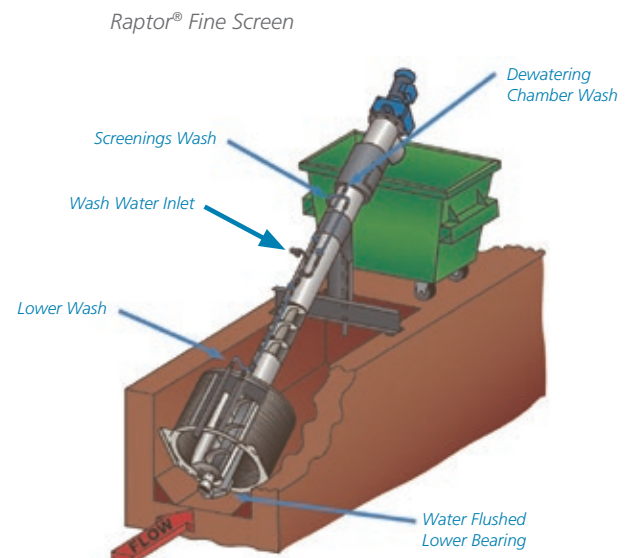
Handles wastewater, septage, sludge and scum screening reliably and effectively. Is equipped with a cylindrical bar screen and a rotating, full penetrating rake assembly.

Raptor® Micro Strainer

Often installed in small treatment plants and industrial facilities and is equipped with a perforated basket and spiral screw.

Raptor® Rotating Drum Screen

Its high removal efficiency meets the needs of MBR designs and is an excellent screening solution for applications requiring removal of small particles.



Raptor® Septage Acceptance Plant

Removes debris and inorganic solids from municipal, industrial and septic tank sludges. This heavy-duty machine incorporates the Raptor® Fine Screen for screening, dewatering and compaction. Accessories include grit and rock removal as well as security access and automated accounting systems.

Raptor® Septage Complete Plant

With the addition of aerated grit removal, the Septage Acceptance Plant is offered as the Raptor® Septage Complete Plant (a slight variation of the Raptor® Complete Plant).

Raptor® Multi-Rake Bar Screen

Its rapid cleaning cycle, durability and minimal headroom requirement makes this screen ideal for a wide variety of screening applications. The Raptor® Multi-Rake Bar Screen easily retrofits into existing channels.

Raptor® Wash Press

Cleans and compacts screenings, combining a two-stage process into one step that reduces volume and weight of the screenings to lower disposal costs. Its reversing function crushes and breaks up materials for improved cleaning. The forward motion performs the washing and compaction.



Raptor® Septage Acceptance Plant

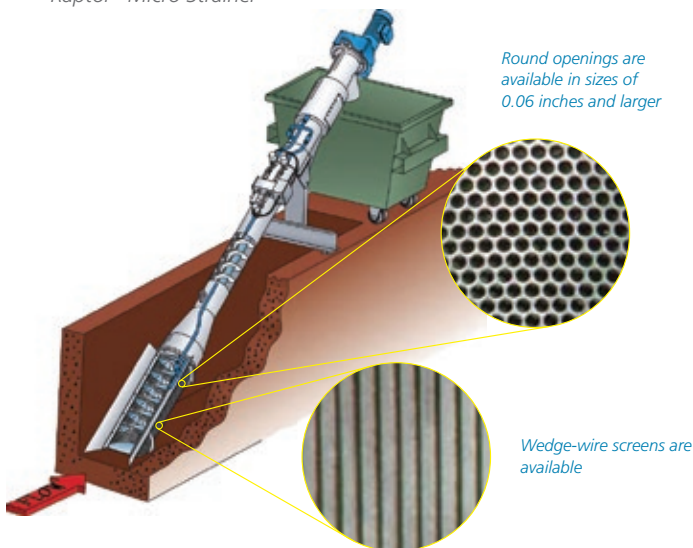


Raptor® Septage Complete Plant

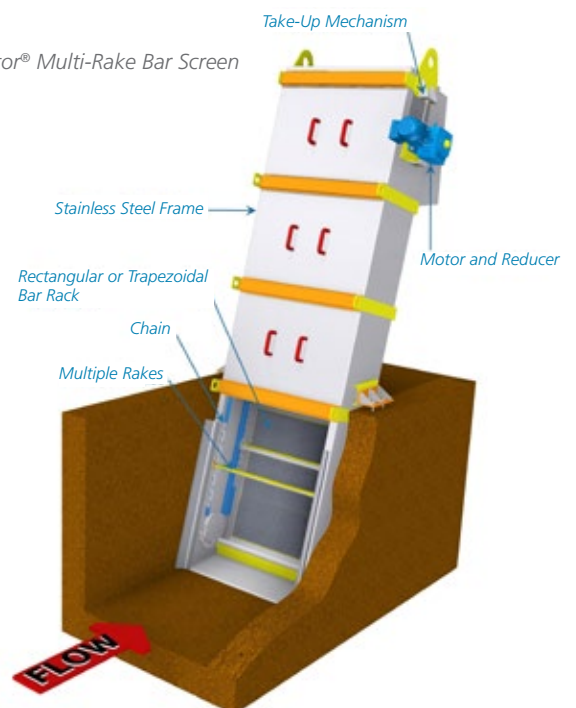


Raptor® Wash Press

Raptor® Micro Strainer



Raptor® Multi-Rake Bar Screen



Trash and Screen Rakes

Hydronic Series Trash Rakes

Hydraulically operated, the Hydronic T Series Rake's telescoping boom and rake mechanism cleans coarse and fine bar screens, trash racks and intake screens. Its telescoping design requires less headroom, resulting in savings for indoor headworks with deep channels or when retrofitting existing screens. And because the Hydronic T Screen does not require guides, sprockets or chains, all moving parts can be accessed from above the channel for ease of operation and maintenance in screening wastewater, stormwater and water intakes.

The Hydronic Type K Series Trash Rake is hydraulically operated and capable of cleaning screens up to a depth of 100 feet. The articulating design gives the rake arm a long reach suitable for manual surface skimming and removing large objects, such as trees, barrels and rootstocks, in the following applications:

- Hydro power plants
- Wastewater treatment plants
- Potable water treatment stations
- Pumping stations
- Industrial and power plant water intakes

Hydronic T Screen



Grab Rake



Type K Series Trash Rake



Multi-functional Series



Hydronic M-5000



Monorail



Catronic Traversing Type SV

HY-TEC Screen



Horizontal Series Trash Rake



HY-TEC Screen (Bypass Side)

Catronic Series Trash Rakes

With a rack cleaner that is highly efficient for heavy-duty screenings, Catronic Series Trash Rakes offer a lifting capacity up to 10 tons. The rake is lowered to the bottom of the basin by a cable winch while a separate cable positions the rake for cleaning. Catronic Series Trash Rakes provide an efficient method for cleaning intake structures up to 200 feet deep and 600 feet wide.

Monorail Series Trash Rakes

The Monorail system is designed specifically for wastewater treatment plants, stormwater facilities and water intake structures. It combines screening and transporting into one unit with an overhead monorail, traversing trolley, hydraulically operated grabber rake and control system.

Horizontal Series Trash Rakes

Hydronic Horizontal Trash Rakes are used to clean racks with horizontal bars. The hydraulically operated rake pivots into the rack and then moves sideways to clean the rack. The screenings can be washed away at the end of the rack or collected using a grab rake.

HY-TEC Screen

Lakeside's proven technology is apparent in the HY-TEC Screen, which features combs with uniquely shaped teeth to clean the horizontal bar rack while retaining solids in the main flow stream. Mounted on a hydraulically driven frame, the combs move back and forth during a cleaning cycle that is initiated at a preselected liquid level or head differential. HY-TEC CSO Screens are ideal for a number of applications, including wastewater bypass, combined sewer overflow and storm sewer overflow.

Package Headworks Systems

Lakeside offers a number of plant systems that combine two or more operations, i.e., screening and grit removal, into one self-contained fully automated unit. This equipment offers economy of scale and ensures that all the components function together effectively, resulting in initial cost savings in design as well as reduced maintenance costs through the years.

Raptor® Complete Plant

The Complete Plant screens inorganic solids from municipal wastewater and removes grit as well. The Complete Plant can be installed either above or below ground in its fabricated stainless steel tank. As an option, the grit chamber can be equipped with a grease trap operated manually or with a motorized skimmer.

- Simple design and operation minimize maintenance costs
- Stainless steel resists corrosion and increases service life
- Major components are pre-assembled, minimizing construction costs
- An enclosed transport conveyor and optional bagging attachments reduce odors and keep a clean work environment
- The single operational unit provides low head loss and increased treatment efficiency



The Raptor® Complete Plant combines screening and grit removal into one self-contained, fully automated unit.



H-Pac®

Lakeside's *H-Pac®* combines its *Raptor®* or Hydronic T Screening product line with its SpiraGrit Vortex Grit Chamber into an elevated pre-engineered headworks system for screenings and grit removal in one unit. The *H-Pac®* is a self-contained system in a fabricated stainless steel tank. It handles flows as high as 12 mgd and can be installed above or below ground. Its compact design requires less space and costs less than other packaged screen/grit systems.

- Reduced engineering costs
- Money saving integrated design eliminates need for concrete forming, added piping and valves
- Reduced operating costs
- Low headloss
- Superior corrosion resistance
- Easy access for maintenance



Raptor® Screening Line



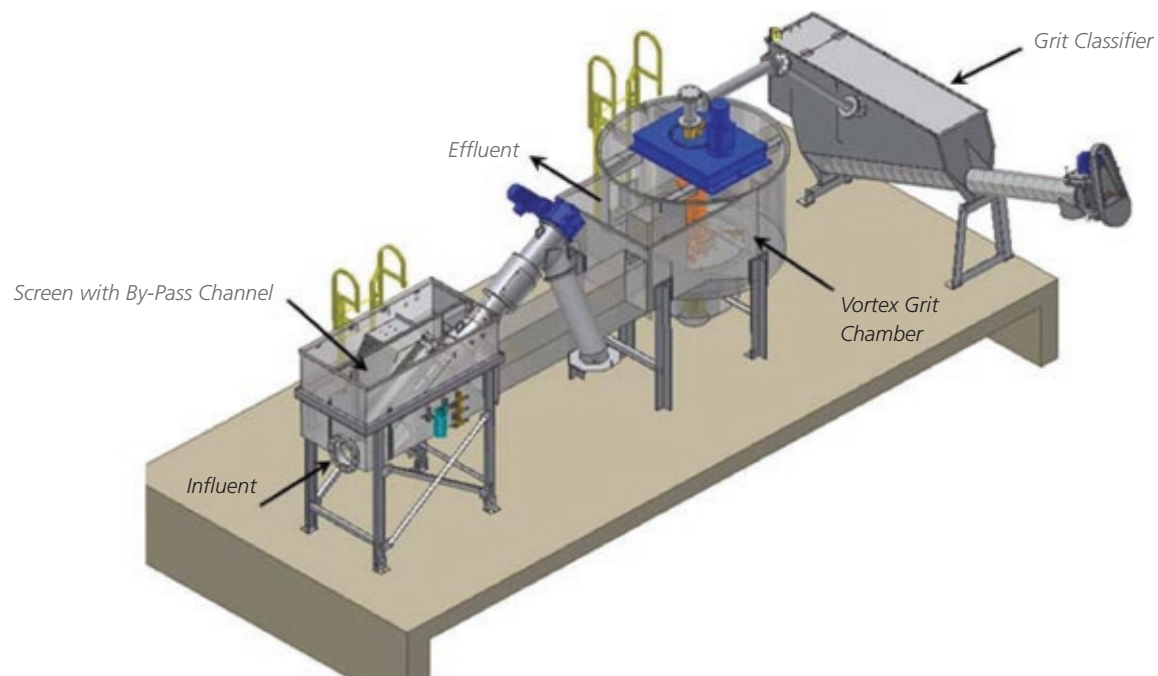
SpiraGrit Vortex Grit System



Hydronic T Screen System



Raptor® Wash Press



Grit Collection

Abrasive grit is the enemy of all mechanical equipment, reducing digester and/or aeration tank volume, clogging piping and treatment units and increasing wear on pumps and valves. Lakeside offers simple, low cost methods to remove grit effectively and enhance plant performance, reducing overall operating costs.

SpiraGrit

The Lakeside SpiraGrit Vortex Grit Chamber effectively removes inorganic grit from treatment plant influent in a mechanically induced vortex environment. It operates efficiently over a wide range of daily flow rates. Rotating paddles maintain the flow velocity in the vortex chamber, keeping organics in suspension while allowing heavier grit to settle at the chamber floor. The settled grit moves through the center opening and into the lower grit hopper, where it is removed by either an air lift, a recessed impeller or a self-priming grit pump and sent on to the Grit Classifier.

- Space-saving compact design
- Highly efficient
- Performs in all flow conditions
- Simultaneous separation and dewatering
- Easy to maintain

Aeroductor

With the Lakeside Aeroductor, air is injected into an eductor tube located in the center of the basin, creating a vertical pumping action. The resulting circulation keeps organics in suspension and allows the heavier grit to settle at the bottom where it is scoured, washed and collected in a central hopper.

- No submerged moving parts
- Simultaneous grit washing and separation
- Low head loss requirements
- Low cost straight wall construction

Aeroductor

SpiraGrit and Type W Grit Classifier



▲ Aeroductor

▼ SpiraGrit



Inline Grit Collector

Because it provides a low-cost method for removing grit, the Inline Grit Collector is ideal for smaller installations in plants with a peak flow less than 2.0 mgd. Water flows in one end of the settling hopper, under a baffle, up and over an adjustable weir and out to the next unit in the treatment process. The grit settles into the screw trough and is conveyed from the system and free water drains out.



Inline Grit Collector



Raptor® Grit Washer



Model L Grit Classifier

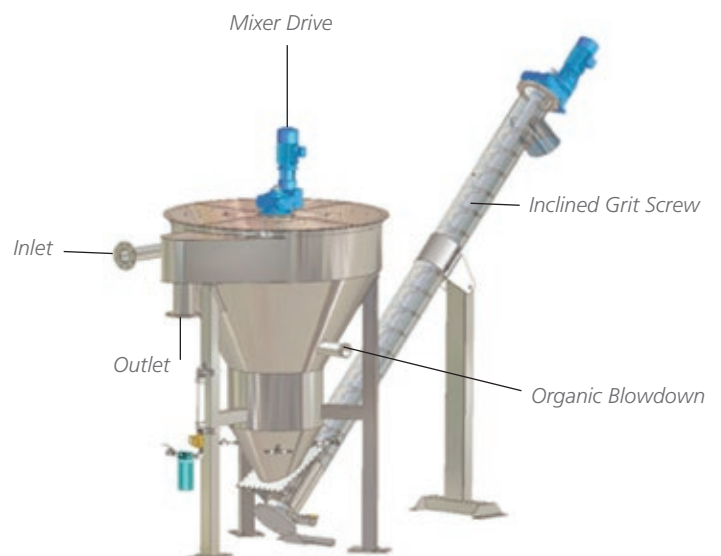


Type W Grit Classifier

Raptor® Grit Washer

The *Raptor®* Grit Washer combines natural gravity forces with a circular and conical design to provide the highest cleaning efficiency for various flow rates. Discharge is typically 90% dry weight or greater and organics are less than 5%.

- Highest grit discharge quality
- Vortex grit and organic separation
- Gentle grit agitation and washing
- Two-stage organic separation
- Compact footprint
- Operates over a wide flow range
- Stainless steel construction



CLR Process

The Closed Loop Reactor (CLR) process, a modified form of the extended aeration complete mix process, provides biological nutrient removal using nonproprietary designs. CLR processes produce removal efficiencies that meet and exceed those of advanced tertiary treatment processes. BNR configurations are available with in-basin designs for nitrification and denitrification, as well as external selector configurations for Bio-P and Total N Removal.

Process Monitoring and Control Systems

Process Monitoring and Control Systems can be provided to continuously monitor and adjust the operation of the biological reactors to optimize process performance and reduce power costs.

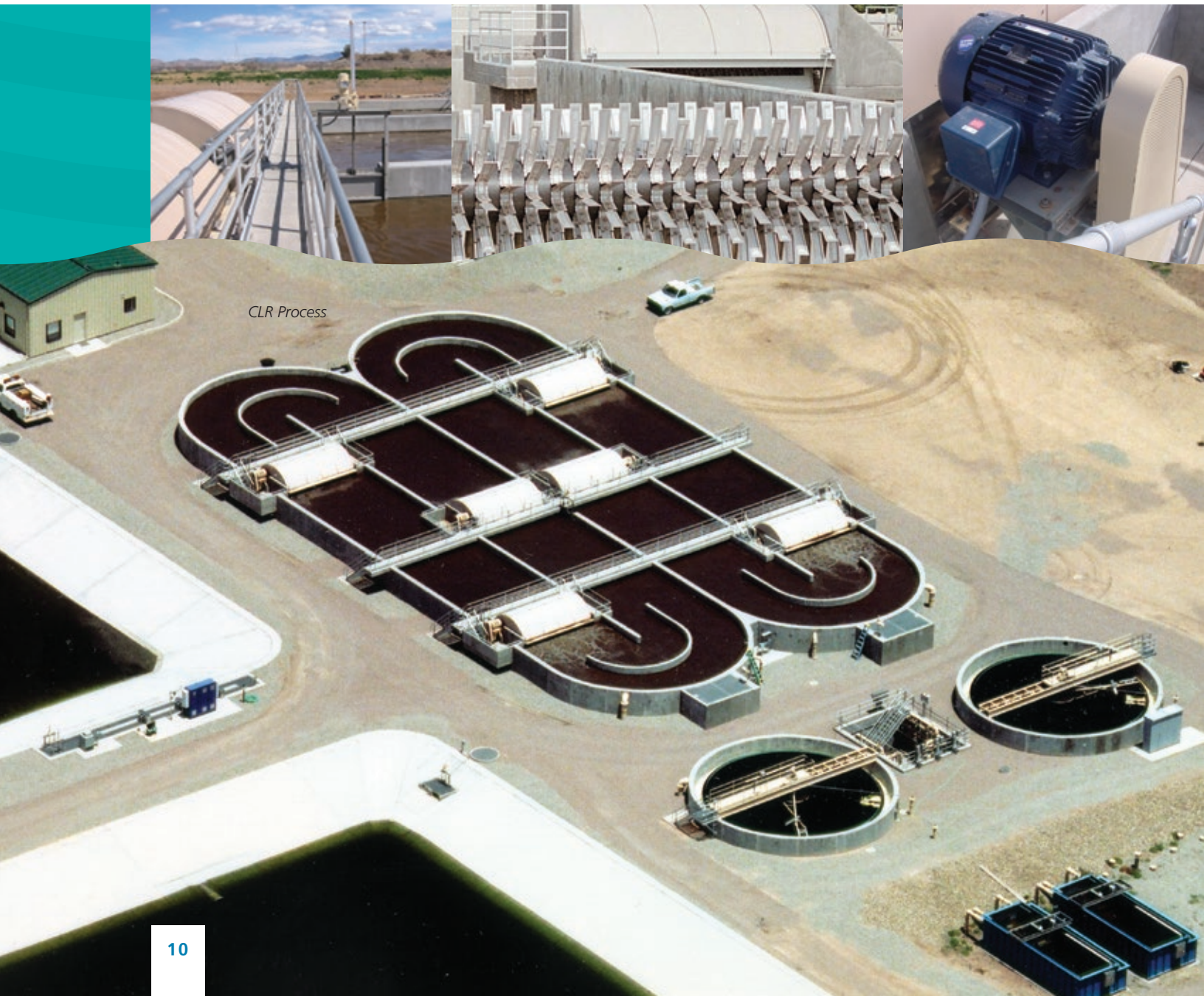


Process Monitoring and Control Systems

CLR Process

Magna Rotors

Magna Rotor Shaft Mounted Drive



Magna Rotors

A vital component of the CLR process is the horizontal, bladed rotor aerator. Lakeside's Magna Rotor Aerator provides oxygen and mixing to the basin with reliable operation and high efficiency.

- Complete mixing for aeration basins
- Greater O₂ transfer than any other mechanical surface aerator
- Shaft mounted drives allow flexibility for speed changes and easy access for maintenance and operator convenience

Rotor Covers



Rotor Baffles, Covers & Level Control Weirs

Lakeside Rotor Covers extend over the baffles to contain mist and spray, improving the safety and appearance of the plant. Velocity Control Baffles direct flow downward creating a rolling motion to ensure uniform distribution of oxygen throughout the basin. By adjusting the Effluent Weir, the operator can control the oxygen input into the basin to optimize treatment and save energy costs.

E.A. Aerotor

The E.A. Aerotor combines the CLR process with the SpiraFlo Clarifier for a complete treatment system. Its common wall design creates a small footprint, which lowers construction costs. This package system is capable of providing the same treatment results as stand-alone CLR processes.

E.A. Aerotor



Submersible Products

Lakeside's submersible products are an excellent complement to the CLR process for BNR applications or energy conservation. Mixers are available at slow and medium speed, and the recirculation pumps can move large quantities of liquid at low head in wastewater treatment plants and in industrial applications.

- Propeller design for optimum flow
- Triple shaft sealing system
- Pressure tested waterproof motor cast, IP 68 rated
- Rugged planetary gear systems for ideal speed and efficiency
- Stainless steel propellers and mounting equipment
- Lower horsepower required than direct drive products

"The process is very stable. The plant takes the storm surges and goes right on producing a great effluent."

Plant Superintendent



POPL-I Low Speed Mixer



POP-I Medium Speed Mixer



AXP-I Recirculation Pump

Clarification

Spiraflo Clarifier

The Lakeside Spiraflo Clarifier's peripheral-feed design provides the best hydraulic flow pattern and minimizes many problems associated with centerfeed hydraulics. Both full-scale and model testing conducted by independent laboratories have confirmed that the Spiraflo Clarifier performs two to four times better hydraulically than centerfeed clarifiers.

- Produces highest quality effluent
- Improves sludge collection and removal
- Promotes full utilization of tank volume
- Eliminates short-circuiting
- Handles peak flows effectively
- Retains suspended solids in the sludge blanket
- Eliminates sludge wall creep that is created by the waterfall effect in centerfeed clarifiers

Spiraflo Clarifier

Spiraflo Clarifier



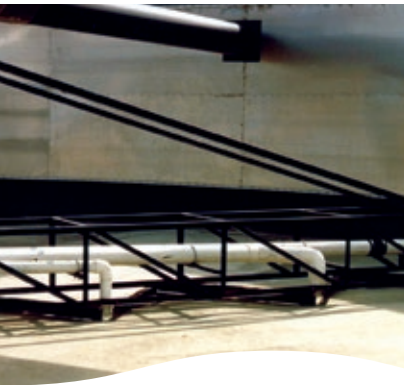
Spiraflo Clarifier

Spiravac Clarifier

In addition to providing all of the benefits of the Spiraflo, Lakeside's Spiravac Clarifier removes solids from the tank floor hydraulically. Sludge removal is offered in two designs: an adjustable riser pipe in a revolving sludge well and suction header.

Full Surface Skimming

Lakeside's Motorized Full Surface Skimmer and Full Surface Ducking Skimmer provide positive skimming by removing floating material from the entire surface of the main settling area.



Individual sludge removal pipes in the controlled removal (CR) design



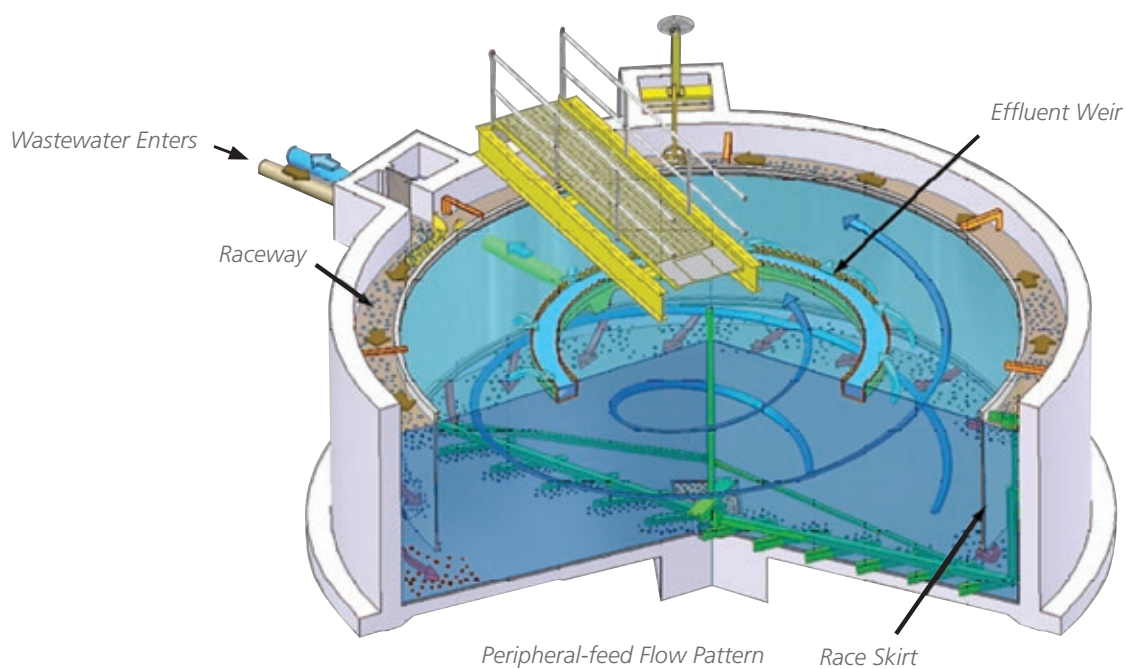
Common header pipe in the direct removal (DR) design



Full Surface Skimming



Ducking Skimmer



Treatment equipment and process solutions from Lakeside Equipment Corporation

Lakeside offers a wide range of equipment and systems for virtually all stages of wastewater treatment from influent through final discharge. Each process and equipment item that we supply is manufactured with one goal: to reliably improve the quality of our water resources in the most cost-effective way. We have been doing just that since 1928.

Screw Pumps

- Open Screw Pumps
- Enclosed Screw Pumps

Raptor® Screening

- Fine Screen
- Micro Strainer
- Rotating Drum Screen
- Septage Acceptance Plant
- Septage Complete Plant
- Complete Plant
- Multi-Rake Bar Screen
- Wash Press

Screen and Trash Rakes

- Hydronic T Series
- Hydronic K Series
- Hydronic Multifunctional Series
- Hydronic H Series
- Catronic Series
- Monorail Series
- HY-TEC Screen
- CO-TEC Screen
- RO-TEC Screen

Grit Collection

- SpiraGrit
- Aeroductor
- In-Line Grit Collector
- Raptor® Grit Washer
- Grit Classifier
- H-PAC®

Clarification and Filtration

- Spiraflo Clarifier
- Spiravac Clarifier
- Full Surface Skimming
- MicroStar® Filter

Biological Treatment

- CLR Process
- Magna Rotor Aerators & Accessories
- Sequencing Batch Reactors
- Package Treatment Plants
- Submersible Mixers & Recirculation Pumps

Hauled Waste Receiving Systems

- Raptor® Septage Acceptance Plant
- Raptor® Septage Complete Plant

Package Headworks Systems

- Raptor® Complete Plant
- H-PAC®

Biological Treatment Systems

- CLR Process
- Package Treatment Plants
- Sequencing Batch Reactors



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