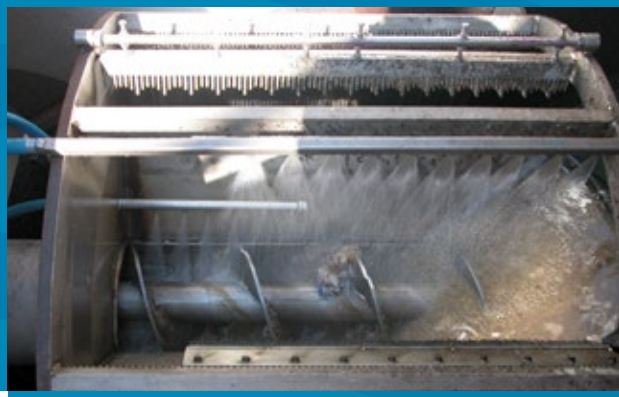
Raptor® Complete Plants

For Municipal Wastewater
and Septage Applications

LAKESIDE
EQUIPMENT CORPORATION
Water Purification Since 1928

Cleaner Water for a Brighter Future®



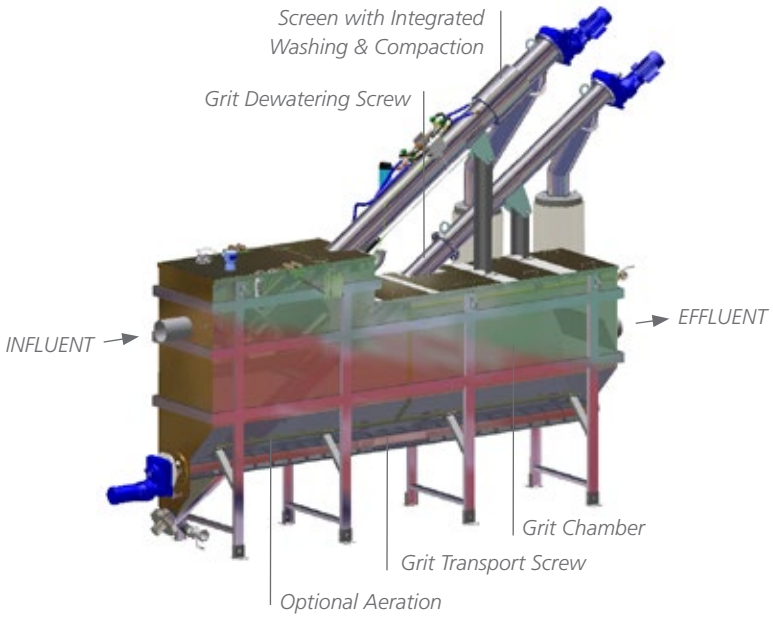
Raptor® Complete Plant

Accepted worldwide as a highly efficient preliminary treatment method, the *Raptor*® Complete Plant is a unique system that combines screening and grit removal into one self-contained unit for treating municipal wastewater.

The fully automated unit is supplied in a pre-engineered stainless steel tank and equipped with a *Raptor*® Fine Screen, Rotating Drum Screen, or Micro Strainer plus grit dewatering and transport screws in the grit removal chamber. The *Raptor*® Complete Plant can be installed either above or below ground.

- Screens, washes, compacts and dewaters more inorganic solids than conventional units
- Removes and dewaters grit

Raptor® Complete Plant Flow Diagram



The unit is constructed of stainless steel for increased corrosion resistance.

Optional grease removal system

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

Screening

Wastewater flows into the plant's screening basket that retains solids without clogging. Screened material is removed from the screening basket and is spray washed to return organics to the waste flow. The screened material is then transported up the unit's central screw conveyor to storage containers. During transport, the screened material is washed a second time, then compacted and dewatered to a solids content of up to 40 percent.

Grit Collection

The wastewater that flows through the screening basket passes directly into a grit removal chamber. Grit removal is 90 percent of 65 mesh and larger material. Grit settles to the floor of the grit chamber and a grit transport screw moves the settled grit to a sump. The transport screw moves the grit against the wastewater flow creating crosscurrents that help keep organics in suspension. The grit chamber can also be equipped with aeration to maintain organics in suspension.

A grit dewatering screw transports the settled grit out of the sump and dewaters the grit before it is discharged. The grit can be disposed of with the inorganic solids collected by the *Raptor*® screen, or the grit can be disposed of separately.

Aeration

For treatment plants with wide variations in flow, the grit chamber can be equipped with aeration to help control circulation in the unit. The circulation keeps organics in suspension and allows grit to settle to the tank floor regardless of any variation in flow capacity.

Grease Trap

To improve the overall performance of the *Raptor*® Complete Plant and to improve the downstream process operation, the grit chamber can also be equipped with an optional grease trap. Excess grease can be removed manually or a motorized skimmer can be provided.

Optional insulation and heating system available for outdoor/cold climate applications.

The Complete Plant can be designed with a hook-up for disposal of tankered septage.

Features and Benefits

- Pre-engineered by Lakeside to reduce your engineering costs
- Integrated design eliminates expensive concrete forming, as well as added pipes, valves, gates associated with conventional installations
- Small footprint reduces total building volume, saving heating expenditures in cold climates
- Combined screening and grit removal minimizes building size and reduces overall construction costs
- Low headloss saves pumping costs
- All-stainless steel construction assures long equipment life
- Pre-assembled components permit quick and easy installation in a single day
- Easy exterior access for maintenance
- Integrated controls save installation costs
- Enclosed transport and optional bagging attachments reduce odors and ensure a clean work environment
- Heavy duty *Raptor*® Fine Screen, *Raptor*® Rotating Drum Screen, or *Raptor*® Micro Strainer provide superior efficiency, durability and prolonged life for lower operational costs

Options

- Aerated grit chamber
- Insulation and heating system for outdoor and cold climate applications
- Hook-up for disposal of tankered septage
- Available with optional grease trap

Raptor® Septage Complete Plant

Features aerated grit removal.

Available with continuous or individual bagging.

Optional design with two valves to accept loads from two trucks at once.

In addition to municipal and industrial waste, many wastewater treatment plants process septic tank sludges that contain debris and inorganic solids that can negatively impact downstream equipment, decreasing the effectiveness of aeration, dewatering and filtering equipment.

To solve this issue, Lakeside offers its *Raptor*® Septage Complete Plant, a self-contained, fully automatic unit that removes materials that typically pass through a conventional bar screen. Anchored by the reliable *Raptor*® Fine Screen, the *Raptor*® Septage Complete Plant simply and efficiently pretreats the increasing amounts of sludges processed at wastewater treatment plants. Operators welcome the unit's dependability, minimal maintenance and optional advanced administrative features for billing and hauler access. The Septage Complete Plant's accurate metering system and faster processing of loads attracts more haulers, fostering quick payback of the unit.

Quick Processing Cycle

The Septage Complete Plant's large capacity and quick screen cleaning cycle time allows a 3,000 gallon tanker with up to 3 percent solids concentration to be unloaded in less than 10 minutes.

Full Penetration Basket Cleaning

The *Raptor*® Fine Screen offers a rake head that removes grease and debris, eliminating the binding and plugging common with perforated plate screens and step screens.

Raptor® Acceptance Control System (RACS)

Hauler Access, Invoicing and Data Acquisition

With the optional RACS, plant administrators can create and manage customer and truck account information, control sampling, control access on a truck-by-truck basis, track the number and sizes of loads for each hauler and assign PIN numbers from the office. No license fees and non-proprietary data format makes the RACS system a convenient, no-hassle choice.

Raptor® Septage Complete Plant (Cont.)

Raptor® Acceptance Control System (RACS) Cont.

Allen-Bradley Programmable Logic Controller
With built-in Ethernet communications, the RACS hauler station works directly with an inlet valve and flow meter to allow access and record the unloading of each authorized hauler.

Allen-Bradley PanelView Plus Operator Interface

Haulers receive access by a plant-assigned PIN number that activates the system. The hauler then selects one of five waste types on a touch screen. Another option allows magnetic card swipe or a key switch instead of a PIN.

Data Storage and Retrieval
The RACS touch screen makes data accessible via an Ethernet communications interface. A USB data port is also available for use with a removable flash drive. Comma Separated Variable (CSV) files can be viewed with most spreadsheet or database software.

Printer
The hauler receives a printout of the load details, including date, time, hauler name, waste type, total gallons uploaded, elapsed time for unloading and any faults incurred, if applicable.

Management and Accounting System
A pre-configured personal computer periodically scans the RACS hauler station for new transactions and automatically enters them into an accounting system that permits customer tracking, invoicing and report generation. Plant personnel are able to manage the hauler accounts and invoice septage haulers. Software package allows owner to:

- Receive data from up to ten RACS control stations
- Manage septage hauler identification information
- Generate reports and invoices and receive payments
- Record date, gallons and waste type for each load
- Permit entry of a minimum of five waste types and cost-per gallon charges
- Import and export data
- Allow manual entry/import of load transactions

Features and Benefits

- Enclosed operation contains septage and reduces odors and nuisance insects
- Two-stage screenings and washing cleans screenings more thoroughly than ordinary pretreatment systems
- Specialized compaction and 2-hp or 3-hp drive create a dry solids content of at least 40 percent, reducing volume and weight
- Design and all stainless steel construction result in few wearing surfaces for simple operation and long life

Options

- Full weather protection unit
- Continuous or individual bagging attachments
- *Raptor*® Acceptance Control System (RACS)

RACS Control Panel

Septage Complete Plant with Electrical Control Panel

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
- FalconRake® Bar Screen
- Rotary Strainer Screen
- Wash Press

Trash and Screen Rakes
- Hydronic T Series
- Monorail Series
- HY-TEC Screen

Grit Collection
- SpiraGrit® Vortex Grit Removal System
- Aeroductor Grit Removal System
- In-Line Grit Collector
- *Raptor*® Grit Washer
- Grit Classifier
- H-PAC®

Clarification
- Spiraflo Clarifier
- Spiravac Clarifier
- Full Surface Skimming

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

Hauled Waste Receiving Systems
- *Raptor*® Septage Acceptance Plant
- *Raptor*® Septage Complete Plant
- *Raptor*® FOG Acceptance Plant

Package Headworks Systems
- *Raptor*® Complete Plant
- H-PAC®

Biological Treatment Systems
- CLR Process
- E.A. Aerotor Plant
- Sequencing Batch Reactors
- Continuous Flow Sequencing Batch Reactors

LAKESIDE EQUIPMENT CORPORATION
Water Purification Since 1928

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