Industrial and Municipal Process Equipment Packages
Process Equipment Packages

- Screening Equipment
- Grit Removal Equipment
- Thickening Equipment
- Dewatering Equipment
- Drying Equipment
- Handling Equipment

www.drycake.com | info@drycake.com
Drycake
Vanderbeken Enterprises Ltd.

Develop
- Process solutions partnerships to find efficiencies on new or existing process.

Design
- Equipment for screening, grit removal, thickening, drying and handling systems.

Deliver
- Project specific equipment packages for better economic, and environmental process performance.

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PARTNERS IN YOUR SUCCESS

DRYCAKE is an engineered products and services company. Focused on Process Equipment and Design for Volume Reduction and Water Recovery for municipal and industrial wastewater.

For over 20 years, our clients trust us to deliver process packages designed to meet their needs. We consider, foresee and respond to project needs and design, develop and deliver cost-effective and practical solutions. We are committed beyond product guarantees to process responsibility.

DRYCAKE engineers, packages, delivers, installs, commissions and supports Inlet Works Screening and Grit Removal systems, Decanter and Disc-Stack centrifugal mechanical separation packages, solid waste systems thermal drying and evaporation technology, and conveyor systems.
ENGINEERING AND DESIGN

Thanks to our professional R&D team, our range is always in evolving and constantly improving, and it represent today, the best choice in terms of quality and reliability, with the best performance.

Part of our commitment to excellence is that we develop a 3D plant render of each installation showing the equipment installed.

DRYCAKE’s technical department is able to develop all the required design activities from feasibility to as-built. Process Validation can be validated using our lab or on-site pilot services.

All the project phases are carried out by means of professional instruments. Quality control during the entire design process guarantees the compliance with Customer’s technical requirements and good manufacturing practices. DRYCAKE plants are managed by PLC and equipped with all the necessary instruments to check continuously the main process parameters (temperatures, pressures, flow rates, etc.).
MANUFACTURING

With over 20 years of experience and hundreds of satisfied clients all over the world, DRYCAKE continues to provide with his specialized tailor-made wastewater conveying, filtration, sedimentation, centrifugation, and drying equipment.

• Quality checks are carried out during the whole manufacturing process in order to assure the compliance with UL and CSA Standards and certifications.
PRODUCTION METHOD

The performance of our machines is ensured by quality components and by our highly professional production team. Our equipment is manufactured in high quality Stainless Steel, and is fully customizable according to project requirements and needs. Our Centrifuge rotating assemblies are centrifugally cast.

The production team is composed by assemblers and certified welders, experts in TIG (Tungsten Inert Gas) welding, a process of arc welding with consumable electrode (tungsten), under protection of inert gas. Especially useful for welding thin materials, this method is characterized by a stable arc and high quality welds, but it requires significant operator skill and can only be accomplished at relatively low speed. After the welding processes, the Stainless Steel is passivated by our operators.

All equipment is subject to 3rd party witnessed factory acceptance test prior to shipment.
INSTALLATION, COMMISSIONING AND START-UP

DRYCAKE can provide complete site services

- Supervise installation.
- Operator training
- Maintenance training

Thanks to its experience and to the implementation of project control techniques, DRYCAKE is able to deliver to the Client plants on time and on cost.
OPERATION AND MAINTENANCE

At the end of plant commissioning and start-up, DRYCAKE can assist the Customer with tailor-made services according to the Client request:

- Supervision contract
- Maintenance contract

DRYCAKE strategic service centers cover USA & Canada
# Equipment Range

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<th>Mechanical Dewatering</th>
<th>Screening</th>
<th>Materials Handling Systems</th>
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<td>Decanter Centrifuge</td>
<td>Multi-Rake Bar Screens</td>
<td>Shaftless Screw Conveyors</td>
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<td>DRAIMAD Dewatering bag skid</td>
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<td>Evaporators</td>
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<td>Anaerobic Digester</td>
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<td></td>
<td></td>
<td><strong>Polymer Preparation</strong></td>
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<tr>
<td></td>
<td></td>
<td>✓ Dry &amp; Liquid polymer systems</td>
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</tbody>
</table>
## APPLICATION FIELDS

<table>
<thead>
<tr>
<th>By PROCESS</th>
<th>By INDUSTRY</th>
</tr>
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</table>
| - Aggregates conveying  
  - Biomass drying  
  - Biomass gasification  
  - Wastewater treatment  
  - Biosolids reduction  
  - Biosolids stabilization (Class A)  
  - BOD reduction  
  - Cogeneration  
  - Dewatering:  
    - Aerobic sludge  
    - Anaerobic sludge  
    - Lime & Alum sludge  
    - Mixed industry sludge  
    - WAS sludges  
  - Evaporation  
  - Enzymatic Inactivation  
  - Fish processing | - Airports  
- Biomass gasification  
- Cement factory  
- Dairy Industry  
- Die Casting Industry  
- Flour Mill  
- Landfill  
- Municipal WWTP  
- Paint Factories  
- Petro-chemical refinery  
- Pulp & Paper industry  
- Potato plant  
- Rendering plant  
- Slaughtering plant  
- Tar Sands  
- Quarries |
| - Flour enhancement  
  - Head works  
  - Heat treatment  
  - Kelp processing  
  - Bulk materials handling  
  - Leachate treatment  
  - Oil separation  
  - Paper sludge deinking  
  - Plastics separation  
  - Pump station screening  
  - Pulp Recovery |
Feedstock Preparation

Complete Sorting lines systems
Our products are used to sort, sift, filter, separate, and transport a wide variety of (waste) materials. In addition, we produce filtration systems for the separation and/or filtering of liquids and we supply installations for the automatic discharge of metal swarf.

Senro has its own production in the Netherlands with the latest design and production techniques. Senro’s products are thereby designed in a 3D CAD environment. Senro also has the necessary expertise to design and build equipment according to USA, Canadian and International Directives.
MULTIRAKE: Fine Bar Screen
PERFOPLATE: Perforated Plate Fine Screen

Operation of the screen is automatic. Equally spaced bars or holes form the screening area, and solids accumulate at the screen base until a water height level sensor activates the Rake or brush Mechanism.

<table>
<thead>
<tr>
<th># Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>MULTIRAKE: Bar space 6-60mm (1/4-2.5in)</td>
</tr>
<tr>
<td>1B</td>
<td>PERFOPLATE: Perforated holes</td>
</tr>
<tr>
<td>2A</td>
<td>MULTIRAKE: Rake</td>
</tr>
<tr>
<td>2B</td>
<td>PERFOPLATE: Brushes</td>
</tr>
<tr>
<td>3</td>
<td>Removable covers</td>
</tr>
<tr>
<td>4</td>
<td>Solid discharge</td>
</tr>
<tr>
<td>5</td>
<td>SEW Gearmotor</td>
</tr>
</tbody>
</table>
The DRYCAKE step screen is a viable solution for medium and large plants. It is in fact a system that exploits the principle of fixed and movable lamellas. The distance between the lamellas represents the spacing of the screen itself.
The UNIDRUM Drum Screen is an internally fed screening device with the flow being fed into the headbox and distributed onto the internal rotating surface of the screening cylinder.
**WASHERPRESS:**
Screening washer/compactor

**Operation:**
- Installed downstream a bar, drum, or step-screen to compact and wash screenings.
- Operates on a user adjustable timer

**ADVANTAGES**
- High screenings compacting achieve (up to 60%)
- Enclose System for odor problems
- Disposal costs reduction
- Easy installation
- Low and easy maintenance required (no welding required)
- Fields of Application
- Municipal wastewater
- Industrial plants
PERFOBASK: Screw-Screen

Operation:
- Basket blinds with effluent
- Water level rises
- Screw turns for brushes cleans the basket perforations
- Water level lowers
- Screw transports screenings to compaction zone before discharge

Maintenance:
- Low maintenance
- Simple operation
- No bearings
- Washing, compaction, and bagging in a single unit

NYLON BRUSHES
✓ Durable
✓ Easy to replace
PERFODRUM:

PERFORATED ROTATING DRUM SCREEN

The PERFODRUM is a high capacity perforated or wedgewire rotating drum screen. Influent enters the drum by means of a flange or channel. The drum openings blind with screenings and once the influent reaches a pre-designated level, the drum rotates to be cleaned by stationary brushes and a spray bar mounted on the outside of the drum. A screw transports the screenings out of the drum, washes and compacts them before discharging them into either a screenings discharge bin or an integrated bagging system.
GRIT REMOVAL
DRYCAKE Design: Medium to large WWTP

SEDIVORTEX
Volume Reduction = 1:40 Ratio

Standard: Grit Pump 1:40
Optional: Air lifting System 1:25

HYDROCYCLONE
Volume Reduction = 1:3 Ratio

SEDIWASH

SEDIGRIT

GRIT PUMP

HYDROCYCLONE

SEDIWASH

SEDIVORTEX

SEDIVORTEX

SEDIWASH

SEDIGRIT
The SEDIVORTEX grit removal system consists of a group of mixing blades with *adjustable inclination* that turning create a vortex that promotes the sedimentation of sands (even extremely fine grain sizes, up to 100 microns).

The sands are extracted settled by a pneumatic (air-lift), or by a grit pump positioned outside of the hopper.

The SEDIVORTEX Vortex is traditionally installed in a circular concrete tank, but may also be installed in a stainless steel tank.
GRIT REMOVAL EQUIPMENT
Vortex Grit Chamber

270° Type

360° Type
GRIT REMOVAL EQUIPMENT
Grit Classification & Washing

- Grit classifiers and washers accomplish removal of a major part of the organic material contained in grit.
- Grit washers achieve an outstanding grit product containing less than 10 % water and below 3 % volatile solids.
- Equally important is that grit washers can achieve a 0.2mm grit particle capture rate of about 95 %.
- There are various types of grit classifiers and grit washers are available in the market.

* DRYCAKE Equipment
GRIT REMOVAL EQUIPMENT

Hydrocyclone (Cyclone Degritter)

- Typically used to separate grit from organics in grit slurries or to remove grit from primary sludge.
- It can be used to remove grit and suspended solids directly from wastewater flow where grit chambers are not used.
- Heavier grit and suspended solids collect on the sides and bottom of the cyclone due to induced centrifugal forces, while scum and lighter solids are removed from the center through the top of the cyclone.
- Hydrocyclone can also be installed on the top of the grit classifier hopper to increase volume reduction (1:3 Ratio).

* DRYCAKE Equipment
The DRYCAKE SEDITANK is a continuous system designed to remove grit from organics prior to introduction into the digester.

At the inlet of the organics stream after an organics separator.

The SEDITANK takes the organics stream after an organics separator and uses diffuses air in countercurrent to induce an high efficiency settling.

A Horizontal accumulates the grit for for removal by an inclined extraction conveyor.
Fat, oil and grease are collected in a grease trap that is connected with the parallel grit channel through slots in a separating wall.

Floating fats and oils are skimmed off the water surface with a paddle scraper that is slowly pulled by a stainless steel rope. The paddle shape guarantees the removal virtually all floating matter. Odor caused by the anaerobic degradation of fat and grease is prevented.

The skim layer is pushed over a weir into a grease hopper and then pumped for further treatment.
To remove floating and lighter fractions of solids the SEDITANK is configurable with the entire DRYCAKE Screening range to make a complete pretreatment system.

**Screening options**
- **PERFOBASK**: Basket screw-screen
- **PERFODRUM**: Rotating Drum screen
- **MULTIRAKE**: Fine bar screen
- **PERFOPLATE**: Perforated plate screen
- **UNIDRUM**: Internally fed drum screen
- **STEPRAKE**: Step Screen

All systems can be supplied complete with:
- Launder Chute
- Compaction system
- Screenings washing
- Bagger system to prevent odor nuisance.
DIAMOND SERIES  Industrial pumps

The DN and JN Diamond series is the best solution for the industrial sector in pumping a vast range of fluids. They are synonymous with strength, reliability, performance and application flexibility. Designed according to the most demanding standards, they comply with the requirements of standard API 676. The DN and JN series are distinguished for the type of fitting of the pump to the drive.

Options
- Pump skid
- Inline Grinders
- Flowmeters
- Overpressure Device
- VFD Driven
DRYCAKE BR thickeners are able to thicken organic and inorganic sludge.

- AISI 304 or 316 stainless steel construction.
- Low power consumption
- High Thickening Efficiency
- Low Maintenance

- Drum Diameter up to 4.5ft.
- Over 500 GPM in a single unit
- Configurable as complete systems with redundancy
- PLC Controlled
- Ethernet
P BELT THICKENER

BELT THICKENERS WITH PNEUMATIC BELT CENTERING

- 3 Roller design
- Tensioning roller by mechanic system.
- Centering roller by pneumatic system.
- Motorized roller lined with rubber.
- Feeding reactor cylinder with vertical stirrer
- Belt washing pump on board
- 6 plough rows
- PLC Automated
- Ethernet communication

OPERATION
1 - Sludge inlet
2 - Reactor cylinder
3 - Distribution tank
4 - Dewatering area with ploughs
5 - Thickened sludge hopper
6 - Thickened sludge pump
7 - Washing pump
8 - Wash water outlet
9 - Filtrate discharge
Hydraulic Drive Digestate Decanter Centrifuge

DRYCAKE Decanter Centrifuges separate a liquid phase, and recover the solids from the liquid phase. DRYCAKE Decanter Centrifuges are the optimal separation solution for liquid high in suspended solids for maximum cake dryness performance.

DRYCAKE Decanter Centrifuges are high performance, designed for reliable operation under the most strenuous of conditions.

- Skid-Mounted
- Mobile
The **DSP provides a unique, cost effective solution for dewatering of municipal and industrial sludge.**
The equipment is designed to dewater the Primary Sludge and/or Secondary Sludge dewater sludge from a dry content of 0.8-4% to 15%-20%.

**BENEFITS**
- High quality and reliability at low prices
- Quick and easy installation
- It does not necessitate of a civil construction, but it can be installed outside
- Continuous functioning
- Dewatering and discharge in one equipment
- Low energy consumption
- Less odors and insects.

<table>
<thead>
<tr>
<th>Model</th>
<th>Drum Diameter</th>
</tr>
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<tbody>
<tr>
<td>DSP 200</td>
<td>8”</td>
</tr>
<tr>
<td>DSP 400</td>
<td>15”</td>
</tr>
<tr>
<td>DSP 700</td>
<td>27”</td>
</tr>
<tr>
<td>DSP 900</td>
<td>35”</td>
</tr>
</tbody>
</table>
HIGH PRESSURE BELT PRESS

- Belt width up to 10ft.
- 7, 9 or 11 rollers
- Hydraulic Belt Tension and Centering
- Belt Washing Pump onboard
- Self-Cleaning Nozzles
- PLC Automated
- Ethernet Communication

OPERATION

1. Sludge inlet
2. Conical Reactor
3. Distribution Tank
4. Dewatering areas with ploughs
5. Wedge Area
6. Low Pressure Pressing Zone
7. High Pressure Pressing Zone
8. Cake Discharge
PN CASCADE BELT PRESS

GRAVITY BELT THICKENER
• 2 roller system with mechanic roller tensioning.
• Motorized roller lined with rubber.
• 6 plough rows
• Covers and air suction flange
• Sludge inlet by reactor cylinder or feeding tank

HIGH PRESSURE PN BELT PRESS

OPERATION
1 - Sludge inlet
2 - Feeding reactor tank
3 - Distribution tank
4 - Dewatering area with ploughs
5 - Distribution tank
6 - Dewatering area with ploughs
7 - Wedge area
8 - Soft pressing area
9 - Hard pressing area
10 - Sludge discharge
DISC BOWL SEPARATOR

SEPARATION SOLUTION

- **CONCENTRATOR**
  liquid/solid (clarification)
  liquid/liquid (polishing)

- **PURIFIER**
  liquid/liquid/solid

- **HIGH SOLID CONCENTRATION**
  liquid/solid
  liquid/liquid/solid

- Manual and Self-Cleaning Type
- Skid-Mounted
- Mobile
- Explosion Proof
SLUDGE DRYERS

A Technology for every need: Belt, Drum and Thin Film Drying Solutions

The best dryer technology is largely a function of input dryness, target dryness, feedstock, end-use of dried digestate and available waste energy.

DRYCAKE delivers the best dryer for the project requirement.
Thin Film Drying Solution:

The thin film technology is based on the creation of a thin film of material in high turbulence by means of a turbine rotating inside a static horizontal chamber. The multiple thermal shock treatments permits to obtain a “Super-Sanitized” product.

The drying process by conduction and convection allows to obtain homogeneous products continuously at the desired moisture content in a single step (no back-mixing).
Belt Drying Solution:

A belt dryer is continuously gentle drying materials using air, inert gas or flue gas.

Belt dryers are design in modular system for an optimal control of the temperature.

Belt dryer are ideally suited to dry almost any non-flowing product or more granular products that require a lower throughput capacity.
Drum Drying Solutions:

Drum drying is a method used for drying out liquids with a drying drum. In the drum-drying process, material is dried at relatively low temperature.

Some advantages of drum drying include the ability of drum dryer to dry viscous products. Drum dryers are clean and hygienic and easy to operate and maintain.
DRYCAKE Designs and Manufactures complete solids handling systems. All systems are designed as a 3D plant layout.

Equipment:
- Shaftless Screw Conveyors
- Belt Conveyors
- Slewing Conveyors
- Horizontal Reversible Distribution conveyors
- Vertical Conveyors
- Live Bottoms
Effective mixing of the anaerobic digester is important for process stability, maximizing gas production, minimizing scum and foam formation, and preventing solids deposition in the digester, which can reduce the active volume of the digester and result in expensive removal costs. DRYCAKE is in the position to supply a complete range of top of the line Anaerobic Digestor mixers complete, and tanks made of carbon steel, stainless or glass lined vitrified enamel tanks.