

Anaergia's **GritREX** grit removal system removes Fast Settling Inorganic Solids (FSINS) contaminants from organic waste streams to prevent them from damaging downstream equipment and accumulating in digesters.

Organic slurry is received by the GritREX and converted into a clean, polished organic slurry and a grit reject solids stream. The GritREX first uses a hydrocyclone to separate grit from the organic slurry and then a grit classifier with a shaftless screw to wash the grit and maximize the recovery of organics. Complete with a sophisticated control system to ensure constant and smooth operation, the GritREX was designed with the operator in mind. This unit also has an operator platform for maintenance and valves for sampling and line flushing.

The GritREX is constructed on a skid, allowing the unit to be delivered fully assembled. This minimizes on-site construction and misalignment issues in the field. All GritREX units are fitted with identical instruments and pumps to reduce spare parts, costs, and storage space. These features provide GritREX users with a low-cost solution for industry leading grit removal.

Advantages

- Maximizes digester capacity by preventing grit buildup
- Reduces wear of downstream pumps, mixers, pipes, centrifuges, valves, and instrumentation
- Delivered on a skid to minimize in-field construction, costs and time
- Effective grit removal with minimal reduction in organic stream biomethane potential

Applications

The GritREX can remove grit contamination from a wide variety of waste streams that have been processed by different upstream equipment. Source feedstocks include:

- Municipal solid waste (MSW)
- Source separated organics (SSO)
- Municipal sludge
- Agricultural waste
- Sludge and agrifood mixtures

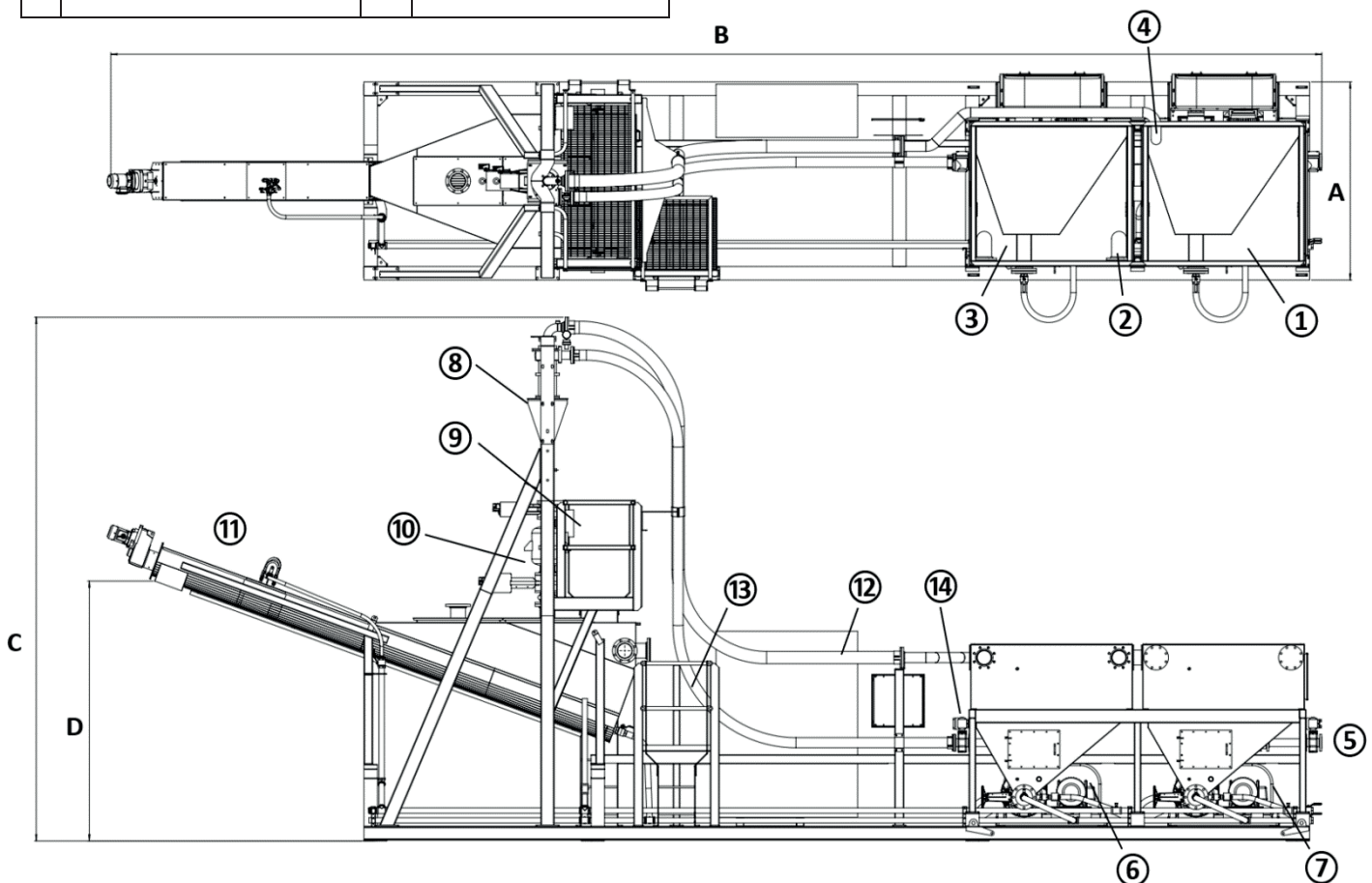
Operation

Organic slurry is fed into the blending tank of the GritREX and is pumped to the hydrocyclone using a high wear centrifugal pump. At high velocity the centrifugal forces in the hydrocyclone separate the dense FSINS from the organic solids and slurry. The FSINS lean polished organic slurry exits the top of the hydrocyclone, is stored in the polish tank and is subsequently pumped further downstream to storage tanks or digesters. The FSINS rich slurry flows from the hydrocyclone to the grit classifier. FSINS settle to the bottom of the grit classifier which washes and dewateres the FSINS. The light organics that enter the grit classifier leave as part of the overflow stream and are recycled back to the blending tank. The washed and dewatered FSINS make up the reject stream and are collected in a bin for disposal.

1	Polish Tank	8	Hydrocyclone
2	Material Inlet	9	Operator Platform
3	Blending Tank	10	Grit Pot
4	HC Overflow Outlet	11	Grit Classifier Shaftless Screw
5	Polished Stream Outlet with Flow Meter	12	Control Panel
6	Pump 1	13	Maintenance Platform
7	Pump 2	14	Flow Indicator Transmitter

A	2.24 m
B	13.69 m
C	5.91 m
D	2.93 m
Weight	

Feed	Up to 15 %TS
Capacity	Up to 4 dry tonnes/hr
Output	Polished Slurry: 10-15% TS Reject: > 60 %TS



Unit Specifications			
Power Supply	<ul style="list-style-type: none"> 400 VAC/ 3 / 50 Hz 480 VAC/ 3 / 60Hz 	Feed Source	<ul style="list-style-type: none"> Flowable organic slurry
Connected Power	<ul style="list-style-type: none"> 61 kW, 81 hp 1.35 kWh/m³ of wet slurry 	Capacity	<ul style="list-style-type: none"> Up to 15% TS 4 dry tonnes/hr
Control System	<ul style="list-style-type: none"> Local control at panel via HMI Siemens 7" Touch panel Remote control via SCADA Siemens PLC 1513 IP66 VFD Profinet control 	Polished Slurry	<ul style="list-style-type: none"> Up to 45 m³/hr <15% TS
		Wash Water	<ul style="list-style-type: none"> Supply: Clean Water, Filtrate & Permeate Consumption: Application Dependent

Features

- Cyclone sized for every application to maximize removal of FSINS
- Stainless steel tanks, grit classifier, pipes and valves for high corrosion resistance
- Hot-dip galvanized carbon steel frame and platform for durability and corrosion resistance
- Fully automated system with instrumentation (level transmitter, level switch, flowmeter and pressure transmitter) for process control, remote process monitoring and support
- Flexible rubber hose for easy operation, reduced wear and rapid installation
- VFD controlled heavy duty, wear resistant, centrifugal recessed impeller vortex pumps for reduced wear in highly abrasive applications
- Rubber lined, wear resistant hydrocyclone designed for aggressive and abrasive slurries
- Shaftless screw conveyors with HARDOX liners for abrasive applications
- Operator friendly design with a platform for easy access to the hydrocyclone and grit classifier for hassle free maintenance
- Built-in stainless-steel flush water system for pipe and tank flushing to prevent FSINS build up and minimize maintenance, with a single tie in connection point for customers
- Valves for sampling, line draining, tank isolation and cleaning during maintenance

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