Biosolids Solutions

Advanced Pretreatment Systems

Hydro International

Cleaner sludge improves and increases treatment and disposal options

Biosolids Application Sheet - Improve the Efficiency of Your Sludge Processes

The EPA Part 503 Biosolids Rule assumes that sludge does not contain grit and screenings. Yet, many plants continue to operate with antiquated headworks utilizing coarse screens and inefficient grit removal processes. Pretreatment of sludge from these facilities to remove grit and screenings, benefits virtually every sludge process, from sludge pumping to the most advanced stabilization, dewatering, thermal conversion or drying process. Pretreated sludge, that is free of debris and grit, reduces fouling, deposition and abrasive wear.

Sludge management is focused on reducing sludge weight and volume to reduce disposal costs, reducing potential health risks and creating options for beneficial reuse of this important resource. Water removal is the primary means of weight and volume reduction. But, if not adequately protected from grit and screenings, weight and volume are not minimized, and processes are negatively impacted.

Composting, land application, drying beds and heat exchangers may not be negatively impacted by grit, but recognizable solids make the end-product from these processes undesirable and can plug heat exchangers. As many plants upgrade sludge processes to maximize energy production, nutrient removal and disposal options, pretreating sludge to remove grit and debris maximizes available volume for treatment and efficiency as well as protecting these advanced sludge processes from fouling, deposition, and wear.

SlurryCup™ / Grit Snail® Sludge Degritting Solution

SlurryCup™ / Grit Snail® - Sludge Degritting

The SlurryCup provides high performance sludge degritting; removing grit and fine abrasives as small as 75 µm (and larger), with minimal organic solids (VS). The SlurryCup's open free-vortex operates as a centrifugal solids separator and classifier with secondary washing. The liquid-particle separation occurs within the SlurryCup as a result of centrifugal forces exceeding fluid drag forces. Classification and separation of particles occurs within the boundary layer, which retains fine grit particles while the sludge passes though to digestion or other processes.

Once the grit particles are captured in the boundary layer and swept to the center, the hydraulic valve uses rinse water for secondary washing to produce a clean product with low VS. This allows the SlurryCup to remove and wash over 90% of 75 µm grit and larger in sludge degritting applications.

The Grit Snail captures fine grit and abrasives by providing sufficient clarifier area to retain 75 µm particles. A slow moving 1-2 ft/m (30-60 cm/min.) cleated belt, which has the capacity to convey even the heaviest grit load, gently lifts grit from the clarifier pool without re-suspending captured fine grit particles, which would allow them to escape with the clarifier overflow. The combined SlurryCup and Grit Snail sludge degritting system delivers clean, dry grit containing 60% total solids and less than 20% volatile solids (organics).

SlurryCup™ / Grit Snail® Highlights

- Highly efficient over a wide range of flows
- Designed for peak grit load (PWWF)
- All stainless steel design
- Small footprint
- Low operating costs
- Low maintenance

Cleaner Sludge Gives You More Options

Removing grit and rags results in sludge that can be treated using the most advanced processes and provides more cost-effective disposal options.

Hydro-Sludge® Screen Highlights

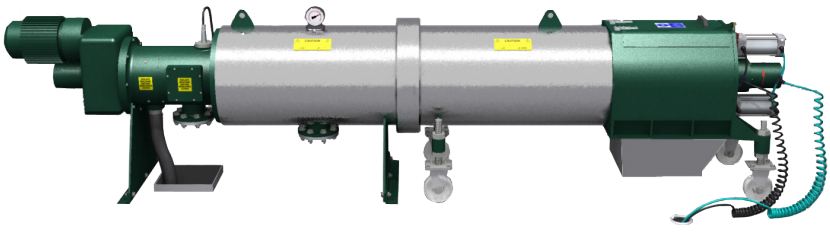
The Hydro-Sludge Screen removes tramp material from sludge and dewaters the material in a single, enclosed unit. Sludge enters the screening zone, flowing through the perforated screen, and exits via a flanged connection. Non-compressible solids larger than the 5mm perforations are retained within the screen basket and transported to the dewatering zone by the rotating screw.

The separated solids are dewatered in the pressing zone and compacted into a plug under gradually increasing pressure. Liquid sludge from the dewatering and pressing zones drains through the 3mm perforations, combining with the drained sludge from the screening zone. As the screening plug is formed, the drive load increases pushing the screenings against the backpressure cone.

The drive load is monitored and converted to a pneumatic pressure which adjusts the backpressure on the cone to release solids. The dewatered solids fall through the screenings outlet and are collected in a solids receptacle for final disposal. Unit operations are controlled by a PLC control panel with HMI. Dewatered screenings typically contain >40% dry solids and will pass the paint filter test making them acceptable to landfills.

Hydro-Sludge® Screen System Highlights

- Screening removal and dewatering in one operation
- Fully automatic for continuous or intermittent screening of sludges with varying dry solids content
- Enclosed system minimizes odors
- No wash water requirements



Hydro-Sludge® Screen

Screenings Captured by Hydro-Sludge® Screen

Grit Filled Digester

Grit Removed from Sludge by SlurryCup / Grit Snail

Learn more

To learn more about how **Hydro International's Biosolids Solutions** can improve your plant, visit **hydro-int.com**, or contact us:

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