



Biosolids Pretreatment

Cleaner sludge improves your sludge treatment process efficiency, and increases treatment and disposal options

Flaws in EPA Part 503

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.



Grit accumulation in a single digester and the unenviable task of removing it



Remove grit & rags from sludge

Sludge treatment processes **are expensive** to install, operate, and maintain. Yet they are critical elements for successful biosolids treatment, especially in advanced sludge processes to recover energy or nutrients from the sludge.

Grit and rags impact the quality and treatability of sludge. They are unaffected by sludge treatment and take up space unnecessarily increasing volume – this **reduces capacity** and **decreases efficiency**.

Hydro International's systems effectively remove these nuisance materials while sludge treatment remains online. Additionally, the **clean, dry** output provides **cost-effective** landfill options.

Removing grit and sand from sludge requires taking a process offline and is expensive, difficult, and time consuming.



Protect sludge processes

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 efficiency** and **protects** advanced sludge processes from fouling and wear.

Cleaner sludge lets your plant do what it does best

- Sludge treatment processes don't effect grit and rags, but grit and rags significantly effect these processes
- Why waste valuable processing capacity on materials that will remain unchanged and are expensive to landfill?



Screenings removed from sludge
by a Hydro-Sludge Screen

SlurryCup™ / Grit Snail® *Sludge Degritting – How it Works*

The SlurryCup provides high performance sludge degrading; 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.

Hydro International provides a robust solution for a difficult, yet all too common, problem.

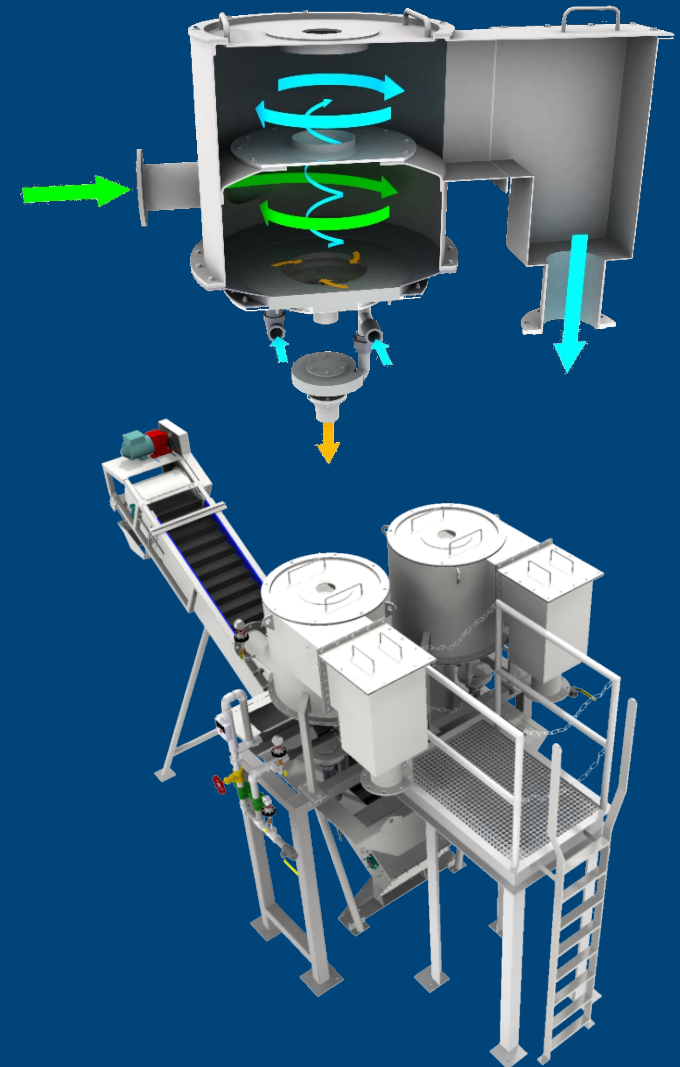


SlurryCup™ / Grit Snail® *Sludge Degritting – How it Works*

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 passes through and on to digestion or other processes.

Grit particles captured in the SlurryCup's boundary layer are swept to the center where a hydraulic valve uses rinse water for secondary washing to produce a **clean product** that is sent to the Grit Snail for dewatering.

The SlurryCup / Grit Snail system has been the industry leading sludge degrading solution since 1976.



SlurryCup™ / Grit Snail® *Sludge Degritting – How it Works*

The Grit Snail **captures fine grit** by providing sufficient clarifier area to retain 75 µm particles. A slow moving cleated belt with the capacity to convey even the heaviest grit load, gently lifts grit from the clarifier pool without re-suspending captured fine grit particles preventing them from escaping with the clarifier overflow.

The combined SlurryCup and Grit Snail sludge degrading system removes **over 90% of all grit 75 µm and larger** - producing **clean, dry grit with 60% total solids and less than 20% volatile solids** (organics).

Headworks degrading prevents grit from entering sludge in the first place - sludge degrading is the next best option.



System 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

Hydro-Sludge[®] Screen

Coarse Material Separator – How it Works

The Hydro-Sludge Screen **removes tramp material** from sludge and **dewaters** in a single, **enclosed** unit. Sludge enters the screening zone, flows through a 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.

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



Hydro-Sludge® Screen

Coarse Material Separator – How it Works

Separated solids are dewatered in the pressing zone and compacted into a plug under gradually increasing pressure. Liquid sludge 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.

System Highlights

- No wash water requirements
- Rugged cast iron feed and discharge ends withstand high torque loads
- Durable stellite tipped screw provides better screen cleaning

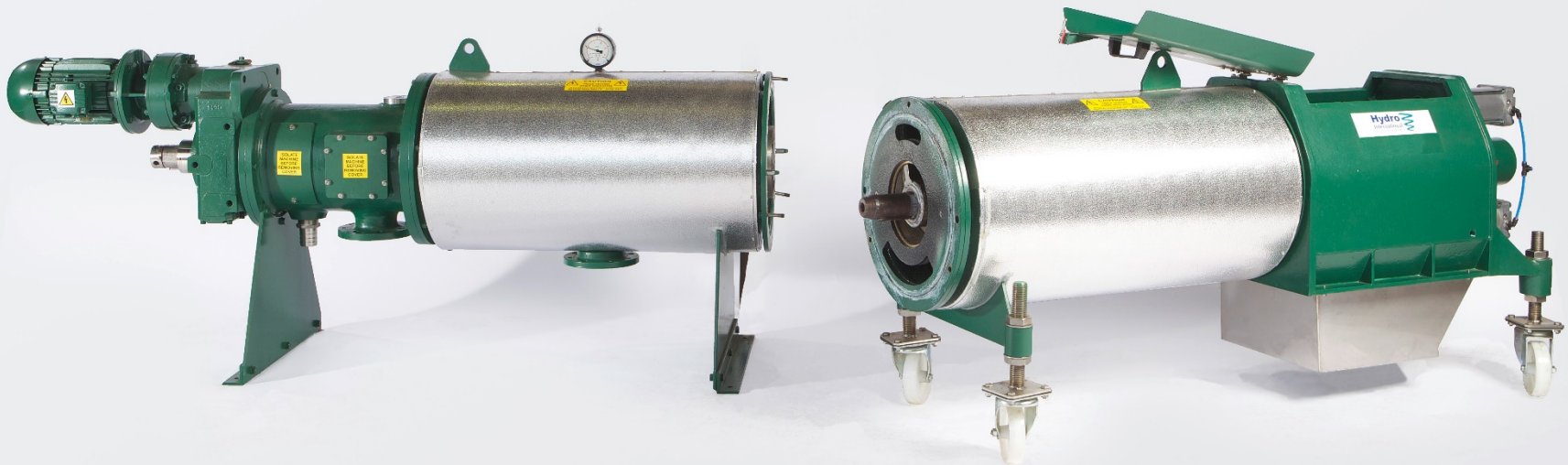


Hydro-Sludge[®] Screen *Coarse Material Separator – How it Works*

The drive load is monitored and converted to a pneumatic pressure which adjusts the backpressure on the cone to release solids. 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 landfill.

System Highlights

- Reinforced dewatering zone screen
- PLC based controls and HMI are easy to use and operator friendly
- Maintenance friendly cone retract function, inlet access hatches, and extended discharge area



Learn more

Contact us

To learn more about how our biosolids solutions can improve your plant, contact us:

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Product information

Sludge Screening

Hydro-Sludge® Screen

[Visit product page](#)

Sludge Degritting

SlurryCup™

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Grit Snail®

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