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Anaerobic Digestion Pre-treatment – A Grit Removal Case Study

A new Anaerobic Digestion plant outside Dublin has been provided with high efficiency HUBER grit removal and grit washing, to ensure trouble free operation and reduced downtime.

Background

Material accepted at site includes kerbside food waste collection as well as other organic material. This material is de-packaged and screened, but the resulting pulp still contains large amounts of grit (stones, glass, eggshells and bones). If not removed, this grit blocks and abrades both pumps and tanks. In particular the digester itself can accumulate grit, reducing the effective volume and overall performance of the plant.



Figure 1 – Twin HUBER grit traps and grit washers



Figure 2 – Organic-rich wash water returned to the feed

Adding mixers to tanks and keeping this heavy material in suspension can cause increased wear both to the mixer and tank itself, so it is much better to remove the grit. By removing grit before it gets to the digester, site operatives can avoid man entry into the tanks to clean out accumulated grit, as well as the associated cost with the downtime.

Solution

The HUBER Longitudinal Grit Trap ROTAMAT® Ro6 Bio is specifically designed to remove grit from the thick feed sludge encountered at AD sites and is the result of years of continual product development. In addition to the ROTAMAT® Ro6 Bio for grit separation, the site also utilises the HUBER Grit Washer RoSF G4E Bio unit for grit washing after separation. By combining the grit trap with a grit washer, disposal costs are minimised and organic material is retained in the process, increasing biogas yield.

The HUBER equipment was chosen over hydrocyclones because of the improved grit removal and cleaner grit produced.

Two lines of treatment are required at the site and these run side by side. This allows the operator to accept two different waste streams and maintain separation so that recyclable/compostable material can be re-used rather than being disposed of to landfill.

HUBER provided the full equipment scope to site, including:

- **2 No HUBER Longitudinal Grit Trap ROTAMAT® Ro6 Bio** in stainless steel grade 316
- **2 No HUBER Grit Washer RoSF G4E Bio** in stainless steel grade 316
- **Full frost protection** of both the grit traps and grit washers
- **Covers over the top of the tanks** with a high snow loading rating to meet the site specific conditions/client requirements
- **Compressor** to provide air turbulence within both the grit traps and grit washers and enhance separation
- **Pre-programmed control panel** to automate operation of the plant
- **Bespoke steelwork to raise the grit washers** allowing organic-rich wash water to return to the grit traps

There are a growing number of AD sites in the UK and Ireland now benefitting from HUBER equipment for grit removal, grit washing and also plastics removal from digestate (with our [HUBER Sludgecleaner STRAINPRESS®](#)).

If you would like to discuss treatment options, please get in touch on +44 1249765000, email rotamathuber.co.uk



Figure 3 – Washed grit, prevented from accumulating in the digester



Figure 4 – Grit washers discharge over the bunded area into a skip (not shown)

Related Products:

- [HUBER Longitudinal Grit Trap ROTAMAT® Ro6](#)
- [HUBER Grit Washer RoSF G4E](#)
- [Grit Treatment](#)

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