

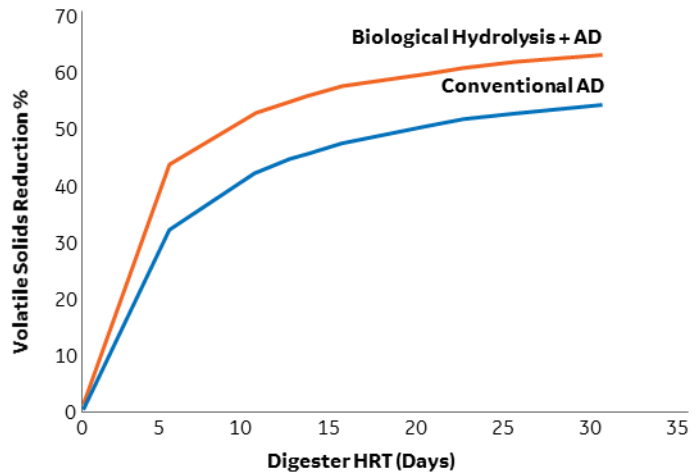
Biological Hydrolysis

Increasing Biogas Yield While Handling Expansion

Maximize wastewater treatment plant digester capacity with biological hydrolysis. Hydrolyzing sludge prior to digestion minimizes required HRT for volatile solids conversion, enabling increased digester loading rates up to 5.0 kg VS/m³ – day. This enables WWTPs to eliminate the need for expansion and increase biogas yield while producing stabilized biosolids. This proven technology is proprietary to GE and available in Monsal 42, Monsal 55 and Monsal 55s.



Volatile Solids Reduction vs. Digester HRT



	Monsal 42	Monsal 55	Monsal 55s
Digester HRT	12-20 days	12-20 days	12-20 days
Digester feed solids concentrations	6-10%	6-10%	6-10%
Sludge biogas yields at same HRT (vs. conventional)	+25%	+25%	+25%
Achievable biosolids quality	Class B	Class A	Class A
Process stages	Single stage hydrolysis	Hydrolysis + Pasteurization	Hydrolysis + Pasteurization
Design Temperature	42°C	42°C (stage 1) 55-65°C (stage 2)	42°C (stage 1) 55-65°C (stage 2)
Heat Exchange	Tube in tube	Tube in tube (both stages)	Tube in tube (stage 1) Steam injection (stage 2)

Increase Digester Efficiency

- Economical alternative to building more digester volume
- Consolidate sludge treatment and import from neighboring plants
- Free up volume for other organic wastes
- Operate digesters at higher solids content

Enabler for WWTP Repowering

- Increasing digester OLR and produce more biogas
- Enhancing biogas yield
- Utilizing CHP's to produce electricity and recapture all required heat

Produce Enhanced Biosolids

- Adaptable design to meet all biosolids standards, including EPA Class A
- Enhance biogas yield reduces resultant biosolids mass
- Enable biosolids sales as fertilizer

Re:Sep

Mechanical Separation to Produce High Quality Slurry

The key to a successful anaerobic digestion (AD) facility generating renewable energy from biowaste is effectively capturing organics from a varying waste stream, and removing contaminants. Through GE's experience in providing a full wing-to-wing solution on biowaste AD facilities the internally developed Re:Sep system maximizes this capture and produces a clean high quality digester feed. The Re:Sep system comes in either a single or dual train arrangement, and can handle contamination levels up to 30%, and captures over 95% of the organic material.



		Re:Sep - Single Train	RE:Sep - Dual Train
Capacity	Capacity (Solid biowaste)	60,000 Tonnes/year	120,000 Tonnes/year
	Average Throughput (Dependent on Feedstock)	15 Tonnes/hr	15 Tonnes/hr
	Energy Use	< 5 kWh/Tonne	< 5 kWh/Tonne
Raw feed	Contaminants	Up to 30%	Up to 30%
Slurry to digester	Organics Capture	> 95%	> 95%
	Contaminants in Digestate	< 0.1% ^a	< 0.1%*
	TS Slurry Target	10%	10%

^a When post digestion screening is applied