



ANUBIX™-T Anaerobic reactor

Ultrahigh rate anaerobic wastewater treatment process

Key features & benefits

- Green energy generation through biogas production from wastewater
- Small foot print
- Special "2 phase" separator in combination with a "3 phase separator" for maximized solids separation
- Capable of handling medium to high loading rates; up to 25 kg COD/m³.d depending on the type of effluent
- Gas-holder not required through integrated storage capacity
- No moving parts inside the reactor

How we create value

- Tailor-made (turn-key) solutions
- System design focused on minimal maintenance & operational requirements
- Fully automated design
- As per the clients request concrete or steel reactors can be designed
- GWE employs highly experienced technologists and technicians able to provide solutions for any wastewater related problem
- 24/7 reachable, worldwide, fast reacting, after sales service department
- Lab and pilot testing facilities





GWE's ANUBIX™-T is an ultrahigh loading-rate with expanded granular sludge bed (EGSB) technology. It is suited for high-strength wastewaters with COD (Chemical Oxygen Demand) values of up to around 25,000 mg/l but with low TSS content.

Anaerobic purification takes place in the ANUBIX™-T methane reactor. Organic compounds (such as sugars) are largely degraded by anaerobic bacteria (activated anaerobic sludge) and converted into biogas (a mixture of methane and carbon dioxide). Only a small amount of sludge growth takes place at this stage.

Wastewater enters the ANUBIX™-T at the bottom via a special distribution system and rises, through a bed of active anaerobic sludge, to the top part of the reactor at a high upflow velocity.

The ANUBIX™-T is equipped with a special "2 phase" separator in the lower half of the reactor and a "3 phase separator" device at the top of the reactor.

The 2-phase lower separator diverts the biogas produced in the bottom area of the reactor to specific locations, where the curtains of rising biogas and water (gas-lift) are formed. This

creates a vertical mixing pattern in the tower reactor. After passing through a second layer of anaerobic sludge (the so called "sludge blanket") the wastewater passes through the internal 3-phase separator device at the top of the reactor.

The modular separator units are built in stainless steel and GRP (Glass Reinforced Plastic), and are equipped with an additional cross-flow type parallel plate separator that ensures retention of even the smallest flocs of methanogenic sludge.

The clarified effluent leaves the reactor through the central collecting pipe. Biogas is collected at the top and conveyed for either, further upgrading in e.g. a BIO-SULFURIX™, after which it can be fed to a CHP unit, alternatively it may directly feed into a boiler system for steam production. Excess biogas is sent to an emergency flare.

At the project design phase additional provisions can be foreseen for pre-settling, heating, cooling, CO₂ degasification and inline neutralization if required.

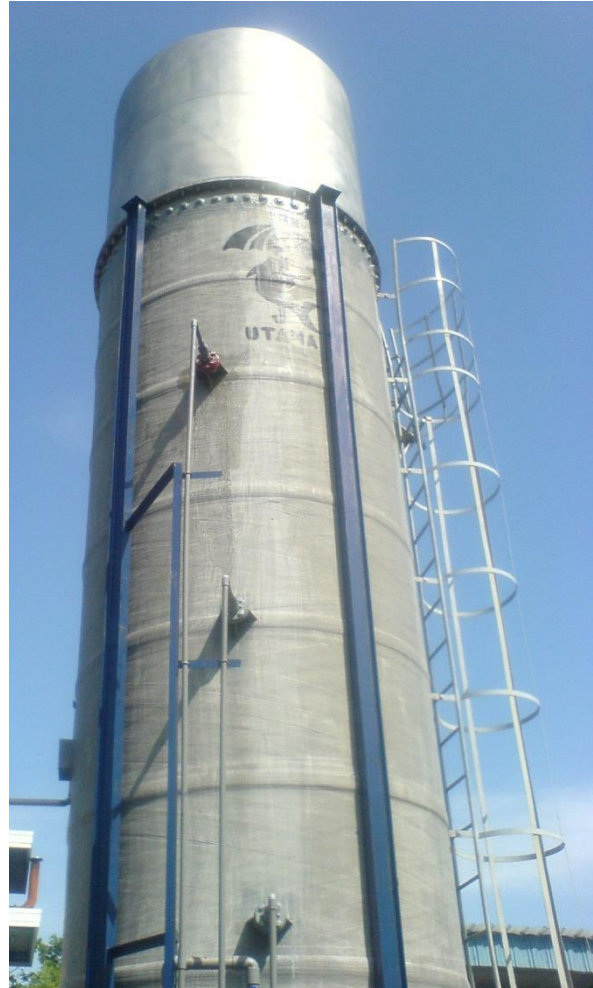
The ANUBIX™-T reactor is capable of handling very high loading rates of up to 25 kg COD/m³.d, depending on the type of effluent.





Advantages of ANUBIX™-T (EGSB) reactor:

- Works with granular sludge
- High amount of biomass and high process efficiency
- Solid, corrosion resistant construction
- Easily accessible in case of inspection
- No moving parts inside the reactor
- Fast startup
- Superior treatment
 - Low effluent soluble COD/BOD
 - Small aerobic polishing stage needed
- Small footprint
- Gas holder not required
- Robust and reliable
- Steel or concrete construction





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