



Horizontal Plug-Flow Digester

Anaerobic digestion of high solids organic waste

Zenviro Tech's Horizontal Plug-flow Reactor (HPF) provides ideal microbiological conditions to deliver efficient conversion of feedstock to biogas in high-solid, high-organic load, and high impurity applications. The HPF features a robust design to ensure reliable operation, delivering high performance under the toughest conditions.

Our Horizontal Plug Flow Digester raised the bar for the organic waste processing industry. This innovative design ensures the best conditions for microbial activity—maximum feedstock interaction with the microbes and precise, even temperature distribution.

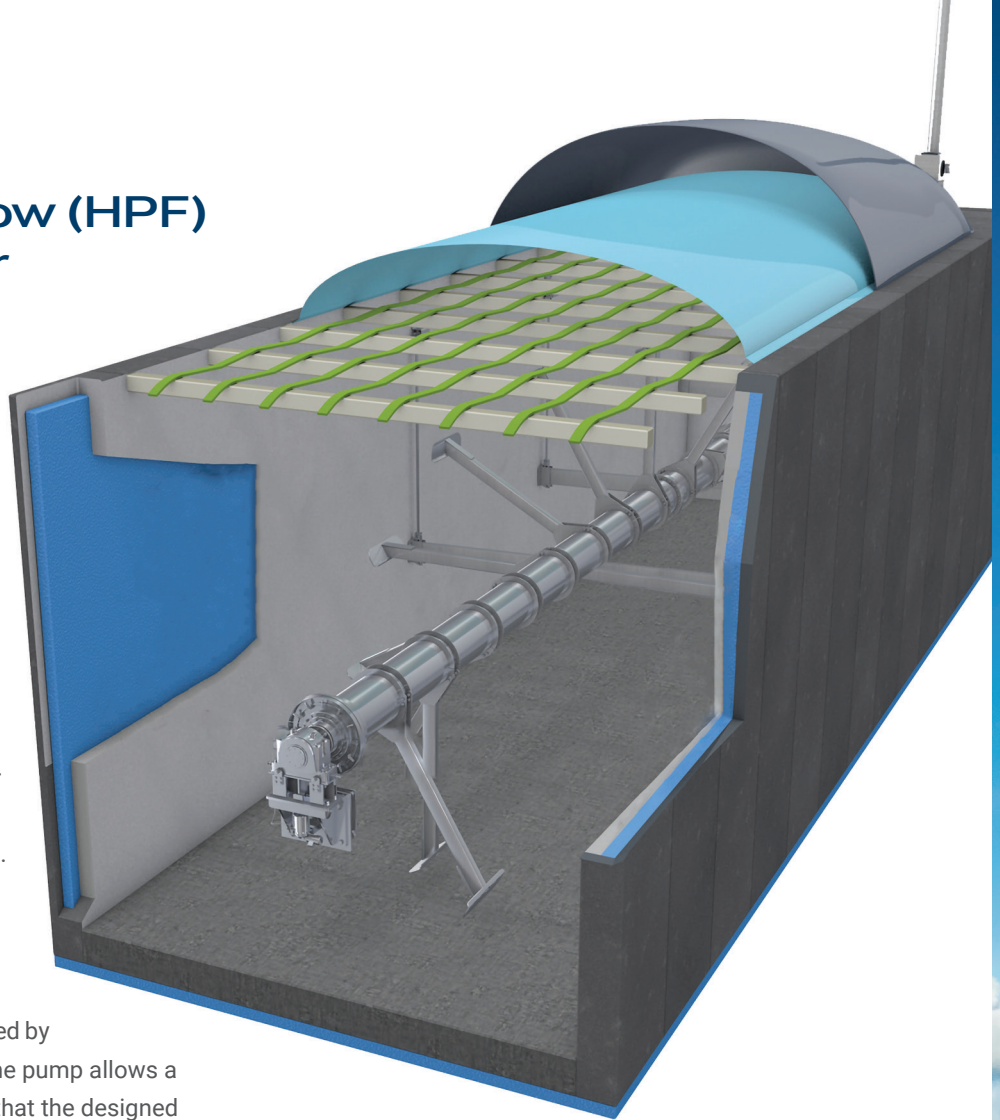
Zenviro Tech continues to be a trusted AD technology provider and has more than 15 years of experience in the global biogas industry processing feedstocks such as green waste, OFMSW, SSO, and mixed agricultural waste.

- **Trusted and Proven**
15-year experience with innovations such as steam injection heating, externally supported agitator, torque load detection, abrasion resistant feeding and discharge systems and more.
- **True Plug-Flow Design**
Flow through digester is only controlled by pumping, allows ensuring full retention and full gas potential exploitation
- **Feedstock Flexibility**
Accepts 20 - 45% TS, including high ammonia and cellulosic feedstock
- **Scalable & Modular**
Pre-engineered sizes for optimal retention design. Modular digestion systems makes for easy future expansion From 10,000 t/a.
- **Minimal System Downtime**
Externally accessible maintenance points, easy access for clean out, and automatic operation mode.
- **24/7/365 Technical Response Service**
Emergency Line: +1 (888) 711-6660

Process Overview:

Horizontal Plug-Flow (HPF) Anaerobic Digester

1. A typical biogas plant prepares the feedstock at reception by shredding and/or removing impurities (such as plastic, rocks, metals, etc).
2. Prepared feedstock is either conveyed or pumped into one end of the digester below the surface level. Newly introduced feedstock pushes the existing substrate further along in the vessel.
3. The non-directional, horizontal agitator continuously and slowly rotates to break-up and homogenize the material. The torque is monitored to detect overfeeding.
4. The flow through Zenviro Tech's horizontal plug-flow digester is controlled by the discharge pump. The suction of the pump allows a controlled digestate outlet, meaning, that the designed residence time cannot be short-circuited allowing for control of the hydraulic residence time.
5. Biogas is produced as the feedstock moves steadily through the digester. Material in the digester reaches the discharge end after a designed retention time.
6. Steam generated by a boiler is distributed and injected into the digester to maintain even, precise temperature. Temperature ranges can be either mesophilic or thermophilic.
7. The biogas collects above the liquid level before storage and utility. Each system is equipped with flow measurement and gas analyzers to measure methane, oxygen, hydrogen sulfide, and carbon dioxide levels in the biogas.
8. Digestate is recycled to the front of the digester to inoculate incoming feedstock and regulate internal temperatures.



USA | China | Mexico

+1 (815) 676-3176
ZenviroTech.com | 

sales@zenvirotech.com
service@zenvirotech.com