

High-Performance Digester

High Conversion Rate Small Footprint



PRE in the
Biogas business
since 1995



Featuring

- Patented system for low-viscosity substrates (e.g., beet pulp, cattle slurry, pig slurry)
- Better process performance from improved hydraulic retention time parameters
- Process control and optimization through smart technology
- Bespoke designs - even for small applications
- Inexpensive system upgrade for existing facilities using variety of feedstock materials
- Enhanced biomass to biogas conversion with integrated ultrasonic treatment

2014 | 2015 Innovation & Research Award
German Stifterverband Award Winner
The German Research Foundation (Stifterverband)
granted the award for Innovation & Research to
**Planungsbüro Rossow Gesellschaft für
Versorgungstechnik mbH**

Patented High-Performance Digester with Integrated Ultrasonic Treatment* from PRE

Fermentation layers

Discrete layer formation is actively encouraged in the digester substrate; thereby creating zones and regions of varying biological activity. And, since hydrolysis processes prevail where fibrous substrate accumulates - the situation that particularly obtains in the upper zone - this top layer serves to keep a check on foam formation.

Succeeding this, in the layer below, hydrolysis produces organic fragmentary particles of relatively large surface area, and delivers the most microbiologically active layer. Acting as a reservoir; it offers a surface to which microorganisms can affix, thereby preventing slow-growth microorganisms like methane-producing archaea from being flushed away. Ultimately, the digester contents are decanted from the layer with smallest presence of organic material.

Minimizing the retention period

Compared to a stirred tank reactor, the hydraulic retention time can be significantly reduced - by up to 30%.

Stability

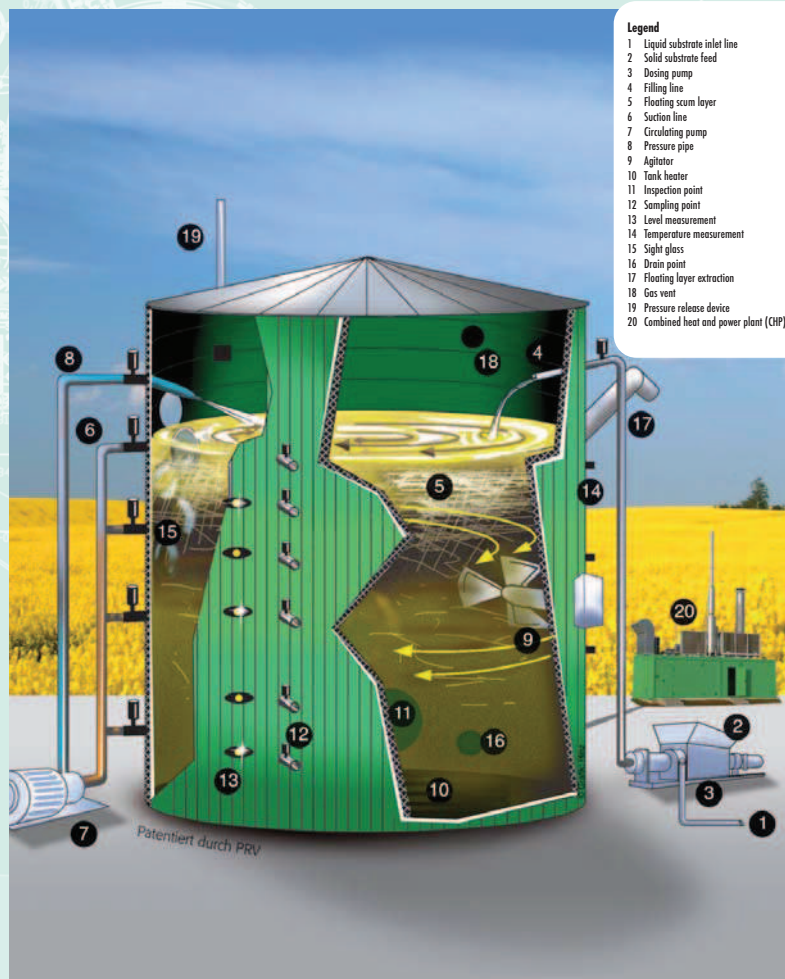
Despite large variations in the amount of organic material in the slurry, the methane production process remains stable. Acting to counter the effects of the cyclically changing nature of the process, the system acts to buffer substrate. And therefore, despite the constantly changing process states, daily biogas production and methane content remains essentially constant.

Ultrasonic treatment

Through the disintegration and dissolution of fibrous substrate constituents, the Wave Box patented by PRE and Ultrawaves GmbH improves biochemical hydrolysis efficiency, and induces up to 20% additional methane production from organic material.

Smart technology system

Exceptionally compact, the system has a minimum of components.



- Legend**
- 1 Liquid substrate inlet line
 - 2 Solid substrate feed
 - 3 Dosing pump
 - 4 Filling line
 - 5 Floating scum layer
 - 6 Suction line
 - 7 Circulating pump
 - 8 Pressure pipe
 - 9 Agitator
 - 10 Tank heater
 - 11 Inspection point
 - 12 Sampling point
 - 13 Level measurement
 - 14 Temperature measurement
 - 15 Sight glass
 - 16 Drain point
 - 17 Floating layer extraction
 - 18 Gas vent
 - 19 Pressure release device
 - 20 Combined heat and power plant (CHP)

*patent pending



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