

*From practical experience...
...to practical solutions!*



Heatcrack Substrate Heat Exchanger



Technical Data

Connections	Substrate connection: Eight-hole flange DN 150 PN 16 Water connection: Steel thread fitting 1 1/4"
Water capacity	458.5 litres
Substrate capacity	1.15 cubic metres/day
Throughput rate	up to 40 cubic metres/day depending on the viscosity
Insulation	Mineral-fibre mats coated with galvanised steel sheet
Supply water temperature	min. 90 °C
Heating capacity at approx. 40 cubic metres/day	80-90 kW (heating from 40 °C to 75-80 °C)
Return water temperature	min. 75 °C
Final substrate temperature	approx. 75 - 80 °C
Weight	approx. 2.700 kg
Operating weight	approx. 4.300 kg

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Usage of the Heatcrack

Low-priced feedstock such as solid manure, grass and silage is used to feed biogas plants equipped with robust technology. The naturally high fibre contents in these substrates place great demands on both the technology and the biology.

The raw fibres in the substrate are extremely difficult to "digest" for the bacteria in the digester. In our **Heatcrack** substrate heat exchanger, the unprocessed raw fibre contents are broken down in a thermal process so that they can be processed more easily by the bacteria.

The tests conducted by our research laboratory have yielded excellent results: In practice, the biogas yield is increased by up to 5 % by using the substrate breakdown system.

Functional Principle of the Heatcrack Unit

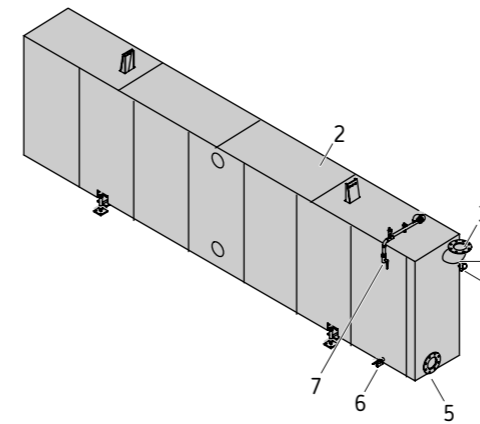
The substrate is heated between the digester and the post-digester. The **Heatcrack** unit consists of a tubular heat exchanger which is supplied with heat by the hot water of the combined heat and power station.

The Heatcrack is fed by a displacement pump which consistently pumps the substrate through the Heatcrack in numerous short pump cycles over a period of 24 hours. The minimum retention time of the substrate in the **Heatcrack** is 35 minutes. When the substrate leaves the Heatcrack, it has a temperature of 75-80 °C, which improves both the digestion speed and the degree of digestion in the post-digester.

Due to the high substrate temperature upon entering the post-digester, virtually no additional heating is needed to operate the digester.

The Result

- ▶ The gas yield is increased significantly with the same amount of substrate.



Schematic view of the Heatcrack unit

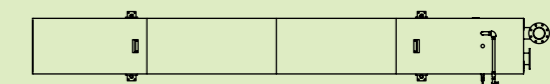
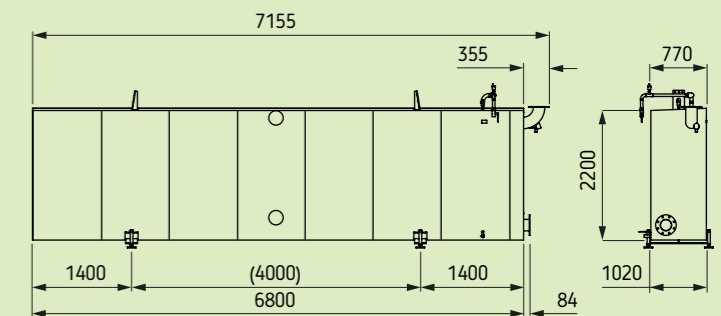
The Heatcrack unit consists of the following components

1. Pipework
2. Thermal insulation
3. Flange connection DN150 PN16 for substrate outlet
4. Temperature measurement
5. Flange connection DN150 PN16 for substrate inlet
6. Hot water outlet 1 1/4" internal
7. Hot water inlet 1 1/4" internal

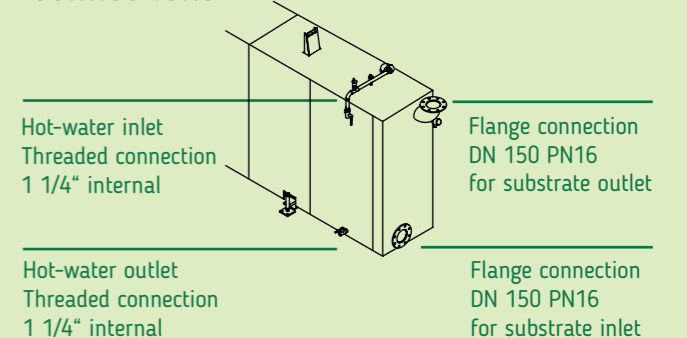
Usage

- ▶ For solid materials extremely rich in fibres
- ▶ For capacity expansion
- ▶ For seasonal energy peaks
- ▶ As external heating in the event of failure of the digester heating system
- ▶ With short retention times of the substrate in the digester

Dimensions



Connections





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