

AHA Hannover is operating its organic waste treatment plant since the year 2005. It was planned and supplied by the company Valorga international (today Urbaser). Task of this plant is to ferment organic waste in order to reduce the volume and gain energy.

For this purpose, residual waste from the households and commercial waste of the Hanover region, as well as separately collected waste is mechanically processed. After processing the waste, it is fed into the fermentation process. The annual throughput in this plant is about 100,000 t.

The components delivered by Putzmeister are in operation in two areas of the plant:

- Loading area
- Recirculation area

Two lines were drawn for each area Installed.

The fermentation tank is fed via the Putzmeister mixing and conveying system, consisting of:

- Storage hopper
- THS mixing and precompression screw
- and KOS piston pump



Recirculation pump KOS 1070

AHA Hannover — Energy through Fermentation of biological waste



Feeding pump KOS 2180 for entry into the fermenter

The mechanically processed organic waste is added to the Putzmeister mixing and conveying system. The biowaste is fed into the storage tank via a conveyor belt, which is located above the mixing screw. At the same time, recirculation material is pumped via a pipeline from the Fermentation tanks into the storage hopper. The dosing is done by a KOS 1070 piston pump (recirculation pump). Both media and the dilution water are fed into the storage hopper. At the same time, steam is fed into the pre-compression zone of the screw and mixed with the other components.

The mixture is fed to the feed pump KOS 2180 by means of the mixing screw and then pumped to the fermentation tanks.

For more than 30 years, Putzmeister has been supplying its S-tube piston pumps both for feeding the fermenter with fresh substrate and for pumping fermentation residues. Since organic waste always contains a high proportion of impurities such as glass, ceramics, pieces of metal, etc., which cannot be completely sorted out during processing, the S-tube piston pump has proven to be the ideal machine for this application.

Plant concept

The system is designed and constructed for the following data:

Conveying medium (mixing screw, feed pump)

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Material		organic waste and ferments
DS-Content of mixture		25 – 35 %
Temperature of mixture		40 – 50°C
Specific weight (mixture)		0.9 – 1.1 t/m ³
pH-value		6 – 8
size of foreign bodies		< 60 mm

Environmental conditions

Temperature Rel. humidity Earthquake factor 5° to 40°C (inside building) 0 – 90% on annual average 0g (horizontal)

Delivery rate / delivery pressure

Feed pump Recirculation pump 80 m³/h at 10 bar 27 m³/h at 5 bar

Operational data

Feed pump Recirculation pump 11 h/d, 250 d/a 11 h/d, 250 d/a



The fermenters are fed in parallel on two lines via two KOS 2180

Machine components

Storage hopper

Hopper volume2.0 m³MaterialINOX 1.4301

Mixing screw THS 3062 MX

Screw diameter Max. mixing power Delivery rate Control range Drive of screws 630 mm 240 m³/h according to pump rate 50 – 100 % (adjusted) hydraulic with 2 hydr. motors

Feed pump KOS 2180

Diameter delivery cylinder Piston stroke Volume delivery cylinder Conn. to delivery pipe Delivery rate (eff.) Delivery rate (theo.) Control range Delivery pressure (eff.) Stroke time normal operation Stroke time min. 280 mm 2100 mm 129 l DN 200, PN 16 80 m³/h 100 m³/h 10 - 100 % (adjusted) 10 bar 15 sec. 5 sec.

110 kW and 1450 - 1/min, 50 Hz

KOS 2180, KOS 1070, THS 3062 MX

Hydraulic power pack HA 110 E

Electric drive motor Various oil pumps

Recirculation pump KOS 1070

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Diameter delivery cylinder	230 mm
Piston stroke	1000 mm
/olume delivery cylinder	41.5 l
Conn. to delivery pipe	DN 150/ PN 10
Delivery rate (eff.)	27 m³/ h
Delivery rate (max. theo.)	28.5 m³/h
Control range	10 – 100 %
Delivery pressure (eff.):	4.5 bar
Stroke time normal operation	15 sec.
Stroke time min.	5 sec.



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