



Making biogas Pumping slaughterhouse waste

Energy is typically extracted from agricultural crops such as maize, oilseed rape, wheat, potatoes, sorghum, sugar beets and hemp. Recent studies have proven that producing biogas from waste from slaughterhouses and the dairy industry is very efficient. Slaughterhouse waste with large solids (bones) up to 13% is used for the production of biogas.

Description of the process

Trucks unload their waste into a large tank. Water is then added to the slaughterhouse waste and is mixed and ground in a homogenizing tank. The substrate is heated with steam to be pasteurized. The pasteurized mixture is then cooled and pumped into a reactor. It is in the reactor that the decomposition process starts: a continuous mixing process which takes approx 1 month.



A Danish biogas plant had frequent problems pumping waste of this kind because the waste contained large sized bones. Sometimes the percentage of solid matter increases up to 10-13 %. Until now the company used a heavy duty screw feeder, which blocked regularly because of the bones. Because the feeder was submerged in a large container, downtime was extensive

to release the screw feeder again. In a later stage a progressing cavity pump tried to manage pumping this difficult mixture but the stator suffered extreme wear due to the sharp edged bones.

The required flow had a capacity of 360-540 m³/h. The differential head is approximately 10-15 m. The pump is feeding a large-sized bone crusher.

The only two pump parts that have been replaced were an impeller and a suction casing.

The company is very satisfied and has installed an extra pump for greater capacity.

Solution

A HUS screw channel pump was offered for a test period to pump the slaughter waste from the tank to the bone crusher. The pump was not executed with a normal electric motor but was coupled with a hydraulic drive, supplied by the client. The hydraulic drive offers very high torque required in the technical specification (360-540m³/h). The pump speed could be adjusted quickly when needed.

The slaughter house waste is now being pumped by the submerged HUS screw channel pump to the homogenizing tank smoothly.



The HUS screw centrifugal pump was tested successfully and offered the perfect solution. Four years after installation the pump runs fully submerged and does not block. The pump is even operating as a bone breaker!



**HUS: Swiss quality
Proven to have less wear!**

