



Screw Channel pumps in slurry applications

Verderhus screw channel pumps are one channel centrifugal pumps, with the ability to pump up to 55% of solids.

Pumping Kaolin Slurry

Installation of the Verderhus running with Kaolinite Slurry in a 24/7 duty controlled by a VSD replacing a 2 stage PC pump with a last time of 3 months

In another Kaolin application is the Verderhus replacing armann centrifugal pumps.

Benefits

- Less wear
- less parts
- Smaller foot print
- Higher efficiency (less friction losses in the pump)

Thickener underflow pump in a 24/7 application

Pump with belt drive for an underfloor thickener in a 24/7 application. Pump model HSL250-200A with 10" inlet and 8" outlet.





Abrasive slurry in Biogas plants

The Verderhus pump is pumping cooked abrasive liquid, and is installed at a Biogas plant.

Process details

- Flow rate 30000 t/year
- Electric power production: 12.000.000 kWh/year
- Heat production: 15.000.000 kWh/year
- Gas supply: 800.000 m³ biomethan/year
- 3 fermentation tanks each 3000 m³
- 2 secondary fermenting tanks each 5000 m³
- 2 block heat and power plants each 836 kW electric

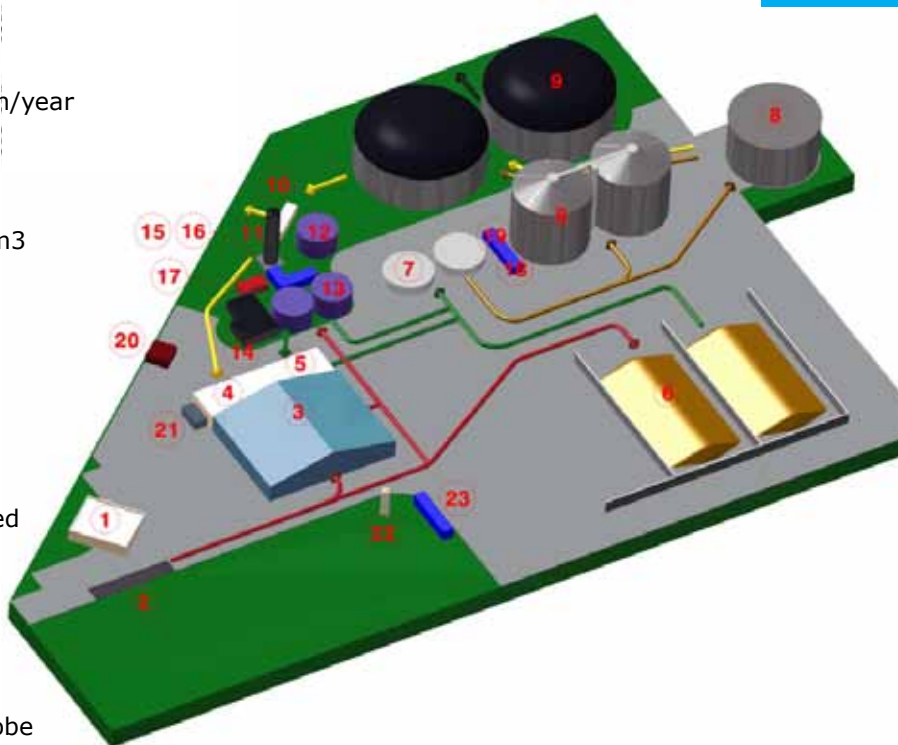
The Verderhus pump is pumping between sanitation (S) and the Mixing pit (7).

The hot liquid produces the energy mentioned above (see picture)
 Viscosity is 150Cst, Solids content 15-20% and the temperature is approx 80°C

Usually the pumps in this application at a biogas plant are lobe pumps with a rubber lobe version. In this application the life time of the lobes, as average, was only 3 months. The flow rate with new lobes is 60 m³/h. Over time, the flow rate decreased from 60m³/h down to 20m³/h due to wear. At this very low point the lobes had to be changed.

The lobe pump was replaced by a Verderhus pump. The only needed maintenance needed now is a check of the bearings and the mechanical seal once a year. Under regular conditions, lifetime of the mechanical standard SIC/SIC seal is two years. With the same motor power of 7.5kW the pump has a flow of 100m³/h.

The plant manager stated: "We lost a lot of money with warranty cases on the lobe pumps and we can confirm, that the Verderhus is the best pump for the applications on the Biogas plants. We are now using the pumps since more than 8 months in a 24/7 duty cycle without any complaint."



the hot liquid after sanitatiion

Abrasive lime slurry in thermic energy plants

The Verderhus pump is pumping cooked abrasive liquid, and is installed at a Biogas plant.

Biogas plant cooked abrasive liquids

The liquid is 70-80°C cooked

abrasive liquid.

- Flow rate 100 m³/h
- Head 24mWc
- Drive 7.5kW

High dry particles slurry

Pumping slurry in a filtration system. The pump is running 24 h/day with up to 20% solids up to 25 mm in size. The product has a viscosity of about 50 Cst, has a high content of dry particles and a temperature of 40°C.

The pumps are installed since two years and never needed maintenance up to now.





Glycol and silicon carbide slurry

Pumping paper pulp with recycled cotton

50% glycol, 50% silicon carbide slurry

Vertical spindle pump is without sealing able to run dry for slurry.

- SG 1.6-1.7kg/dm³
- Flow rate 9 t/h.

24/7 application of 50% glycol and 50% silicon carbide now running for 8 years. The last time that the bearings where changed was 2 years ago and the pump hydraulics was maintained many years ago the last time.



Paper Pulp containing recycled cotton

This pump is installed in the pulp and paper industry. The pump is pumping paper pulp containing recycled cotton and other remains of clothing such as buttons, zippers etc





Screw Channel pumps in slurry applications (III)

Feeding filter press pump for gravel slurry

Installation of a Verderhus pump replacing an Abel pump feeding a filter press.

- Pressure of 30mWc on a gravel plant replaced by a VerderHUS

Benefits

- No pulsation dampener needed on suction or discharge side
- Smaller foot print without gearbox and belt drive



the replaced Abel pump





Pumping calcium carbonate and sodium chloride

The pump is feeding the waste water treatment plant, the complete waste of the factory passes through this pump. The deposit you see is calcium carbonate and sodium chloride. The Verderhus pump was installed in 2008 and is now running for 8760 hours per year.

The thickness of the deposits is up to 1 mm. To make sure that the pump can be cleaned, all wetted parts are Halar coated.

Preventive maintenance is carried out once a year by cleaning the pump from sediments. Also the mechanical seal is exchanged preventively every year. The pump that was used before had to be maintained every 2000 h

Total Cost of Life Cycle

The advantage of the Verderhus pump compared to the competing pump in a 5-year life cycle cost curve can be up to 35% less TLCC



Feeding microfiltration system

A stainless steel Verderhus is feeding a microfiltration system.

- Viscosity 150 cSt
- Dry particles 22%

The pump is running 5 hours a day since 3 years without maintenance.



The foam shows the high, possible gas content the pump can handle. (Max. 30%)



Pumping lime milk without frequent maintenance



Lime milk slurry

This VERDERHUS pump was the selected replacement. It is now running for 36 months without any maintenance needed. The pump feeds the lime milk mixing tank where then later on manually product samples are taken.

The pump that was running this application before had to be serviced on a monthly basis. Verderhus advised a long coupled screw channel pump. The pump is now running for 36 months without any maintenance needed.



Again, maintenance free pumping

At this application the Vortex pump had to have maintenance once a week. Verderhus advised a standard Verderhus pump with coated wetted parts.



The picture shows the status of the screw after 4 months of action (800 hours).



Pumping phosphoric acid in a pickling bath