CASE STUDY:

BIOENERGI I LULEÅ AB

A demanding process made more effective with Lackeby Roto-Sieve®

Bioenergi in Luleå previously used a decanter-centrifuge to separate and dewater wooden fibers from the cooling water in their scrubber. The solution to centrifuge the cooling water is common in the business, but the disadvantage is high energy consumption and at the same time the need of maintenance is high. Since the cost of maintenance had increased, the MD Conny Holmberg saw the need to find a new, effective and priceworthy solution.

The answer was found during a visit to, at that time, Lantmännen Agroenergi in Ulricehamn, nowadays named Scandbio Ulricehamn. They had recently replaced their Rotopass sieve with a Lackeby Roto-Sieve® drum screen model RS 24. The application was uncomplicated and dependable, which suited Managing Director Conny Holmberg. After bringing in references, they decided to purchase a Lackeby Roto-Sieve® drum screen with a Lackeby Screw conveyor press.

– Since we have some lye in the effluent, we chose the equipment in stainless acid-proof steel, Conny explains.

Bioenergi i Luleå AB

Bioenergi in Luleå started their manufacturing of fuel pellets in 1998 and is today one of the biggest pellets manufacturers in Sweden. The capacity is 95.000 tons of pellets a year. The manufacturing takes place in one of the most modern pellets factories in Europe. The factory with its 17 employees is situated at Aronstorps industrial area in Luleå, close to the SSAB steel industry.

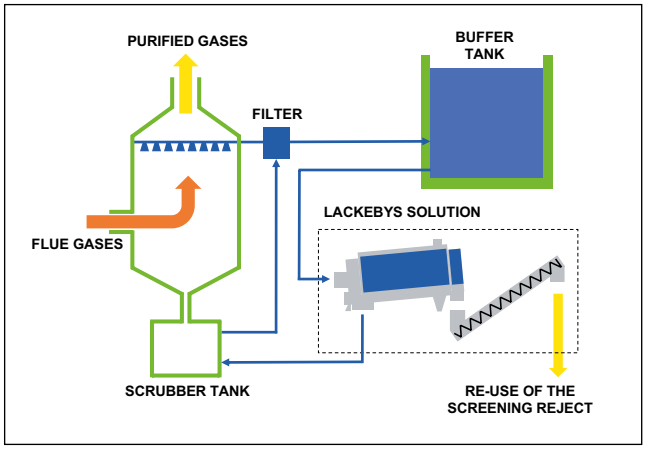
Process description:

From the close by SSAB, hot process gas gets transported, first to Lulekraft powerplant in which large quantities of heat energy is recovered. From the power plant the 450°C process gas is directed through pipe lines to the big drying drum at Bioenergi in which the hot oxygen-free gas dries the pellets. The gas then flows into a cooling scrubber in which the gas temperature drops from 450 to 90°C in just a few meters. During the drying process, the hot gas collects wooden dust and particles which also ends up in the cooling water.

Since it's a closed system, the material needs to be filtered out and here is where the Lackeby Roto-Sieve® drum screen comes to its use. The sieved water is at about 60°C when it passes the drum screen and gets directed back to the closed system. The removed wooden particles get further dewatered in a with a Lackeby Screw conveyor press model SCP 220. The wooden particles then go back into the system and becomes pellets.

Result:

After a year in operation, the manager Fredrik Nilsson is happy to conclude that the decision to install a drum screen from Lackeby was a success. - Initially we used a perforation of 1,25 mm in the drum but after changing to 1,0 mm we have found the optimal solution, says Fredrik. As responsible for the operation Fredrik appreciates the uncomplicated and easy accessible design. The fact that Lackeby's solution only consumes 20% of the energy compared to the old centrifuge is very positive. Conny explains that the water flow rate from the scrubber is about 10 m^3/h and the amount of recovered wooden fibers is about 100-150 kg with a DS of 25-30% after dewatering.



Proven experience:

At the time of Lackeby Roto-Sieve® drum screen installation at Agroenergi in Ulricehamn, it was previously untested for them and us. Lackeby has manufactured drum screens since the 1960's and has delivered more than 4600 units throughout the world, but never before to pellets manufacturing. Initially it wasn't totally without problems until the installation got some adaptations to the special demands that a pellets factory has on the equipment. The combination of high temperature and material with high content of sticky substances like resin, did that we needed to design a special version that both Bioenergi in Luleå and Scandbio's pellets factory in Kammarp use with good results.

"Our goal is to continuously improve and develop our production. The installation of Lackeby' s solution is a step in the right direction. It was a very successful decision to replace the centrifuge".

Conny Holmberg, Managing Director Bioenergi i Luleå AB.

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All of our products are characterized by reliability, long life cycles and easy maintenance making Lackeby Products a trusted partner and supplier of products for plant upgrades or new plant constructions. We guarantee high quality, excellent performance and complete satisfaction.

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