

ENERGIEPELLETS OBERHONNEFELD / SAALASTI

Massively reduced energy consumption

The mechanical wood waste drying process reduces the moisture content by half

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In order to optimize the energy efficiency of the drying process, Energiepellets Oberhonnefeld of Oberhonnefeld-Gierend/DE opted for the mechanical dewatering of the wood waste. Finnish biomass plant manufacturer Saalasti Oy, Espoo, was entrusted with the first industrial installation of this kind.

Energiepellets Oberhonnefeld, which is part of van Roje, has been producing FSC and EN plus certified premium pellets since 2007. In 2019, the company produced 60,000 tons. The adjoining sawmill provides the raw material, i.e. sawdust and wood chips. Pellet sales to end customers are mostly done regionally via retailers. An increasing quantity of pellets is exported in bags.

Due to the positive development of demand and the resulting capacity bottlenecks, van Roje planned to upgrade the pelletizing plant to an annual output of 90,000 tons. With this annual quantity, the belt dryer used by the company is fully utilized and there is no possibility of increasing its capacity. The 10 MW biomass power plant located on the production site is close to capacity as well.



Van Roje is the first customer worldwide to use the 40-ton Saalasti Press 1803 © Saalasti

Improvement of energy efficiency

Van Roje invested € 3 million in the modernization project in order to be able to do without an additional combustion system. In May 2019, the Salmatec presses were replaced and in September, the new Mühlböck belt dryer with heat recovery was started up. Already last winter, two Saalasti Press 1803 presses from Finnish bioenergy machinery specialist Saalasti Oy, Espoo, were installed. The presses are connected upstream of the belt dryer and are used to mechanically dewater the raw wood from around 50% to a residual moisture of 36 to 38%. "The lower water content increases the

belt dryer's performance by around 75% with the same thermal energy. We would have needed a larger belt dryer with the same output," explains Oliver Mühmel, managing director of van Roje. Van Roje uses the presses for wood with a water content of at least 42%.

Higher pellet quality

Saalasti developed a new technology for the mechanical dewatering of wood waste already in 2015. "We are the global market leader in bark presses and see great potential for the use of mechanical through-feed presses in the pellet industry, which has been growing for years," tells us Juha Kettunen, head of sales and vice president at Saalasti. The dewatering technology of the screw and roller press are combined to create a new, optimized mechanical drying technology.

The steel rollers have a diameter of 1.8 meters. Pressure can be raised to up to 150 tons. The structure of the wood is broken up, which improves not only residual drying but also the homogeneity, strength and color of the pellets.

"Thanks to the very high pellet quality, the pellet presses and hammer mills use less energy and are more durable.

Also, less strain is put on spare and wear parts," emphasizes Kettunen. "We can squeeze out over 50% of the water contained in fresh wood," adds Boris Dattler, Saalasti partner for Germany and Austria.



The structure of the wood is broken up during the pressing process which improves the pellets' color, homogeneity and strength © Saalasti

Mix of sawdust and wood chips ideal

"We were quickly convinced of the concept of the Saalasti press because it can process both wood chips and sawdust at the same time," says Mühmel about the advantages of the presses. The sawdust settles in the spaces between the wood chips which creates a very homogeneous structure for squeezing. Depending on the composition of the raw wood, the capacity ranges from 9 tons of sawdust per hour to up to 11 tons of wood chips per hour.

70 to 80 liters of water per cubic meter are drained during the pressing process. The solids are filtered out and then used as process water in flue gas condensation. "This saves 20,000 m³ of fresh water," says Mühmel. "We offer suitable water treatment solutions," emphasizes Dattler. According to Saalasti, the press is 30 times more energy-efficient than traditional thermal drying and significantly reduces CO₂ emissions. Behind the Saalasti press, a sieve separates the sawdust from the wood chips. The latter are passed on to the hammer mill and brought back together with the sawdust in the wet silo.



Up to 80 liters of water per cubic meter are drained during the pressing process © Saalasti

In 2019, the Saalasti Press 1803 won the Innovation Award at the Expobiomasa fair in Valladolid. Settings