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FBSerwis opts for a powerful pre-shredder from Vecoplan to process domestic waste

Energy from Waste

The Polish company FBSerwis needed a reliable shredder to crush municipal solid waste with particle sizes greater than 80 mm and process mixtures of plastics. Vecoplan replaced an old machine in the company's existing line with an energy-efficient VVZ 2500 pre-shredder, which is designed for a throughput of roughly 42 tonnes per hour. Thanks to this system, the customer is now able to shred almost 200,000 tonnes of waste each year, producing high-quality output with particle sizes below 250 mm.

Does it make sense to dump waste into landfills? This not only harms the environment, it squanders valuable resources and takes up a lot of space. Waste can be put to good uses, for example generating energy and replacing expensive fossil fuels like coal, gas and oil. For cement works and steel mills in particular, this can be a very economical solution. It also enables them to cut back their air pollutants emissions.

“We collect municipal solid waste and use it to make high-quality refuse-derived fuel (RDF),” says Arkadiusz Meżyk, CEO of FBSerwis Kamieńsk, an indirect subsidiary of Budimex. In addition to disposal, processing and collection of waste, FBSerwis Group provides technical maintenance services for buildings and industrial facilities, road maintenance services and modernizes street lighting infrastructure. The municipal installation of FBSerwis Kamieńsk has a processing line for municipal waste with particle sizes greater than 80 mm and mixtures of plastics, that's why it searched for a reliable pre-shredder to increase the system's performance. This led it to Vecoplan AG.

Vecoplan, based in Bad Marienberg in Germany's Westerwald region, develops systems for shredding, conveying and processing wood, biomass, plastics, paper and domestic & commercial waste. The company employs some 500 people worldwide. “Our tasks include consultancy, planning and finding solutions. We provide integrated project management,

including installation, commissioning and comprehensive service,” explains Ireneusz Suszyna, Area Sales Manager of the Polish subsidiary Vecoplan Polska. He was the person responsible for the project.

From delivery to commissioning

Vecoplan installed a VVZ 2500 T pre-shredder in response to the company's needs. “This double-shaft shredder can even process difficult and contaminated materials such as domestic and commercial waste,” says Vecoplan expert Suszyna. “We delivered the system, coordinated the whole project, planned the layout in detail, set up the mechanical and electrical connections and finally commissioned the system.” The biggest challenge? “We had to integrate the pre-shredder into the existing line and remove the old machine. At the same time, we had to avoid downtimes.” The installation had to go quickly.

Vecoplan's application engineers matched the system to the customer's input and output requirements by installing suitable rotors and blades and selecting the right screen. They fine-tuned these components according to the FBSerwis' needs by means of numerous tests at Vecoplan's in-house technical centre. At all times they were in touch with the customer in order to determine the requirements for the optimum particle size in the downstream process. The experts selected rotor diameters, cutting geometries, screens and cutting tools to correspond to the mechanical properties, thermal properties and dimensions of the input material and the output requirements.

Downtimes? No problem

Two strong steel doors provide access to the machine for service and maintenance. But what happens if the system suddenly shuts down? In such cases the customer can reach Vecoplan via the service hotline around the clock, every day of the year. Help comes over the phone right away. Vecoplan's technicians first try to rectify the problem via remote diagnostics. In many cases the systems can go back online very quickly. In addition, the causes of the malfunction are determined in order to prevent a recurrence. FBSerwis additionally signed up for an economical and efficient feature, Vecoplan's Live Service. Users can request direct online support from Vecoplan's service technicians, who can access the controller and the control panel and identify, analyse and eliminate errors in real time. Live images can be transmitted via web cams and complex technical issues can be explained using chat, video or teleconference technology. In addition, relevant data and documents can be called up online.

Robust and energy-efficient

Trucks deliver mixed municipal waste to the plant. Front-end loaders pick up the input material and take it to a conveyor system which feeds the new pre-shredder. The machine, which is equipped with replaceable knives and counter knives to achieve consistent granularity, shreds the material to a uniform particle size of less than 250 mm. The robust VVZ is equipped with an energy-efficient HiTorc drive. This dynamic, quick-start, high-torque synchronous drive has a power of 247 kW and is regulated by a 315 kW frequency converter. It requires no mechanical elements such as belt drives, flywheels or couplings. The HiTorc drive is very efficient and much less sensitive to impurities. It also requires much less maintenance than belt and hydraulic drives. “Our customer can achieve energy savings of 40 to 60 percent in the pre-shredding stage as compared with conventional drives,” says Suszyna.

After pre-shredding, the material is further processed. A magnetic separator removes all ferrous materials, and an air separator then separates the material flow into heavy and light fractions.

Goal achieved

“Our primary goal was to increase the throughput of the waste-processing line so that we could produce more fuel,” says Arkadiusz Mężyk. The machine is flexible and focuses on energy-efficient operation. It even shreds difficult materials with high-quality results and at a high throughput. The company operates five days a week in three shifts, producing some 200,000 tonnes of high-quality output material per year.

Meta-title: Vecoplan shredder in use at FBSerwis in Poland

Meta-description: Waste recycler FBSerwis opts for VVZ 2500 from Vecoplan to pre-shred solid municipal waste.

Keywords: Vecoplan; VVZ 2500; FBSerwis; pre-shredding; shredding; plastic; solid municipal waste; domestic waste

Captions



Photo 1: Vecoplan installed a VVZ 2500 T shredder. This double-shaft shredder efficiently processes even difficult and contaminated materials such as domestic waste.



Photo 2: The HiTorc drive is very efficient and is insensitive to impurities. In comparison with belt and hydraulic drives, it requires hardly any maintenance.



Photo 3: Front-end loaders pick up the mixed municipal waste and take it to a conveyor system which feeds the new pre-shredder.



Photo 4: FBSerwis can process 42 tonnes of material per hour with the new Vecoplan system.

Photo credits: Vecoplan® AG

Vecoplan AG is a leading manufacturer of machines and systems for the resources and recycling industry for shredding, conveying and reprocessing wood, biomass, plastics, paper and other recyclable materials such as domestic and industrial waste. Vecoplan® develops and manufactures the systems and components, and sells them worldwide in the wood reprocessing and waste processing industries. It currently has around 490 employees at its locations in Germany, the USA, Great Britain, Spain and Poland.

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