



# Rudnick & Enners

Maschinen- und Anlagenbau GmbH

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PIEPER HOLZ FOR THE GOOD COOPERATION!



PELLETING PLANTS • SAWMILL TECHNOLOGY • SHREDDING MACHINES  
DRYING TECHNOLOGY • SCREENING MACHINES • CONVEYING SYSTEMS



## Rudnick & Enners

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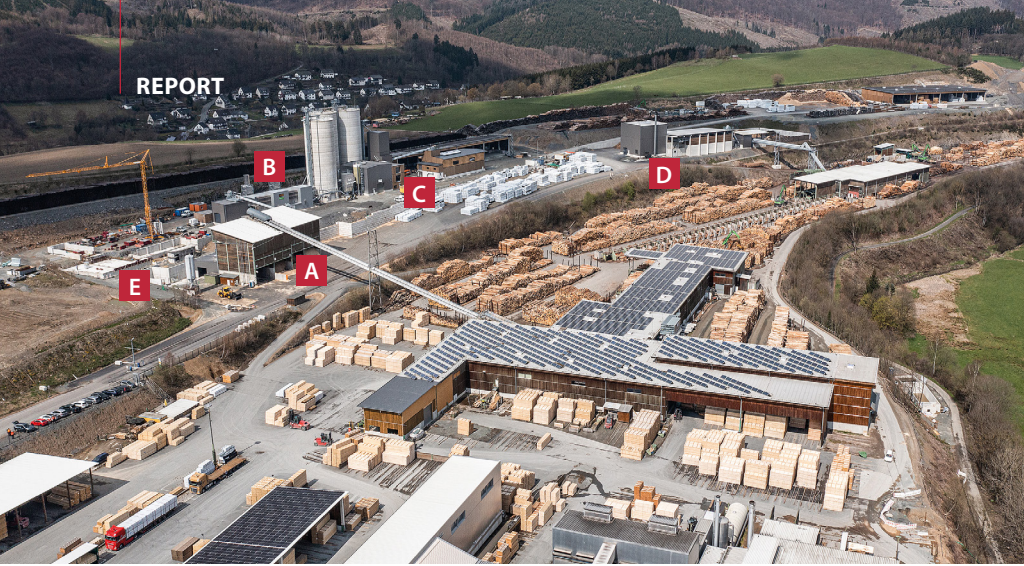
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*Innovative  
plant engineering*

Hall 25  
Booth K25  
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LIGNA





Aerial view of Pieper Holz in Olsberg: Tubular belt conveyor from the sawmill to the sawdust storage area (A), conditioning of the wood waste for pelleting (B), the actual pelleting plant, including the truck loading and bagging stations (C), the new heating plant (D) as well as the plant for industrial wood, which is currently under construction (E). Rudnick & Enners is responsible for the entire wood waste handling, from the log yard to the sawmill, the pelleting plant and the loading and bagging.

## PIEPER HOLZ

# Family company on its way to the future

### Energy-conscious pelleting combined with high quality and flexibility

For many years now, Pieper Holz from Olsberg in the Sauerland region has been working with Rudnick & Enners when it comes to wood waste disposal. For the company's management, it was therefore clear that they would trust the expertise of the plant specialist from Westerwald when building a new pellet mill.

✍ Martina Nöstler 📹 Rudnick & Enners (5), Pieper Holz (2), Martina Nöstler (5)

Already in 2019, Pieper Holz in Olsberg/DE was thinking about investing in a pellet production facility. "We spent a long time honing the perfect concept for us before we decided to have a new building erected," Isabell Pieper explains, who runs the company together with her father, Hans-Georg Pieper. "Our focus is on the production of high-quality pellets. Our output is tailored to the amount of wood waste that accumulates in the sawmill. At the same time, we have reached a level of flexibility that allows us to react to the market or raw material situation at

any time," the managing director explains during the tour of the new pellet mill.

#### A reliable partner

The company has been working with Rudnick & Enners of Alpenrod/DE for many years. When Pieper Holz's new sawmill was built in 2006 and 2007, the machine manufacturer from Westerwald delivered the entire wood waste disposal system. "Following these many years of experience, we entrusted Rudnick & Enners with the construction of the pellet mill, the processing

plant for industrial wood, as well as the shredding machine for bark and offcuts and the fuel infeed," Pieper tells us. "Rudnick & Enners always provided us with great support during the implementation phase and was always available when we had questions," Kristian Kriegesmann, Pellet Production Manager at Pieper Holz, adds.

Construction of the underground structure started in the summer of 2021, and the first pellets were produced on October 4, 2022.

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Proudly presenting the bagged pellets: Jens Hoffmann (technical building management), Kristian Kriegesmann (Pellet Production Manager), Rudnick & Enners's Managing Director Sven Rudnick and Pieper Holz's Managing Director Isabell Pieper (from left)

#### PIEPER HOLZ

Established in: 1948

Location: Olsberg/DE

Management: Hans-Georg and Isabell Pieper

Staff: 160

Cutting volume: 400,000 m<sup>3</sup> (target 2023)

Types of wood: spruce, larch, Douglas fir, pine

Products: lumber, garden wood, floorboards for terraces, planed timber, solid structural timber of up to 6 m in length (not finger-jointed), playground equipment, contract joining

Pellet production: 100,000 t/year



**1** Infeed from the sawmill into the wood waste boxes via a tubular belt conveyor

**2** Rudnick & Enners equipped the boxes with push floors

**3** Horizontal pellet mill design with an output of 12 t/h and the Rudnick & Enners horizontal coolers

**4** Rudnick & Enners's dry chip hammer mill processes the chips once again

**5** The horizontal coolers (in the background) are equipped with intelligent control technology

**6** Energy control center: Kristian Kriegesmann and Jule Trippe monitor the pellet production and heating plant

**7** Using a winnowing mechanism, the fines are removed before bagging

**8** Rudnick & Enners also delivered a bagging machine to Pieper Holz

### Complex changes

The Rudnick & Enners tubular belt conveyor, which was built in 2007, transports the wood chips and sawdust from the sawmill into the three existing wood waste boxes. There, the residual wood, i.e. wood chips and sawdust or mixtures of different types of wood, can be stored separately. Three push floor boxes were integrated into the existing residual wood storage area. "The performance-controlled push floors can be filled up to a height of 13 meters and can also be driven on with a wheel loader. The materials used for pelleting are mixed with the help of the three push floors," Rudnick & Enners Managing Director Sven Rudnick explains. Behind the push floors, two near-resonance vibrating conveyors with an integrated separator for overlengths make the mixture of sawdust and wood chips more homogenous, before a bucket elevator feeds it to the wet chip hammer mill.

### Energy-conscious pelleting

Rudnick estimates the output of the RE-HM 500x1300 wet chip hammer mill at around 12 tons per hour. Thanks to a special grinding chamber, the hammer mill does not require an energy-intensive extraction system. It can grind both wood chips and a mixture of moist wood chips and sawdust. In addition, Rudnick & Enners designed the plant in such a way that it can also handle hardwood from industrial wood processing, and set up a bypass around the plant. Once the residual wood has been shredded, it enters the Stela & Laxhuber belt dryer and is then stored in the dry chip silo, which has a diameter of 12 meters and a height of 30 meters.

Next, the wood chips and sawdust are processed again in a Rudnick & Enners dry chip

hammer mill before they enter the conditioner, where starch and water are added. The R+E conditioner is equipped with an automatic moisture measuring device. A trough chain conveyor transports the mixture into the spacious mixing container, which feeds the two pellet presses. Each press has an output of 6 tons per hour. "When it comes to pelleting, we rely on a horizontal design. Including the pressure boosting system, the device for dosing the starch, dry chip grinding and maintenance access points, we accommodated the pelleting plant with its output of 12 tons per hour in an area of around 11 by 14 meters with a low building height," Rudnick tells us.

After they leave the pellet press, the pellets enter the R+E horizontal cooler, which is located directly under the press and gently cools the pellets. "Compared to a conventional counterflow cooler, our horizontal cooler offers a number of special features in terms of process technology and is able to influence the quality of the pellets as well as energy efficiency thanks to intelligent control technology. For us, it is important to cool the pellets down gently and to avoid 'overdrying' them. We offer our horizontal coolers with an output ranging from 3 to 8 tons per hour," Rudnick explains. Via a discharge system, the first pellets, which are produced right after the plant has been started up, can be separated automatically via the cooler into a spacious container, which does not obstruct the maintenance access point of the pellet press, especially during the start-up or shutdown phase. In addition, a spark detection and extinguishing system was installed directly between the press and the cooler inlet. After the subsequent screening process, the pellets are transported into two concrete silos via tu-

bular belt conveyors. "We operate the pellet plant from Sunday night to Saturday morning. A simple start-up and shutdown process is important to us, as is high pellet quality," Kriegesmann comments.

Pieper Holz can also choose whether to load the pellets onto trucks or fill them into bags. The truck loading station has a capacity of around 100 tons per hour and more. The discharge below the pellet silos is done with the help of a tubular belt conveyor. "Thanks to the special, high-performance Rudnick & Enners vibrating screen, which sits directly above the movable loading belt, the amount of fines is very small. Our drivers can confirm that. Also, we are able to load a semi-trailer truck in less than 20 minutes, including the drive to the loading station and away from it," Kriegesmann confirms. "To achieve the highest possible screening accuracy, we have further developed our vibrating screens. With the new configuration and in connection with the integrated material flow control, we can react more flexibly to the input material and actively influence screening quality," Rudnick emphasizes. The screened out fine material is reintroduced into the pelleting process.

For the bagging, a tubular belt conveyor transports the pellets to the bagging machine, which was also supplied by Rudnick & Enners. In front of it, a second vibrating screen with a winnowing mechanism was installed, which further reduces dust and the number of broken pellets in the bags. The bagging machine has a capacity of up to 1,400 bags per hour and is suitable for 12 and 15 kg bags as well as for special formats.

In addition to the above-mentioned machines and the project planning, Rudnick & Enners is responsible for all electrical installations, the steel construction, the switching and control systems and the plant visualization including R+E Quick-Data, an Industry 4.0 tool. Daily production reports and analyses complete Rudnick & Enners's scope of delivery.

### Further expansion

At the end of May, Rudnick & Enners launched another project at Pieper Holz: This summer, an industrial wood plant will go into operation in Olsberg, to be precise a debarking and chipping line for industrial-quality softwood and hardwood logs with diameters of 10 to 60 cm. The Rudnick & Enners debarker is fed automatically by a cross conveyor and then sends the debarked logs via a power-controlled apron conveyor in the direction of the R+E chipping machine. The bark will be used in the heating plant. "This line will bring a maximum in flexibility," Isabell Pieper explains and adds: "We are very satisfied with the way the project is handled. We can tell that we are working with a family company." //



Rudnick & Enners equipped the truck loading station with a high-performance vibrating screen



Managing Director Isabell Pieper is showing the finished EN-A1 pellets

PIEPER HOLZ

# Optimal fuel processing

In order to be able to thermally supply the belt dryer for pellet production while being prepared for the future at the same time, Pieper Holz built another heating plant. Rudnick & Enners was responsible for the residual wood transport and shredding in this area, too.

✍ Martina Nöstler 📷 Rudnick & Enners (2), Martina Nöstler

When Pieper Holz made the investment in its pelleting plant in Olsberg/DE, it was also necessary to invest in a new heating plant, which was built parallel to the construction of the pelleting plant. Rudnick & Enners of Alpenrod/DE was responsible for the automated infeed of the offcuts and bark from the log yard to the heating plant and the shredding of the wood waste. "Due to the limited space around the storage boxes in the log yard, our fuel is shredded near the heating plant. In terms of transport, we want to be able to do without a wheel loader as far as possible," Pieper Holz's Managing Director Isabell Pieper explains.

## Online transport of offcuts

In order to solve this task, the cut-off disks and bark are transported online from the log yard disposal area to the heating plant. For this purpose, some changes were made to the existing log yard disposal system. Cut-off disks and bark can either be sold unshredded or transported online unshredded. To facilitate that, Rudnick & Enners installed a reinforced trough chain conveyor and an RGFO 1.600 tubular belt conveyor. With a belt width of 1,600 mm, it is currently the largest tubular belt conveyor in Rudnick & Enners's portfolio, and was specially designed for the transport of bark, cut-off discs and torn-off pieces of logs.

"At our production site, cut-off discs with diameters of up to 70 cm can accumulate," Kristian Kriegsmann, Pellet Production Manager at Pieper Holz, emphasizes.

## Shredder with adjustable counter blade

First, the tubular belt conveyor transports the wood waste from the log yard into the infeed bunker of the shredder. It is also possible to feed in pallet wood with a wheel loader. Rudnick & Enners installed a GSA 1.600 shredder with an infeed width of 1,600 mm and an adjustable counter blade.

"The machine can shred bark as well as offcuts and pallet wood. The pre-tensioned and split counter blade is adjustable and increases

*Particularly powerful: A GSA 1.600 shredder with an infeed width of 1,600 mm and an adjustable counter blade*



the cutting gap between the rotor and counter blade at higher impulse forces. This makes the machine less sensitive to foreign objects. In order to have the highest possible energy efficiency when handling the different loads that are fed in by the log yard disposal system, the wheel loader and the debarker, the shredder is equipped with a small pony motor and a boost motor. The former keeps the speed at idle, while the boost motor automatically switches on during shredding," Rudnick & Enners's Managing Director Sven Rudnick explains.

After the chipping process, iron parts are separated. Then, the processed residual wood is automatically transported into the warehouse or to the push floor of the heating plant. //



*The tubular belt conveyor connecting the log yard with the shredder is 1,600 mm wide, making it the biggest of its kind in Rudnick & Enners's portfolio*

*Rudnick & Enners conveyor units automatically feed the warehouse or the moving floor of the heating plant*

