

SR Schindler, Regensburg, Germany

Fully automatic grinding and bush hammering line at Friedl Steinwerke in Austria

In collaboration with SR Schindler, Friedl Steinwerke GmbH of Weppersdorf has implemented a fully automatic finishing line. It combines an SR Star 8126 grinding machine and an SR Mega 6000-C bush hammering/aging line with fully automatic conveying and handling equipment to form a continuous process chain. The line was ordered in 2025 and has since been delivered, installed and successfully commissioned. With this project, Friedl is pursuing a clear objective: to manufacture high-quality concrete pavers and slabs with sophisticated surface finishes efficiently and reproducibly.

Very high process flexibility

The new production hall built for operation of the line was designed from the outset for a very high degree of process flexibility. The grinding machine has a hybrid design and is therefore equipped for both dry and wet operation. The drainage channels for the grinding water generated during wet grinding are already integrated into the production hall floor. The line currently operates in dry mode; however, its hybrid design ensures that it can be switched to wet processing at any time without any modifications. This early planning provides the infrastructure required to operate the line flexibly and economically over the long term.

"We can now handle the entire process – calibrating, grinding and aging – on one line. And if we decide to move to wet grinding in the future, we can do so without modifying the plant. That gives us a great deal of flexibility. On top of that, we're already able to offer a much broader product range while maintaining consistently high quality," summarizes Alfred M. Friedl, Managing Director of Friedl Steinwerke GmbH.

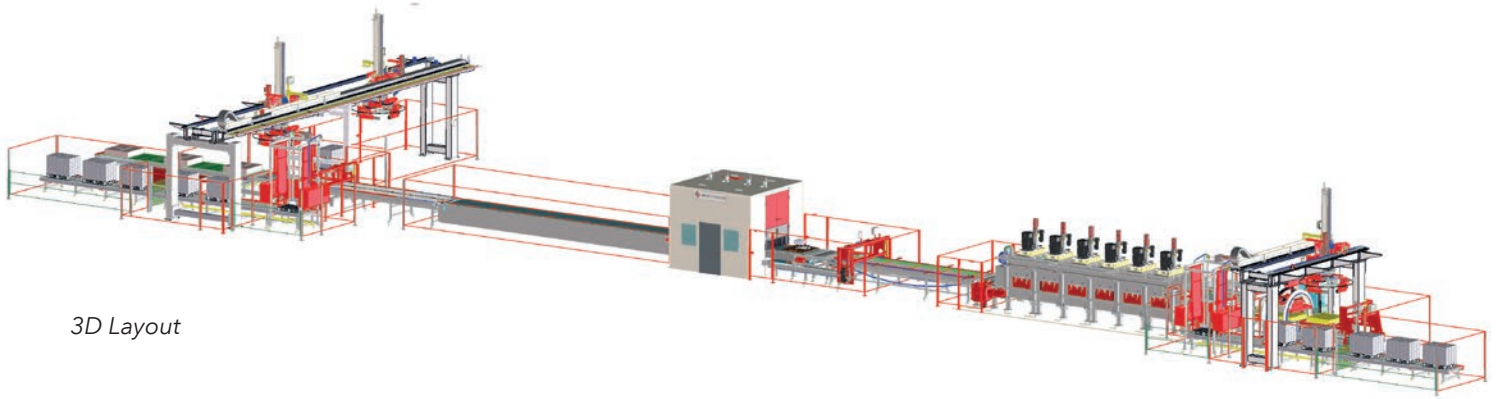
From the unfinished product to the finished surface

The line can process paver layers measuring up to 1,250 × 1,250 mm and product thicknesses from 20 to 250 mm. The machines and the conveying and handling equipment are designed for layers weighing up to 700 kg.

At the infeed, a layer stacker equipped with an electric-motor-driven four-sided clamp, a side-channel blower and a vacuum suction plate picks up the product layers, allowing even layers of thin slabs to be transported safely. A hydraulic drum turner then rotates the layers by 180°, positioning the back-mix concrete side on top for calibration in the grinding machine. This reliably eliminates production-related tolerances such as conicity and variations in product thickness. Dry calibration is performed using up to three grinding discs rotating about the vertical axis and fitted with diamond mill-



SR Star 8126
Grinding
machine



3D Layout

ing segments. The discs are electric-motor-driven, frequency-controlled and motor-adjustable in height.

The SR Star 8126 grinding machine performs a dual function: After calibrating the back-mix concrete side, it can also be used to grind the face side. If the products are to be ground after calibration, the second layer stacker at the outfeed removes them and feeds them back into the line via the first layer stacker; the drum turner remains deactivated during this second pass.

A total of six processing stations are available: three equipped with diamond milling tools for calibration and three with grinding segments for surface finishing. When the visible surface is ground, the aggregate grains are cut open, creating a visually and tactilely appealing surface. Depending on the required result and material mix, the number of active stations can be adjusted as required. At the outfeed, an integrated high-pressure cleaning system removes adhering residues, ensuring that the products enter the next processing stage in a clean condition.

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Production line with safety enclosure

The paver layers are transported through the Mega 6000-C bush hammering and aging machine on an approximately 18 m long heavy-duty fabric conveyor belt. The processing support is equipped with six quick exchange beams and a total of 105 aging hammers. The impact frequency and impact energy can be precisely adjusted to the product hardness and the required surface appearance. In addition, the supports perform a frequency-controlled oscillating movement. The result is similar to tumbling in a drum, with the decisive advantage that the product layers remain intact and do not have to be re-sorted after processing. Spacers, edges and undersides remain intact, ensuring that the products are easy to lay.

Two lines, one system: The integrated process chain

A customer-supplied shotblasting and curling line runs parallel to the new SR Schindler line in the opposite direction. Ground products can be further processed there and subsequently picked up and packaged by a customer-supplied layer stacker. The outfeed layer stacker serves both lines independently: Equipped with two trolleys and two four-sided clamps, trolley 1 removes products from the grinding, bush hammering and aging line, while trolley 2 transfers them to the shotblasting and curling line.

As part of the project, SR Schindler also extended the customer's existing line: Empty-pallet magazines integrated at the infeed and outfeed automatically provide empty pallets, feed them into the line and take them back again. This allows the line to remain in continuous operation without direct operator intervention.

Control system, safety and smooth ramp-up

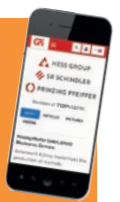
The entire SR Schindler finishing line is controlled by a Siemens S7-1500 PLC. Four Siemens HMI devices are available

for operation: one permanently mounted on the grinding machine, two mounted on pedestals and one wireless tablet PC for maximum flexibility on the production floor. The line can be accessed remotely via a VPN router, allowing direct assistance to be provided in the event of a malfunction. Communication with the customer-supplied shotblasting and curling line is ensured by a defined exchange of signals. The complete mechanical and electrical safety system was designed by SR Schindler: A fail-safe control system with light barriers, light curtains and emergency-stop pushbuttons is housed in a separate control cabinet.

The smooth commissioning process was the result of close coordination between all project partners from the outset. Friedl's forward-looking production hall planning provided the ideal basis: Grinding-water drainage channels had already been integrated, and sufficient space was available for both lines. The clearly defined interfaces between the SR Schindler line and the customer-supplied shotblasting and curling line enabled a structured and predictable start of production. With the new line, Friedl Steinwerke has established the basis for producing high-quality surface finishes efficiently and flexibly, with consistently reproducible quality. ■



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