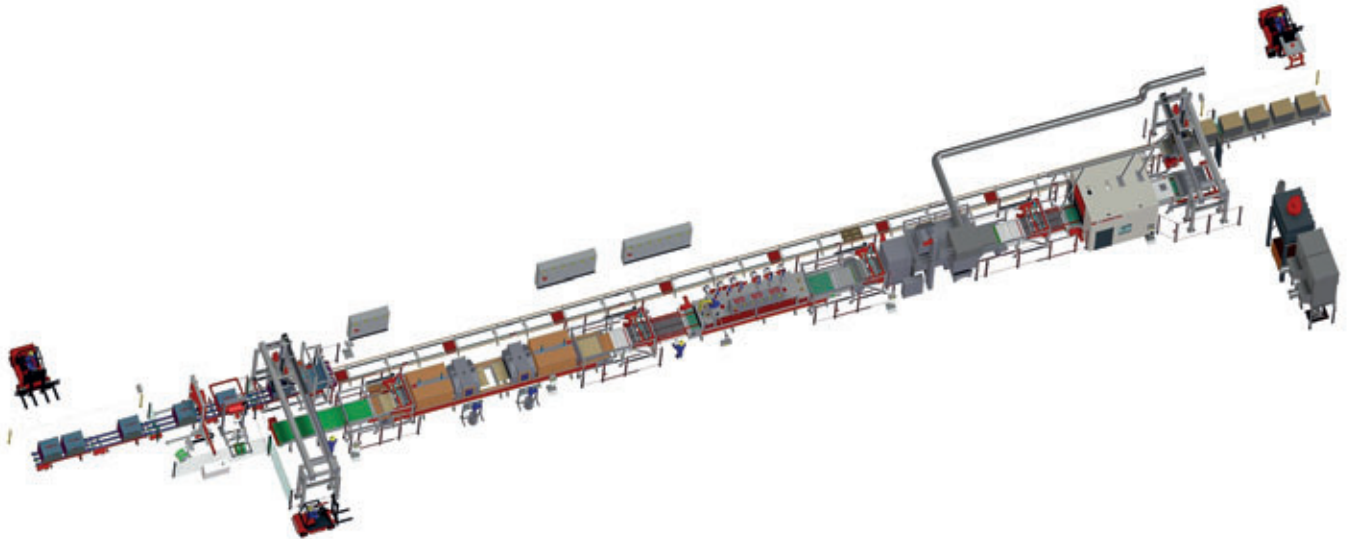


SR-Schindler Maschinen-Anlagentechnik GmbH, 93057 Regensburg, Germany

## New concrete paving stone finishing line featuring coating plant in Poland

At the end of last year, a paving stone finishing line was shipped to the Pebek company in Swidnica near Breslau. It is an offline finishing line for a measurement of layers of maximal 1,000 x 1,200 mm at the in- and outtake. The smallest single stone measurement is 100 x 90 mm. This entire line is dimensioned for a working width of maximal 1,200 mm.



### Plant layout

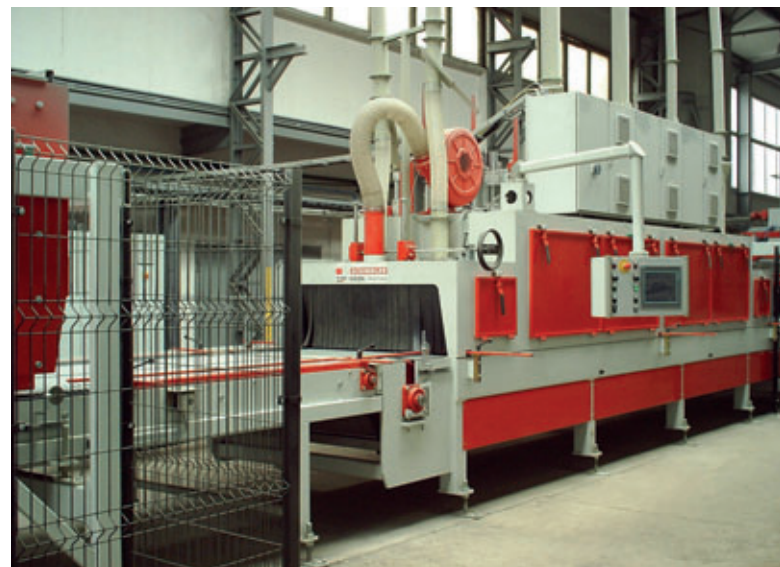
The paving stone packs are transported from the storage place to the in-take position by a fork lift. The packages, with or without pallet, are transported to the de-stacking position by a slat conveyor. At this point, a 4 sided

electrical clamp takes layer by layer and deposits it on the transfer table of the finishing line. This clamp is prepared for mounting of a vacuum suction plate so that, if necessary, also products in small formats can safe-

ly be de-stacked. The layers are moved by a layer pusher with pushing beam in an endless row into the bush hammering /- aging machine Mega 6000 C. This machine is equipped with a processing support, which



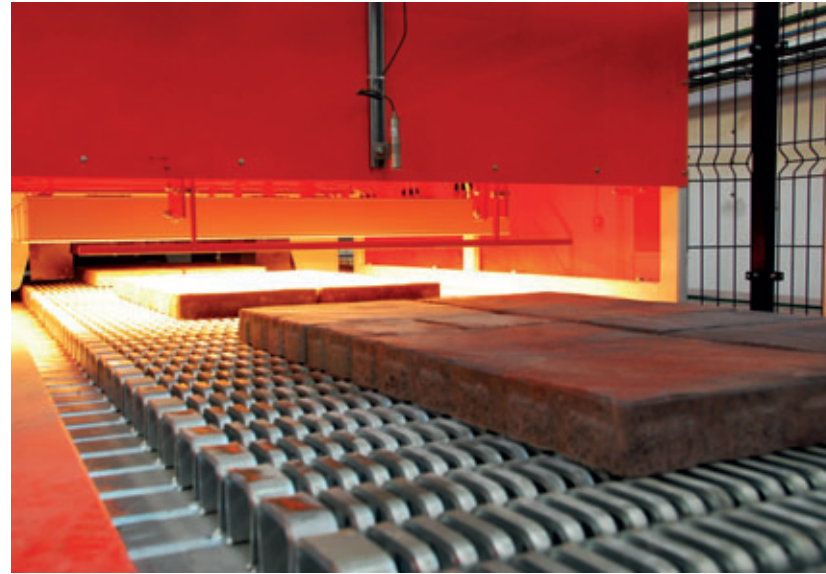
Shot blasting machine



Curling plant featuring stationary operating panel



Coating plant



Special coating plant conveyor

optionally can be supplied with either, bush hammers or aging hammers. Another support for an increase in performance can be added on to a board extension. Subsequently, a foil dispenser, which protects the products during the aging process

from surface damage, can also be added on. This works while, during treatment, an approx. 200µm thick foil passes between the product surface and the hammer support through the machine which at out-take is being rolled up again. This prevents the

direct contacting of the product surface by the hammers. The edges, however, are still broken off. An accumulation roller chain conveyor with stopper system again breaks up this endless row after the aging process, so that now the product layers can be formed



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*Piping to separately located suction plants*

new. These product layers then are moved by a layer pusher into the shot blasting machine. The layers have to have a minimum space of 600 mm between one another to make sure that the products will not be over shot blasted, should the line come to a stop. Should a turbine stop occur, the still dropping shot blast material will, because of the perforated conveyor belt, fall into the screw conveyor and then be transported back into the material silo. In the shot blasting machine one can work in flow path as well as cycle wise operation.

The shot blasted products now, for the curling process, have to be re-aligned to an endless row by a layer pusher and be pushed via a transfer table into the curling machine. Because the pressing on of the brushes is controlled by power consumption, it is necessary to have an endless row of product to prevent the brush rollers from pushing on the belt conveyor. By standard the curling machine has 6 brushes. Respectively 3 rollers are located in a tunnel and are hanged transversely at an angle of approximately 25 degrees. These brushes are at different degrees coated with Karborund (SiC). While the first two brushes exhibit a greater coating than the following two, those exhibit yet a greater coating again than the last two. The degree of coating decreases because the amount of the, to-be removed and excess cement surrounding the aggregates, decreases and thus, the exposing of the grains gets easier. Brushes 1, 3 and 5 are contra-rotating to brushes 2, 4 and 6. This opposed treatment prevents the forming of brush lines on the product surfaces.

Right after curling, the products are organized in layers again by an accumulation roller chain conveyor with stopper system and visually inspected. Second grade products are manually removed and exchanged. After this quality control, a layer pusher passes the products on to the coating line.

The construction of every coating line has to be in accordance with the specifications of to-be-used coating materials. In other words, to-be-used chemicals govern the construction of the mechanical equipment.

The client in this specific case uses a primer as 1st component and the 'so said' TopCoat as 2nd component. Both components are acrylic based. The coating of the product with those components is possible either by spraying or rolling. Since rollers get caulked up fast, Schindler decided to use spray beams. Initially the products, however, are pre-heated by 4 motor-driven height adjustable infrared emitters, 17 kW each and then sprayed with the primer. The used spray beam is manually movable in height. Amount, width and cycle of the spraying can be adjusted.

Between priming and coating with the TopCoat, a 2 meter free run is planned for the primer to penetrate the product sufficiently deep enough before the final coat is applied. Subsequently follows the spraying of the TopCoat.

Both spraying systems are placed in an enclosure equipped with suction nozzles for the suction device and a filter. After coated with the sealer, the products are dried by 6 infrared emitters, 17 kW each, and following

ready for packaging. The products are layer wise transported through the coating machine by a 15 meter long special slat conveyor.

After exiting the coating machine a layer pusher hands over the products to a belt conveyor that transports the products to the take off position of a layer stacking device. The 4 sided clamp of the layer stacking device, prepared for the upgrade with a vacuum suction plate, places the layers on the pallet, which is transported by an empty pallet conveyor from the de-stacking position at the intake to the line into the stacking position at the out-take of the line.

To prevent surface damage, a net feeder automatically places a net between the product layers. After package forming is completed, the same dispenser also places a foil on top of the last layer of the package.

While the chain conveyor is fitted to be upgraded for horizontal and vertical strapping, it then moves the completed packages to the take off position of the fork lift. The Siemens S7 control is housed in 9 switchboards. With a W-LAN tablet PC with visualization a trouble free operating on-site is possible at every machine. Additionally a stationary control panel is located at the curling machine.

In compliance with EU regulation 2006/42/EG, the area of the layer stacking device, layer pushers and net dispenser is supplied with safety fences, and - doors, safety barriers and a fail save controller.

With the paving stone finishing line, the Pebek company is optimally prepared for the ever increasing demands in the Polish market place and even with this new coating line takes a leading role in this market. ■

#### FURTHER INFORMATION



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