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

New paver finishing line for the diverse challenges of the Polish market

The Kamal company of Krojanty in the north of Poland is manufacturing products with a finished surface on an SR-Schindler paver finishing line since the middle of this year. It is an off-line finishing line for maximum layer dimensions of 1,200 x 1,000 x 350 mm. The smallest single stone dimensions are 90 x 60 mm.

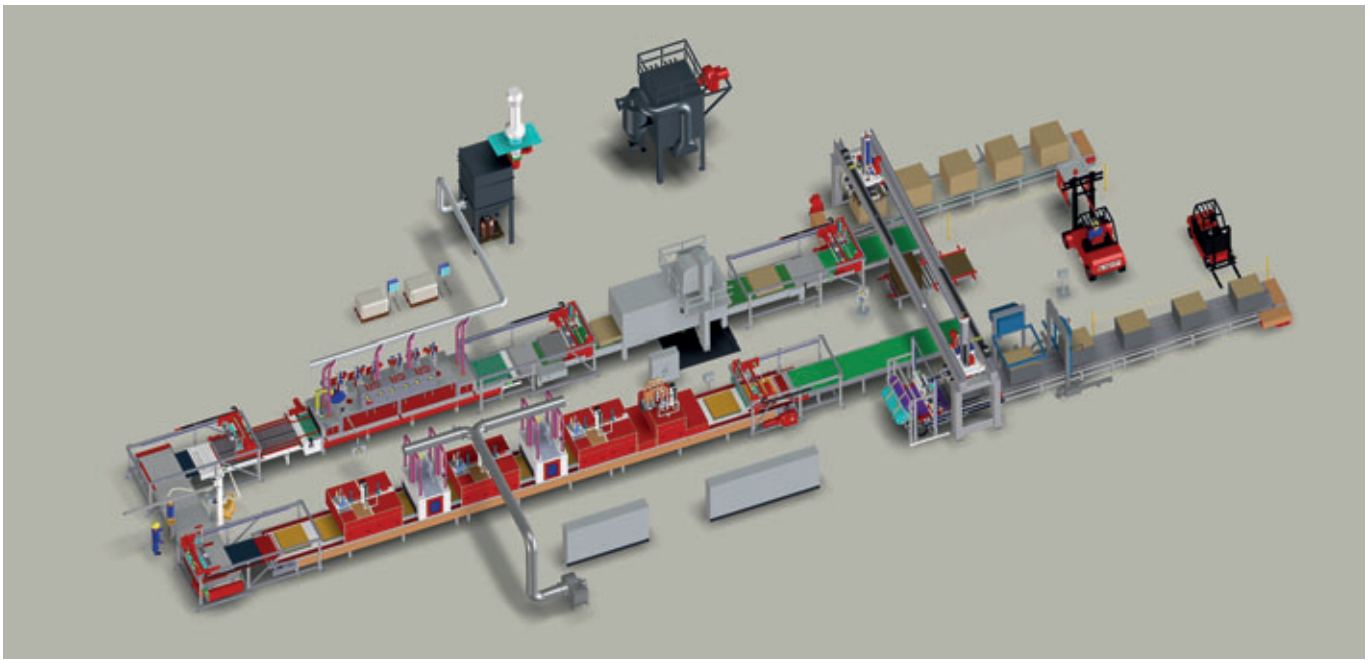
The tile packs are brought with or without pallet from the storage place to the intake position by a fork-lift. A slat conveyor transports the packs to the destacking position. Here, the electromotive four-sided clamp of the layer stacking device removes them layer by layer and places them on the belt conveyor at the intake of the finishing line. The emptied pallets are placed by the four-sided clamp on a buffer station and, when needed, from there taken to the the loading position. Additional empty pallets can be channelled into the buffer position by a roller conveyor.

A layer pusher transports the layers into the already existing, provided by customer, shot blasting machine. The shot blasting machine and the corresponding and provided by customer filter system are connected by means of signal exchange to the controller of the SR-Schindler line.

At the exit of the shot blasting machine the layers are, in an endless string, entered into the curling machine by a layer pusher with transfer table. Since the pressure of the brushes is controlled by the power consumption, an endless string is necessary so that the rollers do not press on the belt conveyor. By standard the curling machine is equipped with six brush rollers. Three brushes, hanged slantingly at approx 25°, are positioned in one tunnel. The brushes at different degrees are coated with carborundum (SiC), while the first two brushes exhibit a stronger coating than the two following ones. These again are coated to a greater degree than the last two brushes. The degree of coating becomes less because the amount of the, to be removed, surplus cement that surrounds the aggregates decreases and thus simplifies exposing the grain.

Brushes 1, 3 and 5 run in the opposite direction to brushes 2, 4 and 6. This reverse treatment prevents brush lines on the product surface. A cartridge filter system with the suction capacity of approx. 10,000 m^3/h collects the dust from the curling machine.

Immediately after curling the products are formed into layers again on an accumulating roller conveyor with stopper system and visually inspected. After quality control a layer pusher transfers the products to a slat conveyor. This slat conveyor, which runs at 90° to the shotblasting/curling line, connects the shotblasting/curling line with the coating line that runs parallel to it. Due to the layout of the hall, the finishing line is arranged in a U-shape. Using a vacuum lifting device the stone layers with 2nd choice products on the slat conveyor are removed by the operator.



Layout of the new SR-Schindler paver finishing line at the Kamal company in Krojanty

Four-sided clamp for inserting the stone layers into the finishing line; the pallet buffer can be seen in the background

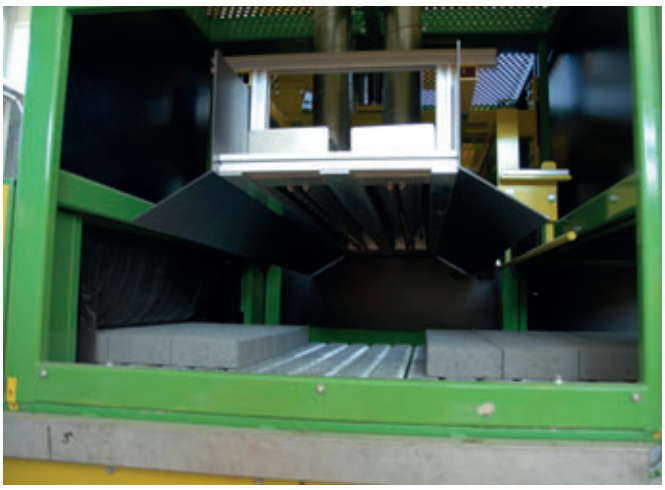
Curling machine with six brush rollers

Coating line "Protector"

At the end of the slat conveyor the 1st choice stone layers are pushed by a layer pusher in layers onto the approx. 22-metre-long special conveyor of the Protector coating line. The coating line in this case consists of an infrared preheating tunnel with four infrared heaters for heating up the product surfaces, a subsequent spraying unit for applying the primer, a heating tunnel (similarly equipped with four infrared heaters for drying the primer), another spraying unit for applying the actual coating, a heating tunnel with six infrared heaters for drying the coating and a UV station with two ultraviolet lamps.

The infrared heaters in all heating tunnels are motorized height adjustable. The spray beams of the spraying stations are manually height adjustable. Spraying amount, -width and -cycle are adjustable. Both spraying units are enclosed and equipped with suction nozzles for the suction unit and filter provided by customer.

The arrangement of the coating line allows the use of different chemicals for coating or impregnation, because drying is possible using infrared as well as UV.



Tunnel with UV lamps

Infrared heating tunnel with six heaters

Combined net/foil feeder

Packing track with strapping

Packing

At the out-take of the coating line a layer pusher transfers the products to a belt conveyor, which then takes the products to the pickup position of the layer stacking device. The 2nd four-sided clamp of the layer stacking device places the layers on the pallet. By equipping the layer stacking device with two travelling trolleys with a four-sided clamp each, products can be fed into the finishing line and at the same time be packed after finishing.
A combined net/foil feeder automatically places nets between the product layers to protect them against surface damage. Once the product packs are formed the same feeder also places a foil onto the top layer of the pack.
The finished packs are transported by a slat conveyor through the horizontal and vertical strapping device and subsequently taken to the take-up position of the forklift. The conveyor at the vertical strapping device is executed so that also packs without pallet can be securely strapped.

Electric control and safety technology

The Siemens S7 electric control for the line is housed in two substations with a total of seven switch boards. With the help of two mobile control panels with visualisation local operation of each machine is possible without problems. In addition there is a stationary control panel at the curling machine. Remote maintenance of the line is possible at any time via VPN router.
Areas of the layer stacking devices, layer pushers and net feeder of the line are equipped with protective gratings, -doors and light barriers as well as a fail proof electric control. The protective devices naturally are considered in the visualisation of the line.
With the paver finishing line and particularly the flexible coating line Protector, the company Kamal is ideally prepared for diverse challenges in the Polish market.

FURTHER INFORMATION

SR-Schindler Maschinen-Anlagentechnik GmbH
Hofer Strasse 24
93057 Regensburg, Germany
T +49 941 696820
F +49 941 6968218
info@sr-schindler.de
www.sr-schindler.de