

SR Schindler, 93057 Regensburg, Germany

Al Sarif in Saudi Arabia is increasing its product quality with a value-adding line

■ Mark Küppers, CPI worldwide, Germany

The Al Sarif Company for Building Materials (SCBM) was founded in 1979 and started with the production of concrete products in 1985 to meet the growing demand for concrete products, particularly for infrastructure projects in the Kingdom of Saudi Arabia. To continue to earn the confidence of its customers, SCBM has set itself the task of driving quality forward through continuous improvements and product diversification. SCBM is therefore keen to always keep pace with the latest requirements in the modern building materials industry. This also requires new and high-quality production facilities. By commissioning a new shotblasting and curling line, this quality standard was recently underpinned. The new finishing line was supplied and installed by SR Schindler, a company in the globally operating Topwerk Group, as the 1st phase of an ambitious investment plan for the production of “world-class premium pavers and tiles”.

Al Sarif Company for Building Materials is a pioneer in the Saudi Arabian concrete industry. In 1979, SCBM was the first company in Saudi Arabia to produce interlocking paving

stones for the diplomatic quarter in Riyadh, an important area where most foreign embassies are located.

Over the last few decades, SCBM has successfully expanded its production to four plants, which are distributed over the two largest regions of Saudi Arabia: Riyadh and Makkah al-Mukarramah. The product portfolio of SCBM comprises concrete products such as interlocking paving stones, kerbstones and terrazzo tiles. Yet steps, street furniture and blocks are also made on twelve fully automatic production lines.

One of the latest products and the boast of the company are the Roxtile premium paving stones. These are a new generation of paving stones that are manufactured using ultra-modern technology.

SCBM has gained the trust and loyalty of its customers over recent decades due to its own high quality standards. With its comprehensive quality tests on both the raw materials as well as the finished products, Al Sarif is able to meet its customers' high expectations.

SCBM is proud of its extensive network of public and private customers, who have placed their trust in SCBM in the past on many projects in Saudi Arabia. SCBM is highly regarded by most ministries (e.g. housing, transport) and all municipalities. What is more, SCBM is involved in most of the challenging projects in Saudi Arabia, e.g. for the metro project in Riyadh.

Finishing line supplied by SR Schindler

A shotblasting unit removes the cement from the product surface, thereby exposing the aggregates in paving stones and concrete slabs. The products are machined on the face side. Shotblasting machines are operated with steel or stainless steel blasting materials. In operation, the steel or stainless steel balls, standard size 0.6-0.8 mm, get thrown by means of turbines at the products to be shotblasted.

The blasting speed and belt speed are adjustable depending on the product being treated and the desired surface appearance. The turbine and belt drive are frequency-controlled for a homogeneous treatment from rough to fine.



The stone packages being finished are transported by the heavy-duty conveyor to the LPU layer stacker.



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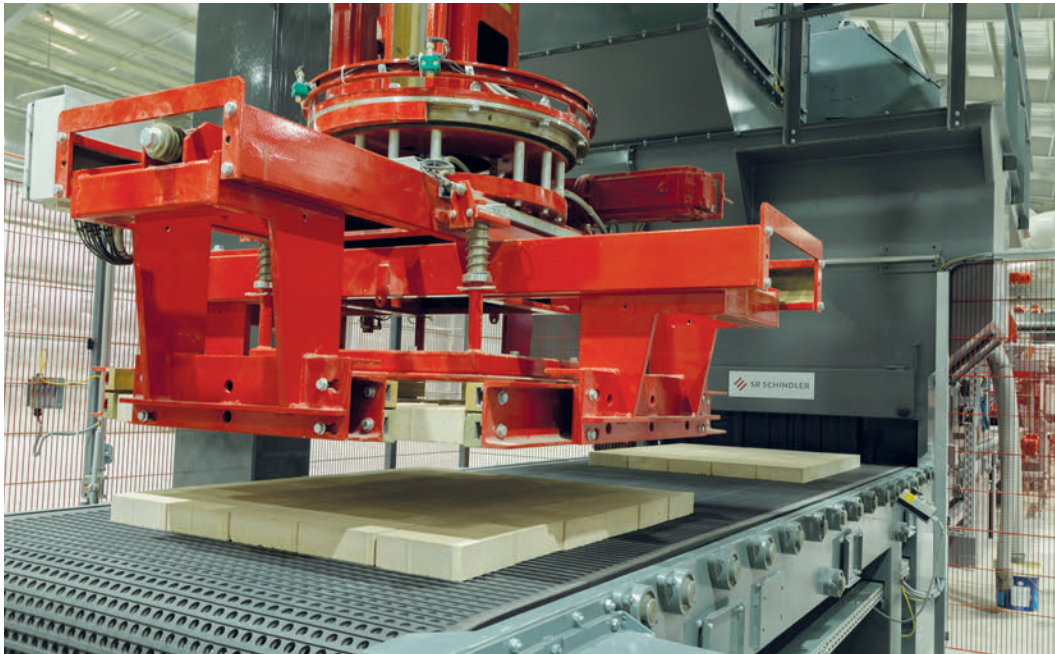
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Set down in layers onto the shotblasting unit's rubber conveyor belt

SR-1250 shotblasting unit

For finishing the surface of concrete products, a type SR-1250 shotblasting unit supplied by the German plant manufacturer, SR Schindler. The SR-1250 shotblasting unit processes layers with dimensions between 800 x 800 mm and 1,200 x 1,200 mm. Layers with a side length of more than 1,200 mm are rotated by 90° and then transported with the shorter side at right angles to the direction of movement so that these layers can also be processed in the shotblasting unit. The maximum product thickness is 200 mm.

Firstly, the stone packages being finished are set down on the 11.70-m-long heavy-duty conveyor with a frequency-controlled drive. The packages are transported in cycles to the LPU stacker with electromechanical four-sided clamp. The running gear of the LPU is also equipped with an electrical drive, whilst an electromotive rotary device allows the layers to be individually positioned on the shotblasting unit's rubber conveyor belt before the infeed entrance lock. The rubber conveyor belt is ribbed at right angles to the direction of movement, which prevents the product layers from drifting apart during finishing.

The shotblasting chamber is made of 12 % austenitic manganese steel to protect against damage and wear from the blasting process. In the shotblasting chamber, two frequency-controlled turbines, each with an output of 18.5 kW, blast the surfaces of the layer positioned below with small steel or stainless steel balls. This exposes the aggregates in the facing layer of the concrete products and they are given a refined and aesthetic surface finish. Another effect of the shotblasting process is the much improved slip resistance due to the acquired roughness of the surface.

The throughput of blasting material is approx. 240 kg per minute and turbine. The dosing amount of blasting material can be regulated electropneumatically.

Once the blasting process has finished for a layer, this is transported out of the shotblasting chamber and a new layer is positioned in the chamber. The shotblasting process is automatically stopped whilst the layer is being changed and only started up again as soon as the next stone layer is in the right position in the chamber.

In the following cleaning chamber, two high-pressure blowers with height-adjustable slot nozzles remove the blasting material from the surface of the processed concrete products. The contaminated blasting material is collected and dirt particles are removed from it in a cleaning unit. It is then made available for the shotblasting process again in the blasting material silo.

CA 1200 curling unit

A layer pusher with transfer table transports the freshly shot-blasted products in an endless row into the CA 1200 curling unit, also supplied by SR Schindler.



The curling machine has its own control system with operating panel and display.

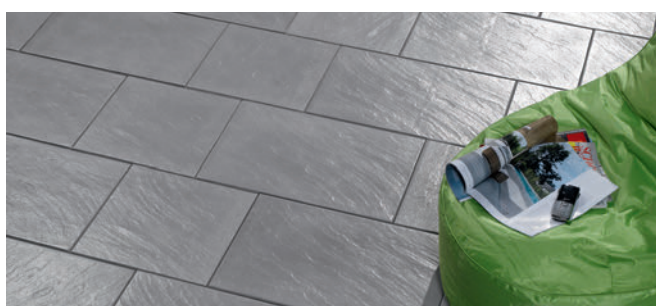
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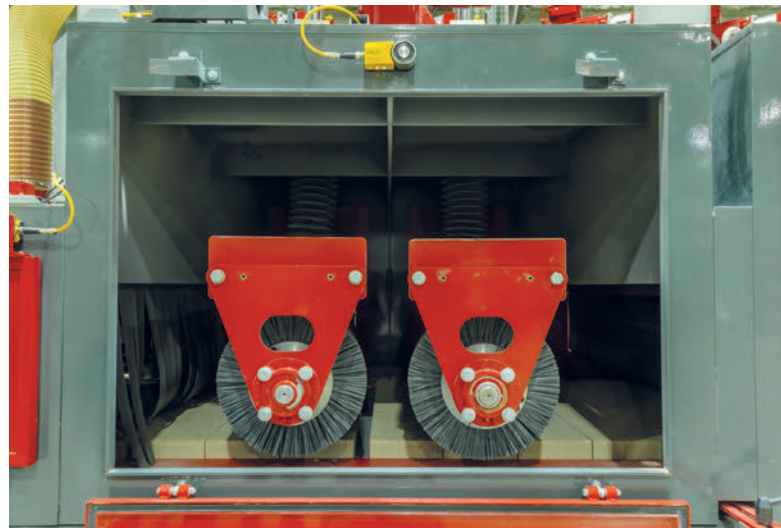
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In total, the concrete stone layers or slabs pass through 6 brushes.

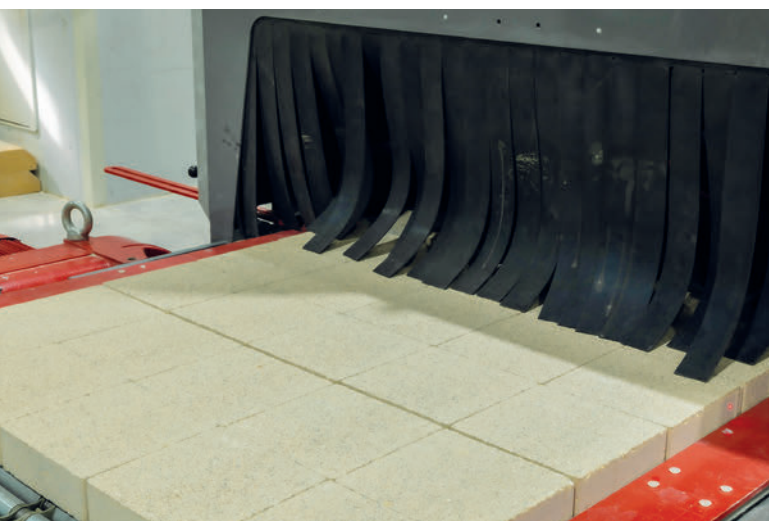
Curling is particularly well suited for textured products but also gives a slight shine and exclusive surfaces to roughened and/or shotblasted products. By removing surplus cement, the aggregates in the stone are presented in detail and polished by the brushes. This makes the product surfaces dirt-repellent and non-slip.

The CA 1200 linear machine for processing the surface of all kinds of concrete products on one side is made in a heavy-duty tunnel design with 3 segments. The concrete stone layers or slabs are transported through the machine on a belt conveyor. In the treatment tunnel, 2 brush rollers are fitted in each segment. In total, the stone layers or slabs therefore pass through 6 brushes. The brushes have different brush

strengths, whereby brushes are arranged in the machine from coarse to fine. Brushes 1, 3 and 5 run in the opposite direction to brushes 2, 4 and 6. Due to this counter-rotating processing and the mirrored inclined position of the brushes, line traces of the brushes on the surface are avoided.

The main drives and vertical movement are frequency controlled. The machine has its own control system with operating panel and display. The processing parameters can be saved for each product type.

On a downstream accumulating roller conveyor with free-running rollers, the endless row of products is pulled apart. At this point a visual inspection takes place. Products that do not



Finished products on the line



Al Sarif outside warehouse



Team of Al Sarif is happy about the outstanding cooperation and successfully completed project with Topwerk Middles East and SR Schindler

meet the quality standards can be sorted out here manually and replaced with flawless products by hand. The following layer pusher transports the finished stone layers onto the subsequent belt conveyor. A second LPU layer stacker with the identical design to the first-mentioned stacker takes the finished stones from the belt conveyor one layer at a time and stacks the layers on the heavy-duty roller conveyor arranged parallel to it onto transport pallets that are fed automatically. Once the desire stack height has been reached, the stone packages are transported in cycles into the buffer area to be taken away by fork-lift truck.



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