U-shells and hollow blocks to round up the product portfolio

The very efficient way to improve the competitive advantage is to enlarge the variety of products produced. Therefore, a compact production line for U-shells (hot-melt technology) and hollow blocks was developed based on the established and proven technology. Keeping the customer satisfied with products and services is one of the challenges that arise while operating an autoclaved aerated concrete plant. Not only high quality of products, short time deliveries, reasonable prices but a large product portfolio significantly benefits the market success of the plant.

A German manufacturer of innovative machineries and plant solutions, WKB Systems GmbH, has on offer a number of facilities to manufacture additional products to the main portfolio in a very fast and economic way.

One of those facilities is a U-shells gluing station with a drilling machine to produce U-shells and hollow blocks made of AAC. The U-shells are produced according to the hot-melt technology. 80 U-shells or 60 hollow blocks can be produced here per hour.

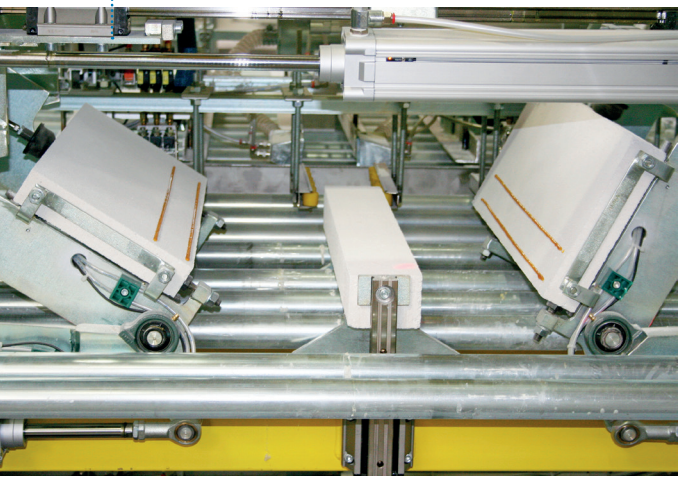
Automated or manually – high production standards are set

This compact production line consists of the following major parts:

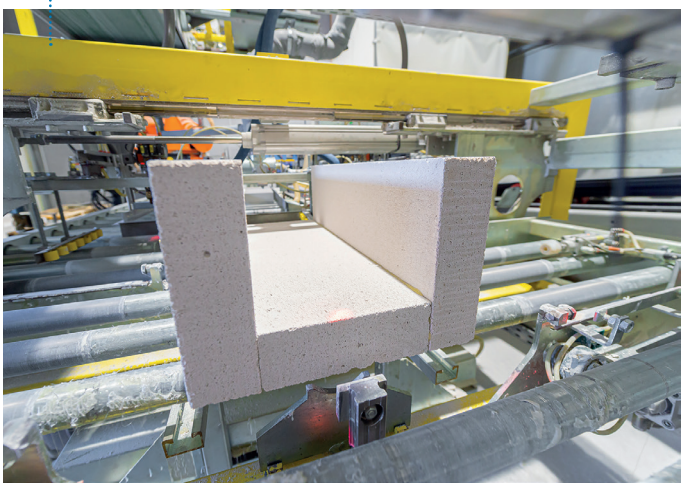
- Saw station
- Gluing station
- Drilling machine
- Product handling (manually or fully automated)

Saw station

A special device forms a U-shell

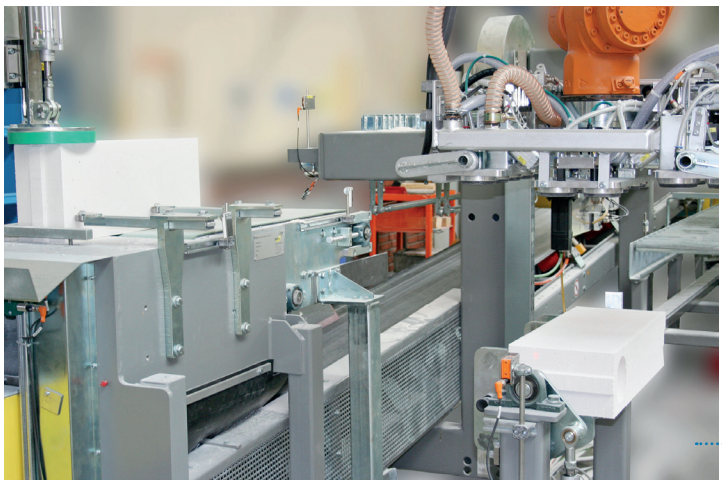


A robust U-shell is produced



Compact production line

High flexibility of a robot

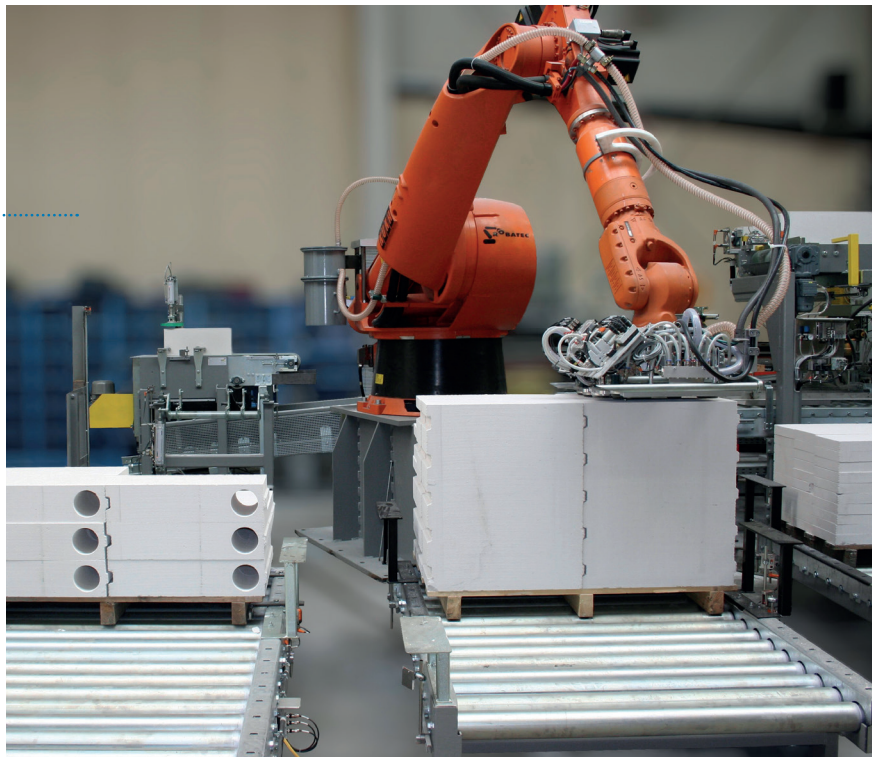


In a fully automated production mode, the stand-alone facility is equipped with a 6-axis industrial robot with a specially developed vacuum gripper. The vacuum gripper consists of some vacuum plates that can be easily adopted while changing block sizes and formats. Furthermore, the gripper is equipped with swing-type brackets to pick up and transport wooden pallets.

The production process starts with the feeding of pallets loaded with AAC blocks and slabs via a roller conveyor. While producing U-shell the robot takes with the gripper three AAC slabs from the pallet and places two of them directly on the roller conveyor of the gluing station and then forwards another one to the saw station. Here this slab is sawn to an appropriate width. As a next step the robot places the sawn AAC piece on the roller conveyor of the gluing station.

Now three pieces (left side, middle part, right side) are ready to be processed in the gluing station with the hot-melt system. They are lined up automatically, air cleaned and forwarded to gluing nozzles. Here a precise amount of glue is applied to a certain surface area of AAC pieces. Then a special device presses the side parts to the middle part to form a robust U-shell. The finished U-shell is forwarded via a return conveyor and a swinging device to the robot to be placed on a pallet.

Hollow blocks production



Robot handling of hollow blocks

In case of manual handling all operations for the AAC slabs feeding, sawing as well as placing of finished U-shells on a pallet are executed by three operators (one operator on the saw station, two operators on the gluing station).

Hollow blocks to reduce construction time

For the production of hollow AAC blocks a powerful drilling machine is used. In case of a fully automated facility the robot takes a solid AAC block to a turnover device, where the AAC block is tilted by 90°. Thereafter the robot places the AAC block on the drilling machine. Here a hole for core rods, power, phone, water and wastewater disposal lines is drilled with high precision. Afterwards the robot brings the hollow AAC block to the turnover device to tilt it again by 90°. As a next step the AAC block is stacked on a pallet.

Thanks to the usage of this compact production line the AAC manufacturer offers its customers not only a wide range of AAC blocks but also additional products for a better cost-effectiveness, perfect timing and sustainability at the building site.

Successful implementation – satisfied customer

One of the best examples how to successfully enlarge the product portfolio is a well-known German manufacturer of building materials – Cirkel GmbH & Co. KG. Since 1898 a wide range of efficient and innovative products has been manufactured in four Cirkel plants around Germany for international builders and constructors. For more than 120 years the whole business operations of the company are focused on the customer needs.
By the end of 2010 Cirkel GmbH & Co. KG came up to a decision to expand its product range with U-shells and hollow blocks in order to react promptly on market developments and to open up new markets. The manufacturer chose the fully automated U-shells gluing station with a drilling machine made by WKB Systems GmbH.

It took only five months to develop, assemble and commission this stand-alone production facility by WKB experts on one of the Cirkel production premises. For sure, it was possible thanks to the perfectly coordinated Cirkel team who supported WKB Systems in every issue.

Today, almost 10 years later, the customer is still satisfied with the high level of longevity and reliability of the gluing station alongside with the perfect quality of products and ideal production efficiency rate. (Pictures were taken in 2020)

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