

Masa GmbH, 56626 Andernach, Germany

Haba-Beton puts second concrete block line into operation inside 24 months at its Türkheim site

■ Mark Küppers, CPI worldwide, Germany

The versatile range of pavers from the German company Haba-Beton Johann Bartlechner KG has been impressing with its high quality and originality for decades. The company has been producing an impressive assortment of pavers for commercial, municipal and private outdoor areas since 1971 on modern plants in Tüssling (District of Altötting). In order to increase capacities at its Türkheim site, Haba-Beton has invested in innovative plant technologies from Masa. The goal was to increase production capacities and product variety. As early as the planning stage it was decided that investment would be made into two production lines, which were to be erected as mirror images of each other. In order to implement the vision of the new plant the project was divided into two construction phases. The first paver was produced with Plant I in 2015. The sister plant was also put into operation two years later. The supplier of both plants was Masa from Andernach, which designed and assembled the complete machinery for the concrete paver production - from the concrete block making machines on both fresh sides to the packaging cubers on both dry sides. In 2015 the Gasus company from Würzburg supplied a complete package comprising silos, dosing technology and Pemat concrete mixers for the preparation of the concrete. These components have now been extended accordingly for the second production line. The complete control technology for both lines was supplied by Bikotronic.

Haba-Beton - one brand, many areas of use

Haba-Beton's core areas are pipes, manhole systems, monolithic containers, environmental technology, and garden and landscaping products. The company has been synonymous with expertise since 1912 and has developed over the course of its more than 100 years of existence into one of the European market leaders in pipes and manhole systems made of concrete and steel reinforced concrete.

The family-owned company from Upper Bavaria is known for its reliability. And for four generations at that. As a company, Haba-Beton is standing on solid ground and is growing from year to year. In the meantime, around 400 employees work

for Haba-Beton at ten production sites. Haba-Beton produces in accordance with strictly controlled quality standards at seven concrete plants in Germany, two in Austria and one in Poland. The consistent further development of the products guarantees adherence to all applicable EU and national standards. Qualified employees and mature quality management ensure high-quality products.

Haba-Beton is innovative, competent and reliable. That is confirmed by numerous satisfied customers who have placed their trust in Haba for prestigious major contracts. Haba has successfully supported projects such as the construction and extension of the airports in Munich, Leipzig, Erfurt, Vienna and Berlin-Schönefeld, the construction of sewers in Berlin, Hamburg, Cologne, Dresden, Leipzig, Vienna, Linz, Stuttgart, Warsaw and Wrocław, or the construction and modernisation of motorways and railway lines in Germany and Austria.



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With a capacity of 3,000 kg/min the individual aggregates are weighed additively by dosing belts onto a weighbelt



High-performance Pemat planetary mixers for continuous concrete production

Modern concrete mixing technology for high-performance concrete block production

Gasus Dosier- und Fördertechnik GmbH from Würzburg was awarded the contract to deliver the complete dosing and mixing technology for the new site in Türkheim, both for the first concrete block line and for the extension of the sister plant. As a trusted partner, Gasus has also equipped other Haba plants with dosing and mixing technology in the past.

The end result is a complex dosing and mixing system with two concrete mixers each for core and facing concrete and a central dosing plant for the aggregates. All four mixers are supplied from here with the necessary raw materials. The dosing plant was already designed for "double operation" during the installation of the first concrete block line in 2015.



Core and facing silos are equipped with weighing cells



Masa XL 9.1 block making machine

Floor-level silo compartments

The raw materials are tipped from the trucks into the floor-level silo compartments. Heavy-duty gratings over the silos enable them to be driven over, making the tipping of different granulations easy. Inadvertent emptying of the silo compartments is ruled out through the coupling of the level indicators to the controller. The prompt ordering of new raw materials is thus guaranteed.

Dosing and transport of the aggregates

With a capacity of 3,000 kg/min the individual aggregates are weighed additively by dosing belts onto a weighbelt. Feed belts take the aggregates to one of the four Pemat skip hoists. The aggregates are then transported to the two mixer levels higher up above the concrete block making machines. The concrete mixers are fed directly from the lifting buckets.

Cement dosing

The various types of cement are stored in silos, each with a capacity of 85 tonnes. The cement is conveyed by screws into the cement weigher of the dosing plant. The entire system is closed and dust-encapsulated.

High-performance Pemat planetary mixers for continuous concrete production

Each of the two lines has a Pemat PMP 2250 planetary mixer for the production of the core concrete. Mixers of the type PMP are designed for very high demands on the mixing technology and enable homogenisation levels and mixtures with very high repeatability.

In Türkheim, Haba uses Pemat PMPM 500 multimix planetary mixers with additional, independently controllable agitators for the facing concrete. The PMPM has two drive motors, each

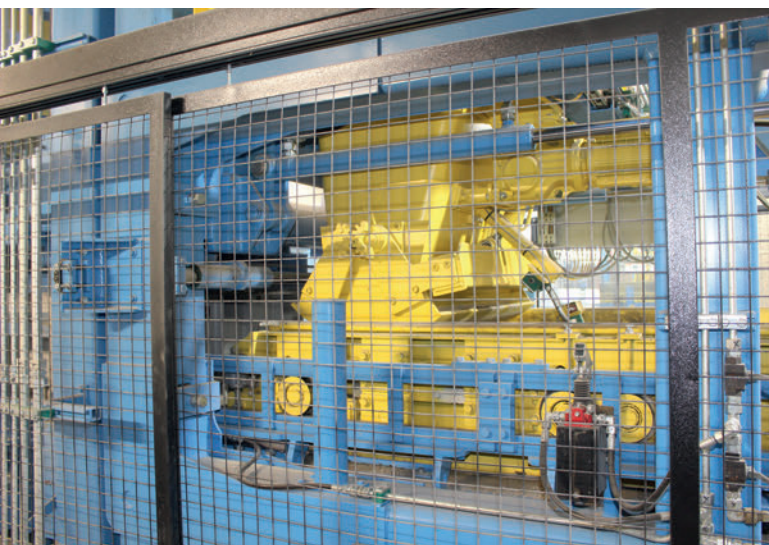
with three thermal overload sensors that drive a sturdy, specially developed precision gearbox. This precision gearbox enables the speeds of the rotor and agitator to be controlled infinitely and independently of each other. The direction of rotation of the rotary agitator can additionally be controlled at intervals.

All four Pemat mixers have a strong, wear-resistant design. During the wet cleaning the dirty water flows into the corresponding container underneath the mixing plant.

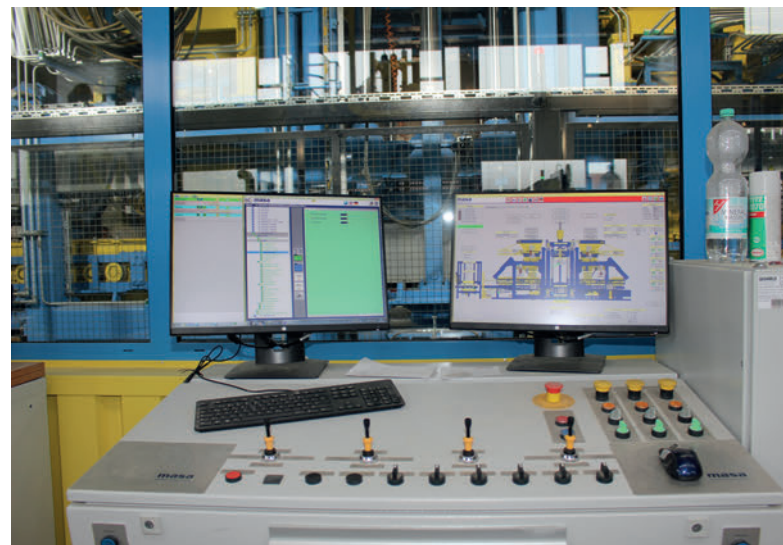
Fully automatic concrete block production with Masa XL 9.1 block making machine

As with the first concrete block line, which went into operation in Türkheim in 2015, Haba once again chose a Masa XL 9.1 concrete block making machine. With modern and matured technology, the XL version represents the top model in Masa's range of block making machines. Decades of experience and continuous further development flow into the technology of this model series. The Masa XL version, for example, offers the production of all kinds of concrete blocks with particularly high height accuracy, short cycle times and very high daily production quantities with very high product quality. The standard scope of delivery includes energy-efficient drives, electronically controlled hydraulic components, a solid frame construction with four hard chrome plated guide columns (ø 120 mm) for the exactly parallel positioning of mould and tamper, forced synchronous mould guidance for the precise demoulding of the products, silo level measurement in the core and facing silos with weighing cells, hydraulic tamper locking and cost-optimised wearing parts management.

The vibration amplitude is controllable, with individual setting options allowing the production of high strengths and block products with high-quality surfaces. Furthermore, the Masa XL 9.1 is equipped with an automatic mould change, which reduces setup times and considerably increases machine avail-



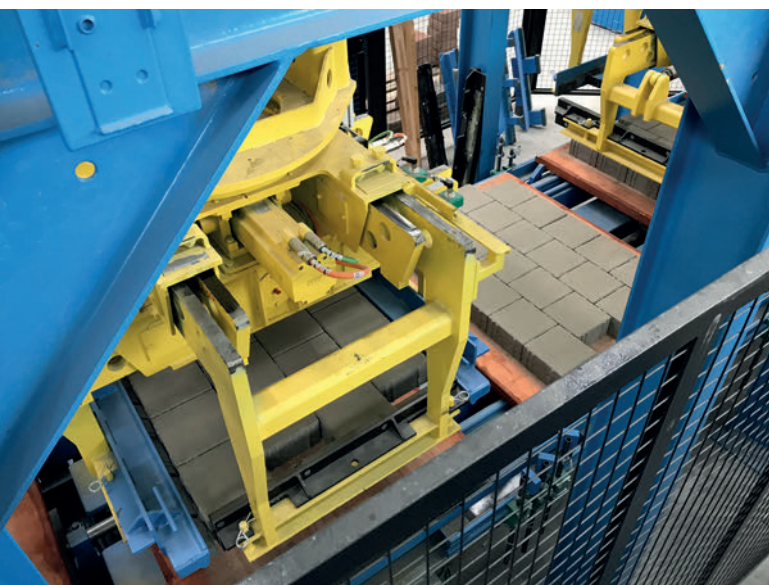
The filling level in the core and facing concrete feed boxes is displayed to the operator via a continuous laser measurement



The control stand is located centrally in the plant



Finger car with a load capacity of 20 tonnes



Servo-controlled doubler

ability. The hydraulically driven transverse cleaning fixture is required in order to clean the tamper shoes (swords) depending on the type of product - especially when producing high-quality kerbstones. The filling level in the core and facing concrete feed boxes is displayed to the operator via a continuous laser measurement. This ensures optimum filling of the feed box for high-quality paver production.

A hydraulically driven roller fixture is installed on the facing concrete feed box for the production of coloured, refined surfaces and large concrete block products. The interior liner of the machine's concrete silos (core and facing concrete) is stainless steel.

Noise insulation enclosure provides further benefits

The Masa XL 9.1 concrete block making machine was enclosed in order to reduce noise in the production hall. The noise insulation enclosure is accessible via the concrete block making machine. Firstly, this allows the easy and safe cleaning of the concrete block making machine from above. Secondly, many processes can be precisely observed, such as the transfer of the concrete from the mobile and reversible conveyor belts into the storage silos or the operation of the multi-colour system. In combination with the dosing valve, the controller and the recipe management enable very high reproducibility of high-quality coloured products.

The control stand is located centrally in the plant. The production of the Masa XL 9.1 concrete block making machine can be directly observed from here. In addition, the control stand is equipped with various large TFT monitors. The various production processes on both the fresh and dry sides are visualised here.

Finger car with a load capacity of 20 tonnes

The production boards with the freshly produced products are placed onto the walking beam conveyor on the wet side and transported to the elevator. The Masa elevator collects the production boards and transports them upwards cyclically. As soon as the elevator has reached a defined occupation level, the production boards are picked up by the finger car (with turning device) and transported to one of the curing chambers in the rack system.

The rack system comes from HS Anlagentechnik and is characterised by a constantly free-standing implementation. It thus forms a statically closed system that doesn't require additional stabilisation. Rack systems from HS Anlagentechnik are generally protected against corrosion through the ZM300 special galvanisation. This ternary alloy of zinc, magnesium and aluminium promises very high corrosion protection with a low layer thickness.

Following curing the products on the production boards are taken up by the finger car once again and transported to the lowerator on the dry side.



Masa Cuboter

Servo-controlled handling

The Masa lowerator is identical to the elevator, but destacks the production boards again and transfers them to the walking beam conveyor on the dry side. Following a visual quality check the stone layers are first of all pushed together in the servo-controlled four-sided centring unit. The downstream doubler, which is likewise servo controlled, takes up a complete stone layer and places it on top of the stone layer on the following production board.

In the next step the Masa Cuboter goes into action, taking up the double layers and forming them into stone packets on transport pallets on a conveyor running in parallel. As soon as a stone packet has reached the desired number of layers, the pallet is moved by one cycle towards the hall exit and a new transport pallet is automatically fed into the Cuboter's working area. The energy-efficient and operating-cost-optimised Masa Cuboter operates fully electrically. Clamping, centring and offset programs as well as the different turning unit positions can be stored in the recipe. Varying pick-up and set-down heights can be handled just as easily by the Cuboter as the error bypass function.

The packets are transported to the outside by trolley car, which offers an adequate buffer in case the forklift is not immediately available to take the products to the outdoor storage area.

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The packets are transported to the outside by trolley car

Z-turner

Empty production boards are collected by the Z-turner and turned over in a single work step. This ensures even wearing of the surfaces. A stack of production boards is formed on a collecting table. A trolley car or roller conveyor system picks up the production boards and takes them automatically to the concrete block making machine or stores the stack on a buffer track.

Equipped for the future with high-performance production

The two concrete block making lines from Masa are very highly automated; journeys with the forklift or similar transport vehicles is reduced to a minimum. With the new concrete block plant in Türkheim, Haba is pointing the way in the market and tapping new delivery regions, which can be served quickly and reliably thanks to the high performance. ■



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