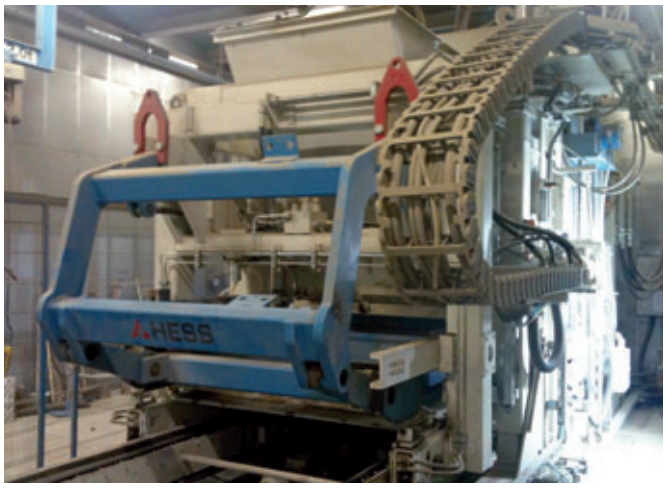
Hess Maschinenfabrik GmbH & Co.KG, 57299 Burbach-Wahlbach, Germany

CS Beton invests in new production and refining plants

As one of the leading concrete block producers in the country, CS Beton, with its base in Litomerice, Czech Republic, has become established very successfully in its home market and still remains on expansion course. The company's first step in automated concrete block production was made in the year 2000 with the purchase of a Schlosser-Pfeiffer SP 3000 concrete block-making machine. In 2007, production capacity was more than doubled with a new Hess RH 1500 machine. Due to growing demand, CS Beton decided to buy a further Hess system in 2009. Merko CZ, a Czech company, supplied a new mixing plant.



The new RH 1500 block-making machine from Hess – the board size is 1,450 x 1,100

On the left, the two destackers and on the right, the stacker

Mainly high products, like kerbstones, shuttering blocks, split blocks, etc. – plus paving blocks, are produced on the new RH 1500 machine. With a view to achieving optimum filling, product quality and height tolerance, this machine was fitted with a two part core concrete silo, a hydraulically driven vibrating grate, automatic block height adjustment as well as the patented Vario Tronic vibrator system.

The finger car group is equipped with a rotating mechanism and designed for 26 levels. The rack system supplied by Rotho provides capacity for 5,200 boards and is thus able to accommodate a total of 200 loads from the finger car group. The dry side was set up with an intermediate storage function in the form of 2 destackers for the purpose of obtaining optimum efficiency with the plant. The destackers are arranged in parallel and together can accommodate 2 loads from the finger car group. For the dry side, this ensures the provision of intermediate storage with unlimited board space as, in contrast to a mobile intermediate storage frame, there are no interfering support arms. Two conveyor belts set up diagonally transport the boards to the main production line on the dry side.

As CS Beton manufactures a number of varying, high-class products, the topic of packaging is of great significance. On the

Finger car with 26 levels and rotating device

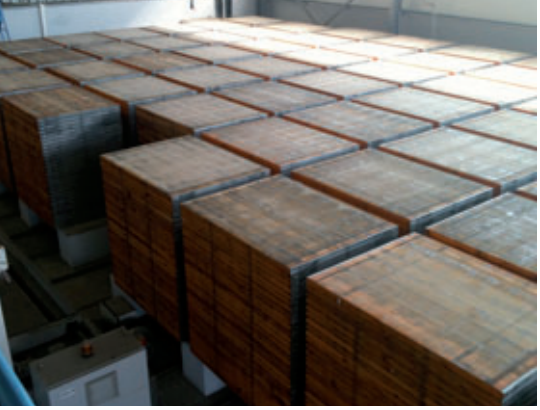
Dry side with paper/film inserter and horizontal strapping

Packaging machine with servo and belt drives

Machine for inserting 2 or 4 battens

one hand, the products need to be packaged fully automatically but safely and protected from damage during transport; on the other hand, great flexibility is demanded due to the differing requirements of their comprehensive assortment. To be able to live up to all these demands, a wide range of machines is employed for packaging purposes. The gaps between the blocks are first closed with a pushing device. The subsequent film/paper inserting machine offers the possibility of laying down paper as protection between the layers and plastic film for the uppermost cover sheet. After this, the paper or film is wrapped round with horizontal strapping to fix each layer of blocks.

Transfer carriage for stacks of boards between the wet side and dry side or intermediate board storage unit



Intermediate board storage unit for 2,600 boards

Block blanks are brought to the servo-driven packaging machine on a transport pallet; the packaging machine takes one compete layer at a time and sets it onto the splitter line

Circulating waste belts dispose of residual pieces

Overview of the Tumble Master with its 4 tumbling stations and block-layer turning device

A packaging machine driven by both servo-motors and drive belts then stacks the products as packets on pallets for transport. The boards are subsequently cleaned off with a brush, turned and stacked upon each other in a stacking device. The board brushes are equipped with a dust extraction system, as is also the machine itself. With products like kerbstones, a machine for inserting battens offers the possibility of automatically laying up to 4 wooden battens between the individual layers for protecting the products' surface. Two storage units, which can be changed for filling, are available for the battens. The packages can still be strapped round vertically afterwards if needed.

As, in the case of high products, only every other level can be occupied in the stack system, any left-over boards are automatically stored away in a purpose-built intermediate storage unit. A transfer carriage running between the dry and wet sides takes stacks of 30 boards at a time and can bring them into intermediate storage if necessary. This ensures that the dry and wet sides can work independently of each other. The capacity of the intermediate board storage unit is 2,600 boards, which means that half the boards available can be stored in this way.

Up to this point in time with a view to expanding its sector dealing with surface refining, investment had already been made in a Schindler shot-blasting plant and a block-splitting line from Columbia. The latest investment in this area is a fully automatic Split and Tumble Master made by Hess.

Differing products can be manufactured fully automatically with this plant: on the one hand, masonry blocks can be produced in versions still more true to nature; on the other hand, paving blocks can be tumbled, i.e. "aged".
Previously, the masonry blocks produced in the pure splitting plant possessed sharp edges both at the top and bottom points of fracture. These edges are now rounded off in the Tumble Master to lend the blocks a more natural character. In this process, the block blanks are brought to the packaging machine on pallets. This places one layer at a time on the feed line to the splitter. A servo-driven sliding device ensures that the blocks are positioned precisely under the splitter at the point of fracture intended.

A walking beam conveyor transports the blocks further to the Tumble Master and simultaneously makes sure that waste (residual pieces) from the splitting process falls onto a conveyor and is conducted to a container. Waste belts also circulate under the Tumble Master so that any fragments broken off during tumbling can be automatically disposed of.

The TP4 Tumble Master is essentially composed of 4 tumbling units through which the blocks pass in complete layers. One great advantage with this procedure is that, after processing, the layer can be immediately packaged again without resorting to any elaborate sorting method that may be liable to malfunctioning. Inside the tumblers, the blocks' front faces are inclined so that only the forward edges can be impacted and

The inner life of a Tumble Master

Packaging the finished products

Removal and wrap packaging

broken off by rotating chains. The block's surface itself is not touched. According to the product at hand, alterations can be made as to the degree of edge processing by varying parameters that can be stored in the programme, such as the product's angle of inclination, the rotation velocity or the height adjustment of the rotating chains. Specific wishes on the part of customers can also be taken into consideration as regards edge design which is reproducible at any time thanks to automatic setting adjustment.

All 4 edges will have been treated on the upper side after one passage through the Tumble Master. Concrete blocks can then be immediately packaged, whilst masonry blocks need to be turned over by a block-layer turning device and pass through the Tumble Master again for processing the underside. The tumblers are connected up to a dust extraction system to keep the plant clean.

The finished blocks are subsequently repackaged on the original pallets that have continued their cycle in the meantime. As an option, the packages can be wrapped by a film winder.

The Tumble Master's advantages are:

- Differing, reproducible block designs through variable edge processing
- Block layers stay together during processing and can be packaged without addtional measures
- Different formats from one mould (block layer) can be handled
- No rejects through breakage due to the gentle procedure
- Low manpower requirements (1 operator and 1 forklift driver)
- Low dust and noise emissions

FURTHER INFORMATION

CS-BETON

CS-BETON s.r.o.
Velké Žernoseky 184,
412 01 Litoměřice, Czech Republik
T +420 416 7472834
F +420 416 747179
csbeton@csbeton.cz
www.csbeton.cz

HESS GROUP

Hess Maschinenfabrik GmbH & Co.KG
Freier-Grund-Strasse 123
57299 Burbach-Wahlbach, Germany
T +49 2736 49760
F +49 2736 497620
info@hessgroup.com
www.hessgroup.com