

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

New concrete block making plant in Spain

In the Spanish region of Murcia, about 70 km south-west from the well-known holiday region of Alicante, lies the township of Cobatillas. This is the home of the Vigas Alemán, S.A. concrete works, where the most diverse concrete products for the construction of roads and buildings are produced. Vigas Alemán has a broad range of products: for example prestressed precast elements and precast slabs with in-situ topping, as well as a wide range of concrete paving blocks. A new production line for the manufacture of concrete paving blocks, made by Hess Maschinenfabrik GmbH & Co. KG from Burbach-Wahlbach in Germany, was recently put into operation. The purchase was arranged by Mabetón España, S.A. from Talavera de la Reina, which represents numerous companies on the Spanish market.



The family-run company Vigas Alemán, S.A. was founded in 1964

When it was founded in 1964, the family-run company Vigas Alemán, S.A. was a small enterprise that produced concrete goods for the surrounding area with very much manual production processes. Thanks to investments in modern production plants and the employment of qualified personnel, however, Vigas Alemán underwent rapid

development. As the years went by, production was automated more and more and the product range was expanded. Today, the company is known well beyond the borders of Murcia as one of the leading Spanish manufacturers of concrete precast elements.

Various concrete precast elements are produced for the Spanish market in several halls on a site with an area of 220,000 m². These also include prestressed products such as beams, mainly with a height of 20 cm, and prestressed concrete hollow slabs in heights of 15 - 40 cm. The prestressed hollow-core slabs manufactured on plants



Various concrete precast elements are produced on a site with an area of 220,000 m²



The prestressed hollow-core slabs manufactured on plants by Elematic and Prensoland are produced on a total of 14 lines, each of which is 165 m in length

by Elematic and Prensoland are produced on a total of 14 lines, each of which is 165 m in length. The standard products have heights of 20 or 33 cm.

At times of full utilisation of production capacities, Vigas Alemán, S.A. employs up to 250 workers in a multiple shift system. The concrete products are mainly delivered within a radius of around 80 km, but transport distances of more than 200 km are also sometimes a part of daily business. Customers include both private people and

public authorities. In order to ensure that the customer always gets optimum quality, Vigas Alemán, S.A. relies on continuous quality checks in its own test laboratory on the company premises, on qualified employees and, of course, on modern machine technology.

It was recently decided to completely modernise the concrete block production, upon which the management of Vigas Alemán, S.A. got in touch with Mabetón España, S.A, from Talavera de la Reina.

Mabetón España, S.A. was founded in 1983 and is one of the leading suppliers of individual machines and complete plants for the concrete precast industry in Spain. On the one hand, Mabetón España, S.A. offers a wide range of used machines and, on the other, it distributes devices and machines by internationally well-known companies such as Elematic, Socomac, Penta, Probst, Bodrero Casseforme, Roth, Franz Ludwig and also the German company Hess Maschinenfabrik GmbH & Co. KG on the Spanish market.

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The test laboratory at the company site.



The mixing equipment was supplied by the Spanish company Frumecar

Variety in concrete block production

After consulting Mabetón España, S.A., the choice for the new block plant fell on a plant of type RH1500-2 VA by Hess Maschinenfabrik GmbH & Co. KG. Following conclusion of the contract, the plant was then delivered to Vigas Alemán, S.A. and commissioned. Vigas Alemán, S.A. naturally offers a wide range of concrete paving blocks. A large selection of moulds allows the production of the most diverse types of concrete paving. Thanks to the dye dosing machine supplied by Kimido Kindler GmbH, the concrete paving blocks can be manufactured in a large variety of colours. The concrete is produced in a mixing plant made by the Spanish manufacturer Frumecar.

The new RH1500-2 VA concrete block making machine

The heart of the plant supplied by Hess Maschinenfabrik is the RH 1500-2 VA

block making machine with facing part and a board size of 1,200 x 1,100 x 50 mm. All common concrete products up to height of 400 mm can be manufactured on this machine. Vigas Alemán, S.A. uses wooden underlay boards for production.

In order to ensure optimum product quality, the filling quantities in the facing and core concrete feed boxes are controlled by laser; the core concrete feed box is additionally equipped with a driven filling grid. Compaction is performed by Hess's patented Variotronic servo vibrator.

Mould changes are carried out for the most part automatically; the mould and the applied load are clamped; the height of the facing and core concrete part is adjusted by means of screw jack elements, the precise height being detected by rotary encoders. The mould is driven out of the machine via an electrically driven mould changer cart and removed with a fork lift truck.

Following manufacture the product is transferred to the V-belt conveyor via a lowering device and transported to the elevator. A stone brush and an automatic tipping station are located along the way to the elevator.

The products are removed from the elevator by a fully automatic finger car and taken to the chamber system for drying. The finger car is positioned precisely by means of a laser system in combination with controlled servo motors. Simple setup operation can be performed via a remote control similar to those used for building site cranes.

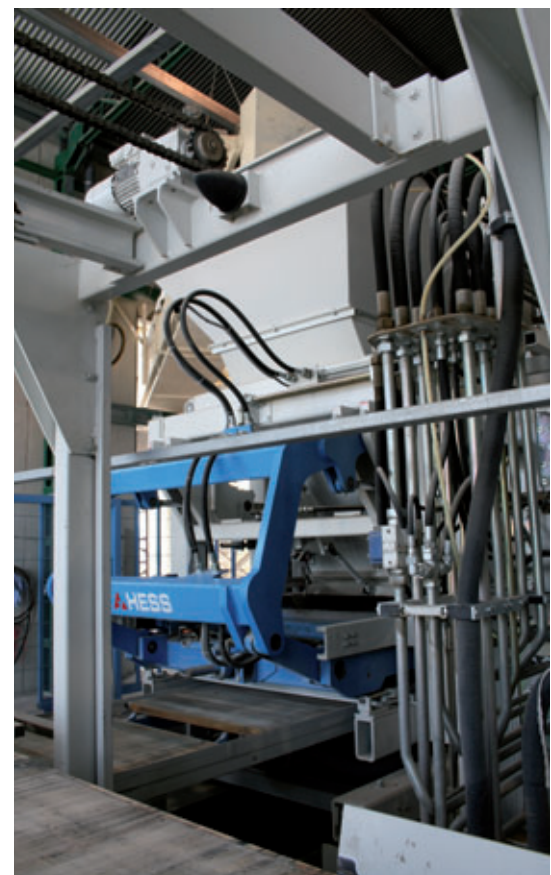
The rack unit consists of 31 chambers with a capacity of 10,200 boards. Following curing, the finger car takes the products to the lowerator. In front of the lowerator is a stationary buffer rack in which the products can be stored intermediately if necessary.

The downstream accumulation pawl conveyor, which is driven by electric motors, transports the products to a stone releaser and squeezer, after which they are taken to the packet assembler, which stacks the products into packets.

The servo packet assembler is equipped with controlled servo motors for lifting, driving and turning. This allows optimum drive behaviour and an optimum cycle time. Maintenance-free toothed belts are used instead of chains for lifting and travel drives. The 4-sided clamp is driven hydraulically; a rotary distributor is not necessary,



The dye dosing equipment by the German company Kimido Kindler GmbH



All common concrete products up to height of 400 mm can be manufactured on the RH 1500-2 VA concrete block making machine



The mixer and the concrete block production can be monitored from the centrally situated control room



The RH1500-2 VA concrete block making machine is fed by a conveyor belt



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Following manufacture the product is transferred to the V-belt conveyor via a lowering device and transported to the elevator



The rack unit consists of 31 chambers with a capacity of 10,200 boards



The cured products on the way to the stone releaser and squeezer



A cover sheet feeder and horizontal and vertical strapping finally ensure that the products are protected during storage and transport

since the hydraulic hoses are coiled up over the full length.

The empty production underlay boards are cleaned with a board brush and turned in a turning unit. A accumulation pawl conveyor transports the boards back to the machine's board magazine.

Boards can be removed from or fed into the system by means of a board transfer unit mounted above the accumulation pawl conveyor. The boards are stored on a board buffer track.

The stacked products are moved out via a 27 m long slat conveyor; the transport pallets are fed automatically to this slat conveyor via a transport pallet silo. A cover sheet feeder and horizontal and vertical strapping finally ensure that the products are protected during storage and transport.

The entire plant is controlled by networked Siemens S7 controllers. Visualisation is accomplished as usual via Siemens WinCC. Each board is tracked from production to packing, ensuring automatic parameterisation of the plant. A mobile panel is available for local operation. Remote diagnosis of the plant is possible via the included teleservice.

Vigas Alemán, S.A. has found a reliable partner in Mabetón España, S.A. and holds it in high regard. The next planned acquisition on Vigas Alemán, S.A.'s list is an aging plant by Penta in order to be able to add aged concrete paving to the product range. As the representative of Penta, Mabetón España, S.A. could well be called upon to advise again. ■

FURTHER INFORMATION



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