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Bonaire, divers' paradise and CBKF

■ Ferry Jakobs, Hess Group GmbH, Germany

Bonaire has a reputation as being one of the best diving areas around the world; also highly appreciated by kite surfers because, around the year, you can find the best conditions. Not so long ago this Caribbean Island had less than 20.000 people living there, being a part of the Kingdom of the Netherlands. Bonaire is a special municipality of the Netherlands, so Dutch law and regulations also apply to Bonaire. With the sun shining most of the year Bonaire is the ideal location if you are fed off with the Dutch weather. For the upcoming years, the population should grow up to 28.000 in 2030, so for the upcoming years, you could also say Bonaire is a builders' paradise!

The building industry is already booming on Bonaire. The island had some manufacturers of concrete blocks and block paving, but most of the material had to be imported from either the island around Bonaire or even from Europe. The fact that more infrastructure products were required changed the view on production equipment. A business case could be made for a versatile block and paver plant, which can basically cover most of the island's demand.

The local supplier of aggregates and sand, Stone Crusher NV, started investigating in 2020 what was needed for a versatile

production plant that is future-proof and able to follow the market demand. The block and paver plant was turned into a separate company, Caribbean Blokken en Klinkers Fabriek NV (CBKF), which was founded in 2021.

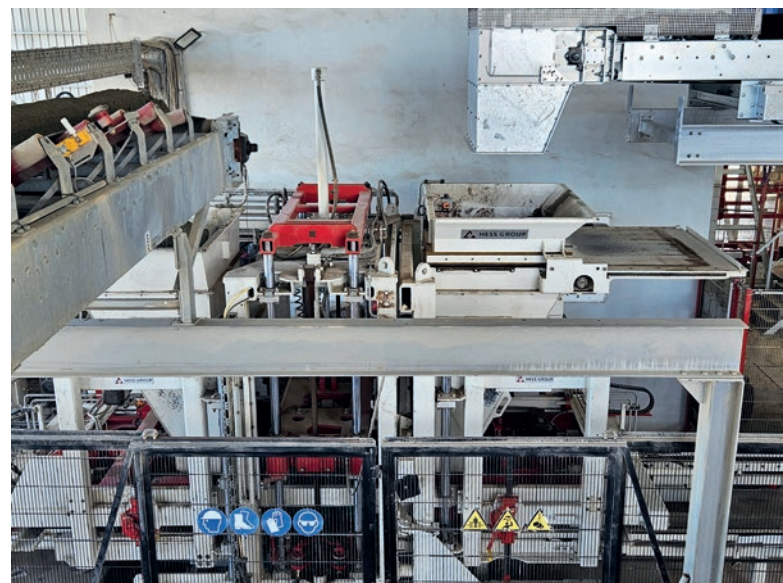
A good business plan needs a solid foundation. With a strong foundation, the business can endure setbacks. UBO Engineering and Hess Group were consulted for assistance. UBO Engineering is the TopWerk agent for the Benelux and manufacturer of high-end batching plants for many prestigious projects with Hess in Benelux and Germany. Experienced enough to take on the challenge, the plant layout was quickly prepared. The result was an investment scheme which could be done in several steps, the investment should follow the development of the market and turn-over.

The heart of the plant is a Hess RH 600-3 VA with a basic handling system. The concrete block and paver machine is a fully automatic machine, getting concrete from the UBO batching plant with a Haarp mixer.

This Haarp 2250/1500 mixer will provide, in the first step, both back- and face-mix concrete, but it also has the ability to supply concrete for a third user. The aggregates are dosed



Hess Group's RH 600-3 VA



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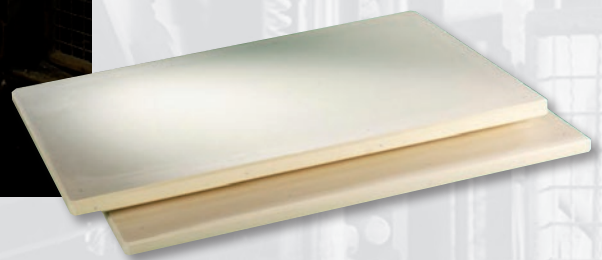
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by weight, including sophisticated software that also includes the weight of the material that is 'in the air' during weighing. Cement, additives, and water are all going through a weighing system before ending up in the mixer. The Haarup skip hoist and mixer stand for quality, combined with an excellent water measuring system and controls from Sauter, a batching plant, was built of outstanding quality, especially for the region.

The block and paver machine RH 600-3 VA produces with a production board dimension of 1.400 x 700 mm. The capacity of this block and paver machine matches the size of the island. A big board machine would exceed the current demand requirements. This block and paver machine will manufacture segmental concrete pavers and slabs, concrete hollow and full blocks, kerb stones, with a height of 25 mm up to 300 mm. The RH 600-3 VA also has the ability to make various other concrete products, but they are currently not needed on Bonaire, such as grass blocks or segmental retaining walls. To maintain simplicity, a forklift rack system is utilized to store the production boards for product curing. This system offers the advantage of scalability as the plant grows.

The plant can start with a minimal number of racks and production boards. When sales are growing, so can the number of product boards and racks. Ideal for emerging countries or small islands. CBKF started with 1.000 production boards but in the first year they upscaled that number twice because of the high demand for the products. It was also determined that product packaging should be performed in a cost-effective manner, thus a manual cuber was installed on the dry line. Lifting the products with an electrical hoist with a pneumatic 4-sided clamp from two production boards and manually guided to the cube. When the cube is ready, manual strapping is applied and the cube is brought to the yard.

A production board buffer is accommodating the cross conveyor of the empty production board return next to the RH



Manually operated, pneumatically working 4-side clamp ATZ-P4

600-3 VA to prevent waiting times due to a lack of production boards. The block and paver machine receives an empty production board either directly from the cross conveyor delivering a production board to the board magazin or from the buffer when the cubing process is not ready. Also in reverse, when the cuber is ready to cycle and the block and paver machine is not ready, the buffer can take a production board out. To build up a new market, CBKF installed the RH 600-3 VA. The block and paver plant started in August 2022 its production. Bonaire lacked a modern concrete block and paver plant, and importing high-quality concrete products was both costly and challenging. CBKF identified a market opportunity and had consistent demand from the beginning. Within the first year, it became evident that the CBKF achieved remarkable success, to the extent that the cubing area could not

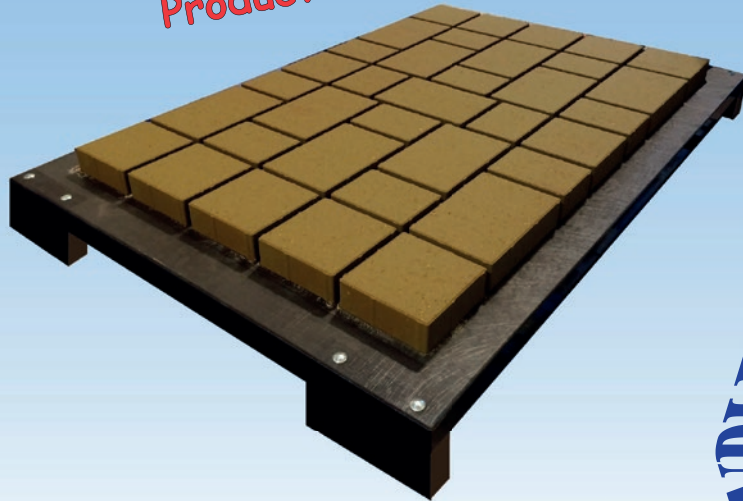


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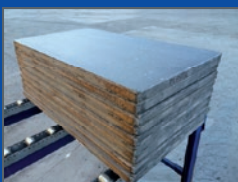
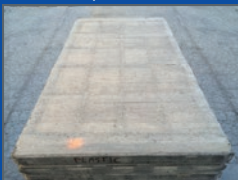


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Automatic
packaging line

maintain pace with the production speed of the block and paver machine. By the end of 2023, the first plans were made to upgrade the plant to the next level.

The next level involved automating the packaging line and investing in a face-mix mixer. This step aimed to enhance the quality of the products, enable the production of multi-colored products and increase the system's speed. As a side advantage, it will make the bigger mixer more available for third-party concrete users.

The automatic packaging of the blocks and pavers included an automatic cuber Servo 600. This cuber lifts products from a single pallet and transfers them to a slat conveyor.

CBKF has a choice of using shipping pallets or placing the product directly on the slat conveyor.

The frame conveyor offers the advantage of either using a shipping pallet or transporting the product directly with the frame conveyor. An automatic horizontal strapping machine, Messersi OR60, completes the packaging before a forklift transports the stone packages to the yard.

The upgrade of the concrete block and paver plant was finished in January 2025. After the first few weeks, it is evident that the stepping stones have contributed to CBKF's growth.



Shipping Pallet Hopper



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