Masa GmbH, 56626 Andernach, Germany

Blokbims relies on a reliable partnership

Turkey has about 9 billion m³ of pumice reserves in central and eastern Anatolia, which were already very popular long time ago: the dome construction of the Hagia Sophia in Istanbul was realized with this pumice stone. Due to its volcanic origin, pumice is a natural, ecological raw material with good thermal insulation and soundproofing properties as well as a high fire resistance. The porous pumice, which has a significantly lower density than conventional aggregates for normal concretes, is ideally suited for the production of lightweight concrete blocks. In Turkey began, from the 1980s, the production of professional lightweight construction elements and their demand increased rapidly since the mid-1990s.

Founded in 1997, Blokbims A.S. (ERTAŞ GRUP) recognized early the potential of the light and robust construction material and built the first production site in the province of Nevşehir (Cappadocia) on an area of 55,000 m² (of which 20,000 m² was roofed). The pumice sources in the own area were of cause a big advantage. At that time, the company also laid the foundation for a long-lasting partnership, which continues until today, with the acquisition of a Masa blockmaking machine. Since then, Blokbims has gradually expanded its production and logistic capacities to serve domestic and international markets. In 2005, 2011 and 2013, the installations of other production facilities followed. Blokbims further strengthened its market position with the installation of pumice screening facilities as well as two solar power plants for the company's own power generation. In 2016, the management decided to buy another production plant from Masa. This state-of-the-art facility was commissioned in spring of 2017 on more than 1,000,000 m² company premises in the meantime. According to the company, Blokbims today produces about 220,000 lightweight concrete units per day and handles shipments inside Turkey and abroad via its own logistics center. The next expansion of production capacity is already in discussion.

Masa started assembling the complex production plant in September 2016. The Masa dosing and mixing plant with charging scale, water dosing, cement scale and the field-proven PH 3000/4500 mixer with planetary gear converts the previously crushed pumice with cement and water as well as with other aggregates into a homogenous concrete mixture. From a technical point of view, the main consideration here was that the pumice, due to its low density, requires a correspondingly large charging scale with sufficient volume. Masa uses a charging scale with a weighing capacity of 7,000 kg.

Fig. 1: The heart of every concrete block making plant: The amplitude-controlled Masa XL 9.2 (main mix concrete machine) is equipped with an additional package

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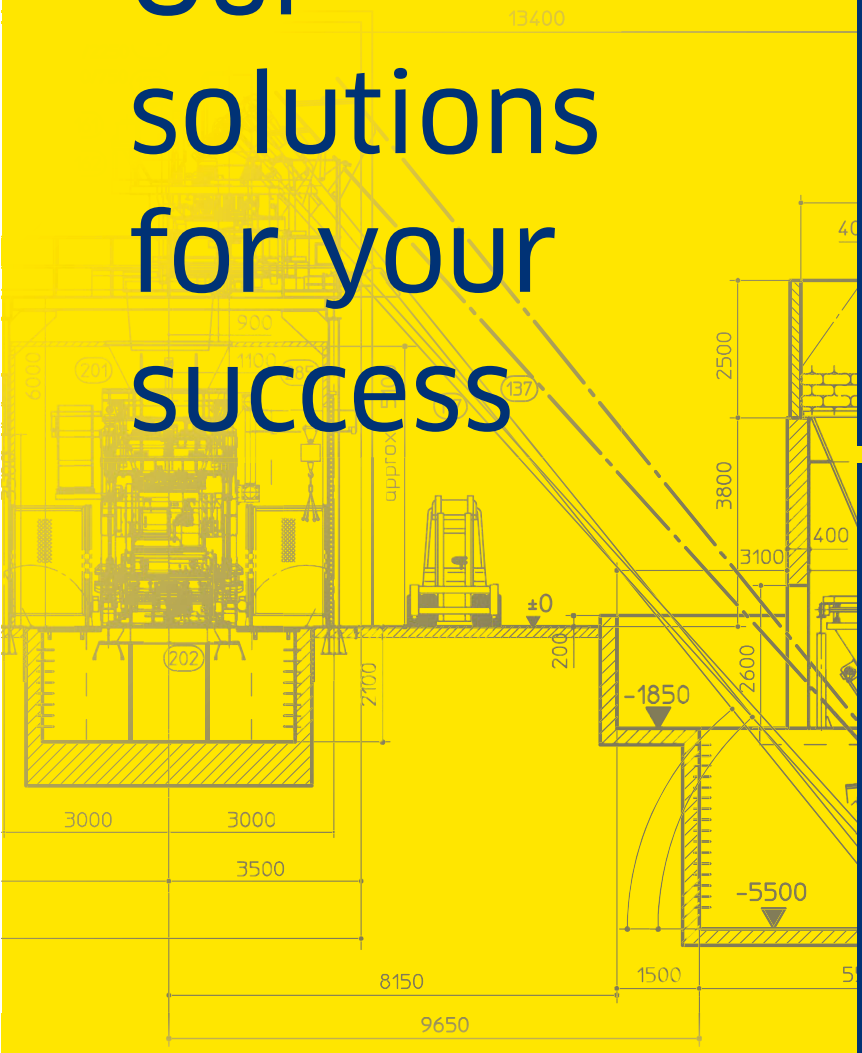

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Masa covers the complete range of machinery and ancillary equipment for the building materials industry: Batching and Mixing, Concrete Blocks/Pavers, Kerbstones, Concrete Slabs, Sand Lime Bricks and Aerated Concrete (AAC) Products.

All technical solutions are individually planned, designed, adapted and realised for each customer, resulting in one supplier and one individual contact person.

Masa GmbH
Masa-Str. 2
56626 Andernach
Germany
Phone +49 2632 9292 0
Service Hotline +49 2632 9292 88

Masa GmbH
Werk Porta Westfalica
Osterkamp 2
32457 Porta Westfalica
Germany
Phone +49 5731 680 0

Masa Concrete Plants India Pvt. Ltd.
#5B, KIADB, Bommasandra Ind. Area
Attibele, Bangalore 560 099
India
Phone +91 80 2628 3888
Mail info@masa-india.com

info@masa-group.com
service@masa-group.com
www.masa-group.com

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Fig. 2: View to the new remodelling line: The cubing area includes the highly efficient Masa Cuboter.

Fig. 3: The Masa intermediate finger car is located in front of the lowerator, serves as an intermediate buffer and prevents waiting times of the finger car.

The concrete is transported by bucket conveyor to the block making machine. The amplitude-controlled Masa XL 9.2 (main mix concrete machine) is equipped with an additional package: A larger pump capacity of the machine, an additional hydraulic accumulator and an additional servomotor for the ejection / feed of the production pallets to ensure an optimal cycle time. For the production of lightweight concrete blocks, Blokbims uses 14 mm thick 1400 mm x 1450 mm steel production pallets. Due to the large format of the production pallets, the filling of the mould takes place via a longer filling box. In order to achieve optimum distribution of the concrete in the filling box, the concrete silo of the block making machine was provided with two discharges.

Non-contact sensors are mounted below the vibration table, which can permanently measure the amplitude of the vibration table during production. Possible wrong adjustments of the operating personal or even wearing can be detected at an early stage.

The control, operation and visualization of the block making machine as well as the other components are carried out uniformly via the plant control software "Masa FAST Factory Automation Service Tools".

The freshly produced blocks run through a quality control with height measurement before the curing and can be easily removed from the circuit via a tilting device if required. The transfer of the fresh blocks to the curing area and later removal of the hardened blocks is done by the Masa standard components elevator, finger car, intermediate finger car and lowerator. In order to ensure a constant product availability, more than 15,000 production pallets with products can be stored in the curing plant without any problem.

One of Blokbims' secrets to success is the absolutely focus to the customers. In order to be able to transport as simply as possible complete packages of lightweight concrete blocks by cranes into big heights of high-rise construction sites around Istanbul and other major cities, Blokbims dispenses partially the use of transport pallets and instead of this it takes the principle of the "void layer". A freely selectable layer of a complete stone row is purposefully provided with gaps, into which later the forks of a forklift can enter. In order to realize the "void layer", the hardened stone layers are at first placed on a remodeling line with a layer shifter, which runs parallelly to the walking beam conveyor on the return transport side. Here, a device for clamping one row of stones and tilting it by 90° at each time is integrated. This creates a gap upwards.

Fig. 4: The clamping basket of the layer shifter is equipped with a vertical turning gear.

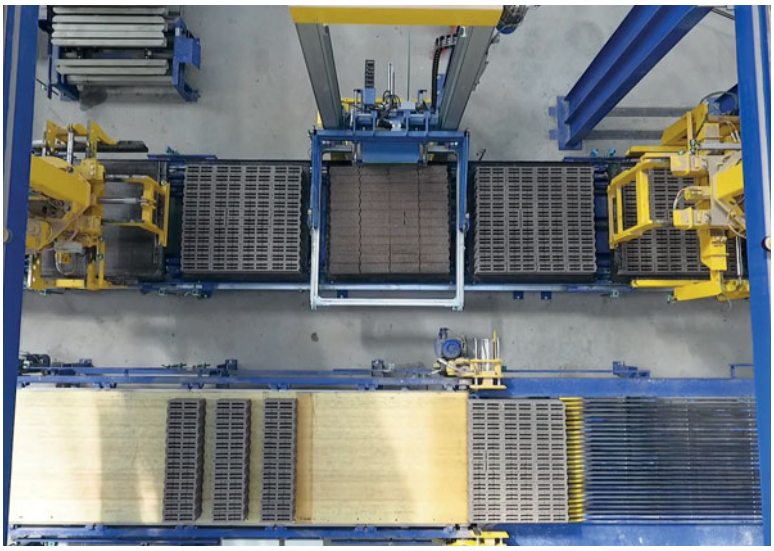

Fig. 5: Principle of the "void layers": A take over and pushing table, a hold-down device and a separating table create the "gaps".

At the same time, the tilted stone row serves as a stabilizing spacer. Depending on the size of the stone, the "void layer" can be created only with the remodelling unit: a take over and pushing table, a hold-down device and a separating table enlarge or reduce the stone layers in the process direction as desired or create the "gaps".

The clamping basket of the layer shifter is equipped with a vertical turning gear. The stone layer is turned by 180°. With this solution Blokbims considers the special requirements of large building sites. For production reasons, a block stands first on its later upper side. The Masa layer shifter automatically takes over in advance the turning of the stone to the bottomside, so that it is possible to work on the construction site without any delay.

With this equipment and the sophisticated handling system, Blokbims can satisfy all the wishes of end customers and, depending on the request, produce with or without transport pallets.

In addition to the highly efficient Masa Cuboter, the cubing area includes a 20 m long cube transport (double chain conveyor with U-profiles), a transport pallet magazine and a transport pallet injection device. The necessary stability for the transport is provided by the cubes with coordinated, horizontal and vertical strapping techniques. Subsequently, a cube shifter with turning device sets the cubes on transport vehicles, which are coupled to an underfloor conveying system. A transport unit consists of several cars, which are then pulled cyclically through the hall. Additional stability is provided by

Fig. 6: A cube shifter sets the cubes on transport vehicles, which are coupled to an underfloor conveying system.

the cubes via a second vertical strapping machine. The completely filled unit is later driven by tractor to the storage location in the outer warehouse and unloaded there. So, a large transport volume can be transported and the transport unit can be flexibly put together. In general, up to three transport units are in use at Blokbims.
The empty production pallets will be cleaned, turned over and returned to the production cycle via a cross transport. Here, the Masa offers as a solution "cross transport with carriage and grab" a standardized and worldwide used possibility for buffering the production pallets. This unique Masa system ensures that the fresh and dry sides can work independently.

Musa Ertaş, President of the ERTAŞ GRUP and Managing Director of Blokbims, rated the project as very positive. "We are completely satisfied with the overall package Masa offered us," said Mr Ertaş shortly after commissioning in spring 2017. "The cooperation with the company Masa was very professional from the beginning. Especially when working out the plant layout, we worked very close together. The open discussion and the constant exchange of experiences were very helpful. In the end, we were able to realize many individualized solutions with Masa. ", said Plant Manager Faruk İşbeceren. "The decision to purchase a Masa production facility proved to be the right one."

FURTHER INFORMATION

BLOKBIMS
Niğde Yolu Üzeri 13. Km
50100 Güvercinlik Köyü/Nevşehir Merkez/Nevşehir, Turkey
T +90 384 2512434, F +90 384 2512433
blokbims@blokbims.com.tr, www.blokbims.com.tr

Milestone to your success.

Masa GmbH
Masa-Str. 2, 56626 Andernach, Germany
T +49 2632 92920, F +49 2632 929212
info@masa-group.com, www.masa-group.com

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