

■ Masa AG, 56626 Andernach, Germany

Özku Beton takes new block forming machine into service in Turkey

The Turkish building material market is booming and profiting from the positive construction economy. Due to numerous projects, and also with regard to Turkey's possible entry into the EU, the requirements for building materials will be sustained in the future. High quality products in par-

ticular are increasingly in demand. The family-run firm Özku Beton Elemanlari, which is based in Ankara and is the leading manufacturer of concrete products in the city, is well aware of this challenge.

In order to cater for increasing market demands as regards requirements and quality, it was therefore decided to procure a new block production plant which, in accordance with the latest standards, was to be implemented with the most modern production technology possible.

The majority of the production consists of paving blocks of all kinds in different colours and other kerbstones and garden products. The order for this demanding project was placed with the company MASA AG.

Masa AG, one of the world's leading suppliers of concrete block plants, has been delivering very powerful plants to Turkey for years. A total of more than 20 stationary concrete block plants have been delivered to Turkey so far. A large proportion of these plants are 'block plants', since pumice stone occurs naturally in Turkey in large quantities.

Masa AG supplied Özku Beton Elemanlari with a complete, ready-to-operate plant, comprising a fully automatic material dosing plant, a mixing plant with two horizontal compulsory mixers, a double bucket conveyor, the block making machine type R 9001 XL 'fast' and the complete handling of the finished products on the dry side.

The Özku company's new plant was erected conveniently for transport purposes in the immediate vicinity of Ankara airport and successfully began production in autumn 2006. The modern concrete block production plant works as follows

Mixing and dosing plant

The material is fed to the dosing plant via an elevating conveyor, with a total of 5 high silos, pneumatically operated dosing flaps and batching scales.

The various sand fractions are weighed and subsequently filled directly into the mixer elevators via the material silos and the batching scales (4000 kg or 2800 l). Further components such as cement and other additives are fed to the mixer via augers.

The quadruple colour dosing unit doses the colour (powder) via the mixer elevators into the mixer according to the recipe. In order to ensure the supply of fresh con-

crete to the powerful block making machine, two Masa horizontal compulsory mixers of type HPM 1500/2250 and HPM 500/750 were installed in this plant for the manufacture of core and facing concrete.

Masa concrete mixers mix excellent qualities of concrete with short mixing times and have only a low energy requirement. Through the forced mixing using the counterflow principle with optimum agitator movement in several planes, particularly even mixing is achieved. Water dosing is completely automatic.

When the concrete has been fully mixed, it is taken up by the bucket conveyor and transported to the block production



All controllers are pre-installed in the 40' container, which Masa call the 'Powertainer'

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machine. The two separate buckets, each with a capacity of 3,200 l can supply either the core concrete silo or the fair-faced concrete silo of the block forming machine. This double bucket conveyor solution ensures absolutely clean facing concrete, since this is transported in a separate bucket.

The dosing and mixing plant is controlled with a control unit developed by Masa on the basis of the Siemens S7. User-friendly operation takes place via a windows user interface and a touch screen monitor. A virtually unlimited number of mixture recipes can be developed and stored.

As is usual for Masa, the control cabinets of all controllers are pre-installed in a 'powertainer', a specially adapted 40" container. This is advantageous in that the installation of the plant is accelerated and the control cabinets are housed protectively in a acclimatised room.

Block making machine

In accordance with the market requirements mentioned at the beginning, it was particularly important to obtain a concrete block machine that can achieve the highest product quality for the highest daily production quantities. It needed to be possible to manufacture paving stones, kerbstones and all other garden and landscaping products in a constantly high quality.



The fully automatic moving platform loads and unloads the shelving unit automatically

For this purpose, the Masa block making machine Record 9001 XL 'fast' with a pallet size of 1400 mm x 1100 mm was selected. The Özkul company decided to produce on 50 mm thick wooden underlay pallets.

The Record 9001 XL 'fast' is a stationary, fully automatic universal block making machine for the mass production of concrete stones made from lightweight and heavyweight concretes. It is the top model in Masa AG's range of block making machines.

The distinctive technical features of the R 9001 XL 'fast' are as follows:

- Particularly heavy, stable machine construction (total weight over 40 t)
- The machine functions are carried out by means of highly-dynamic, maintenance-free proportional valves with integrated electronics.
- The extra-fast version of the type R 9001 XL makes even shorter cycle times possible thanks to larger pump capacities and particularly fast pallet intake and ejection by means of servo motors.
- The patented vibration unit with amplitude regulation means that the strength and frequency of the vibration units can be adjusted continuously and independently of one another.
- Machine control is carried out on a decentralised basis by means of Profibus.
- Pressure accumulator for optimum cycle times
- Speed synchronised pallet ejection < 1 sec.
- Fully automatic mould change (< 10 minutes).
- Extra-long guide bearing on the tamper and mould.
- Production of concrete blocks, retaining wall elements and dry wall stones to exact heights (+/- 1 mm).

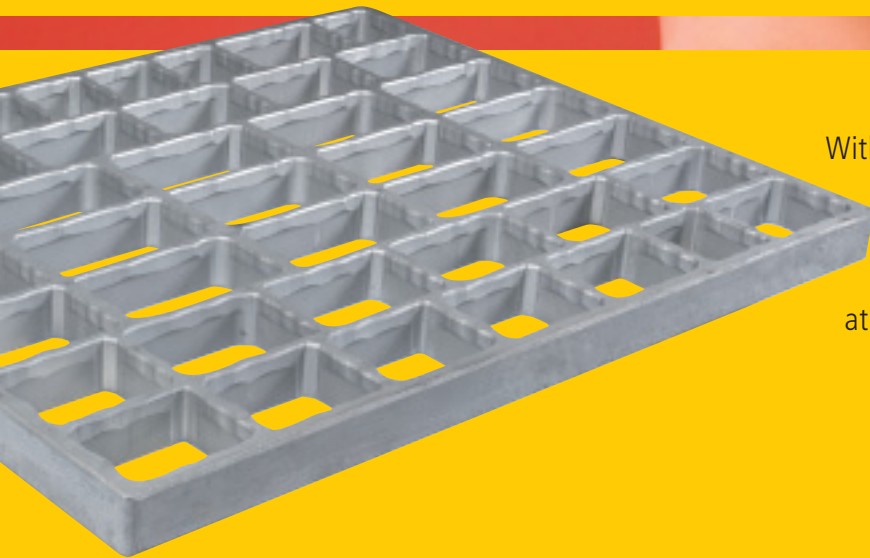


The block forming machine at Özkul is fenced off as required by safety regulations

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The layers of blocks are made into packets in the cuber



The block packets are strapped by means of a strapping unit made by the Ridder company

Product handling

The concrete blocks produced by the block making machine are transported via a lowering device (driven by a servo motor) and a free-lift conveyor to the lifting rack. A concrete washing out plant is also integrated in this transport section. Here, the stones can be washed out with two oscillating high-performance nozzle

rails. Superb washing results are achieved.

The concrete blocks are stored in the shelving units for hardening by means of a fully-automatic moving platform. This unit has 22 storeys at a storey spacing of 320 mm. The total capacity of the shelving unit is 6,864 pallets plus one empty chamber. The transfer table is equipped with an automatic lifting arm adjustment, which enables the full use of the production pallet even for high products (up to 500 mm). After the drying process the blocks are taken out of the shelving to the dry side. For this purpose, the transfer table transports the dried blocks to a descending rack.

From here, the layers of blocks are transported back to the cubing system, where the blocks are automatically made into packets. This transport back is implemented in the form of a finger feed, with reversible catches. The feed is driven by means of a twin-action lifting cylinder.

The basic structure of the cuber consists of a portal frame of robust profile steel. The distortion free chassis is driven by a toothed rack and a frequency-controlled special gear motor.

The rising and lowering movement is carried out by twin-action lifting cylinder. The grab and clamp equipment, which can be rotated by 360°, is designed as a hydraulically-driven four-sided cramping device.

Following cubing, the packets can be strapped horizontally and vertically and wrapped with film. The cubed products are then transported outside by means of a plate conveyor.

Fork lift trucks lift up the packets on transport pallets and transport them to the storage area.

Conclusions

All in all, this block making plant once again represents a well thought out, user-friendly overall design from a modern point of view, and meets Özkul Beton's demanding technical requirements. The quality produced with the new block making plant is clearly improved, while the volumes produced have increased many times over.

At the same time this confirms Masa AG about its approach towards customer oriented and company internal quality requirements, which makes the company a competent and reliable partner worldwide.

Further information:

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