

■ Masa AG, 56626 Andernach, Germany

Musu Statyba take second stone production plant into operation in Kaunas

The Musu Statyba company, founded in 1998 in Klaipeda, Lithuania, has developed in recent years into one of the largest suppliers of decorative paving and garden landscaping products in Lithuania. As part of a further expansion, it is intended in future to gain market shares outside

Lithuania too. At the beginning of 2006, Masa AG received an order to deliver a complete stone production plant to Lithuania. The plant in Kaunas is Musu Statyba's second Masa plant, and the third Masa plant has also just been ordered.

Musu Statyba chiefly produce paving stones of all kinds in various colours and multicolours, as well as border stones, kerbstones and other garden landscaping products. The products manufactured satisfy the highest quality requirements (LST 1551:1999/1K:2001).

Thanks to the excellent experience with Masa AG for the first stone production plant, the decision to turn to the tried-and-tested engineering company again for the new plant was an easy one. Masa convinced with their high machine quality, excellent service and the high uptime of the plant. Masa AG have now taken over 120 concrete stone plants of type R 9001 XL into production all over the world since the introduction of the machine in 2001.

Mixing and dosing plant

Material is fed to the dosing plant via a total of 6 supply silos, pneumatically operated dosing flaps and batching scales. The various raw materials 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 (liquid colourants) into the mixer according to the recipe. Special scales are used for weighing liquid additives.

The high performance mixers HM 1500/2250 and HM 500/750, which are mounted above the stone production machine, produce concrete of the highest

quality in all grades whilst maintaining short mixing times. A particularly uniform mixing effect is achieved by forced mixing using the counter flow principle with agitator movement in several planes.

These practically proven plants excel because of their optimised energy efficiency and low maintenance requirements. Water dosing is completely automatic. A virtually unlimited number of mixture recipes can be developed and stored.

Block making machine

As in 2004 this new works had to fulfil the following conditions:

- The products made meet the highest quality requirements.

- Paving stones can be produced in various forms and colours.
- All products for garden and landscaping, especially paving and kerbstones can be produced.

Just as for the first block manufacturing plant, the Masa Record 9001 XL block manufacturing plant (board size 1400 mm x 1100 mm) was selected. Musu Statyba decided to produce on 50 mm thick wooden base boards.

The Record 9001 VB is a stationary, fully-automatic universal block-making machine for mass production of concrete blocks of low and high-density concrete and is one of the top models from the Masa AG stone-making machine range. The machi-



The mixing and dosing plant is located directly above the concrete block machine.

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Masa-Henke
Maschinenfabrik GmbH
Osterkamp 2
32457 Porta Westfalica, Germany

Phone: +49 (0) 5731 680-0
Fax: +49 (0) 5731 680-183
e-mail: vertrieb@masa-henke.com
<http://www.masa-henke.com>

Masa Aktiengesellschaft
Masa-Str. 2
56626 Andernach, Germany

Phone: +49 (0) 2632 9292-0
Fax: +49 (0) 2632 9292-11
e-mail: vertrieb@masa-ag.com
<http://www.masa-ag.com>

Masa-Dorstener GmbH
Barbarastr. 70
46282 Dorsten, Germany

Phone: +49 (0) 2362 9516-0
Fax: +49 (0) 2362 9516-16
e-mail: vertrieb@masa-dorstener.com
<http://www.masa-dorstener.com>

ne is comprised of a three-part machine frame: the central part with vibrating table, and the core concrete and facing concrete filling stations. These filling sections can be opened separately, so that the machine is much more accessible for cleaning and maintenance.

Further special technical features of the R 9001 XL are:

- 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.
- Machine control is carried out on a decentralised basis by means of Profibus.
- 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).

Optimum colour mixes with excellent optical appearances are ensured by fitting the

machine with a Color-Mix-System with dosing belts in the facing part.

Instead of the usual stepless rpm control of the vibration table the machine is fitted with a patented amplitude controlled vibration system, which allows for stepless matching of the actual compression forces to the needs specified by the product. Different forces can be generated for preliminary, intermediate and main vibration. The amplitude can be varied at any time, even during running production. The rugged and simple design of the vibration system guarantees their long lifetime.

Product handling

The concrete blocks produced by the machine are transported to the lifting rack by means of a lowering device and a free lift conveyor.

The concrete blocks are stored in the shelving units for hardening by means of a fully-automatic moving platform, which is rotatable. This plant, manufactured from the HS company, was also delivered by Masa and, with 22 storeys at a storey spacing of 320 mm, has a total capacity of 4840 boards plus an empty chamber. The shelving installation was realised on-site in the form of a closed system with recirculating air equipment. This ensures optimised drying with a minimum expenditure of energy.



The fully automatic, rotating moving platform loads and unloads the HS shelving installation, which was designed as a closed system with recirculating air equipment.

After the drying process the blocks are taken out of the shelving to the dry side. For this purpose, the moving platform transports the dried blocks to a descending rack. From here, the layers of blocks are transported back to the packet assembling area, 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 equipment includes an automatic centering device, in which the blocks are centred on the board from two sides.

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.

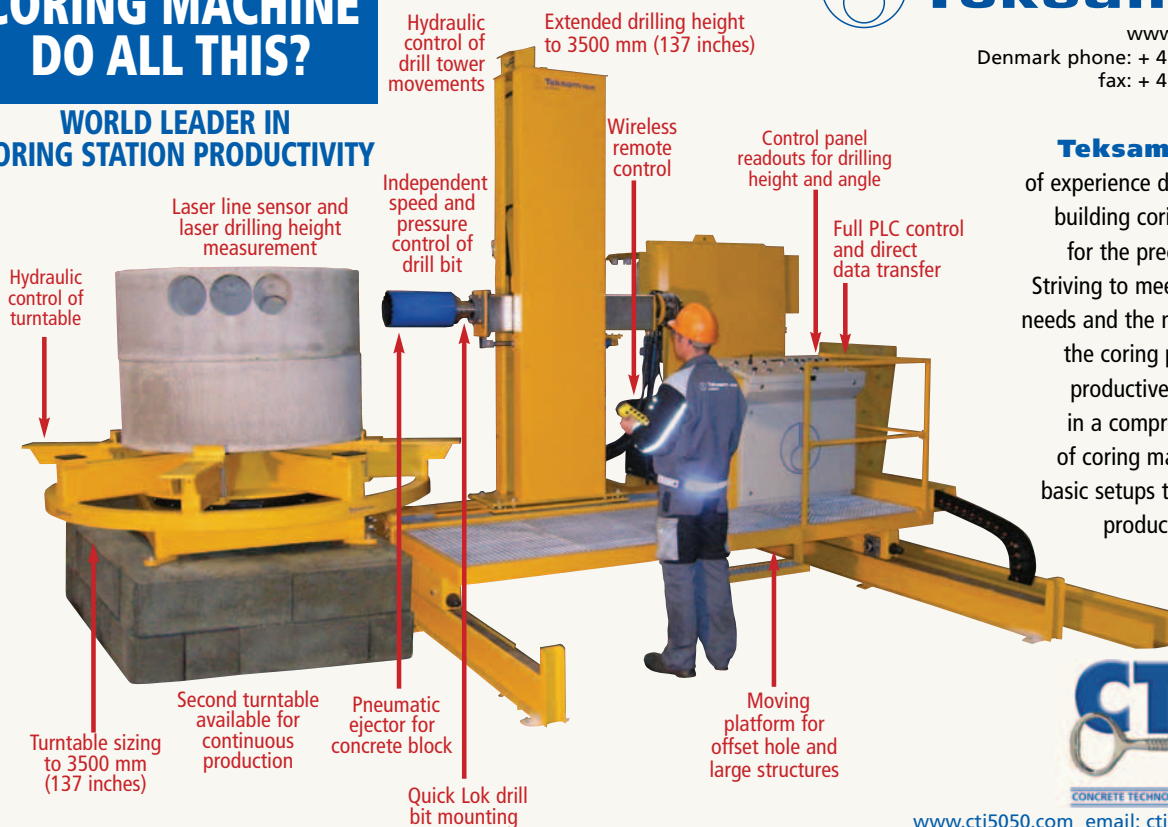
After cubing, the cubes are strapped horizontally and vertically. The packaged pro-



The concrete blocks produced by the machine are transported to the lifting rack by means of a lowering device and a free lift conveyor.

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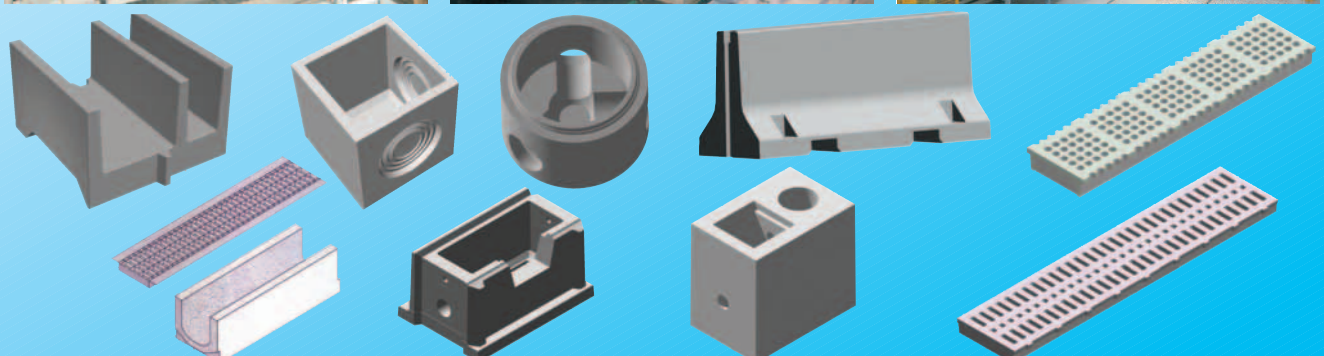


ROSSETTO SRL

Via A. Meucci, 4-Z.I.-35033 PRAGLIA DI TEOLO (Padova) · Italy
Tel. 0039-049-9902250 · Fax. 0039-049-9 90 22 43
E-Mail: info@rossettomacchine.com · Internet: www.rossettomacchine.com

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The exterior colour scheme of Musu Statyba's factory in Kaunas, Lithuania, hints at the supplier of the machines and plants inside.

ducts are then transported outside by means of a free lift conveyor. There, fork lifters take the cubes (always without transport pallets) and transport them to the storage area.

Control and operation

The plant is controlled by a controller developed by Masa on the basis of the S7, with PC and touch-screen monitor.

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

Profibus systems network the decentralised S7 plant controller. Functions can be selected and data input directly using the colour display touch screens. The visualisation software supplied has simple graphical function displays, a user guide and unlimited recipe management. The built-in statistics program records all operating data, which can be transferred to external PCs.

Conclusions

Musu Statyba will in future continue successfully along the road they have chosen with a versatile range of high quality products. Production will be carried out using plants delivered by Masa, which were designed and built in consideration of the most modern technical points of view and demands that can be placed on a concrete works.

Musu Statyba thus has one of the most modern and efficient stone production plants in Lithuania.

Further information:



UAB „MUSU STATYBA“
Raudondvario pl. Street 157
Kaunas
LT-47171, LITHUANIA
T +370 3 7362849,
F +370 3 7385679
e.ivanaukas@musustatyba.lt
www.musustatyba.lt



MASA AG
Masa-Straße 2
56626 Andernach, GERMANY
T +49 2632 92920
F +49 2632 929211
info@masa-ag.com
www.masa-ag.de





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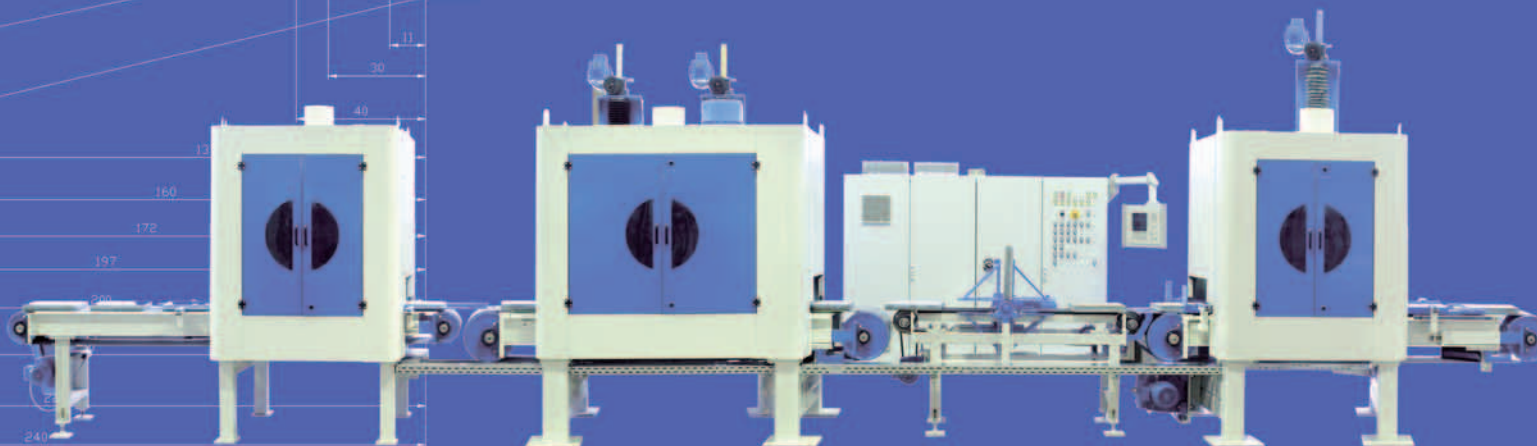
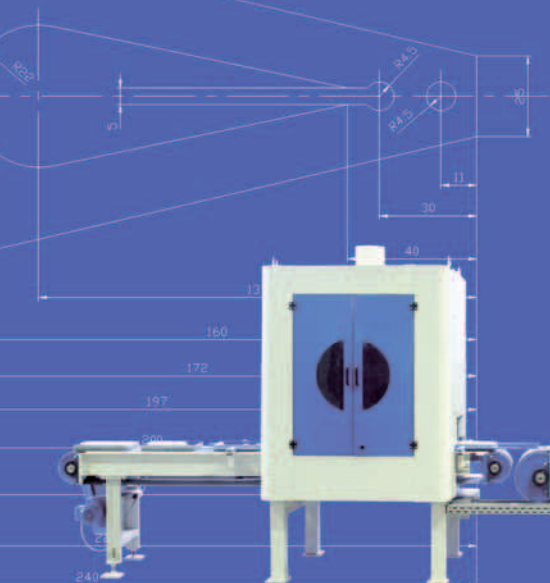



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