

■ Masa AG, 56626 Andernach, Germany

## Bucomac Industries Ltd. puts complete block production plant into operation

At the beginning of 2005, Masa AG received an order from Bucomac to supply a complete block production plant. This is the second Masa plant for Bucomac and an order for a third is to be expected shortly. Delivered in the summer of 2005, the complete plant consists of a material

dosing unit, a mixing unit with two horizontal compulsory mixers, a double skip railway system, the block making machine itself and a complete handling system for the finished products on the dry end.

The plant at Bucomac is now the sixteenth Type R9001XL concrete block plant put into operation by Masa AG in the United Arab Emirates. Masa AG has since supplied more than 60 stationary large pallet systems in the UAE. The majority of products manufactured there are a variety of paving stones in different colours, kerbstones and various other horticultural products.

### **Mixing and dosing unit as well as concrete transport**

Seven feed silos feed the material to the dosing unit via pneumatically operated

dosing flaps and a batch weigher. The various grades of sand are weighed from the material silos via the batch weigher (4,000 kg or 2,800 l) and then fed directly to the mixer elevators. Batching screws supply the other components such as cement and other additives to the mixer. The four-fold colour dosing system batches the colourant (powder) into the mixer according to the recipe via the mixer elevator.

Two HPM 1500/2250 Masa horizontal compulsory mixers are used for core and face concrete production to ensure that the high performance block making

machine is kept supplied with a constant flow of concrete.

Another mixer can be added for external purposes, such as a wet-press unit, at any time. Masa concrete mixers are used to produce the highest quality concretes and require only short mixing times and low power consumptions. Compulsory mixing using the counter-flow principle with optimised agitator movement at several levels produces mixes of particularly uniform quality. Water dosing is fully automated.

When the mixed concrete is ready, the skip railway collects it from the mixers and delivers it to the block production machine.

The two separate 3,200 litre skips feed either the core concrete silo or the face concrete silo of the block making machine. Transporting it in a separate skip using a "double skip railway system" ensures that the face concrete is kept absolutely clean.

The dosing and mixing unit is controlled by a controller developed by Masa based on the Siemens S7 technology. A Windows interface and a touch-screen monitor ensure that the control is user-friendly. Any number of mixing recipes can be developed and stored.

As is usual practice for Masa, the switch cabinets for all the controllers are pre-installed in a "Powertainer" – a special 40" sea container which has been set up beforehand. This makes it quicker to install the plant and protects the switch cabinets since they are already housed in an air-conditioned room.



*With the weather conditions in Dubai, the mixing unit does not need a building to house it*

## Welcome to the Masa-World!



### Plant and Machinery for the production of:

- Concrete blocks
- Concrete slabs
- Aerated concrete blocks
- Sand lime bricks

The Masa Group has participated in many developments in the production of building materials.

The prerequisites for this are a good team and a feeling for the needs of the market.

We are well experienced in this area as are our customers. And this is the solid foundation from which we will address the requirements of the future.

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carried out by high-dynamic, maintenance-free proportional valves with integrated electronics. The extra fast R9001XL version operates with an even shorter cycle time since it has a larger pump capacity and a special fast pallet feed and ejection system using servo motors. The machine control system is decentralised by using Profibus.

Optimum cycle times and a speed-synchronised pallet ejection time of less than one second are achieved by using a hydraulic accumulator. Fully automated mould changes can be carried out in less than 10 minutes.

*Block production machine and skip railway system at Bucomac – the cooling tower can be seen in the background on the hydraulic platform*



*Interior view of the Masa "Powertainer"*



*Product transport at the wet end and switch cabinet container*

**Block production machine**

For managing director Mr Thanasagaran, it was particularly important to have a block making machine capable of making blocks of the highest quality with the highest daily production output. The machine had to be capable of manufacturing paving stones and kerbstones at a uniform, high quality, as well as all the other horticultural and landscaping products. The Record 9001 XL "fast" Masa block production machine (pallet size 1,400 mm x 1,100 mm) was the one which satisfied this specification.

Production on the machine is carried out on 15 mm thick steel pallets, which Bucomac obtained from Samjung in Korea.

The Record 9001 XL "fast" is a stationary, fully automatic, universal block production machine which is designed to mass produce concrete blocks from lightweight and normal concrete and is the top model in the range.

This machine is of heavy, sturdy construction with a total weight of more than 40 tonnes. All the machine operations are

The extra long guide bearings for both the compaction head and mould guidance means that production is highly accurate. The height tolerance when producing blocks, retaining wall elements and dry walling blocks is less than one millimetre.

**Product handling**

The concrete blocks produced by the block making machine are transported to the stacker via a servo-motor-driven low-erator and free-lift conveyor. The concrete blocks are stored in the rack system by a fully automated rotary sliding

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*Sliding platform with rotating mechanism*



*Cross transport of steel pallets and cubing unit with slat conveyor*

platform to cure. This system has 14 shelves with an inter-shelf distance of 400 mm and an overall capacity of 5,096 steel pallets, including one empty chamber.

The rack system was designed as a closed system with an air-circulation plant. Optimum drying is therefore provided with minimum energy consumption.

After curing, the blocks are removed from the rack system and taken to the dry end. A sliding table takes the cured blocks to a de-stacker for this purpose.

From there, the layers are taken, via the return transport system, to the cubing unit where a fully automated system assembles the blocks into packages.

The return transport system is operated by ratchet feed motion using catches which can be folded over. The feed system is operated by a double-action lifting ram. In the return transport system, there is an automatic centring device for centring the blocks on the pallets on four sides.

The basic structure of the cubing unit consists of a sturdy gantry frame made of

steel section. The torsionally rigid travel carriage is driven by a special frequency-controlled gear motor via a wrack and pinion mechanism.

Lifting and lowering is achieved via a double-action lifting ram. The suspended gripper and clamping device which rotates through 360° is a hydraulically driven four-sided clamping system.

The plant allows blocks to be assembled automatically from 1 1/2 production pallets to form 1,200 mm x 1,200 mm packages.

This cost-effective system for storing and transporting packages corresponds to the customary block handling method.

After cubing, the packages are strapped horizontally and vertically. The packaged products are then transported outdoors via a slat conveyor where forklift trucks take them from the transport pallets and carry them to the storage area.

### **Conclusion**

The Bucomac plant was designed and built according to the latest technical criteria

and standards demanded by modern concrete production facilities. This plant can be operated very efficiently with only four persons per shift to mind the machine and supervise quality control and products dispatch.

This new block production plant exceeds the previous production output many times over and consistently delivers blocks of higher quality. In fact, Bucomac now has one of the fastest and most effective block production plants in Dubai!

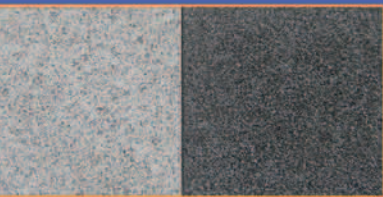
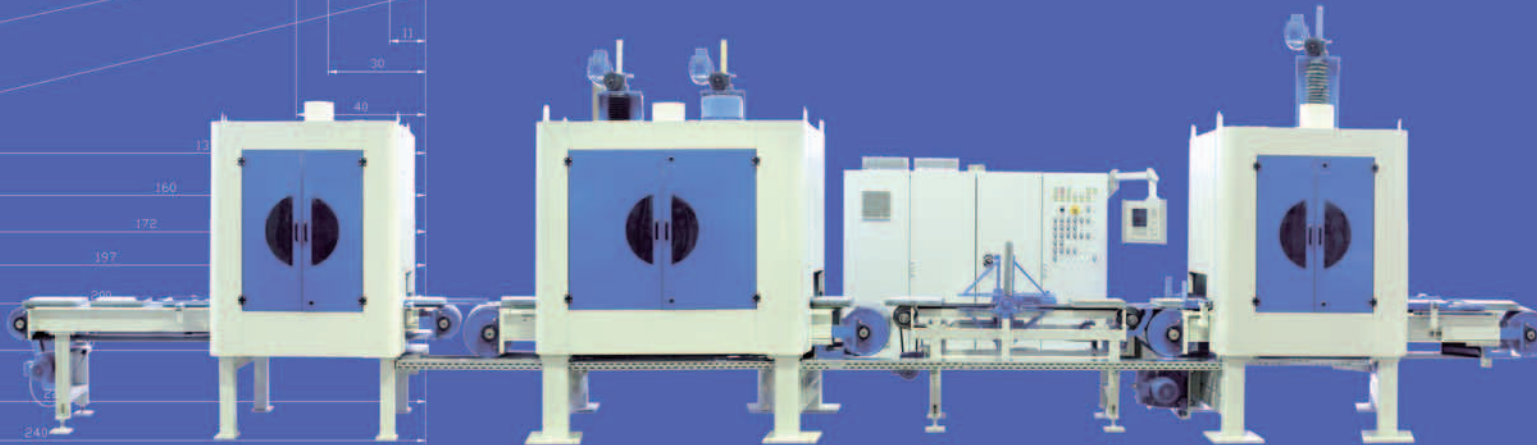
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## TECHNICAL EXPERTISE IN FINISHING, POST-TREATMENT AND DESIGNING NEW PRODUCTS



Levelling and surface milling of heavy concrete products in dry processes with our "S-Plano" milling machine.

- no water conditioning costs or disposal costs
- Energy consumption: approx. 40 kW
- recycling of dust and small components (waste)
- Better and more effective cleaning of post-treated surface
- VISUAL APPEARANCE - emphasises colour quality - depending on the attachment
- Optimum wear and slip resistance even when wet

"Plano" Block-height and surface milling machine for lightweight concrete products (dry method).

- Post-treatment of block surface to precision dimensions of at least +/- 0.3 mm.
- long service lives by using special tools Tool quickly changed – Energy consumption: approx. 22.5 kW.

### Filling unit

The precision concrete blocks, which are manufactured using the "Plano" milling machine, are filled with a thermal insulation material using the filling unit which has been specially developed for this purpose.

We are always available to give you all the advice you need on a one-to-one basis.

