

Masa AG, 56626 Andernach, Germany

New concrete block making plant for BWL Betonwerk Linden – inspection during the BAUMA

BWL Betonwerk Linden has been manufacturing paving stones, wall systems, slope fortifications, steps, palisades, border stones and ground-level construction articles such as kerbstones and edging stones since the 1960s at several factories. These are sophisticated economical solutions for all areas of garden, landscape and urban design. Betonwerk Linden is also an expert partner in the 'classic underground construction' sector. The range of products here includes pipes, manholes, wastewater treatment plants and products from environmental technology. The prerequisites for the capability of the company are shown by its special know-how, i.e. by the 'how to' of production in conjunction with the latest production plants. In 2008 it was time to invest in a new concrete block manufacturing plant. The decision for the delivery of the new plant fell on Masa. Thus a leading manufacturer of concrete blocks and the leading manufacturer of block making machines jointly conceived a new, highly efficient production plant.

Masa is one of the world's leading manufacturers of machinery for the building materials industry. The company supplies machines and components for the production of concrete blocks, porous concrete blocks, lime sandstones and concrete slabs. The components thereby all come from one source – from Masa, e.g. dosing and mixing systems, block making machines, presses for lime sandstones or concrete slabs, systems for the production of porous concrete, dosing systems for coloured concrete, conveyor systems, ventilation systems, refinement systems such as stone splitters, grinding or blasting systems, packet assembly systems with packet transport as well as the entire control system.

In the preliminary technical discussions for the new project, it was in particular the inte-

gration of the plant into the existing spatial conditions that presented Masa with a big challenge in the planning of the plant. On the one hand, an existing building and the partially existing mixing and dosing system had to be included in the planning and, on the other, the side at which the finished products should leave the building was also decisive or rather specified. It was important in this context to connect as many standard components as possible to one another and yet at the same time to comply with the many externally existing boundary conditions.

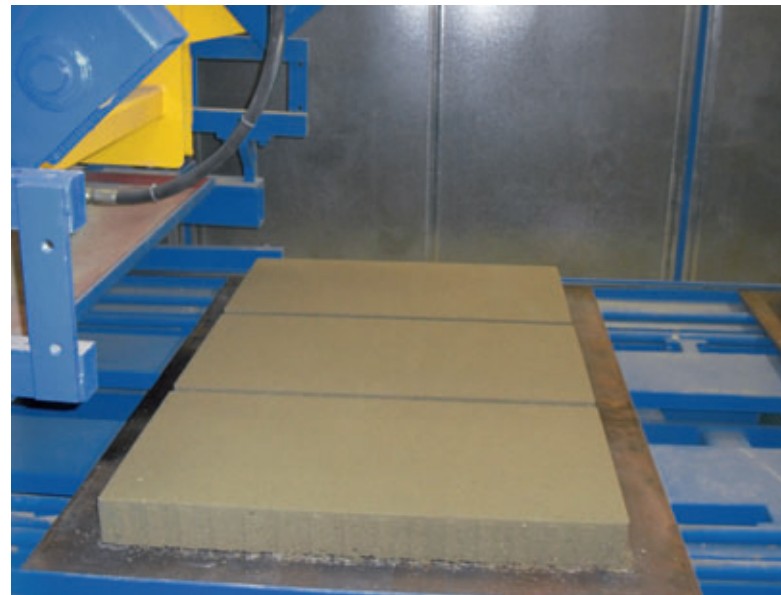
Equipment

The main part of the plant is the production machine – a Masa XL 9.1 with a sheet size

of 1400 x 1000 mm. The machine is equipped as standard with an automatic mould changer; the material silos are mounted on load cells in order to measure the level of the silos continuously. The load cells also control the silo empty and full signals and the concrete requirement. The feed boxes are suspended freely and decoupled from the vibration unit. This relieves both the mould and the vibrating table. Hence, wear is reduced and the service life of the components can be prolonged. As additional equipment on the machine, the core concrete feed box unit can be opened electrically and locked hydraulically. Pneumatic scrapers are attached to both feed boxes for the optimised distribution of the concrete into the mould. The level in the core feed box is measured by a laser probe. A mould



XL 9.1 block making machine



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Plants for the manufacture of Concrete Slabs



Assembly, Spare Parts and Service



Plants for the manufacture of Sand-Lime Bricks and Blocks

Masa covers the complete range of machinery and ancillary equipment for the building materials industry: batching and mixing, concrete blocks/pavers, concrete slabs, sand lime bricks and aerated concrete.

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



Transfer table

change crane facilitates mould changing.

Over and above that, the machine can be manually operated locally with a so-called Tough Book. A Tough Book is a special laptop designed for industrial conditions that is connected wirelessly to the controller. For the production of products transversely to the filling direction, for example kerbstones, the machine is additionally equipped with a transverse cleaning device.

The main components of the circulating system are driven by servo motors. These

include, for example, the walking beam conveyors on both the fresh and the dry side as well as the centring device and the product doubler.

Using the production pallet store, different cycle times on the production side can be compensated in comparison to the packing side. Depending on machine requirements, the underlay sheets can either be stored or be supplied directly to the machine's pallet magazine.

Before the underlay sheets are placed in the store, the cured products are taken from the sheets and placed on a trolley car by the servo packet assembler and subsequently prepared for being transported out by fork-lift truck.

The further special features of the supplied plant include the following:

The power cabinets for the complete control system are, as with all Masa plants today, integrated in a 40-foot container (Powertainer), which is erected at the building site and then serves the customer as a control room.

In the compartment plant, a specially developed ventilation system for large compartments ensures an optimum circulation of air, so that the most even curing conditions possible (temperature and humidity from top to bottom) are attained in the large compartment.

Control concept

For Masa it is important to combine its own experiences with those of the customer and to integrate them in a control concept. The

objective is the customer-specific representation of the plants and their imaging in the visualisation systems. A high degree of standardisation guarantees that only proven and extensively tested functions are used. By means of the combination of PLC controllers with appropriate operating PCs, Masa has succeeded in achieving optimum availability and integrated networking.

Networking via Ethernet and connection to the Masa remote maintenance network allow fast diagnosis in the event of an error. However, not only the customers, but also external influences require the highest degree of flexibility and adaptability nowadays. On the one hand, these are general technological developments, e.g. optimisations in control technology (e.g. servo), higher speeds and faster cycle times of controllers or the consistent employment of the so-called bus technology. On the other hand, legal regulations and standards change.

Mechanical and electrical safety devices

All safety-relevant plant components are secured by protective fences, corresponding entrances with guard locks, safety light barriers, safety light curtains and devices adapted to the specific customer. Special robust transfer key systems offer extreme loadability and switching security. High productivity can be ensured by a stop/start behaviour specified individually for each component.

Masa's broad wealth of experience offers even more advantages. The security stan-



Lifter and rack system



Ventilation system for large compartment



Dry side and packet assembly



Servo packet assembler

dard thereby extends far beyond legal requirements. Masa is continuously working, for example, on new technical solutions to increase the intrinsic safety of the plant components. Masa attaches particularly high importance to the quality and the lifespan of the necessary safety devices. The components used are particularly well suited to the harsh everyday life in dusty, aggressive environments.

Conclusions and outlook on the BAUMA 2010

The supplied plant meets the latest standards in concrete block manufacturing. Betonwerk Linden and Masa have together integrated outside conditions, new ideas and current trends in concrete block manufacturing in the project and in this way tailored it optimally to market requirements.

During the BAUMA 2010, BWL Betonwerk Linden is available to MASA on one day (21/04/2010) for inspection. To this end, all interested parties are requested to send an e-mail to e.dreis@masa-ag.com or a fax to the fax number 0049 2632 9292 12. The interested parties will be informed of the exact procedure at a later date. Registration is necessary.

FURTHER INFORMATION



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