

Masa GmbH, 56626 Andernach, Germany

Ambitious mechanical engineering company again proves its problem-solving competence

As independent brand of the Rohrdorfer Group, BWL Betonwerk Linden manufactures pavers, slabs and wall systems at several production sites in Germany. The philosophy of Rohrdorfer, a nationally active producer of building materials, which manufactures cement, ready-mixed concrete, gala products and precast concrete elements at more than 140 locations in Germany, Austria, Hungary and Italy, and works in sand and gravel extraction, also applies to the Linden concrete plant: Only through efficient and environmentally friendly plant technology, a customer-oriented product range and intensive quality monitoring can the uncompromising production of high-quality and contemporary concrete products succeed.

Since its founding in 1966, the South German company based in Linden has been supplying excellent products for all areas of garden, landscape and urban design. In 2001, BWL Betonwerk Linden expanded its production facilities for the first time with the establishment of the Wörth an der Isar and Berglern sites, later with the plant in Atting. Regular investments have been made in the past in far-reaching refurbishments. In 2018, the outdated production plant in Wörth was also put to the test and was to undergo an extensive renovation or new construction project. In the course of this, the block making machine had to be replaced as well as a large part of the ring system and the control and safety components.

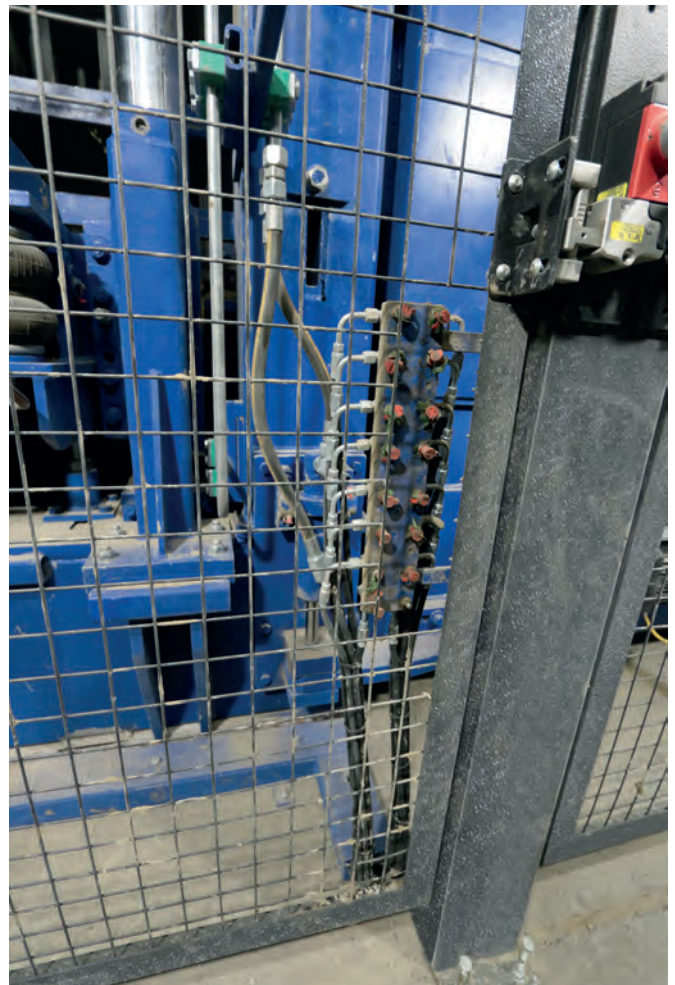
As responsible partner for this challenging task the company Masa GmbH from Andernach / Germany could be won. The ambitious mechanical engineering company from the Rhineland accepted the challenge and proved its problem-solving competence at several critical points in the course of the project.

Orderly areas despite space restrictions

Particular attention was paid to the consideration of local conditions within the existing facility. For Masa this meant, for example, realizing all the extensive packaging solutions expected of BWL Betonwerk Linden in a given space. In the field of dry side / return transport, a device for horizontal layer strapping is planned to meet later packaging requirements. In the cubing area, a customer-owned, already existing cord inserter has been integrated. The cords placed between the individual layers to protect the product surfaces can be easily removed later and disposed of without any problems.

Masa block making machine XL 9.1

However, Masa not only concentrated on spatial solutions, but also supplied a new block making machine and the corresponding ring equipment for the production of the high-quality product range of BWL Betonwerk Linden: The Masa XL 9.1 (production pallet size 1400 x 1000 mm) is equipped with all necessary features and meets all requirements for a contemporary manufacturing of products for gardening and landscaping. Since a servo-controlled drive of the vibrators is used, during the production cycle, the vibration force can be adjusted independently of the rotational speed.



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Masa GmbH

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

Masa GmbH

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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To simplify and speed up the set-up times, the machine is equipped with a fully automatic mold change system. The main mix filling unit is electrically movable, the locking of both the main and the face mix filling unit is hydraulically. A solid frame construction with four hard chrome-plated guide columns (ø 120 mm) for exact parallel positioning of mold and compaction head, forcibly synchronous mold guidance for exact demolding of the products and the integration of a height limiter function for high-precision production are further noteworthy features.

For ease of maintenance and higher operational reliability, the vibration system of the machine has been equipped with central lubrication.

The main mix unit of the block making machine with extended filling unit frame is equipped with a modified and enlarged main mix silo, which includes, among other things, two separately controllable, hydraulically driven silo flaps and a level measurement controlled by two lasers for monitoring the silo filling level. To ensure a constant filling of the filling box, both silo flaps can work independently of each other.

Above the concrete silo is a multi-color device with a hydraulically driven slide. The continuous level measurement in the silo above the multi-color device also takes place by means of laser measurement.

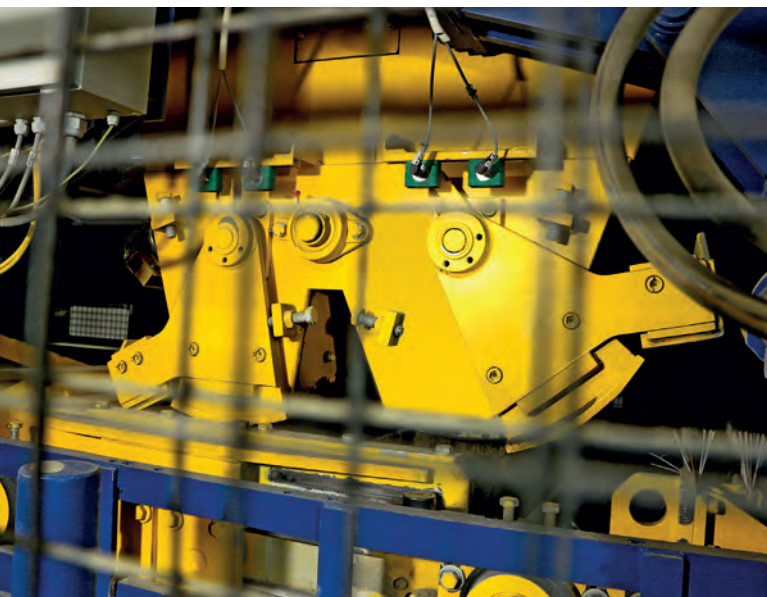
Both filling boxes are equipped with pneumatically driven scrapers, and on the face mix filling box a smoothing roller in stainless steel design with adjustable direction of rotation and speed is installed.

To clean the tamper head shoes (upper part of the mold) during the production of certain products (e.g. curbs), there is a hydraulically driven cleaning device installed across to the filling direction.

The multi-color device, both filling boxes and the concrete silos of the block making machine have a stainless steel lining to minimize production-related wear and increase service life. Both the hydraulic system of the block making machine and the control cabinets of the plant have found their place in the Masa Combaitainer: the protected and safe location also has a soundproofing function and is equipped with an oil-resistant floor insert and an oil sump.

Modular transport systems

Both the transport of the freshly produced and the later hardened products are carried out according to specifications of BWL Betonwerk Linden on V-belt conveyor systems. The modular V-belt conveyors ensure independent process flows in the handling of the production side and dry side. On the production side, the production pallets can be outsourced to the quality control station via a liftable chain conveyor. Here is a detailed and safe testing of the product quality possible. Improper batches are either marked by machine operation or by a button on the control point and automatically removed from the further production process at the tilting point of the V-belt conveyor system via a tilting device. This ensures that only the products that are 100% compliant with the strict quality criteria of BWL Betonwerk Linden undergo the curing process. The concrete block making machine does not have to pause during quality control and can continue production continuously.



Main mix filling unit with two separately adjustable, hydraulically driven silo flaps



Multi-color device with hydraulically driven slider



Modular V-belt conveyor system with quality control station

After the curing process, the products undergo another quality control on the dry side. Here, too, the use of the modular V-belt conveyor system proves to be an advantage, as it creates sufficiently large time windows for quality control without hindering further process steps.

Easy integration of the components in the Masa control

While the existing handling components elevator / lowerator and intermediate finger car can still be used in the modernized ring system, the old finger car has been completely replaced. The new Masa finger car professionally realizes the low-vibration transfer of the products into the curing chamber. The equipment with an automatic mast adjustment allows easy handling of both normal and high products. The control of the complete curing area including the upstream and downstream elevator / lowerator has been brought up to date by the Masa team and integrated into the user interface.

Also included in the new control system was the existing production pallet grab in the area of cross transport / production pallet buffer. Here, Masa provided a new bus control, visualization and a new input level for parameters. Thus, both the ease of use was increased and the operational reliability and system availability were optimized.

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Control panel and power cabinets

New equipment for production pallet buffer and cubing

All other old components of the "Cross transport / production pallet buffer" area were dismantled and replaced by current Masa equipment. With the new Z-turner, various transport conveyors and a destacker, a clear optimization of the processes could be achieved.

In the cubing area, BWL Betonwerk Linden was able to make further use of the existing cube transport as well as the transport pallet magazine. By contrast, the cubing device itself was

based on new technology from Masa. The fully servo-controlled Masa Cuboter offers high positioning accuracy and load capacity in dynamic-harmonic movements even over long travel distances. Modular Moviaxis components work energy-efficiently and optimize operating costs.

No compromises in terms of occupational safety

In the planning and implementation of the entire project, another point was also positive: BWL Betonwerk Linden has always placed particular emphasis on the implementation of measures to improve occupational safety and compliance



New components for the cubing area and the cross transport

with the relevant workplace guidelines. For example, the dust load could be reduced by installing an extraction system in the engine room or in the production hall. In general, cleanliness within the plant plays an important role. The transport of both the fresh and the cured products by means of V-belt conveyors ensures very smooth running. In other places too, noise protection was largely taken into account. Operating routes have been designed securely. As BWL Betonwerk Linden does not make any compromises here, the safety features within the system are naturally state-of-the-art.

Successful project completion

A permanent constructive dialogue between the long-term partners BWL Betonwerk Linden and Masa GmbH characterized all phases of the very demanding project in Wörth. Thanks to concrete planning and constant coordination, the extensive ideas and requirements were implemented in the best possible way. After achieving the goals set and far beyond, both contracting parties were extremely satisfied. ■



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BWL Betonwerk Linden GmbH & Co. KG
Werkstr. 2
84332 Hebertsfelden, Germany
T +49 8721 7060
info@linden-beton.de
www.linden-beton.de

masa

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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