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Extensive modernisation of the Heidelberg Materials mixing plant in Ahrensfelde

■ Mark Küppers, CPI worldwide, Germany

At the Lindenberg plant of Heidelberg Materials Beton in Ahrensfelde, a new Mixomat THZ 3000 mixing plant from Teka was successfully put into operation in spring 2025. The turbine mixer with an output of 2.0 m³ and 75 kW motor power forms the centrepiece of the plant. Supplemented by an integrated dedusting unit, precise dosing technology and a THS 60/20 automatic scraper with frequency converter control, the plant sets new standards in efficiency, ease of use and sustainability at the Ahrensfelde site. The modernisation also includes a completely new plant control system and a mixing master building - a pioneering upgrade for concrete production.

As a subsidiary of Heidelberg Materials AG, Heidelberg Materials Beton DE GmbH bundles all activities relating to the production of ready-mix concrete, mortar, flowing screed and special building materials in Germany. With around 170

ready-mix concrete plants, over 750 truck mixers and more than 150 concrete pumps, the company is one of the leading suppliers in Germany and guarantees reliable deliveries to building sites in line with demand.

The building industry itself is facing a fundamental change today - particularly with regard to resource conservation, CO₂ reduction and circular value creation. As a driver of innovation, Heidelberg Materials Beton is meeting these challenges with a clear focus on sustainable innovations.

In close dialogue with planners and contractors, Heidelberg Materials Beton identifies technical requirements and design trends at an early stage. This results in tailor-made concrete formulations for complex applications, optimised material properties and solutions for new areas of application.



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Bird's eye view of the Heidelberg Materials concrete plant in Ahrensfelde.



A new Teka Mixomat THZ 3000 mixing plant was put into operation at the Lindenberg plant in Ahrensfelde.



The scope of the modernisation also includes a THS 60/20 automatic scraper with a 22 m boom.

Mixomat THZ 3000

During the comprehensive modernisation of the concrete plant in Ahrensfelde, proven components from the predecessor plant were reused: the star walls were retained and the existing binder silos were sandblasted, repainted and reintegrated. However, the mixing master building and the entire plant control system were completely renewed in the course of the conversion. The centrepiece of the new concrete mixing plant is now the THZ 3000 turbine mixer from Teka.

The high-quality steel construction including stairs and functional panelling with wall and ceiling panels round off the overall appearance of the new plant. The generously dimensioned platforms, which facilitate maintenance and operation, also characterise the Mixomat series.

THS 60/20 automatic scraper

The scope of the modernisation also includes a THS 60/20 automatic scraper with a 20 m boom, visual fill level indicator and modernised control system, which has significantly increased operating comfort and efficiency. The motors for the three main movements are now controlled via frequency converters. Gentle acceleration and braking ramps reduce vibrations considerably. Three absolute value encoders ensure precise positioning – which makes setting up and parameterising the scraper noticeably easier.

A further novelty: the main control cabinet with integrated air conditioning unit is attached directly to the scraper. This not only reduces cable runs, but also simplifies installation and maintenance. Control is via an industrial handheld, which can be flexibly connected to the distribution box at the mixing master or directly to the scraper.

Scrapers can offer numerous advantages in concrete plants. They are characterised by their simple, robust design, which makes them particularly low-maintenance and cost-effective. Compared to complex conveyor belt systems or silo systems, the investment costs are lower. Thanks to their mechanical simplicity, scrapers are easy to maintain and are insensitive to dust and harsh environmental conditions. Another advantage is their flexibility: they can be adapted to different floor plans and can convey different materials with just one system. In addition, they enable good dosing of the aggregates, especially in combination with scales and automatic control systems, which supports precise batch formation. Scrapers also



The main control cabinet with integrated air conditioning unit is attached directly to the scraper.



The centrepiece of the new concrete mixing plant is the THZ 3000 turbine mixer from Teka.

normally perform well in terms of energy efficiency, as they require less energy compared to many other conveyor systems. All these features can make scrapers a reliable and economical solution for small and medium-sized concrete plants.



The THZ is characterised by its simplicity, robustness and long service life.



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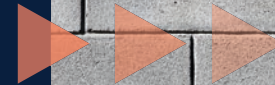


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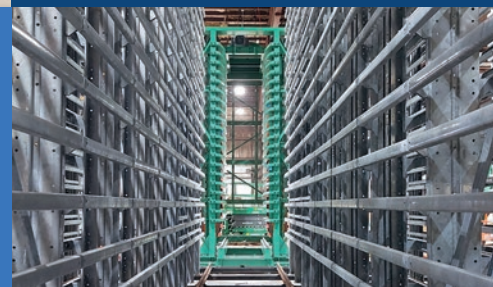
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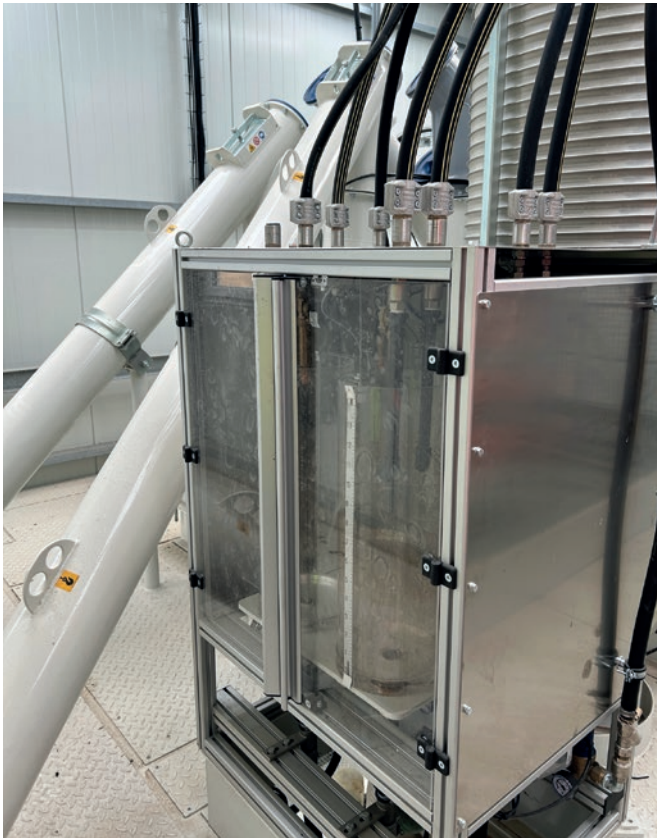


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The Mixomat THZ 3000 mixing plant is equipped with modern dosing and safety technology.



OLAS sensor from Werne & Thiel sensortechnik

Precise dosing technology

The system is also broadly positioned in the field of weighing technology: in addition to an aggregate weighing system and a 1,500 kg binder scale, a water weigher (positive 500 kg) and an admixture weigher with four compartments (15/15/15/30 litres) have been integrated into the system.

Teka's dosing technology is precisely tailored to the requirements of modern concrete production and is seamlessly integrated into the mixing plants. It enables the precise feeding of admixtures, colour pigments, fillers as well as liquid and powder components directly into the mixing process. Powerful pumps or screw conveyors are used in combination with high-resolution weighing cells and flow sensors.

The system is controlled via an integrated programmable logic controller (PLC), which ensures high accuracy and repeatability of the dosing process. The closed system also ensures low-dust operation and minimises cleaning and maintenance requirements. The dosing technology can be flexibly adapted to different concrete formulations.

Optical system for online density measurement of residual concrete water

With the OLAS probe from Werne & Thiel Sensortechnik, environmentally friendly resources can be saved and cost benefits utilised at the same time. The probe is an optical system for online density measurement of residual concrete water. The name OLAS stands for Optical Light Absorption Sensor and the function is based on absorption measurement of infrared light. The IR light transmitted via fibre optic cable penetrates the measurement medium and the light loss due to absorption is evaluated and output as a density signal.

OLAS probes have been in operation in international concrete plants for many years. Heidelberg Materials is also convinced by the system and has equipped numerous concrete plants with the OLAS probe.

Teka turbine mixer THZ

The Teka THZ turbine mixer has been the favourite mixer of many customers for years. Thousands of Teka turbine mixers, also with special equipment, have been delivered to the building materials industry worldwide since 1961. The THZ is characterised by its simplicity, robustness and long service life. Due to continuous further development, the THZ is a very

sophisticated machine and suitable for a wide range of mixing tasks.

These consistent improvements led, among other things, to a completely new generation of mixing arms, the so-called drag arms. The main advantages of the new mixing arms are a better self-cleaning effect due to an inclined position in the mixture, a more intensive mixing result due to additional mixing effort and the faster homogenisation of the mixture due to the low pushing effect.

The mixing arms are height-adjustable and spring-mounted in the rotor housing to absorb unwanted impacts on the gearbox. The setting angles of the mixing paddles improve the mixing effect, reduce wear and protect the drive. The cast mixing arm base plates have a reduced deposit area for build-up and an optimised shape to reduce wear.

The THZ turbine mixer is available in sizes from 250 to 6,000 litres, i.e. from significantly smaller to twice as large as the mixer in Ahrensfelde. All sizes are available with different wearable linings, various accessories, lift systems as well as high-pressure cleaning systems.

The discharge is equipped with a torsion-resistant cast frame and is hydraulically operated by a completely protected and



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THE DOSING EXPERTS FOR PIGMENTS AND ADDITIVES



The mixing master building and the entire plant control system were completely modernised in the course of the conversion.

powerful rotary piston cylinder. The torsion-resistant cast frame and various special seals ensure that the discharge is very well sealed against unwanted material leaks.

The robust and reliable main gearbox has a flange-mounted hydraulic pump that supplies the discharge with hydraulic oil. The oil pump flanged to the gearbox provides oil circulation in the gearbox and actuation of the drain. Due to the common oil circuit, only little maintenance is required for gearbox and drain.

Safety comes first

The new concrete mixing plant is equipped with a fully automatic mixer cleaning system for simple, safe and fast cleaning. Hazard-free and therefore safe working conditions were generally the focus when planning the new mixing plant. A sophisticated system with numerous safety keys prevents the safety precautions from being bypassed or employees from being exposed to danger through human error. ■



FURTHER INFORMATION



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