

## Weckenmann service also includes industrial engineering Sound basis for investments

Not every company that wants to go into the production of precast concrete parts has the necessary know-how to build the factory facilities required. Whoever needs this expertise will find it at Weckenmann. The company's specialists have mastered the art through many years of experience and have extensive knowledge to offer as consultants and planners.

Factory planners know that complex projects require extensive preparatory work before the actual design and implementation stages are reached. Building sections and interfaces have to be determined, the environment for upstream and downstream processes defined and the demands on the infrastructure identified. Information on various approval processes while also addressing threshold values for noise, vibration, dust and other emissions must be obtained and the demands on personnel, organisational and IT structures identified and calculated. "We are increasingly dealing with customers who want to venture into precast concrete part production and need a feasibility study for their investment decision," says Hermann Weckenmann, Managing Director of Weckenmann Anlagentechnik GmbH & Co. KG. The company has responded to this need and continued to expand its service by what is known as industrial engineering.

product data of the future precast concrete parts to be produced and define their production quantity. Using this as basis, the Weckenmann specialists develop a plant concept that comprises production and job descriptions including data, materials, energy and work flow as well as the number of staff and their qualifications. This also means that they calculate the raw materials and supplies as well as energy and water consumption and, not least, the expected emissions and quantity of waste. The plant concept is supplemented by a well-prepared offer in which the interfaces to the structural performances are taken into account, and by a complete project schedule. In short: Weckenmann provides investors with a sound basis for coming to a decision.



Managing director Hermann Weckenmann with his expert team during the analysis of the factors.

### Comprehensive data

When the manufacturing experts from Weckenmann are commissioned to do a feasibility study, they take care of all the factors from A to Z to be considered and calculated. They capture the existing infrastructure, from the plot and the building over the transport links and energy supply to equipment and machinery. They review the circumstances and assess their usability. They identify the

## High-quality precast concrete parts for restaurant building

# Welcome to the "SchieferErlebnis"- Park restaurant, which is made of exposed concrete elements

The so-called SchieferErlebnis in Dormettingen first opened its doors in July 2014. The idyllic lakeside restaurant "Am Schiefersee" is a must-visit destination on a family excursion – the massive precast wall panels were made of fair-faced concrete using Weckenmann technology.

The fair-faced concrete wall panels of the restaurant with around 70 seats define the modern indoor look of the restaurant. The outside look of the building in turn is determined by facade panels made of textile-reinforced concrete. The company FBW Fertigtbau Wochner, as Weckenmann also based in Dormettingen, manufactured and assembled the precast concrete parts on site.

In fact, the FBW precast concrete plant is one of the most modern in Germany. The company has been producing sophisticated components – such as the above-mentioned wall panels – in its largely automated production facility since 2011. Most of the technology used in the factory comes from Weckenmann. Weckenmann supplied the line automation technology for the production plant, the process equipment as well as the entire shuttering system that is so important for the high aesthetic demands.

The "SchieferErlebnis-Park: park to experience the material slate" surroundings is a joint project of the Dormettingen Municipality and Holcim (Süddeutschland) GmbH. Weckenmann Anlagentechnik GmbH & Co. KG is the premium partner of the project, the planning of which was begun in 2009. The aim was to restore the former mining areas of the oil shale quarry to its natural state and so to return harmony to the natural scenery.



## Exhibition dates

**Concrete Show South America**  
26. to 28. August 2015, São Paulo, Brazil

**KazBuild**  
02. to 05. September 2015, Almaty, Kazakhstan

**Bauma Conexpo**  
15. to 18. September 2015, Johannesburg, South Africa

**Conexpo Latin America**  
21. to 24. October 2015, Santiago, Chile

**ConTech**  
01. to 03. December 2015, Moscow, Russia

**ICCX Russland**  
08. to 10. December 2015, St. Petersburg, Russia

**Ulmer BetonTage**  
23. to 25. February 2016, Neu-Ulm, Germany

**BAUMA 2016**  
11. to 17. April 2016, Munich, Germany

## New on board



Martin Schatz has been the new head of development since the beginning of the year. Along with the more or less 20 designers and developers of his team, the 43-year-old engineer will drive the development and optimisation of new equipment and components. He is also responsible for the strategic development and expansion of the department. "I look forward to the new challenges and exciting tasks in an internationally successful and expanding company," said Schatz, who has previous experience in the field of conveyor systems in the automotive industry.



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Dear readers,

The production of precast concrete parts is as diverse as the local conditions allow and the respective markets demand. No one knows this as well as we do; our extensive range is not without reason. Whether a small customised factory in the Swiss Alps, mass production in Thailand or production on a limited area in Singapore, Weckenmann has the right solution for all geographical conditions and so can tailor-meet the needs and demands of customers. In order to do justice to the developments in the global markets from our side, we have now expanded our range again. The mobile battery mould is a new product that makes on-site production possible, regardless of how limited the space is. In terms of control technology, there is also something new: Weckenmann has expanded this company division and developed the WAvision system control package with the customer's needs in view. We are pleased to introduce both these offers to you on the following pages.

We wish you some interesting reading impressions.

Regards

Wolfgang Weckenmann



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The Weckenmann magazine for the precast concrete industry



Centralised process and production planning with few clicks - the control solution WAvision makes it possible.

Weckenmann develops a control solution for automated production with WAvision

## The omniscient coordinator

A central computer, which takes over the process and production planning and controls the factory, is required to automate manufacturing processes. For the production of precast concrete parts, Weckenmann has developed a control tool in WAvision that uses all the available data in the company and unifies management, production and reporting into a single system.

The newly developed WAvision production control system from Weckenmann emerged from the interdisciplinary collaboration between software developers and designer engineers. The results of customer surveys have also been incorporated in the development. With this software solution, various systems for controlling automated precast concrete part production can be linked, so that there are no interface problems triggered by different partial solutions. On the contrary: WAvision becomes the central interface of all the company's existing data. It "translates" CAD data and makes it available to the individual processing stations, it optimises the data, material and work flow, takes over the storage bin management, reporting and fault analysis and monitors servicing and maintenance. This makes WAvision the omniscient coordinator between the order, machine and production.

The WAvision control system is composed of modules that can be selected as a package or separately and used as needed. The individual modules cover the following areas:

The **ProductionManager** is the central system for the management and control of the production plant. With it, the data provided by CAD is verified, visualised and processed for production.

**ProductionControl** is used to control the production control systems, for example, by the ERP system. If needed, open communication interfaces integrate suppliers or external prefabricators. Pallet loading and production process can be viewed at a glance. In addition, the working documents necessary for production, such as loading sheets or labels, are printed automatically.

The **WebInfo** module is the information centre of WAvision. Here all data relating to the production plant – i.e. status, picking list and much more – can be conveniently accessed with all popular web browsers.

The **ProductionOptimizer** in turn enables production control in response to potential bottlenecks. That is, the system employs intelligent synchronisation, for example, when elaborate products requiring significantly more

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labour input or time are produced. This is often the case on circulation systems that manufacture various types of precast concrete parts. In production scheduling, pallet loading and production sequence must be specified in a way that eliminates disruptions in production. The more complex the system or the more inline or offline processing stations there are, the more difficult it is to achieve optimal production planning by conventional means. No problem for the ProductionOptimizer. The master computer performs a virtual simulation of the production process of the circulation system with the preparatory production units. This is based on the respective work plan and processing times determined for the different types of products at each pallet station. The Optimizer plans this into the operational flow in a way that no delays occur in the overall process.

Other module options are **WebFlow** with which the pallet circulation and the factory can be visualised. This module runs on any standard browser, as well as iOS and Android. Customised work reports can be created with the **Reports** software element when the standard reports are not sufficient. The report designer can access all database tables of the WAvision system. The **Storage-Master** enables efficient storage bin management, while the data for this is collected using barcodes and RFID.

With the WAvision control technology, Weckenmann now offers everything from a single source: from consulting and planning around production over equipping it with sophisticated plants and machinery to the optimal control of the individual automated production steps.



You will find current news as well as further information about the mobile battery mould under: [www.weckenmann.com/MobileBatteryMould](http://www.weckenmann.com/MobileBatteryMould)

TDSK Tomsk modernises pile production with Weckenmann

## Piece by piece stability, to the point and immovable

With the assistance of Weckenmann Anlagentechnik GmbH & Co. KG, TDSK Tomsk, one of the largest construction companies in Russia, upgraded its production plant for large precast concrete parts to the latest state of the art in 2013. The positive experience with the upgrade has now persuaded the company to also modernise the pile production facility at its main plant, assisted by the Weckenmann experts, of course.

The university town of Tomsk in Western Siberia is the head office of TDSK Tomsk founded in 1972. "The positive experience we made with the modernisation drive in 2013 made it clear to us that we want to implement the technical overhaul of the pile production with the assistance of Weckenmann," says TDSK Tomsk General Director Alexander Karlovich Shpeter. The project kicked off in the summer of 2014 and the renovated production facility started operation in February 2015.

Piles help to establish sustainable foundations in adverse soil conditions. The standard piles are 6-18 m long and have a cross-section of 300 x 300 mm. The new, 72-metre pile formwork from Weckenmann now allows TDSK Tomsk to manufacture piles in 28 adjacent moulds and at the respective required length – more than 2 km of piles per day.

A concrete spreader and a bucket conveyor also formed part of the new equipment. The distribution hopper with its spreading auger allows for more efficient filling of seven moulds at the same time. Weckenmann has developed a tracking controller for the bucket conveyor with which the concrete – the moment it is requested by the operator – is automatically fetched at the mixing plant. Bucket conveyor and concrete spreader communicate with each other, so that the concrete can be transferred at any time.



The Weckenmann experts have also designed the new bulkhead for the typical pile tips. With this, flat tips can now be produced for extension piles in addition to the pointed tips. For removal the bulkhead can be opened completely, so that the finished piles can be lifted out vertically. The result is a lower risk of accidents for the employees and no risk of damaging the finished products.

In general, concrete finished parts provide the solution. Often, however, there are no stationary precast concrete plants nearby, which means long transport distances and hence uneconomical supply. Not to mention possible delays in delivery or transport damage.

The mobile field factory from Weckenmann is the ideal solution for these large temporary construction sites. Its investment costs are low, and it produces just in time and is extremely flexible. Due to its compact design, it requires a relatively small installation footprint and just a few people are needed to set it up or dismantle it in a few working days. Accordingly easy to handle is also the manufacturing process, which includes a powerful compaction device to even out any possible fluctuations in the quality of the concrete. The optimal use of hydration heat for the curing process and the possibility to preheat the mould also makes the mobile battery mould very energy efficient. A typical battery mould consisting of 20 chambers, for example, measuring 3.5 m x 7 m, can produce about 420 m<sup>2</sup> gross of wall or floor areas per day in single-shift operation. These precast concrete parts are distinguished by their high quality. This is evidenced by their smooth formwork surface on both sides.

Now two large Singapore construction companies experienced in the use of precast concrete parts have decided – independent of each other – to use this MBM technology on their construction sites. They had extensive market research and feasibility studies done beforehand, which ultimately confirmed the significant opportunities this new concept offers. In the second quarter of 2015 both mobile factories will go into operation in the city-state on the Malay peninsula.

Pruksa Real Estate expands production with Weckenmann

## Equipped for the future

Pruksa Real Estate Plc. in Thailand has ambitious goals. They want to be the number 1 property brand with their customers and be among the top 10 housing companies in Asia. For this they upgraded their precast concrete part production facility – with the assistance of Weckenmann.

Pruksa Real Estate Plc. was founded by Thongma Vijitponpun in 1993 and specialises in the construction of semi-detached and detached houses as well as owner-occupied housing. Their activities are not confined to Thailand, but they also run construction projects in India, Vietnam and the Maldives. The award-winning public limited company has entered the precast concrete industry in 2005. Back then Weckenmann already supplied the company with its first circulation system.

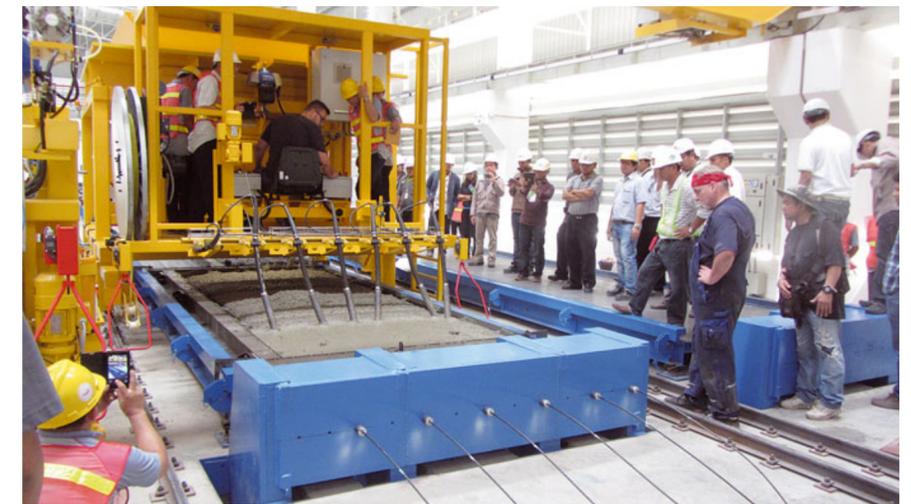
In Factory No. 7 not only the plants originated from Weckenmann, but also the planning and design of the new plant for the production of pre-tensioned floor slabs. The factory building houses a total 1,400 m of production lines, divided among two halls, each with six lines. There are also numerous specialist machines such as concrete spreaders, mobile magazine for shutters, saws to cut the reinforcement strands, cleaners/oilers, run-off truck, bucket conveyor and concreting shuttle, a recycling plant for the mixing plant and a sophisticated shuttering system. The individual machines are all transported over a transversal transport platform from one line to another.

In a single run more than 3,000 m<sup>2</sup> of floor slabs can be produced per day in Factory No. 7; an amount that goes far beyond the capacities of the previous floor slab production facilities. This makes the new plant a key project to achieve the strategic expansion of the company in the coming years.

In addition to Factory No. 7 Weckenmann equipped the construction company with two battery moulds with 20 cases each, which are used for the production of par-

titution walls. These battery moulds were the first of their kind acquired by Pruksa Real Estate Plc. in order to produce smooth concrete surfaces on both sides and eliminate the need for any post-processing.

1,400 m of production lines (on the right) and special machinery such as the concrete distributor (below) make the Factory No. 7 of the Pruksa Real Estate stand out.



Weckenmann delivers two mobile field factories to Singapore

## Mobile production of precast concrete parts

This new idea was born only two years ago: the mobile battery mould (MBM) from Weckenmann. Soon, the first two of these transportable precast concrete factories will start out on their journey to their new owners, two companies based in Singapore.

When Weckenmann introduced their innovative transportable mould concept in 2013, the interest of selected clients was immense. The reason: this technology can bring the production of flat precast concrete parts di-

rectly to where it is needed – to the immediate vicinity of the construction site. A great advantage in the face of increasing global urbanisation and the associated need to quickly build many homes of consistently high quality.



Schällibaum Bau AG commissioned Weckenmann with equipping the plant

## Precast concrete production in an impressive mountain landscape

Anyone who thinks the picturesque Toggenburg and a precast concrete plant do not fit together has it wrong. In fact, the Schällibaum Bau AG has been manufacturing reinforced concrete elements in the Swiss town of Alt St. Johann since 1940 and, from 2015, with technology from Weckenmann.



Small but smart: the production of the company Schällibaum Bau AG

The construction company Schällibaum is a privately owned company, which currently has about 30 employees. Its portfolio includes construction and civil engineering as well as gardening and landscaping – and an in-house concrete plant. In 2014 the company has invested in expanding its production of individual prefabricated construction components and ready-mix concrete and installed a new mixing plant.

At the same time Schällibaum started with the construction of a new hall for the tilting table production facility. A factory building whose panoramic window allows an impressive view of the 2,502 m high Säntis Mountains. Weckenmann supplied the reinforced tilting table measuring 4.5 x 15 m and designed for loads of up to 1,000 kg/m<sup>2</sup>. The tilting table consisting of special shuttering steel "Made in Germany" with its extremely

high flatness grade and polished shuttering surface is equipped with an energy-saving heating element which evenly heats the finished parts. Also part of the equipment are three hydraulic cylinders and an infinitely variable height-adjustable (100-360 mm) side form profile of the shuttering system X-UNI, which guarantees a fast and efficient shuttering process. Like all Weckenmann tilting tables, it also is equipped with 14 modern, individually selectable high-frequency vibrators for concrete compaction ensuring a noticeably better surface quality. The vibrator speed is infinitely adjustable by a frequency converter. Damping elements built into the substructure minimise noise emission and vibration transmission.