

Weckenmann Anlagentechnik GmbH+Co.KG, 72358 Dormettingen, Germany

Success through continuity – Bürkle continues to invest

The Bürkle company from Sasbach in Central Baden is an owner-managed precast plant and has been established in the market for over 60 years. In addition to the operation of a precast plant, precast basements are built with great success. The Focus Money magazine once again nominated Bürkle as Germany's fairest precast basement supplier in 2017. Over 500 customers were surveyed and they placed Bürkle well to the fore of five leading precast basement manufacturers in Germany.

In the past decades Johannes Bürkle, head of the company in the second generation, has continually developed the company with innovative ideas, be it in production, with new products or in marketing, so that such awards are not left to chance. As early as 1992 Bürkle invested in a circulation plant for precast slabs with in-situ topping as well as double and solid walls. From that point on this trailblazing investment was

continuously extended, improved or supplemented by new production technologies. These measures led to a steady increase in the plant capacity, which today is around 100 pallets per day. In addition to achieving this enormous impulse, it was always important to Johannes Bürkle not to lose sight of the productivity and the working conditions of his motivated team. Therefore in 2017, following a thorough pre-planning phase, he took the decision to replace both the shuttering robot station and the pallet turning station together with the compaction equipment. At the same time the production area was increased through an extension building and all pallets were to be renovated. He chose the plant manufacturer Weckenmann and the automation specialists SAA, who developed proposals for a solution together with him.

Pallet turning station

The previous turning unit from 1992 had three features that were no longer up to date. The operators had to manually move the heavy tensioning blades required to fix the wall elements when turning and the tensioning height was fixed. The turning in of insulated walls was thus extremely difficult and the wall thickness could only be achieved through the manual attachment of spacer bolts.

These restrictions were entirely eliminated with the turning system supplied by Weckenmann, which was housed in a new hall extension:

- the tensioning blades remain on the turning frame and do not need to be removed. They are only inserted or pulled out horizontally.
- The tensioning level is adjusted by electric motor; this means that the tensioning blades lie either on the concrete shell or, in the case of core-insulated walls, on the insulation.
- The turning unit automatically sets the required wall thickness according to the CAD data. The manual adjustment of the usual spacer feet is omitted as a result.

The vibrating station also supplied by Weckenmann guarantees very high concrete compaction with a very low noise level. The compaction movement of the two pallets can be set to circular or linear in the X or Y direction.



The floating basement from Bürkle

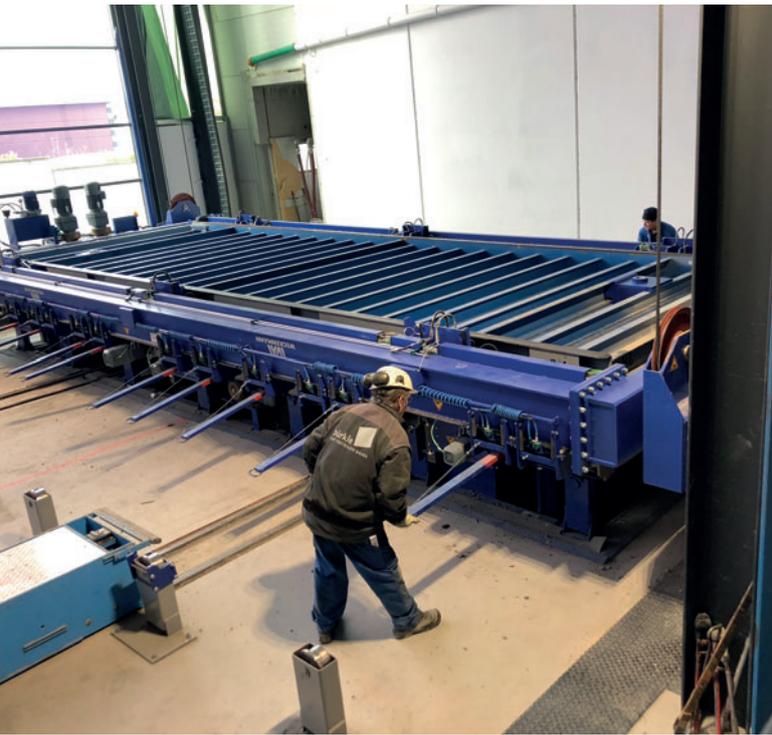
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We develop and build the matching plants and machinery for diverse production sites world-wide for the production of high-quality precast concrete parts. From fully automatic high-performance plants with robot technology through high-quality formwork to matching shuttering profile systems and magnets – everything from one source.



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Turning station

Robot station

The solution implemented at Bürkle is unique with regard to performance and spatial requirements. The challenge was to accommodate a high-performance plant inside a very limited space. The performance specification was for a pallet - with on average 13 shuttering elements, which have to be lifted and placed again - to be processed in a cycle time of 10 minutes, including the pallet changing time.



Robot station

The following work steps are performed on just one pallet station:

- Scanning the 3 x 10 m pallet to determine where formwork profiles are located.
- Removal of the formwork parts by robot, then transport, cleaning and storage.

The formwork parts are cleaned and oiled and put into or taken out of storage by a magazine robot.

- Cleaning of the pallet by a mobile cleaner.
- The robot oils certain parts of the pallet where formwork parts are placed.
- Precise positioning of the formwork parts and activation of the magnets.

Bürkle, Weckenmann and SAA set about tackling these challenges with a great deal of effort.

The acceleration and speed values of the robot, formwork transport, magazine robot and cleaner were considerably increased and the movement algorithms of the (magazine) robots were optimised in comparison with the previous systems. Even the tiniest improvement potentials were exploited wherever possible. The specifications were met and the plant makes an extremely dynamic impression.

Pallet renovation

An important step towards maintaining the high quality level was the renovation of the pallets, which are up to 25 years old. Weckenmann is specialised in this because it has the necessary in-house facilities. Know-how in formwork construction, the appropriate machine technology and the necessary premises are required here. The results of this logistically



Collection of the renovated pallets

challenging action are pallets that bear comparison with new pallets with regard to the quality of the shuttering surfaces. The difference between old and new is more than clearly visible on the precast concrete elements.

Robot for built-in components

The formwork robot used so far will be converted in the course of the year to a robot for built-in components, which will automatically place the electrical boxes, threaded sleeves and other parts on the pallet according to the CAD data. Before that, an integrated glue gun applies the hotmelt glue required for fixing with pinpoint accuracy. This investment is a joint effort from Bürkle, Weckenmann and SAA too.

Empty pallet store

It should also be mentioned that an empty pallet store was installed by Weckenmann in 2017. This can buffer up to 10 empty pallets between the formwork removal stations and the formwork robot system. This investment increased the plant performance by compensating the unavoidable cycle time differences between the two work steps of formwork removal and installation.

Bürkle has remained true to its hitherto principles with this investment. This is the clear commitment to the location and to the importance of one's own employees, the constant search for improvement possibilities and the realisation that companies can only remain successful when they invest continuously and sensibly. Living off the capital is not an option for Mr Bürkle. ■

FURTHER INFORMATION

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