B.T. innovation GmbH, 39116 Magdeburg, Germany

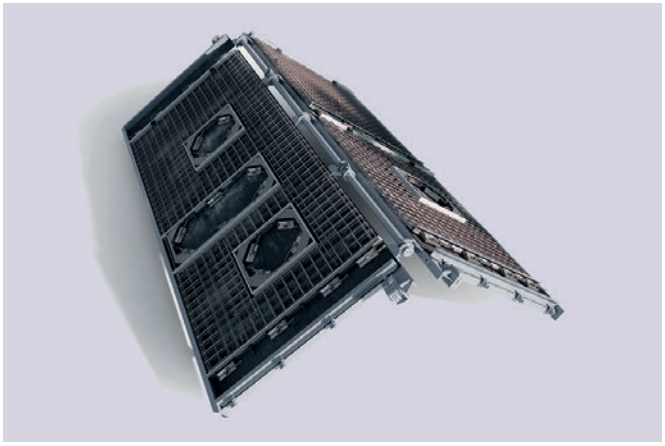
The precast plant of the future

The production of precast concrete elements using battery moulds delivers precast elements with formwork-smooth main faces. Through various developments of the Magdeburg-based company B.T. innovation GmbH in the course of the past years, particularly regarding the Schmetterlingsschalung® (butterfly formwork) and the optimisation work on battery moulds, the manufacturing technology around the battery mould has developed into a highly productive and high-precision production system, which delivers dimensionally accurate finished parts and thus also meets very high demands.

In a classic battery mould, formwork is mounted upright between two bulkheads or tension walls, creating a concreting chamber on the vertical formwork surfaces of the bulkheads. The interlocking casting compartments are concreted for the production of a precast element, after the battery mould has been clamped. By using butterfly formwork, the work on a battery mould can be accelerated considerably and the quality of the precast elements can be increased. Butterfly formworks are special bulkheads for battery moulds. They consist of two formwork panels that are connected to each other via a massive swivel joint.

Innovation in Waldmössingen

In a completed project by BT innovation at Beton-Fertigteil-Union GmbH & Co. KG (BFU) in Waldmössingen, Baden-Württemberg, a battery mould with butterfly formwork was put into operation. The battery mould has suspended butterfly formwork. These are deployed outside the battery mould at predefined workstations, where they are prepared lying flat for concreting. This type of horizontal preparation means that the formwork surfaces are walkable or accessible from the outside at any point, making it possible to set up the butterfly formwork quickly and precisely. The butterfly formwork prepared outside the battery mould is hooked into the mould from above with a crane. As a butterfly formwork



Butterfly formwork® before concreting

Battery and butterfly formwork at the BFU

Hanging the butterfly formwork into the battery mould

Butterfly Formwork® with MagFly AP® -magnetic stands

Butterfly formwork in folded position

has two sides on which precast elements are produced, this doubles the capacity of a battery mould, as concreting chambers are created between each bulkhead on both sides of a butterfly formwork.

After clamping the battery mould, it is concreted. Once the concrete is stable, the precast concrete elements together with the butterfly formwork can be removed from the battery mould, even before the lifting strength has been reached, making the battery mould immediately available for the next operation. In this way, several rotations per day can be achieved, which, apart from increasing capacity by doubling the number of concreting chambers, also increases the productivity of the plant.

Production of the PPVCs for modular construction

Construction of a building in modular design

From the region for the region

The advantages of this technology are steadily evolving and there are already plans for new projects. In the northern part of Saxony-Anhalt, a battery mould with butterfly formwork will be erected in a circulation system.

The core of the circulation system is a battery formwork with suspended partitions. What is new is that the butterfly formwork is prepared successively in a circulation plant around the battery formwork, at specialised stations. This technique allows to keep the flow of goods through the production facility lean and to prepared the butterfly formwork in short cycle times. Common robotics technology can support manufacturing. The horizontally prepared butterfly formwork is guided automatically through the production facility lying flat and then hooked into the battery formwork. It can be hooked in from above or from below. With this technique, butterfly formwork is prepared quickly and precisely and the battery mould is loaded immediately. As a consequence, the productivity of the battery formwork is further increased.

Inserting the butterfly formwork from below has the advantage that such systems can operate in halls with low crane hook heights.

If a bypass station is added, decoupled from the circulation system, in which prepared butterfly formwork can be partially concreted and temporarily stored until the concrete is stable, access to sandwich walls in the battery mould is also possible without any problems.

B.T. innovation GmbH

The name BT innovation stands for forward-looking product developments in the construction and precast concrete industry. The comprehensive portfolio with the fields of sealing, shuttering magnets and systems, connection technology and consulting is complemented by the high-quality machinery and production facilities of the partner company MAX-truder GmbH. With its patented solutions, B.T. innovation GmbH has made an essential contribution to the successful implementation of construction projects all over the world for more than 30 years. ■

Company headquarters of B.T. innovation GmbH in Magdeburg, Germany

CPI TV

Videos on the efficient production of precast concrete elements with the Butterfly Formwork®

FURTHER INFORMATION

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