

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

Compact Precast Concrete Element Production Facility



In 2016, Weckenmann launched its MBM® mobile production system, which was awarded the Bauma prize for product innovation. Tetra, a company from the northern part of the Russian Federation, first became very enthusiastic about the system at that time.

Tetra's core businesses were originally industrial construction and ready-mix concrete production. But the company had been considering for a long time about building multi-family panel housing with varied exterior façades.

After a three year development period and elaborations with presentations concerning customer needs, performance and future production concept, Weckenmann and Tetra came to an agreement. The main focus was on compact manufacturing, high product quality and reliable equipment. Tetra's construction business is directly dependent on these factors.

Weckenmann has more than 40 different battery formwork units successfully in use - employed in years of uninterrupted manufacturing with hundreds of thousands of quality concrete parts produced - on the CIS construction market alone. The basic MBM design was slightly adapted to the customer's products utilising, amongst other things, a tailor-made magnet formwork system from Weckenmann.

The customer's specification was for one mobile battery formwork unit to cover their entire extensive product range of different sized precast elements. In addition, climatic conditions did not permit outdoor manufacturing. According to these requirements, Weckenmann developed a semi-mobile battery formwork version with increased structural strength, in

which all elements of a prefabricated apartment building can be produced in this single battery formwork unit - including solid floor slabs up to a thickness of 180-200 mm.

The customer's building design and all concrete elements of the prefabricated apartment building were redesigned down to the last detail, including massive floors of up to 3.6 x 8.0 m with non-standard thicknesses of up to 200 mm. The building's structural design was adapted to seismic conditions and allows its use in completely varying climatic and geographic areas as well as earthquake zones of up to 8 points.

Its delivery and installation took place during the Covid pandemic. But despite all the limitations due to this, the project was successfully up and running in March 2021.

The project included:

- Battery formwork with 20 compartments and integrated vibration and heating system.
- Concrete spreader
- Production tables for non-standard large elements
- Formwork for stairways
- Blanks for ventilation ducts
- Magnetic formwork plus window and door recesses

This compact production facility enables state-of-the-art apartment buildings to be constructed with a variety of different façade types. Its production capacity depends on the type of housing and is in the region of 22,000 to 25,000 m² of living space per year. This is sufficient for small and medium-sized companies or for those producers who are new to the market and wish to establish themselves both as property developers and contractors.



One battery formwork unit covers Tetra's entire extensive product range of different sized precast elements.



Weckenmann developed a semi-mobile battery formwork version with increased structural strength for the customer. All elements of a prefabricated apartment building can be manufactured in this single battery formwork - including solid floor slabs up to a thickness of 180-200 mm.

The production facility requires very little space - 50 m in length and 18 m in width, including an intermediate storage area inside the hall. The concrete can be delivered directly from a mixing unit or by concrete mixers.

Weckenmann was able to supply Tetra with a solution that not only makes it possible to manufacture the concrete elements needed in the quantities desired, but also to expand existing production capacity with minimal effort if necessary. This is an example of so-called "open", flexible manufacturing based on Weckenmann systems. This factor is of great advantage for Tetra, especially with regard to its long-term business strategy, and provides optimal as well as stable business model parameters for operating and developing the company on a long-term basis. ■

FURTHER INFORMATION



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