

Weckenmann, 72358 Dormettingen, Germany

# Modernisation of wall production at TDSK Tomsk

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**TDSK Holding Group is a Russian group of companies specialising in house building in Russia. With its 21 companies and a total of 3,700 employees, the group is able to implement projects of any complexity, from the design and manufacture of building materials to construction, the provision of modern telecommunications equipment and the maintenance of finished facilities. The company has been active on the market for 46 years and during this time has built around 7,000 million m<sup>2</sup> of living space in Russia.**

Every year, the TDSK Holding Group, a group of companies based in the Russian city of Tomsk in Siberia, builds 25 complexes of houses, providing a new home for more than 3,000 families.

The main products of the TDSK Holding Group are large, frame-structure, monolithic and brick-built five to seventeen-storey residential buildings of the standard class. These are delivered fully ready-to-occupy or turnkey ready. The construction of residential buildings of the comfort class began in 2017.

Within the TDSK Holding Group, TDSK Tomsk House Building is the largest company and the main producer of apartments in Tomsk. In the future, it will build houses with dimensions that differ from those that have been usual up to now. As the existing production plant is not designed for the production of precast concrete elements with the corresponding new dimensions, it had to be extended.



Battery mould from Weckenmann

### **Task: Battery mould, magnetic formwork, bucket conveyor system, etc.**

Weckenmann Anlagentechnik GmbH & Co KG from the town of Dormettingen, south of Stuttgart, has modernised numerous Russian precast concrete plants over the last 15 years, supplying more than 40 battery moulds to Russia and the CIS states. Weckenmann is well known in these countries as a specialist and market leader.

TDSK Tomsk House Building already successfully operates two pallet circulation plants, a driven pile production line, a bucket conveyor system and magnetic formwork from Weckenmann. So the choice fell again on Weckenmann for the latest investment decision.

Weckenmann's modernisation concept and competent advice, as well as their many years of experience with battery moulds, were convincing and TDSK Tomsk House Building awarded Weckenmann the contract.

The modernisation of the plant included the delivery of a new battery mould, together with a new bucket conveyor system and a half-gantry concrete spreader, as well as a complete set of magnetic formwork, built-in magnets and box-outs.

### **Battery moulds with 20 compartments**

The battery mould supplied by Weckenmann has 20 compartments and is divided into two parts with ten compartments each. Each compartment has a size of 3 x 7 m. The subdivision of the battery mould into two parts makes it possible to work independently on both sides (in the two parts of the battery mould). This enables a flexible workflow in the plant.

Each of the compartments can be opened and closed by an electric motor.

### **Excellent quality of the precast concrete elements**

The compartments of the battery mould consist of a one-piece, fine-levelled special formwork panel. This ensures a very good surface quality of the precast concrete parts.

The internal stiffening of the compartments by means of high-quality laser flashings results in a durable and completely flat surface of the individual compartments.

The flatness of the surface of the individual compartments is very pronounced with a tolerance of +/- 1.3 mm per 3 m sheet - which is reflected in the very good surface quality of the final products.



*The delivery of the finished products*



Preparation of the future wall panel

Weckenmann's robust construction allows the compartments to be filled individually. This means that each of the compartments can be concreted individually from bottom to top. In this way, the precast concrete part produced remains flat and does not bulge.

Each of the compartments of the battery mould is equipped with five internal vibrators integrated into the panel, so that the entire battery mould is equipped with 110 internal vibrators. The internal vibration of the individual compartments is a Weckenmann proprietary development and impresses with its high effectiveness as well as the uniform, plane distribution of the vibration energy.

Internal heating pipes are installed in each compartment, which accelerate the hardening of the concrete parts and thus shorten the production time. Due to the distribution of the heating pipes, the temperature difference at the compartment surface is only +/-5 °C, which allows homogeneous curing of the precast concrete elements.

### System for monitoring and evaluating production data

In addition to controlling and monitoring the vibrators, Weckenmann has developed a system for managing, controlling and storing the settings of each vibrator and the heating pipes. With the help of this system, data can be monitored, control sequences can be stored and also the heat distribution can be controlled, stored and monitored.

The operator is provided with view graphics of the production output and can use them to control the production process. This shortens the warm-up time, saves energy and allows quality to be controlled and monitored.

Before concreting the compartments, each side is clamped by means of a powerful hydraulic system with pressure control and self-checking system. The clamping pressure is kept constant by the automatically pumping hydraulic system.



Half-gantry concrete spreader during concreting

The height of the concrete elements of the individual compartments is variable. The mould can be adjusted by raising and lowering the mould floor.

### Concrete spreaders and formwork systems

The newly modernised concrete spreader receives the concrete via the bucket conveyor system and pours the concrete quickly and accurately into the various compartments of the battery mould. The concrete can be poured into the battery with pinpoint accuracy via individual outlet gates and a pivoting chute.

The formwork and magnet systems supplied by Weckenmann are adapted to customer requirements. Robust and durable formwork components guarantee a high quality level of the precast concrete elements.

With the new battery mould and the newly modernised machinery, TDSK Tomsk House Building is now able to produce the newly designed houses in high quality. The company is thus optimally equipped for the future. ■

### FURTHER INFORMATION



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