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Transportable precast factories in operation in Singapore

A new idea made its debut just two years ago: the mobile battery mould (MBM) from Weckenmann. The first two of these transportable precast factories have now been put into operation.

There was great interest on the part of select customers when Weckenmann Anlagentechnik GmbH & Co. KG presented its innovative concept of a transportable formwork. The reason: using this technology the manufacture of laminar precast concrete elements can be directly relocated to where it is needed: in the immediate vicinity of the building site. This represents a great advantage in view of the growing worldwide urbanisation and the associated necessity to build large numbers of homes in a constantly high quality. Precast concrete elements are generally used for this. However, there are often no stationary precast plants nearby, making transport distances long and thus unprofitable, not to mention possible delivery delays or transport damage.

Late last year two unconnected building contractors from Singapore - Kimly Construction Pte. Ltd. and Tiong Seng Contractors (Pte) Ltd. - ordered the new product that had been presented. The first two mobile battery moulds have now been taken into operation simultaneously in the city state.

The Tiong Seng Group was established as long ago as 1959, since when it has developed into one of Singapore's leading building contractors. In over 50 years of company history Tiong Seng has implemented a series of different projects, both in the public sector and in private residential construction. In 2012 Tiong Seng put Singapore's first automated circulation plant for the manufacture of precast concrete elements into operation. The mobile battery mould is now in operation for the construction of several buildings with around 22 storeys and a total of 1327 residential units.

Kimly Construction Pte. Ltd also has many years of experience in the building industry and has completed building projects of the most diverse sizes in the city state. The company, established in 1975, has received several awards from official state authorities and possesses all necessary construction licences to build multi-storey buildings with cast-in-situ concrete and precast concrete elements.

Therefore, both of the mobile battery moulds are in operation on building sites for large residential projects within the urban area. Solid walls with thicknesses from 100-300 mm are produced on the machines. The maximum dimensions of the precast elements are 3.5 x 7.1 m. A battery mould with 20 compartments thus has a gross formwork area of 497 m².

The particular manoeuvrability of the MBM was successfully proven in the densely built-up urban area. Beyond that, noise levels fell below the permitted low limits.

The mobile field factory from Weckenmann can be an ideal solution for large building sites: its investment costs are manageable, it produces just in time and it is enormously flexible. Thanks to its compact design it has a relatively small footprint and can be assembled or disassembled by a small number of people in just a few working days. The manufacturing process is accordingly easy to handle and includes a highly effective compaction facility in order to compensate for any fluctuations in the concrete



The mobile battery mould (MBM) integrated in the building site



Installed precast concrete walls



Residential complex built from precast elements



View inside a cavity prepared for concreting



In the foreground: prepared reinforcement cages In the background: the compact mobile battery mould (MBM)

quality. In addition, the optimal use of the hydration heat for the hardening process and the possibility to preheat the formwork make the mobile battery mould (MBM) very energy-efficient. The precast concrete elements are characterised by their high quality. Proof of that is the formwork-smooth surface on both sides.

The government of Singapore is extensively promoting the use of precast concrete elements with the aim of increasing productivity on the many building sites. The mobile battery mould is now contributing to that and will influence the method of construction not only in this unique city state, but also in the world's other growth regions. ■

FURTHER INFORMATION



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