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Commissioning of three complete concrete block plants in five years at Tobermore Concrete Products

In today's economic environment it is really hard to imagine that only 3 years ago nearly everyone had full order books. Nobody in the world was thinking about a recession. Also the Irish and English markets were booming and successful companies were working around the clock in order to get enough stock in their yard to fulfill customer's demand. During this time Hess received an invitation from Mr. David Henderson, owner and managing director of Tobermore Concrete Products in Northern Ireland, to talk about a third block plant.

■ Ferry Jakobs, Hess Group, Germany ■

The first two plants, also delivered by Hess were erected in two existing buildings. One building was extended for this purpose. The third plant was to be installed in a new building, dedicated to the manufacture of block paving. As a future-oriented company Tobermore already integrated space there for further but not yet specified developments.

The first meeting took place at the end of 2006. Almost everybody around the table had already been involved in the first two

projects. Therefore Tobermore's requirements and philosophies were known to everybody. The project concept was determined within a few weeks. The fine detailing, however, took several months because of Mr. Henderson's wish to create something really new. Tobermore and all involved suppliers challenged each other continuously in order to achieve the aim to construct their best concrete block machine. Despite the high technical standards the concept of the block plant is kept simple, but able to run with minimum stoppages at the same time. That means, if a problem

occurs on the wet side of the plant the dry side can run under normal conditions for at least 3 full hours. To ensure this an active pallet buffer is included on both the wet side and the dry side. This ensures that the finger car is afterwards immediately available for either the wet or the dry side and is not required to be at 2 stations at the same time.

The installation of a rack system with a storage capacity of 2880 empty production pallets supports this improvement. It is charged with 1440 pallets. This permits



Pallet feeding system



Wet side of the plant



Dry side of the plant

either the dry side or the wet side to operate for approximately 4.5 hours without either filling or exhaust the buffer storage. One of the key words for this block paving plant is availability. A small but important detail is the production board de-stacking device. In a conventional production board de-stacking device the pallet is introduced to the production board conveyor from the bottom of a stack and a new stack cannot be fed into the de-stacking device until it is empty. Conveying a new stack into the de-stacking device takes more time than one production cycle. At every stack change the machine has to be stopped for approximately 8 seconds. In this project this delay is eliminated by the use of a different pallet feeding system. This gives Tobermore approximately 90 additional cycles per 8 hours shift.

The block machine, an RH 2000-2 MVA, is similar to the first delivered machines but different regarding the hydraulic system. It is executed as a 2-circuit system with variable capacity pumps without accumulators, reducing the power consumption of the whole machine. The filler box is equipped with a highly dynamic axis control for accurate positioning during the filler box movement. This enables an improved filling and optimization of the filler box speed. The controls of the tamper head movement incorporate a special feature which prevents tamper head bounce during main vibration. With this system installed there is no requirement for a tamper head brake alimentering wearing parts and therefore reducing maintenance. This machine runs comfortably with a 10.3 seconds cycle for block paving with face

mix and with an intermediate dip of the tamper head. Compaction is excellent and product density is close to its optimum.

The plant is mainly used for architect natural landscaping products for which appearance is paramount. In combination with the batching plant supplier Rapid International and supplier of the batching plant controls PIL, both Northern Irish companies, Hess has developed a system that offers Tobermore full flexibility to enable repeatable and reproducible colour distribution in the face mix across a production pallet. Separate compartments of face mix hold hopper are charged with slugs of concrete (if required from different colours) in a controlled cycle. The size and colour of the slugs dictate product surface appearance. In conventional systems the color mixing

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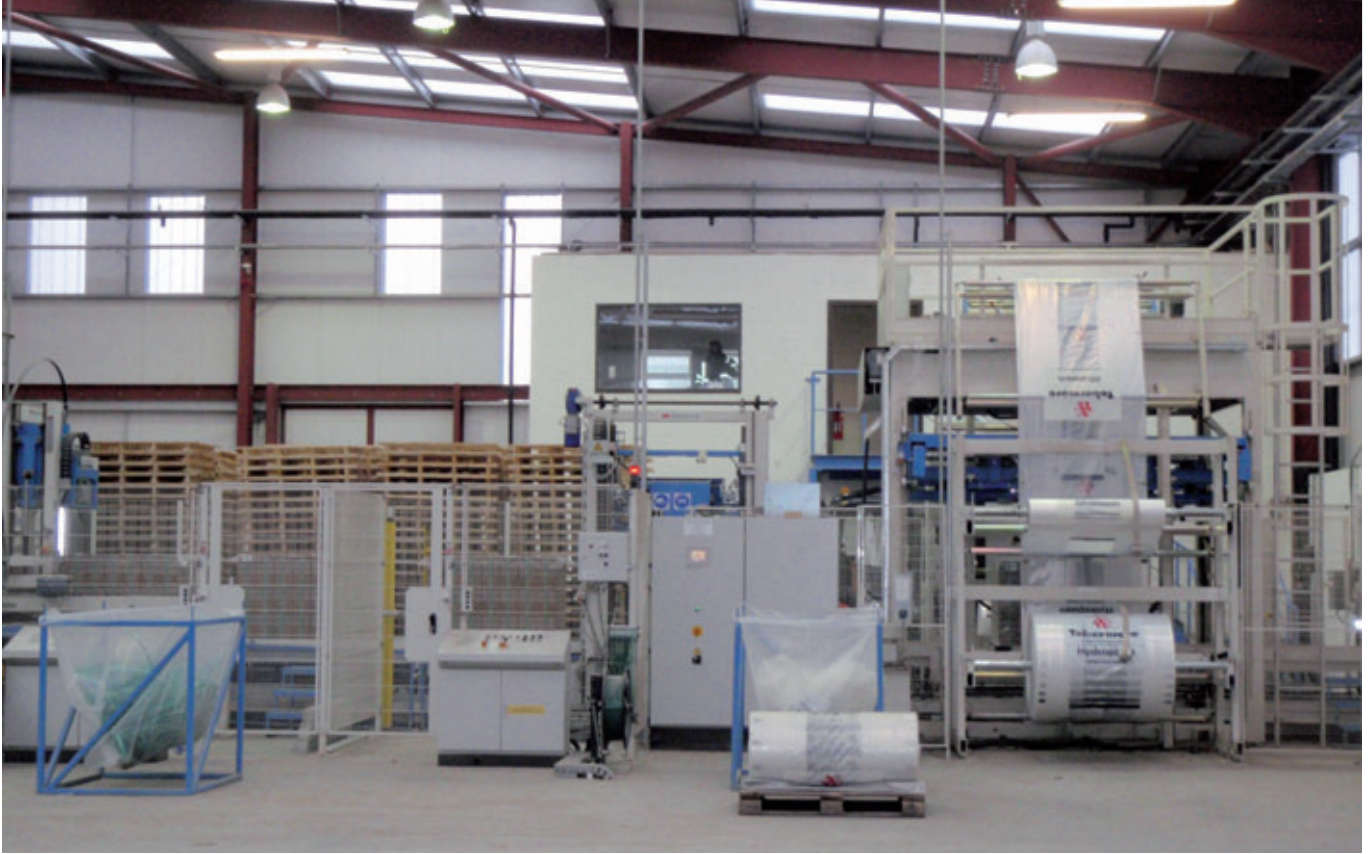
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Most product cubes are packed in a clear stretch hood with the Tobermore logo clearly visible

mostly takes place in the face mix feedbox during the filling process but with this system Tobermore is in full control of the colour distribution across the pallet.

The whole quality concept, starting from sourcing the aggregates up to a full quality check on the final product has been optimized. The entire Tobermore Concrete production has a high added value. Attractive packaging and presentation of the products are almost as important as product quality itself. Most product cubes are packed in a clear stretch hood with the Tobermore logo clearly visible. The operation is carried out with a machine supplied by the Danish company Lachenmeier.

On reviewing the project one and half years after commissioning we can conclude that the project was successful. Installation and commissioning schedules were maintained. As a result of installing 3 plants in 5 years Tobermore is certainly practiced in project management. Everything went to plan.

Tobermore continues to flourish. Mr. David Henderson is very happy and has said more than once that he has "The best concrete block plant in the world". This makes Hess very proud. To give you an impression of the plant Tobermore and Hess have made a DVD of this plant, which is available via your Hess representative or via Hess Germany directly.

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