

Unitechnik Cieplik & Poppek AG, 51764 Wiehl, Germany

Prefabricated concrete parts in the Middle Kingdom

The plant for precast slabs with in-situ topping of the fdu factory in Coswig, Germany was dismantled and reassembled in Hefei, China. The German Unitechnik Cieplik & Poppek AG from Wiehl renewed the entire control technology of the floor factory. On location in China, Unitechnik assumed responsibility for the commissioning and accompanied the start of production. Thanks to the technical support of fdu experts, the commissioning and run-up of the factory took place without problems. The precast plant is operated by a joint venture of the Sievert AG and the Chinese Haiheng Group. The goal is to considerably reduce the construction time for residential complexes with the help of prefabricated concrete parts.

The Sievert building materials group, with its head office in Osnabruck, Lower Saxony,



Ceremonial opening of the precast plant in Hefei



Hefei: generously designed roads connect the periphery with the centre



Freshly painted, the plant parts from Coswig are reassembled

entered into two joint venture contracts in November, 2006 with the Hefei-based Haiheng Group. This resulted in the formation of the Sievert quick-Mix Building Materials Co. Ltd. and Sievert Concrete Precast Elements Co. Ltd. companies. Sievert holds 66.7% of the shares in both companies. The joint venture partner, the Haiheng Group, is an important project development company that manages apartments and commercial real estate.

Rejuvenation of fdu plant

The Sievert AG had holdings in the fdu sales and planning company until 2009. For the planned engagement in China, a decision was made to transfer the plant for precast slabs with in-situ topping from the fdu location in Coswig to China. The floor factory from Coswig is mainly comprised of the following elements: pallet circulation with 16 handling positions, plotters, manual concrete distributors, vibrating station, storage and retrieval machine, curing chamber with 56 positions, positioning-cutting system. The plan was to maintain all mechanical systems. The control system technology, on the other hand, should be made state of the art. The globally active Unitechnik Cieplik & Poppek AG company received the order for this rejuvenation project in October, 2007.

The plant was completely dismantled following a thorough inventory on location. The machine parts started their journey to China while the control cabinets and control units were delivered to the Unitechnik company in Wiehl. The automation concept was completely revised by the Unitechnik experts. Where previously CAD data was transferred from one workstation to the next on discs, a modern UniCAM central computer today performs this task and coordinates the entire production. The contemporary Simatic S7 is used at the control level. Communication at the control level takes place via Profibus. The control cabinets could be maintained. Only the controls in the cabinets were replaced. The control units of the old plant were in very poor condition and were all replaced with new control units.

Unitechnik carried out the commissioning on location in China. All steps were accompanied by trained experts from fdu. This resulted in rapid progress and a smooth commissioning. The language problems in the cooperation with Chinese personnel were solved with an interpreter. A German student from the local university was always at the disposal of Unitechnik employees.

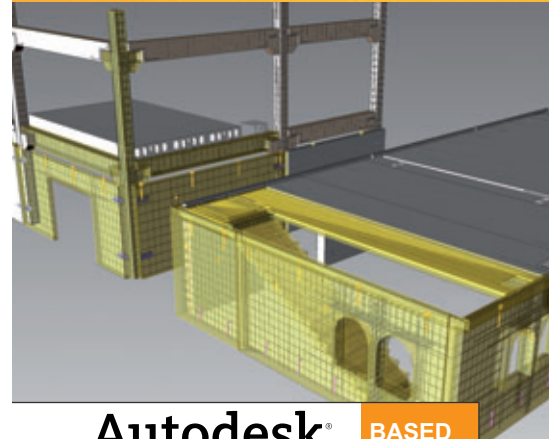
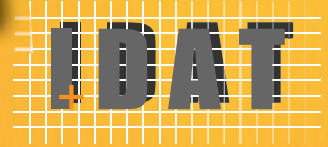
Foremen from fdu factories also assisted in the run-up of production. They had to train the local personnel in the tasks and mediate an understanding of the processes in a modern production plant.

In addition to the plant for precast slabs with in-situ topping, a production line for double walls was also set up. This means that the precast plant can provide the complete building system for the erection of multi-storey residential buildings and commercial properties. The first project involved the erection of a warehouse building with social rooms on the premises. The order situation is currently very good, meaning that the construction of the planned administration building has been postponed for the time being. "The supply of our customers is more important" emphasises Gerhard Schulze, who has been deployed by the Sievert AG as Country Manager China.

Construction economy in the region.

Hefei is the provincial capital of Anhui and is located approx. 420 km west of the booming metropolis of Shanghai. Hefei, with its 4.5 million residents, is today a transport nodal point and industrial centre. More than 100,000 people move annually to the city from the surrounding regions. The city is prepared for this growth. The infrastructure is generously designed with two-lane roads connecting the outlying areas of the city with the centre. Large scale industrial areas still offer adequate room for new business.

However, housing space isn't growing quickly enough to keep up with the inflow from the surrounding areas. Building is traditionally carried out with framed constructions. The



Old control unit for the plotter



New control unit for the plotter with modern Siemens components

Automation previously

- Simatic S5 control system for pallet circulation / RBG
- No bus system
- Standard office PC with MS-DOS PC for plotter
- B&R control system for positioning and cutting machine
- CAD data transferred manually on discs to the plotter and to positioning and cutting machine

Automation afterwards

- Simatic S7 control system for circulation and plotter
- Networking with Profibus at control system level
- Simatic operator panels for circulation and plotter
- Beckhoff control system for positioning and cutting machine
- UniCAM production control system
- CAD data transferred automatically through the network plotter and to positioning and cutting machine

compartments are bricked up, the ceilings shuttered and casted with in-situ concrete. The use of machines is for the most part dispensed with. The workforce is inexpensive and easy to acquire. The disadvantage of this method of building is the construction time required. It currently requires approx. 18 months to complete a new residential complex. This is exactly the point at which Sievert comes in with its precast plant. Prefabricated concrete parts can reduce building time to 12 months. And that with considerably improved quality.



fdi precast plant in Hefei, China

Conclusions

The transfer of a used plant can represent a financially sensible alternative to a new plant. The renewal of the control system technology ensures that current regulations are observed, that the plant runs stably and that support and replacement parts are available. The retrofitting of a modern production control system opens up many new functions for the factory. In this way a modern production process is also possible in an old factory.

FURTHER INFORMATION



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