

Worldwide Unique Plant Upgrade in Romania

Elpreco SA is part of the CRH Group and one of the leading suppliers of autoclaved aerated concrete products in Romania. First-class products and sustainability have been characterising Elpreco for decades. A highly qualified team and continuous modernisation of their production facilities have made Elpreco a landmark in Romania's building material industry.

As the Romanian building materials market is very competitive, CRH and Elpreco jointly decided to invest in increasing the efficiency of the autoclaved aerated concrete production plant in Craiova. The modernisation focused particularly on the existing mixing plant, the precuring section and the autoclave section.

As Wehrhahn had already successfully supplied several upgrades to Elpreco, it was not surprising that in summer 2020 Elpreco knocked on Wehrhahn's door in order to discuss the modernisation of the Elpreco autoclaved aerated concrete production plant in Craiova. The planned upgrade had very ambitious goals, so that it quickly became clear, that greater challenges needed to be mastered. However, at that



New solutions were needed: Extensive labour force, overhead crane and no heat insulation.

time nobody could have guessed that this would end up in a ground-breaking development that sets new standards in upgrades and modernisations of autoclaved aerated concrete production plants.

Beside a higher production capacity and the reduction of the overall binder consumption, it was also on the list to reduce the labour requirement significantly. The limited space of the existing buildings and the need to maintain ongoing production during the upgrade challenged Wehrhahn to develop new ideas in order to meet the ambitious goals.

The factory was initially equipped with a mobile mixer which was travelling forward and backward between the moulds. The time-consuming process was carried out widely manually and very inaccurate.

Additionally, the precuring section was a manually operated system, topped by a large overhead crane for mould transport. The moulds were manu-



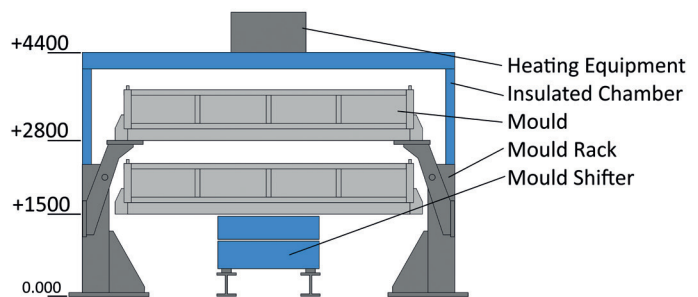
*The result: Full utilisation of the existing space.
The warm air accumulates at the elevated precuring chambers with transport equipment underneath.*

ally cleaned, oiled and assembled, before the mobile mixer poured the slurry into the mould. Finally, the overhead crane transported the moulds to the cutting line to unload the cakes for cutting.

The entire precuring process was very labour-intensive and due to the overhead crane it was not possible to install efficient insulation and heating equipment in order to keep the moulds warm during the precuring process. For this reason, tarpaulins were manually pulled over the moulds to reduce the cooling of the moulds.

To achieve the desired goals, it was necessary to increase the number of moulds significantly, but also to create sufficient space for a new mixing plant and a fully automatic precuring section in order to reduce the labour requirement. Additionally, perfectly insulated and heated precuring chambers needed to be installed to reduce overall binder consumption and precuring time.

Wehrhahn and Elpreco jointly investigated different options to achieve the ambitious goals. The specific requirements of the project, which at first glance appeared to be unattainable, challenged Wehrhahn to develop a worldwide unique technology for pre-

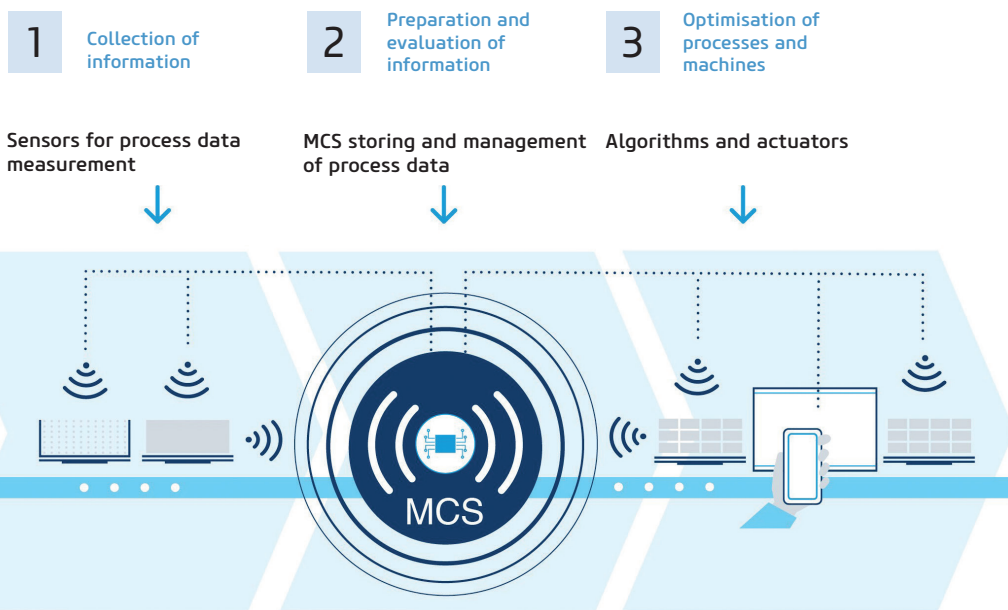


The first sketch: The mould shifter lifts the filled moulds into the elevated precuring chambers where the warm air accumulates. Inspection doors grant access to the moulds.

curing. The idea was, to lift the moulds into elevated, insulated and heated precuring chambers to provide space for a fully automatic mould transport system underneath the hovering moulds. This way, the rising warm air would make heating of the elevated precuring chambers a breeze and the automatic transport equipment below the hovering moulds would fully eliminate the numerous labour forces from the section. Additionally, the gained precuring temperatures would help to reduce binder and energy consumption significantly.

Although this solution would cover all requirements, Elpreco and Wehrhahn were initially very cautious

The all-in-system is based on three “smart” modules:



MCS: Intelligent self-learning process control

because of the risk involved in the new development and the upcoming Covid pandemic. As a result, Wehrhahn’s technical team worked out many detailed solutions, that indicated that the long term advantages would outweigh the risks by far, so that finally the initial concerns turned into confidence and trust on both sides.

When the project started the Covid pandemic was on its peak. Travelling was limited and the supply chains were unreliable. After a smooth installation the travel restrictions forced the Wehrhahn specialists to render a large portion of the commissioning remotely, supported by Elpreco specialists on site.



Elpreco and Wehrhahn: Thanks to the excellent cooperation of both teams the project was completed successfully.

Connected via internet the individual teams have jointly managed to test run and fine tune the entire equipment so that finally every piece of equipment worked as it should.

The cherry on top is the all new Wehrhahn Master Control Server (MCS). The smart system combines production data from all sections and provides the user with priceless information from production-and energy management up to quality control and preventive maintenance.

After all, the project is a perfect example, that strong partnership and trustful cooperation can realize ambitious goals and pioneering ideas even under most difficult conditions.



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Wehrhahn GmbH
Mühlenstr. 15
27753 Delmenhorst, Germany
T +49 4221 1271 0
www.wehrhahn.de



Elpreco SA
44 Calea Severinului
200609, DOLI Craiova
Romania
www.elpreco.ro

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Contact

Eric Yuan/ +86 18655583600
eric_yuan1818@163.com
www.linkedin.com/in/eric-yuan-dosmart-tech

DOSMART TECH CO., LTD
WUHU, ANHUI, CHINA