Mika's modern packing plant

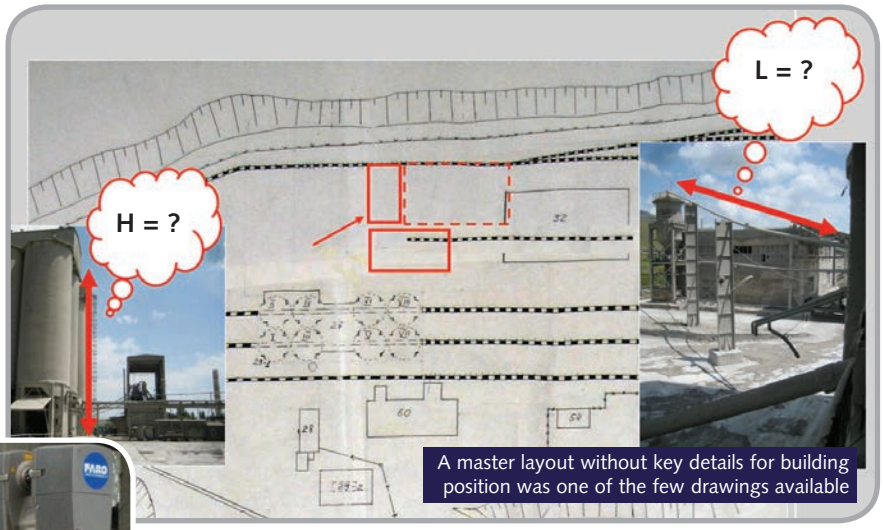
by Intercem Group, Germany/ Switzerland

Part of the TRAINAT group, Intercem is a leading complete solution supply company for cement plant operations. Moreover, for investors seeking a way into the cement industry, the company insists that it is the right partner for the design, detail engineering and project handling of greenfield projects. One such project was the order Intercem received from Mika Cement, near Yerevan, in Armenia's southern Caucasus, and which the company completed successfully.

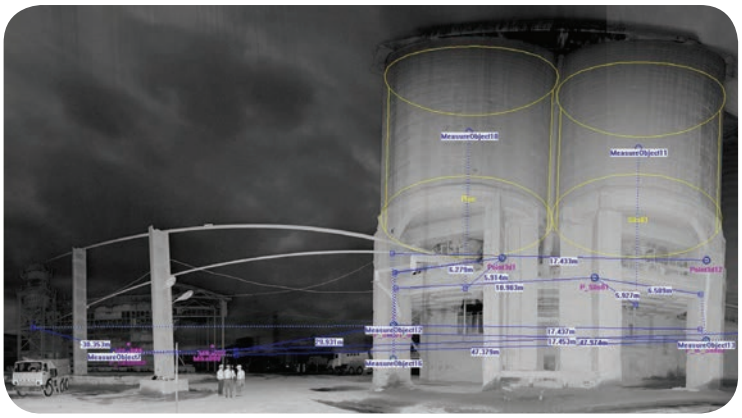
Intercem's special focus is on the reconditioning and modernisation of manufacturing units including grinding and packing plants as well as kilns. Its concept, machinery and services reflect the latest developments in the field and can be processed on an EPC basis. For the Mika Cement contract, the main scope was the development of a cost-optimised solution, based on best-available technology, leading to increased efficiency as well as to improved working conditions for the cement producer's staff.

At the same time, the local conditions and the existing building features had to be integrated and continued to be used, ie the local rail system and main access roads had to be maintained. Therefore, an individual solution needed to be found, which implied a high level of planning complexity. Over and above, the existing system for bagged cargo had to be changed to a quick and comfortable handling on the basis of the current international standards for palletised cement.

A key issue was that only few and very rudimental engineering drawings and information were available for the existing buildings and constructions.



A master layout without key details for building position was one of the few drawings available



Above: in only one single visit to the site, plant components and existing buildings can be measured with an accuracy of within millimetres and recorded as digital data, which can subsequently be assembled in a cluster representation

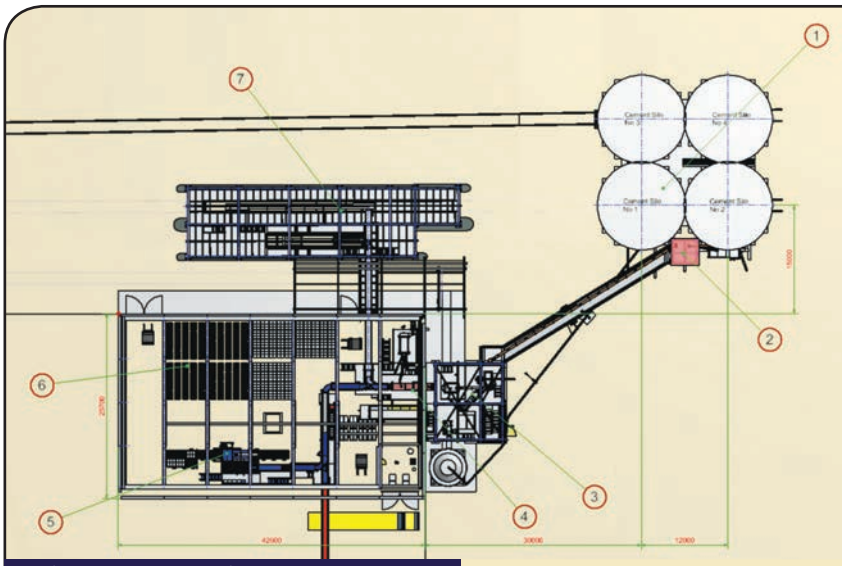
Left: scanning of the existing buildings and local conditions using a 3D laser scanner

Turning plans into reality

The initial main task was the inspection and examination of the current situation at the existing plant. The Intercem team opted for 3D laser scan technology to scan existing buildings and local conditions.

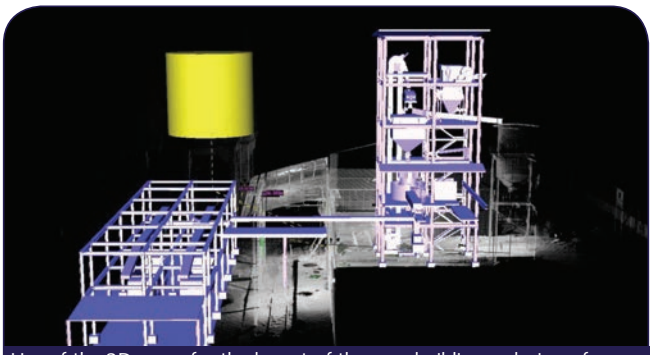
In only one single visit to the site, plant components and existing buildings can be measured with an accuracy of within millimetres and recorded as digital data, which can subsequently be assembled in a cluster representation. Due to its relative small size, the 3D laser scanner can be used outdoors as well as within buildings with difficult-to-access areas.

After its site survey, Intercem considered the local conditions and best-available technology and designed the best customer-solution-concepts as basis for further customer meetings.

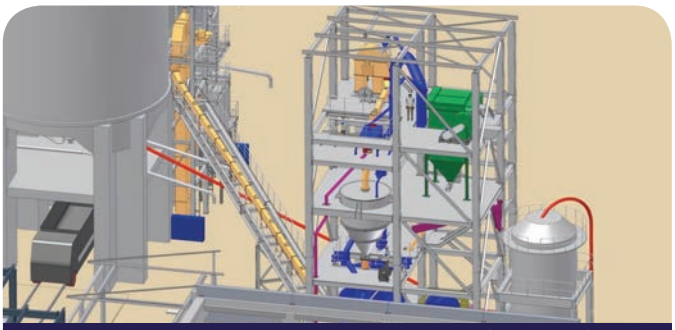


1. existing ferroconcrete silos
2. new air slide discharge and material conveying system
3. new ferroconcrete building situated in front of existing cement building with used and refurbished 10RS Roto-packer
4. used and refurbished bag transport system with weighing station and bag shredder
5. used and refurbished Beumer 3000bags/h palletiser
6. new cement bag stock within existing building
7. new truck-loading station

Configuration diagram of the new packing plant



Use of the 3D scans for the layout of the new buildings, placing of machineries and auxiliaries



The engineering is completely carried out using state-of-the art software tools which allow tailor-made solutions taking customer requirements into consideration

The project was detailed as the new facilities incorporated both used and new equipment. The new components had to projected and bought in addition to existing machinery. In the meantime, the used equipment was refurbished at Intercem's Oelde site in Germany through the cooperation between Intercem's long-time experienced specialists and the original manufacturer, who supervised the refurbishment. The mechanical and electrotechnical part of the work was carried out with currently applicable technology, which ensured spare parts supply and high plant availability. Intercem also constructed new flow sheets and drawings for the detail engineering.

Used and refurbished packing plant with 10 RS Rotopacker

The final result

Intercem's involvement in the project saw the construction of a new packing and palletising plant based on best-available technology. Its use of high-precision 3D laser scan technology enabled the firm to optimise the assembly time.

For Mika Cement, the project has resulted in a capacity increase to 3000 bags/h with a considerably-enhanced availability of the total packing and palletising plant. Its operation is further supported by the long-term availability of spare parts.

The latest dedusting technology enables the works to meet international environmental standards without problem while plant personnel can enjoy significantly improved working conditions.

Overall, the project has advanced Mika's manufacturing capability, increasing the company's competitive edge.