

Quadra, 74130 Contamine-sur-Arve, France

Fully automatic dosing and filling system set up in South Korea

Founded in 1971, the Ino block company, currently headed by Mr Han and based in Hwaseong in South Korea, is now acknowledged as a leading manufacturer of landscaping materials in this area. Specialized in the manufacturing of pavers and all other kinds of landscaping products such as slabs, retaining walls, kerbstones, etc., Ino block supports the development and the reconfiguration of the urban design in Korea by continuously manufacturing new products. As a licensee of products such as Nikko from Japan, Godelmann from Germany and Anchor and Rosetta from the United States, Ino block takes advantages of strong partnerships which enable it to manufacture products that are designed worldwide. This manufacturer aims at sustaining its leading position through the quality, advanced design and large diversity of its products. Thanks to the implementation of the INO CAD program, Ino block is able to design customized products and offers more than 2000 different products in 300 different colours. Last but not least, this manufacturer is an avid user of equipment of the latest generation, including state-of-the-art manufacturing solutions. Ino block placed an order with the equipment manufacturer Quadra, which is well known for supplying tailor-made automation solutions. Ino block's investment was based on a fully automatic filling system, designed for manufacturing the Rosetta product range and similar products with a view to improving productivity while maintaining and enhancing high product quality.



Range of products manufactured by Ino Block

The automatic dosing and filling system delivered by Quadra was designed and adapted to Ino block's existing facilities. The manufacturer initially wanted to upgrade only the manufacturing station, while still using its existing mould conveying system.

The moulds are set up on pallets measuring 1520 x 1180 mm. The height of the moulds ranges from 200 to 1100 mm.

Concrete supplied by mobile concrete hopper

A mobile hopper is located between the mixer and the dosing system. This hopper allows the transfer of the concrete between the mixer and the dosing system. Consisting of two compartments, the hopper enables the handling of two concretes of different colours without any risk of cross-contamination. Each compartment is emptied by a rotary screw, allowing the feeding of the hopper integrated in the dosing system. This hopper moves on an independent rail track. The feeding of the fresh concrete is there-

fore completed while the dosing system is operating, without any interruption in the cycle.

The Rosetta products stand out from the crowd mainly due to the natural stone look of these products. Consequently, the concrete used in the process comes from the skillful blending of different concrete colours performed in a random way. The concrete blending is then achieved by discharging each concrete colour alternately into the hopper of the dosing system. The filling cycle is stored in the manufacturing recipe and can be recalled every time this type of product has to be produced with the defined colour.



Mobile concrete hopper

Dosing and filling system: fully automatic solution

The dosing system moves above the mould during the filling operation, while the mould is stationary. The dosing system moves in three axes (X, Y and Z), allowing the filling of the whole surface of the moulds. It can also access each compartment and move to the cleaning position.

The dosing system consists of one main hopper that receives the blending concrete. The hopper is emptied by four valves which feed four dosing micro-hoppers. Each of them has a capacity of 100 litres, and is set





Fully automatic dosing and filling system

up on an electronic weighing system. Each hopper has an independent weighing unit. It is then possible to simultaneously fill four products of different weights.

Each of the micro-hoppers is also emptied by a valve. As soon as the weight of the product is reached, the automatic program closes the valve. This is an extremely precise system with a weighing precision of ± 50 g. These valves also ensure excellent sealing.

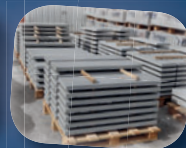
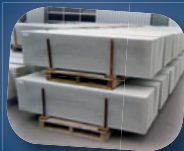


Manufacturer of Equipment for the Concrete Industry

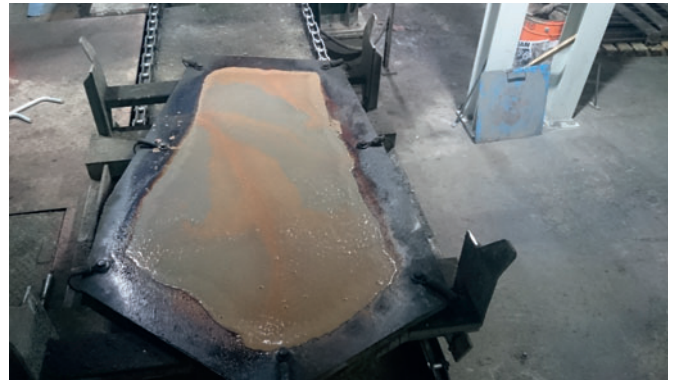
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Extremely precise system with a weighing precision of ± 50 g

The dosing system has two translatory movements, which enable it to move above the compartment of the mould to be filled. The mould has several compartments of different sizes and shapes. Each compartment is filled uniformly.

The dosing system moves vertically over a distance of one metre for filling products with a thickness ranging from 50 mm to 900 mm. Whatever the thickness of the products to be filled, the valves move as close as possible to the moulds.

Automatic system control

This equipment is delivered with a touch-screen terminal allowing the configuration of the settings for the manufacturing in progress.

The PLC program designed by Quadra allows the backup and the automatic recall of the dosing settings according to the type of product to be manufactured. The backup of the settings conforms to a manufacturing recipe according to a type of product. Several products can use the same recipe and more than 99 recipes can be downloaded to the system.

All the operating parameters can be modified during the automatic operation without interfering with production. All the texts are clear, detailed and translated into many languages.

The complete installation is graphically displayed and enables the operator to easily and quickly monitor the production cycle. The user screens feature icons for intuitive and user-friendly operation. All the operating data in progress are displayed (cycle time, filling level, daily production, output rates etc.) The data can also be

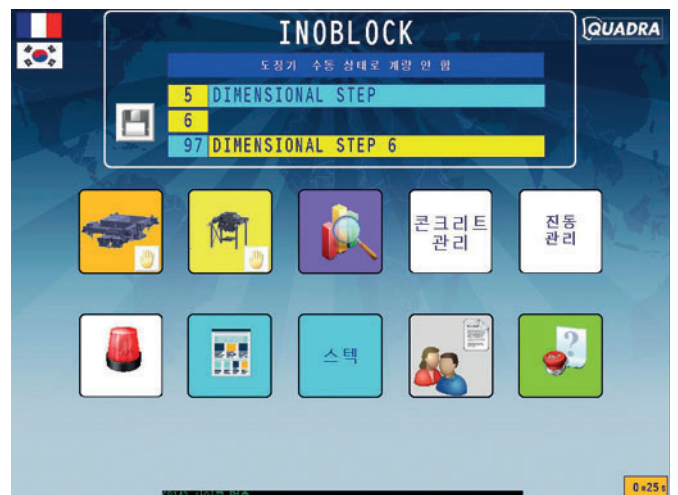
retroactively exported. The recipes and production data are stored in SQL Format to allow processing and analysis by the majority of the programs that are used by manufacturers.

Conclusion

The design and implementation of this dosing and filling solution shows the advanced technical proficiency of Quadra, a French manufacturer of concrete production equipment. With its capabilities to define and design relevant and appropriate manufacturing solutions, its expertise is valued worldwide. This manufacturer can adapt its machines to the existing environment while offering func-



The PLC program designed by Quadra allows the backup and the automatic recall of the dosing settings



The user screens feature icons for intuitive and user-friendly operation



Finished products manufactured with the tailor-made dosing & filling system

tional and rational technical units that make the plant highly efficient. The units are tailor-made according to the degree of automation required by the client.

The collaboration between the two companies during the tests was satisfactory. The manufacturer, Ino block, is now satisfied with the efficiency of the newly commissioned filling process. The flexibility provided by this new system as well as the high-end quality of the manufactured products are a great success. Thanks to the intuitive and user-friendly operation, the operators can fully autonomously test, modify and add new product recipes without help from Quadra.

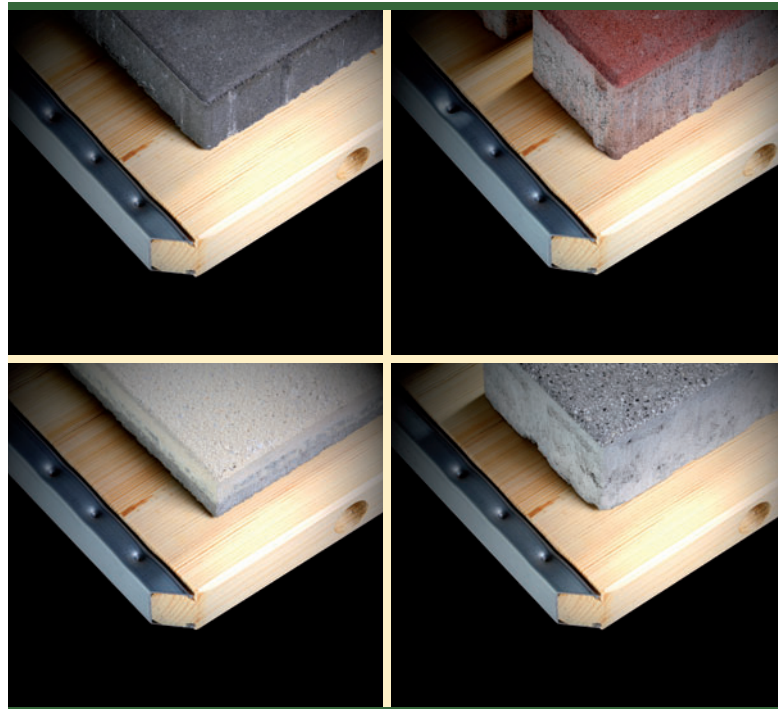
However, Ino block, like all Quadra's worldwide clients, benefits from an efficient help desk thanks to remote assistance ensured by ADSL and carried out by trained and specialized technicians. ■

FURTHER INFORMATION



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