

Quadra, 74130 Contamine sur Arve, France

## Wet-cast production with a fully automatic plant

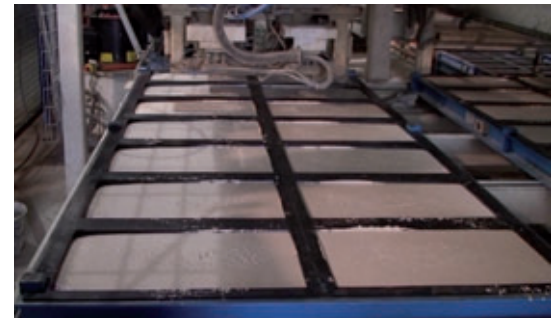
Creative concrete has always been at the heart of the development and diversification strategy of the company Hermet. The company is accentuating further its efforts in this direction by putting up a new Quadra plant. This plant is fully automatic for the production of wet-cast products. This is the 10th wet-cast unit installed by the French manufacturer. Quadra is continuing to develop this activity on the basis of these achievements. The construction of these materials from the study to the full manufacturing is made in Quadra's facilities.

The company Hermet wanted to manufacture a wide range of products such as tiles, slabs, pool edging, wall coating, fences plates, window sills, natural stone aspect, etc ... in industrial rate. The facility had also to offer pleasant working conditions in a quiet atmosphere. The challenge was to build a highly technical plant in an existing environment while having a functional and rational implementation. The company Hermet was born in the middle of the vineyards of Gaillac. Its activity is spread over four sites covering the region of Midi Pyrenees and Languedoc-Roussillon in France.

This production unit is characterized by an optimal operational flexibility. The wet products line and the dry products line can operate independently or coordinated. Modern methods of handling and robots arm have been used to achieve high productivity. Handling and storage of pallets stacks is made by an automatic overhead travelling crane providing flexibility and an exact control of the products during drying. The plant is fully automatic but with the will of extreme versatility, the facility accepts manual secured stations. Fragile and com-

plex design products can be removed from the mould manually by taking advantage of the automated cinematic of the system.

The ABS moulds are set in steel frames of size 2500 x 1100mm corresponding to a pallet. The number of moulds per frame can vary between 8 for slabs of size 50 cm x 50 cm and 30 for products of smaller sizes. To cast footprints in concrete, drips can be installed. The drip is a removable part which gets in fresh concrete.



*The concrete casting is clean without any projection*



*The wet products line and the dry products line can operate independently or coordinated*





The lifting clamp prevents any pallets distortion

The pallets are moving individually on conveyors and are transferred to different stations. The handling to the curing area is made per pallets stacks. The overhead travelling crane takes a pallets stack and brings it either to the wet product line or to the dry product line. Each pallet has a label identifying the product and the label is recognized by an RFID reader. This identification permits to match the products with their recipe applied to oiling station, dosing and casting of concrete and palletising. When the products have been moulded or demoulded, the pallets are staked and put again in the drying area.

#### Pallets stacks handling and storage

The overhead travelling crane is equipped with an on board PLC, managing the storage and removal of moulds. The worker can choose from the control screen the type of product to mould and the type of products to palletise if different. The management device of moulds storage informs the overhead travelling crane on the position of the moulds to use or to store. Thanks to its design, the lifting clamp prevents any pallets distortion. So the products have a perfect geometry.

#### Wet products line

The pallets are transferred step by step to different stations to have successive operations:

- Moulds cleaning: operation executed by turnover.
- Oiling: pallets are oiled by a 6-axis articulated robot. The trajectories of spray nozzles are defined according to the pallets which have been recognized through the RFID identification. The system prevents any oil emanation and projection and permits to spread oil uniformly and regularly on all sides of the moulds. This system enables substantial savings of oil.
- Concrete filling and casting: the dosing system consists of two hoppers to produce multi-coloured products. The precise dosing of concrete is achieved by two weighing systems allowing a precision of  $\pm 100g$ . Both weighing systems automatically move to position above the moulds and thus ensure the full casting over the pallet surface. The system provides both the precision of dosing and the high rate of production. The casting is clean without any projection of concrete. The entire dosing system is mounted on mobile car moving from a working position to an equipped washing area. The design allows a fast and effective cleaning.
- Stacking: pallets with moulds filled with fresh concrete are stacked and the overhead travelling crane carries the pallets stacks with delicacy and precision to bring them to the drying area.



### MANUFACTURER FOR THE CONCRETE INDUSTRY

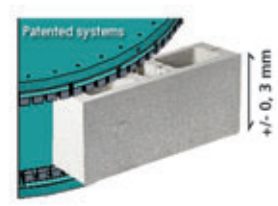
QUADRA solutions are reference in terms of innovation, flexibility and productivity. Quadra is represented worldwide to serve the concrete industry.

#### CUSTOMISED EQUIPMENT

- Production units with vibrating presses
- Transfer and handling systems
- Wet cast production lines
- Robotic applications
- High precision concrete block milling machine
- Batching and mixing plant

#### MACHINE TO PRODUCE

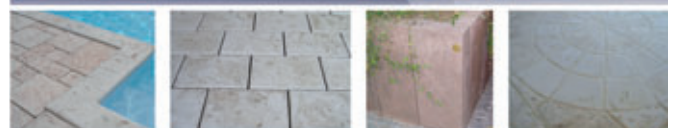
- Pavers, blocks, slabs, kerbs, landscape products, ...



Robotic application

High precision concrete block milling machine

Wet cast production



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The overhead travelling crane is equipped with an on board PLC



The 6-axis articulated robot palletises the products using a vacuum clamp

### Dry products line

A stack of dry products is brought to the destacker by the overhead travelling crane. The pallets are transferred to a demoulding station by mould turnover. A 6-axis articulated robot then palletises the products using a vacuum clamp. This unique clamp allows palletising all types of products. The robot recognizes the different kinds of products and palletises according to their shape to form a packaging suitable to the transport palette.

### Automatic installation and removal of the drips

The installation and the removal of drips are integrated into the fully automatic production cycle. On the wet products line, the drips are separated from the pallets and are transferred parallel to the pallets circuit

to be brushed and oiled. When the concrete is just cast, the drip is introduced and positioned on top of pallet to make a footprint in the concrete. During the demoulding, a clamp lifts the drips to allow the demoulding of the products. Drips are then rested on moulds.

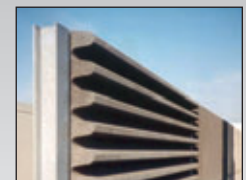
Quadra provides its expertise for all phases of the process for the manufacturing of wet cast products. The production lines are fully customized and can be upgradeable with some manual operations and some other automatic or fully automatic. Coherent and successful completed solutions are proposed for the manufacture of concrete, concrete dosing and casting, transfer and storage of moulds, demoulding, moulds oiling, optical product recognition, RFID identification and robots integration.

### FURTHER INFORMATION

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