

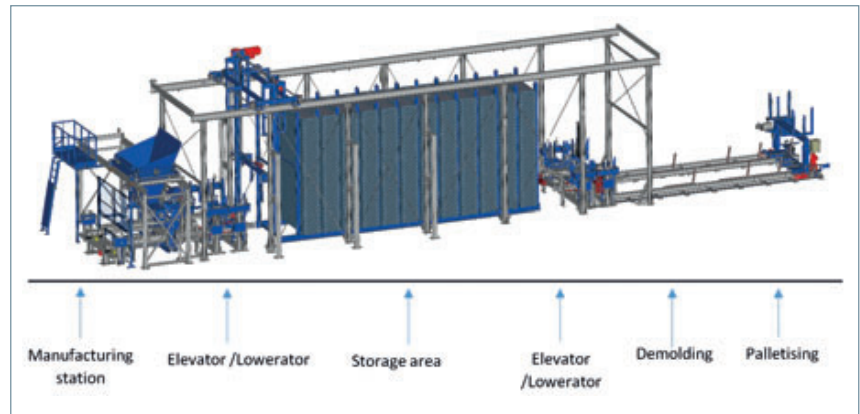
Quadra, 74130 Contamine-sur-Arve, France

High-class concrete fence manufactured on fully automatic wet cast production line

Concrete fences have become outdoor decoration component increasingly valuable and popular in the field of landscaping realisation. Nowadays smoked and sophisticated, concrete fences benefit from great texture, and keep improving their appearance through regular innovation. This growing market led the manufacturer Rousseau Clôture to replace one of its production lines. Headed by Mr Le Strat, this French company, leading player in the precast industry for more than 20 years, owns 8 production lines. Its whole range of products, recognised as high-end concrete fences on the market, is manufactured in its plant based in Domloup (Bretagne).

Renowned both for its innovative capacities and the quality of their products, Rousseau Clôture has chosen to replace one of its production units. Very satisfied with equipment type "Atelier du Loir", the company Rousseau Clôture has naturally solicited the company Quadra which took over the company "Atelier du Loir" in 2010. Well-known within the market, this range of machine is designed for perfectly satisfying the automated precast production of concrete product through semi-dry demolding, wet cast demolding, and mixed wet and semi dry production line. Also expert in automated handling processes, the company Atelier du Loir has been a leading equipment manufacturer in the concrete industry for more than 60 years. The acquisition of this company has enabled Quadra to become a leading manufacturer of wet cast and dry cast equipment in Europe. It was also the opportunity to apply its expertise in terms of automated processes and state-of-the-art vibrating system renowned through its block machine commissioned worldwide.

The plant « DIFAL 2200 » has been selected as the most suitable unit for current and future production needs of Rousseau Clôture. This production line is made up of one manufacturing station equipped with



Sketch and main features of the production line

automatic concrete dosing system, one curing facility operating with travelling crane, and one automatic demolding and palletizing station.

Production line: main features

The plant type DIFAL 2200 is designed for manufacturing any kind of concrete product by wet cast demolding such as fence, coping, window sills etc. Easy to operate, to use and to maintain, the Difal does not require any civil engineering for setting it up.

This plant displays outstanding productivity and performance features. The average cycle time (from the release of the fresh filled mould to the return of the empty mould) is of 30 seconds allowing a production of about 500 to 800 fences of 2000 mm x 500 mm per shift.

In addition, all the handling operation such as demolding and storing, are automated and occur during the manufacturing. None « down time » is therefore caused.



Type of products manufactured by Rousseau Clôture with the plant Difal 2200

Driven by PLC (programmable logic controller), cycle launching is automated and carried out from the control desk by means of ease of use module. The control software, modern and comprehensive, is entirely designed by Quadra, and enables to modify machine settings within manual mode or automatic mode. A back up system and automatic molding settings recovery are programmed by type of manufactured product.

This plant benefits from a curing area operating by travelling crane. This system allows high efficiency and high productivity during mold handling. Besides, the automated curing system enables to retrieve and handle molds according to their curing state. Stored products which are driest are therefore automatically handled first.

Manufacturing station

The manufacturing station is divided in four different stations: automatic oiling station, filling station, mold waiting station, and vibrating station. Molds are transferred from one station to the other extremely quickly. All the operations are carried out simultaneously in order to generate a significant gain in terms of time cycle.

The oiling system is composed by a ramp equipped with nozzles which are moving lengthwise. This operation is done by means of oil spray in view of proceeding with a homogeneous and uniform oiling over the whole surface of the mold. Capturing measures are set-up and allow mist aspiration in order to preserve the environment and the atmosphere on the production side.



Manufacturing station

The mobile hopper moves above the mold and ensures the automatic concrete loading. As for the filling, it is performed by a concrete screw. Disposed on an electronic weighing system, the exact quantity of concrete is discharged into the mold. The filling operation is then effected by the simultaneous action of the rotation of the screw and movement of the hopper in the direction of the length of the mold.

Once filled with fresh concrete, the mold is moved to the waiting station, and then to the vibrating station equipped with vibrating tres-



Manufacturer of Equipment for the Concrete Industry

WET CAST PRODUCTION LINE

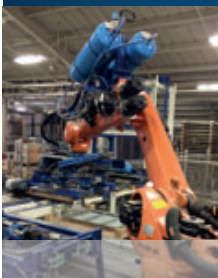
Comprehensive range of equipment for custom-made plant definition



PRODUCTIVITY

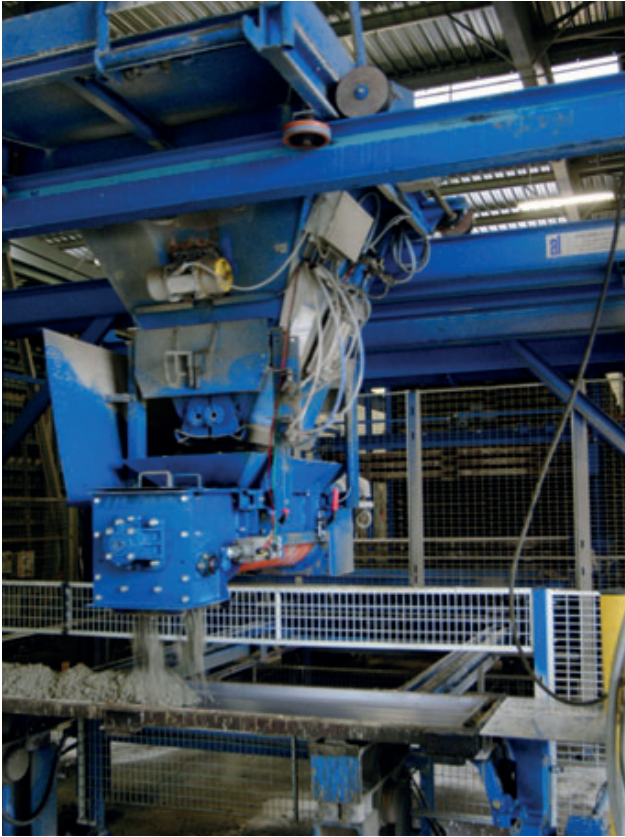
VERSATILITY

FLEXIBILITY



FRENCH MANUFACTURER

QUADRA - 40 route de Findrol - 74130 Contamine-sur-Arve - France -
Tel. +33 (0)4 50 03 92 21 - Fax. +33 (0)4 50 03 69 97 -
www.quadra-concrete.com



Concrete feeding: Automatic mold dosing and mold filling



Automatic oiling system

ties that are fixed to the ground. The mold undergoes a homogeneous vibration, and the operator may introduce the steel armature or cages.

To finish, the filled and vibrated mold is transferred to the elevator. The elevator/lowerator handling system allows a quick mold transfer on the production side. The elevator forms a stack of 10 fresh molds that will be moved to the curing area, and the lowerator forms a stack of 10 empty molds that will be moved to the vibrating table to begin a new cycle. This mold handling system is designed for allowing short cycle time

Mold handling operated by travelling crane

Fresh filled molds are then retrieved by the travelling crane, and stored on the curing area for about 24 drying hours. The curing takes indeed place directly within the mold.

The storage area benefits from a capacity of 720 molds. The height of the storage is able to reach more than 4 meters, and get important lengths. The automatism of this curing area enables to arrange the curing zone by order to mold entry in view of ensuring rigorous drying. The purpose of this system is to exactly know the location of molds in the curing area, and therefore proceeding with handling once they are completely dry.

The travelling crane moves on a slat track which is independent from the building, with quick, precise and simple movements. It ensures the mold handling:

- From the manufacturing station to the curing area: fresh filled molds located in the elevator on the production side are retrieved by the travelling crane and set up in the curing area.
- From the curing area to the demolding station: located in the curing area following to the curing products, the travelling crane retrieves molds with dry products and loads them to the lowerator on the demolding side. Molds remain stationary throughout the curing.
- From the demolding station to the manufacturing station: further to the demolding, molds are evacuated into the lowerator on the palletizing side. When the travelling crane is in this area, it retrieves empty molds and moves them to the lowerator located on the manufacturing station.



Travelling crane for curing



Demolding by turning (180°)

Yipin Pigments

is a leader in the pigment industry.

- Yipin specializes in all types of pigments.
- Yipin has a worldwide customer base with customers in Germany, Australia, Russia, Turkey, USA and China.
- Yipin is ISO-9001 quality certified and ISO-14000 environment certified.
- Yipin supplies to a host of different industries such as Construction, Paint, Coatings, Plastics, Rubber, Ceramic, Printing, Paper, Cosmetic and Pharmaceutical to name a few.



Iron Oxide Pigments

Complex Pigments

Granula Pigments

Liquid Color

YIPIN GmbH
Happelallee 2
22089 Hamburg
Deutschland
Tel.: +49 40 3690010
Fax: +49 40 363842
info@yipin.de
info@remy-hamburg.de
www.yipin.com



Palletizing on pallets

The travelling crane has the advantage of involving any mold handling. Implications in terms of productivity are therefore important. Integrated to the software, the state of the stock is available in real-time, and may be analysed.

This curing system is designed on taking into consideration technical constraints such as the size of existing buildings, the type of manufactured products, and the flow management in the factory.

Demolding and palletizing station

The demolding and palletizing station is made of one elevator/lowerator handling

system, one 180° turning device, and one palletising system with trolley.

The travelling crane handles a stack of molds with dry products located in the curing area, and moves them to the demolding station into the lowerator. Equipped with a lowerator/elevator, the demolding station is working on the same way that the manufacturing station. With its system of rear transfer, it ensures the unloading of the lowerator (molds with dry products), and the loading of the elevator (empty molds).

The demolding operation is done by both rollover (180°) and vacuum. Products are then set up on the palletizing trolley allow-

ing vertical arrangement products. Automatic movable products support enables the constitution of 5 stacks of 20 fences.

Empty molds are then cleaned by flipping over and send back to the elevator to start a new cycle.

Conclusion

The range of equipment type "Atelier du Loir" is designed for offering high performance, whilst improving work conditions.

Fully automatic, the Difal enables to remove manual handling and fastidious and time consuming operations such as mold handling, demolding and palletising, and thus enables to manufacture high-class products cost-efficiently.

Quadra offers custom-made designed and manufactured equipment. They are indeed customized according to production needs, forecast production rates, and type of manufactured products. As global manufacturer, Quadra ensures the full realisation of this equipment from the study to the commissioning. The company Rousseau Clôture has therefore benefited from a comprehensive training carried out by specialised technicians which were validating the production of each product. Also, Rousseau Clôture enjoys a quality after-sale service. The hotline connection allows access to all machine settings and parameters and offers a quick and effective assistance to its clients.

Specialised in this kind of range of equipment, Quadra is able to satisfy any kind of project in wet cast or dry cast production, in Europe and worldwide. This company takes on the challenge of creating technical, effective and efficient plants within existing environment. Production lines are customizable and may be evolutionary with some manual operations, and others semi-automatic or fully-automatic. ■

FURTHER INFORMATION



Quadra
40, route de Findrol
74130 Contamine-sur-Arve, France
T +33 45003 9221
F +33 45003 6997
info@quadra-concrete.com
www.quadra-concrete.com