

Kraft Curing Systems GmbH, 49699 Lindern, Germany

## Consistent Climate for the Production of Concrete Block Paving

Bruk Bet, one of the largest Polish manufacturers of decorative concrete blocks and pavers, may look back last year on 30 years of successful product development, production and marketing of high-quality, aesthetic concrete products for road, garden and patio. To mark their anniversary, the family-owned company with several production locations in southeast Poland has extended its paver production with an additional concrete curing system from Kraft Curing.

The technology of controlled concrete curing is well recognised and valued in Poland. With over 1,000 installed system worldwide, there are more than 30 Kraft Curing systems in operation in Poland today. For that reason Kraft didn't have much explaining to do at Bruk Bet. For its plant in Kielce, Bruk Bet wanted to ensure a high quality product and brilliant consistent colours throughout the production year. A relationship based on over 10 years of experience, 4 curing systems and 2 aggregate heating systems provided Bruk Bet with the confidence to move forward with Kraft Curing Systems for the project in Kielce.

### Low Air Velocity for a Consistent Climate

Specially designed for the production of concrete pavers, the Quadrix™ System

from Kraft Curing, as installed in the Bruk Bet plant in Kielce, ensures a constant air temperature and humidity throughout the hardening chamber. The concrete products harden in a very consistent climate. Strong air flow and draughts are avoided through the gentle circulation of air.

The air temperature and humidity are measured at a minimum of three locations in the chamber. The measured values are acquired and evaluated by the Kraft AutoCure™ control system, which uses the values to control the curing system operation. The climatic data for the chamber can be queried in real time on a touch-screen monitor. In addition, Bruk Bet has the possibility to control the air temperature and humidity independently of each other using heating and humidification/dehumidification components.

The Quadrix Curing System will allow concrete producers to operate throughout the year with only one concrete mix design – no need to operate with a summer mix design and switch to a winter mix design (with additional cement) when the weather becomes colder. This provides a significant cement savings.

The curing costs of a Quadrix Curing System operating at 35°C is equal to between €0,01 and €0,04 per m<sup>2</sup> of concrete products – depending on fuel type, product height and local weather conditions. The use of the Quadrix Curing System will allow the concrete producer to remove products earlier and therefore allow the operation of a second production shift in order to meet an uptick in demand without building a new production facility.



*Picture taken during curing with a temperature equal to 35°C (100°F) and a relative humidity of 100% - dry floor, rails and racks. The air supply duct with louvers located to the right of the picture.*



*Picture of transfer car area taken with chamber temperature of 35°C (100°F) and relative humidity of 90%. The floor and walls are very dry and there is not any fog or haze which is important for the operation of transfer cars using laser positioning.*



Exhaust Unit which is automatically opened and closed depending on the relative humidity of the curing atmosphere in the curing chamber.

### Installed during Production

In order to ensure consistent quality and supportive service from the outset, the customer had the installation of the Quadrix™ curing system carried out by Kraft Curing. This took place in July 2014, with commissioning at the beginning of August. A particular challenge had to be faced in that the customer requested that there be no disruption of operations. Therefore, the construction took place during the night shift and the commissioning of the chamber including the individual adjustment of over 400 ventilation openings took place during full production. Idling in individual chambers was used for the programming of the controller. Zbigniew Lechowicz, Director at Bruk Bet with responsibility for investments in new technologies for production, tells of his experiences with Kraft plants and co-operation with Kraft: "Our co-operation with Kraft goes back a long way. Their Quadrix and Vapor systems have been used successfully in our plants for many years now."

### Frugal Innovation

Kraft Curing will provide concrete producers with drawings and bills of material in order to allow local sourcing of the duct work



Quadrix AHU Heating and Circulation Unit shown outside of the curing chamber prior to the construction of the equipment shed

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Picture of transfer car area taken with chamber temperature of 35°C (100°F) and relative humidity of 90%. The floor and walls are very dry and there is not any fog or haze which is important for the operation of transfer cars using laser positioning.



Curing Chamber Wet-Side-Entry / Dry-Side-Exit for fresh/hardened concrete products; including window, insulated wall and exhaust with heated hood to prevent moisture from escaping into the production area and drips on fresh product

which reduces capital costs, shipping costs and provides economic stimulus for suppliers in the producer's local economy.

Quadrix Curing System can be installed in stages without an increase in total cost: Phase 1: Air Circulation, Phase 2: Temperature and Moisture Control. This concept helps spread the costs over a longer period or provides producers a stepped solution in case they are not sure if they only require circulation or the complete curing control offered by Quadrix.

## Professional Skills Export Tour of Lower Saxony – The State Parliament of Lower Saxony and the Chamber (Guild) of Skilled Crafts learn about Concrete Curing

On Thursday, 29 January, a delegation from the state parliament of Lower Saxony, the state chancellery of Lower Saxony as well as the Chambers of Skilled Crafts of Lower Saxony and Oldenburg visited Kraft Curing Systems GmbH in Lindern. Under the motto 'North German Skilled Craft International', the members of parliament and representatives of the Chambers of Skilled Crafts wanted an impression of the export activities of regional mid-size enterprises on a round trip. Kraft Curing Systems GmbH has already received a distinction in the context of the Lower Saxony Foreign Trade Award.

"The skilled crafts industry has a multitude of great companies that are active abroad with their products and services," said Manfred Kurmann, President of the Oldenburg Chamber of Skilled Crafts, at the start of the export tour on Thursday. "Success in exporting does not necessarily have anything to do with the size of the company. The export tour is a good way to show that", said President Kurmann. "There is nothing better than visiting these companies

on site if one wishes to correctly judge the challenges involved in foreign business."

Kraft Curing, a leading manufacturer of concrete curing systems, with an export portion of 85%, was predestined as a candidate for this investigation. As a skill craft enterprise, Kraft Curing develops, designs, installs and maintains systems for the accelerated curing and improvement of concrete products. Kraft Curing Systems GmbH sells

its products in 56 countries worldwide. With 20 employees at its Lindern-Stühlenfeld location and a wealth of experience gained from 25 years in handicraft work, the company produces sophisticated heating, air-conditioning and control technology with which concrete manufacturers all over the world can increase their speed of production, improve the quality of their concrete products, reduce cement and manufacturing costs. ■



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### FURTHER INFORMATION



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