

Kraft Curing Systems GmbH, 49699 Lindern, Germany

A long-lasting and successful partnership

Kilsaran International, a family-owned Irish company based near Dublin in Piercetown, County Meath, has been an international byword for innovative concrete and asphalt products for over 50 years. In 2007, Kilsaran became the first company in Ireland to build a state-of-the-art production plant for concrete pavers with accelerated concrete curing based on Kraft Curing's Quadrix® system in order to allow for secondary processing immediately after the products exit the curing chamber. Quadrix controls heat and moisture with an accuracy of $\pm 1^{\circ}\text{C}$ and $\pm 3\%$, regardless of the size and shape of a curing chamber, ensuring consistent concrete quality with significantly reduced curing times.

Due to their experience with the Quadrix technology and in response to increased market demand, Kilsaran acquired Kraft's second and third Quadrix Systems in 2014, as replacements for existing less efficient and effective curing systems,

for a total of three Quadrix systems. As a result of replacing the earlier curing systems and complete new insulation of the curing racks and transfer car area into single atmosphere curing chambers by Kraft, Kilsaran achieved a six-digit yearly savings in fuel and cement consumption costs while increasing quality in both strength and appearance. The ROI on the two new systems was 1.5 years.

In 2018, the Kilsaran management decided to further expand its offering with the addition of a production line for concrete paving slabs - incorporating an Ocem hermetic radial press and SR Schindler handling and secondary processing equipment. Due to market demand, Kilsaran required the output of a two-shift operation without the investment of extra curing space, racks and pallets traditionally necessary for a two-shift operation. For this reason, Kilsaran, based on its long relationship with Kraft Curing and Kraft's over 20-year experience with the accelerated curing of concrete slabs, chose Kraft as the only reliable alternative.



Nine independently controllable individual chambers form the new curing system for concrete slabs from the radial press and allow Kilsaran maximum flexibility in production.



Kraft's managing director Sascha Kansy shows a Vapor Mini without sound enclosures.



An insulated ducting system provides for a simple, effective and clean distribution solution without energy loss and free of corrosion – a durable solution!

Vapor and flexibility

Kraft recommended a vapor curing system, because only direct-fired vapor provides sufficient heat transfer energy for such a shortened production routine. Kraft has successfully commissioned over 30 similar production lines in numerous projects in Germany, Poland, the United Kingdom and in North America in recent years. Kraft has been manufacturing vapor generators for over 30 years and had the experience to design a system ideally suited to the customer's needs.

"In contrast to a conventional steam boiler, Kraft's direct-fired vapor generator operating at 98% efficiency, reduces energy costs by 50%, requires 90% less maintenance, requires no boiler permit, has no exhaust flue and does not pollute the environment. The vapor generator produces 10% carbon-dioxide rich vapor which carbonates the concrete – increasing the surface density (reducing or completely blocking the capillaries at the surface of the concrete) and prohibiting the occurrence of secondary efflorescence while increasing the hardness of the edges, corners and surface allowing for early secondary processing. The carbon-dioxide, a result of the combustion of gas and air, is completely absorbed by the concrete. This means no harmful greenhouse gas is produced," explains Michael Kraft.

A competent Turn-key supplier

Kilsaran wanted to keep production as flexible as possible and, in addition, have as little additional storage space dedicated to curing as possible despite a two-shift production schedule. Kraft was entrusted with the design and planned a chamber consisting of nine fully insulated passages that are operated independently of each other. In addition to the vapor generator, Kraft's supply consists of its heavy-duty hot dip galvanized rack, insulated walls, ceiling and insulated aluminum roller-shutter doors, stainless-steel vapor control

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Precise control: each individual chamber has its own vapor supply using high-quality stainless-steel components and steel jacketed mineral wool insulation for a clean, durable and economical solution.



Obsessed with detail: Kraft fitters foam all joints between the sandwich panels for an airtight enclosure prior to affixing the flashing to prevent any heat loss. This detail eliminates the formation of condensation and prevents corrosion while reducing energy costs.

valves, air circulation system for a consistent curing climate throughout each chamber and an exhaust system for product drying after curing to allow for immediate secondary processing and for the application of various surface coatings.

The vapor generator used in this project is one of the smallest models from Kraft, a so-called Vapor Mini Plus. The unit has a footprint equal to 1 m² (10 ft²). However, this small package delivers a powerful advantage: the VaporMini is capable of efficiently and effectively curing slabs in order to allow for secondary processing within 8 to 10 hours after production.

Service, service, service

The supply of capital curing equipment is only as successful as competent, economical and reliable service support. Kilsaran is impressed with Kraft's cost-effective bi-annual service inspection visits which ensure that the equipment is operating at peak efficiency and safety while preventing possible down time due to unforeseen issues. This fourth curing system will be maintained during the same scheduled preventative maintenance intervals as the existing three systems - providing an economical solution for Kilsaran. Just one of several benefits of a mutually successful partnership between Kilsaran International and Kraft Curing Systems.



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