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Stradal-Group extends production of individual manhole bases to second French site

The name Stradal is not only synonymous in France with high-quality concrete products for civil engineering and garden and landscape design. The group with a total of 40 sites throughout France has been part of the CRH Group since 2005 and is one of the leading suppliers of concrete pipes and manhole elements, with customers throughout the country and in neighbouring countries. To enhance the market position in the manhole components sector and build on it, 2008 saw the start of a Perfect production system for the production of custom-fit SVB manhole bases at the Fontenay sur Loing plant in the Loiret Département near the Paris region. Such was the quality of the manhole bases produced that Stradal quickly made the strategic decision to equip another site with a Perfect manhole production system and the choice was the Kilstett plant near Strasbourg. An additional production hall was set up specially here for the new manhole base production and the new Perfect system was launched in the Winter of 2009/2010.

Mark Küppers, CPI worldwide, Germany

At the Kilstett plant Stradal recently launched the second Perfect manhole base production by Schlüsselbauer

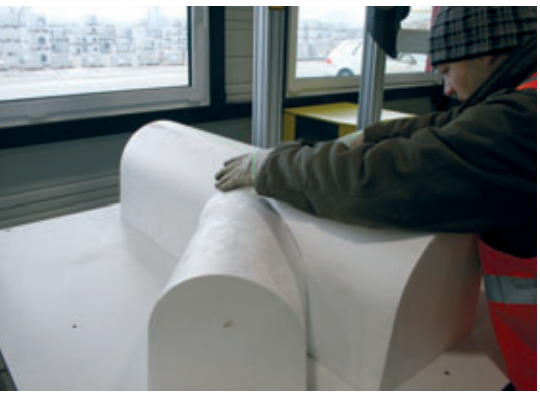
The plant in Kilstett was incorporated into the Stradal-Group in 1995, thus making the Kilstett site the hub for production in the Eastern France region of the two product groups, sewer construction and landscaping. Nowadays Kilstett houses one of 12 production plants, manufacturing products for the entire range of civil engineering. The Stradal-Group employs a total of 1500 people at its 40 sites in France and had a total turnover of 260 million Euro in 2008. The origins of the plant in Kilstett go back to the company Sprauer & Schiff founded in 1913 that specialised in the manufacturing of cement products. The plant in Kilstett was already producing products for sewer construction since 1928 and in 1970 kerbstones were added to the product portfolio, and a few years later saw the start of the production of concrete goods including cobble stones and stone slabs. While these product lines have been constantly further developed, the focus has always been and still is in the area of civil engineering. The acquisition of a manhole ring machine in 1987 led to the automated production of pre-cast concrete parts for civil engineering, which has since been continuously expanded. For example in 1996 the production of manhole bases started in Kilstett and a simple turning machine was purchased for this back then. The new Perfect manhole base production from Schlüsselbauer has brought this development to a significant milestone. As one of the leading producers of concrete manholes, Stradal uses the new Perfect production to meet the rising demand for SVB pre-cast parts in France, further enhancing its economic position in the French market with the strategically located Kilstett site and strengthening its market leadership in the east of France. When it came to making a decision to invest in the new Perfect production, the crucial arguments alongside the positive experiences with the pilot system at the Fontenay site and the long-standing business relationship with Schlüsselbauer, were the aspects of the profitability of this production system and product quality. Stradal was already successfully using Schlüsselbauer machine technology in other plants, like the automatic Magic-system for manufacturing manhole rings and cones, even before the installation of the first Perfect production system. The innovative manufacturing process for individual manhole bases and the superlative quality of the end products were enough to convince Stradal to further invest in this manufacturing process.

The Stradal-Group has sites throughout France

Second Perfect production system with extended product portfolio

An additional hall that now houses all the technology of the Perfect-production system has been added for the new Perfect-production system to the existing hall that houses the manhole ring production. An open space in the old hall serves as a storage and hardening area for the freshly cast manhole bases. The entire system has been planned in line with ergonomic criteria and equipped with state of the art safety engineering that meets the requirements of the CRH Group and traditional French guidelines. Alongside extensive photoelectric barriers in all accessible areas and safety locks on all doors to the working area of the automated system, workers in the Perfect production system are also assisted by lighting built into the extraction unit. Following the experience in the first Stradal Perfect pro-

The clever cutting system provides three-dimensional cuts



The individual cut sections are put together, the channel courses shown by a laser projection help to correctly position the moulded parts

The channel sections put together are given the last precision cuts

duction system in the Fontenay sur Loing plant, the production in Kilstett has been equipped with a few new mould types, representing a targeted response to current market requirements.

Hot wire sawing technology provides the right channel

At the start of the production of a monolithic manhole base with individual invert, is the manufacture of a negative body of the channel made of EPS hard foam. For this, firstly all relevant parameters of the individual inverts are taken from the order entry. Using the Perfect software, at this stage each component is designed individually and exactly in accordance with the project requirements. This design data goes to all workstations involved in the production and the production system thus gives the workers all the information required for each individual production phase. Using sophisticated cutting technology with hot wires, the individual parts of the subsequent channels can be formed with two-dimensional and three-dimensional cuts. The individual parts are then joined together by an operator using hot glue. A permanent laser projection of the centre lines of all channels sets the exact positioning when the individual parts are being combined and also serves to check that all connections are correct. Additional cutting stations give the joined recess unit its ultimate shape. If pipe connections with integrated seals are provided, recess units with integrated seals are stuck onto the channels at this production stage.

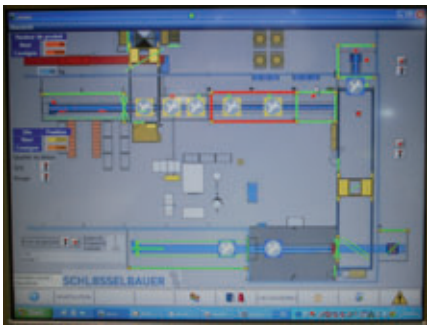
SVB in one go

The finished EPS-channels are fitted into the cleaned moulds complete with release agent. Magnet technology provides the correct fixing for the negative channel sections and prevents the light EPS material from floating when the moulds are subsequently filled with concrete. The moulds are now tightly sealed and sent automatically via the

The prepared moulds drive automatically into the casting station

The bucket conveyor in the nearby hall also provides the Perfect production system with SVB

The casting head on the station ensures the mould is properly filled



With digital implementation of the entire production process, the system operator always has an overview. In the situation shown, a photoelectric barrier has been crossed (red area), causing the system to stop immediately

The freshly filled moulds are brought to the storage area in tipper trucks

conveyor belt into the casting station. Via his control panel, the machine operator at this station not only has the casting process under control, but with digital imaging of all system sections, always has a view of the entire production process. A new Teka mixer was specifically acquired for the manufacture of self-compacting concrete and incorporated into the existing mixing tower. When ordered by the machine operator, the concrete is delivered for manhole base production and the moulds are filled fully automatically. The system detects when sufficient concrete has been filled and the machine operator can of course manually intervene at any time. The filled mould is now driven automatically out of the station and the next prepared mould moves up. The mould just filled is lifted by

The hardened manhole bases are removed from the open mould with the gripper of the crane rail….

…turned 180° during transport…

…and set onto the conveyor belt to the last processing station, in which the EPS mould bodies are removed from the manhole bases.

Removal and recycling of the recess units

Finished manhole base before it is transported to the external storage area

the tipper truck and driven to its destination in the hardening store. It stays there for 24 hours or 2 days – depending on the weather conditions – before the mould is opened again for the manhole base to be removed.

De-moulding and turning device

The tipper truck brings the moulds with the hardened manhole monoliths to the de-moulding station. Here the mould is first opened and then driven via a conveyor belt under the gripper of the crane rail. The gripper lifts the manhole element and takes it out of the mould. Then the crane rail moves the pre-cast concrete part while at the same time turning it 180° and sets it onto a wooden pallet on a conveyor belt. The manhole base remains on this wooden pallet until it is time for it to be fitted. From this conveyor belt, the de-moulded manhole bases, which after their overhead production are now in the fitting position on the pallet, get to the last stage of the production. Here in the last work stage, the EPS negative channels are removed from the manhole base. The pivoting extraction unit with built-in lamp provides excellent light in the working area. After the moulded parts are fully removed, the monolithic manhole bases are checked again, given a comprehensive product marking and then sent via the conveyor belt into the external area of the production hall. From here the manhole bases are brought by forklift to the external storage area. The EPS moulded parts removed are placed in a specially designated shredder and crushed. The material is collected in bulky sacks and sold on.

Huge demand for monolithic-structured pre-cast parts

With the launch of the second Perfect production system, Stradal can now better respond to customer requirements for monolithic manhole bases with individual moulded products. Here the Stradal Group sees its own clear advantage in the sewer construction business. Based on the experiences with the implementation of this second Perfect production system, the top product quality achieved right away at the second production site too and the reduced workload for the staff as a result of automation in the production, the Group feels validated in this renewed investment right after the launch.

FURTHER INFORMATION

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