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Tiba brings resource-efficient manhole base production on stream

South of Vienna in the Austrian town of Sollenau, a Perfect manhole base production system was brought online at the start of 2014 by Tiba Austria GmbH, specialists in the production of pre-cast concrete elements for the civil engineering industry. The company sees this investment as filling a strategic gap in the manufacture of premium quality sewerage sections. With these fluid concrete monolithic bases, the manufacturer now offers a complete range for the piping and manhole construction industry. In addition to the high quality of the bespoke concrete channel, which is produced using EPS preformed parts, the sustainability of the overall process and of course the actual production costs themselves were critical in influencing the decision-makers at Tiba to opt for this system. Their decision was also based on the fundamental change in the market towards the use of monolithic, wet-cast concrete manhole bases with a customized channel hardened in the mould. In recent years these elements have become the recognised state-of-the-art for manhole construction in an increasing number of countries. The Perfect production system developed by the Austrian company Schlüsselbauer is already being used by over 30 suppliers and is characterised by the triple aspects of over all product quality, the use of integrated gaskets and an optimised approach toward resource consumption.

Only fluid concrete is used in the Perfect process. This then cures in the formwork and thus ensures the geometric precision of all joints alongside a high-quality surface with an extremely low water penetration depth. Using concrete with a maximum aggregate size of 16 mm allows watertight and pressure-resistant precast concrete components to be produced.

When it comes to shaping the channel, it is the surface quality of the EPS preformed parts that is so critical to the final finish of the concrete channel. During the Perfect process, the shaped surfaces are so smooth that no coating or any other post-treatment of the concrete channel – including the considerable expense in time and resources – is required.

As well as high-quality concrete, a Perfect concrete base features embedded gaskets to largely rule out the most common causes of leaks in channel systems – the improper attachment of pipework to the manhole – right from the outset. These gaskets, which are available for numerous types of pipe, are firmly embedded in the fluid concrete on one side and are therefore already permanently fixed in the manhole base before it arrives at the construction site. Damage and subsequent leaks or delays to the construction work caused by contamination, loss or inadvertent use of the wrong sealing elements become a thing of the past. The use of embedded gaskets was another key criterion for Tiba when selecting the production system.

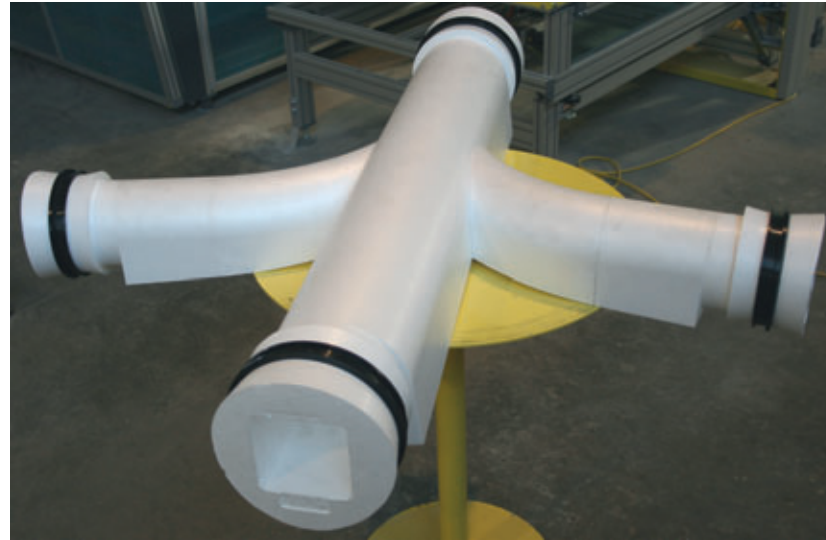
Last, but by no means least in the eyes of this manufacturer committed to environmental protection, the ecological sustainability of the future production process and the ergonomic needs of staff were at the forefront of their considerations. EPS has proved itself over the years to be the perfect material for the production of individual channel profiles. As an oil-based material, only as much should be used as dictated by process and quality requirements. Schlüsselbauer has therefore developed EPS preformed parts, which, thanks to intelligent shaping and additional system components, permit the more economical use of EPS. The material is recycled after use. In actual fact the production process for channel negatives is extremely simple: the



The Tiba manufacturing plant in Sollenau, Austria



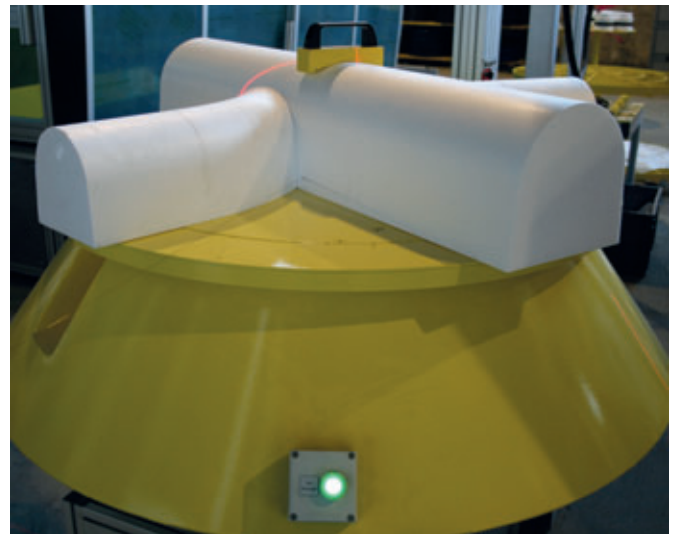
1. Perfect manhole base made by Tiba



Example of a channel negative created from Perfect EPS preformed parts



Even complex channel configurations can be easily realised thanks to the Perfect production system



Using hot wire cutting technology, the EPS preformed parts are cut into individual elements in line with customer requirements

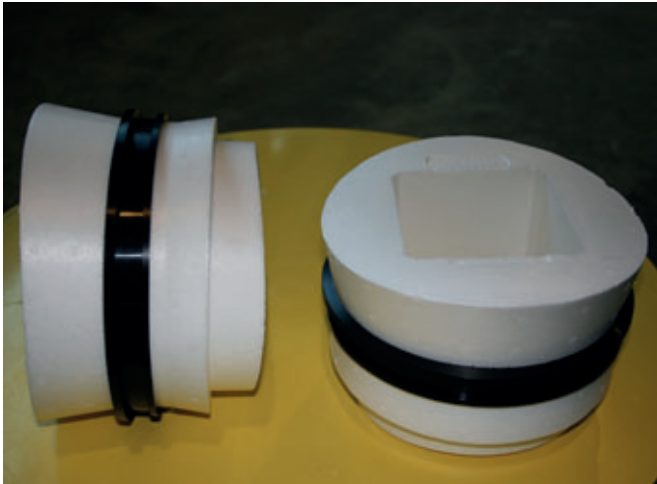
software used to design the individual manhole bases is also responsible for issuing all the control commands to the hot wire cutters. Automated machines then cut the components needed from the existing preformed parts that already have the desired nominal width. Different junction angles, channel inclines and pipe connections are all taken into account, as are the pipe connection types – ideally with embedded gaskets. The operator assembles the elements manually, places the channel negative in a steel form and applies the release agent. After sealing the moulds in nominal widths of DN600, DN1000 and DN1500, these are then filled at Tiba using a crane track and concrete bucket. On the next working

day, the cured manhole bases are taken from the steel formwork and the EPS preformed parts are removed. The design of these preformed parts not only simplifies their removal, but also keeps the material usage – and therefore recycling volumes – associated with the channel negatives to an extremely low level.

An efficient approach to resources, especially in the field of production supplies and product components, is a guiding principle of all Schlüsselbauer manufacturing plants. As already mentioned, this is particularly relevant in the use of EPS preformed parts to produce manhole bases. Yet resource efficiency is also the hallmark of a new Schlüsselbauer system for concrete-plastic

compound pipe called Perfect Pipe. In this application, a plastic liner with a wall thickness of just 1.65 mm is firmly anchored into the concrete as permanent protection against corrosion. Thanks to this exceptionally thin liner wall, the need for products based on fossil raw materials is kept to an absolute minimum.

The principle of saving resources even spreads to the machinery in manufacturing plants that use the vibration compacting process. By oiling steel sleeves using an innovative sponge technique, release oil consumption in Schlüsselbauer plants has been dramatically reduced compared with the spraying process. Tiba recently installed an automatic manhole ring production sys-



Perfect EPS preformed parts are ready for use without any additional treatment for the production of high-quality channel surfaces



Watertight pipe connections thanks to integrated gaskets firmly embedded into the concrete

tem from Schlüsselbauer at their Tillmitsch site (reported by the CPI in their 1/2010 issue), in which this type of pallet-oiling using sponges is carried out. Tiba and Schlüsselbauer share a resource-efficient approach to manufacturing as a result of their many years of close collaboration.

As well as the sewerage technology product segment, to which the construction elements in this report ultimately belong, the Tiba product spectrum also covers environmental technology, drainage technology and transport technology. Environmental technology not only includes water technology, it also covers separation, treatment and conveying technology.

Transport technology comprises concrete traffic guidance elements under the Citybloc name as well as guide post, lamp post and road sign foundations. Lastly, the drainage technology segment covers all the products that – together with sewerage technology – provide the full range of construction elements for the pipeline construction industry – pipe, drains, rings and covers. Boring, bonding and sealing solutions as well as the Aqua-clean programme for using rain, drinking and spring water also belong to this segment. Tiba Austria GmbH is a wholly-owned subsidiary of the company Kirchdorfer Fertigteillholding GmbH and is a member of an international group of manufacturers of pre-cast components for the structural and civil engineering industry, construction elements for the rail and road industry, and bespoke pre-cast components for customers in a variety of sectors. ■



The intelligent design of the preformed parts simplifies the demoulding process and reduces the volume of recycling material

FURTHER INFORMATION

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