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Monolithic up to DN1800 – Tracey Concrete enters a new dimension in the production of customised concrete manhole bases in UK and Ireland

Since more than 10 years the Perfect manufacturing system conforms to the latest accepted state of the art to produce custom-made wet-cast monolithic concrete manhole bases. In particular the excellent quality of the tailored concrete channel, which is produced by using pre-formed polystyrene rigid foam parts as well as an optimised resource management that leads to high economic efficiency are reasons for the international success of this production system developed by Schlüsselbauer Technology. Tracey Concrete, one of the largest precast concrete manufacturers in the UK and Ireland, is the next prominent plant that recently launched its production of wet-cast, monolithic concrete manhole bases with individually tailored channel configuration. Beside the qualitative arguments Tracey Concrete took the decision for the Perfect technology also because of the fact, that this manufacturing system allows the production of mono bases with very large diameters. Thereby, the company is now to produce individually tailored manhole bases in diameter DN1800 that are made in only one pour with a proven industrial process.

■ Ralph Mitterbauer,
Schlüsselbauer Technology GmbH & Co KG, Austria ■

The traditional Northern Irish company Tracey Concrete Limited is situated in Enniskillen, County Fermanagh and produces a wide variety of top quality products, such as pipes, jacking pipes, manhole bases, manhole rings and other precast concrete components that are used for different sewage and water drainage systems. Over the last 30 years, the company has become well known as a competent and reliable supplier of major construction projects throughout the UK and Ireland. For example as part of the construction of Terminal 2 of Dublin airport or during the highway A8 upgrade from Belfast to Lane.

In both cases concrete pipes and manhole components from Tracey concrete were used. The strategic investment in the Perfect manufacturing system from Schlüsselbauer Technology represents the next logical step for the company to approach and to expand a leading position in the Anglo-Saxon precast concrete market.

World premiere: Monolithic Perfect manhole bases from one pour up to DN1800

Due to local regulations regarding maximally permitted pipe connection sizes it was one main concern for Tracey Concrete that the new manufacturing system is able to produce monolithic manhole bases with individually tailored channel configurations

also in large diameters up to 1800 mm. The Perfect method makes it possible for the first time to manufacture bases of this diameter in an economic and mainly automated process. The scope of supply of the Perfect manufacturing system included a dozen of casting moulds with can be used to produce concrete mono bases in nominal widths of DN1200, DN1500 and now also in a diameter of 1800 mm that are all made in only one pour. The height of the manhole components differs from 700 mm at DN1200 up to max. 1600 mm at DN1800 and can be easily adapted in the mould apparatus. The wall thickness differs from 150 up to 300 mm in the maximum version. The manhole bases can be equipped with or without step rungs. Optionally, Tracey



Company premises of Tracey Concrete Limited in Enniskillen, County Fermanagh Northern Ireland.



Monolithic concrete manhole bases with individually tailored channels from the current production.

also offers its customers manhole bases with pre-integrated lifting anchors to make the handling on the building site safer and faster.

Individual and flexible: The Perfect manufacturing system

The exact and flexible dimensional accuracy of channels and pipe connections is the critical factor in the production of manhole bases. With the Perfect system Schlüsselbauer Technology developed a time-tested and permanently improved solution which makes it possible to manufacture concrete manhole bases cast in one pour and allows for virtually every functional channel configuration. Infinite variability of the angulation and incline of all inlets makes it possible to optimise the flow behaviour throughout the course of the channel. Areas of congestion and unwanted turbulence are avoided by maintaining a constant incline throughout the entire section of channel. The optimised hydraulic lowers abrasion and leads to longer maintenance cycles too. The system allows the easy production of all channel configurations that are required by communal sewage systems in only one manhole base. Any requested changes of direction, diameters, multiple outlets or differing heights of the berm can be considered too.

Another advantage of the Perfect manufacturing system is the possibility to use factory-integrated gaskets. If required, seals are pre-assembled on the simulating pipe connection forms in the plant and are firmly bonded with fluid concrete afterwards.

In the Perfect process only easy or self compacting concrete is used that cures in the formwork. Thus, it ensures the geometric precision of all joints alongside a high-quality surface with an extremely low water penetration depth. Beside the high level of resistance to chemical attacks, concrete manhole bases manufactured in one pour display excellent scientifically tested characteristics relating to compression strength and abrasion resistance.

In combination with the consistent packing tightness of the components monolithic structure an estimated product lifetime of the Perfect manhole base of more than 100 years can be achieved.

Tailor-made channels due to intelligent moulding program

By choosing the Perfect manufacturing system Tracey Concrete is able to produce cus-



Tracey Concrete produces customised concrete manhole bases with a diameter of 1800 mm by using EPS forming parts.



The high quality concrete surface of Perfect manhole bases contributes to an estimated product lifetime of more than 100 years.

tomised manhole bases with individually tailored channel configurations that are made in only one pour. The centrepiece of the Perfect technology is an elaborated moulding program for the individual channel configuration. Prefabricated elements made from polystyrene rigid foam (= EPS), like arcs, straight lines or pipe connection

moulds can be easily fixed together to one single negative mould unit. On behalf of Schlüsselbauer the EPS-mould parts were already designed in such a way that commonly used channel configurations can be produced with a minimum of material input. Necessary cuttings are done by a sophisticated hot wire technology. All data is trans-



Computer-controlled hot wire cutters are used to cut the negatives for the required channel components accurately.



Exactly shaped pipe connection form made from EPS (polystyrene rigid foam).

ferred to the saws from an easy to operate planning programme, which is previously used to configure the manhole base on the computer.

Thanks to the Perfect moulding program Tracey Concrete is able from now on to produce all pipe and channel diameters from DN100 to DN1000 in a precise and easy way. In order to satisfy specific customer requirements quickly it is very important for Tracey, to possess an automated large-scale production of manhole components with individual pipe connections and channel configurations. The exactly tailored channel components made from polystyrene rigid foam are then glued together to one single unit. Afterwards the finished negative channels are placed into the steel moulds. After the closing of the moulds they are filled with fluid concrete using a crane track and a concrete bucket.

In this way, complete manhole bases with bottom, wall, berm and requested channel are produced in only one work step. The products cure in the mould and can already be removed on the next working day. First both halves of the casing are pulled apart manually. Afterwards the component is taken out by a gripper, turned 180° and is set down in the end. Following up, the rigid foam parts are removed from the manhole base by using simple tools.

Strong market position for concrete manhole components in UK and Ireland

The declared aim of Tracey Concrete is to improve its strong market position regarding product quality and production costs in the segment of manhole components.

The Perfect technology allows the company to manufacture top-quality concrete manhole bases with precisely fitting pipe connections that are made in only one pour in a very short time.

Patrick Thomas Tracey, CEO of Tracey Concrete sums it up: "The decision for the Perfect manufacturing system from Schlüsselbauer Technology is a milestone for our company on the way to the market leadership in the manhole production segment in UK and Ireland. In particular we see the possibility to satisfy specific customer requirements in an economic and mostly automated production process as a strategic advantage that definitely stands out from the competition."

FURTHER INFORMATION



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