

Schlüsselbauer Technology, 4673 Gaspoltshofen, Austria

Matbet Beton is the next concrete plant in Poland to start the production of wet-cast, monolithic concrete manhole bases

The company Matbet Beton, which is based in Tarnowo Podgórne, only a few kilometres west of Poznań, is continuously working to support the improvement of the environmental situation and therefore also the living conditions of the people in Poland through its concrete technology solutions. The company primarily focuses on the production of pre-cast components for civil engineering that comply with the highest international standards and, in doing so, has earned itself an excellent reputation throughout Poland. The company's motto is to provide all customers, irrespective of their size, with high-quality products in a timely fashion. In order to be able to achieve this type of product quality, Matbet Beton relies upon its state-of-the-art production lines. This approach was demonstrated by investing in a production line of the Perfect concrete manhole bases by Schlüsselbauer Technology in Austria, which commenced operation in March 2015. Perfect concrete manhole bases have established a position the market as tailor-made solutions for channel construction and are already being produced in 35 concrete plants throughout Europe. Perfect pre-cast concrete parts are equally well-suited for use in infrastructure construction and for the development of industrial sites as they are for urban water supplies and sanitation.

■ Mark Küppers, CPI worldwide, Germany ■

Matbet was founded in 1987 as a private production company, which was owned by Tadeusz Banaszyk until 2002. In 1989, Tadeusz's son, Tomasz Banaszyk, founded and managed Matbet-Bis and is now responsible for both companies. At the start of 2005, Tomasz Banaszyk founded the company Matbet Beton whilst in the process of scaling up production. One of the most important milestones in the company's development was the construction of an additional production hall, in which a production machine of the Magic type manufactured by Schlüsselbauer Technology is now in operation since autumn

2005. This production plant for manhole components such as rings and cones, as well as for drainage well components and OG-pipes, produces high-quality civil engineering products on a daily basis.

In just over 25 years, the company has made tremendous progress in terms of technology and investments. In Poland, it is a pioneer in regards to its use of technological solutions and quality standards. The services provided by Matbet Beton are heavily oriented towards ecology and protecting the environment. The company has received several awards in the past, as a result of the strong position Matbet Beton has in the Polish market.

At its plant in Poznań, Matbet Beton produces concrete rings, concrete base elements, concrete collecting tanks and concrete manholes, as well as concrete pipes and reinforced concrete pipes in high quantities with its modern, computer-guided systems. It can therefore offer complete solutions for the construction of drainage, sanitary and rain water systems. Matbet Beton is one of the largest manufacturers of reinforced concrete rings and pipes in Poland. All of the products produced are accompanied by the necessary certification and fulfil all of the necessary quality standards. The main production programme is supplemented by road and fencing elements.



Matbet concrete plant in Tarnowo Podgórne, Poland



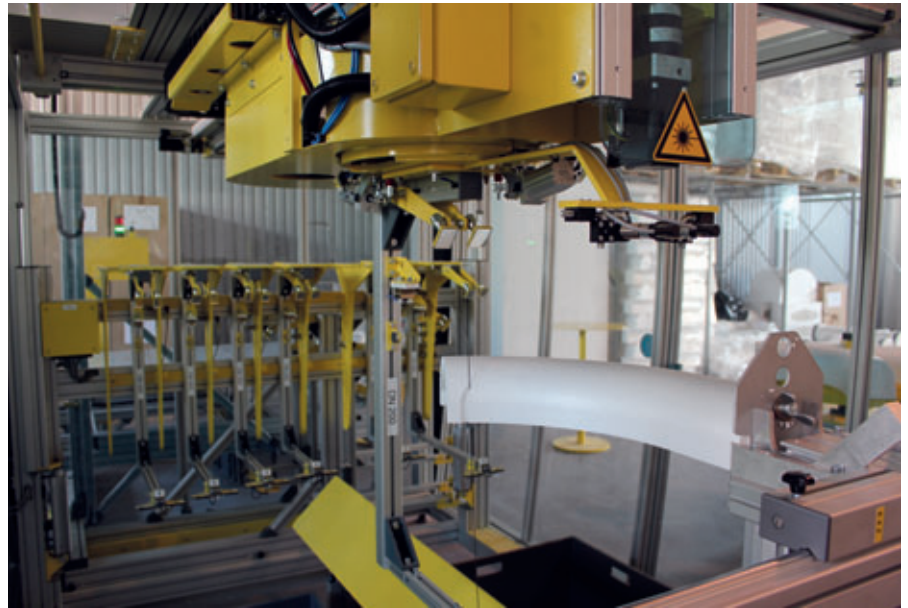
Matbet Beton is one of the biggest manufacturers of reinforced concrete rings and pipes in Poland.



In use at Matbet since 2005: production machine of the Magic type by Schlüsselbauer Technology

The Perfect concrete manhole base – Individuality as a result of flexible manufacturing

The individual, dimensional accuracy of channels and pipe connections is the critical factor in the production of manhole bases. Schlüsselbauer Technology developed a solution many years ago in the form of the Perfect system, which makes it possible to manufacture concrete manhole bases cast in one pour and allows for virtually



Two-dimensional and three-dimensional hot wire cutters are used for cutting negative channels.

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. With the Perfect system, arduous manual work is also replaced by industrial manufacturing technology with ergonomic workstations for the operators.

Tailored channels with the help of hot wire cutters

The first work step in the production of a Perfect manhole base is the manufacture of a negative mould made from polystyrene rigid foam. The required individual moulded parts made from prefabricated basic elements are cut to size. A number of different two-dimensional and three-dimensional

hot wire cutters are used for cutting. Under the guidance of a computer system, these saws cut the exact individual components required for the channel configuration out of the main body. All data is then transferred to the saws from the easy-to-operate planning programme, which was previously used to create the manhole base on the computer. All product parameters are requested via an entry screen on the configuration tool and the manhole base is designed accurately as guided by the programme and depicted graphically at the same time.

The individual negative channel components made from polystyrene rigid foam are cut exactly to shape, so that they can be easily assembled using hot glue to form a single unit, without further manual processing. In order to verify the accurate positioning of the individual components, a laser is



In order to check accurate positioning of the individual components, a laser is positioned over the workbench, which continuously displays inverted of the manhole on the workbench.



Subsequent fitting of the pipe connection pre-cast components with prefitted seals



Insertion of a pre-cast negative channel in a steel mould



Matbet Beton concrete is then poured using a 2 m³ container by Schlüsselbauer Technology



The concrete elements are produced on their head – the visible concrete surface in the mould is what will eventually become the bottom of the manhole base.



Turning device for components weighing up to 9 t



The components are turned 180°.

positioned over the workbench, which continuously displays all floor-lines of the manhole on the workbench. After adhering, the entire negative channel is cut proportionally to the manhole diameter and then supplemented with the required pipe connection pieces. As appropriate, negative moulds for pipe connection with prefitted gaskets are used. These integrated seals are then cast in concrete together with the channel in a joint working step and form a strong connection with the component. Using integrated seals means that these do not need to be installed on the construction site. The tightness and permanent connection between the pipe and manhole base are guaranteed.

Simple installation and fixation using magnets

The pre-cast negative channels can then be incorporated in the steel moulds. The scope of supply of the Perfect manufacturing system by Schlüsselbauer Technology also includes numerous moulds that enable Matbet Beton to manufacture monolithic concrete manhole bases in diameters of 1,000, 1,200 and 1,500 mm. The height of

the manhole components can be easily adapted in the mould apparatus.

The two-part outer mould can be pulled apart easily. The inner mould is therefore easily accessible for cleaning and setting up in preparation for its next use. After the negative channel has been fixed onto the core base, the two halves of the mould are put back together. The mould is tightly closed using a manual locking mechanism. Magnets keep the negative channel in position and prevent buoyancy while the moulds are being filled with self-compacting concrete. Matbet Beton concrete is then poured using a 2 m³ container, which also forms part of the scope of supply of Schlüsselbauer Technology. The container hangs on a crane track, which covers the entire hall area. This means that every mould can be operated rapidly. Concrete can be easily dispensed using a locking lever on the container.

Turning device for components weighing up to 9 t

The monolithic concrete manhole bases cure in the mould and can be demoulded

the following day. As the concrete elements are produced upside down - the visible concrete surface in the mould is what will eventually become the bottom of the manhole base - these must be turned 180° to what will eventually be the installation position. This task is carried out by the turning device of Schlüsselbauer Technology, which, thanks to its 9 t of turning force, is sufficiently proportioned to handle the larger diameters that are expected in the future.

The mould is opened at the start of the demoulding process and both halves of the casing are pulled apart manually. The turning device hangs on crane hooks, like the concrete containers before it. The grippers of the turning device are used to carefully clamp the manhole base using force locking and slowly lift it from the core of the steel mould. The negative channels remain in the cured concrete manhole element for the time being. The manhole bases are transported to the storage area provided in the hall. The turning process takes place during transport so that no time is lost. The gripper is released once the component has been set down and the turning device



A label containing all relevant details and parameters is applied to the pre-cast concrete manhole bases.

proceeds to the next mould. An employee sticks a label containing all of the relevant data and parameters to the manhole surface of this exact component. The custom-made monolith can therefore be precisely attributed, right up until the moment at which it is installed.

The channel negatives made from rigid foam must now be removed. At Matbet Beton, the manhole bases are transported to another hall using a forklift truck in order for this removal to take place. The negative channels and connections are then manually removed from the concrete manhole base by an employee using simple tools. A member of staff then sprays the Matbet logo across the casing of the monolith. The Matbet Perfect concrete manhole base is then complete.

Market entry at the right time

The main concern for Matbet Beton is the quality of the pre-cast concrete components. After all, the company is famous throughout Poland for its level of quality and reliability. Tomasz Banaszyk can see a clear future with this monolithic concrete manhole base and he believes that with the Perfect manhole element, his quality requirements are being completely fulfilled. Since the Perfect system has been around, the company has consistently followed its development. Tomasz Banaszyk believes that the benefits lie in the simplicity of the production processes and the fact that the moulds are low maintenance. According to Tomasz Banaszyk, the Polish market is now

finally ready for monolithic concrete manhole elements and numerous activities are being commenced in order to establish the product on the market. Matbet Beton delivers the concrete manhole bases directly to its customers. Part of the marketing offensive also involves unheralded supplies of individual Perfect manhole elements in order to illustrate the increase in quality in comparison with manhole bases manufactured using conventional methods. This is done to create a higher level of interest and awareness about the product, since the market must be created first of all. Another focal point in the marketing process for Matbet Beton involves making relevant decision-makers more familiar with the system. Specific people will be invited on site to gain an insight into the production process and the benefits of monolithic concrete manhole elements.

With quality in a secure future

Even the very first concrete manhole bases impressed Matbet Beton due to the level of quality achieved. Nevertheless, the company is still in the process of analysing the best concrete mixture for the respective product. This can also be seen in the continuous further developments in the formula for the Perfect manhole. In addition to reliable suppliers for aggregates, cement and concrete chemistry, Matbet Beton has also set up its own concrete laboratory specialising in this subject. The entire production phase is monitored here as well, so that customers can always be offered pre-cast concrete components of a very high and consistent quality. ■

Watch a video about the production of new Perfect manhole bases at Matbet:



[www.cpi-worldwide.com/
cpi-tv/video/schlusselfbauer](http://www.cpi-worldwide.com/cpi-tv/video/schlusselfbauer)

Simply scan the QR code using your smartphone and watch the video!

FURTHER INFORMATION

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