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Boisclair et Fils in Canada are Pleased to Report Growing Demand in their Monolithic Concrete Manhole Bases

■ Mark Küppers, CPI worldwide, Germany

Boisclair et Fils is specialized in the production of pre-cast concrete elements for infrastructural projects both for the water and wastewater sector and the electricity and telecommunications branches. With a history stretching back over 60 years, the company has built up an excellent reputation and today produces a wide product range designed to serve these industries at two locations in the Province of Quebec. Boisclair et Fils is headquartered in Piedmont, with their second plant only about a 20 minute drive away in Mirabel. Following an extensive expansion of the Mirabel plant, in 2015 Boisclair et Fils became the first manufacturer in the Province of Quebec to begin production of Perfect monolithic concrete manhole bases, using an industrial manufacturing system for individual monolithic concrete manhole bases from Schlüsselbauer Technology in Austria.

Boisclair et Fils is a highly regarded Canadian manufacturer specializing in the production of certified pre-cast concrete products. The company places an emphasis on quality and has attained numerous certificates over the years. Its dedicated, experienced staff help to ensure that the company's clients receive nothing but high-quality, pre-cast concrete products.

The company was founded in 1955 by Ubald Boisclair, producing only dry-cast products for its first 25 years. Boisclair and his employees then began producing wet-cast products in 1979. His son, Philippe Boisclair, took over the running of the company in 1985, and the product range has continued to grow ever since. In 2012, Boisclair et Fils was passed on to the third generation, with the founder's grandchildren, Suzanne, Valérie and Éric Boisclair, assuming transition.



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Mold station for the production of Perfect concrete manhole bases



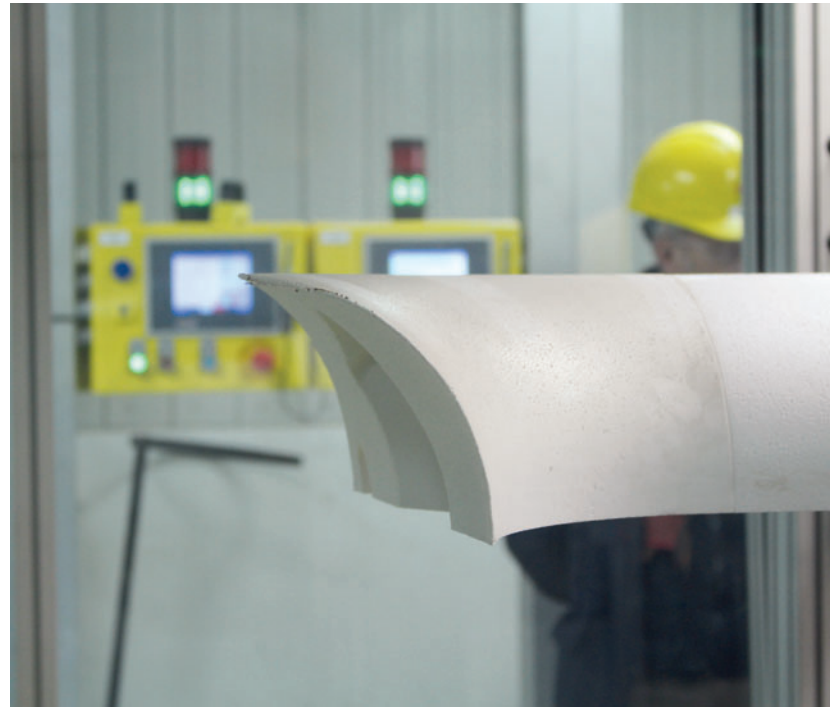
*The heart of Perfect concrete manhole base production:
The cutting center with 2D and 3D saws*

The company's experience with wet-cast production proved helpful, as two years ago they began working intensively with self-consolidating concrete (SCC). This was something of a precursor to the Perfect concrete manhole base production of today, which has benefited greatly from the company's wealth of experience, as the manhole bases are made exclusively from SCC.

After the decision was made to invest in modern concrete manhole base manufacturing, Boisclair et Fils conducted intensive analysis of all current solutions on the market, before ultimately opting for the Perfect plant concept from Schlüsselbauer Technology - a decision they made based entirely on the impressive content.

Perfect concrete manhole bases for rain and waste water channels can be individually adapted to the requirements of a project and are available within a day to extremely high quality standards. The number, diameter, inclination and angle of the required pipe connections, as well as the height of the inlets, can all be individually determined. Once the manhole has been installed on the building site, any kind of pipe - whether concrete, plastic, or another material - can subsequently be connected.

The concrete monoliths are produced in a cast. This allows for consistent, reproducible concrete quality throughout the product, right down to the individual pipe connections.



*The 3D saw for precision cutting of the negative bodies
for the side channels.*

Boisclair et Fils have never regretted their decision to opt for the Schlüsselbauer Perfect system, and they are still more than happy to have made this move today. The implementation of the project and the commissioning of the Perfect production system were carried out in what Philippe and Éric Boisclair referred to as "exemplary fashion." "We received such fantastic support from Schlüsselbauer, their cooperation could not have been better," agree the father and son.

"Whenever a problem arose, Schlüsselbauer Technology were on hand right away to deliver the perfect solution. The skill of the on-site Schlüsselbauer team not only helped to get the new manhole base production up and running smoothly, but also brought the two companies closer together. We learned a lot from the Schlüsselbauer technicians," says Éric Boisclair, summarizing their positive experience.

"This was not your typical client-contractor relationship. It quickly developed into a close, very positive partnership," agrees Philippe Boisclair, praising their strong relationship with the Austrian firm.

"We are proud to be able to manufacture concrete manhole bases using such a modern and forward-thinking process, which meets and even exceeds the high quality expectations of our customers. The manufacturing process allows for an incredibly high degree of precision in the formation of the



A laser is fitted above the work station in order to ensure precise positioning of the individual parts, continuously displaying all of the inverse lines of the manhole on the table.

channels and connections, which we were not previously able to offer,” beam Philippe and Éric Boisclair, visibly enthused by the Perfect production system and its role in their significantly improved quality standards.

Perfect Production System

The Perfect production system is a combination of high-quality mold equipment and modern hot-wire cutting technology for the manufacture of precision-molded parts. Monolithic

concrete manhole elements are manufactured using this production system in more than 40 concrete plants around the world.

The production system also includes the management of all planning and logistics procedures. From comprehensive product data collection and preparation work right through to production, storage, and customer-specific product identification, every work step is integrated into a single system. Manufactured in a single mold, the parts provide both exceptional product quality and pipe connections with a high-precision fit. No assembly is required on the construction site thanks to the use of integrated seals. The precision design of the pipe connections' inclination and angle make it easy to quickly and securely connect all relevant pipe types, and Schlüsselbauer Technology guarantees that these connections will remain tight even after decades of use. According to the manufacturer's specifications, Perfect manhole bases enable long-lasting connections with exceptional flow properties even after decades of use, and without any adverse effect on the pipe connection.

Individual Channels with Polystyrene Rigid Foam and Hot Wire Saws

In order to form the channel in a manhole, a recess body that corresponds exactly to the channel is produced from polystyrene rigid foam, which is then installed in the mold. The production of this “negative” of the channel is also the first step in the production of a Perfect manhole base. Any and all channel shapes are possible here, from a straight channel with two pipe connections through to a bifurcation of numerous channels with an accordingly high number of pipe connections.



Fully equipped mold with a manhole wall ...



and manhole bottom reinforcement.



Finished Perfect concrete manhole bases before transfer to the external storage area

The individual molded parts required are cut to size using the prefabricated rigid foam base elements, with various two- and three-dimensional hot wire saws used for the cutting process. These are controlled by a computer to produce the required, precisely cut parts; the cutting process is fully automated.

Only one employee is required to produce the negative channel, who inserts the polystyrene rigid foam base elements into the saws, before the individual negative bodies for the channels and pipe connections are combined into one unit. A laser is fitted above the work station in order to ensure precise positioning of the individual parts, continuously displaying all of the inverse lines of the manhole on the table.

Simple Installation and Special Canadian Considerations

The produced negative channels are then installed in the steel molds. Boisclair et Fils exclusively uses very high molds that are used to produce concrete manhole bases in structural heights that are not common in markets such as Europe. The structural height of the manhole parts can, however, easily be changed by adjusting the mold equipment, which allows the company to react with great flexibility to a variety of different applications.

Another special consideration is the fact that the manhole elements are always vertically and horizontally reinforced: All manhole bases leaving the Boisclair et Fils production site are reinforced.

The two-piece mold shell used to prepare the molds is easy to pull apart, meaning the interior of the mold is easily accessible for cleaning and preparation for the next use. The negative channel is then fixed to the core base, the reinforcement inserted, and the mold halves pushed together again. The mold is sealed tight using a manual closing mechanism. Magnet technology holds the negative channel in position, preventing any buoyancy when the molds are filled with the self-consolidating concrete.

A crane rail and concrete bucket are used to pour the concrete, allowing any mold to be put into operation quickly, no matter where it is in the production hall. A closing lever on the bucket allows for precise dosing of the concrete.

Turning Device Simplifies the Demolding Process

The monolithic concrete manhole bases harden in the mold and can be removed on the following day. The concrete elements are produced upside down, with the visible concrete surface in the mold forming what will be the manhole bottom. Once the mold has been opened, the turning element, which is suspended from the crane rail, is used to lift the concrete manhole bases from the mold core, turn them 180°, and set them down in the hall.

An employee then affixes a label with all of the relevant details and parameters relating precisely to this part to the manhole's outer surface. This ensures that the manhole element can always be precisely identified right up until its installation. The logo is also sprayed onto the shell surface, so that the manufacturer of the manhole element can be identified later.



Extremely satisfied with the new production line: Philippe and Éric Boisclair



A cross-section of a Perfect manhole element for the promotional tour

Finally, the negative channel must be removed. This is a quick and easy process, which can be done manually by one employee, with the suitable tools provided and expertise passed on by Schlüsselbauer employees.

The finished Perfect monolithic concrete manhole base is then moved to an external storage area before being transported to the construction site.

Successful Promotional Tour in Fall 2016

The best way to convince a potential customer of the benefits of a new product is to demonstrate it live. That is, at least, according to representatives of Boisclair et Fils. A concrete manhole was unceremoniously cut through the middle so that the channels could be seen at first hand. This cross-section of a manhole base was loaded onto a pick-up truck and the team set off to meet prospective customers in order to show them the goods.

In addition to the physical demonstration, a video was also shown that provided an insight into the production of a Perfect concrete manhole base. Looking back, this promotional tour was a great success, garnering a lot of attention for the company. And with this new quality product, Boisclair et Fils' were able to bolster their already excellent reputation in the long term. The Boisclair et Fils team succeeded in demonstrating the advantages of the monolithic manhole element, including the excellent flow characteristics, which come into their own particularly in flat regions. ■

FURTHER INFORMATION

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