

Schlüsselbauer Technology GmbH & Co KG, 4673 Gaspoltshofen, Austria

Swiss construction company now serves market with tailor-made manhole bases

The Emmental valley in the Swiss canton of Bern is world famous for its cheese and is also home to the family-run construction company O. Wyss AG set up by Othmar Wyss in 1960. Since its inception 50 years ago, this company has grown from a small construction company to a medium-sized company with an annual turnover of 10 million Swiss Francs in 2009. To achieve better quality in the civil engineering sector, the company, now run in the second generation by son Martin Wyss, began manufacturing pre-fabricated concrete manhole elements in 1990. Over the years, they have delivered steel moulds in the factory for making standard manhole bases with integrated seals and standardised channels of top quality. However, the company also wanted to pre-fabricate manhole bases with variable channel forms for several pipe connections, and carried out a detailed analysis to find a manufacturing process that could meet these requirements. O. Wyss AG found Schlüsselbauer Technology from Gaspoltshofen in Austria that offers a suitable procedure with their Perfect production plant for monolithic manhole bases. The first Perfect production in Switzerland was commissioned with a celebration at O. Wyss AG and just in time for the company's jubilee in June 2010.

■ Mark Küppers, CPI worldwide, Germany ■

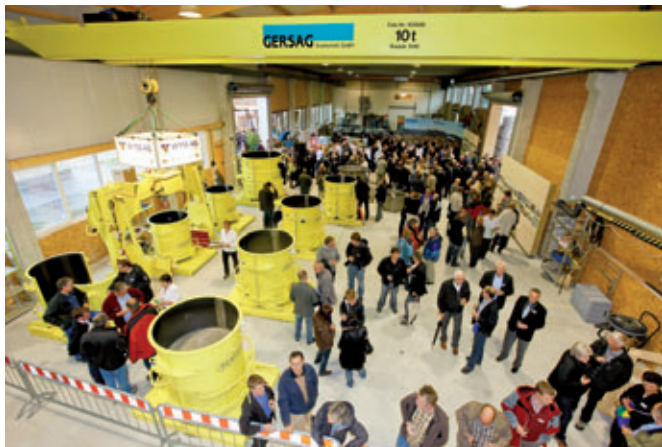


This newly erected hall extension is where O. Wyss AG produces monolithic perfect manhole bases

In the early years, the Wyss Company was, as a construction company, exclusively involved in structural engineering. Alongside the purchase of the first digger and the first crane in 1969, Wyss also started to get

involved in civil engineering. Further mechanisation measures with additional construction machinery and vehicles over the next few years saw the structures built get bigger and bigger. The company's own production operation grew steadily and soon had separate buildings for offices, warehouses and workshops. In addition to structures like gymnasiums, school buildings and bridges, more and more civil engineering contracts came in. These included stream defence structures and all sorts of sewerage projects. Nowadays the breakdown of the construction projects is around 50% structural and 50% civil engineering. The O. Wyss AG Company specialises in structural engineering jobs up to a volume of around 2 million Swiss francs whereas larger construction projects are completed together with partner companies to form a joint venture.

The experience acquired in the development of suitable manufacturing processes for finished concrete part manholes soon bore fruit with the quality of the products improving to the extent that it soon aroused the interest of well-established and other construction companies. As of 1995 concrete manhole bases were no longer exclusively produced for the company's own needs but also sold. Initially sales were limited to the region but since 1999 O. Wyss AG has been supplying finished concrete part manhole elements to customers throughout Switzerland. This switch to become a provider of finished concrete parts took O. Wyss AG down some new paths and created new markets. Now about 97% of the concrete manhole bases produced is sold and pre-cast concrete part production has become a major part of the business for O. Wyss AG. By the summer of 2010, O.



In June 2010 O. Wyss AG celebrated 50 years in business and opened its production doors to guests



*A highlight at the celebration:
Hot Pot made from concrete*



As part of the jubilee celebrations, visitors were shown the development in concrete manhole base construction at Wyss with models (from left to right):

- 1. Steel mould with built-in seal, 1994*
- 2. first steel mould with built-in pipe connection, 1990*
- 3. Concrete manhole from 1989, mould made of wood and plastic, PVC-seal cast in concrete*
- 4. Concrete manhole from 1988, mould made of wood and plastic, grouted Eternit seal*

Wyss AG had already sold 25,000 pre-cast manholes. Many of the around 50 employees working for O. Wyss AG today, have been with the company for more than 25 years. Five employees in all deal exclusively with the production of the finished concrete parts, including the new Perfect-plant.

First Perfect manhole production in Switzerland

Once the decision was made to purchase a new production plant for monolithic concrete manhole bases in favour of the Perfect manhole production by Schlüsselbauer, everything went very quickly. First of all, the existing manhole manufacturing facility was extensively expanded with own resources. On the 25th of May this year, the Schlüsselbauer fitters started

installing the Perfect plant and on the 10th of June the first manhole base was de-moulded.

With the Perfect-process, O. Wyss AG can draw on a total of ten moulds for the production of manhole bases. As the standard channels will continue to be made with conventional steel moulds, O. Wyss AG believes it is sufficiently equipped to meet the growing demand for pre-fabricated, monolithic manhole bases in Switzerland.



Inspection manholes for drinking water preparation have been part of the O. Wyss AG product range for many years



The new Perfect production at Wyss is limited to ten moulds



The channel sections are cut with hot-wire saws and assembled to the negative channel in the rear area of the new hall extension. The store for the EPS hard foam blanks is located in the level above this area.



The concrete is delivered from the ready-mix plant just a stone's throw away

With the hot wire to the channel required

As is usual for Perfect manhole base production, the start of the production involves the creation of a negative compound made of EPS hard foam. This compound has the exact shape of the subsequent channel and serves as a recess unit in the concreting of the manhole base. EPS hard foam channel compounds are kept in stock in different diameters, both straight and curved. The individual channel sections are then tailored to each other with two and three-dimensional hot-wire saws and then bonded together and the special Perfect software sets the corresponding parameters. If integrated seals are required, the EPS compound is supplemented at the ends of the

channel arms with the appropriate recess units, on which seals are mounted.

Concrete to order

After that the two-part steel moulds are set up for concreting. This involves providing the internal walls and the bottom with release agents, closing the mould by pushing the two halves together and fixing the negative channel with magnets. The mould is now ready for concreting. A fundamental difference in the production of finished parts at Wyss and a conventional pre-cast production plant is definitely the lack of in-house concrete production in the company. There is no mixer; instead each time concreting is done, the concrete

is delivered from a nearby ready-mix plant. To increase profitability, several manhole forms are always prepared and concreted. The ready-mix brings the self-compacting concrete, produced in strict accordance with the requirements of O. Wyss AG, in a mixer truck right into the production hall at Wyss. This type of finished concrete part production with no own concrete mixing plant has always worked well for Martin Wyss and the proximity to the mixing plant and the high quality of concrete supplied means the company has never seriously considered starting its own concrete production. With the current daily output of concrete finished parts, the company does not see any need in the near future to revisit the issue of concrete supply.



The mixer trucks drive backwards into the hall and the concrete is transferred into a concrete bucket

The mixer trucks drive backwards into the hall and the concrete is transferred into a concrete bucket. A crane is then used to lift the bucket over the mould to be concreted and the concrete is filled into the moulds through a tube without any significant drop height, to avoid segregation of the concrete. This process may be repeated several times depending on the contents of the mixer truck.

The required fill height is carefully examined during concreting and filling is manually stopped when this height is reached. The filled moulds are then left in their position without any further treatment and the hardening process starts.

De-mould in the morning, concrete in the afternoon

The next day the manhole bases have been sufficiently hardened to allow the previous



Concreting is done with a concrete bucket

day's production to be taken out of the moulds in the morning. This involves opening the moulds and removing the manhole bases from the moulds using a crane-operated de-mould and turning device, turning

them 180° and setting them on the required spot. The EPS compound can now manually be broken out of the channel and the finished manhole base can be brought by forklift to the external storage area. The EPS compounds are then shredded and the shredded material collected in bags. This material is then not disposed of but sold by the bag.

The moulds released stay in their positions, are briefly cleaned and can be directly set up for the next concreting. This means that ten individual, monolithic manhole bases a day can be produced even when the Perfect production is at full capacity.

Perfect production technology for the production of smaller quantities

For Martin Wyss, the clear advantages of Perfect production are the major flexibility of the process and the fact that it can be combined with his existing systems. This results in numerous opportunities for O. Wyss AG to produce new speciality products, such as oval manhole bases. In contrast to circular manholes, the main feature of the oval-shaped finished part is the less space required in the trench and this is a major advantage in cramped fitting areas, such as occur frequently in Swiss drains. For Martin Wyss, his own company is evidence that the Perfect plant as a fast production system is not only suitable for large concrete plants, but also for smaller productions.

Although not currently planned, there is nothing in the general conditions to prevent growth in production to a larger range of moulds. Martin Wyss got confirmation of the interest, not only regional, in the first Perfect production in Switzerland after the first few days of production when he received orders for manhole bases for a large development project in the east of Switzerland and drainage works on the A6 motorway.

FURTHER INFORMATION



O. Wyss AG
 Bauunternehmung
 Postplatz
 Postfach 74
 3537 Eggwil, Switzerland
 T +41 34 4917777
 F +41 34 4917778
info@wyssbau.ch
www.wyssbau.ch



Schlüsselbauer Technology GmbH & Co KG
 Hörbach 4
 4673 Gaspoltshofen, Austria
 T +43 7735 71440
 F +43 7735 714456
sbm@sbm.at
www.sbm.at
www.perfectsystem.eu



One of the first monolithic Perfect manhole bases produced in Switzerland with built-in seals



The Company owner Martin Wyss (right) and the product manager for the concrete manholes Christoph Hofer are fully convinced that the investment in the Perfect production was the right investment for the future.