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American Concrete Products launches concrete-HDPE-compound pipe

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The preparation for a successful launch of a new infrastructure product into the US civil engineering industry has been completed. One year after the installation of a pilot wastewater pipeline in Pima County, Arizona - a real "practice-test" from installation to ongoing survey - the concrete-HDPE-compound Perfect Pipe was successfully tested again and was granted approval as a standard material for sewerage systems in the county.

Eight months after the pilot line installation, American Concrete Products started its own Perfect Pipe production using Schlüsselbauer's Perfect Forming Technology, and, in doing so, became the first manufacturer of Perfect Pipe in the United States. Geneva Pipe, on the other hand, recently decided to

become the second US manufacturer to introduce Perfect Pipe to its market, and together with American Concrete Products and Schlüsselbauer Technology, exhibited at the 2018 Water Environment Federation Technical Exhibit and Conference (WEFTEC) in New Orleans. This leading trade event for water quality professionals and the civil engineering industry, therefore became the official launch of Perfect Pipe for the US market. Now the spread of this durable and robust wastewater pipe across North America can be expected, even more so as one Canadian manufacturer has already delivered its Perfect Pipe to numerous conventional open trench installation projects over the past two years and also successfully entered into the jacking pipe market.



Perfect Pipe exhibition at WEFTEC 2018: The first time Perfect Pipe is presented at a nationwide show in cooperation with American Concrete Products, Geneva Pipe and Schlüsselbauer Technology.



Installation of Perfect Pipe in Pima County, Arizona, in 2017: a considerable number of pipe DN400 (16") was laid in open trench under real installation and usage

Mr. Tom Egan, Jr., the President and owner of American Concrete Products, located in Omaha, Nebraska, clearly decided to go for a high quality product strategy from the start of the company when he purchased the existing production site from a traditional pipe manufacturer. Since that time, American has become stronger and stronger in its market by raising the quality of various types of concrete elements, such as pipe, manhole elements, box culverts and customized wall segments. In order to realize the next evolution step in quality optimization, however, it was obvious the company needed to make a fundamental change in the production equipment being used. This was when all elements of the Perfect Forming Technology system from Austrian supplier Schlüsselbauer were determined to be the right choice for building the highest quality manhole bases and - as focused in this report - the new corrosion protected waste water concrete pipe.

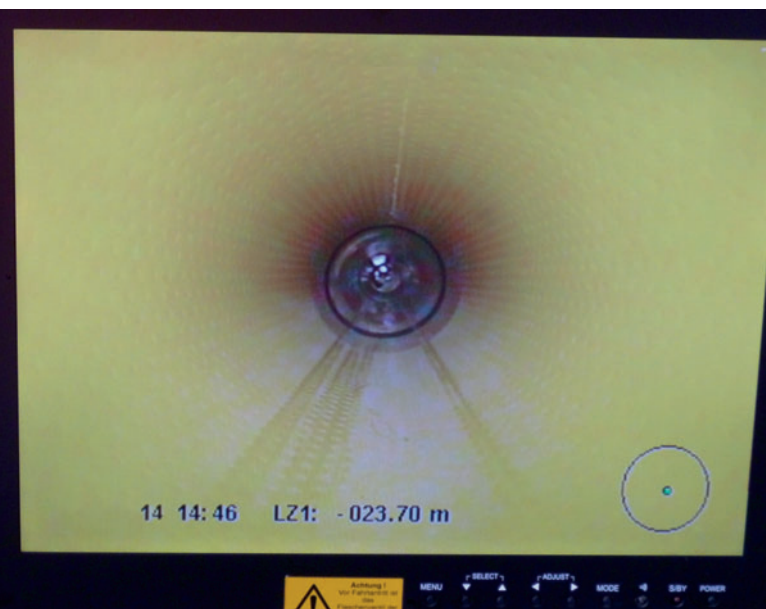
WEFTEC, the world's largest annual water quality technical conference and exhibition, was chosen as the ideal event for the US launch of Perfect Pipe, where event managers introduce and show the field's most cutting-edge technologies and services. The event was a perfect fit for the benefits provided by Perfect Pipe to the water / wastewater industry. It was also the first time the event displayed a concrete pipe and manhole base that was fully protected from microbial based corrosion through a securely imbedded HDPE liner and with a dense and flexible pipe connection and lateral connection without interruption to the corrosion resistance.

Significantly, but not surprising, this common exhibition of durable concrete elements by American, Geneva and Schlüs-

selbauer was the only display at this major industry event where future oriented concrete elements were presented.

It is typical for the concrete precast industry throughout the world to lose market share to other materials, especially in the pipe industry. The main advantage of concrete - its strength and durability - has been outstripped by the introduction of less robust pipe materials to which microbial based gases simply cannot do any damage. The disadvantages of these lower load bearing materials and their demand of additional work to properly install them have not been considered in a while. Within this period, several attempts to protect concrete using different kinds of coatings, poorly imbedded liners or very expensive protection materials, such as glass, did not perform. Furthermore, these failed attempts were the reason for an even more dynamic loss of concrete pipe's market share. This scenario will now change, due to the successful installation of Perfect Pipe in additional countries throughout the world. With American Concrete's launch of Perfect Pipe, the United States joins Canada, France Germany, Switzerland and Singapore where Perfect Pipe is changing the market.

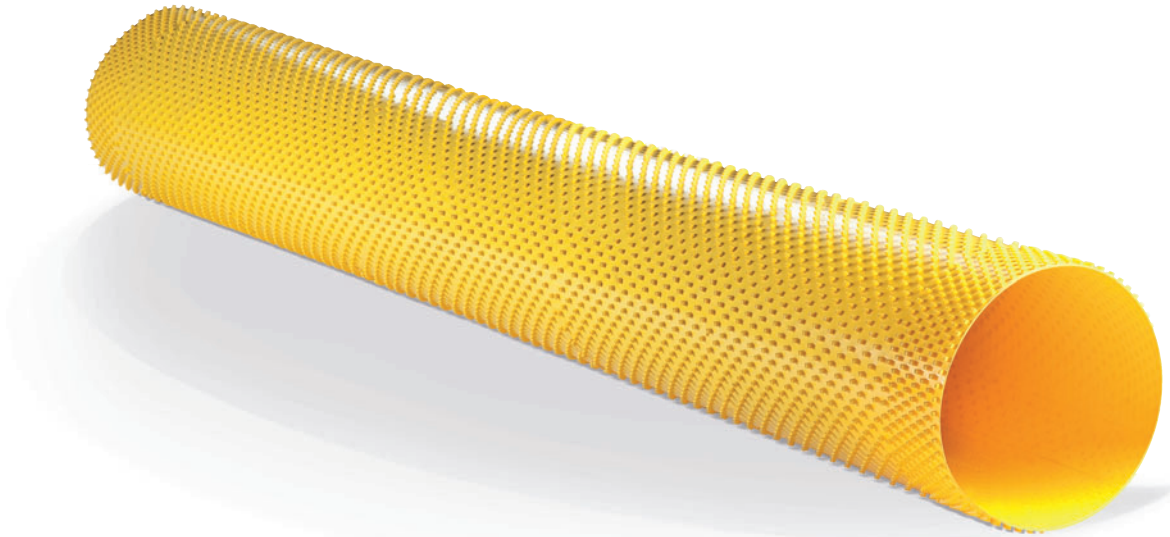
Another well respected manufacturer of pipe and manhole components, Geneva Pipe, located in Orem, Utah, decided to start with a completely new plant using Perfect Forming Technology for the production of manhole elements, and will soon follow with implementing Schlüsselbauer's Perfect Pipe technology. The decision makers at Geneva watched the first installation of Perfect Pipe in Pima County, Arizona, but they had been interested in Perfect Pipe since its inception.



After density testing, the Perfect Pipe installation in Arizona was surveyed by camera inspection after installation and again after one year of usage. All inspections and testing were successful and resulted in the certification of the Pipe system as a confirmed standard.



American Concrete Products is proud to demonstrate their new pipe system: Sample pipe with lateral connection professionally made at the plant in Valley, Nebraska



A main element of the ideal long lasting compound of concrete and HDPE liner: numerous anchors on the backside of each thin corrosion protection plate/cylinder

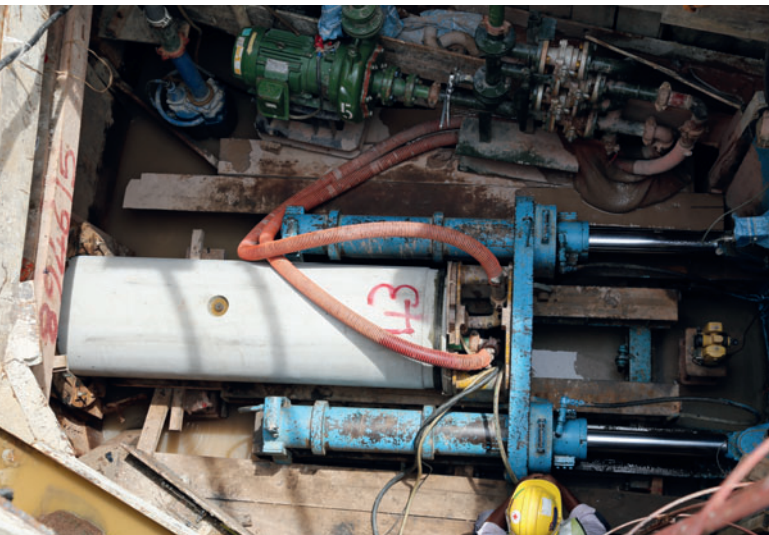


Using Schlüsselbauer's Perfect Forming Technology makes high quality concrete pipe production quite comfortable: The cured product can be easily stripped from the mould independent from degree of automation.

So it was quite a short assessment and decision making process before it was clear Perfect Pipe should become an important element of the company's future growth plan. In addition to being able to provide this concrete wastewater pipe for open trench installation, Geneva also joins Canada in its ability to offer Perfect Pipe for the fast growing pipe jacking industry. Especially in trenchless installations, Perfect Pipe brings numerous benefits to all parties involved. The installation process is much faster compared to lined pipe where the plastic liner has to be welded on site, resulting in either long lasting interruptions of jacking when welding has to be done in the starting pit or quite expensive welding work inside the completed pipeline. Also, compared to other pipe materials, Perfect Pipe provides installation advantages since its a robust concrete pipe with all variations achievable from design (wall thickness), calculated reinforcement and even more different qualities in the concrete mix using only self-compacting concrete (SCC).

Regarding the market introduction of Perfect Pipe, manufacturers will have to consider additional marketing efforts rather than focus on production details. This also includes a change to conventional concrete pipe production. A new plant can start with Perfect Forming Technology to deliver the number of pipe requested in an implementation phase, which might be low in the beginning but can increase quickly if required. Namely, production of a specific pipe dimension could start on a lot-size-1 basis only. The first very positive aspect for the manufacturer is not to produce too much stock without having projects to deliver in hand.

The next positive aspect is that quality of the final product can be equal - independent of scale of production and process automation installed in the plant. Schlüsselbauer develops production concepts matching the exact needs of each individual manufacturer. This allows a lot of flexibility for a producer in regards to production capacity and total investment.



Impression from installations of Perfect Pipe throughout the world: Pipe jacking in the city of Singapore has experienced a complete elevation to higher quality and faster installation due to the use of Perfect Pipe

And finally, another positive driver is the opportunity of not having to only produce pipe with the Perfect Forming Technology production system. Manhole elements or various other products made of SCC can also be integrated in a production concept and therefore boost efficiency of such production plants.

The meaning of entrepreneurship becomes evident by watching the multiple steps it takes to implement a new type of wastewater pipe in the civil engineering sector. The initial start for this "launch taking phase" now dates back several years when Perfect Pipe was presented to the manufacturers industry for the first time at the US-Precast convention.

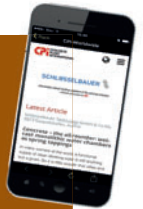
As a next step, specification and testing according to different North American requirements were made. Based on the general accordance with local standards from the United States' East to West Coast, a pilot line installation was started. To make this plan happen, a professional cooperation between a well-established US manufacturer, an open minded local municipality - open minded with forward-thinking engineers and a culture to boost innovation beneficial for the citizens and final customers - and Schlüsselbauer was established. One year after installation and inspection of DN400 (16") wastewater pipeline in the district of Pima County, in southern Arizona, this installation was assessed again. The expectations were easily met - the pipe proves its function in this part of the country with quite corrosive characteristics from the waste water fluid. Based on those more than satisfying interim test results, Perfect Pipe now is allowed to be used as a standard material for wastewater collectors in Arizona's Pima County.

For American Concrete, efforts made by other entrepreneurs already meant real support in getting Perfect Pipe accepted in a first installation by the city of Omaha, Nebraska. First installed was a DN800 (36") pipe, which was then followed by a DN1200 (48") pipeline to create a new segment of a waste

water collector. Again these first two installations in Nebraska will be taken as a kind of "field test" to generate additional experience from testing the new system under real working conditions. In this case American Concrete can easily expect further projects to be already specified for use of Perfect Pipe based on the successful initial inspection results. ■



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