Amiblu[®] Stream



Amiblu Stream



Message from the CEO

Imagine a job advert with the following requirements: Smart character, expert in several fields of operation, ability to work under high pressure and deal with aggressive influences, perfect handling of various proceedings, positive cooperation with colleagues of different age and experience, willingness to work abroad, contract length 150 years. Doesn't sound like it's going to attract too many applicants, right? Which makes me proud to say that I know two perfect candidates for the vacancy, and on the following pages you find an excerpt of their credentials: Hobas and Flowtite GRP products are real allrounders in the colorful world of pipe systems. They make water flow upwards, excel big time in small space, secure against floods, boost green power generation, and upgrade existing structures under challenging conditions.

One major application area which will become even more important in the future is the rehabilitation of existing structures. The water networks of most European cities are in dire need of renovation and, combined with growing urbanization and more extreme rainfall events, this presents us with significant challenges. We need to come up with smart, sustainable solutions that make sure the next generation has reliable access to our precious water. I share a few thoughts on this topic on pages 8 and 9, and on page 10 you can learn about an innovative way to integrate the Amiblu Amiscreen into concrete stormwater overflow basins. The next Amiblu Stream will look at the complex topic of rehabilitation in greater depth. Enjoy reading Amiblu Stream!

Kind regards from Klagenfurt, Pierre Sommereijns

Looking for awesome GRP projects? Check our Reference Database!





High-performance double sewer line with Hobas GRP

In the course of tramway works in the city of Eysines in southwestern France, an existing sewer network had to be diverted and extended. The client Bordeaux Métropole chose to realize this challenging project with Hobas GRP pipes by Amiblu.

A nearby potable water line, future surface load issues, and pipe route sections with little soil coverage: The circumstances connected to the extension of the sewer system in Eysines (arrondissement of Bordeaux) called for a special approach. The project had become necessary due to planned upgrade works on the Bordeaux tramway network. Together with contractor Sogea-Satom, the client Bordeaux Métropole opted for an Amiblu GRP solution to tackle the challenging installation.



Amiblu France supplied 105 meters of Hobas gravity pipes DN 800 as well as four double-manholes consisting of an outside pipe DE 1434 and inside pipe DE 1026. The vicinity of a main potable water line called for special safety measures like double pipes: Any chance of the sewage affecting the drinking water had to be prevented. 50 meters of the sewer line were additionally equipped with distance rings and encased in cast iron to protect the GRP pipes against high surface loads – the soil cover height was only 40–50 cm in this section. The GRP manholes were connected to the sewer pipeline by means of Straub couplings. Now that all pipe infrastructure works have been completed, the tram line extension can be safely completed with operations scheduled to start in 2020.

Year of construction	2018/2019
Country / City	France / Eysines
Application	Sewer pipe system
Installation	Open trench
Technology	Hobas CC
Total length	105 m
Pipe characteristics	DN 800 (pipeline) DE 800-1434 (manholes) SN 10 000 PN 1
Client	Bordeaux Métropole
Contractor	Sogea-Satom
Consultant	Suez







Flowtite irrigation pipes make water flow upwards

Amiblu supplied 7500 m Flowtite pipes DN 1600 for a new irrigation system in the Spanish province of Toledo. The GRP lines transport raw water uphill from the Tagus river to the Lower Channel of Alberche.

With a length of more than 1000 km, the Tagus River (Spanish: Tajo) is the longest river of the Iberian Peninsula. The major part of it (716 km) flows through Spain, and it empties into the Atlantic Ocean near Lisbon. The Tagus drains an area of 80 100 km² and is highly utilized: Several dams and diversions supply drinking water to central Spain and Portugal, while dozens of hydropower plants create electricity.

In January 2017, the Confederación Hidrografica Del Tajo issued a tender for the project "Elevation from Tagus River to the Lower Channel of Alberche". The project involved building a new pumping system which should replace the provisional emergency system for supplying raw water from the Tagus River to the Lower Channel of Alberche in case of tense hydrological situations such as droughts. The construction company Construcciones Alpi, who won the tender, chose Amiblu as supplier of the required GRP pipes and fittings to successfully implement the project.



Top: Amiblu supplied 7.5 km of GRP pipes DN 1600 as well as multiple elbows and drains for the new irrigation system.

Bottom: Two GRP pipelines were installed to transport water from the Tagus River to the Lower Channel of Alberche.



The planned system should start at the right bank of the Tagus River, 500 meters downstream from the source of the Las Parras stream, and transport water with a maximum flow of 7 m³/s uphill to the Lower Channel of Alberche. This way, the concerned area can be reliably irrigated at all times without depending on the existing provisional facilities that also supply the municipality of Talavera de la Reina (Toledo)

Amiblu supplied 7.5 km of GRP pipes DN 1600 as well as multiple elbows and drains. The new system consists of two parallel pipelines with 3750 meters length each and runs along the municipality of Talavera de la Reina. In accordance with national regulations, two main roads and one rail track intersecting with the route were crossed with concrete pipes, which were installed via jacking, and into which steel pipe sections were subsequently inserted. The steel and GRP pipes were then joined with a leak-proof flange connection. The new system



National regulations specified that two roads and one rail track were to be crossed with concrete jacking pipes and steel pipes. The steel and GRP pipes were then joined with a leak-proof flange connection.

also features six pumping stations that are successively arranged at different heights over the entire route, each of them able to exceed 18 meters of geometric height up to the final target, the lower course of the Channel of Alberche. The province Toledo is now well-equipped for future periods of drought.

Year of construction	2018/2019
Country / City	Spain / Talavera de la Reina, Toledo
Application	Irrigation
Installation	Open trench
Technology	Flowtite FW
Total length	7500 m
Pipe characteristics	DN 1600, SN 5000, PN 6 and 10
Client / investor	Confederación Hidrografica Del Tajo
Contractor	Construcciones Alpi





GRP pipes and shafts excel big time in small space

A new storage sewer built of Flowtite GRP pipes by Amiblu was installed in North Rhine-Westphalia to prevent floodings during periods of heavy rain.

Parts of the city of Mülheim in Western Germany were regularly flooded during heavy rain. Short-term measures such as a backflow valve or storm drains did not prove sufficient to protect local residents. After a few calculations and considerations, it became clear that a storage sewer would be the best solution for this pressing issue. The contracting company Medl GmbH suggested to modify a section of the existing combined sewer pipeline into a more voluminous storage chamber. This would enable the wastewater to slow down before it continues its flow in a controlled manner through the remaining sewer line DN 900.

Due to several challenging framework conditions, this was easier said than done. The adjacent road is rather narrow with a number of supply lines for gas, water, electricity, and telecommunications running on both of its sides, and parts of the storage sewer would have only little soil cover at a high groundwater level. Circumstances that called for a durable, flexible, and easy-to-handle solution – for the planners, an obvious choice: They went for GRP, and Amiblu was commissioned with the project. The relatively thin-walled yet very stable GRP pipes outscored concrete in terms of space: The required construction pit was decisively smaller, meaning that the groundwater level did not have to be lowered as much. The pipes' light weight and easy handling was another great advantage on the narrow construction site. And: "Thanks to the smooth inside surface and excellent flow characteristics of our pipes, we could go without a dry weather channel", says Holger Hörnemann, area sales manager of Amiblu.

125 m Flowtite GRP pipes DN 2300 in 3 m lengths, an intake and a flow control shaft, and three further manholes were supplied to the construction site in Mülheim just-in-time – the restricted space did not allow for any product storage. After laying and connecting the pipes, the trench was filled with self-compacting liquid soil. All works were successfully completed end of March 2019 and the citizens of Mülheim are now equipped for all future heavy rainfalls.





The new Flowtite storage sewer DN 2300 includes an intake and flow control shaft. The GRP solution outscored concrete in terms of durability, flexibility, and weight.

Country / City	Germany / Mülheim
Year of construction	2018
Application	Storage sewer
Installation	Open trench
Technology	Hobas CC
Total length	125 m

Pipe characteristics	DN 2300 SN 10 000 PN 1
Client	Stadt Mülheim
Planner	Medl GmbH
Contractor	Klaus Stewering Bau- unternehmung GmbH



Jacking under railway track with Amiblu GRP

In the German town of Helmstedt, Flowtite pipes DN 1280 were installed via microtunneling as part of a sewer system extension.

To prevent overloads of the local combined sewer system and wastewater treatment plant, it was decided to extend the existing system by a 1.7 km long drainage line for surface water. The pipeline route crossed the Elm-Lappland railway track, which was not to be affected by the construction works — a clear case for microtunneling, which the client chose to realize with Flowtite GRP pipes DN 1280 for a number of reasons: "Due to the limited soil cover, we needed pipes with a relatively low wall thickness but still sufficiently high stiffness. Concrete was no option in this case", says Bernd Geisler of Abwasserentsorgung Helmstedt.

Flowtite GRP pipes comply to the high structural requirements on site thanks to their excellent stiffness and stability and are approved by Germany's Federal Railway Authority. It took the construction company four days to complete the microtunneling installation.



Non-circular solution for surcharged sewer

Amiblu NC pipe profiles with arch shape were installed in the German city of Göttingen to upgrade an old stormwater sewer.

Over the years, the stormwater sewer in the heavily frequented Berliner Straße in the German city of Göttingen had reached the limits of its hydraulic capacity and had to be renewed. Circular pipes were no option for the renovation, since several cables had to be crossed and, with a calculated necessary diameter of DN 1000, it was not possible to keep the required distance to them. The maximum pipeline diameter was DN 850. "We had to find a way to meet hydraulic requirements and still enable enough space to the transmission lines", says the responsible project manager of the disposal company of Göttingen. Reinforced concrete pipes were no option due to their great wall thickness.

The solution was found in non-circular arch profiles by Amiblu: With a width of 1300 mm and a height of 813 mm, they provide enough volume for the stormwater. The pipes were installed in open trench and the trench was filled with liquid soil to ensure an optimal bedding and structural support of the NC extension. After three months, the installation was completed to the client's satisfaction.



"We have to be smart when renewing our water networks."

An interview with Amiblu CEO Pierre Sommereijns.

What a beautiful sunny day here in Austria. How are you? Sommereijns: I am great, thank you, and yes indeed it is a wonderful day today! Hard to believe that just five months ago, the south of Austria experienced severe storms and the worst flooding in 30 years. Cities faced massive amounts of water, streets were flushed away, and vast areas of forests and lands were flooded. And all this in a country that can be proud of a relatively high network standard. The financial damage was enormous but if the same thing had happened in another, less prepared country, the consequences could have been much worse. It's frightening how bad the overall condition of the water network in Europe is.

What are the reasons the European water network is in dire need of rehabilitation?

Sommereijns: European cities are full of history and by that I mean that they are old. Just like the water networks that are supporting them. Back when they were built, they didn't have modern materials like GRP that last for 150 years. Networks made of ductile iron, concrete, and steel corrode and jeopardize our precious water. Brick sewers collapse and endanger life above ground. And even if they structurally hold up, around 23 % of drinking water are on average lost every year in Europe because of leaking networks.

Then of course, we have the constant expansion of urban areas that make the reliable, efficient treatment of wastewater a key issue for water facilities and municipalities. The sewer network of Europe has a length of 3 000 000 kilometers. It could span the world 75 times. A length that — even with the most sophisticated assessment equipment — is tough to monitor and maintain. Modern pipe materials with smart monitoring options need to be the future.

And on top of that we have more extreme weather events. Rainfalls become increasingly heavy and, in combination with impervious surfaces such as roofs and asphalted roads, once reliable systems are on the brink of collapse. Flooding and overloaded wastewater treatment plants are the consequence.



What are the options to rehabilitate pipelines and prevent failures?

Sommereijns: It depends on the structural condition of the existing network. And that is also the problem. It is extremely tough to assess whether a channel is still structurally sound or not. Therefore, many operators and engineers opt for a rehab solution that not only rehabilitates the inside of the pipeline but also the outside, meaning a structural long-term solution. You can, for example, insert premade elements into the old pipeline and renew the channel with a method called sliplining. Or you can insert a resin-saturated tube into the old channel and cure the resin using hot water or steam or – if the tube is made of fiberglass – UV light. This method is called cured-in-place pipe or CIPP and, to my knowledge, is mainly used for smaller diameters. Sliplining with prefabricated profiles is the way to go for bigger diameters, as you can control the curing and are also very flexible regarding the shape of the new pipeline. At Amiblu, we have delivered the most unconventional non-circular (NC) shapes with measurements of up to 4 meters.





Top: Amiblu NC line pipes can be produced in all shapes and sizes to revive aged channels. Bottom: The Amiblu CSO chamber reliably filters suspended solids from combined wastewater.

Which solutions does Amiblu provide in terms of rehab?

Sommereijns: For decades, Amiblu and its two technologies Flowtite and Hobas have provided circular and NC pipes to renew old channels. The usually 2 to 3 meter long elements are tailor-made for the old pipeline and can easily be joined in the channel without welding. The low weight of the GRP elements comes in handy when transporting and moving them around at urban construction sites where space is usually constricted and big cranes are not an option.

Once the old channel is lined with the circular or NC profiles, the small space between old and the new channel is grouted and you get a completely new pipeline. Even though the diameter is slightly smaller, Amiblu pipes have a mirror-like inner surface that allows for more water to flow through than with the bigger diameter.

Do you have some new solutions in store as well?

Sommereijns: We offer exciting products that especially serve cities with combined sewer systems in severe weather events. Our Combined Sewer Overflow (CSO) chamber and our Amiscreen are two systems that provide a tailor-made filtering of pollutants in stormwater and sewage. We even offer a smart way to upgrade old concrete stormwater overflow basins. No matter the challenge, our application engineers always rise to the occasion and build the most technically advanced systems to best support our clients. Feel free to put us to the test anytime!



Upgrading concrete stormwater overflow basins with Amiscreen

Amiblu Amiscreen products play an important role in the rehabilitation of sewer systems: They upgrade overcharged and potentially failing pipe networks so these can be reliable operated for many further years. The typical Amiscreen application is a storage sewer with overflow, where the screening elements are generally arranged in two or sometimes four lines. However, it can also be integrated into existing concrete stormwater overflow basins.

The Amiscreen solids retention system can be easily integrated into existing stormwater overflow basins (e.g. made of concrete), both in new constructions and as subsequent upgrade. In such large storage reservoirs, multiple Amiscreen lines are installed. The transition to an existing, straight weir is implemented with an intermediate chamber. Alternatively, domes or spring pots made of GRP can be used.

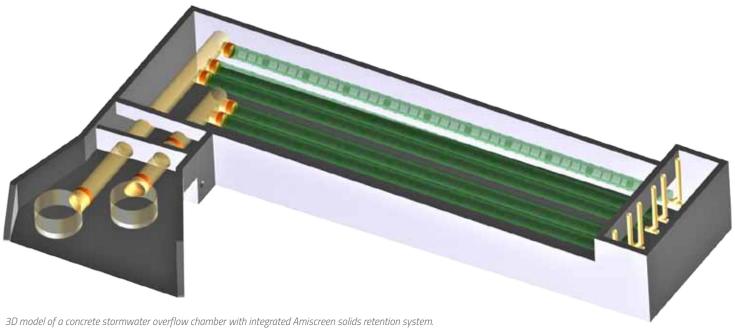
Other than classical screening elements like rakes or sieves which are effective at the weir, the Amiscreen pollutant retention works directly inside the reservoir, enabling a much larger screening surface. When the combined sewage enters the basin, the flow rate is reduced. As a result, only tiny particles can pass through the openings at a very low velocity. Larger particles slide along to the walls and are not forced into the perforations. Therefore, they cannot clump together and clog the screen, leading to significantly less blockages.

The Amiscreen system is designed using optimized perforation to retain coarse solids. The standard screen with openings of 8 x 8 mm retains all particles with a grain size of more than 8 mm, 50 % of all particles with 4 mm diameter, and 25 % of particles with 2 mm diameter. Visible coarse materials in the receiving waters or at the discharge point of the stormwater discharge are therefore a thing of the past.

Click on the picture to see how an Amiscreen system is integrated into a concrete stormwater overflow basin:



http://bit.ly/SOB_Amiscreen



The filter elements are installed in multiple lines to maximize the screening surface.



Amiblu secures Austrian municipality against floods

300 m Hobas PU line pipes DN 2400 were installed as part of a comprehensive flood prevention project at the Danube in Lower Austria.

Just a few years ago, the municipality of Schönbühel was hit by a major flood which caused damages worth several million euros. To protect inhabitants and their houses from future destruction, a comprehensive flood prevention project was initiated. Among the planned measures was the raising of a dam at the shore of the Danube. This, however, implied taking care of another smaller river: the Rossbach, which flows into the Danube right below the picturesque castle Schloss Schönbühel. It had to be culverted so it could then flow through right underneath the new dam. Given that the Rossbach carries many stones and sharp debris, the material of the culvert had to be well-chosen.

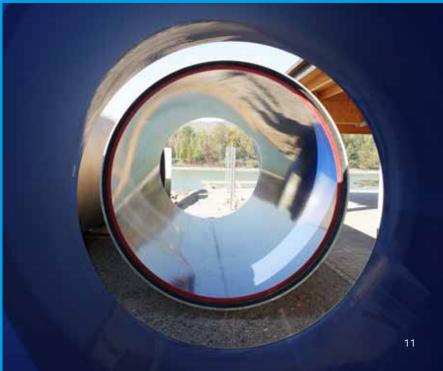
Amiblu had the right solution in store: 300 m highly durable Hobas PU line pressure pipes DN 2400 with a stiffness of SN 10000 were produced for the project and are currently being installed in Schönbühel. The scope of supply also included several bends as well as angular cut pipes for building the optimal pipe route in accordance with the river flow.

PROJECT PARAMETERS

Year of construction	2018/2019
Country / City	Austria / Schönbühel
Application	Culvert for river
Installation	Buried installation
Technology	Hobas CC
Total length	300 m
Pipe characteristics	DN 2400 SN 10000 PN 2
Client / investor	Municipality of Schönbühel
Contractor	PORR AG
Consultant / designer	Schneider Consult

Hobas PU line pipes and fittings with their special polyurethane inner liner resist abrasion and impacts extremely well and are perfectly suited for such heavy-duty applications. They now contribute to a safer life close to the Danube.









Complete solution for Bolivia's powerful future

In 2016, the Spanish construction company TSK was awarded one of the most important agreements in its history: Together with the German company Siemens, TSK was to build three thermoelectric plants located in the Bolivian cities of Santa Cruz, Tarija, and Cochabamba, which will increase the installed power in Bolivia by 50 %.

For the power plants of Warnes (province of Santa Cruz) and Entre Ríos (province of Cochabamba), Amiblu designed and supplied the necessary cooling water system with Flowtite GRP pipes. 784.5 m of biaxial Flowtite GRP pressure pipes DN 1000 and 240.6 m of DN 700, as well as 2484 m of moulded biaxial pipes DN 25 to DN 250 were supplied and successfully installed between May 2018 and February 2019.

Apart from the pipes and all necessary accessories such as joints, gaskets, and lamination kits, Amiblu provided additional services to the client: stress analysis, isometric drawings, support design, as well as logistics and final hydraulic tests. Bolivia can now look forward to a powerful future.



Amiblu supplied biaxial GRP pressure pipes DN 1000 and DN 700 as well as moulded biaxial pipes DN 25 to DN 250 (all Flowtite FW) for the two power plants.







Flowtite GRP pipes boost hydropower plant Porąbka

After more than 60 years of operation, the run-of-river hydropower plant Porabka in southern Poland required a comprehensive upgrade. The aged steel penstocks and discharge pipelines were replaced with Flowtite GRP pipes and fittings by Amiblu.

The hydropower plant Porąbka is located at the river Soła in southern Poland and features a 260 m long dam which forms Międzybrodzkie Lake. It is equipped with two Kaplan water turbines and one Francis turbine that generate in a total capacity of 12.5 MW. Since 1953, when the power plant launched operations, water has been supplied to the turbines via three steel pipelines, two DN 3250 and one DN 1000. These pipelines were renovated in 1995/96 but still showed technical defects. It was therefore decided that the power plant required a thorough upgrade.

Ekologiczne Projekty Energetyczne MADEX from Zielona Góra developed comprehensive renovation plans. In September 2016, the investor PGE Energia Odnawialna S.A. launched a tender for the works, including the replacement of pipelines supplying water to the turbines, the installation of new butterfly valves, the construction of new drainage pipelines, and the reconstruction of existing and construction of new concrete structures. All upgrade works were scheduled to be completed in November 2018.

After thorough considerations and analyses, the investor decided to upgrade the power plant using Flowtite GRP pipes. Amiblu Poland offered pipes that met all specified requirements: They are resistant to burst pressure and corrosion and feature a high long-term stiffness.

The works started in January 2017 and had to be carried out while the hydroelectric plant remained in operation. Therefore, it was necessary to proceed in such a way that at least one water turbine was always running. Penstock renovation works were divided into three stages. Stages 1 and 3 included the delivery of the largest pipes and fittings (DN 3300, SN 5000, PN 6). The inner diameter of these pipes had to be adjusted to the diameter of the butterfly valve of 3280 mm.

Amiblu designed and supplied pipes of 6.45 m length, two angular fittings, and two fixed flange stubs, which were cut to their required length and laminated directly on site by the Amiblu expert team. The connection of GRP pipes and fittings to the existing steel pipe and reinforced concrete wall was a challenge for the designer and the contractor. It was solved by using epoxy resin laminate at the GRP/steel connection, and steel pins for stabilising and anchoring the fittings in the reinforced concrete wall. Eighteen clamps for anchoring the steel pins were laminated over the whole circumference of the GRP fittings. In addition, the surface of the GRP pipe was sanded for sealing the joint over a width of 55 cm and ultimately ensuring complete tightness.





The greatest challenge during stages 1 and 3 was the installation of a pipe section DN 3300 which involved enlarging the openings in the building's roof and then precisely lowering the pipe to the foundation on new reinforced concrete supports. The Amiblu staff laminated the drain, circulation, and metering connections to the GRP pipe. They also installed a specially designed fixed flange DN 600 for mounting the inspection opening, which should disturb neither the flow of water to the water turbine nor the flow measurement results. The single pipe sections DN 3300 were connected with Straub mechanical couplings, which allow for an easy disassembly of the system in the future.

Right: GRP pipeline DN 3300, connected to one of the three water turbines.

Bottom: DN 1000 supply pipeline (above) and DN 250 drain pipeline (below).



The second stage of the project involved the supply of GRP pipes and fittings with an internal diameter of exactly 1000 mm. Flowtite pipes can be manufactured with a precise inner diameter (according to the European Standard PN-EN 14364). This stage also included lamination works to the water turbine. In October 2018, the discharge system consisting of GRP pipes and biaxial fittings DN 250 was assembled. Twenty special shapes with loose flanges were installed between the single water turbine units. In November 2018, the last turbine unit eventually restarted operations.

All in all, the installation of Flowtite pipes was carried out in two weeks. The use of GRP pipes will allow the Porąbka Hydro Power Plant to safely produce green energy over the next decades.

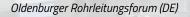


Year of construction	2017/2018
Country / City	Poland / Porąbka
Application	Hydropower
Installation	Above ground
Technology	Flowtite FW
Total length	92 m
Pipe characteristics	DN 3300, DN 1000, DN 250 SN 5000 PN 6
Client / investor	PGE Energia Odnawialna S.A.
Contractor	ZRE Gdańsk S.A.
Consultant / designer	Ekologiczne Projekty Energetyczne MADEX

Amiblu rocks exhibition stages all across Europe

In the past months, Amiblu experts have set out for various destinations to spread the word about the great performance and sustainability of GRP pipe systems. We're looking forward to many further fairs and conferences in 2019! Take a look at our event calendar to check when and where you can find us: www.amiblu.com/events/







Carrefour de L'Eau, Rennes (FR)



Sympozjum Hydroprezentacje, Krynica Zdrój (PL)





Norther Industry Fair, Oulu (FI)

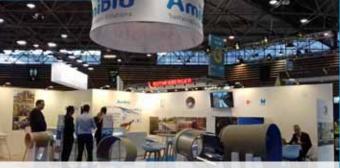


Smagua, Zaragoza (ES)





Stormwater Poland, Gdánsk (PL)



Pollutec, Lyon (FR)





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Amiblu is a 50:50 joint venture whose goal is to develop and deliver fully sustainable water solutions.

Amiblu combines Amiantit Europe and its Flowtite Technology, and Hobas Europe, part of

WIG Wietersdorfer Holding, and is the specialist in wastewater, drinking water,

irrigation, hydropower and industry.





