Amiblu®

Amiblu Pipe Systems
Engineered for the next generations

Let’s value water as we should

With modern pipe materials and smart solutions

FLOWTITE®

HOBAS


KOMATSU

Contents

Amiblu®

Climate change. Urbanization. Energy transition.

There's many challenges we need to tackle. But to succeed, we must solve the water crisis.

As you are reading these lines, the world is being reshaped. Climate change and urbanization have gained momentum over the past decades, and even though our society has woken up to their impacts, these developments can't be stopped at the snap of a finger. This means that, apart from doing everything we can to limit the magnitude of what is happening, we also need to adapt to the economic, environmental, and social impacts that are no longer negotiable. We need to talk about the technologies that human race will need in an altered world.

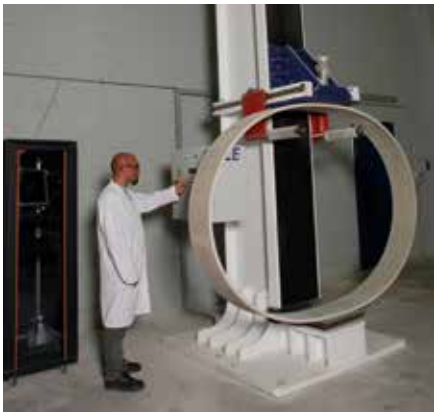
Cities and municipalities are at the frontline of this adaptation. They face challenges with their water networks due to extreme rainfalls, combined with a population increase that demands more infrastructure and energy resources.

What cities need are solutions they can count on, innovations that stand the test of fast-changing times, pipeline technologies that safeguard the environment while serving the needs of future generations.

GRP – the perfect answer to the challenges of this century

Glassfiber reinforced plastics (GRP) challenge the traditional pipe market with a range of matchless benefits. GRP pipes feature a small carbon footprint in production, and they allow for a fast installation and efficient operation. They preserve resources and protect the integrity of networks thanks to their corrosion and abrasion resistance, excellent leak-tightness, weather and root infiltration resistance, as well as buckling resistance.

The material's very long lifetime makes it a sustainable, environmentally friendly solution as well as trouble-free, cost effective long-term investment. And with a number of highly innovative engineers continuously advancing GRP applications, the material is the perfect answer to the challenges of this century.



Amiblu's two specialist technologies – Hobas centrifugally cast and Flowtite filament wound pipes – are the product of over six decades of innovation, experience, and development. Both product lines outperform traditional materials like concrete, iron, and steel. Made of glassfiber reinforced plastics (GRP), Hobas and Flowtite pipes match traditional materials for strength and beat them on corrosion resistance, weight, ease of handling, and longevity.

GRP is our DNA

We are Amiblu

Amiblu designs and supplies world-class GRP pipes and fittings with a lifetime of several generations. Our aim is to solve the world's water, sewer, and energy challenges in a future-oriented way. We are experts in GRP system solutions for wastewater, stormwater, drinking water, irrigation, hydropower, and industry applications.

60+ years
experience in GRP production and research

1500 people
employed worldwide

125 countries
where Hobas and Flowtite products are used

Our long-term experience of more than half a century in GRP production and research makes us fit for future challenges. With an accredited GRP pipe testing laboratory in Norway, our innovative spirit is based on a solid R&D background. Amiblu's headquarters is in Klagenfurt, Austria, and the company has production facilities in Germany, Spain, Poland, and Romania. It employs around 1,500 people worldwide.

We are where you are

- Amiblu Headquarters
- Amiblu Technology Center
- Amiblu Production Plants
- Amiblu Technology Partners (Production Plants)

Our licensee partners around the globe, plus an extensive network of sales and engineering offices, add a further global dimension. Wherever our customers require a high-performance solution, Amiblu experts deliver precisely what they need. To date, Hobas and Flowtite products are used in 125 countries worldwide – lined up, our pipes would span the globe several times.

Heavy rainfalls. Growing cities. Limited infrastructure.

Extreme weather events and the constant growth of cities make both the efficient treatment of sewage and the reliable supply of potable water key issues for water facilities and municipalities. With more impervious surfaces such as roofs and asphalted roads leading larger amounts of rain directly into sewer systems, and more and more people connected to existing pipe networks, urban sewers and wastewater treatment plants often reach their capacity limit. On the other hand, during times of drought, additional drinking water resources are invaluable.

In heavily frequented city centers, digging up trenches for new pipelines is often plain impossible: closing busy roads for traffic results in extreme congestions, historic districts must not be affected. Trenchless construction and rehabilitation methods provide minimally disruptive ways for expanding and repairing existing networks. They protect residents and nature from noise, dirt, and vibrations.

We help cities manage today's challenges in urban environments.

Amiblu offers a range of products that help master these challenges. Apart from standard GRP sewer and drinking water pipes in diameters from 200 to 4000 mm, our portfolio includes pipes with a particularly resistant inner liner, custom-tailored storage reservoirs, non-circular pipes in all shapes and sizes as well as special solutions such as the Amiblu Amiscreen solids retention system. We also design and supply jacking and relining pipes for all applications which allow for low-impact trenchless installation.

Wastewater from storms & sewers pushes the pipe networks to their limit.

Efficient potable water systems are needed to keep up with overpopulation.

Not having to open trenches for an installation means less damage to nature and existing infrastructure, and less CO_2 emissions from construction machinery and traffic jams.

Wastewater Solutions

Sewer and stormwater pipes

Sewer and stormwater pipes made of GRP are inherently corrosion-resistant. They easily withstand the low pH-value of biogenic sulfuric acid, which is commonly found in municipal wastewater. The pipes are used for combined and separate sewer systems as well as bridge, road, and tunnel drainage.

Non-circular pipes for rehabilitation

NC pipes with their non-circular cross-sections are ideal for rehabilitating old city sewers, but they can also be installed as new pipelines in open trench. Their shape is custom designed according to the project demands. Thanks to the relatively thin yet highly durable pipe walls, the diameter loss in relining projects is reduced to an absolute minimum.

Follow the icons in our brochures to get more details about each solution. Scan the attached QR code or go to: amiblu.com/downloads

Retention tanks and storage sewers

Our storage systems help temporarily store and treat excessive amounts of storm- and wastewater. This way, floodings can be prevented and wastewater treatment plants protected from overloads. Thanks to the GRP material's high structural stability, they need only little soil coverage even in areas with high traffic loads.

Amiscreen for separating solids

With the Amiscreen, Amiblu provides a very reliable and efficient solution for separating solids from wastewater. The screening elements retain 100 % of dirt particles with a grain size of more than 8 mm. During heavy rainfall, this helps protect sewage treatment plants from overloads and keeps receiving waters clean.

Hobas PU pipes as culverts for rivers and streams

Hobas PU pipes feature an exceptionally durable and smooth inner liner made from polyurethane that resists abrasion very well and also allows for a great hydraulic performance. The pipes are often used as culverts for rivers and streams that transport sand, stones, and other debris.

Trenchless installations with jacking pipes, for maximum impact with no hassle

Amiblu GRP pipes can be installed easily and with a low carbon footprint by means of trenchless technologies such as micro-tunneling or relining. These technologies are especially convenient when pipelines are laid in densely populated areas such as city centers, protected natural habitats, or beneath heavily frequented roads.

Not having to open trenches for the installation means less damage to nature and existing infrastructure, and less CO_2 emissions from construction machinery and traffic jams. Residents and nature are protected from noise, dirt, and vibrations.

Potable Water Solutions

Pipes

Our GRP potable water pipes are tested and certified for this sensitive application in many countries around the world. They are reliably leak-tight and enable a safe supply of clean drinking water. Their smooth bore provides excellent flow characteristics and minimizes the amount of energy needed to distribute potable water to cities and suburbs.

Reservoirs

We design reservoirs for potable water in all volumes and diameters. They provide a safety reserve and help cover shortfalls between water inflow and water withdrawal as well as peak withdrawals at the time of maximum water demand. The GRP pipes' light weight allows for installations without heavy-duty equipment even in remote locations.

Scan code and watch a video animation below to learn more about the benefits of pipe jacking installations with Hobas GRP pipes! Direct link: bit.ly/3kyLm0c

Green energy. Efficient irrigation. Sustainable industries.

With more people moving into cities and an overall population growth worldwide, energy supply is a critical issue. And with energy, we mean both the type that comes out of the socket – electricity – and the type you need to keep yourself going – food.

But since the most sustainable infrastructure is only as sustainable as its components, hydropower operators seek to use materials that comply with various environmental, economic, and social requirements.

GRP penstocks and pipe systems are easy to install and adapt to all kind of terrains. They achieve more kWh with better returns and lower water hammer than any other pipe, and with a lifetime of many generations they are a trouble-free investment.

Our technologies help build the future in rural areas.

To adapt to a changing climate, heat-resistant crops are being bred and also need to be watered during periods of drought with effective irrigation systems. Leakproof GRP pipes help save water and energy throughout the agri-food chain.

And to be well-prepared for challenges of all kind, pipe systems sometimes need to have a special strength bonus. The Amiblu portfolio also includes GRP solutions for these challenges: particularly abrasion and impact resistant GRP pipes for extreme conditions in industrial applications or similar.

Effective irrigation systems are a must for the bred of heat-resistant crops.

Hydropower operators require penstocks and pipe systems that can adapt to difficult terrains.

Our society urgently needs to cut back on CO_2 intensive energy production, and green sources such as hydropower are gaining importance.

The industrial sector can only succeed with solutions made for extreme conditions.

Irrigation, Hydropower & Industrial Solutions

Hydropower Penstocks

Hydropower penstocks speed up the transition to fossil-fuel free energy production. They are easy to install and adapt to all kind of terrains thanks to their light weight and the possibility of angular deflections in the couplings. The GRP pipes help achieve maximum energy output and feature a lower water hammer and head loss than any other pipe.

Irrigation Pipe Systems

Highly efficient and reliable, our irrigation pipe systems help save water and energy throughout the agri-food chain and provide a buffer against rainfall variability caused by climate change. They are corrosion-free and resistant against UV light, and offer the lowest installed, operating and lifetime cost solution.

Follow the icons in our brochures to get more details about each solution. Scan the attached QR code or go to: amiblu.com/downloads

Meet Flowtite Grey & Orange – made to be effective in the most extreme conditions

Flowtite Grey

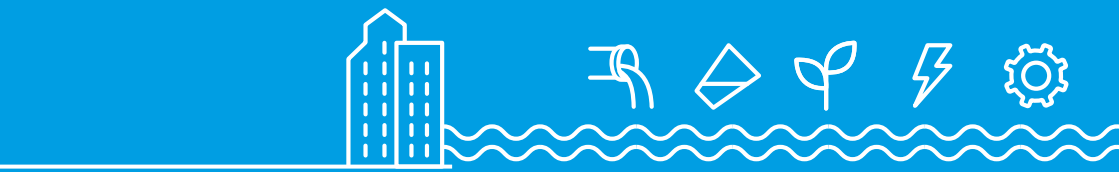
Our Flowtite Grey pipes are highly impact, abrasion, and water jet resistant pipes which allow for backfill material with bigger particles up to 64 mm (sieve size) and therefore enable better usage of native backfill soils. They are primarily used for pressure mains and hydropower penstocks.

Flowtite Orange

Thanks to an extremely durable inner resin layer, Flowtite Orange enables the transport of fluids containing highly abrasive and erosive materials over a longer period of time. These include slurries from the mining industry, storm water containing extreme volumes of sand and gravel, and other applications with extreme wear exposure.

Amiblu®

Let’s value water as we should.



With pipes & solutions engineered for the next generations.

We work hard to create a future where every person on the planet has access to a well-functioning water network.

Turn the page and see how it's possible.

A lifetime of many generations is quite a promise

Can a company that is just over 60 years old claim that their pipes have an operational lifetime of several generations? It can – thanks to the world's most passionate GRP experts, a high-tech laboratory, and of course: lots of coffee.

Let's ask the question differently: Why do most pipes not reach this mature age? These reasons carry names such as Thiobaccillus concretivorus and Thiobaccillus ferrooxidans – tiny bacteria that decompose sewage and form hydrogen sulphide gas. When combined with moist air, the gas forms sulphuric acid (H_2SO_4) which is highly corrosive to materials like concrete, steel, and cast iron. This "microbially induced corrosion" can cause significant damage over time. With GRP products, the situation is quite different.

We take it seriously

Plastics are inherently more robust than both concrete and metals in acidic environments. To prove this, we literally put our pipes to the acid test: GRP pipe samples are exposed to H_2SO_4 for a considerable time, while being subjected to artificially high tensile strains.

Below a "threshold strain" (around 0.9 %), GRP pipes simply do not fail.

We thereby simulate the chemical conditions in aggressive sewage, but under an excessive strain in order to cause failure within a reasonable time frame. To determine the pipes' long-term properties, the measured data is analysed statistically and extrapolated into the unknown to predict a limiting strain for use in pipe design.

The result: below a certain "threshold strain", the samples simply do not fail.

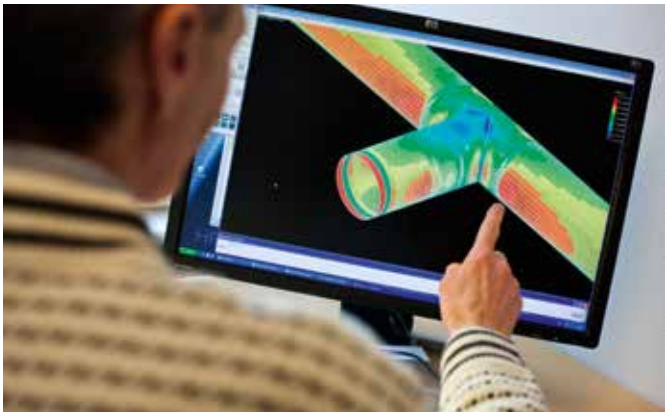
The acid test for GRP pipes was first standardized by the American Society for Testing and Materials in 1978 (test method ASTM D3681), and the same procedure is also specified in EN 1120 and ISO 10952. It calls for minimum 10,000 hours of testing with at least 18 samples. We went the extra mile – with more than 1800 Flowtite and Hobas GRP pipe samples from different manufacturing plants, and over 40 years of continuous testing. The samples are subjected to a vertical force causing tensile bending strain in the pipe invert, while exposed to a 5 % concentration of sulphuric acid. The strain is measured after the load has been applied and then the sample is stored under controlled conditions until failure occurs, i.e. leakage through the pipe wall.

The longest, still running test was set up in October 1978 at 0.91 % strain. The sample has now been exposed to the acid test for more than 40 years. A corresponding regression analysis resulted in an almost horizontal line, which reveals a stunning truth: Below a "threshold strain" (around 0.9 %), GRP pipes simply do not fail.

By extrapolating this line by only ½ of a decade, which is less than one third of what classical statistics allows, we reached a 150-year strain value of 0.93 %. The typical long-term operating strain of such a pipe is merely 0.27 %. This means that, in real-life applications, we even reach an excellent safety margin of 3.4.

The experts that deserve all credits for these findings work in our R&D center in Norway – and this is not just any center: It's the largest certified testing laboratory for GRP pipes worldwide. Accredited according to ISO 17025, the laboratory ensures compliance to the technological state of the art and valid test results.

The accreditation is re-evaluated by the national accreditation body (Norwegian Accreditation) every year. The qualification tests we carry out cover numerous properties that are important for a pipe system's reliable long-term operation. Apart from the strain corrosion or acid tests for sewer pipes, we carry out hydrostatic design tests for pressure pipes, and long-term ring bending tests to check the pipes resistance to external loads.



We put our pipes to the acid test. Literally. Take our word for it.

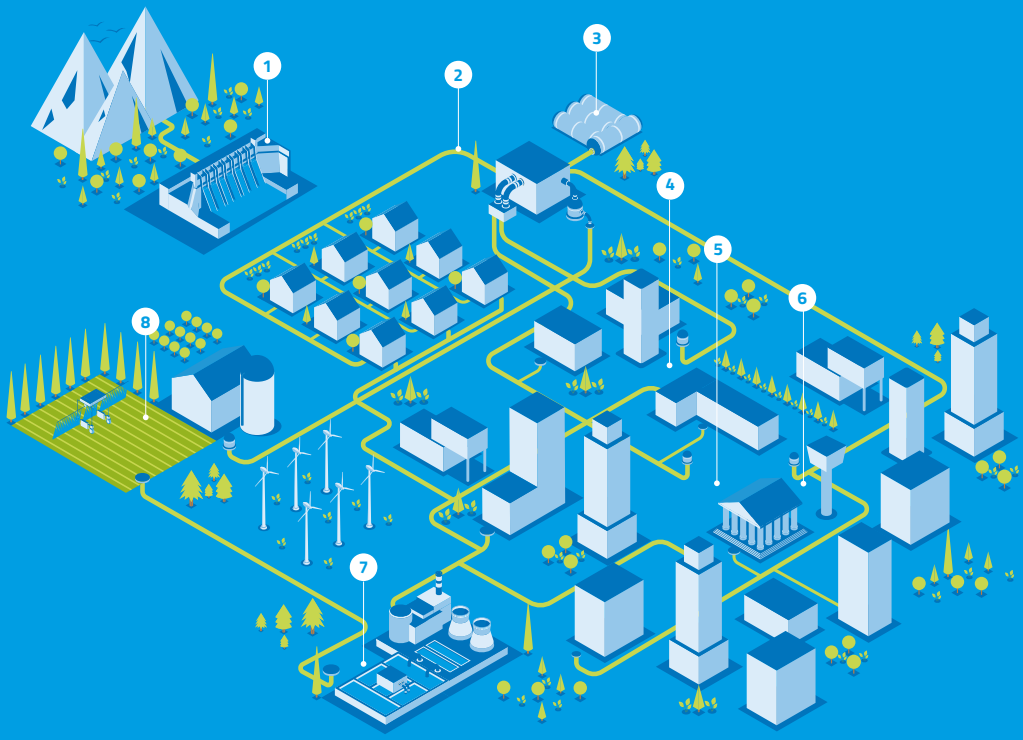
We test the inner liner's abrasion resistance for applications with gravelly or silty fluids, and we have an extensive special testing program for joints and couplings to ensure that they remain sealed even under tough conditions.

With further certifications to the international standards ISO 9001, ISO 14001, ISO 50001, as well as OHSAS 18001, Amiblu is committed to continually improve the corporate performance in the areas of quality, environment, energy, and safety.

Amiblu®

Let's value water as we should

1. Hydropower
2. Potable Water
3. Storage Tanks
4. Sewage and Stormwater
5. NC Pipes Rehabilitation
6. Jacking Pipes
7. Industry
8. Irrigation



Amiblu Holding GmbH
www.amiblu.com | +43.463.48 24 24 | info@amiblu.com