Amiblu®
Pipes designed for generations

GRP hydropower solutions for turning fresh water into energy

Power production with less emissions and more output

FLOWTITE® HOBAS®

Amiblu Pipe Systems
Engineered for the next 150 years

Amiblu GRP pipe systems Engineered for the next 150 years

Hobas and Flowtite glassfiber reinforced plastic (GRP) pipe systems by Amiblu are the product of over five decades of innovation, experience and development. We are the largest producer and technology partner for GRP pipes in the world. Because of our composite engineering and material science skills, we offer a product with an expected service life of more than 150 years.

Our promise: power production with less emissions and more output

Hydropower is the leading renewable source for electricity generation globally, supplying more than 70 % of all renewable electricity. As readily accessible locations are used up, engineers are turning to steeper and harder-to-reach locations to generate the power we need for our cities and industries. In such remote places, penstocks can often not be installed on a straight route, and pipes of heavy materials can't even be transported there, or only at great expense.

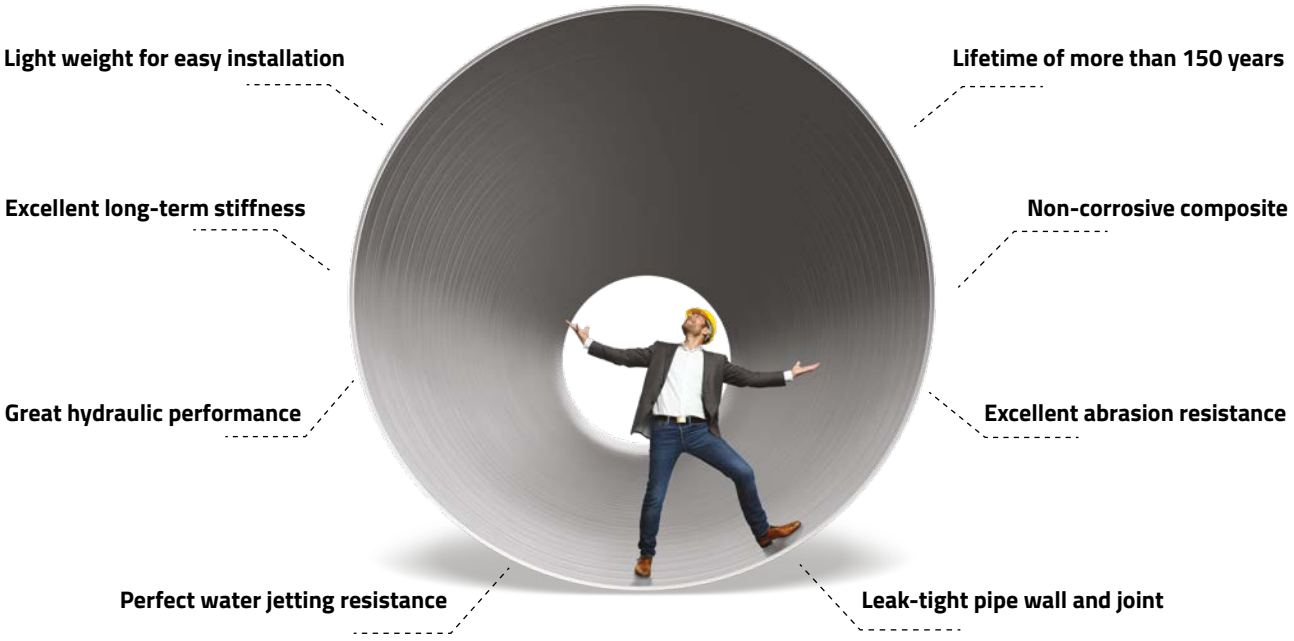
Since the penstock often constitutes a major expense in the total budget – as much as 40 % is not uncommon in high head installations[1)] – it is worthwhile choosing the material carefully. A possibility to save without compromise is GRP: It helps achieve more kWh with better returns and lower water hammer than any other material. And thanks to its sustainability, it supports the transition to fossil-fuel free energy production and less water-intensive renewables.

1) www.microhydropower.net

Environmental sustainability
Our thermoset resins are designed to be inert and stable for 150 years. Glassfibers add stability and strength.

Economic sustainability
Lowest capital cost, lowest installed cost, and lowest lifetime cost. Sustainability doesn't have to cost the earth.

Social sustainability
Suppliers of water, sewage, drainage and energy need our pipeline technologies. We help build an infrastructure for generations to come.



Your benefit: clean energy from the world's most precious resource

When it comes to hydropower pipeline design, various parameters have to be considered between head loss and capital cost: surface roughness, design pressure, method of jointing, weight and ease of installation, service life and maintenance, to name just a few. The very smooth inner surface of Amiblu GRP hydropower penstocks guarantees a low head loss, maximum energy output and constant hydraulic characteristics. The light-weight composite material weighs only ¼ of ductile iron pipes, which is a great advantage in areas that are not accessible with heavy lifting devices. Amiblu pipes are resistant against corrosion, abrasion, and UV light, and feature a long-term stiffness that is distinctly higher than most other plastic pipes.

Engineered for 150 years of operations
The results of our stringent long-term product tests support an expected service life of more than150 years. This is confirmed by the evidence from existing installations that are as good as new after over 40 years of service.

Full corrosion resistance
Environments of pipe systems can have a corrosive nature, e.g. in the case of aggressive soils or stray currents. Amiblu GRP pipe systems are inherently resistant to corrosion and need no cathodic or other additional protection.

Ideal penstock routing without bends
Our jointing system allows for the pipes to be deflected inside the couplings, so curves in the penstock route can be achieved with no or fewer fittings. Angular cut pipes reduce radii even further, especially in large diameter lines.

Excellent flow coefficient
Amiblu pipes have a smooth, resin-rich internal surface that increases flow rates and decreases friction losses, which in turn leads to an increased energy output.

Special liners for extreme conditions
With Flowtite Orange and Hobas PU Line, Amiblu offers innovative solutions for extreme wear exposure. The special liner technologies ensure top performance even at the most challenging conditions.

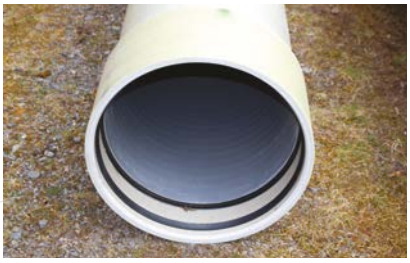
Light weight, easy handling
Our pipes require no heavy handling equipment, which reduces transportation and installation costs. It also makes them a perfect solution for remote project areas that are difficult to access.

Special system components
Built from GRP pipes, the Amiblu sand trap is a key unit for removing solids in small hydropower systems. Custom fittings such as Y- or T-pieces, reducers, or flanges complete the portfolio.

Environmentally sound solution
GRP pipes are sustainable in manufacturing, transport, and installation. They feature a small carbon footprint in production, low transport costs, and allow for a fast installation and efficient operation.

High surge pressure allowance
The potential for damage in Amiblu pipe systems due to water hammer is around 50 % lower than with steel and ductile iron pipes. This is due to a low surge wave celerity as well as a high surge pressure allowance.

Resistance against UV light
The long-term performance and structure of Amiblu pipes is not affected by UV light, nor by frost or high temperatures. Pipes that are in operation under hot and humid desert conditions as well as long and cold winters prove this point.



Leak-tight jointing systems
Amiblu GRP hyropower pipe solutions are supplied with proven jointing systems which remain sealed even when deflected and subjected to external lateral loading, internal or external hydrostatic pressure.

From 100 mm to 4000 mm
No project is too large or too small for us: Amiblu GRP pipes are available in a broad range of nominal diameters from DN 100 up to DN 4000 (mm).

Let our team help your team!

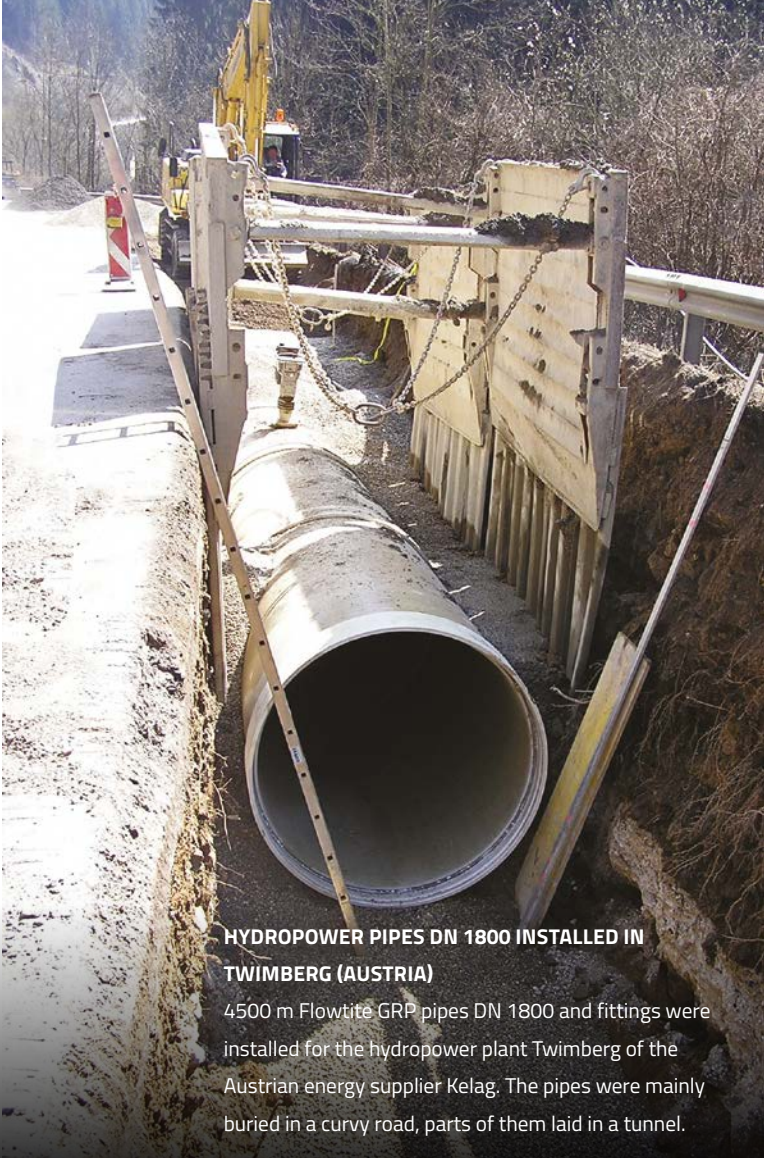
On any project, you need to know that the people you work with are as committed to your success as you are. We believe in the long view and the longterm. So we partner with our customers from concept through to in-operation. We add value with innovative GRP solutions that outscore traditional alternatives on every parameter. We help you solve your problems and overcome your challenges to guarantee longterm, sustainable performance.

700 M PENSTOCK FOR VANGPOLLEN KRAFTVERK (NORWAY)
During the rehabilitation of the 3.5 MW Vangpollen Kraftverk in 1988, the deteriorated steel penstock was replaced with Flowtite GRP pipes. The pipeline is 700 meters long and covers a difference in elevation of 300 meters with a maximum slope of 47°.

Reference projects all around the globe

Amiblu GRP pipes have an impressive track record and are installed around the globe. Among the installation methods are open cut, microtunneling, relining, above ground, on suspensions, in tunnels, and subaqueous.

GRP HYDROPOWER LINE IN THE RAINFOREST (SRI LANKA)
In the southwest of Sri Lanka, 1000 households are reliably supplied with green energy: 478 m Hobas GRP pipes DN 2000-2200 make the hydropower project Upper Kokawita a powerful source amidst the rich green rainforest.



HYDROPOWER PIPES DN 1800 INSTALLED IN TWIMBERG (AUSTRIA)

4500 m Flowtite GRP pipes DN 1800 and fittings were installed for the hydropower plant Twimberg of the Austrian energy supplier Kelag. The pipes were mainly buried in a curvy road, parts of them laid in a tunnel.

3.2 KM LONG HYDROPOWER LINE FOR HÚSAFELL (ICELAND)

In the village of Húsafell in western Iceland, a 3200 m long Flowtite GRP penstock DN 600-700 helps produce 8-9 GWh of water power per year.

GREEN POWER WITH GRP PIPES IN SITI (UGANDA)

On the slopes of the former volcano Mt. Elgon in eastern Uganda, a 5 MW hydropower plant was realized with 4500 m Hobas pipes DN 900-1500, PN 1-32 (water channel and penstock).

XL HYDRO-LINE IN THE APENNINS OF REGGIO EMILIA (ITALY)

A 380 m Hobas pressure penstock DN 3000 was installed on a curved route with angual deflections in the couplings as well as angular cut pipes in the municipality of Castellarano. The water power of the Secchia river now generates 3 MW of clean energy.

Why there is nothing else like an Amiblu pipe system

Engineered for the next 150 years

Service-focused partners to solve your problems

Innovation to challenge the status quo

Amiblu®

Explore more on **amiblu.com** or contact your local partner for sustainable water solutions.

All rights reserved. No part of this document may be reproduced in any form or by any means without prior written permission. All data, especially technical data, is subject to subsequent modifications. The data given is not binding and must therefore be checked in each individual case and revised as appropriate.
© Amiblu Holding GmbH, Publication: 10/2018