FLOWTITE GRP PIPE SYSTEMS
FOR HYDROPOWER APPLICATIONS

THE AMIANTIT GROUP HAS ESTABLISHED HYDROPOWER PENSTOCKS ALL OVER THE WORLD AND IS EXPERIENCED IN THIS FIELD OF APPLICATION SINCE MORE THAN 40 YEARS.

We are specialized in providing convincing hydropower penstock solutions for:

- Low pressure, large diameter Kaplan systems
- Medium range Francis turbines
- High pressure Pelton wheels

Pipe range
- Flowtite GRP standard pipes and fittings up to 4,000 mm
- Pressures up to 32 bar, depending on pipe diameter.
- Standard stiffness classes SN 2500, SN 5000 and SN 10000; other stiffness classes available on request.
- Standard lengths of 3, 6 and 12 m; individual lengths are available on request; limited only by local transport regulations.

For challenging projects we also offer our premium pipe, Flowtite Grey, a high impact GRP pipe. It’s more impact-resistant, allowing larger particle sizes for backfill and it has a better abrasion resistance. It’s available in diameters up to 4,000 mm, with nominal pressures between 6 and 32 bar and a stiffness of SN 5000, alternatively SN 10000.

Joints
- GRP pipe sections are typically joined using a double bell coupling based on REKA system. It is extensively tested and qualified in accordance with international standards such as ASTM D4161, ISO DIS8639 and EN1119.
- Depending on application and project requests, other joining systems such as lamination, lock-joint couplings and mechanical couplings are available.
- For pipelines up to 16 bar a special, high angular coupling system is also available. It allows 3º for the whole diameter range, designed to enable complex, curved pipeline layouts.

Fittings
Amiantit offers a wide range of standards GRP fittings and accessories, including bends, tees, branches, flanges, special manholes and standard connectors. The high flexibility of the GRP materials used allows an unlimited, individual and tailor-made manufacturing of fittings and spools, based on customer requirements.

Services
Amiantit offers outstanding experience and support in the design and development of hydropower solutions including assistance in:
- Project engineering, penstock line and spools design
- Hydraulic calculations
- Stress analysis for underground and aboveground installations
- Installation and calculation of supports and anchorages
- Jobsite supervision
- Hydraulic testing
- Pipeline inspection
Flowtite GRP pipes for hydropower applications provide quality and best cost solutions to customers around the world with many advantages and a long list of features and benefits:

- Hydraulic characteristics essentially constant over time.
- Low head-loss due to smooth inner surface.
- Smooth inner surface resulting in low maintenance costs.
- Minimal negative environmental impact compared to other pipe materials. Environmental Product Declaration available on request.
- Excellent corrosion resistance. No need for cathodic protection or corrosion surveys.
- Long service life. With an expected service life of more than 150 years.
- Unique and constant product features in extremely hot and cold climate.
- Pressure of water hammer approx. 50% less, compared to steel or DIP at similar conditions.
- UV resistance. No need for linings or coatings.
- Tailor-made solutions in regard of pipe design and product properties to meet all customer and project requirements.
- Stringent performance standards.

Flowtite GRP pipe systems meet the demands of many important local and international quality standards. Our manufacturing sites are monitored regularly by third parties and have official certifications such as ISO 9001, ISO 14001 and others.

Flowtite GRP standards pipe systems are approved according to AWWA, CEN, ASTM, DIN, BSI, ISO, ATV, EN and other international / local standards and certifications.

Among the local approvals are:
- TÜV SÜD (Germany), AENOR (Spain), CSTB (France), COBRTI INSTAL (Poland), OTEC Riera (Spain), ACS (France), CERTIF (Portugal) or ITA (Italy).

All Amiantit entities have a huge experience in GRP pipe installation. For hydropower applications they offer experienced support, mainly for installation types such as:
- Open trench / below-ground
- Above-ground

The Flowtite pipe and joint system is easy and fast to install even in challenging terrain. Flowtite GRP pipes have been already installed without special anchoring in trenches with gradients of more than 30° and above-ground at slopes with an angle of 46°.