

Green Energy from Bulgarian Mountains

HOBAS® CC-GRP Pipes Prove their Worth in Hydropower Plants Kalin and Sokolna

Hydropower plants in Bulgaria play an important role in covering peak consumption. Two particularly interesting ones have been realized with HOBAS Pipes – and they are doing an excellent job in providing the country with clean energy.

The name “Rila” means “well-watered mountain”, which is definitely a suitable name for the highest mountain range of Bulgaria and the Balkan Peninsula: It features more than 200 lakes and a great number of mineral springs. Rila is also the name of the first complete cascade of hydropower plants in the Bulgarian mountains. The highest one among them is Kalin which feeds the other plants from 2394 meters altitude and, with a flow rate of 650 l/sec., generates 4 MW. Kalin was built in the 1940s. At the time, the reservoir was connected to the powerhouse with a 2-km-long steel pipeline DN 600 leading through a tunnel in the mountain on concrete supports.

Over the years the pipe corroded, weakened and could no longer withstand the water pressure. It became inevitable to replace at least 300 m of the pipeline in an altitude of approximately 2200 m. Drawing on very good experiences with HOBAS, the client BAD Granitoid AD decided to opt for HOBAS Products again for a variety of reasons – among them the pipe system’s reliable tightness, dimensional accuracy and low weight that facilitated the transportation via the narrow and steep way to the Kalin powerplant. The 3-m-long pipe sections were brought close to the construction site with trucks, then loaded onto trolleys and transported to the entrance of the tunnel on small rails, which lead all the way alongside the pipeline inside the tunnel. 375 m of steel pipes were dismantled and replaced by HOBAS GRP Pipes with the help of winches. In addition, some of the old concrete supports had to be removed and new ones built. Despite all challenges, the installation works could be completed within one week only and the client was more than satisfied.

Year of construction

2012

Total length of pipe

375 m

Diameter

DN 700

Pressure class

PN 10

Stiffness class

SN 5000

Installation method

Above ground in a tunnel on supports

Capacity

4 MW

Client

BAD Granitoid AG

Advantages

light weight, optimum hydraulic properties, leak-tightness, long service life, easy and fast installation



Year of construction

2007-2008

Total length of pipe

ca. 1500 m

Diameter

DN 1200

Pressure class

PN 6 and PN 10

Stiffness class

SN 10000

Installation method

Above ground

Capacity

1074 MW

Client

Forum Ltd.

Advantages

light weight, optimum hydraulic properties, leak-tightness, long service life, easy and fast installation

The village of Skobelevo is located in south-eastern Bulgaria on the fringes of the Sokolna reserve right in the heart of Bulgaria's longest mountain range the Balkan Mountains. At the hydropower plant Sokolna in Skobelevo, approximately 1.5 km of HOBAS Pipes DN 1200, SN 10000, PN 6 and 10, are reliably in service since 2008. The pipes were installed in the valley of Gabrovnitsa River, which originates at the foot of Triglaw in Balkan National Park and flows into one of the largest reservoirs of the country. The steep, stony and curvy route posed quite a challenge regarding planning and installation works.

To optimize investments as well as the plant's efficiency, HOBAS recommended to the client to use angular cut HOBAS Pipes for the penstock. Most of the route's curves (approx. 100) could be realized this way. The pipeline was mounted on concrete supports above ground. Apart from their various installation possibilities, HOBAS Pipes also scored with their pressure resistance – an important quality, given the hydraulic head of 70 m. Thanks to the joint efforts of the investor and HOBAS, the Sokolna power plant has now been supporting the power supply of the region 5 years with optimized capacity.

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