

Hydropower from VERBUND

Cooling systems for hydropower plants



Fit for the
Energy Future
—
with us as your
Partner

Is there a cooling issue at one of your hydropower plants – or do you want to replace single components? In most cases it is not useful to renew decades-old components corresponding to the type label. The state of the art has advanced. The customised solution for the cooling system of your plant requires special know-how, which we have acquired through various projects - from small weir power plants along the river Enns to the power plants along the Danube.

VERBUND offers an extensive package of services, from the analysis and measurement of waste heat flows to the completed tender and accompanying the conversion of the cooling water system.

Our services

- Ultrasonic measurement and analysis of the heat flows
- Preliminary concepts including process flow charts
- Procedural, thermodynamic and strength-related calculations and planning of the assembly of headrace coolers with pipe feed-through
- Pipeline routing and dimensioning
- Design of the other main components
- Creation of tender documents and support during the tendering procedure
- Surveillance of the conversion
- KKS- numbering (definition system for power plants) and documentation

We are offering customised packages of service from a single source, based on our years of experience.



Left:
Cooling plates in the HPP Ybbs-
Persenbeug along the Danube

Right:
Cooling plate as flow deflector
in the HPP Ottensheim-
Wilhering along the Danube

Renewal of the cooling water system

Most power plants are still operated using fresh water cooling systems. After the water is taken from the river, it is filtered and sent to the primary coolers of the plant. The disadvantages of these systems can be higher maintenance expenditures, fouling losses and attrition up to oil leakage. In this case renewal is inevitable.

Closed cooling water circuits

Modern cooling water systems are cooled by closed cooling water circuits. The circulation water is back cooled in works water coolers. These are constructed as plates or pipes – often made of stainless steel – with works water flowing around them, back cooling the cooling water flowing inside.

Analysis

As with every other system it is important to analyse the entire plant when looking at the cooling. Only with experience weak spots can be identified and overhauled effectively. An important tool for instance is the ultrasonic flow measurement which enables measuring cooling water flows and temperatures. Through comparison with existing data, sources of errors (like malfunctioning valves, fouling in the heat exchangers or procedural design mistakes of coolers, pipes or pumps) can be identified with appropriate expert's assessment.

Our References

St. Veit / Salzach	120 kW
St. Georgen / Mur	300 kW
Gralla / Mur	640 kW
Sölk / Enns	865 kW
Ottensheim / Danube	1.440 kW
Hiefiau / Enns	1.575 kW
Greifenstein / Danube	2.250 kW

VERBUND is Austria's leading electricity company and one of the largest producers of electricity from hydropower in Europe. For 70 years we have been co-shaping the future of energy for upcoming generations, at the moment we are operating more than 120 hydropower plants in Austria and Bavaria (Germany).

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