**Project:** RUN-OF-RIVER PLANT KW Gößendorf  
FULL MODEL TESTS (scale 1:40)

**Project team:** Tschernutter, Pucher, Mayr

**Client:** Energie Steiermark GmbH

**Objectives:**  
Hydraulic optimization of the power plant  
Verification of flood water discharges  
Flushing of deposited sediment and sediment passage through the weir spillway during flood events

**Abstract**

The aim of the full model tests of the low-head hydropower plant “KW Gössendorf” was to develop an optimized construction design in terms of approaching flow conditions to the turbines, sediment defence measures to the powerhouse intake, suppression of surface vortices in front of the turbine intakes, sufficient energy dissipation of the stilling basin and reduction of sediment deposits at the draft tube outlets. Furthermore, the effectiveness of sediment management in the vicinity of the plant was investigated (e.g. flushing strategies) in combination with the development of control rules for the tainter and flap gates during flood events. Preliminary model tests to optimize the weir and the energy dissipation were performed.

**Full model tests of the power plant**

Preliminary design with isotachic field of Turbine 2

Best design (left) with isotachic field of Turbine 2 (above) and comparison of optimization results

Laser scan of model bed (left) with photo of the downstream bed (right) after a 100 year flood event

**Reference:**