Project: STRAFLOMATRIX®- MODULE IN AN EXISTING AUXILIARY LOCK (scale 1:15)

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Client: VA TECH HYDRO GmbH & Co

Objectives: Approaching Flow Conditions
Flood Discharge Capacity of Auxiliary Lock with and without StrafloMatrix™ - Powerhouse

Abstract

Within the planning of a StrafloMatrix™ - Power Project in an existing auxiliary lock the Institute of Hydraulic Engineering was commissioned to investigate the hydraulic approaching flow conditions to the turbine / generator – units (TG-units) and also to conduct baseline tests of the hydraulic discharge capacity through the auxiliary lock before and after the new powerplant has been installed. The hydraulic model tests were carried out on a full bay plexiglass model of the auxiliary lock. The main objective of the investigation concerning the approaching flow conditions was to identify all hydraulic shortcomings of the planned power facility in terms of the generation of inflow swirls resulting from submerged floor, wall and interlinked vortices. Detection of possible air entrainment due to surface vortices in all potential combinations of TG-unit operating regimes was an additional goal of this investigation. In the case of unsatisfactory inflow conditions a simple solution for vortex and swirl suppression should be developed in order to ensure acceptable TG-unit inflow conditions. These experiments were carried out for selected flow cases (TG-operation) with different discharges. The tests concerning the hydraulic discharge capacity had involved the determination of the discharge capacity of the so called Obermeyer spillway flap gates and the draft tubes (when all TG-units were lifted) both seperated and also combined.

Hydraulic tests on a StrafloMatrix® - Module

Reference: