

State of the art of Coanda screens at water intakes

Coanda screens are fine screens with sharp-edged, horizontal bars, which have been increasingly constructed at intakes of hydropower plants on mountain torrents in Switzerland (Fig. 1). Their gap widths range from about 0.4 to 3.0 mm, so that floating debris and sediment particles are partly kept from the turbine water. Further advantages are the self-cleaning capacity, low maintenance cost, and impassability for fish. Some disadvantages are the limited discharge capacity and risk of damage due to coarse bed load.

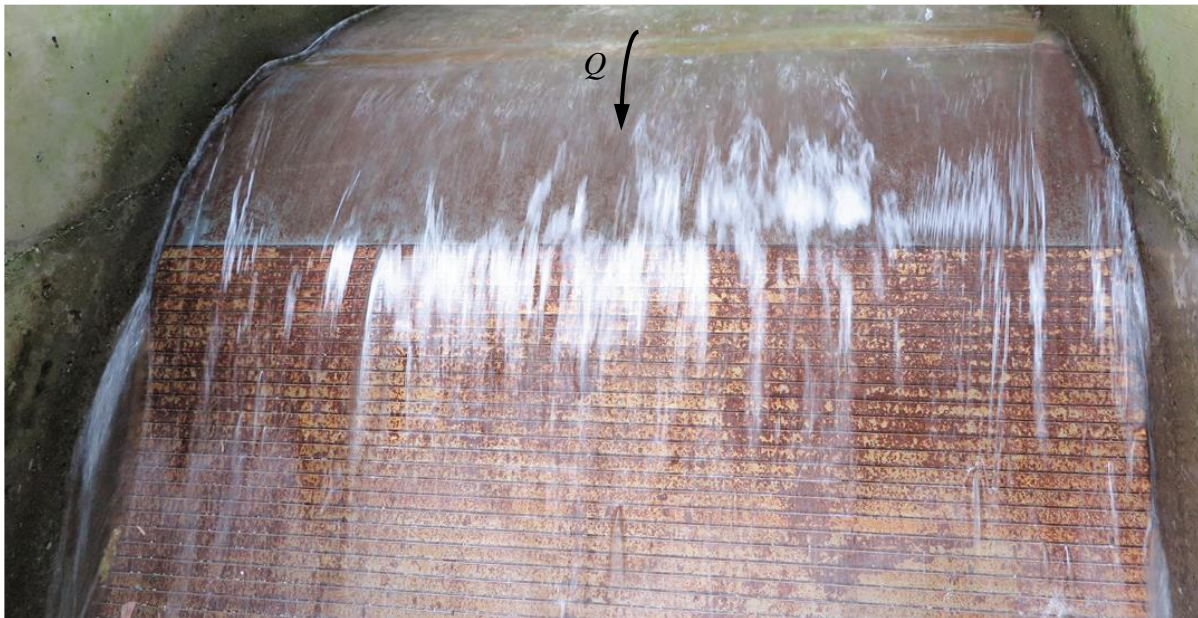


Fig. 1: Water withdrawal with a Coanda screen (Source: HTW Chur)

The aim of this Bachelor's thesis is a literature study on the current state of the art of Coanda screens. The student will conduct independent research on the functionality, different construction methods, effectiveness of sediment particle rejection as function of particle diameter, specific discharge capacity, fish friendliness, design recommendations, and case studies of such systems. The findings shall be compared to a recent study by FH Graubünden and VAW of ETH Zurich.

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Remarks: Communication and report may also be possible in German (depending on supervisor);
Group work possible; topic can be distributed more than once