



Case Study

East Switzerland

Flow regulation by ConDor exceeds expectations, increasing flow capacity in culvert pipes by ~100%.

Background

Wastewater from the municipalities of Rehetobel, Speicher, Trogen and Wald, in the eastern part of Switzerland, is drained into the Altenrhein wastewater treatment plant (WWTP) via two parallel DN200 and DN250 sewer pipes, controlled by DOROT S100 hydraulic control valves.

Challenge

Avoiding air pockets which might limit flow in the pipelines

Water flowing between a reservoir located some 1200m upstream and the valves could result in pipe blockages and reduced flow capacity. If the in-flow was too low, sewage could overflow from the reservoir; if the flow was too high, the water level could drop too low, allowing air to enter the pipeline.

A solution was required to regulate the flow in the main pipeline, to maintain the reservoir's water level between a pre-set maximum and minimum height.



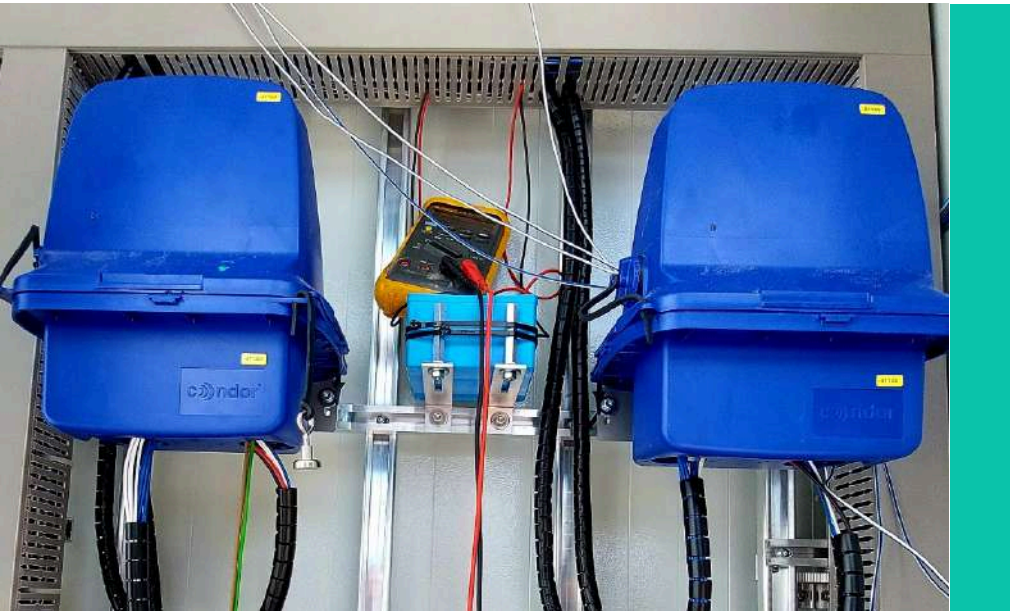
Solution

Regulating the flow as a function of the water level

To meet the customer's challenge, Aquestia selected rubber-lined S100 hydraulic valves, controlled with compressed air.

The valves control the flow in the pipeline according to the level of water in the reservoir. A radar probe measures the level in the reservoir's intake basin, and that value is transmitted to the electronic ConDor controller via fiber optics. In response to the measured water level, the controller assigns a target flow rate, which determines when to open and close the S100 hydraulic valves based on the changing level of water.

An additional layer of protection was provided by the installation of a pressurized air control relief valve off-line of the main sewer valves, to ensure that distractive pressure spikes would not occur if the valves closed too quickly or incorrectly.



Results

100% increase in flow capacity

As soon as the hydraulic valves were commissioned in May 2022, the flow capacity increased by approximately 100%, and it has continued to exceed the originally planned value to this day. Since then, the ConDor system has been extremely quiet and precise, operating smoothly to alter the flow and water level as required to eliminate air from the system.

