

# Ultrasonic flowmeter measurement solutions in the demineralisation plant

**N**on-invasive clamp-on ultrasonic flow measurement is proving to be the answer to the problem of unreliable measurement values from outdated measuring orifices on demineralisation lines.

Working independently of the conductivity of the medium flowing inside, the acoustic method is not sensitive to vibration, and because clamp-on transducers are mounted on the outside of the pipe, there is no need to disrupt operation while the measurement is installed.

The non-invasive measurement works, regardless of the conductivity of the medium, and there is no risk of contamination or leakage. What is more, plant operation is optimised thanks to reliable monitoring of the ion exchangers.

## Ensuring a stable security of supply to customers

We were called in to assist a major German chemical manufacturer with flow measurement of demineralised water and an aqueous hydrochloric acid solution (<3%) on the cation exchanger. As production facilities were expanding, the amount of steam required was rising. The raw material for steam is demineralised water, and non-desalinated water would lead to calcification of the boiler in no time. To deal with rising demand, a new demineralised water treatment line was installed and put into operation.

Measuring orifices from the original 1980s demineralisation lines were installed for flow measurement, but a more contemporary vortex flowmeter was used on the new one. Unfortunately, this proved sensitive to vibration and often provided erratic measurement values. This is where non-invasive flow measurement proved to be the perfect solution.

## Economical use of water is crucial for energy reasons alone

We also helped the same German chemical manufacturer with flow measurement of process water on a DN500 cast pipe in the inflow to a DI water system. A stable supply of water in a high and controlled quality is essential for the production of chemicals, steam and electricity. For reasons of economy, the pressures and flows of 900 pumps and drives must be brought to a desired level, consuming ~240,000 megawatt hours of electricity per year. The operating engineers of the water supply at the Dormagen site needed a reliable measuring method to record the quantity of process water in the feed to a DI water plant.

Following successful test measurements, a permanent clamp-on ultrasonic flowmeter was installed, which has been delivering reliable and trouble-free measurements ever since.

## A proven solution

It is now widely recognised that non-invasive clamp-on ultrasonic technology is not only highly effective for measuring the flow of water, but notably for media that pose a particular risk due to their properties or that rapidly wear out the wetted inline measuring instruments.

Overall operating costs are low, and measurement is permanently stable and virtually maintenance-free.



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