



## GRUNDFOS SMART FILTRATION SUITE:

# Collaborating to deliver optimised antiscalant dosing for desalination in northern India

### SITUATION

To address the increasing water supply and quality issues in the northern region of India, the Nandesari Industries Association (NIA) has developed its own desalination plant in Vadodara. Permionics, a pioneer of membrane technology and water treatment in India, has been responsible for the plant's state-of-the-art design, construction, and current operation.

The plant has a production capacity of 12 million litres per day (MLD) and is highly automatised, including SCADA and remote monitoring. Grundfos supplied all pumping equipment for the desalination plant, with product quality a decisive factor in supporting a future capacity increase of 5 MLD.

### SOLUTION

Chemical pre-treatment is an important step for the whole desalination process, helping the plant significantly increase efficiency and therefore produce less concentrate for further disposal. The chemically conditioned filtrate water is pumped through multistage pumps into a reverse osmosis (RO) membrane configuration of two stages to achieve optimum recovery. To make the permeate water obtained from the RO membranes suitable for most industries and for ultra-pure use, Permionics was interested in a solution

that could further improve its already highly optimised operations and adapt to the rapidly and constantly change in water quality.

### RESULT

Permionics and Grundfos collaborated on implementing the Smart Filtration Suite, specifically the SmartRO algorithm focused on optimising antiscalant dosing. Its main features include a unified data normalisation analytic control, as well as an antiscalant controller and optimiser that runs in automode. SmartRO took care of defining the optimal setpoint of antiscalant dosing autonomously instead of a fixed constant dosage. In addition, energy use in the high-pressure pumps was decreased when dosing at 1 L/h instead of 4 L/h.

<b>CLEANER</b>	-7% energy consumption -68% chemical consumption
<b>BETTER</b>	"Smart Filtration Suite performance report helped us understand how our system was in fact running optimally."
<b>CHEAPER</b>	€11,143 total yearly savings 54% energy reduction 46% chemical reduction

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