

PROXA chooses Danfoss pumps and ERDs for compact SWRO plant in Cape town

Highlights

3,300 m³/day two-train SWRO system

Reduced footprint to fit existing space

Designed for energy efficiency and modularity

Supports Cape Town's water security strategy

Cape Town narrowly averted “Day Zero”, when the South African city’s water supply was nearly shut down due to severe water shortages in 2017-2018. Since then, water security efforts have intensified in both the public and private sectors. When the owners of a hotel and commercial center situated on the historic harbor front decided to install their own SWRO plant to increase their water resilience, the brief was simple but demanding: maximize water output in as little space and as efficiently as possible. Danfoss high-pressure pumps and ERDs compact energy efficiency are at the heart of the solution.



3,300
m³/day

Compact footprint



Challenge

Maximize water production as energy efficiently and compactly as possible

Against the backdrop of Cape Town's long-term water shortages, PROXA's customer, the owners of the celebrated V&A Waterfront in the city's harbour district, wanted to increase their resilience to water scarcity. Because the property has access to the sea, SWRO was a logical choice. However, the property's unique situation placed special demands on the SWRO plant's design.

According to Derick Coetzee, Sales Manager at Marsi Water, not only would plant capacity have to be big enough to cover all water needs of the property's hotel, shops, restaurants and other businesses. It must also be compact as possible because the space it takes up in the attractive location could otherwise be leased. Finally, in line with the property owners' decarbonization policies, the entire property would have to operate at net zero no later than 2035 – so the SWRO plant would have to be as energy efficient as possible.

← **Compact, efficient HP pumps:** Each of the two trains features one Danfoss APP 86 high-pressure pump to deliver maximum output with minimal footprint. Chosen for its industry-leading energy efficiency and reliability, the APP 86 helps meet the site's strict net-zero goals. In a parallel design that ensures operational flexibility, this compact solution fits seamlessly into the limited space beneath Cape Town's iconic V&A Waterfront.

Solution

A two-train, 3,300 m³/day plant built around Danfoss APP and iSave technology

When PROXA's engineers approached Marsi Water to discuss possible component choices, Coetzee was not in doubt that the Danfoss lineup of APP pumps and iSave energy recovery devices were strong contenders. "The combination of Danfoss' best-in-class energy efficiency and very compact footprint is ideal for a project of this kind," he explains. "Not only could PROXA maximize water production per cubic meter of space used. They could also minimize electricity consumption per cubic meter of water produced."

To further boost resiliency, PROXA engineers decided on a two-train design so that even if one train was down for maintenance or repairs, the other would still produce water. "This multi-train design gives both plant operators and owners increased flexibility," says Coetzee. "In addition to redundancy of the most critical components, it also simplifies plant expansion should this be necessary in the future. Adding another train to an existing plant is much easier than redoing the entire plant."

Each of the plant's two trains comprises one APP 86 high-pressure pump and two iSave 50 ERDs.



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↑ Derick Coetzee
Sales Manager at
Marsi Water

**Active energy recovery, built in:**

Two iSave 50 ERDs per train cut energy use while boosting process control. These advanced, active ERDs integrate pressure exchanger, pump, and motor into one compact unit, helping the SWRO system operate efficiently in a space-constrained, environmentally sensitive setting. A key part of achieving long-term water resilience at the landmark V&A Waterfront.

Results

Simple installation and operations – and a possible third train in the future

The plant was commissioned in October, 2024, and operations have thus far been trouble free.

According to Regardt de Swardt, Project Manager for PROXA, “Danfoss and Marsi Water provided impeccable service during both the design review and commissioning phases. Their international commissioning team provided initial training, and their service team provides ongoing support to the PROXA Operations & Maintenance team during the 10-year operations contract.”

“We’re very pleased with Danfoss’ cooperation on this project,” says Coetzee. “and we look forward to the possible expansion of this plant.”



The **V&A Waterfront**, set in Cape Town’s historic harbour with Table Mountain as its backdrop, spans 123 hectares and welcomes millions from across the globe. This vibrant destination blends heritage and diversity, offering opportunities to live, shop, dine, work, and play while experiencing authentic local culture.

For more information, visit: <https://www.waterfront.co.za>



With over 25 years of expertise, **PROXA** is a global leader in water treatment solutions, committed to sustainability and innovation. Serving industries like mining, petrochemical, food & beverage, and municipalities, PROXA delivers customized water services across Africa, Australia, Europe, and the Middle East. By optimizing water cycles and minimizing waste, PROXA ensures reliable, eco-friendly water solutions tailored to diverse needs.

For more information, visit: <https://www.proxawater.com>



Marsi Water is the South African distributor for a broad range of specialized components, including Danfoss high-pressure pumps and ERDs, for advanced water treatments.

For more information, visit: <http://www.marsiwater.com>

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