

Case Story | Gefico

Gefico chooses **Danfoss ceramic APP pumps** and **iSaves** for modular SWRO solution



7 trains
3 plants

1 design

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Highlights

- Compact, modular train design for containers and skids
- Ceramic APP pumps + iSave ERDs
- SEC: 2.36 kWh/m³

When a Spanish engineering company needed one compact, reliable, and energy-efficient SWRO solution for three separate end users, Gefico's engineers proposed a compact, modular train design that could be both containerized and built on skids. Danfoss's ceramic APP pumps and iSave ERDs are at the heart of the seven trains that Gefico designed and produced.

The challenge:

Design and produce a **flexible, energy efficient SWRO system** suitable for containers, skids, remote monitoring – and high-particulate feed water

Gefico's customer, Estel, is a Spanish engineering company that provides build-own-operate (BOO) SWRO, wastewater, and electricity-generation solutions for hotels and resorts worldwide. Estel approached Gefico in Spring 2023 with an interesting request for a proposal. How would Gefico design a solution that Estel could utilize in Jamaica, where it needed BOO SWRO plants for three different resort customers, two of whom required containerized plants with a 1500 m³/d capacity, and one of whom needed 2250 m³/d for an existing building?

According to Gefico's sales director, Javier Expósito Pernas, the project perfectly fits Gefico's decades-long experience in the marine, offshore, and land based SWRO sectors. "Maximizing output per cubic meter of plant space was, of course, a critical starting point because two of the end users needed containerized solutions. At the same time, all plants had to provide remote monitoring and the robustness to deal with Jamaican seawater's particulate levels. Finally, and very importantly, Estel has extensive experience with BOO, so they think consistently in terms of total costs of ownership. Consequently, they thus also required excellent energy efficiency and operational reliability to enable predictably low energy and maintenance expenditures."

The solution:

A **modular system** comprising seven 750 m³/d trains based on Danfoss **APP ceramic pumps** and **iSave ERDs**

To comply with Estel's multi-faceted requirements, Gefico's engineers designed a modular system based on a compact 750 m³/d train that could be flexibly combined in multiple ways. Two trains in one 40' container would be ideal for each of the two resorts that required 1500 m³/d. Three trains could be built on skids for easy transportation to the third resort with the existing building that required 2250 m³/d in all. Each of the seven trains is built around a Danfoss APP 38 ceramic high-pressure pump and an iSave 40 ERD, and all are equipped for remote monitoring.

"Our modular design has several significant advantages," explains Pernas. "The modularity gives flexibility and scalability, which reduces CAPEX related to design and production costs, but also lowers OPEX by standardizing components and streamlining maintenance and spare parts procedures. At the same time, redundancy is built into each of the three plants, which further simplifies maintenance and is critical risk mitigation for resorts that depend on consistent fresh water supplies."



The results:

A **flexible** and **modular system** that provides **best-in-class energy efficiency** and a **compact footprint**

Gefico commissioned the first modular plant in early May of 2024, just under 12 months from Estel's RFP. The following two are scheduled to come online soon after.

"Danfoss HP pumps and ERDs are a key part of this modular solution," concludes Pernas. "Not only is their compact footprint ideal for tight spaces like these, but their energy efficiency and reliability are unparalleled. The combination of APP and iSave technology enables us to achieve an SEC of 2.36 kWh/m³, so both Estel and their customers can minimize the financial and environmental costs of their SWRO."

"That we now have the option of installing ceramic versions of the APP pumps is also a real plus in some remote locations, for example these in Jamaica. Danfoss's long service intervals and remote monitoring capabilities help both Estel and us further improve our ability to minimize operational costs and downtime. And their stock policies and short lead times make it possible to build and deliver customized solutions like this with predictable speed."

Gefico

About Gefico: Founded in 1979, Gefico Enterprise S.L. is an innovative water treatment specialist with decades of experience in the marine, offshore, land-based, and industrial sectors. With a strong foundation in R&D and quality management, the family-owned Spanish company serves customers worldwide. For more information, please visit www.gefico.com.

estel

About Estel: Estel is a Spanish company with more than 25 years of experience in engineering works and comprehensive installations. Working closely with hotel chains, investment funds, public administrations, construction companies, and private owners, the company has more than 1,300 projects with partners in 20 countries worldwide. For more information, please visit www.esteling.com.

Danfoss A/S

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