ENGINEERING TOMORROW

Case story | Canaragua

Canaragua uses **Danfoss pumps** and **ERDs** for **ultra-compact RO plant** in Gran Canaria

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energy savers - both with the markets smallest footprint

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Even though Canaragua has installed dozens of SWRO plants throughout the Canary Islands, the project in Puerto de Mogán was unusual because of the focus on compactness. The municipality needed to expand water production, and the best place to locate the new plant was in the middle of the historic town right off the main square. Could Canaragua come up with a containerized solution that was compact enough to fit in the small allotted space?

The challenge: Engineer an SWRO plant compact enough to fit into small urban location

Like many remote coastal towns, picturesque Puerto de Mogán, located on the Gran Canaria's southwest coast, depends on SWRO for fresh water. And like many other similar municipalities, Puerto de Mogán's need for water is growing. So the town put out a tender to increase its water supply by 1800 m³ per day.

Most of the tender's requirements were typical for the island, where a focus on energy efficiency and total costs of ownership are a must, given Gran Canaria's KwH costs. One demand was different, however: Since the optimal plant location was in the historic town center, where space for new installations is extremely limited, the municipality asked Canaragua to build the plant into as compact a footprint as possible.

The solution: High-performance SWRO in an extremely compact and modular containerized design

"This was an interesting project for us because we had never before built something so compact," says Adex Bruno Torres Rodríguez, the engineer who managed the project for Canaragua. "Space was at a premium, and all components would have to be as compact as they were high-performing."

After some research the company decided on Danfoss the APP 38 high-pressure pump and the Danfoss iSave 50 ERD. "For the purposes of this project, the APP and iSave combination is ideal. Not only are they the most compact pump-ERD combination available, they also have outstanding energy efficiency and reliability."

The plant was split into two 12" containers. One contains the plant's 18 pressure vessels, with room for one or two more should demand increase in the future. The other contains the two APP 38s, iSave 50 ERDs, and the chemical cleaning pump and flush deposit.

The results: 1800 m³ of reliable output per day, right off the main square

The containerized plants were built and tested at Canaragua facilities then shipped to Puerto de Mogán.

"As expected, we've had no maintenance issues since installation," says Torres. "The Danfoss components are well known for their reliability, and our containerized plants in Puerto de Mogán are no exception. Technical support from Danfoss has also been outstanding. What has been exceptional about this project is its compactness. In fact, we've created a new way of expressing this, an output capacity per container size ratio, if you will."

The containerized solution with APP 38 pumps and iSave 50 ERDs

Torres explains the new ratio as follows. The plant was installed inside two 12-foot containers with the standard maritime exterior dimensions of 12.2 m x 2.59 m x 2.44 m, giving a total cubic space for both containers of 144.2 m³. With its total capacity of 1800 m³ of desalinated water produced every 24 hours, the Puerto de Mogán plant's output capacity per container size ratio is thus 12.48 m³ of desalinated water output per day per m³ of container space. The higher the ratio, the more compact the plant.

"I don't know if others will find this ratio interesting," smiles Torres. "Perhaps this kind of calculation is the kind of things that only SWRO engineers can appreciate, and it's only relevant where space is at a premium. But the Puerto de Mogán ratio is as high as we've ever reached for such an energy-efficient plant."

About Canaragua:

Canaragua provides a comprehensive array of water management services to households, businesses and municipalities throughout the Canary Islands and beyond. With its dedication to harnessing technological innovation to serve its customers while protecting the environment, Canaragua leads the way throughout the water management cycle, from catchment to drinking water treatment, transportation and distribution, sewage infrastructure, and wastewater treatment.

For more information, please visit http://www.canaragua.es/en

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Nordborgvej 81, D25 · DK-6430 Nordborg, Denmark · www.hpp.danfoss.com

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