

Case story | Metis Water

Metis Water chooses Danfoss to **power containerized SWRO plants** for emergency situations

hpp.danfoss.com

Highlights

- High energy efficiency
- Low maintenance
- Small footprint

Metis Water chose Danfoss APP pumps and iSave ERDs for its mobile 1,000m³/d SWRO plant. Designed to fit inside a 40 ft container, the plug-and-play solution can quickly be deployed to supply fresh water in emergency situations – reliably and energy efficiently.

The challenge:

Produce as much water as **energy-efficiently** and **reliably as possible** in a 40 ft container

When catastrophes leave communities without their usual source of fresh water, SWRO is sometimes the best way to re-establish their water supply. But because commissioning and building a new plant can easily take more than a year, they must often do without or truck water in at significant financial and environmental cost.

To help communities meet these emergency situations, Metis Water set out to design mobile SWRO plants that could be pre-built and dispatched on a few days' notice. After settling on the 40 ft container to ensure easy storage and smooth logistics, they began designing an SWRO plant that would maximize water production within the container's 67 m³ volume. Because communities in need are often in remote locations, simple maintenance and strong reliability were musts, as was the lowest possible energy consumption.

The solution:

1,000 m³/day plant built around
**Danfoss APP pumps, iSave
ERDs, and VFDs**

According to Massimo Bongiani, co-owner of Metis Water, the search for the right components soon led to Danfoss.

"Through B&P Water Technologies, we have installed Danfoss HP pumps and ERDs in SWRO plants for years," says Bongiani, "including on remote offshore platforms, so we know the products well. Their compact footprint is ideal for a containerized plant like this, where space is at a premium. But even more important are specific energy consumption and reliability. To our knowledge, the combination of the APP high-pressure pump and iSave ERD is simply the most energy-efficient on the market for a plant of this capacity, and their long service intervals are unsurpassed."

For the Metis Water containerized SWRO plants, engineers decided to install an APP 46/1780 high-pressure pump and an iSave 50 ERD, both connected to a Danfoss VLT AQUA Drive FC.



The results:

**Energy-efficient plug-and-play
SWRO** that quickly proved its worth
in the field

Metis Water did not have to wait long for the first field application of its new containerized plant. When Andora, a town in Liguria on the Mediterranean coast, lost its supply of potable water due to saltwater intrusion into the underground aquifers that had supplied it for centuries, SWRO was an attractive alternative to trucking in water for the town's 7,657 inhabitants.

"We were able to set up the plug-and-play plant in Andora within seven days," says Bongiani, "and it has been running without problems ever since. With a specific energy consumption of less than 2.2 kWh/m³, the community can be confident that its new supply of potable water is as economically and environmentally sustainable as possible."

Another key feature of the containerized water plant is its capability for remote monitoring. "Because these plants are designed to be deployed anywhere – also in locations that are very far from the beaten path – operational reliability is critical," explains Bongiani. "Sending maintenance staff on short notice is not a viable option. Of course, Danfoss's long maintenance intervals are clearly an advantage in this regard, but their suitability for remote monitoring is also extremely helpful. Once the containerized plant is connected to the internet, we can monitor all key parameters via the cloud. This helps us help our customers not only troubleshoot any issues that arise unexpectedly, but also to perform predictive maintenance."



METIS WATER

About Metis Water: Metis Water S.r.l. is a company born from the synergy between B&P Water Technologies S.r.l. and Teti Acque S.r.l.. For more information, please visit: www.metiswater.eu

About B&P Water Technologies: B&P Water Technologies S.r.l. specializes in the design and production of turnkey SWRO, wastewater, and other water treatment solutions. For more information, please visit www.bpwatertech.com

About Teti Acque: Teti Acque S.r.l. has forty years of experience in the management of drinking water supplies and water emergencies. Originally founded to aid public sector partners manage water emergencies with tanker trucks, the company now has ongoing operations throughout Italy. For more information, please visit www.tetiacque.it

Danfoss A/S

High Pressure Pumps • danfoss.com • +45 7488 2222 • E-mail: highpressurepumps@danfoss.com

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.