CASE STUDY

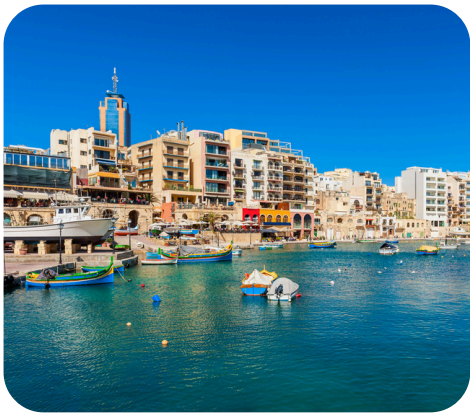
ENSURING A RELIABLE POTABLE WATER SUPPLY FOR FIVE-STAR RESORT IN MALTA

LOCATION:
St George's Bay, Malta

COMMISSIONED:
2026

TECHNOLOGY:
Seawater Reverse Osmosis

CAPACITY:
300 m^3/d



CONTEXT

A hotel chain has recently built a brand-new five-star resort on St. George's Bay, on the northeast coast of Malta. As a registered private water supplier, the hotel was designed to produce its own potable water on site through a dedicated seawater reverse osmosis (SWRO) plant from the moment it opened.

Because it is located in one of Europe's most water-stressed regions, the hotel sought to aquire a reliable and autonomous water supply that would be independent from the municipal network.

Other project objectives:

- To meet the requirements of Directive (EU) 2020/2184 for drinking water quality
- To build in redundancy through two SWRO units, so that maintenance on one unit never interrupts supply
- To minimize chemical consumption, storage, and handling within a compact hotel plant room.

CHALLENGES

Hotels require a continuous supply of potable water for guest rooms, restaurants, pools, and spa facilities, with demand peaking during the summer when freshwater resources are under the greatest strain. In Malta, commercial water costs are high, and desalination plays a vital role in the national water supply.

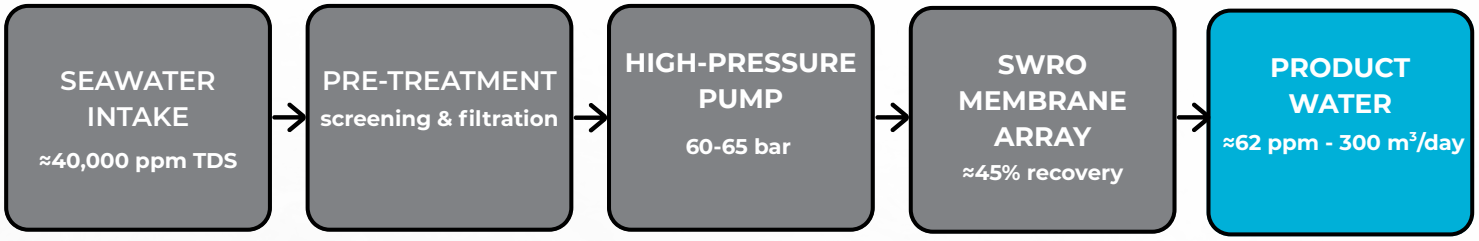
Mediterranean seawater contains around 22,100 mg/L of chloride and 39,000 mg/L TDS, which makes it one of the most saline open-water sources. Treating water at this salinity requires high-pressure RO membranes and optimized energy recovery to maintain efficiency.

Finally, with only 120 m^2 available in an occupied resort, the plant room had to maximize every square metre. The system needed to be compact, quiet, and easy to service, and its production capacity had to be carefully sized to match the hotel's actual potable water demand.

SOLUTION

The SWRO plant was designed and supplied by Bajada New Energy (BNE Water Pro), H_2O Innovation's distributor in Malta. The installation consists of two identical 150 m^3/day SWRO units, for a total production capacity of 300 m^3/day. These ensure uninterrupted operation during maintenance.

The system combines multiple H_2O Innovation technologies, including SpectraGuard 100 antiscalant, which is dosed upstream of the high-pressure pumps to control scaling at 41% recovery, and Piedmont flexible couplings throughout the plant piping. Following the desalination, the permeate is remineralized and disinfected before being stored and distributed throughout the hotel.



RESULTS

The system provides the hotel with a reliable and autonomous supply of potable water that fully meets its daily demand while complying with Maltese drinking water regulations. It also delivers an economical source of high-quality water.

85.8%
reduction in water cost per m^3

60%
Energy saving on the high-pressure reject stream

300 m^3
Stable self-managed daily production capacity

~62 ppm
Product-water salinity

This project demonstrates how integrated SWRO solutions can help hotels in water-scarce regions secure their water supply and maintain consistent water quality from day one.

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