

## Case study: Triton-Compact-RO seawater desalination system in luxury hotels

### Triton Water AG

Triton Water AG is a well-known and reliable partner in the water and wastewater treatment space on maritime vessels and on-shore. With more than 1,500 installations since 1851, Triton Water AG is one of the leading German middle-sized companies with more than 80 qualified employees. We provide best-in-class solutions across the full water cycle through leading technologies.

### El Mouradi Hotels

El Mouradi Hotels is the leading hotel chain in Tunisia. Today, El Mouradi offers 16,000 beds in 15 units of superior categories. The hotels and resorts are spread across the whole country and can be found in places like Sousse El Kantaoui, Hammamet, Djerba, Tunis-Gammarth, Mahdia and Monastir. The El Mouradi Club Kantaoui Hotel is located in Sousse and has over 482 rooms.

### The Challenge

Most Maghreb countries like Tunisia have to deal with water scarcity, a problem for the hotel industry. Tourists nowadays expect from their superior hotel to have at any time enough water in excellent quality for their daily requirements. In most cases the water supplied by municipalities does not have the quality tourists expect. El Mouradi Hotels turned to Triton Water AG, a leading provider of reverse osmosis technologies for customized seawater desalination.



Hotel "El Kantaoui" in Tunisia



### The Solution

Triton Water AG customized a seawater treatment system with 600 m<sup>3</sup>/d capacity for the hotel water market. The dominant technology for desalination of water is reverse osmosis (RO), an energy-efficient, environmentally friendly process of producing fresh water from seawater, allowing institutions and corporations to gain independence from the municipal water system.

Water is taken directly via a pipe from the open sea. At first, the water is shock-disinfected and larger particles are removed

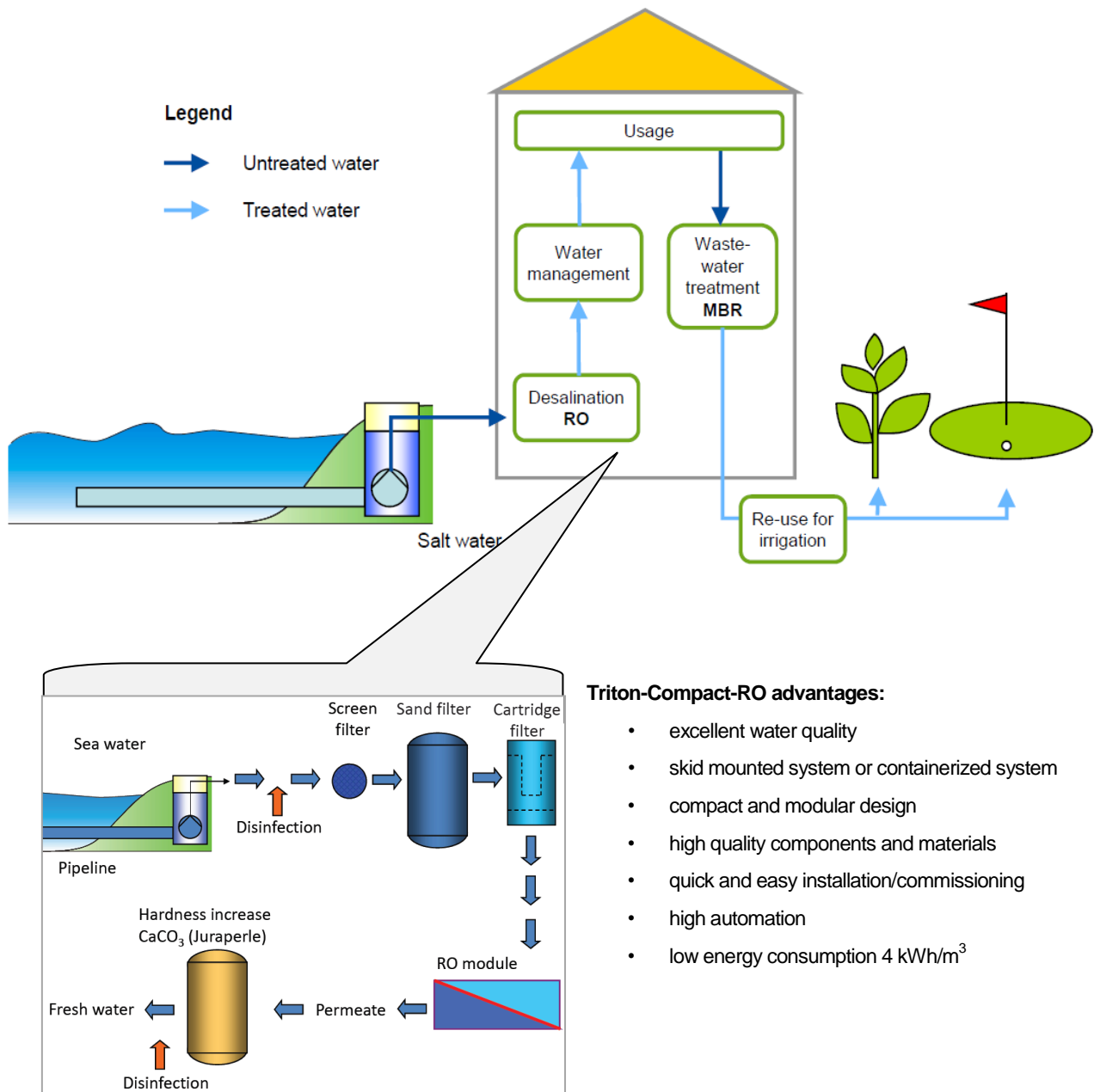
Raw water source	Seawater (open seawater intake)
Total dissolved solids	37,000 ppm
Plant capacity	600 m <sup>3</sup> /d
Energy consumption	4 kWh/m <sup>3</sup>
Water quality	WHO

by a screen filter to protect the booster pump. Afterwards, smaller particles are removed by multimedia filters. Before the pretreated seawater enters the RO-modules, it flows through a cartridge filter where smallest particles are held back, prolonging the lifetime of the membranes. With a

pressure of up to 69 bar, the water is then forced through the membranes, where the pure water passes and the salts remain on the other side.

For fresh water applications the permeate needs some minerals like calcium. The use of Juraperle, which is a pure calcium carbonate, is ideal for this purpose because it causes deacidification and an increase in hardness. Finally, after passing the remineralization filter, the water is disinfected to meet WHO (World Health Organization) standards.

Graphics: Triton-Compact-RO system for water-treatment in hotels



**Triton-Compact-RO advantages:**

- excellent water quality
- skid mounted system or containerized system
- compact and modular design
- high quality components and materials
- quick and easy installation/commissioning
- high automation
- low energy consumption 4 kWh/m<sup>3</sup>

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