PALMACHIM PILOT

Filtersafe Case Study

BACKGROUND

In the interest of showing the automatic self-cleaning filters as a viable alternative to the standard cartridge filters in desalination, Filtersafe approached the Via Maris Desalination Plant in Palmachim Israel and proposed a pilot study to scientifically evaluate Filtersafe's alternativel The Via Maris plant graciously agreed to the pilot.

UNIQUE CHALLENGES

Cartridge filters were and are the current market best practice. This makes it difficult to dissuade the industry to consider another alternative. Cartridge technology is simple – it does not have moving parts like **Filtersafe**'s automatic filter does. It latently filters by adhesion and tortuosity.

However, there are enough downsides, such as needing to manually replace the filters when the cartridges clog, which results in a full unit shutdown for replacement.

INDUSTRY
Desalination

LOCATION
Israel

APPLICATION
RO Membrane Protection

FILTERSAFE

- 30 years filtration experience
- 3000+ installations
- 10 microns upwads & 50-5,000 m^3/hrModular filter technology

FILTERSAFE'S SOLUTION

For this pilot **Filtersafe** BSL-025 was run in parallel to the cartridge candles and the outlet water of both filtration solutions evaluated. Along with the standard PLC control panel, a data logger was also installed to measure and record the differential pressure and flush cycles.

Client	Via Maris Desalination Plant
Location	Palmachim Beach, Israel
Product	BSL025
Filtration Degree & Screen Internals	10 µm **smartweave**™ multi-layered sintered 316L stainless steel screen
Flow Rate	15 m^3/h
Filter Body	ASME design, Carbon Steel body with external high temperature epoxy coating and internal rubber lining
Installation Date	March 2018-2022

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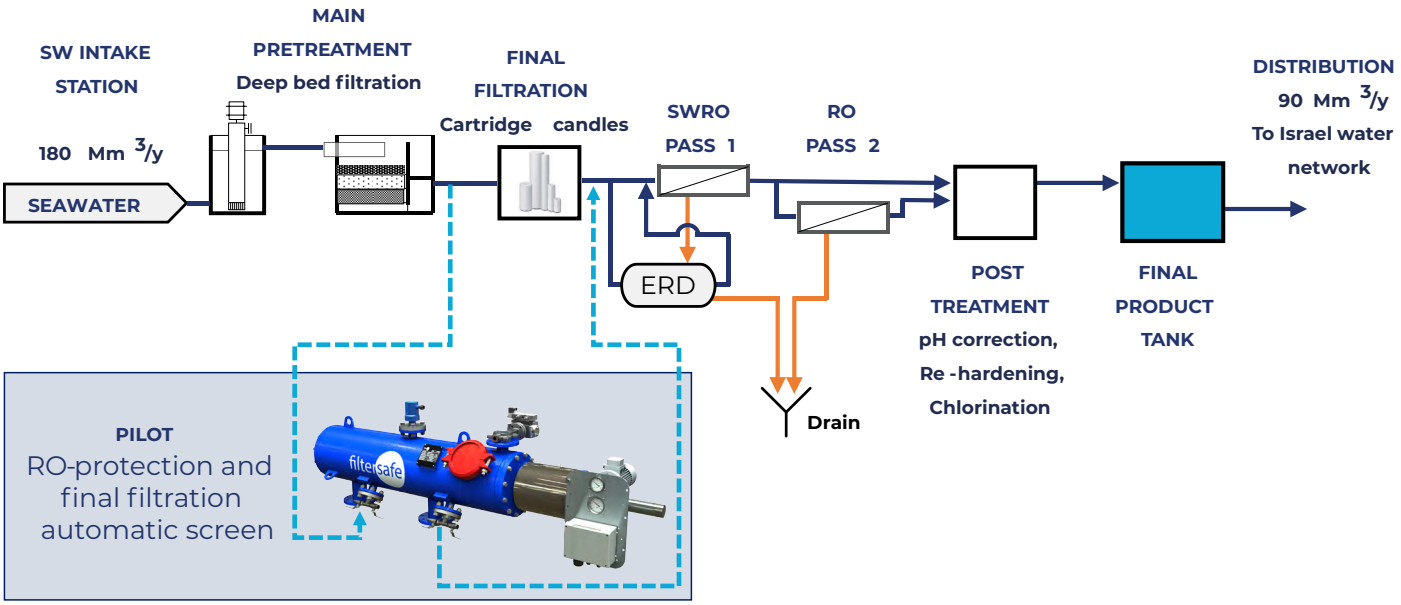

BENEFITS TO CUSTOMER

After a 1 year pilot it was found that the automatic filter outperformed the filtration of the cartridges. The screen filter did a better job of removing particles above 10 microns:

- Coarse solids found in the RO protection filter flushing chamber
- Very high recovery ratio (above 99.75%)
- Organic solids captured by screen that could have biocontaminated the RO membrane
- 88% energy savings due to low, consistent differential pressure
- Up to 85% OPEX savings, including other operational considerations

	Typical Catridge Costs		10µm Screen
OPEX Parameter	US$/y (for 90Mm³/y plant)	US-cent / m³ of product	% of saving
Spares and consumables	380,000	0.42	50-60%
Energy	270,000	0.30	88%
Labor	45,000	0.05	80-90%
Cartridge disposal fees	Location dependent	Location dependent	100%
Total	**US$ 695,000 Per year**	**US-cent 0.77 Per m³**	**60-85%**

For more information on the pilot please see the scientific paper published on our findings at our website.

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