



PUB TUAS Desalination Plant (Tuas III), Singapore

Prefiltration to UF and RO

Background

Singapore, in Southeast Asia, is a strong economic center in the region. The territory consists of a total land mass of only about 720 km² and more than half of the potable water in Singapore is imported from Malaysia. Singapore's water security lies with desalination and reuse. The Tuas Desalination Plant will boost desalination capacity to meet up to 30% of Singapore's current water demand.



The Challenge

The threats of climate change bring new challenges to Singapore's water supply. While dealing with these threats, the issue of rising water demand, expected to double in the future, must be addressed. To meet Singapore's increasing demand for water, it relies on the "Four National Taps", or the four water supply sources:

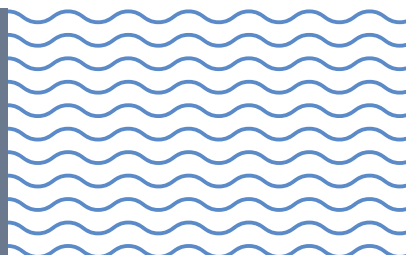
- Imported water
- Local catchments (stormwater, rainfall, etc.)
- Water desalination
- NEWater (wastewater recovery)



Small footprint



Rising water demand



The Solution

A tender was released in August 2015 to build Singapore's third seawater desalination plant in Tuas. In December of that year, HSL (a large construction company in Singapore) and the Spanish company Tedaqua (specializing in planning desalination plants) created a joint venture and were chosen as the project contractor. After negotiations were completed in June of 2016, Amiad was selected as the filtration supplier.

The project consists of 2 stages:



Stage 1

Filters: 22 units of 4 x 10" Super Galaxy vertical modules
Filtration degree: 100 micron
Flow rate: 13,900 m³/h – 61,160 gpm



Stage 2

Filters: 34 units of 4 x 10" Super Galaxy vertical modules
Filtration degree: 20 micron
Flow rate: 12,800 m³/h – 56,320 gpm


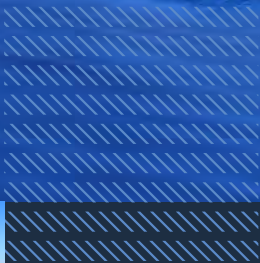
The Result

One of the important issues was saving installation floor space and for Stage 1, Amiad's Super Galaxy disc filtration solution provided the customer with a relatively small footprint. The system also delivers high quality protection from organic loads before the UF membranes, but even more important, the system protected the membrane fibers from damage that can be caused by sharp particles that would otherwise affect their UF membranes filtration integrity.

The solution for Stage 2 also saves on floor space, as well as saving operation costs due to its operational simplicity and energy efficiency in comparison to cartridge filters.



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