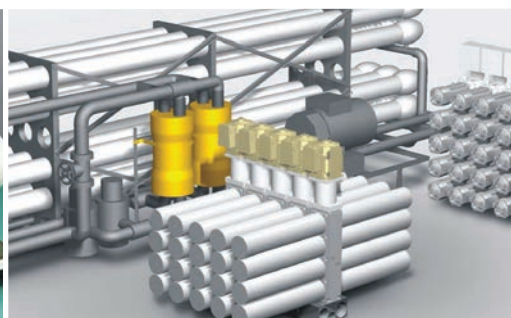


Aqua-Life Desalination Plants
Seawater desalination modules



Reverse Osmosis Process

Osmosis is the natural diffusion of two mixable solutions through a semipermeable membrane resulting in the equalization of concentration between the two solutions. The solution with a lower concentration diffuses through the semipermeable membrane and into the solution with a higher concentration.

Seawater, which is a high concentration solution (36,000 ppm TDS), cannot naturally diffuse through a semipermeable membrane to the low concentration side.

Reverse Osmosis is the process whereby high pressure is used in desalination to force the high concentration through the RO membrane to the low concentration side

The Aqua-Life Advantage

The Aqua-Life desalination plants offer distinct advantages over the way traditional reverse osmosis desalination plants are configured. The Aqua-Life plants utilise minimal pipework and instead use channels located in base blocks that serve as the support and main structural element, meaning less maintenance and smaller footprint area. In addition, these blocks have a modular design and can hence be connected into stacks to build a desalination plant of any capacity whilst ensuring minimum foot-print area.

The unique axial-piston high pressure pump is made of Duplex and Super Duplex steel; all sliding surfaces are coated with carbon reinforced PEEK polymer. Seawater is pumped into a rotor cavity by pistons and movable bushings, which are actuated by a high pressure concentrate.

Axial-Piston Pumps APPR43 & APPR400

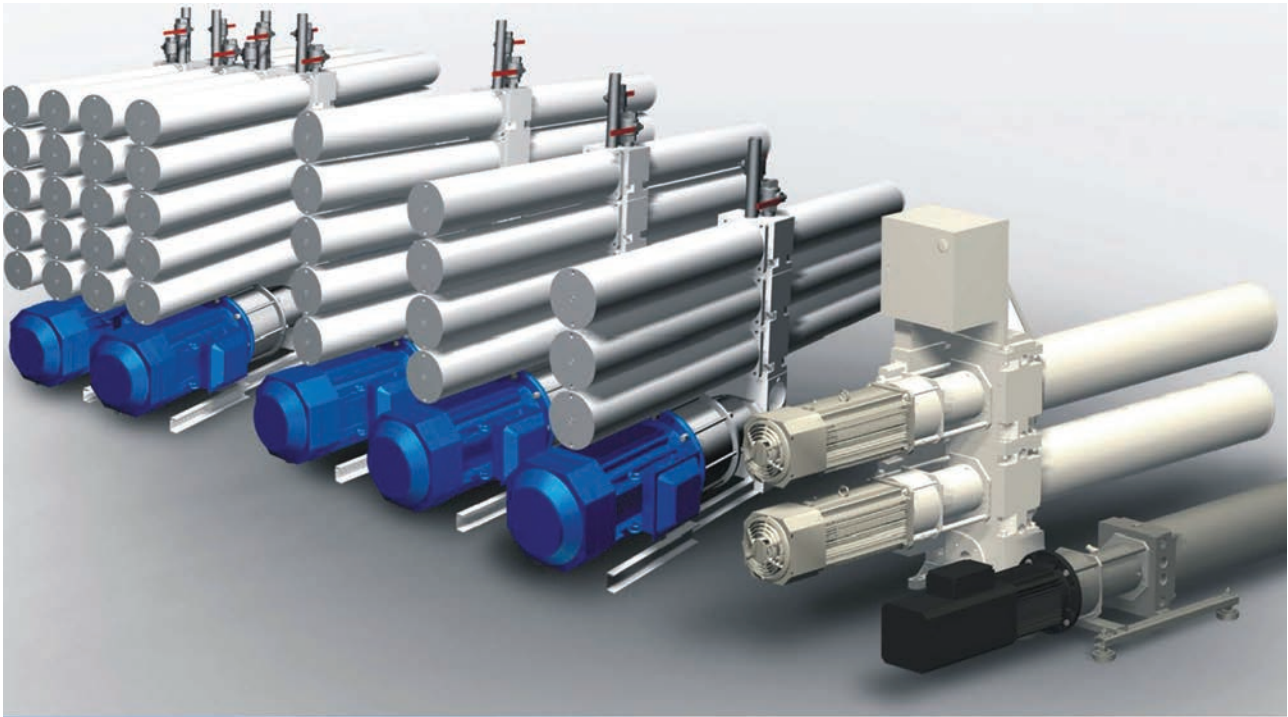
With an integrated energy recovery unit

The desalination module is a compact seawater desalination system embodied in a single-unit hydraulic machine. To assemble a desalination plant, several modules are interconnected vertically. The modules rest on the base block into which seawater is fed and brine and permeate water is discharged.



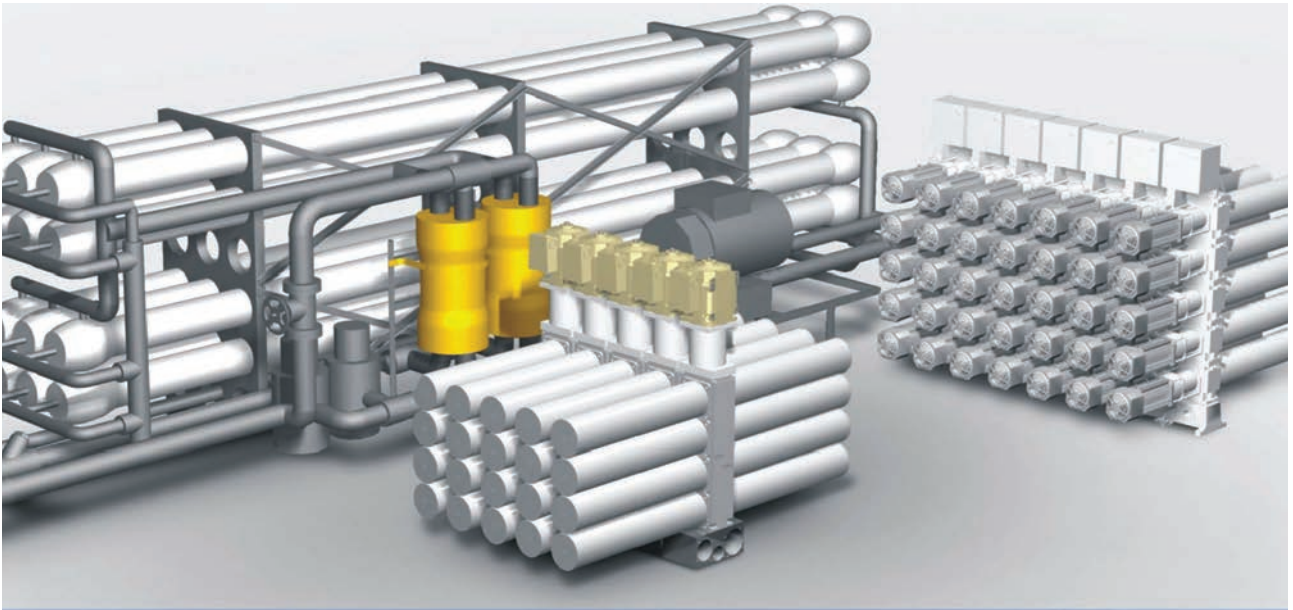
Desalination Module DB8SW030, 30 m³/day Capacity





MODEL		DB8SW030	DB8SW150	DB8SW200	DB8SW250
Permeate production capacity at water temperature 25°C	m ³ /day	30	150	200	250
Salt content of the water, not more than	TDS	45,000	45,000	45,000	45,000
Electric energy consumption	kWh/m ³	2.8-3.2	2.6	2.6	2.6
Permeate recovery	%	35-40	35-40	35-40	35-40
<i>Dimensional specifications</i>					
Length	mm	1925	2552	2552	2552
Width	mm	320	589	589	589
Height	mm	285	1195	1425	1655
Weight	kg	152	500	695	850

Contact Southland Filtration for details on capacities outside those listed above on 1800 656 771



Comparison of 1000m³/day desalination plants



Water UF pre-treatment plant



Single unit DB8SW030 with manual UF pre-treatment



Demonstration desalination unit

Desalination Module DB8SW200

Model DB8SW200 Seawater Desalination block with 8" membrane and permeate flow rate up to 200m³/day.

This seawater desalination module is equipped with 8 high-pressure vessels and membranes, HP pump APPR400 and 25 kW electromotor.

Permeate flow rate is 21 m³/hour under pressure of up to 80 bar. HP pump APPR400 is a large-sized pump similar to APPR43.



Metal Structure Control

Problems with corrosion resistance, the need to reduce weight, and the need to lower cost of products for operation in harsh environments such as seawater can all be solved with thermal diffusion galvanizing technology

Aqua-Life has developed a unique technology of production of aluminium alloys using a multi-component powder mixture.

This process results in a coating thickness of up to 60 microns, composed of chemical compounds of aluminium and zinc, which fully protects the aluminium parts of the product against corrosion.



Production Facility



Testing Room



Quality Control



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