Application
Conversion of sea and brackish water through distillation by Vacuum Vapour Compression for production of high purity water for domestic and industrial use. Applicable on Cruise Liners, Oil & Gas Off-shore Platforms, Power Plants, Industries and remote on-shore locations.

Features
• Simple design
• Plate type evaporator/condenser
• Titanium heat transfer surfaces
• Non-coated materials resistant to seawater and brines
• Compressor with low rotational speed
• Easy access for service
• Simple and reliable automation and control

Benefits
Lowest overall water production costs:
• Low specific energy consumption
• Simple raw water pre-treatment
• 25 years economical life

Highest availability:
• > 90% of yearly hours

Simple operation & maintenance:
• Full access to both heat transfer surfaces for manual cleaning
• Low educational level for operating crew

High distillate purity:
• < 10 µS/cm
• Low costs for technical water treatment
**Capacity range**
Covers single effect from 100 to 1000 and double effect units from 1000 m³/day to more than 2000 m³/day.

**The process**
Vapour compression is a distillation process, where evaporation of sea or brackish water is obtained by the application of heat delivered by compressed vapour.

The effect of compressing water vapour is obtained by means of an electrically driven, mechanical centrifugal compressor. The saline water is evaporated at sub-atmospheric pressure on one side of the heat transfer surface, and on the opposite side it is condensed into fresh water which is collected and extracted as product water.

The remaining, concentrated saline water (the brine) is also extracted as blowdown, which has an average concentration factor approx. two times that of the initial value. As an electrical driven process it is considered to be a “clean system”. Due to its high efficiency, it becomes the obvious choice for a single purpose, small-capacity installation.

The system includes an optimized and well proven compressor, using a high efficiency centrifugal blower with a low compression ratio. Because the thermal differential in the evaporator/condenser is lower than 5°C, less compression work is required, which results in a low consumption of energy.
Complimentary points:

**Maximum raw water recovery:**
Since no cooling water is required, the total mass flow of raw water supplied to the system for desalination might be reduced to approx. two times of the product water flow. The overall recovery ratio is therefore higher than any other seawater desalination process.

**Simple raw water pre-treatment:**
The system uses one single chemical as anti-scalant, commercially available in most countries, safe for transportation and handling.

**Minimal down-time:**
The system is constructed with top quality materials plus a simple, but highly reliable compressor which means less maintenance and replacement of parts. This results in a minimal number of down-time during the total service life.

**Falling film evaporation on plates:**
The process takes place under an optimized falling film evaporation on plates eliminating erosion and corrosion effects on the heat transfer surfaces.

**Technical documentation:**
Complete information and documentation accompany each freshwater generator.

The Installation Manual provides all information necessary for correct installation:
- Plant description
- Installation
- Technical data and drawings

The Instruction Manual provides all information necessary for operation and maintenance:
- Plant description
- Operating instructions
- Chemical dosing of anti-scale chemicals
- Trouble shooting
- Maintenance of major components
- Spare parts drawings
- Technical data and drawings
**Alfa Laval in Brief**

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuff, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.