



# GEA SeaWaterDistiller

Technical data | Generation of fresh water from sea water

The SWD (GEA SeaWaterDistiller) works on the well-known vacuum distillation principle. Waste heat from the main engine on board is utilized as heating medium for evaporation. The evaporation takes place in the evaporation plate bundle located in the lower part of the housing.

A part of the incoming sea water evaporates due to the high vacuum inside the housing. The generated vapour is cleaned from sea water droplets while flowing through a wire mesh demister.

The condensation takes place in the condenser plate bundle located in the upper part of the housing. The condenser is cooled by sea water. The latent heat from condensation is transferred to the sea water. The condensation/evaporation temperature varies with the sea water temperature.

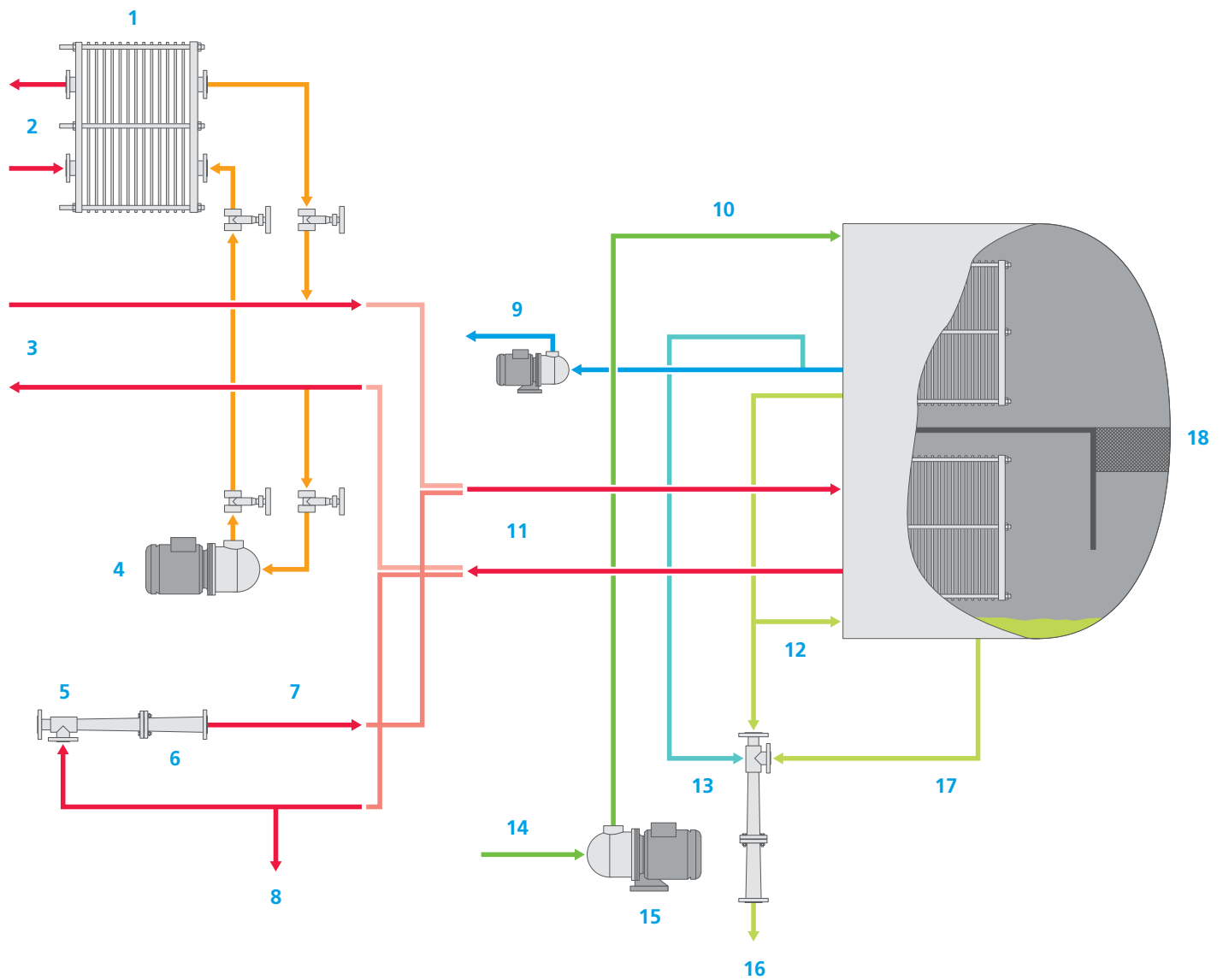
A small portion of the heated sea water is utilized as feed water for the evaporator bundle. The biggest part is used as driving medium for the combined air/brine ejector.

This ejector has a double function: Extraction of the surplus sea water (so-called brine) out of the housing and vacuum creation by exhaust of the non-condensable gases.

The distillate quality (salinity) is monitored at the control panel. If the salinity exceeds the adjusted set point (2 – 10 ppm) the distillate is rejected back to the evaporator via a solenoid valve.

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Operating principles and constructional features



- 1 Thermal oil / hot water heated
- 2 Heat exchanger
- 3 Jacket water
- 4 Circulation pump
- 5 Steam
- 6 Steam ejector

- 7 Steam heated
- 8 Condensate
- 9 Distillate
- 10 Jacket water heated
- 11 Heating water
- 12 Feed water

- 13 Ejector
- 14 Sea water
- 15 Sea water pump
- 16 Over board
- 17 Brine
- 18 Demister

### Features

- Simple, compact design
- Distillate pump, control panel, chemical dosing equipment
- Titanium heat exchanger plates
- Sea water resistant materials
- Hinged hood

### Optional supply

- Sea water pump (necessary for operation)
- Re-hardening filter (pH-adjustment)
- UV-Sterilizer

### Heating modules for various heat sources e.g.

- Steam
- Hot water
- Thermal oil

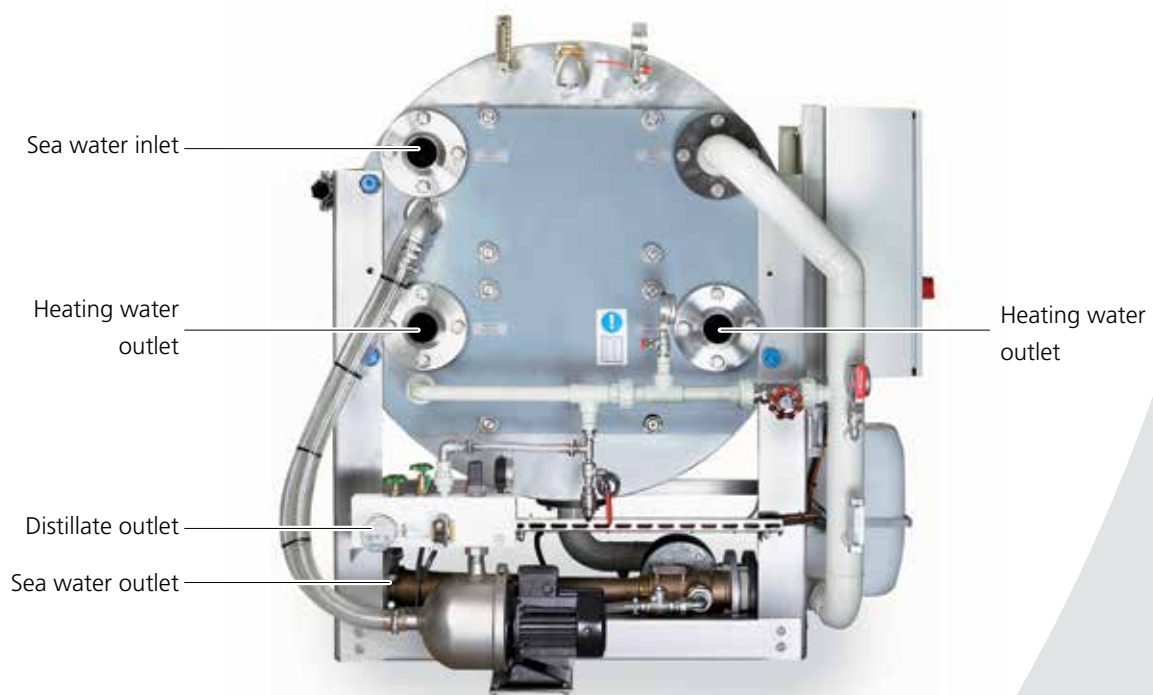
### Standard equipment

- Control panel (built in on left or right side)
- Chemical dosing tank (built in)
- Distillate pump
- Set of thermometers and pressure gauges
- Set of non-return flaps
- Feed water valve
- Solenoid valve
- Water meter
- Salinity measuring cell + indicator

### Application

- Shipbuilding industry
- Offshore

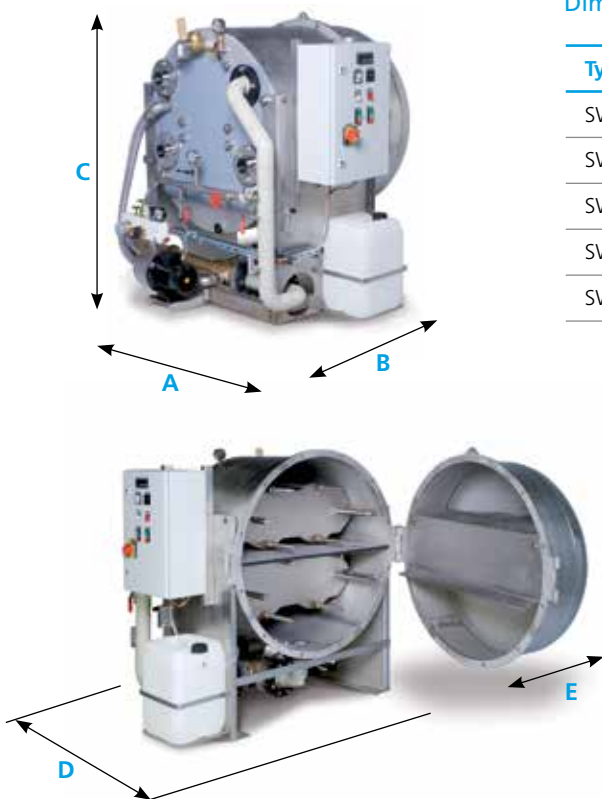
| Materials          |                 |
|--------------------|-----------------|
| Plates             | Titanium        |
| Demiister          | Stainless steel |
| Housing            | Stainless steel |
| Air/brine ejector  | Cast bronze     |
| Frame              | Stainless steel |
| Distillate pump    | Stainless steel |
| Sea water pipework | PP              |
| Brine pipework     | PP              |
| Distillate         | Hose            |



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## Operating principles and constructional features

|                           | SWD 10           | SWD 15           | SWD 20            | SWD 25           | SWD 30           |
|---------------------------|------------------|------------------|-------------------|------------------|------------------|
| Capacity                  | 10 t/d           | 15 t/d           | 20 t/d            | 25 t/d           | 30 t/d           |
| Heating water temperature | 70 – 90 °C       |                  |                   |                  |                  |
| <b>Connections</b>        |                  |                  |                   |                  |                  |
| Sea water inlet           |                  |                  | 65 DN             |                  |                  |
| Sea water outlet          | 65 DN            | 80 DN            | 80 DN             | 100 DN           | 100 DN           |
| Heating water inlet       |                  |                  | 65 DN             |                  |                  |
| Heating water outlet      |                  |                  | 65 DN             |                  |                  |
| Distillate                |                  |                  | G $\frac{3}{4}$ " |                  |                  |
| <b>Weight</b>             |                  |                  |                   |                  |                  |
| Empty                     | 600 kg (1323 lb) | 617 kg (1360 lb) | 626 kg (1380 lb)  | 642 kg (1415 lb) | 642 kg (1415 lb) |
| In operation              | 640 kg (1411 lb) | 676 kg (1490 lb) | 706 kg (1556 lb)  | 742 kg (1636 lb) | 771 kg (1700 lb) |



Dimensions in mm (inch)

| Type   | A         | B         | C         | D         | E        |
|--------|-----------|-----------|-----------|-----------|----------|
| SWD 10 | 1358 (53) |           |           |           |          |
| SWD 15 | 1358 (53) |           |           |           |          |
| SWD 20 | 1358 (53) | 1390 (55) | 1423 (56) | 2020 (80) | 477 (19) |
| SWD 25 | 1637 (64) |           |           |           |          |
| SWD 30 | 1637 (64) |           |           |           |          |

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