

GEA Westfalia Separator SeaWaterDistiller

Technical Data | Generation of fresh water from sea water



The SWD (GEA Westfalia Separator **SeaWaterDistiller**) is working 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.

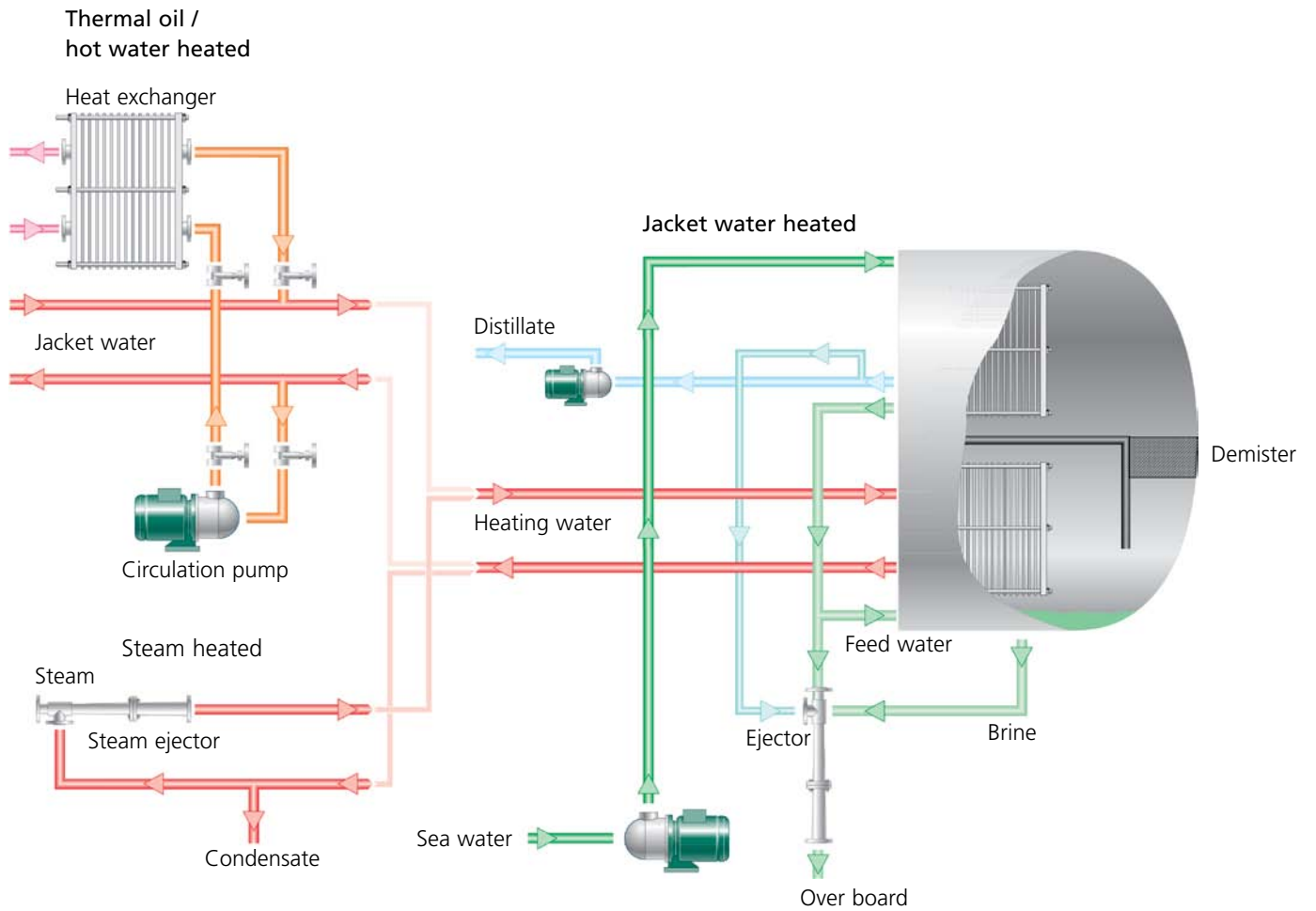
A small portion of the heated sea water is utilized as feed water for the evaporator bundle. The biggest part is used as driving medium for the combined air-/brine ejector.

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



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

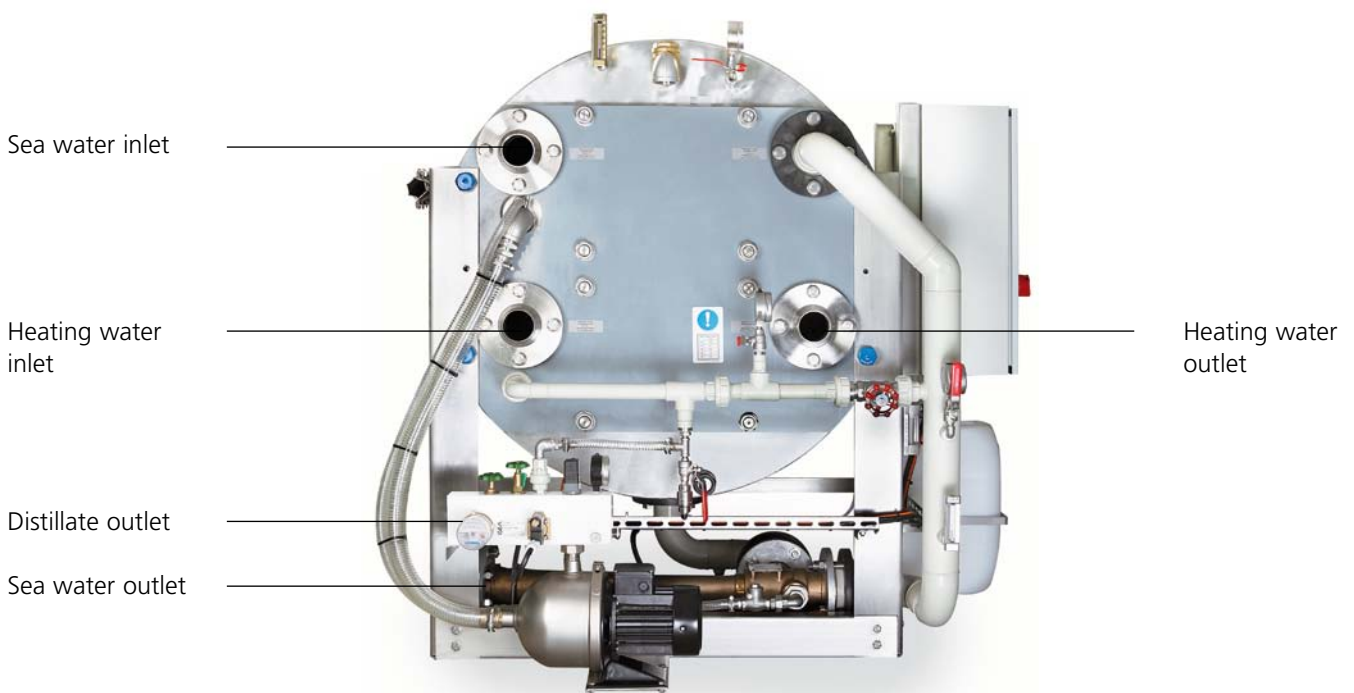
Standard equipment

- 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

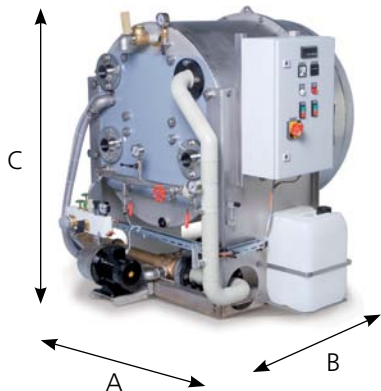
Materials	
Plates	Titanium
Demister	Stainless steel
Housing	Stainless steel
Air-/brine ejector	Cast bronze
Frame	Stainless steel
Distillate pump	Stainless steel
Sea water pipe work	PP
Brine pipe work	PP
Distillate	Hose



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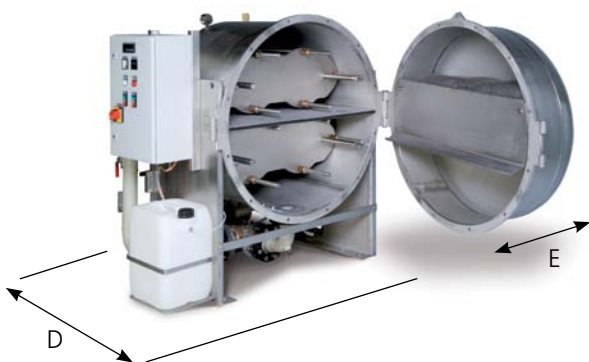
Operating principles and constructional features

	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				
Connections					
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 $\frac{3}{4}$ "				
Weight					
Empty	600 kg (1323 lb)	617 kg (1360 lb)	626 kg (1380 lb)	642 kg (1415 lb)	651 kg (1435 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)	1390 (55)	1423 (56)	2020 (80)	477 (19)
SWD 15	1358 (53)				
SWD 20	1358 (53)				
SWD 25	1637 (64)				
SWD 30	1637 (64)				



GEA Mechanical Equipment

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