



Desalt DPU-2-36-C Series

Two-stage titanium plate type fresh water generator

Application

Conversion of seawater into freshwater by vacuum distillation for the supply of high quality freshwater for domestic and process utilization. For installation onboard ships, rigs, and onshore remote locations. The DPU-2-36-C is designed for automatic operation with automatic control of freshwater quality.

Features

- High energy efficiency.
- Simple and compact design.
- Titanium plate heat exchangers.
- Housing in non coated seawater resistant stainless steel.
- Combined condenser cooling, ejector water and feed water system.
- Freshwater pump and control system.

Benefits

- High capacity on waste heat available.
- High quality freshwater, the low content of dissolved solids (salinity) ensures the supply of pure water which can be used directly as make-up for steam boilers.
- Long lifespan, the high grade corrosion resistant materials, i.e. the titanium plates, ensure a long lifespan of the equipment.
- Low operation and maintenance costs. Start-and-forget operation, combined with easy access to the interior, reduces man-hours required for operation and maintenance to a minimum.
- Simple installation due to compact design, low weight and the possibility to assemble on the spot.



Alfa Laval fresh water generator type DPU-2-36-C.

Capacity range

The DPU-2-36-C series covers a capacity range from 20 to 75 m³/24h, depending on the heating medium and cooling water temperatures.

The capacities shown in fig. 1 are capacities at a cooling water temperature of 32°C.

The fresh water generator can be dimensioned to suit any jacket water temperature from 55–90°C at any cooling water temperature required.

The quantity of freshwater produced can be altered simply by varying the number of plates in the internal plate heat exchangers.

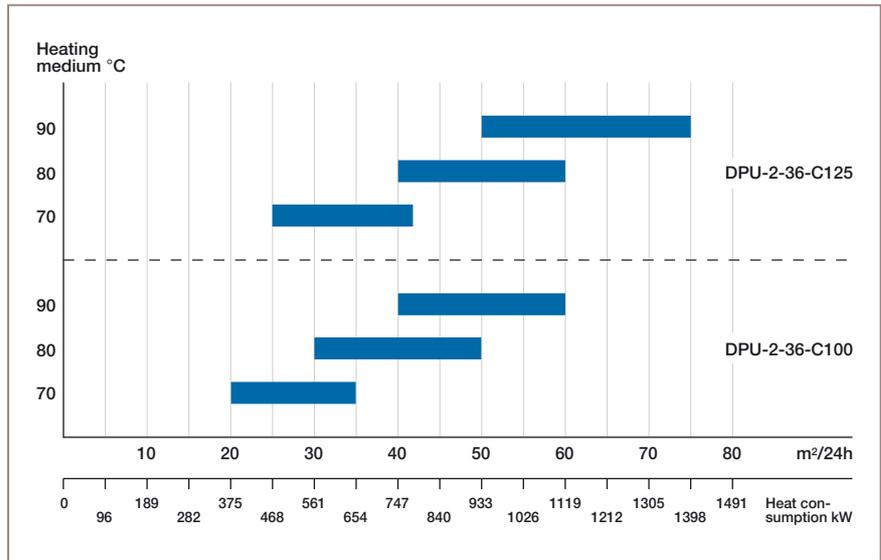


Fig. 1. Capacity range for fresh water generator types DPU-2-36-C100/C125.

Working principle

See fig. 2

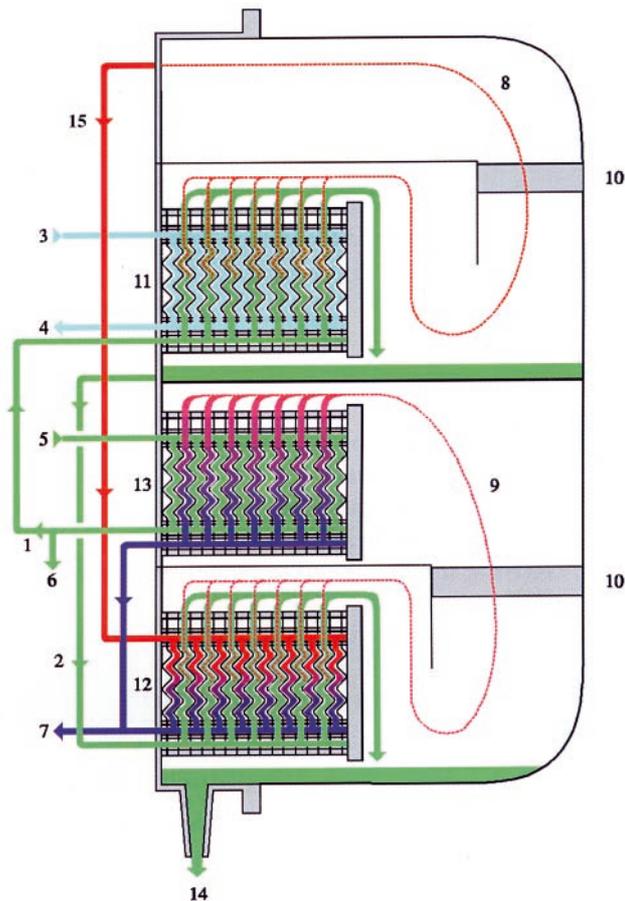
The feedwater to be distilled is taken from the cooling water outlet of the condenser (13). It enters the evaporator of stage one (11) where some of it evaporates as it passes between the plates heated by the external heating medium. The vapours generated pass through a demister (10) where any

drops of seawater entrained are removed and fall due to gravity to the brine sump of stage one and further as feed-water for stage two. The vapours flow through a connecting pipe (15) to the evaporator (12) of stage two where it is utilized as heating medium by transferring its heat to evaporation to

the feed-water (brine) coming from the surplus feed of stage one.

The vapours generated in stage two evaporate as in stage one, after the demister (10) the vapours continue to the condenser (13) where they condense into freshwater as they pass between the cold plates cooled by the cooling water.

The evaporation processes are performed under vacuum at evaporating temperatures of about 70 and 45°C in the first and second stage respectively. The vacuum is maintained by only one ejector containing three independent stages.



- 1. Seawater feed, stage one
- 2. Seawater feed, stage two
- 3. Heating medium in
- 4. Heating medium out
- 5. Seawater cooling in
- 6. Seawater cooling out
- 7. Freshwater out
- 8. Vapour, stage one
- 9. Vapour, stage two
- 10. Demister

- 11. Evaporator, stage one
- 12. Evaporator, stage two
- 13. Condenser
- 14. Brine out
- 15. Connecting pipe

Fig. 2. Cross-section through Alfa Laval fresh water generator chamber.

Installation

The DPU-2-36-C two stage fresh water generator is designed for automatic operation in periodically unmanned engine rooms and other automated operations.

The heating medium (see fig. 3) is either engine jacket cooling water or a hot water loop heated, for example, by steam from exhaust gas boiler.

The ejector pump is installed separately and has separate suction from the sea. This pump supplies coolant in the form of seawater to the condenser, feed-water for evaporation and jet water for the combined brine/air ejector.

The freshwater produced is pumped to the tank by the built-on freshwater pumps.

The separately installed control panel, with motor starters and salinometer, supplies electrical power to the ejector pump, the freshwater pumps and control voltage to the salinometer and dump valve.

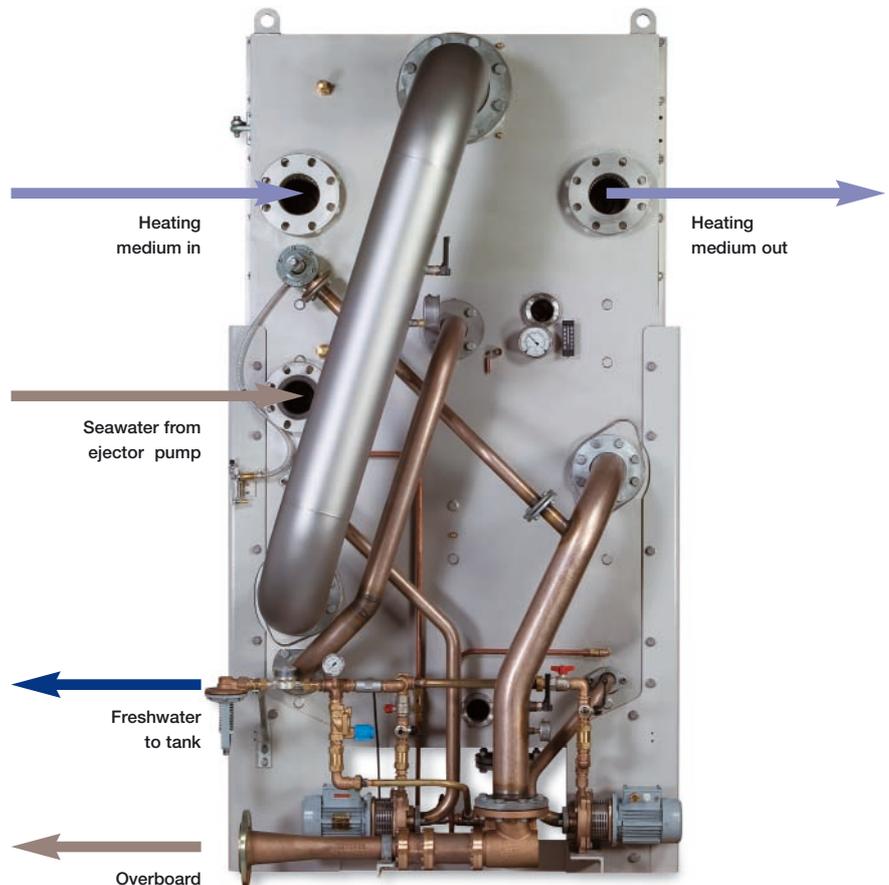


Fig. 3. Installation layout of the Alfa Laval fresh water generator type DPU-2-36-C.

Basic equipment

Fresh water generator unit including titanium plate heat exchangers for evaporator and condenser, generator shell, three stage brine/air ejector, feed water anti-scale chemical dosing unit, freshwater pumps, and freshwater control sensor.

Additional equipment necessary for operation

- Combined cooling and ejector water pump with electrical motor.
- Control panel with motor starters and salinometer.

Optional equipment

- Steam heating system type CAS and CS with direct steam injector.
- Equipment for steam boosting and hot water loop system.
- Extended control panel with motor starters and salinometer.
- Freshwater pH adjustment (rehardening) filter.
- Freshwater disinfection equipment.

- Connections according to DIN, JIS & ANSI standard.

Technical documentation

Complete information and documentation accompany each fresh water generator.

The installation manual gives all information necessary for correct installation:

- Plant description.
- Installation instructions.
- Technical data and drawings.

The instruction manual gives 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.

Service support

An international network of Alfa Laval service centers provides the security of having spares and services wherever you are.

Our service engineers will be pleased to assist you with any level of maintenance and will train your operation and maintenance personnel, if desired.

Further information can be obtained from your nearest Alfa Laval representative.

DPU-2-36-C series
Main dimensions and service area



Size	L		D		H		SD		SL		Weight*		Pump	
	mm	inches	kg	lbs	mm	inches								
DPU-2-36-C100	1445	56.9	1730	68.1	2685	105.7	2460	96.9	2100	82.7	2290	5038	450	17.7
DPU-2-36-CAS100	1470	57.9	2030	79.9	2685	105.7	2760	108.9	2100	82.7	2435	5357		
DPU-2-36-CS100	1470	57.9	2030	79.9	2685	105.7	2760	108.9	2100	82.7	2435	5357		
DPU-2-36-C125	1445	56.9	2080	81.9	2685	105.7	2460	96.9	2430	95.7	2450	5390	821	323
DPU-2-36-CAS125	1470	57.9	2420	95.3	2685	105.7	2800	110.2	2430	95.7	2643	5815		
DPU-2-36-CS125	1470	57.9	2420	95.3	2685	105.7	2800	110.2	2430	95.7	2643	5815		

* Empty, operation add 350 kg (770 lbs).

EMD00063EN 0701

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com