

CHAPTER 4 : SEWAGE TREATMENT SYSTEM

- **ECOMAR**
- **STP FACET**
- **WAVEBRITE**
- **WAVESTREAM**
- **OIL SEPARATOR FACET**

SEWAGE TREATMENT SYSTEM:

ECOMar

ECOMar is able to treat grey and black water in compliance with international standards and to render it dischargeable directly into the sea, without solid residues. The chemical-physical reactions inside disinfect the water and reduce the sediment dimensions so that the water becomes clear and odorless and can be discharged directly overboard. At the end of every cycle takes place an automatic washing of the tank with clear sea water treatment. ECOMar is built with a central body made in strong polypropilene mounted on a steel chassis. The LCD electronic control panel with microprocessor manages all the functions of the system, automatically. Very low electric absorption. No operator requested. The system can work also in emergency mode.





MAIN ADVANTAGES:

- POLLUTION FREE: the disinfectant liquid does not release poisonous substances
- NO RESIDUALS ON BOARD: consequently the installation of a sludge tank is not required
- EASY TO USE: totally automatic with possibility to operate it manually in emergency
- COMPACT: designed to work in small engine rooms
- VERSATILE: available at 24 V d.c. and 230/400 V a.c. Other voltages and frequencies available.



Discharge at sea, 4 miles out at 4 knots !

Technical Features :



ECOMAR 120



ECOMAR 50

	ECOMAR 120	ECOMAR 50	ECOMAR 24
Treatment capacity (L/day)	50000	21000	10000
Work cycles per hour	4	4	4
Power supply	230 /400 V AC	230 /400 V AC	230 /400 V AC
Installed power (Kw)	5.5	1.5	1.1/1.5
Max absorption (A)	12A (400 V AC)	4.5A (400 V AC)	7A (230V AC) 4.5A (400 V AC)
Total capacity (L)	1358	483	248
Central unit dimensions (mm)	1390 x 1100 x 1350	1230x820x810	970x720x720
Tank dimensions (mm)	1300 x 850 x 1200	1150 x 600 x 700	850 x 470 x 620
Central unit weight (kg)	250	120	80
Reference			



ECOMAR 24



ECOMAR 16



ECOMAR 8



ECOMAR 6

	ECOMAR 16	ECOMAR 8	ECOMAR 6
Treatment capacity (L/day)	6000	4000	2300
Work cycles per hour	4	4	4
Power supply	230 /400 V AC	230 /400 V AC / 24 DC	230 /400 V AC / 24DC
Installed power (Kw)	1.1 / 1.5	0.35/0.55	0.35/0.55
Max absorbption (A)	7A (230V AC) 4.5A (400 V AC)	18A (24V DC) 4A (230V DC) 2A (400V DC)	18A (24V DC) 3.5A (230V DC) 2A (400V DC)
Total capacity (L)	160	127	81
Central unit dimensions (mm)	770 x 590 x 710	730 x 510 x 690	500 x 500 x 680
Tank dimensions (mm)	710 x 390 x 650	660 x 320 x 600	450 x 300 x 600
Central unit weight (kg)	70	40	30
Reference			

- **Spare parts for centrale of treatment**

Model	Quantity	Type of centrale	Reference
Chlorine	20 Litres	Hamann	AR21700
Hydrogen peroxyde	20 Litres	Ecomar	AR21366

- **Hamann systems**

We can supply the spare parts for Hamann centrale and make the maintenance of your unit
if you need more information, please contact us.



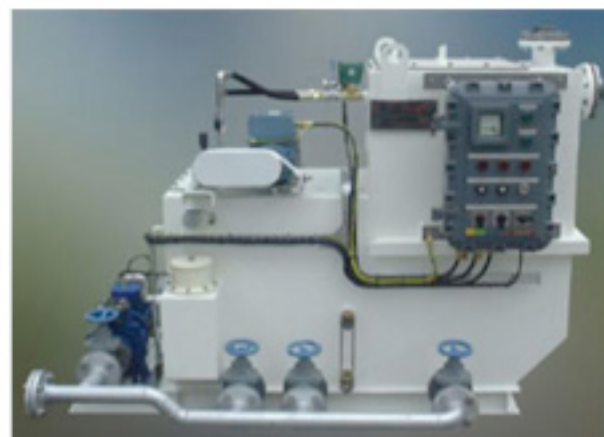
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SEWAGE TREATMENT PLANTS :

Série STP Marine

TREATMENT PLANTS



Facet Sewage Treatment Plants STP Series for marine applications are designed for the treatment of black waters (coming from W.C., urinals and hospital) and grey waters (sinks, showers, laundry and galley) generated onboard ships. This treatment consists in the purification and later disinfection of waters in order to achieve a quality effluent meeting all requirements. These plants treat sewage by biological means, this is that they are of the active sludge, prolonged aeration, aerobic type. The plants are built in a single steel module to ease transportation and onboard installation. Inside this module, three chambers (aeration, settling and disinfection) especially designed, have been arranged in order to guarantee its correct operation and to avoid sludge generation. Each chamber has been provided with the necessary access and inspection register. The air diffusers are located in the aeration chamber and they produce both oxygenation and shaking of the liquid to be treated. Due to the special design of the settling chamber, the active sludge inside it is separated from the effluent and automatically recirculated to the aeration chamber. Both, the clarified liquid and grey waters reach the disinfection chamber where a chlorine solution is dosed in order to remove fecal coliform bacteria. Once disinfection has taken place, the effluent is automatically or manually discharged overboard or into a different installation. Facet Sewage Treatment Plants STP Series meet Marpol Annex IV Requirements, 8(1)(b) and 9.1.1 Regulations, as well as IMO Resolution MEPC-2(VI), CE Standards 96/98/EC and 98/85/EC; and they do not generate sludge that should be later discharged. The Plants are supplied completely assembled and tested so that their installation onboard is very quick.

STANDARD FEATURES

- Meet IMO Resolution MEPC-2(VI)
- Certified by the Maritime and Coastguard Agency and the CE
- No sludge generation
- No odour generation
- Fully automatic operation driven by PLC
- Inside and outside Epoxy protective coating
- Aeration system compounded by a blower, an air supply pipe, bubble diffusers, a filter and an air relief valve
- Automatic sludge recirculation system
- Access and inspection registers in every chamber
- Electrical control panel, with IP-55 protection, including operation synoptic panel

OPTIONS

- Stand-by blower
- Stand-by discharge pump
- Chlorine solution dosing pump
- Grease trap



Discharge at sea.300 meters of the coast

Contact us for the price

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WAVEBRITE systems



Wavebrite is an effective cleaning system for gray water. It combines three filtration technologies, more releases of this product meets the European directive on bathing water.

This system is easy to install and use thanks to its function fully automatic, no need totank or pump or store the gray water.

Filtration is carried out by four main elements. The module Wavebrite and filters are monitored at the point of filtration or remotely. Which provides maintenance and servicing simple.

This module eliminates odors in tanks and gray water pollutants. Gray water is treated on board, from source to disposal. Chemicals are also processed by the Wavebrite. Treatment of these pollutants is done at a minimum cost. In addition, phosphates are harmful wastewater disposal to reduce the toxic impact to the environment.



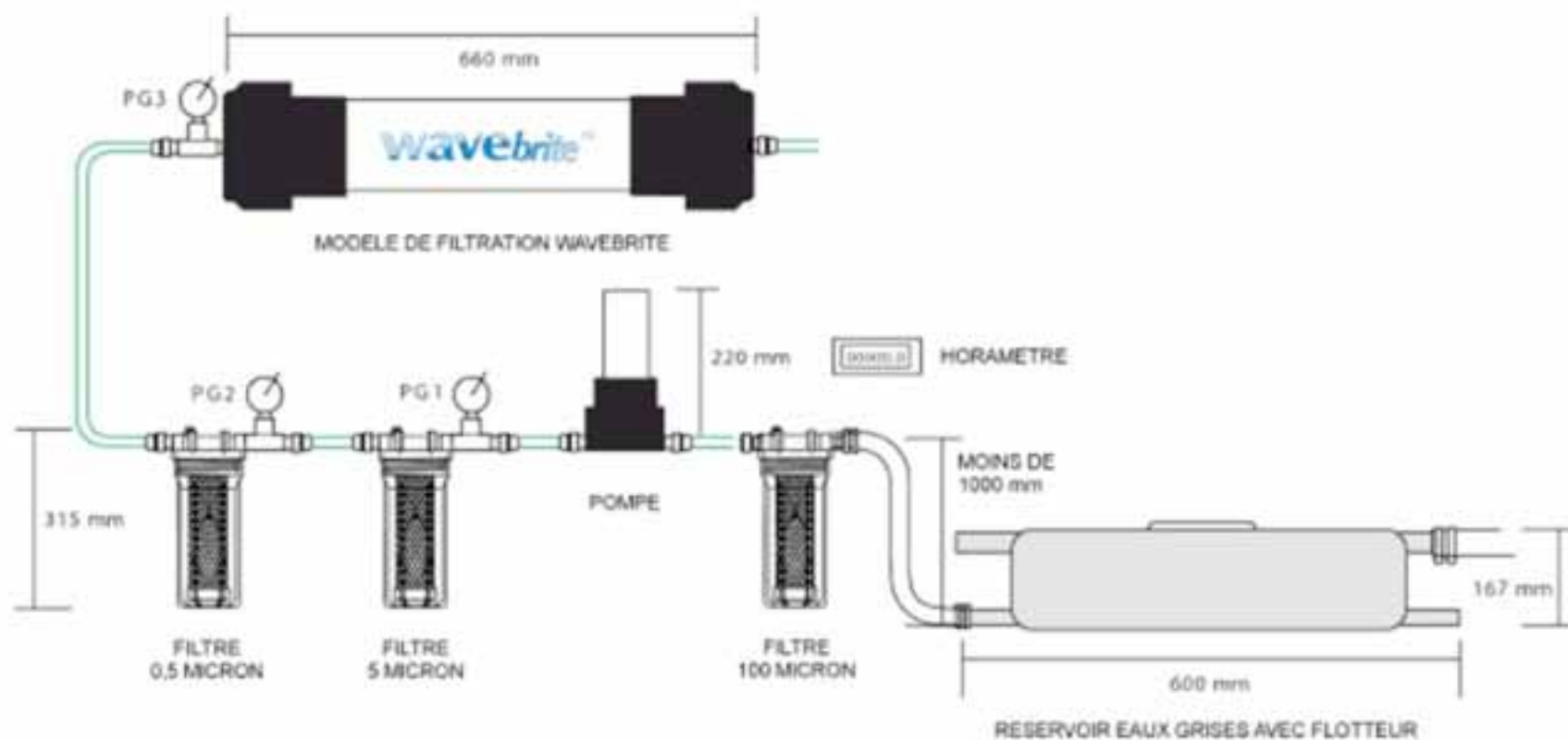
Technical spec. :

Flow	1-15 litres minutes
Pressure max	6.2 bars
Pressure max on filter	2 bars
Pressure max on modul wavebrite	4 bars
Temperature maximum	45°C
Temperature minimum	1°C

Le système de base est composé des éléments suivants :

- 1 modul WaveBrite
- 2 fixations for the modul WaveBrite
- 1 Cartridge WaveBrite (installé) type WB1
- 1 filter of **5 microns**
- 1 filter of **0.5 microns**
- 1 filter of **100 micron**
- 3 Y fitting
- 3 pressure gauge
- 1 hourmeter
- 1 pump in 12 or 24 volts
- 1 grey water tank of 16 litres
- 5 mètre de tuyau 15mm
- 1 mètre de tuyau 25mm
- 4 colliers de serrage

Product	Reference
Système Wavebrite	AR21533
Spare membrane	AR21534
Cartridge 0.5 microns	AR21535
Cartridge 5 microns	AR21536



WAVESTREAM

LLOYDS TYPE APPROVED BILGE WATER FILTER SYSTEMS

Wavestream prevents the discharge of oily bilge water into our seas and waterways.

Used by powerboats, yachts, superyachts, fishing boats, lifeboats, pilot and patrol boats, canal boats, ferries and ships. Inevitably bilge water can contain fuel, lubricating oil, grease, hydraulic and gear oil.

The International Convention for the Prevention of Pollution (MARPOL) states the allowable level of oil in discharged bilge water is between 0 ppm and 15 ppm.

A single drop of diesel oil in a litre of water is approximately 40 ppm !



Product	Flow rate	Pressure	T° max	T° mini	Connexion	Cartridge	Reference
WMS	40	10 bars	40°C	1°C	3/4"	WS-CM	AR21583

- Dimensions $\varnothing \times h$: 120 x 165 mm
- Réf. Cartouche : AR21587



Product	Flow rate	Pressure	T° max	T° mini	Connexion	Cartridge	Reference
WS1	40	10 bars	40°C	1°C	3/4"	WS-C1	AR21584

- Dimensions $\varnothing \times h$: 130 x 315 mm
- Réf. Cartouche : AR21588



Product	Flow rate	Pressure	T° max	T° mini	Connexion	Cartridge	Reference
WS2	265	6.8 bars	37°C	1°C	1"1/2	WS-C2	AR21585

- Dimensions $\varnothing \times h$: 180 x 350 mm
- Réf. Cartouche : AR21589



Product	Flow rate	Pressure	T° max	T° mini	Connexion	Cartridge	Reference
WS3	265	6.2 bars	37°C	1°C	1"1/2	WS-C3	AR21586

- Dimensions $\varnothing \times h$: 180 x 606 mm
- Réf. Cartouche : AR21590

BILGE WATER SEPARATOR :

New State-of-the-Art design.

Smaller volume: 0.53 m³ (18.7 cu.ft.).

Smaller working weight: 412 Kgs.

More treatment capacity: 17.28 m/day
(4,565 usg/day).

Doesn't use absorbents.

Better price.


IMO MEPC 107(49) APPROVED.

Through continuous research and development programs and designs based on easy maintenance and maximum efficiency, Facet International has developed the new CPS 3.2E + EBM 14x1. This model combines the classic Coalescing Plates FACET Mpak® technology with innovative membranes that accomplish high efficiency in chemical and mechanical emulsion breaking, being ahead of Facet's competitors in complying with the regulations in force on the treatment subject: IMO MEPC 107(49).

The equipment developed are compact, adaptable to the available space onboard, light weight and allow easy maintenance. The functioning is very easy and completely automatic, with all its functions controlled through a PLC

CPS

3.2E+EBM14X1

 **Facet
International**



Contact us for the price

MAIN FEATURES

- The CPS 3.2E + EBM 14x1 is approved for a flow rate of 0.73 m³/h (3.2 usgpm).
- This Bilge Water Separator is supplied ready to install, coming complete with pump, valves and control panel.
- With the exception of the pump and solenoid valves this Bilge Water Separator has no mobile components. The level control is fixed and has no float.
- Maintenance requirements are very low, being restricted to occasional hosing down of the plate packs, and disposable membrane replacement. Access for cleaning is extremely simple and easy to carry out.
- Separated hydrocarbon does normally contain less than 5% of water and this can be burned, if required.
- Oil discharge is facilitated by connection to the ship's pressurized clear water system.
- The electrical power is at 380/440 v, 50 or 60 Hz.

CERTIFICATION AND OPERATIONAL EXPERIENCE

Facet International CPS 3.2E + EBM 14x1 has been tested, approved and certified according to the requirements of IMO MEPC.107(49). Facet International's experience assures cost efficiency and working reliability.

RESULTS

CPS 3.2E+ EBM 14x1 unit removes hydrocarbons in two stages. In the first stage, free hydrocarbon is separated from water through FACET patented coalescent plate packs, in the second stage emulsions are broken by a membrane which removes emulsified hydrocarbon, reaching down an effluent with total hydrocarbon content of less than 15 ppm.



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