

ITALIAN TECHNOLOGY ALL OVER THE WORLD

# ECOMAR®



## Sewage Treatment Plants Marine & Offshore



**TECNICOMAR®**  
WATERMAKERS - SEWAGE TREATMENT PLANTS

Leader provider of Marine Equipments.



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Since 1978, Tecnicomar develops and manufactures water treatment systems, sewage treatment plants and reverse osmosis fresh water generators. It is proud to supply its systems worldwide on board of yachts, navies, commercial ships, ferries and offshore applications.

Global leader in innovation, Tecnicomar has promoted R&D activity, finding solutions that meet market needs, improving its products and facing the challenges related to marine environment protection.

In order to prevent marine pollution and to meet the stringent sewage discharge standards, our company supports eco-friendly strategies for sustainable development.

Moreover, we can offer custom-made research for creating the best solutions.

Tecnicomar has developed the Ecomar SX series, a very compact and reliable system, in order to reduce space requirements on board. Ecomar units are certified to the latest IMO MARPOL MEPC.227(64) Resolutions, including § 4.2 for the Ecomar S series.

Nowadays Tecnicomar has a certified management system according to ISO 9001 and has also gained ISO 45001 certification, in compliance with the highest standards of quality and safety.

Designed and produced in Marsala, on the west coast of Sicily, Tecnicomar systems are supported by a global service network.





## ECOMAR SX

The Sewage Treatment Plants series, type designed as ECOMAR SX, is certified in accordance with the Resolution MEPC.227(64), with the exception of para. 4.2 for special areas. The ECOMAR SX series is designed to be very compact in order to minimize the required space on board a vessel for the installation. Built to work in marine environments with extreme conditions of temperature, humidity and vibrations. Different models are available covering a wide range of capacities to better fulfill all needs of every kind of applications.

The ECOMAR SX treats batches of sewage using a special chemical-physical treatment and flocculation processes with a final post-treatment prior to overboard discharge. The ECOMAR SX series is equipped with a new automatic backwash system for Post Treatment System combined to automatic treatment cycle of backwash water that doesn't need the intervention of any operator. The ECOMAR SX series is also able to work with Sewage Vacuum Toilet Systems, available as options on request.

Easy to run with fully automatic operation, the ECOMAR SX can be controlled remotely and interfaced to the on board existing control systems.



According to the  
IMO Res. MEPC.227(64),  
excluding Sec. 4.2 for Special  
Areas.

### Main ECOMAR SX features:



#### ON/OFF TYPE

Quick start up of the STP. No stabilization time required.



#### EASY TO USE

Fully automatic operation. The auto-run cycle is continuous and doesn't need the intervention of any operator.



#### COMPACT DESIGN

Created specifically for all marine applications with required high treatment capacity in small areas.



#### LIGHTEST

Small footprint. Main treatment units available in strong polypropylene to save weight.



#### LOW MAINTENANCE COST

Reduced maintenance cost due to low consumables request.



#### ECO-FRIENDLY

No replacing filters required, preserving the environment from waste products.



#### NO DILUTION

No dilution water required.



#### AUTOMATIC BACKWASH TREATMENT CYCLE

Automatic backwash system combined to an automatic treatment cycle of backwash water.



#### SIMPLE MAINTENANCE

Few easy and simple maintenance processes are required.



#### OPTIMIZED HUMAN-MACHINE INTERFACE

Systems allow an interaction with the user through an easily understandable and optimized control panel.



#### LOW ENERGY CONSUMPTION

High efficiency components for a low Energy consumption, suitable for every ship power supply.



#### CUSTOMIZABLE

Multi-tank control, different footprint, customizable skid layout, dedicated accessories and other tailor made solutions on request.



#### WATER RECYCLING

High sewage treatment performance allows the usage of treated water for reuse (toilet flush).



ECOMAR 20 SX



ECOMAR 32 SX



ECOMAR 45 SX



ECOMAR 70 SX



ECOMAR 145 SX



ECOMAR 230 SX



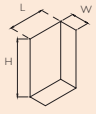
ECOMAR 340 SX



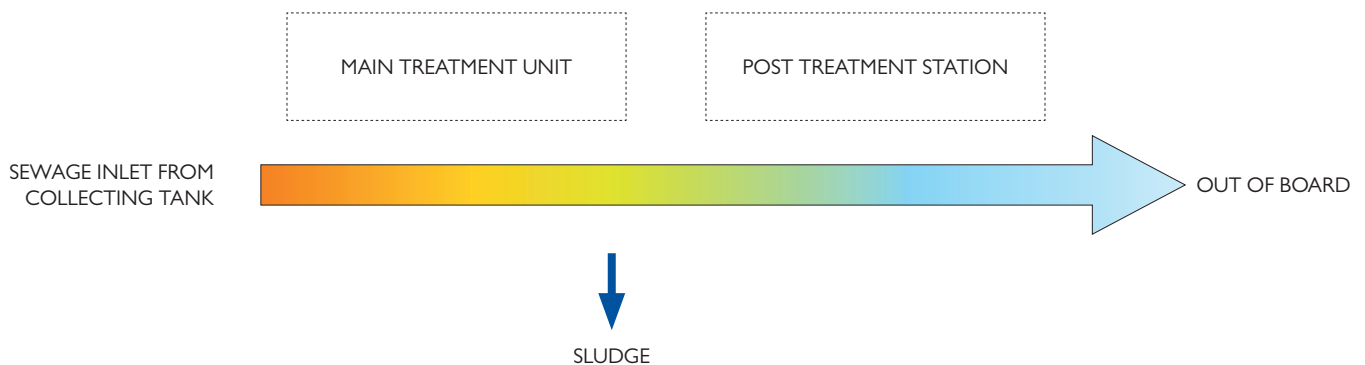
ECOMAR 545 SX



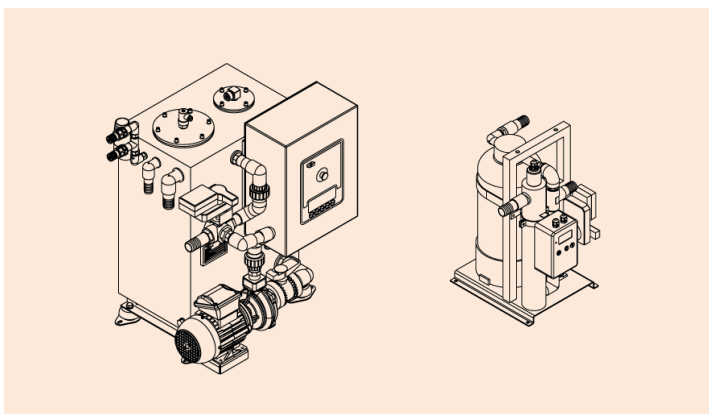
## ECOMAR SX

TECHNICAL SPECIFICATIONS			ECOMAR 20 SX	ECOMAR 32 SX	ECOMAR 45 SX	ECOMAR 70 SX	ECOMAR 145 SX	ECOMAR 230 SX	ECOMAR 340 SX	ECOMAR 545 SX
Capacity (m <sup>3</sup> day)			3.9	5.8	7.4	10.9	19.1	36.1	53.9	84.7
Power supply			230VAC-1Ph / 400VAC-3Ph other voltages available on request					400VAC-3Ph – other voltages available on request		
Max Power consumption (kW)			1.3	1.3	1.8	1.8	1.8	3.8	4.7	10.8
<b>Main components dimensions (LxWxH) (m)</b> 	Main treatment unit	A316L config.	0.7x0.5x0.8	0.9x0.5x0.8	0.9x0.5x0.8	0.9x0.7x0.8	1.3x0.8x0.9	1.3x1.0x1.4	1.4x1.3x1.4	1.9x1.7x1.5
		PP config.	0.7x0.5x0.8	0.9x0.5x0.8	0.9x0.5x0.8	-	-	-	-	-
	Post Treatment Station		0.4x0.5x0.5	0.4x0.5x0.5	0.4x0.6x0.5	0.4x0.6x0.5	0.4x0.6x0.5	0.7x1.1x1.6	0.7x1.1x1.6	0.8x1.1x1.6
Total weight dry (kg)	A316L configuration		146	156	237	243	253	618	618	1560
	PP configuration		132	136	174	-	-	-	-	-

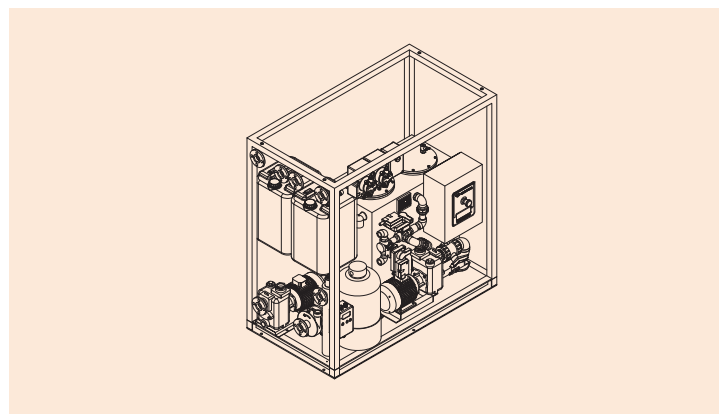
## Flow Diagram



## Standard modular configuration



## Framed configuration



## ECOMAR S

The Sewage Treatment Plants series, type designed as ECOMAR S, is certified in accordance with the Resolution MEPC.227(64), including of para. 4.2 for special areas.

The ECOMAR S series is designed to be very compact in order to minimize the required space on board for the installation. Built to work in marine environments with extreme conditions of temperature, humidity and vibrations. Different models are available covering a wide range of capacities to better fulfill all the needs of every kind of applications.

The ECOMAR S treats batches of sewage using a special chemical-physical treatment and flocculation processes with a final post-treatment prior to overboard discharge.

The ECOMAR S series is also able to work with Sewage Vacuum Toilet Systems, available as options on request. Easy to run with fully automatic operation, the ECOMAR S can be controlled remotely and interfaced to the on board existing control systems.



According to the  
IMO Res. MEPC.227(64),  
including Sec. 4.2 for Special  
Areas.

### Main ECOMAR S features:



#### ON/OFF TYPE

Quick start up of the STP. No stabilization time required.



#### EASY TO USE

Fully automatic operation. The auto-run cycle is continuous and doesn't need the intervention of any operator.



#### COMPACT DESIGN

Created specifically for all marine applications with required high treatment capacity in small areas.



#### LIGHTEST

Small footprint. Main treatment units available in strong polypropylene to save weight.



#### LOW MAINTENANCE COST

Reduced maintenance cost due to low consumables request.



#### ECO-FRIENDLY

No replacing filters required, preserving the environment from waste products.



#### SECTION 4.2 FOR SPECIAL AREAS

Suitable for sea-going passenger vessels on Special Areas.



#### SIMPLE MAINTENANCE

Few easy and simple maintenance processes are required.



#### OPTIMIZED HUMAN-MACHINE INTERFACE

Systems allow an interaction with the user through an easily understandable and optimized control panel.



#### LOW ENERGY CONSUMPTION

High efficiency components for a low Energy consumption, suitable for every ship power supply.



#### CUSTOMIZABLE

Multi-tank control, different footprint, customizable skid layout, dedicated accessories and other tailor made solutions on request.



#### WATER RECYCLING

High sewage treatment performance allows the usage of treated water for reuse (toilet flush).



ECOMAR 20 S



ECOMAR 32 S



ECOMAR 45 S



ECOMAR 70 S



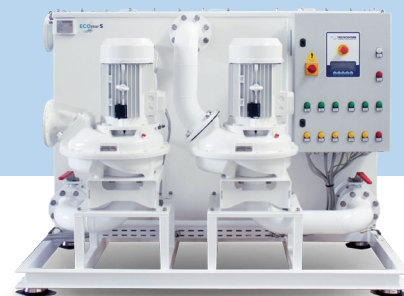
ECOMAR 145 S



ECOMAR 230 S

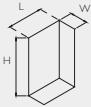


ECOMAR 340 S

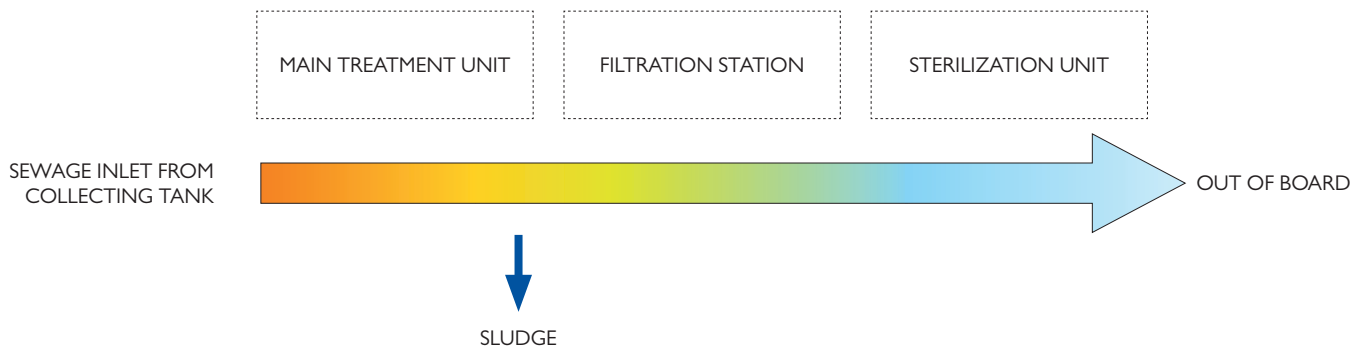


ECOMAR 545 S

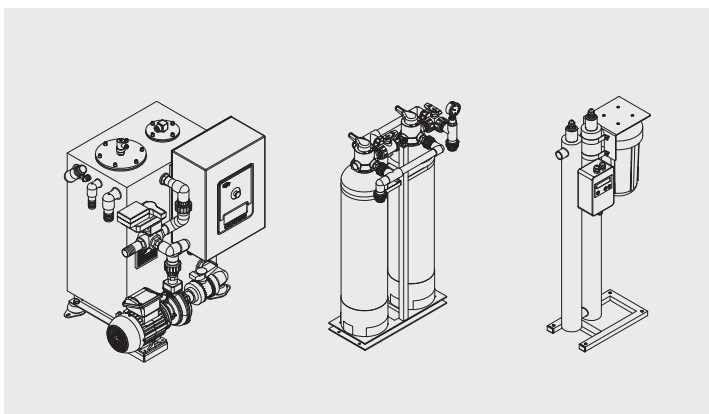
## ECOMAR S

TECHNICAL SPECIFICATIONS			ECOMar 20 S	ECOMar 32 S	ECOMar 45 S	ECOMar 70 S	ECOMar 145 S	ECOMar 230 S	ECOMar 340 S	ECOMar 545 S
Capacity (m <sup>3</sup> day)			2.0	3.2	4.5	7.0	14.5	23.0	34.0	54.5
Power supply			230VAC-1Ph / 400VAC-3Ph – other voltages available on request					400VAC-3Ph – other voltages available on request		
Max Power consumption (kW)			0.7	0.7	1.2 / 1.6	1.2 / 1.6	1.2 / 1.6	2.6	4.5	12.1
<b>Main components dimensions (LxWxH) (m)</b>  	Main treatment unit	A316L config.	0.6x0.5x0.7	0.7x0.5x0.7	0.8x0.6x0.7	0.9x0.7x0.7	1.3x0.8x0.8	1.3x0.93x1.3	1.4x1.3x1.3	1.9x1.7x1.3
		PP config.	0.6x0.5x0.7	0.7x0.5x0.7	0.8x0.6x0.7	-	-	-	-	-
	Filtration station		0.6x0.3x1.1	0.6x0.3x1.1	0.6x0.3x1.1	0.6x0.3x1.1	0.6x0.3x1.1	0.9x0.5x1.6	1.8x0.8x1.9	
	Sterilization unit		0.4x0.2x0.9	0.4x0.2x0.9	0.5x0.2x0.9	0.5x0.2x0.9	0.5x0.2x0.9	0.9x0.6x1.2	1.2x1.0x1.1	
Total weight dry (kg)	A316L configuration		182.2	192.2	272.4	276.5	286.5	662	2240	
	PP configuration		169	173.6	214.4	-	-	-	-	

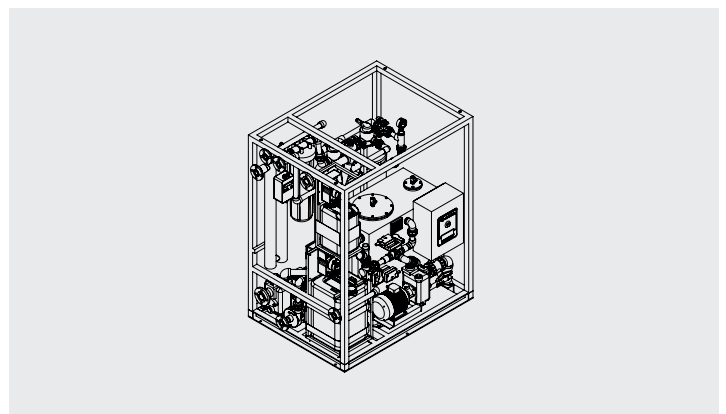
## Flow Diagram



## Standard modular configuration



## Framed configuration





## ACCESSORIES

### REMOTE CONTROL DEVICES

#### 7" LCD Touch-screen

The remote control TOUCH SCREEN, 7" size (other sizes available on request) and 65.000 colours, allows to start, stop and monitor the running/alarm system status. This remote control shows also an alarm data logger.



#### CDmar-2

Remote control panel, model CDMAR2, with touch buttons and back lighted liquid crystal display and provided with three key buttons (START/STOP/RESET). It allows to start, stop and monitor the running/alarm system status.



#### PC Link

Software for the direct connection of the plant to a PC/Laptop by an Ethernet port (TCP/IP). It allows to start, stop and monitor the running/alarm system status.



#### Modbus

Holding register Modbus protocol, RTU type, for the serial (RS-485/422) cable connection of the plant to onboard command and monitoring system.

It allows to start, stop and monitor the running/alarm system status.

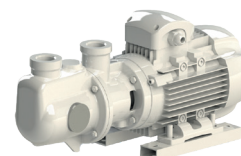
## OPTIONS

### SLUDGE DISCHARGE PUMP

Sludge pump models available for the sludge transfer from a sludge tank to a shore connection or directly overboard according to IMO/MARPOL regulation.

#### Sludge Emptying System

Complete with sludge pump, control box and level sensors available on request.



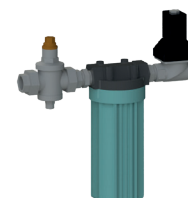
### MAX ABSOLUTE LEVEL SENSOR FOR SLUDGE TANK

**Side mounting level sensor** (LP0) for monitoring the max absolute level inside the sludge tank.



### WASH WATER INLET DEVICE

As alternative to wash pump, Water inlet device for the automatic washing of both sewage treatment tank and multilevel sensor with clean (sea or fresh) water supplied from the ship water pump system (*an Active Carbon filter to reduce free chlorine content from the wash water line available on request*).



### WATER STRAINER FILTER

Nickel-plated bronze water strainer to filter marine debris from sea wash water supply.



### SEWAGE WATER TRANSFER SYSTEM

Transfer control system able to transfer from any collecting sewage (black and/or grey) water tanks to the piloted STP collecting tank, complete with *Transfer System Control Box, Level Sensors and Transfer Pump*.



## SEWAGE VACUUM COLLECTING SYSTEM

Sewage Vacuum Toilet System, made of high quality materials, consisting on the optional supply of:

- Single vacuum pump
- Vacuum Pump Station
- Toilets (WC stations, urinals, washbasins and showers)

### Vacuum Pump Station

Vacuum Pump Station complete with multiple sewage vacuum pumps.






Models:

- Vacuum pump station 30MBD
- Vacuum pump station 50MBD



### Single Vacuum Pump

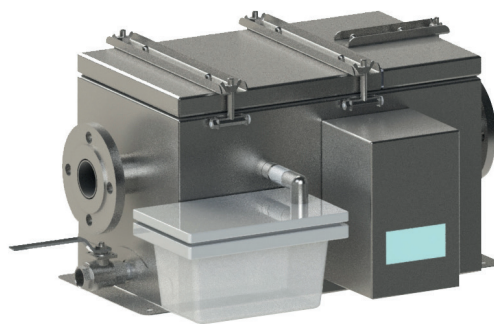
The Vacuum pump can transfer sewage water directly to collecting tanks. Compact, efficient and high performance design, the vacuum pump is available in different sizes and materials.

MODELS	15VMP (BRONZE)	15VMP (AISI 316)	25MBA	65MBA	95MBA
CHARACTERISTICS					
Vacuum capacity	15 m3/h	15 m3/h	25 m3/h	60 m3/h	93 m3/h
Discharge height	10 m	10 m	12 m		
Flushing capacity (at 50/60Hz)	120/150 flush/h	120/150 flush/h	190/240 flush/h	520/600 flush/h	730/800 flush/h
Pump casing material	Bronze	AISI 316	AISI 316	AISI 316	AISI 316
Pump impeller	Bronze	Bronze	Bronze	Bronze	Bronze
Power supply	"380/440V 50/60Hz Three-phase"	"380/440V 50/60Hz Three-phase"	"380/440V 50/60Hz Three-phase"	"380/440V 50/60Hz Three-phase"	"380/440V 50/60Hz Three-phase"
Power consumption	"2.2 kW at 380V / 2.55 kW at 440V"	"2.2 kW at 380V / 2.55 kW at 440V"	"3.0 kW at 380V / 3.45 kW at 440V"	"5.5 kW at 380V / 6.3 kW at 440V"	"5.5 kW at 380V / 6.3 kW at 440V"
Outside dimensions L x W x H	214 x 575 x 274 mm	214 x 575 x 274 mm	200 x 689.5 x 278.5 mm	250 x 829.7 x 336 mm	250 x 836 x 445 mm
Net weight	57.5 kg	57.5 kg	68 kg	100 kg	100 kg

## GALLEY WATER TREATMENT

### Grease trap for galley water

A grease trap system for the separation of grease/oil/fat from the galley water prior to collecting tank discharge.



CHARACTERISTICS	MODELS					
	u.m.	ECOTRAP D1R	ECOTRAP D2R	ECOTRAP D3R	ECOTRAP D4R	ECOTRAP D5R
Hydraulic flow	l/sec	1.15	1.25	2.15	2.25	3.5
Strainer capacity	litres	3	4	8	10	14
Grease collector capacity	litres	3.5	4.5	4.5	4.5	11
Skimming rate (basic model / upgraded 3 skimmers)	l/h	2 / 6	2 / 6	4 / 6	4	12 / 12
Casing material		A316L				
Motor	Watt	25				
Heater	Watt	600	600	1000	1000	2000
Controller		PLC: Backlit display Input 240VAC / Output 240VAC Battery back up				

## ANTI-FOAM PRODUCT FOR GREY WATER

The wastewater collection tank is probably the point where foams are formed due to any detergents or hygiene products, therefore, the dosage of an antifoam product could be recommended.

Anti-foam product: ECOFOAM\*

\*The Anti-foam product is not classified as dangerous according to Regulation EC 1272/2008 (CLP). ECOFOAM is a Tecnicomar S.p.A. brand product.





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## Our International presence

Leader in the market since 1978 thanks to strong business relationships with local partners worldwide. This established global network of skilled technicians allows us to provide a direct support and the best service to all our final customers.



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**TECNICOMAR®**  
WATERMAKERS - SEWAGE TREATMENT PLANTS

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