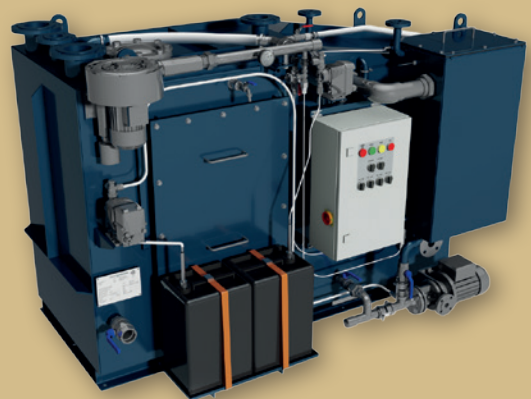




CleanSewage Bio Biological Sewage Treatment

RWO  VEOLIA

Up to 25% less space
demand and through
unique one-side access



WATER TECHNOLOGIES

Sewage treatment with minimal efforts

CleanSewage Bio is designed to minimize the attention with sewage treatment to the lowest level possible. The **accessibility from one side** allows ship designers to plan space in the engine room on a whole new level. The system is part of RWO's leading **Total Water Management** offer.

Operators and crew are pleased with a **hygienic no-touch-cleaning** system, an intuitive status control allows **checking at a glance**, whether the system is running or intervention is necessary. Thereby **CleanSewage Bio** works with a **proven biological treatment technology compartmentalized in 3 process steps** that ensures the highest water quality according to MEPC.227(64).



One Side Access:
All works can be done from one side, no further maintenance space is required

Your key benefits

Safe

- > Integrated mechanical pre-treatment
- > No harmful or flammable chemicals
- > Certificate of Type Approval for Sewage Treatment Plants according IMO MEPC.227(64) issued under the authority of the Federal Republic of Germany by BG Verkehr

Easy to operate

- > No-touch-system for hygienic sludge discharge
- > 100% control through individual switches for every component.
- > Fast restart after maintenance due to biomass carrier in cages

Small

- > No holding tank necessary
- > Up to 25% less space demand through unique one-side access

Suitable for black & grey water

Compatible with all vacuum systems

> CleanSewage Bio – Capacities and Sizes

Type	Organic Load (kg/d BOD ₅)	Hydraulic Load [m ³ /d]	Dimensions L x W x H (mm)	Weight	
				Net (kg)	Wet (kg)
CS Bio 01	n/d	n/d	n/d	n/d	n/d
CS Bio 02	1,38	2,16	2095 x 1250 x 1480	859	2923
CS Bio 03	2,07	3,24	2608 x 1346 x 1612	1149	4134
CS Bio 04	2,76	4,32	2559 x 1646 x 1618	1335	5293
CS Bio 05	4,15	6,48	2781 x 1656 x 2058	1627	7407
CS Bio 06	5,53	8,64	3365 x 1656 x 2058	1885	9278
CS Bio 07	6,91	10,80	3365 x 1986 x 2058	2121	11719

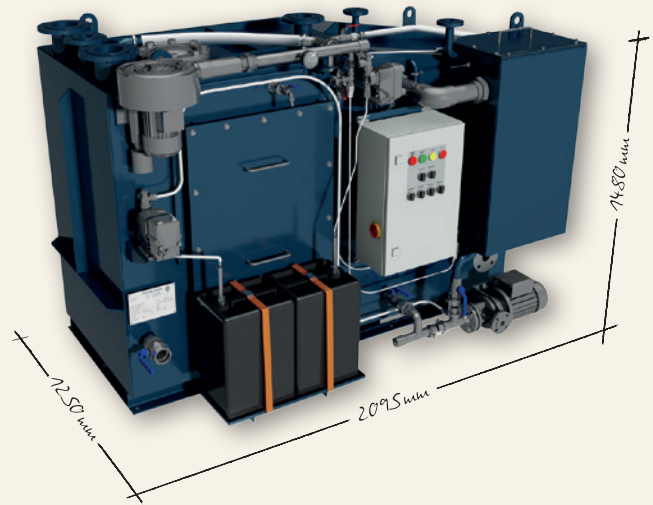
- Data are subject to change without further notice -

How it works

1. RWO CleanSewage Bio works with a biological treatment technology compartmentalized in 3 process steps. As a first step the sewage is separated from heavier solids and particles causing clogging or damages in further process steps. In the Moving-Bed Biofilm Reactor (MBBR) organic matter is degraded into carbon dioxide and water by microbial activity. Biofilm carriers inside are clustered in cages, which significantly eases handling and maintenance. Aeration stabilises the biomass and prevents harmful and dangerous gases from forming.

2. In the Clarifier residual solids and suspended activated sludge are separated by sedimentation and turned back into the MBBR. The clean sewage flows into the Disinfection chamber.

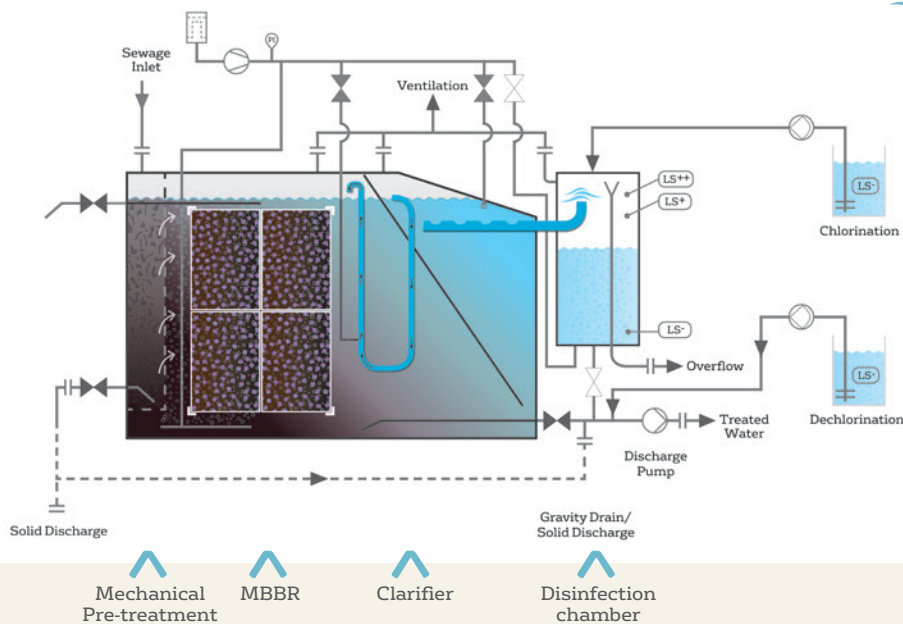
3. Here a chlorine-based disinfection chemical is added. The clean water is then pumped overboard. To meet the limit values set for the chlorine content, a special neutralising agent, LC35, is dosed prior to the discharge pump.



CleanSewage Bio 02 is the smallest capacity of the CleanSewage Bio series so far. Taking into account the space demand for maintenance it is one of the smallest systems on the market.

Treated excess sludge, reduced in volume, can be discharged or collected in an external tank. Due to the biomass retained by the MBBR process, sludge discharge does not interfere with the performance of the plant.

> Operating principle



Resourcing the world

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