

# RWO

••••• **WWT-LC**  
Biological Sewage  
Treatment Solutions



*Natural  
Purenness*

 **VEOLIA**  
WATER

Solutions & Technologies

# Sewage Treatment Plant WWT-LC

according to MEPC.159(55)

## Hygienically safe effluent according to IMO-Standards

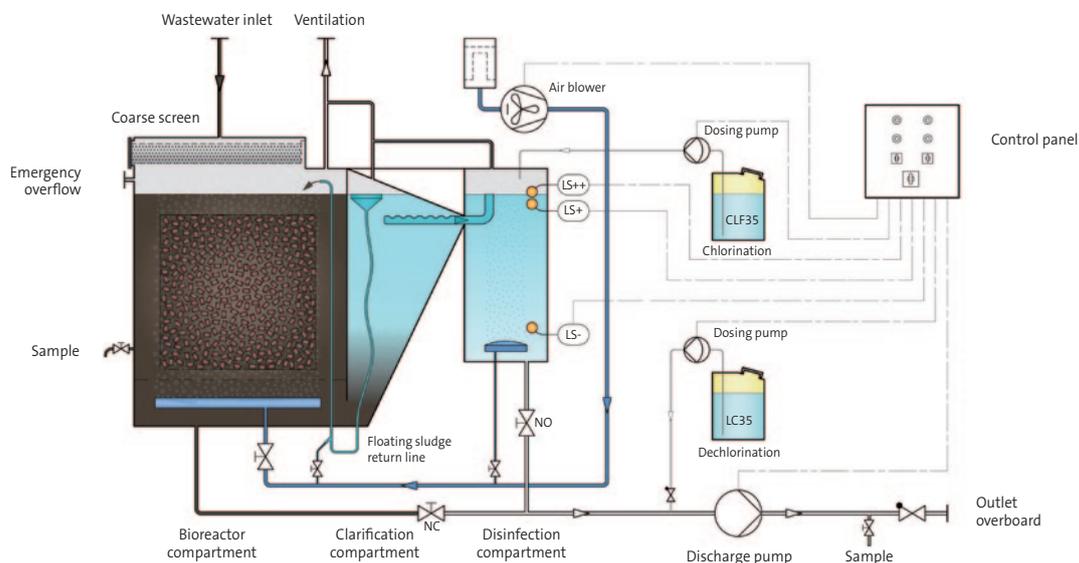
The RWO WWT-LC sewage treatment plant is a 3-chamber process. The heart of the plant is a well-established Moving-Bed Biofilm Reactor (MBBR), where organic matter is degraded into carbon dioxide and water by microbial activity. The air required for this process is generated by an integrated blower. The aeration stabilises at the same time the biomass and prevents harmful and dangerous gases from forming, such as methane and hydrogen sulphide.

From the Bioreactor the wastewater flows into the Clarifier compartment. Here residual solids are separated by sedimentation and returned back into the Bioreactor compartment. The treated wastewater flows into the Disinfection compartment where a chlorine based disinfection chemical is added.

The clean and hygienically safe water is pumped overboard via the discharge pump, controlled by level sensor in the disinfection tank. To meet the limit values set for the chlorine content, a special neutralising agent, LC35, is dosed prior to the discharge pump. This post-treatment process is a unique feature of WWT-LC making it independent from on-board water quality and keeping the pH values within limits.

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.

The very low effluent values for BOD<sub>5</sub> and COD achieved during the type testing process highlight the exceptional efficiency of the wastewater treatment system WWT-LC.



## For ships and offshore application

To fulfil the new guidelines for sewage treatment plants set by the IMO Resolution MEPC.159(55) for all systems being installed on board after January 1<sup>st</sup> 2010, RWO has enhanced its top-selling BIOPUR wastewater treatment system.

Incorporating some major process improvements into the well-known and proven WWT-BIOPUR technology RWO launches *WWT-LC*. This easy-to-operate, compact plug & play solution meets the stringent effluent requirements of the new IMO standard.

### MPEC.159(55) Discharge limits

| Description                     | MEPC.159(55) |
|---------------------------------|--------------|
| Faecal-Thermotolerant Coliforms | 100/100 ml   |
| Suspended Solids                | 35 mg/l      |
| BOD <sub>5</sub>                | 25 mg/l      |
| COD                             | 125 mg/l     |
| Chlorine                        | 0.5 mg/l     |



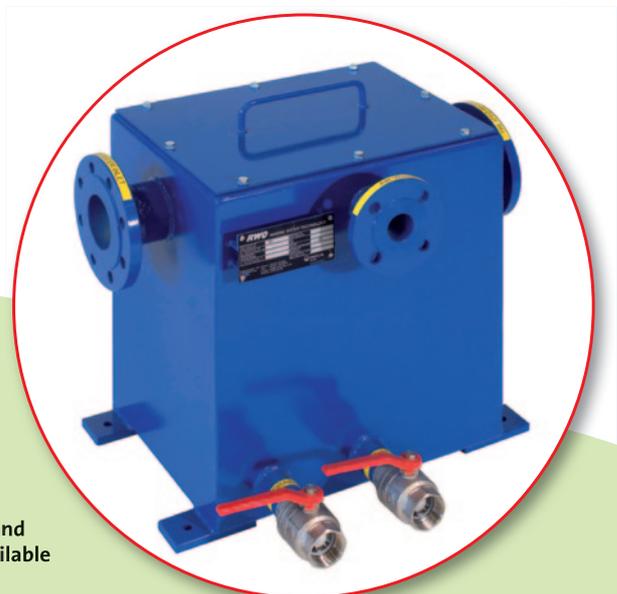
WWT-LC 2

Our plants are **approved and certified** according to IMO Resolution MEPC.159(55) by the German SBG. They are **suitable** to treat both **black and grey water** or black water only.

- Moving-Bed Biofilm Reactor (**MBBR**), giving process **stability** and **excellent effluent** results
- **Compact, small** footprint design
- Delivered as **plug & play unit**, ready for operation
- **Fully automatic** operation, **easy to maintain** and with **low running costs**
- **Vacuum systems** and **grease traps** are available
- **Robust**, user friendly



Vacuum Systems and Grease Traps are available



# Biological Sewage Treatment Solutions

## Technical Data

| Type     | Number of Persons | Hydraulic Load [m <sup>3</sup> /d] | Organic Load [kg BOD <sub>5</sub> /d] | Length [mm]  | Width [mm] | Height [mm] | Dry Weight [kg] | Wet Weight [kg] |
|----------|-------------------|------------------------------------|---------------------------------------|--------------|------------|-------------|-----------------|-----------------|
| WWT-LC 1 | 8                 | 1.44                               | 0.90                                  | upon request |            |             | 720             | 2150            |
| WWT-LC 2 | 12                | 2.16                               | 1.35                                  | 1775         | 1439       | 1550        | 790             | 2680            |
| WWT-LC 3 | 20                | 3.6                                | 2.25                                  | 2377         | 1994       | 1877        | 1040            | 4390            |
| WWT-LC 4 | 30                | 5.4                                | 3.37                                  | 2487         | 1994       | 1877        | 1280            | 6190            |
| WWT-LC 5 | 45                | 8.1                                | 5.06                                  | 2775         | 2147       | 2102        | 1610            | 8880            |
| WWT-LC 6 | 60                | 10.8                               | 6.75                                  | upon request |            |             | 2200            | 11830           |

- Data are subject to change without further notice -

- > System capacity (number of passengers) is higher when using a vacuum system
- > Special designs and larger capacities available
- > Actual capacities dependent on organic and hydraulic load



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