SOUTHLAND WATERS
Clean Water

MODULAR WASTEWATER TREATMENT SYSTEM

Objective :

Wastewater processed by the Southland Waters Modular Wastewater Treatment System (MWTS) will meet the highest specifications, and can be either directly discharged into the environment, used for gardening purposes, or even for human and animal use. Each independent, modular stage, improves the quality of the wastewater, allowing for a gradual improvement of said water, optimizing the costs associated with the treatment.

The basic process :

The process seeks to offer the highest quality, and avoids or completely eliminates the need for the use of harsh chemicals. The objective is to protect the environment, and provide for sources of clean water for different uses, and to stop the spread of dangerous pathogens.

Our modular system,using pre-fabricated electro-mechanical and control equipment leads to a fast and cost-efficient installation process on site. The use of the best membrane technology and disinfection from Japan and Germany ensures low servicing, maintenance, cleaning and replacement costs.

The modular system can be adapted to different situations, and can deal with extreme weather events, namely floods.

Southland Waters MWTS is a mobile, decentralized system for treating municipal or similarly polluted wastewater. It combines 3 stages, each of them in individual containers, or in combined containers, according to customer needs.

- Biotreatment unit (MBBR technology)
- Microfiltration with Yuasa membranes
- Additional disinfection with SANIFLUID®

Once these three stages are completed, the water will be free of smells and pathogens, and will meet most standards, allowing for a discharge to the environment, washing of streets, watering of golf courses and non food gardens. The quality of the effluent should meet and surpass the EU bathing waters guideline (76/160/EWG) with a bacteria count of <1 CFU/ml and a solids content of <1 mg/l.

Although it can be consumed by humans and animals in emergency situations, it might have contaminants such as medication, and chemicals not removed in stages A and B, and hence is not drinking water.

Turning wastewater into potable water :

In order to achieve drinking water quality, one of two further stages can be added.

- Reverse osmosis of the water, so that it can be used for human consumption

We can provide equipment to meet the strictest drinking water standards in the world, which are those of Japan. (see Desalion by SANSO in the desalination brochure)

- Filtration through different absorbing materials to remove specific chemicals present in the waste water. This is custom made, according to the standards of each country, and according to the pollutants that one wishes to remove.

Technology :

State-of-the-art monitoring and control technology ensures a safe, trouble-free and continuous operation of the system. The MWTS has been developed for a reliable, efficient and cost-saving wastewater treatment while requiring low operating and maintenance costs and can be used in conjunction with existing systems or as a stand-alone solution. Plug-and-play connections ensure a fast and trouble-free commissioning. A modular structure allows for gradual investment in better and better water discharge quality.

Fields of application :

- Hotels and condominiums
- Hospitals (to keep dangerous pathogens from going to the environment)
- Marinas and Golf Courses
- Ports - processing of waste water and ballast water
- Construction sites
- Smaller Communities (100 –10000 PE)
- Industrial Applications
- Humanitarian crises
- Lake and pond recovery operations

Components :

- The wastewater is pre-filtered and transported by an external pump into the MBBR Container, (A) where it flows via free overflows into the multi stage MBBR process in the biotank, and through the settling tank to the next container. The Multistage Moving Bed Bio Reactor has a ventilation system for biological treatment and biological carrier material and a settling tank with lamella separators and pump for sludge discharge or recirculation.

- Subsequent mechanical separation in stage 2 is achieved by 0.25 Micron filtration, with the YUASA membranes being completely submerged and a suction pump supplying the necessary vacuum. Stage 2 has aeration for effective membrane cleaning.

- Stage 3 consists of the injection of SANIFLUID®, produced by a local or remote Voigtlaender Generator.Such disinfectant is used to disinfect the discharge effluent as well as for the cleaning of stage B Container, and for labor safety.

❖ Immersion type modules and membrane element

The Yuasa Immersion Type Module is a tank-immersion-type module for large-capacity membrane filtration using a precision filtration membrane originally developed by Yuasa Membrane Systems. The process involves immersing a precision filtration membrane in water, thereby eliminating solids from raw water. This eliminates bacteria and fine particles and ensures consistent quality.

Features :

- Compact and mobile
- High efficiency membranes
- Low pressure membrane operation
- Power savings with suction filtration or gravity filtration.
- Reinforced frame enhances durability
- Precision filtration ensures consistency in the quality of treated water.
- The membrane surface is cleaned by aeration, allowing for a long lifespan
- Each element is disposable and replaceable, and easy to handle
- The membrane module allows for operation in highly concentrated liquid, with more performance than hollow fiber membrane
- Can also be used to condense sludge

PLEASE REFER TO THE FIGURES ON PAGE 4 FOR ADDITIONAL INFORMATION

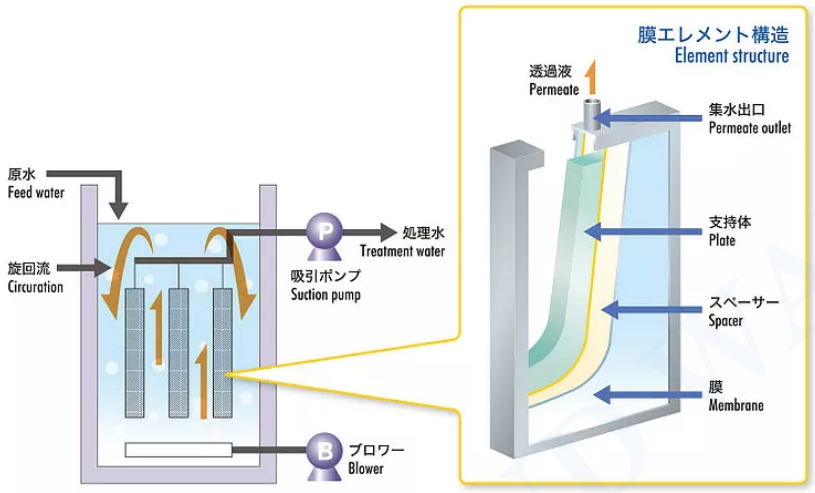

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FIG. : *Immersion and membrane separation system*

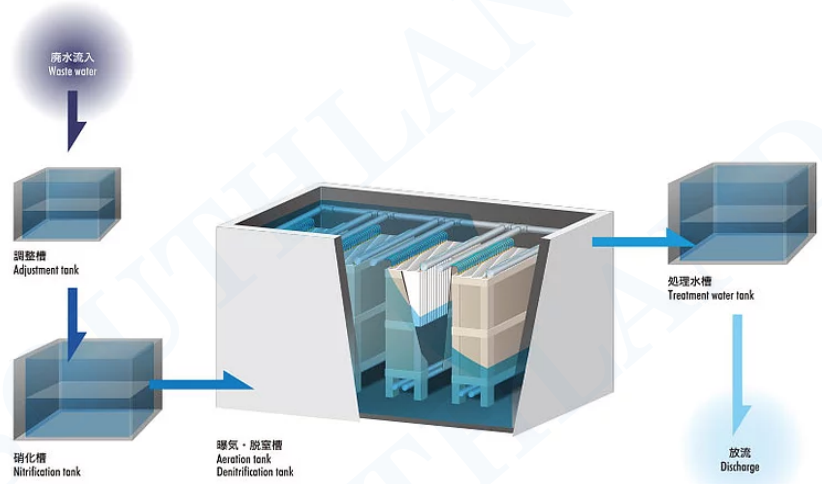

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FIG. : *Installation of activated sludge treatment system*

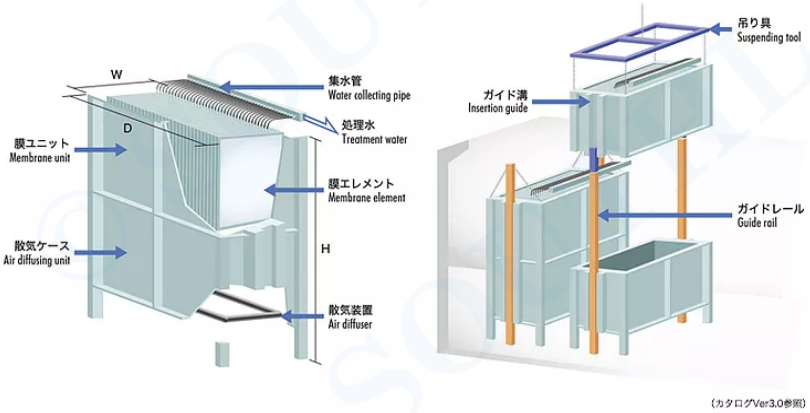

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FIG. : *Membrane module structure*