

Membrane BioReactor (MBR) Systems

Modular Sewage Treatment Plant

MBR
SERIES

The Membrane BioReactor (MBR) is a pre-engineered sewage treatment system utilizing Pure Aqua's water treatment expertise with Toray's submerged membrane technology. MBR combines conventional activated sludge treatment with a membrane liquid-solid separation process.

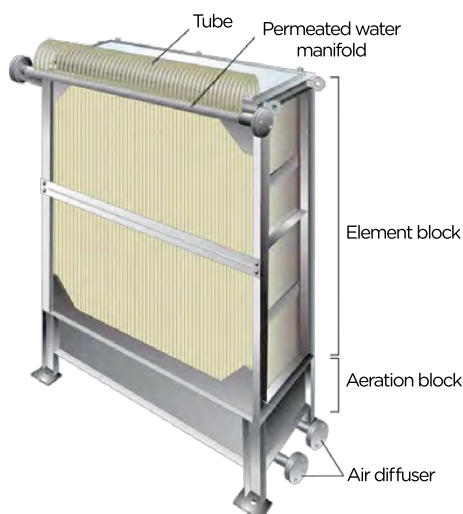
The membrane separation process eliminates the clarifier and allows high volumetric loading, resulting in a smaller footprint. The MBR can produce high quality effluent with high BOD5 removal (about 98%) and virtually complete TSS removal.

Submerged Flat Sheet Technology

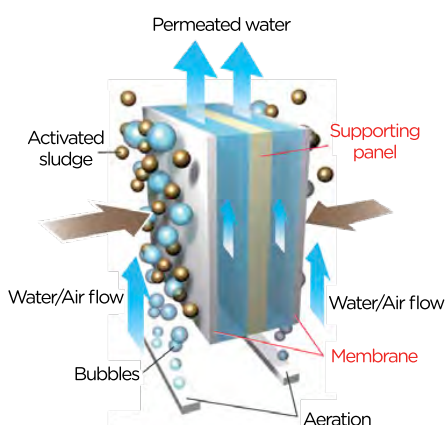
The MBR unit uses Toray flat sheet membranes immersed in the process tank in direct contact with the mixed liquor. Air injected from a manifold at the bottom of the membrane assembly help keep the membrane surfaces clean as well as supply oxygen for the "bugs". The MBR unit is equipped with a high level of automation, ensuring the plant's simple operation and low maintenance cost.



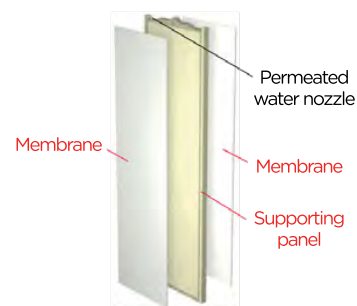
Module



Conceptual Drawing



Element



Specifications (TSP-50150)

Effective Membrane Area: 1.4m²

Dimensions (W x H x T): 515 x 1,608 x 13.5mm

Membrane: PVDF and PET non-woven fabric

Supporting Panel: ABS resin

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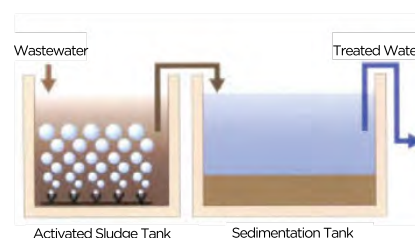
High Efficiency

Using membranes to separate sludge ensures higher quality treated water free from suspended solids. Membranes can retain activated sludge at high concentrations (MLSS), resulting in more efficient BOD and nitrogen removal (higher solids retention time). The membrane has an immense number of minuscule pores delivering stable and high water permeability with minimal clogging and higher permeated water quality.

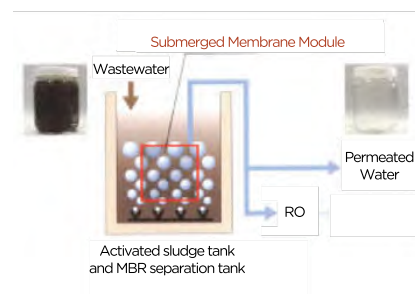
Benefits of MBR

- Reduced space requirements
- Increased solids removal (elimination of bulking)
- Pathogen reduction through removal of Cryptosporidium and Giardia
- Increased volumetric loading
- Production of less sludge due to high sludge age
- High SRT which allows the development of slow-growing microorganisms such as nitrifying bacteria
- Retention of high molecular weight organic compounds that can increase product water quality

Conventional Treatment



Modular MBR



The modular concept allows for phased construction of wastewater treatment plants and makes it adaptable to a wide range of sizes and flow rates. Pure Aqua units can be containerized which has number of advantages:

- Limited site work
- Quick installation
- Easy to relocate

Pure Aqua also supplies: Custom Engineered Solutions, Multimedia Pretreatment, Activated Carbon Pretreatment, Water Conditioning, Chemical Dosing Systems, Ultraviolet (UV) Sterilizers and Ozonation Systems.

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