

Membrane Bioreactor MBR

Membrane process in activated sludge

The advanced membrane bioreactor MBR for treating municipal and industrial water are presented as the key technology for recycling and reuse of wastewater for industrial or domestic use.

The effluent is characterized by a low level of suspended solids, bacteria, viruses, and the retention of trace elements, making it an ideal system for direct download in environmentally sensitive areas.

Our experience

The latest developments of a new generation of membranes Martin more productive and less costly with advances in developing of membrane bioreactors by Martin Water Technologies Inc. , has enabled us to implement the MBR in a wide range of applications for the treatment of wastewater.

Our valuable experience gained in recent years is an added value for our customers in the design of new plants as well as modifying existing ones to improve the capacity and meet increasing performance demands.

Our values

- Provision of membranes and membrane cassette for a wide range of capacities.
- Design and supply of membrane reactors with all necessary equipment to operate.
- Standard designs being able to manufacture special models on request.
- Design of pilot plants in a container for study in industrial waste water.
- Optimization and development of MBR systems with our R&D department

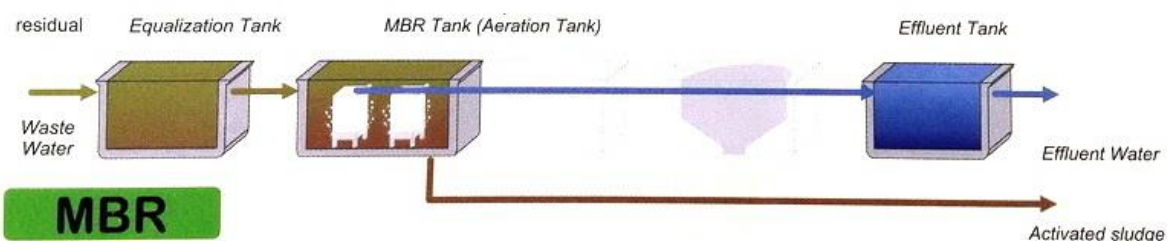
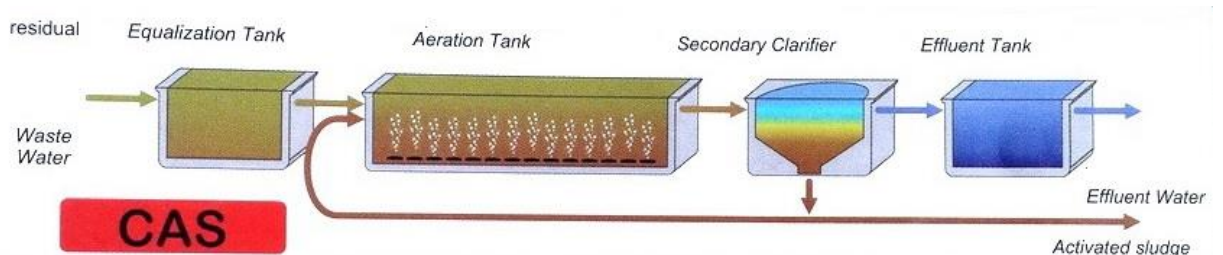
Advantages of MBR over conventional activated sludge system

MBR technology improves the efficiency of wastewater treatment.

- By the separation of activated sludge through membrane, ensures a higher quality of treated water, free of suspended solids.
- Thanks to the membrane retention, allows to obtain high concentrations of sludge, thus obtaining higher purification yields.
- Due to the uniform distribution of pores in the membrane, a high quality of permeate is obtained as well as high stability to high pollutant discharges.
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Decrease the required area

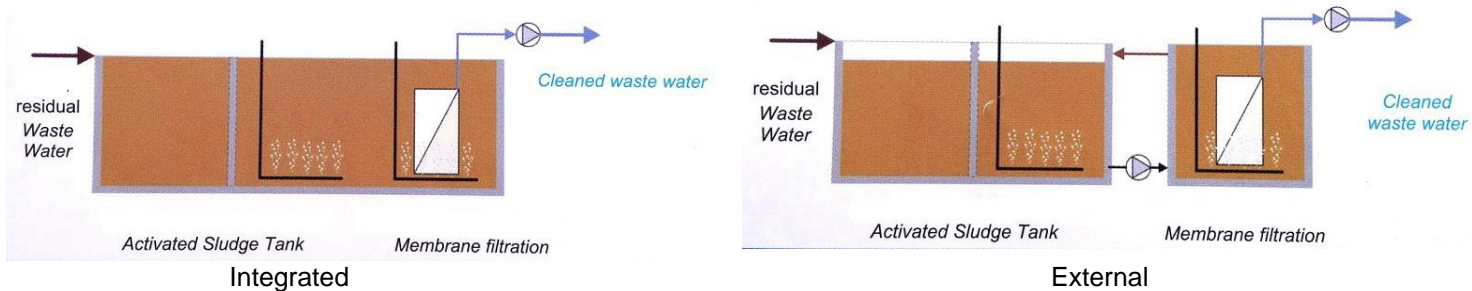
- Due to the high performance of treatment obtained, reduces considerably the volume of biological reactors.
- Elimination of secondary clarifier.



Membrane configuration

MBR with membranes integrated into the biological process, being able to install in existing plants without modification of civil works and no need for additional space.

MBR with outer membranes, facilitating the operation due to be able to handle independently, maintenance, chemical cleaning, etc.



Submerged Flat Sheet Membrane

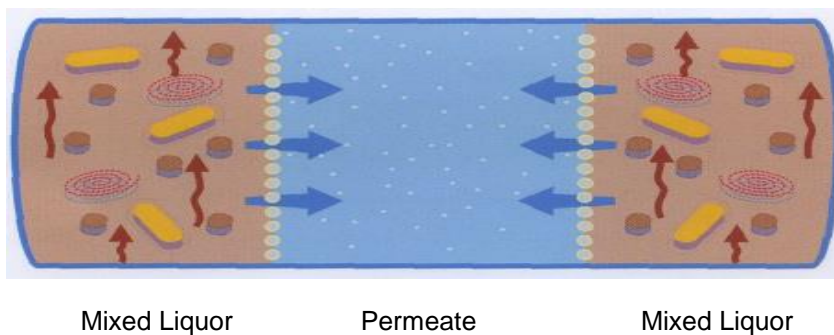
Flat Sheet Membrane of PVDF

Membrane structure

Flat membranes made of PVDF (polyvinylidene fluoride) as a functional layer and central pipe of UPVC. Permeate extraction is done by suction through the silicon tubes.

Upward air filtration

The basic principle of cross flow filtration is to allow the formation of the biofilm on the membrane surface and controlling their growth. The air carries the activated sludge that by rubbing the surface of the membrane drag the substances that form the biofouling.



Properties of Martin membrane

High permeability for water and effluent quality. Using a uniform pore size provides a high permeability and ensures minimal pore blockage.

Unique membrane structure

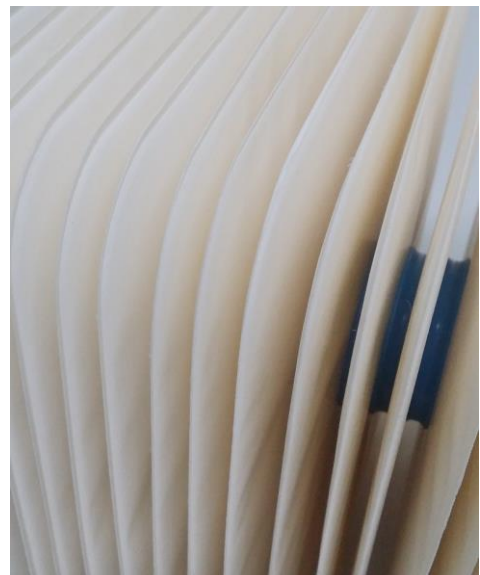
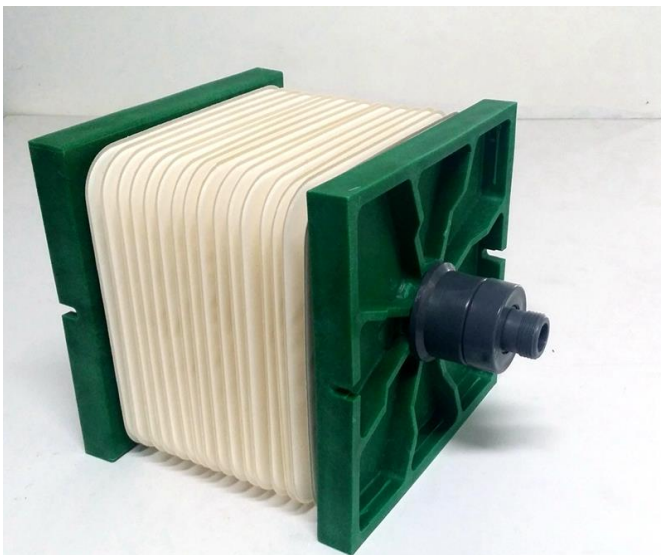
By the uniform distribution of numerous narrow-diameter pores along the membrane surface results in a single structure.

Improved membrane material

The use of PVDF as material of the functional layer of the membrane gives it greater mechanical strength and chemical stability

Submerged Flat membrane module Data

Model	MBR6-1040	MBR6-1020
Membrane material	PVDF or PTFE	
Membrane pore size (UM)	0.1-0.4	
Center pipe	UPVC	
End plate material	PP	
Water inlet channel(MM)	6	
Membrane elements	132	69
Membrane area (M ²)	16.5	8.6
Length(MM)	1160	680
Width(MM)	256	
Height(MM)	256	
Backwashing pressure(MPA)	Gravity filtration online	
Backwashing water amount(L/M ²)	2-2.5	
Backwashing time(MIN)	18	
Backwashing way	Gravity filtration	
Application	MBR ,solid-liquid separation	
Operation mode	Negative pressure suction	
Trans-membrane pressure (MPA)	0.01-0.05	
Max-trans-membrane pressure (MPA)	0.05	
Design flux (L/H,M ²)	15-45	
MLSS (G/L)	10-20	
Aeration flux (M ³ /H.M ²)	0.3-0.4	
Operating temperature (°C)	5-40	
PH range	2-11	
Resistance to chloros (PPM,H)	100000	
Chemical cleaning Way	Gravity filtration online	
Chemical cleaning frequency (times/year)	1-2	
Chemical quantity (L/M ²)	2	
Storage condition	Keep away from fire and chemicals, storage temperature of 1°C-45°C, handle with care	



Comparison of Martin flat membrane with others

	Hollow Fiber	Other Flat Membrane	Martin Flat Membrane
Cartridge Thickness	N/A	10-12MM	1.5MM
Feed channel	Very small	6-8MM	6MM
Package density	260M ² /M ²	50M ² /M ²	608M ² /M ²
Permeate flux	8-15L/KM ²	15-25L/H.M ²	15-45L/H.M ²
Fouling resistance	Low Resistance	High Resistance	High Resistance
Mechanical stability	Shaking, easy to be broken	No Shaking with good strength	Shaking, but with good strength
Washing	Back Wash Available	Back Wash Non-available	Back Wash Available
	Cleaning in-situ unavailable	Cleaning in situation	Cleaning in situation
MSSL range	8-12G/L	12-20G/L	12-20G/L
Water inlet fine Screen	0.3-0.5 MM	10-12MM	1.0-1.2 MM
The average aeration fiow M3/H M ²	0.2-0.22	0.55-0.72	0.3-0.4