

Ultra-Flo[®] MBR-50

Containerized Membrane Bioreactor



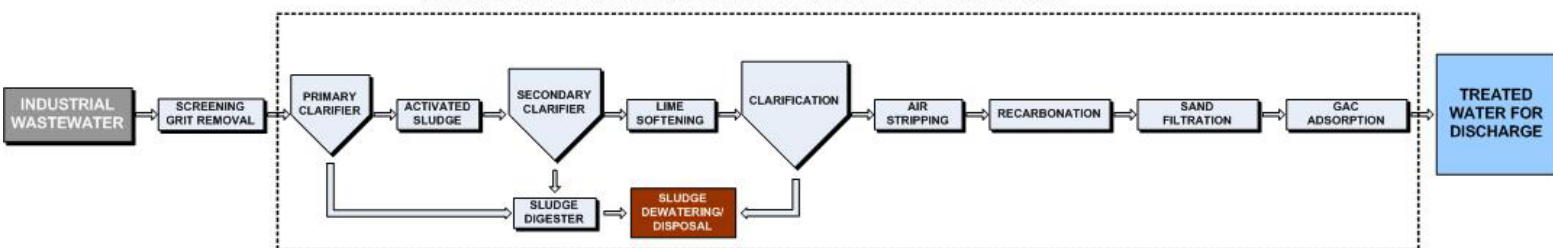
DEFINITION:

- ❖ MBR is a combination of two basic processes – biological degradation and membrane separation – into a single process where suspended solids and microorganisms responsible for biodegradation are separated from the treated water by membrane filtration unit.

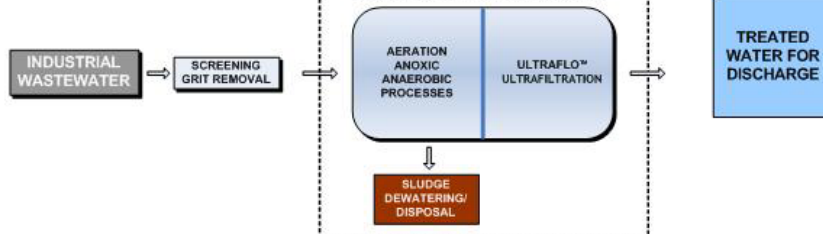
GENERAL OPERATION:

- ❖ The influent enters the bioreactor, where it is brought into contact with the biomass. The mixture is pumped from the bioreactor and then, under pressure, filtered through the membrane. The permeate is discharged from the system while the entire biomass is returned to the bioreactor. Excess sludge is pumped out in order to maintain a constant sludge age and the membrane is regularly cleaned by backwashing, chemical washing, or both.
- ❖ The entire biomass is confined within the system, providing both perfect control of the residence time for the microorganism in the reactor (sludge age) and the disinfection of the effluent.

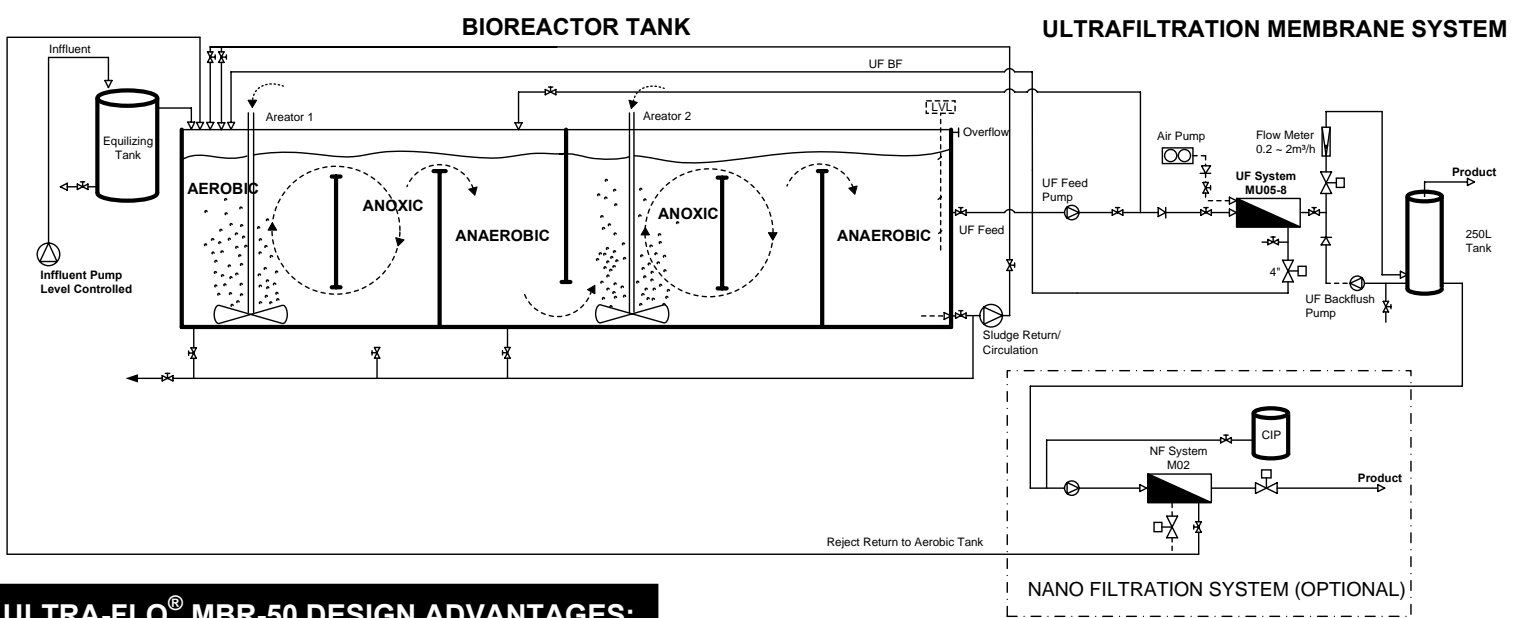
CONVENTIONAL ACTIVATED SLUDGE PROCESS



MEMBRANE BIOREACTOR



MEMBRANE BIOREACTOR PROCESS



ULTRA-FLO® MBR-50 DESIGN ADVANTAGES:

- ❖ Efficient Low Pressure Ultrafiltration with Minimum Fouling
- ❖ Compact Design with Small Footprint
- ❖ Low System and Operating Cost
- ❖ No offensive odour
- ❖ No chemicals needed
- ❖ Removal of COD/BOD, Solids and Nutrient in a single unit
- ❖ No problems with sludge bulking
- ❖ Rapid Startup

APPLICATIONS:

- ❖ Industrial wastewater with high BOD and COD:
 - Tannery
 - Abattoir
 - Food
 - Pharmaceutical
 - Landfill
- ❖ Decentralized municipal sewerage
- ❖ Small industrial estates
- ❖ Hotels and Resorts
- ❖ Condominiums
- ❖ Remote residential communities

SYSTEM INCLUDES:

- 5 x U860 Ultra-Flo® membrane cartridge
- Feed and Backflush Pumps
- 2 control valves
- Feed, Air and Backflush Pressure Gauges
- Product Flow Meter
- Air-scouring Blower
- Stainless or Galvanised Steel Frame
- PVC Piping, Hoses and Quick couplings
- Electrical Control Panel with PLC
- Bio-reactor Tank
- 2 Submersed Aerators



Membrane Specifications:

Configuration	Modified PAN Hollow Fibre
Operation Process	Dead-end filtration (Out to In) Air scouring with backflush (In to Out)
Recovery	90 ~ 95 %*
Operating Temperature	< 50° C
Operating Pressure (TMP)	< 5 psi (Feed) <14 psi (Backflush)
Flow Rate	
COD < 3,000	30 m³/day
COD < 1,000	50 m³/day
Product Turbidity	< 0.5 NTU

System Specifications:

Design	Bio-reactor with Membrane Filtration Unit
Capacity	30 ~50 m³/day
People Equivalent	100 ~ 200 persons
Electrical Power	400V; 50Hz; 6A; 3-Phase
Dimensions (Meter)	6.0m (L) x 2.45m (W) 2.45m (H)
Weight	4,500 kg

* Subject to feed water condition
Note: Ultra-Flo Pte Ltd reserves the right to make any changes to the information provided above without prior notice.



International Water Association

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