



➤ Circularity ➤ Precision ➤ Performance



**MBR SERIES**



## MEMBRANE BIOREACTOR (MBR)

**Membrane Bioreactor (MBR) technology plays a central role in enabling circular water management in domestic and industrial applications.**

By combining advanced biological treatment with membrane filtration, MBR systems transform wastewater into a high-quality reusable resource. This allows industries to:

- ✓ Reduce freshwater consumption,
- ✓ Minimize discharge quantity and
- ✓ Close the water loop within their operations.

With its compact design, high treatment efficiency, and consistent effluent quality, MBR supports the transition from linear water use to a **circular, resource-efficient production model**.





## KEY ADVANTAGES

### Superior Effluent Quality

Compared to conventional systems, MBR systems operate with significantly higher biomass concentrations (10,000–12,000 mg/L MLSS), resulting in **superior treatment efficiency**. The treated effluent can be further polished with RO to enable **high-quality water reuse**.

### Reduced OPEX

MBR effluent achieves complete removal of bacteria and removal of most viruses, thereby significantly reducing or **eliminating the need for disinfection**. During membrane cleaning, **air consumption is reduced by 20%** through optimized membrane movement and diffuser configuration.

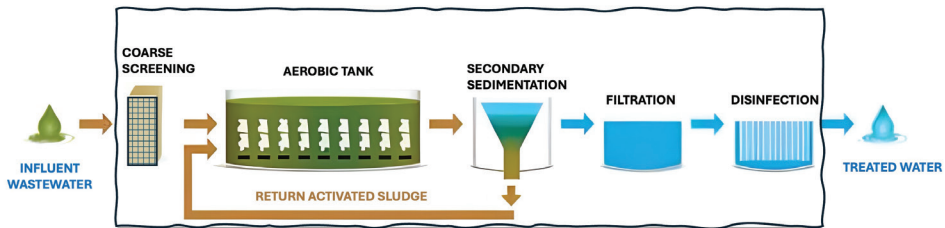
### Compact Design

Ideal for facilities with limited available space. Compared to conventional systems of the same footprint, MBR systems offer a significantly more compact design, requiring up to **3 times less area**.

### Operational Stability

Maintains stable performance under fluctuating hydraulic and organic loading conditions.

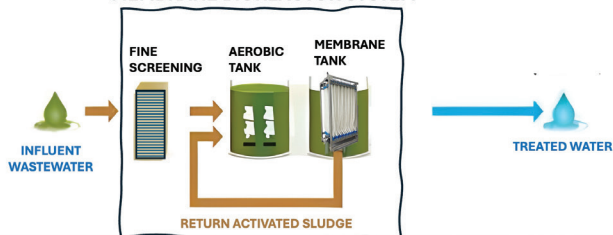




**CONVANTIONAL SYSTEM**



**MEMBRANE BIOREACTOR SYSTEM**



## Industry Applications

- » Various Industrial Wastewater
- » Pulp & Paper Industry
- » Metal Processing
- » Food & Beverage
- » Textile Industry
- » Industrial Zone
- » Hospitals
- » Hotels



## Process Performance Data

- » Up to 90–95% COD removal
- » 99% Bacteria Removal
- » 99% BOD removal
- » 99% TSS removal

## Fouling Management

Membrane fouling is effectively controlled through a combination of air scouring, relaxation cycles, and optional chemical cleaning. The PVDF membrane material offers excellent chemical resistance, high mechanical strength, and a hydrophilic surface that minimizes fouling and extends membrane life.

## Stabil Sludge Production:

Thanks to the long SRT, the biomass is better stabilized. Improved floc structure and lower organic content result in higher dewatering efficiency.

## Simplified Process Design

Eliminates the need for secondary clarifiers, reducing system complexity and maintenance requirements.



GEN-MBR is our technology partner, specializing in the production of high-quality and durable MBR modules for both domestic and industrial wastewater treatment systems.



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