

# A3-USA MBR Systems

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**Water and  
Wastewater  
Membranes**

# A3-USA MBR Systems

## State-of-the-Art Technology

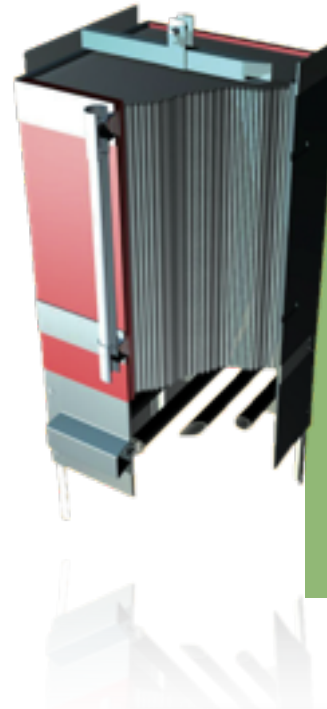
The application of membrane bioreactor (MBR) technology represents the state-of-the-art technology for treating biological wastewater. While conventional treatment processes focus on the degradation of organic contaminants and nutrients such as nitrogen and phosphorous, MBRs also reject turbidity and microorganisms. This generates high-quality reuse water. MBR plants are extremely compact in size due to their high level of biomass and elimination of clarifiers.

Further, the modular nature of membrane modules provides for very flexible plant concepts that can “grow”, allowing investments to be made only when needed.

## MBR Process

Membrane bioreactors combine conventional biological activated sludge processes with membrane filtration. The membranes are directly submerged in the activated sludge. The activated sludge (biomass) is separated from the liquid as it passes through the membranes and is retained in the biological reactor. Conventional sedimentation processes are not required. The small membrane pores retain suspended matter, bacteria, and viruses (pathogens). Membranes are arranged (packaged) in modules for easy installation and maintenance. Aeration devices are located at the bottom of membrane

modules. Air bubbles create a cross flow parallel to the membrane surface and generate biomass degradation. The flow across the membranes creates a shear force that limits build-up on the membrane surface.



## Benefits

- Continuous superior effluent quality
- Compact footprint
- Scalable
- Class A reuse water
- Easy operation
- Low maintenance
- Disinfection equipment is reduced or eliminated
- Fully automated operation
- Operation at an average MLSS of 10,000 - 15,000 g/l
- Increased sludge age approves treatment capability
- Lower waste sludge production



## Achievable Effluent Values

