



The small footprint design of the Xpress™ MBR, produces high quality effluent while reducing energy and maintenance costs

## Xpress™ MEMBRANE BIOREACTOR PACKAGED PLANTS

The Xpress™ membrane bioreactor (MBR) packaged plant from the DAVCO™ product line enables municipal and industrial wastewater treatment plant owners and operators to achieve high quality effluent while reducing energy and maintenance costs. The compact, robust design is factory pre-assembled, tested, and skid-mounted providing easy installation for the treatment of applications ranging from 5,000 gallons per day (gpd) to 200,000 gpd.

### The Xpress™ MBR Process

The pre-designed and skid-mounted system, can be offloaded quickly and efficiently at wastewater treatment sites. The prefabricated steel tanks include pre-installed internals, pumps and blowers to reduce time and on-site labor for installation.

The treatment process begins with influent entering a 2 mm rotary drum screen with re-screening for improved membrane life before entering the tank where the biological treatment process takes place. Aeration within the aerobic reactor zone provides oxygen for the biological respiration and maintains solids in suspension. To retain the active biomass in the process, the Xpress MBR system relies upon the proven MEMCOR® B40N hollow fiber membrane eliminating sludge settleability issues. This allows the biological process to operate at long sludge ages (typically 20-100 days) and increases mixed liquor suspended solids (MLSS) concentrations (typically 8,000-14,000 mg/L).

High MLSS concentrations promote numerous process benefits, including stable operation, complete nitrification, and reduced biosolids production reducing biological volume requirements (and associated footprint) to only 20-30 percent of conventional biological processes. Further, the membrane tanks provide extremely space efficient solids separation and do not require a clarifier in the system.

### PROJECTED EFFLUENT QUALITY

Parameter	Value (mg/L)
BOD	<5
TSS	<5
TN*	<10
Turbidity	<0.2

\*DO control option required



MEMCOR® B40N hollow fiber membranes deliver greater filtration performance and reduce energy up to 60 percent

The submerged membranes are located in a separate tank and combine a compact modular rack design with the proven MEMCOR® B40N hollow fiber membrane, delivering greater filtration performance and reducing aeration energy up to 60 percent. The hollow membrane fibers are bound together in modules, using a unique dual-potting system. Mixed liquor is drawn into the bottom of the fiber bundles with air. The filtrate pump then draws the water through the fiber wall thus filtering the water from the solids and the filtrate is pumped away for use elsewhere.

Evoqua's MBR system uniquely uses pulsed, plug flow aeration to greatly increase process efficiency and reduce energy usage. A continuous air flow is evenly distributed to each module in the form of large bubbles that increase in size as they move up the membrane fibers. The size and the random nature of the large bubbles or slugs of air prevent trash and solids build up by pushing debris away from the membrane fibers at the surface. Evoqua's membrane system leads the industry in energy consumption with specific energy usage as low as 0.08 kWh/m<sup>3</sup>.

### Features & Benefits

- Pre-assembled, skid-mounted system reducing installation time and costs
- Space saving compact design
- Advanced nitrogen and P removal
- Pre-programmed, user friendly controls for reliable operation and minimal operation attention
- Title 22 approved ensuring high quality effluent (<0.2 NTU)

### Applications

- Water reuse and recycling
- Ground and surface water discharges requiring advanced treatment
- Pretreatment for reverse osmosis (RO) or advanced filtration processes
- Satellite reclamation
- Industrial wastewater
- Residential and commercial development
- Remote installations
- Emergency response wastewater treatment
- Sports facilities, schools, and office parks, etc.

There are many equipment variations, configurations, and options that can be used with MBR systems, all of which are designed to provide the necessary treatment for each wastewater project. Equipment selection is dependent on effluent requirements, ease of maintenance and operation, power consumption, future expansion, and initial capital costs.



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