

# MemPulse™ MBR System

Designed for What Matters –

Unique, robust system that minimizes scouring air flow, footprint and maintenance





# MEMCOR™ Products

## MemPulse™ MBR System

The MemPulse™ MBR system from DuPont Water Solutions employs an advanced wastewater treatment process that combines activated sludge treatment with MEMCOR™ membrane filtration resulting in superior effluent quality at a reduced life-cycle cost. The system delivers a stable membrane environment, operational flexibility and reduced maintenance requirements resulting in significant cost savings.

### Benefits of upgrading to MemPulse™ MBR:

- High-quality effluent
- Drastically reduced system footprint
- Fewer process steps
- Eliminates sludge settleability issues
- Modular expansion capacity
- Low energy

### The MemPulse™ MBR System provides:

- Flexible modular rack design – fits in most tank arrangements
- Pulsed, plug flow aeration for channeling & solids build up prevention
- Dedicated, focused air scour delivered to each membrane module
- Pulsed air scour with continuous flow to each tank
- Market leading low energy consumption. Reduces aeration by up to 50% or <math><0.08 \text{ kWh/m}^3</math>.
- Reduction of operation & maintenance costs with no moving parts in the aeration process
- Easy to handle modules and racks



## Benefits

### Why MemPulse™ MBR?

### Solutions for your installation

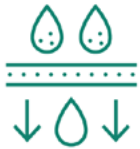
The MemPulse™ MBR system combines a compact modular rack design and the B40N Membrane to deliver greater filtration performance with reduced aeration flow.

The MemPulse™ MBR system has a proven track record of achieving superior effluent quality in a reduced footprint and at a lower life-cycle cost in the most challenging environments. The system is successfully operating in applications ranging from municipal wastewater plants to the most difficult industrial applications such as oil refineries.



### MemPulse™ N Series Membrane Filtration

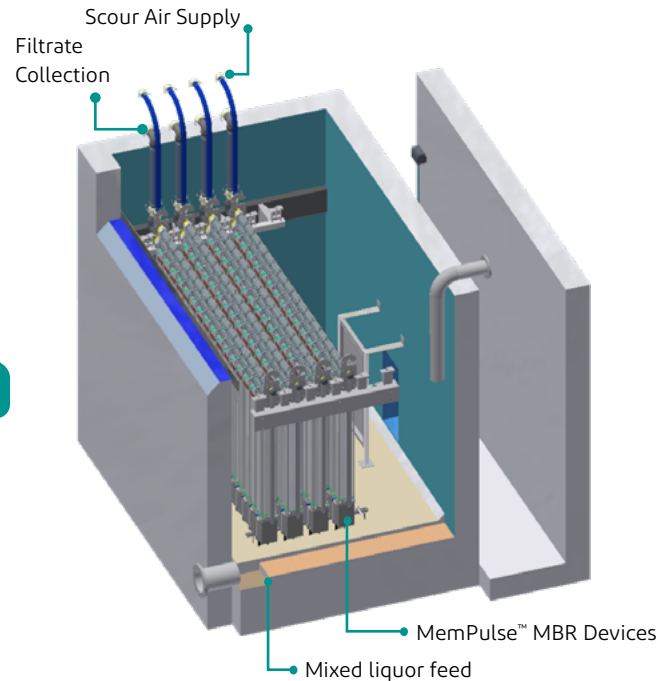
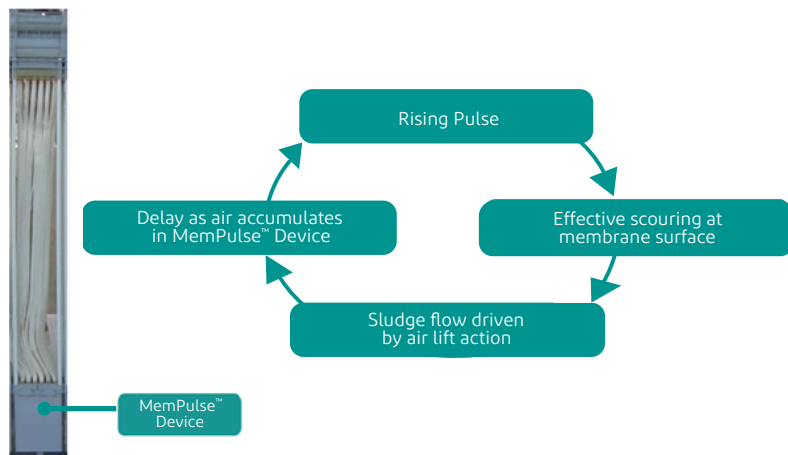
Product Name	Key Features
MemPulse™ B50N Membrane Filtration Module	The MemPulse™ B50N membranes filtration module is the next step in MemPulse™ MBR with high-quality effluent & low energy. The B50N module provides 25% more flow per module and additional aeration energy savings with the same modular footprint.
MemPulse™ B40N Membrane Filtration Module	The MemPulse™ B40N membranes are a unique slack adjust free module system with a compact modular rack system. High quality re-use ready with integrity testing capable membranes, receive high-quality effluent with this MBR system.
MemPulse™ B15N Membrane Filtration Module	All the benefits of MemPulse™ in a smaller package the B15 N is the ideal module for pilot trials or to apply for low height applications such as replacement of flat sheet modules.



# MemPulse™

## MemPulse™ MBR System in operation

The graphic below depicts air scouring efficiencies achieved by introducing a plug flow of air at the base of each module.



### Delivering reliability & operational simplicity

The MemPulse™ MBR system is designed to increase reliability, decrease operating and maintenance costs and dramatically reduce energy usage. A continuous air flow is evenly distributed to each MemPulse device located directly at the base of each MBR module. The system introduces air at the base of the membrane module in the form of large bubbles or slugs that increase in size as they move up the membrane modules. The size and the focused nature of the large slugs of air prevent trash and solids build up by pushing debris away from the membrane fibre surfaces.

At the same time the large aeration pulse creates an airlift flow that draws mixed liquor into the bottom of each membrane module through an airlift tube. The air bubbles then blend with the mixed liquor and rise between the individual membrane fibers. This creates a unique crossflow pattern, providing an even distribution of mixed liquor and a reduction of solids concentration on the membrane surface.

The cross flow combined with focused, slug aeration prevents channeling and solids accumulation on the membrane surface resulting in greater system efficiency and reduced air scour requirement.

In addition; the up-flow pattern in the tank creates a flotation effect that moves grease, scum and other floatable constituents to the surface for removal.

### Proven and reliable

The MEMCOR™ Product line has been leading the membrane industry for over 40 years and has had a dedicated MBR team since 1995. The membranes used in the MemPulse™ system have been proven in the field since 2007.

The efficiencies achieved with the MemPulse™ MBR system coupled with a proven installation base of over 300 plants and the experience of the MEMCOR™ MBR team make this DuPont Water Solutions technology ideally suited for a wide range of municipal and industrial applications.

## A legacy of technical leadership

The MemPulse™ modular rack design allows flexibility in plant design, as well as compatibility with nearly any existing tank or plant footprint.

MEMCOR™ branded technology (or products) has led the industry with a series of “first to market” advancements that have increased the productivity of MBR systems.

- **Separate Membrane Tank:** Allows easy cleaning of membranes and independent optimization of MOS and bio process.
- **Improved MLSS distribution:** The introduction of the MemJet™ system greatly improved system performance with superior hydraulics within the membrane environment.

- **Removal of Air Release Tanks:** First to use priming educators, now the industry standard.
- **Replaced cyclic with Plug Flow Aeration:** The technology used in the MemPulse system was introduced with further enhancements that cut energy consumption to up to half of traditional systems with no moving parts.

Compared to alternative MBR membrane solutions MemPulse™ MBR provides optimum filtrate quality, with lower energy consumption and flexible rack and tank configurations that enable our customers to implement superior MBR solutions.



## MemPulse™ MBR – Designed for What Matters



### Aeration Like No Other

- The unique efficiency of two phase plug flow MemPulse membrane cleaning.
- No need for daily cyclic peak operation.
- Doesn't waste energy – Focused bubbles
- Low chemical use



### In Tank – Membranes where they Belong

- Keep your team productive – No need to adjust slack
- Fully automated membrane cleaning – No need for manual cleaning
- Minimise operator exposure to bacteria and pathogens



### Filtration Strong Durability

- Strength where you need it: 100% UF membrane
- Can withstand forces in all directions
- Self-healing smaller ID membranes
- Reliable effluent quality with proven pathogen rejection for >10 years
- Enabling re-use – Tier 3 capable



### Adaptable and Flexible

- State-of-the-art modular and configurable rack design
- Can fit into any tank geometry
- Fits into other membrane system cassette and rack layouts
- Compact MBR footprint up to 30% smaller



**Water Solutions**  
**Have a question? Contact us at:**  
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