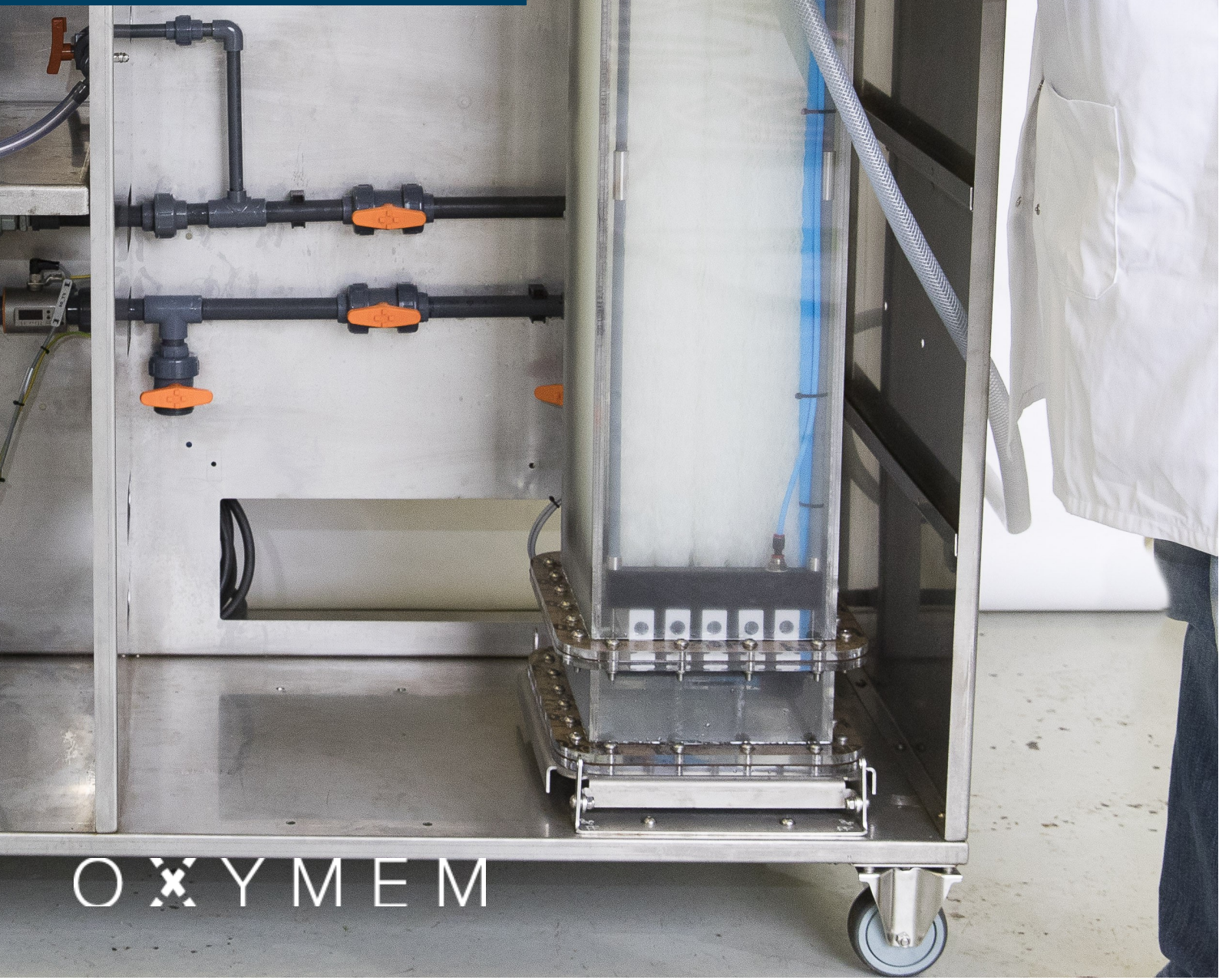Data Sheet:

The OxyMem Lab Scale Membrane Aerated Biofilm Reactor

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OxyMem's MABR (Membrane-Aerated Biofilm Reactor) technology is the solution to OPEX intensive wastewater treatment. Aeration is the key component of biological wastewater treatment and traditional aeration technologies can be very energy intensive processes. OxyMem solves this with its MABR bubble-less aeration technology.

OxyMem Lab Scale MABR

The OxyMem Lab Scale MABR is intended for use in studying the Membrane Aerated Biofilm Reactor as a biological water treatment system.

Applications	Reactor characteristics
>> Treatability Studies	>> Volume: 60 liters
	>> Up to 720 liters per day flow capacity
>> University Research	>> Tank is made of Polycarbonate in a stainless steal frame
>> Loading Rate Verification	>> Membrane Cartridge includes 5 cassettes with a total of 20 m² of Membrane Surface Area
>> Gas To Liquid Transfer	

OxyMem Lab Scale MABR

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Operating Specifications

The system is designed to be operated in continuous mode.

Periodic removal of settled sludge or solids from the base of the reactor can be carried out either on a timed interval basis or manually.

Air is supplied to the lumen of the membranes by a small air blower.

>> Maximum operational temperature 40°C
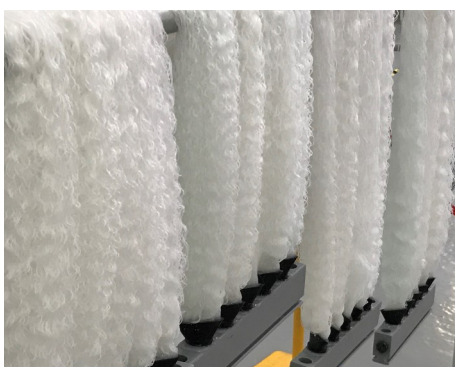
>> pH range 6—8

Contact OxyMem if wastewater contains corrosives or solvents

Hollow Fibre Dimensions

>> Internal Diameter 300µm

>> Outer Diameter 510µm

>> Exposed Length 890mm

Hollow fibre membranes: bunches overview and singular membrane petal shape cross-section.

Oxyem Lab Scale MABR tank fitted with 5 mini cassettes

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The OxyMem Lab Scale System Equipment

>> 60 liter Clear Tank (available volume)

>> 5 OxyMem Mini Cassettes

>> Scour Blower

>> Process Gas Blower

>> Control and Monitoring system

>> Wastewater Feed Pump

>> Recirculation Pump

MABR System (Lab Scale OxyMem MABR front, back and side view)

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| Materials of Construction	
Tank	The polycarbonate wall allows visual assessment of wastewater, biofilm growth and internal elements.
Air Lines	Polyurethane - Industrial grade.
Air Line Connectors	Push-fit, for ease of assembly.
Header & Footer	U-PVC
Membranes	Polydimethylsiloxane (Silicone). High gas permeability, flexible, chemical and temperature resistant.
Potting Materials	Compatible with membranes. Flexible, resistant.

OxyMem Lab Scale MABR

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MABR Instrumentation includes:

>> Inlet and outlet process gas flow meters/transmitters

>> Inlet and outlet pressure transmitters

>> Off gas O_2

>> Reactor liquid level transmitter

>> Recirculation line flow meter/transmitter

>> Process gas line purge and de-sludge automatic valves.
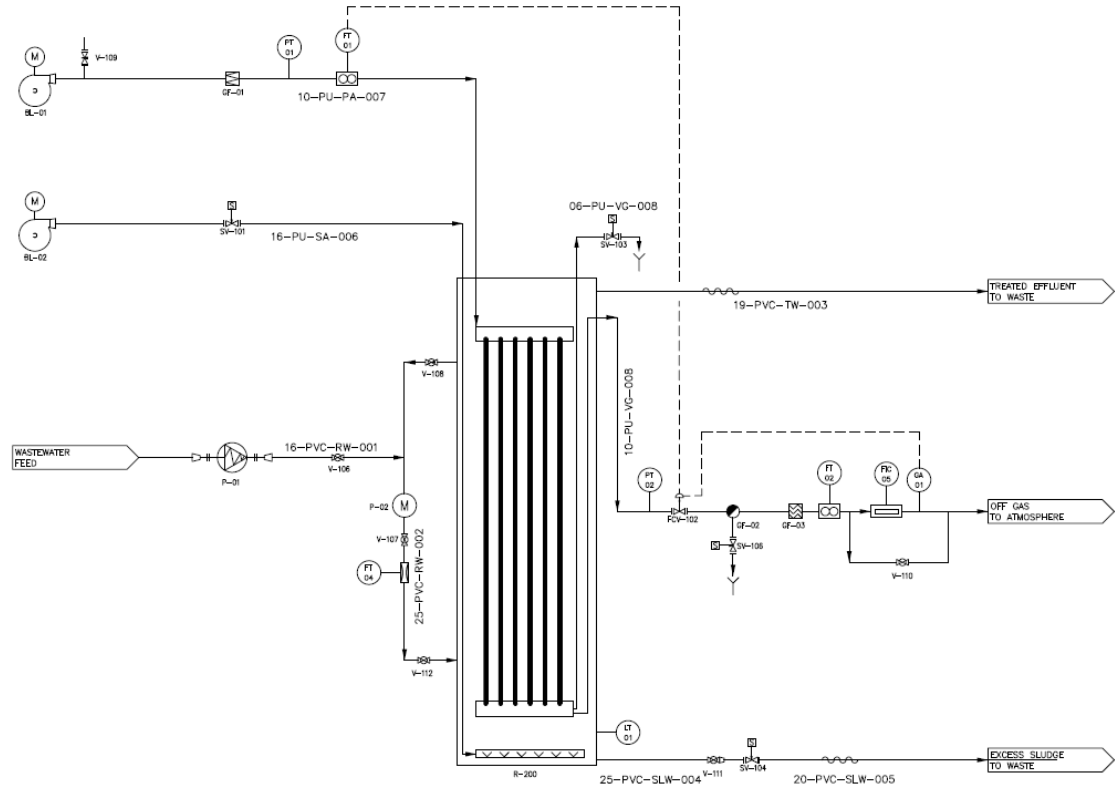
OxyMem Lab Scale MABR Process and Instrumentation Diagram

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MABR Controls:

The OxyMem Lab MABR is controlled by a touchscreen HMI, allowing customisation of the process. The wastewater feed rate, process gas flow, frequency and length of scour and de-sludge can be simply set, regulated and monitored.

Online trends accessible via HMI:

>> Inlet and outlet process gas flow

>> Recirculation flow

>> Liquid level

>> Inlet and outlet gas pressure

>> Off gas O_2

The data acquisition and storage system offers easy access to export data. Just plug in a USB stick or a PC to export .csv files.

OxyMem Control Panel Interface - Touchscreen HMI

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About OxyMem

OxyMem offer an innovative approach to wastewater treatment using Membrane Aerate Biofilm Reactor (MABR) technology to drive efficiency. This award-winning technology offers users a range of significant advantages over traditional approaches, not least in terms of performance and cost. Clients include; Severn Trent Water, Suez (AGBAR), and The DOW Chemical Company (who subsequently became an investor).

Contact Us

Visit OxyMem.com to learn more about how OxyMem's MABR solution can deliver a transformative impact at your wastewater plant.

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