

ELIQUO | HYDROK

MBR

BIO-CEL® Membrane Bioreactor Process



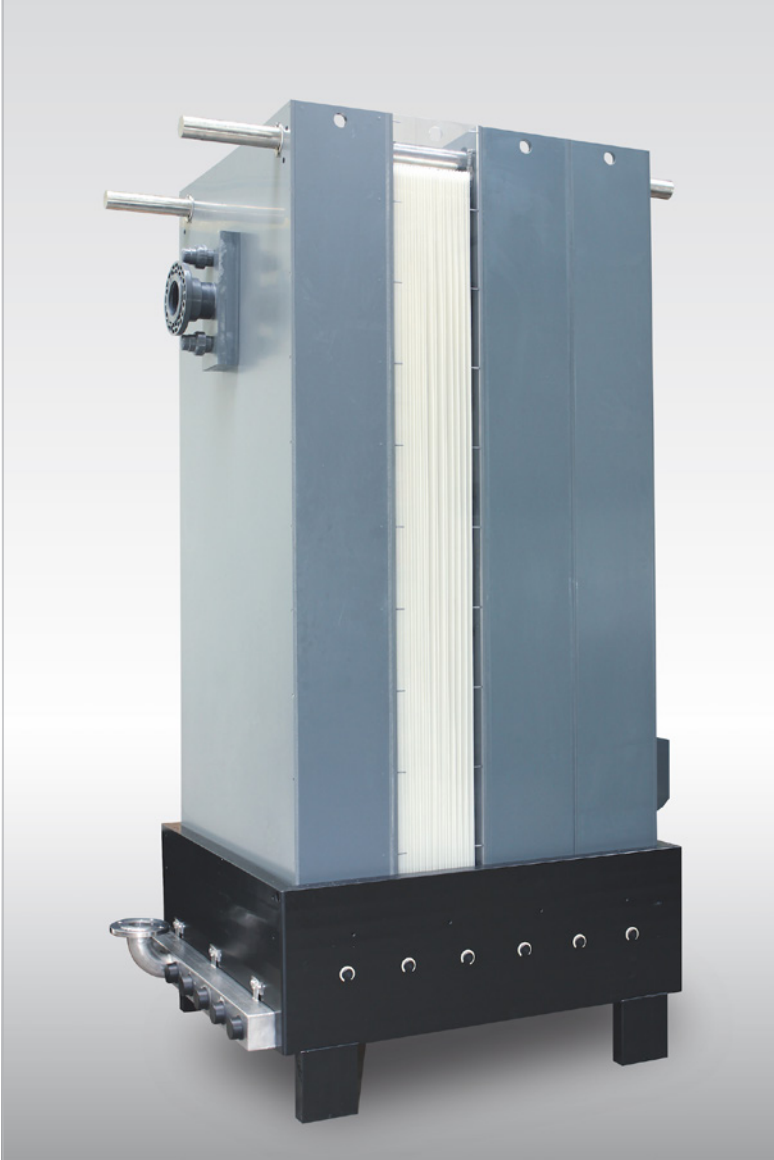
MBR

ELIQUO HYDROK HAVE THE RIGHTS FOR THE UK DISTRIBUTION OF THE MICRODYN-NADIR BIO-CEL MEMBRANE BIO REACTORS TO ADD TO THE PORTFOLIO OF WASTEWATER TREATMENT PROCESSES.



MICRODYN
NADIR

ADVANCED SEPARATION TECHNOLOGIES



AN ESTABLISHED PEDIGREE

Microdyn-Nadir have over 40 years experience working on the development of membrane products for different applications with numerous reference sites across Europe in both Industrial and Municipal treatment. All **MBRs** are produced at their state of the art manufacturing facility based in Wiesbaden, Germany - with full installation carried out in the UK by the ELIQUO HYDROK engineering teams.

THE MEMBRANE BIOREACTOR (MBR) PROCESS

The MBR process is a combination of a classic activated sludge biological treatment system operating at high mixed liquor solids levels coupled with membrane filtration.

The membrane filtration system, using the unique Microdyn-Nadir BIO-CEL modules removes the need for final settlement tanks, as the ultrafiltration membrane acts as a barrier to the sludge and solid particles, allowing mainly clean water to pass through. The result is a very compact system, making it an ideal solution where space is limited. MBR are also capable of producing a very high quality treatment, making them ideal for water reuse applications typically as low as:

Biochemical Oxygen Demand (BOD)	< 5mg/l
Total Suspended Solids (SS)	< 0.5mg/l
Ammonia Nitrogen (NH3N)	< 0.5mg/l
Faecal Coliforms	< 10 CFU/100ml

WHY MICRODYN-NADIR MEMBRANES?

The unique BIO-CEL Modules combine all the benefits of both Hollow Fibre and Flat Sheet systems without the negatives:

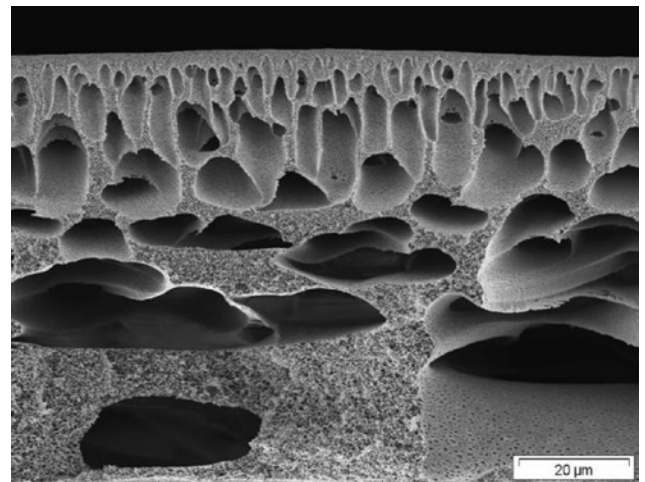
Flat sheets without the need for a frame

Results in a high packing density and increased flow capacity per module

Highly uniform and ultra - small pore size results in a very smooth sheet, making the membrane sheets harder to foul and easier to clean

Significant power savings compared to conventional Flat sheet systems

Patented bead mechanical cleaning system also available



Combined benefits of flat sheet and hollow fibre systems

HOW DO THEY WORK?

The Microdyn-Nadir Membrane Bioreactors operate at far higher mixed liquor suspended solids (MLSS) concentrations than conventional activated sludge systems, typically between 8,000 to 10,000 mg/L. The elevated biomass concentration provides very effective removal of both soluble and particulate biodegradable materials at higher loading rates. The resulting increased sludge retention times ensures complete nitrification even in extremely cold weather.

The BIO-CEL Modules are immersed in the aeration tank, and are in direct contact with the mixed liquor. A vacuum is applied to the modules by means of a permeate pump, which allows the treated water to pass through the membranes, and then onto a final effluent discharge point.

The membranes are kept clean in a number of ways:

Air scouring of membrane panels, which directs sludge solids away from the membrane surface

Backflushing of the panels by reversing the flow via the permeate pump

Timed relax cycle of the membrane modules

Occasional maintenance clean by dosing with a weak bleach solution

A patented bead cleaning system has also now been developed, and available as an optional extra



ADVANTAGES

Ultra high quality treatment

Fully compliant to EC guidelines for bathing water

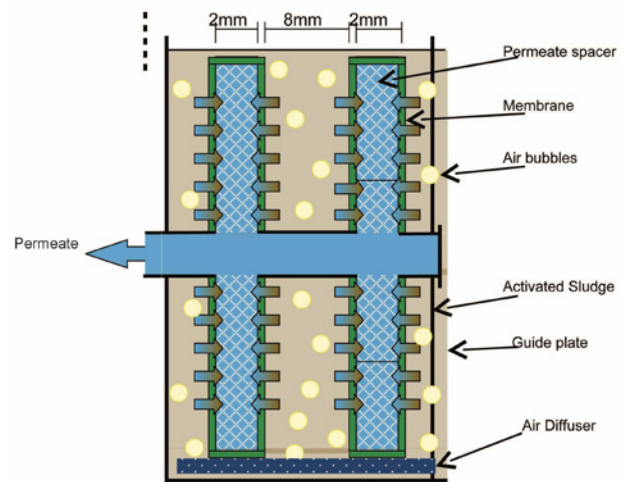
Safe output - bacteria and most viruses are filtered by the membrane, so no additional disinfection required for non-potable water reuse


Very small footprint

Operates at high MLSS, no need for secondary clarifier tanks

Robust in performance - consistent quality of treated wastewater

BIO-CEL®-MODULE





A combination of activated sludge biological
treatment with membrane filtration.

Version 001

ELIQUO HYDROK LTD

Indian Queens Ind Estate, St. Columb | Cornwall, England | TR9 6TL

T +44 1726 861 900

sales@eliquohydrok.co.uk | www.eliquohydrok.co.uk

MEMBER OF **ELIQUO WATER GROUP**