

# BIO-CEL<sup>®</sup> XL

World's largest submerged BIO-CEL<sup>®</sup> MBR module  
for biological wastewater treatment



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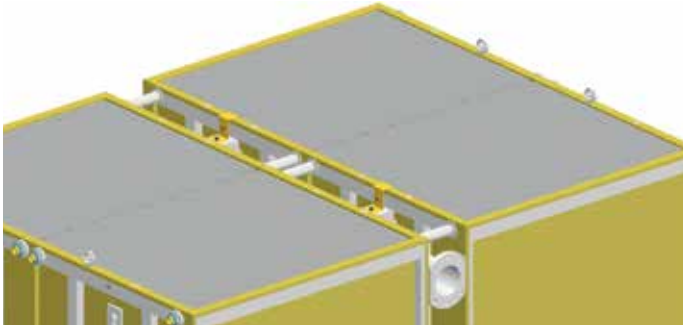


MICRODYN  
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ADVANCED SEPARATION TECHNOLOGIES

# BIO-CEL® XL

Largest submerged BIO-CEL® MBR module for biological wastewater treatment



Submerged modules have proven to be state-of-the-art technology when talking about MBR processes.

Since 2005 MICRODYN-NADIR offers the only product for MBR processes which combines the advantages of hollow fibers and plate and frame modules without displaying their particular disadvantages – the BIO-CEL®. Up until 2014 the BIO-CEL® has been available with a membrane area of 10, 50, 100 and 416 m<sup>2</sup>.

The increasing acceptance of the MBR technology worldwide not only results in growth of the MBR market but also in an increase in large scale projects with more than 10,000 m<sup>3</sup>/d inflow to the MBR plant. In order to address these demands, MICRODYN-NADIR has developed the BIO-CEL® XL module especially for large scale applications with a total inflow to the MBR plant of > 2,000 m<sup>3</sup>/d of wastewater to be treated.

The BIO-CEL® XL module has a total membrane area of 1,900 m<sup>2</sup>. The housing and connections of the BIO-CEL® XL are made of stainless steel. The operating method is in accordance to the smaller types of the BIO-CEL® module.

First successful operation experiences of the BIO-CEL® XL in a municipal plant are available since August 2013.

## ADVANTAGES

- » cost efficient
- » high flux
- » low energy demand
- » simple installation
- » backwashable
- » reliable in operation
- » fine bubble aeration
- » high packing density
- » self-healing membrane laminate

## Membrane and operation data <sup>(1)</sup>

BIO-CEL® XL	
Membrane surface	1,900 m <sup>2</sup>
Nom. MWCO	150 kDa
Pore size	0.04 µm
Permissible particle size in sludge	2 mm
Max. airflow rate (Vn) <sup>(2)</sup>	665 m <sup>3</sup> /h
Recommended content suspended solids (SS) <sup>(3)</sup>	12 g/l
Operating pressure	-30 to -400 mbar
Max. backwash pressure	150 mbar
Operating temperature	5 - 40° C
pH range	2 - 11
Chlorine resistance	500 000 ppmh
Length	2800 mm
Width	2100 mm
Height (membrane- and diffusor unit)	2650 mm
Required ground clearance	750 mm
Connection aeration	Special flange, Adapter (DIN, ANSI; ...) as required
Connection permeate	Special flange, Adapter (DIN, ANSI; ...) as required
Dry weight	2000 kg

## Material data

BIO-CEL® XL	
Housing	Stainless Steel 1.4571
Piping	Polyvinyl chloride (PVC)
Connections	Stainless Steel 1.4571
Membrane	Polyether sulfone (PES)
Drainage	Polyester
Sealings	EPDM
Diffusor	PP/EPDM

**Note:** (1) Nominal values // (2) Vn is the volume flow rate at standard conditions according to DIN ISO 2533:1979-12 // (3) Other concentrations possible. Please consult your MICRODYN-NADIR representative