

BIO-CEL[®] XL

World's largest submerged BIO-CEL[®] MBR module
for biological wastewater treatment



LENNTECH

info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289



**MICRODYN
NADIR**

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 m².

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 m³/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 m³/d of wastewater to be treated.

The BIO-CEL® XL module has a total membrane area of 1,920 m². The housing and connections of the BIO-CEL® XL are made of stainless steel. The operating method is in accordance with 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
- » mechanically cleanable

Membrane and operation data ⁽¹⁾

BIO-CEL® XL	
Membrane surface	1,920 m²
Nom. MWCO	150 kDa
Poresize	0.04 µm
Permissible particle size in sludge	2 mm
Max. airflow rate (Vn) ⁽²⁾	665 m³/h
Recommended content suspended solids (SS) ⁽³⁾	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	2786 mm
Width	2106 mm
Height (membrane- and diffusor unit)	2450 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	1900 kg

Material data

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

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