

# BIO-CEL® L-2 Stack

## Submerged MBR Module for Wastewater Treatment

The BIO-CEL® MBR series is ideal for biological wastewater treatment in industrial and municipal applications. BIO-CEL MBR combines the benefits of traditional hollow fiber and plate and frame configurations without any of their inherent disadvantages. The module has an extremely high packing density due to the thin and self-supporting membrane sheets, and the laminate offers a self-healing mechanism.

### MEMBRANE CHARACTERISTICS

<b>Membrane</b>	NADIR® UP150
<b>Membrane Polymer</b>	Polyethersulfone (PES) / Polyvinylidene fluoride (PVDF)
<b>Nominal Pore Size</b>	0.04 µm / 0.065 µm
<b>Preservative</b>	Glycerine 20 % / Sodium benzoate 3 %

### MODULE SPECIFICATIONS

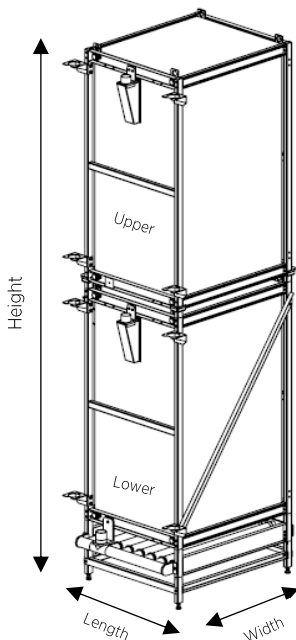
<b>Housing Material Options</b>	Stainless Steel 1.4301/304 (V2A) On request: SS 1.4571/316Ti (V4A)
<b>Drainage Layer</b>	Polyester (PET)
<b>Diffusors Material Options</b>	Membrane hose: Silicone (SI) Support tube: Polypropylene (PP)
<b>Nominal Membrane Area</b>	960 m² (10334 ft²)

### OPERATING PARAMETERS

<b>pH Range</b>	2.0 - 11.0
<b>Temperature Range</b>	5 - 40°C (41 - 104°F)
<b>Maximum TMP during Filtration</b>	- 400 mbar (-5.8 psi)
<b>Maximum TMP during Regular Backwash</b>	+150 mbar (+2.2 psi)
<b>Recommended Air Scour Rate<sup>a</sup></b>	90 Nm³/h (53 SCFM)
<b>Maximum Air Scour Rate<sup>a</sup></b>	115 Nm³/h (67 SCFM)
<b>Recommended MLSS in MBR Tank</b>	8 - 12 g/L
<b>Maximum MLSS in MBR Tank</b>	15 g/l
<b>Maximum Particle Size in MBR Tank</b>	2 mm
<b>Total Chlorine Resistance</b>	1,000,000 ppm•hr

<sup>a</sup> volumetric flow rate at standard conditions according to DIN ISO 2533:1979-12.

**PHYSICAL DIMENSIONS**



<b>Dry Weight</b>	693 kg (1528 lb)
<b>Wet Weight without Solids</b>	1273 kg (2806 lb)
<b>Maximum Load for Lifting per lower and upper unit<sup>b</sup></b>	1500 kg (3307 lb)
<b>Length</b>	1509 mm (5.2 ft)
<b>Width</b>	1285 mm (4.2 ft)
<b>Height</b>	4921 mm (16.1 ft)
<b>Filtration Tank Minimal Water Level</b>	5215 mm (17.1 ft)
<b>Connection for Permeate</b>	G 2 ½" BSPP inner thread, Stainless Steel
<b>Connection for Aeration</b>	DN80 (PN10) Pipe End, Polypropylène (DN80 Flange Adapter available)

<sup>b</sup> Sludge deposit must be removed before lifting unit, lower and upper unit must be lifted individually  
<sup>c</sup> adapters available

**IMPORTANT INFORMATION**

**Scope of Supply, Accessories & Spare Parts:**

Please see BIO-CEL L-2 – Scope of Supply, Accessories and Spare Parts (TDS-WW033).

**Storage & Handling:**

BIO-CEL MBR modules must be handled and stored appropriately to ensure proper operation and to prevent membrane damage. Please see BIO-CEL MBR – Storage Conditions (TB-WW002).

MANN-HUMMEL reserves the right to change specifications without prior notification.

**Contact**

**Europe**

Germany: +49 611 962 6001  
 Italy: +39 0721 1796201  
 info.wfs@mann-hummel.com

**Americas**

USA: +1 805 964 8003  
 sales.mnus@microdyn-nadir.com

**Asia**

APAC: +65 6457 7533  
 info.wfs@mann-hummel.com  
 China: +86 10 8413 9860  
 waterchina@mann-hummel.com