

Shipment Handling Instruction

BIO-CEL® 416
PART NUMBER: 1000001408

The following are recommendations for safe storage and transport of BIO-CEL® MBR modules prior to installation. The second part covers transport and handling on site by forklift and crane. Please make sure that the required materials are available on site.





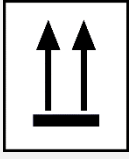
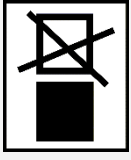

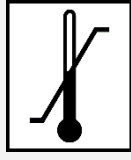

For questions or additional information, please contact MANN+HUMMEL WFS Technical Service.

Caution: Transport with complete packaging only.

- Keep module in original packaging for further storage and transportation purposes and to move module to location of installation.
- Leave module on pallet until beginning of installation.

SAFETY INSTRUCTIONS – LISTED ON PACKAGING

To transport and temporarily store the module before installation, please consider the safety instructions listed below. These instructions are also listed on the packaging.

| | | | | |
|--|---|--|---|--|
|  <p>Transport with forklift only.</p> |  <p>Do not damage outer packaging.</p> |  <p>Handle the product with care.</p> |  <p>Packaging is top-heavy.</p> |  <p>Store packaging upright with arrows directed upwards.</p> |
|  <p>Do not stack the modules.</p> |  <p>Protect from direct sunlight.</p> |  <p>Store preserved modules in the following temperature range only: 5°C - 40°C (41°F - 104°F).</p> |  <p>Protect from moisture (< 70 % ambient humidity).</p> | |

SAFETY PRECAUTIONS

Please consider local safety requirements.

TRANSPORTATION BY FORKLIFT

To move the module, please consider the below instructions and use appropriate safety equipment during transportation. More detailed information about the dimensions of the module can be found in the Scope of Supply Sheet: "TDS-WW001_BIO-CEL 416_Scope of supply-Accessories-Spare parts".

Choose a suitable forklift to transport the module:

- Maximum dimension (H/W/D) including packaging:
2485 x 1810 x 1060 mm (8.1 x 5.9 x 3.4 ft)
- Maximum dimension aerator frame (H/W/D) including packaging:
820 x 1600 x 1060 mm (2.7 x 5.2 x 3.4 ft)
- Weight of product:
Module: 650 kg (1430 lbs)
Aerator frame: 150 kg (330 lbs)
- Floor load (module)
360 kg/m² (74 psf)
- Required depth of fork:
2000 mm (6.6 ft)



Caution: Danger of tipping over

The module is top-heavy; incorrect handling may result in tipping over.

For correct positioning of the forks, you will find mass focus signs on the packaging.



UNPACKING & INSTALLATION

Please read the BIO-CEL® MBR Operation and Maintenance Manual before unpacking and installing the module; the manual explains each installation step in full detail.

The assembly instructions for optional accessories are supplied directly with the accessory parts or can be requested from MANN+HUMMEL WFS Technical Service.

TRANSPORTATION BY CRANE

- A crane may be used to lift the completed modules to a desired location.
- The module must be lifted with a special traverse. Drawings of the traverse are available upon requests. Lifting with ropes or cables is not permitted.
- Avoid sliding the module across the floor during the transportation process. Lift the module completely off the ground.
- Max weight for lifting is 2800 kg (6173 lbs).

In the case that the module must be transported and installed using a crane, please read the relevant chapters (1.7 and 6) in the BIO-CEL® MBR Operation and Maintenance Manual beforehand. This chapter includes information on how to fix the supplied lifting eyes correctly and how to transport the module safely with a crane.

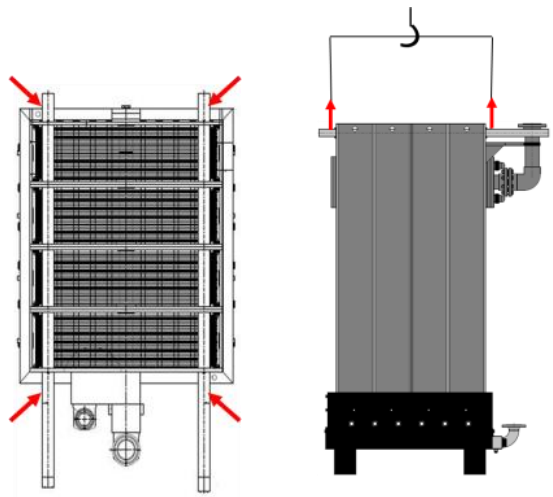
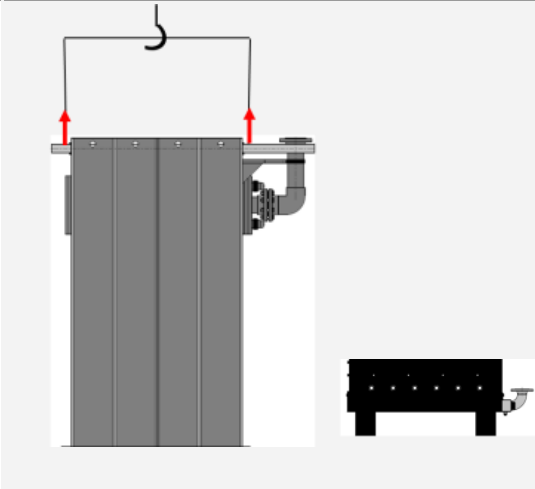


Figure 1: Proper attachment location and lifting technique for module transportation with a crane

MODULE ASSEMBLY

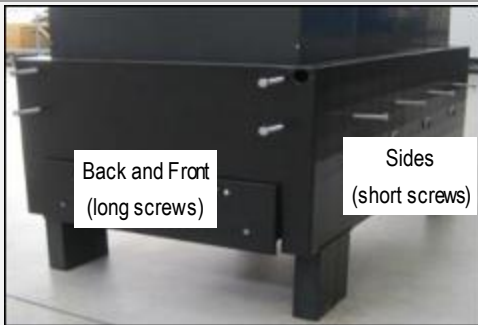
The module assembly is done shortly prior to start-up of the plant. As the first step, the membrane unit is assembled with the base diffuser frame:

1.



- The membrane unit is lifted over the diffuser unit.
- The permeate block must be at the same side as the air elbow. (The picture includes a 90° permeate elbow which is an accessory part)
- Once the membrane unit is properly position it can be slowly lowered into the diffuser unit.

2.



- The membrane and diffuser unit are fixed together by screws (provided with the module).
- The longer screws (DIN 933 M10x85) are used on the front and back and are tightened.
- The shorter screws (DIN 933 M10x70) are used at the side whereas these go through the holes at the bottom of each cassette. These screws cannot be tightened completely.

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