Flat Sheet Membranes

SUBMERSIBLE FLAT SHEET MEMBRANE BIO-REACTOR

Membrane Bio-Reactors have become recognized as a state-of-the-art wastewater treatment technology. Being German manufactured, it is clearly at the forefront of the field with its unique patented flat sheet composite polymer membrane which is resistant to fouling, clogging and braining. Its advanced design, combined with an inherent simplicity of construction, provides unsurpassed operational efficiency, performance and reliability.

State of the art wastewater treatment technology resistant to fouling, clogging and braining.

Flat sheet ultrafiltration membrane

With a pore size of 0.04 microns, the membrane effectively blocks all bacteria and most viruses. Manufactured from permanently hydrophilic polyether sulfone (PES), the membrane provides consistent stable operation, high flux rates and low transmembrane pressures.

Membrane construction

The unique flat sheet composite polymer bonded membrane panel is formed in a continuous process by fusing the smooth ultrafiltration membrane sheets onto a strong porous fibre central substrate. Membrane panels are trimmed to size, edges ultrasonically heat sealed and a centrally located spacer flange is adhered in place. Each membrane panel is individually tested for integrity. During assembly, the spacer flanges are joined together to form a central permeate collection manifold.

Pressure backflush using permeate water

Due to its unique and robust membrane structure, it is the only flat sheet membrane module capable of being pressure back-flushed using permeate water. Fully automatic backflush cleaning cycles help maintain stable flux rates. As a result of the permeate water backflush, the need for chemical assisted cleaning is greatly reduced with the benefit of significant savings in chemical costs, safer operation and less impact on the environment.

Resistance to fouling, clogging and braining

Our smooth flat sheet ultrafiltration membrane panels are suspended within the cartridge frame with a gap around all sides and are naturally resistant to fouling and braining with hair or fibres, a problem which plagues hollow fibre and capillary type MBR membranes. During filtration, aeration scouring causes the membrane panels to flex which assists in preventing clogging.

Flap sheet membrane specifications

<table>
<thead>
<tr>
<th>Membrane Surface Area</th>
<th>m²</th>
<th>10</th>
<th>25</th>
<th>50</th>
<th>100</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Flow L/h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backflush Pressure kPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak Flux µm²/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membrane Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Suspended Solids g/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Suspended Solids g/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassette Frame Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Frame Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connections

- Permeate
- Aeration
- Flange DN50
- Flange DN63
- Flange DN65

Dry weight kg

* Ambient temp = 10°C, increasing ambient temp x 4°C increases flux by 12%. Decreasing ambient temp x 4°C decreases flux by 3%.
** Membrane flux can be temporarily increased by short periods, i.e. hours.
*** Aeration rates can be optimised according to flux values and MLSS values.

Flat Sheet MBR