Projection Tool for “MEMBRAY®” Toray Submerged Flat Sheet Membrane Module

User Manual

URL: https://tdsuf.toraywater.net/cgi-bin/mbr_userinfo.pl

This application provides the projection of the required number and associated design information of Toray submerged membrane module for MBR, not including pre-treatment and biological design such as biological tank volume, air demand and mass balance calculation.

1. Please access above URL.
2. Please choose English.

3. Please Input "User Name" and "E-mail Address". And then, click "Agree & Submit". If you have any question, please click “Contact US”.

Input “User Name” and “E-mail”
4. Please input “Project Name” and “Sludge minimum Temperature”
   And select “Water Category”.
   Unit can be changed by clicking on “Change Unit” button.

![Projection Tool for "MEMBRAY®"
Toray Submerged Flat Sheet Membrane Modules]

Water category
- Municipal / Domestic Wastewater
- Industrial A: Easy Biodegradable
  (e.g. Food Processing, Dairy)
- Industrial B: Hard Biodegradable
  (e.g. Chemical, Petrochemical)

5. Please input about Flow Rate Info.
   Attention 1) “Average (m²/day)” is calculated automatically.
   Attention 2) “Peak Hourly”, “Peak Daily”, “Peak Weekly”, “Peak Monthly” can be considered
   only for “Municipal / Domestic Wastewater”.
   * “Average”: average influent flow in one day without storm water
   * “Peak Hourly”: several hourly peaks are allowed within one day, as long as the average flow of that
     period is smaller than or equal to the daily peak
   * “Peak Daily”: several daily peaks are allowed within one week as long as the average flow of that
     period is smaller than or equal to the weekly peak
   * “Peak Weekly”: several weekly peaks are allowed during 30 days, as long as the average flow of
     that period is smaller than or equal to the monthly peak
   * “Peak Monthly”: several monthly peaks are allowed during one year, as long as the average flow of
     that period is smaller than or equal to the yearly average

![Flow Rate Info]

Average  m³/hr
Average (m³/day)  m³/day
Peak Hourly (<1 hr)  m³/hr
Peak Daily (<24 hrs)  m³/hr
Peak Weekly (<1 week)  m³/hr
Peak Monthly (<30 days)  m³/hr
6. Please select “Module Type” and input configuration info. After input all items, please click “Calculation” button (“Calculation” button is also located in the upper region.)

Reference of Configuration Info

- Number of MBR Tanks: 1
- Number of Module rows per Tank: 2
- Number of Trains per Tank: 2
7. Tank and Module Layout”, “Design Flux”, “Duration”, “Air Flow Rate”, and “MBR Tank Dimension” are calculated. When the input condition or the unit is changed after the calculation, please click “Calculation” button again.

![Tank and Module Layout](image1)

![Design Flux](image2)

![Duration (Intermittent Filtration)](image3)

Reference of Duration (Intermittent Filtration)

![Diagram](image4)
### Air Flow Rate

<table>
<thead>
<tr>
<th></th>
<th>Nm³/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended</td>
<td>5.2</td>
</tr>
<tr>
<td>Max</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Please note that the air flow rate shown above is just for the membrane operation without considering of total air demand for biological treatment.

### MBR Tank Dimension

<table>
<thead>
<tr>
<th></th>
<th>m</th>
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<tbody>
<tr>
<td>Tank Length</td>
<td>5.9</td>
</tr>
<tr>
<td>Tank Width</td>
<td>2.3</td>
</tr>
<tr>
<td>Water Level</td>
<td>2.8</td>
</tr>
<tr>
<td>Freeboard</td>
<td>0.5</td>
</tr>
<tr>
<td>Tank Height</td>
<td>3.3</td>
</tr>
<tr>
<td>MBR Tank Volume per Tank (Without Freeboard)</td>
<td>38 m³</td>
</tr>
<tr>
<td>Total MBR Tank Volume</td>
<td>38 m³</td>
</tr>
<tr>
<td>W1...Distance Module to Wall</td>
<td>0.68 m</td>
</tr>
<tr>
<td>W2...Distance Module to Module</td>
<td>0.73 m</td>
</tr>
<tr>
<td>W3... Distance Module to Wall</td>
<td>0.40 m</td>
</tr>
</tbody>
</table>

Biological treatment capacity is not considered in the tank dimension shown above. Toray is not responsible for the biological process.
8. The results can be saved by clicking “Download” button. The “Download” buttons appear when you click “Calculation” button. The saved results can be reused by clicking “Upload” button.
DISCLAIMER:
THE PROGRAM IS INTENDED TO BE USED BY PERSONS HAVING TECHNICAL SKILL, AT THEIR OWN DISCRETION AND RISK. THE PROJECTIONS, SUCH AS NUMBER OF SUBMERGED MEMBRANE MODULE FOR MBR, AIR VOLUME, TANK SIZE, OBTAINED WITH THE PROGRAM, ARE EXPECTED BASED ON THE AVERAGE, NOMINAL MEMBRANE-PERFORMANCE AND ARE NOT AUTOMATICALLY GUARANTEED. TORAY DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE, OR THE RESULTS OF THE USE, OF THE PROGRAM OR RELATED WRITTEN MATERIALS, INCLUDING BUT NOT LIMITED TO CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHERWISE, AND IT IS THE USE’S RESPONSIBILITY. TORAY SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE OF THE PROGRAM, AND IT IS THE USER’S RESPONSIBILITY. THE OBTAINED RESULTS CANNOT BE USED TO RAISE ANY CLAIM FOR LIABILITY OR ENTIRE WARRANTY, SUCH AS PROCESS WARRANTY FOR THE OPERATION CONDITION AND MECHANICAL WARRANTY OF THE EQUIPMENT USED THE MEMBRANE MODULE, IT IS THE USERS’ RESPONSIBILITY TO MAKE PROVISIONS AGAINST FOULING, SCALING AND CHEMICAL ATTACKS, TO ACCOUNT FOR PIPING AND VALVE PRESSURE LOSSES, SUCTION PUMP PRESSURE AND PERMEATE BACKPRESSURE, AIR SUPPLY UNIT DISCHARGE FLOW AND PRESSURE. FOR QUESTIONS PLEASE CONTACT US:

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