

## Submerged Microfiltration Membrane Bioreactor (MBR) Module

|                                   | HYDRAsub <sup>®</sup> - MBR                                                                                                                                                                                                                                                                                    | HSM1000-ES                                                                                                                                                                                                                                                                     |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Module Specifications</b>      | Configuration:<br>Fiber Orientation:<br>Filtrate Flow :<br>Membrane Polymer:<br>Pore Size (nominal):<br>Number of Elements in Module:<br>Nominal Membrane Area per Module:<br>Permeate Connections:<br>Air Connections:<br>Guide Pipe Connections:<br>Typical Module Dry Weight:<br>Typical Module Wet Weight: | Submerged Membrane<br>Vertical<br>Bi-directional<br>Polyvinylidene Flouride (PVDF)<br>0.4 µm<br>40 (25 m <sup>2</sup> each)<br>10760 ft <sup>2</sup> (1000 m <sup>2</sup> )<br>(2)- 3" MNPT<br>(2)- 3" MNPT<br>(2)- To fit 3" pipe<br>2682 lbs (1216 kg)<br>4226 lbs (1916 kg) |
| <b>Operating Specifications</b>   | Maximum Transmembrane Pressure (Vacuum):<br>Maximum Backwash Pressure :<br>Maximum Instantaneous Chlorine Concentration:<br>Maximum Chlorine Tolerance:<br>MLSS Range:<br>Operating Temperature Range:<br>Feed Water pH Range:<br>Cleaning pH Range:<br>Operating Mode:                                        | -6 psig (-0.41 bar)<br>2 psig (0.14 bar)<br>5,000 ppm <sup>a</sup><br>742,000 ppm-hrs <sup>b</sup><br>8,000 - 12,000 mg/L <sup>c</sup><br>41 - 104°F (5 - 40° C)<br>6.0 - 8.0<br>1.0 - 11.0<br>Outside to Inside                                                               |
| <b>Typical Process Conditions</b> | Operating Filtrate Flux <sup>†</sup> :<br>Peak Operating Flux <sup>†</sup> :<br>Chemically Enhanced Backwash (CEB) Flux:<br>CEB Chemicals:<br>Clean In Place (CIP) Flux:<br>CIP Chemicals:                                                                                                                     | 4-20 gfd (7-34 l/mh)<br>30 gfd (51 l/mh)<br>2.4 gfd (4 l/mh)<br>NaOCl <sup>d</sup><br>2.4 gfd (4 l/mh)<br>NaOCl or Citric Acid <sup>d</sup>                                                                                                                                    |

† -Depends on temperature and application

a -For a maximum of 2 hours

b- Maximum chemical tolerance for estimated life span of membrane

c -In membrane tank at steady state for municipal wastewater

d- Refer to operating manual for chemical concentrations and cleaning frequencies

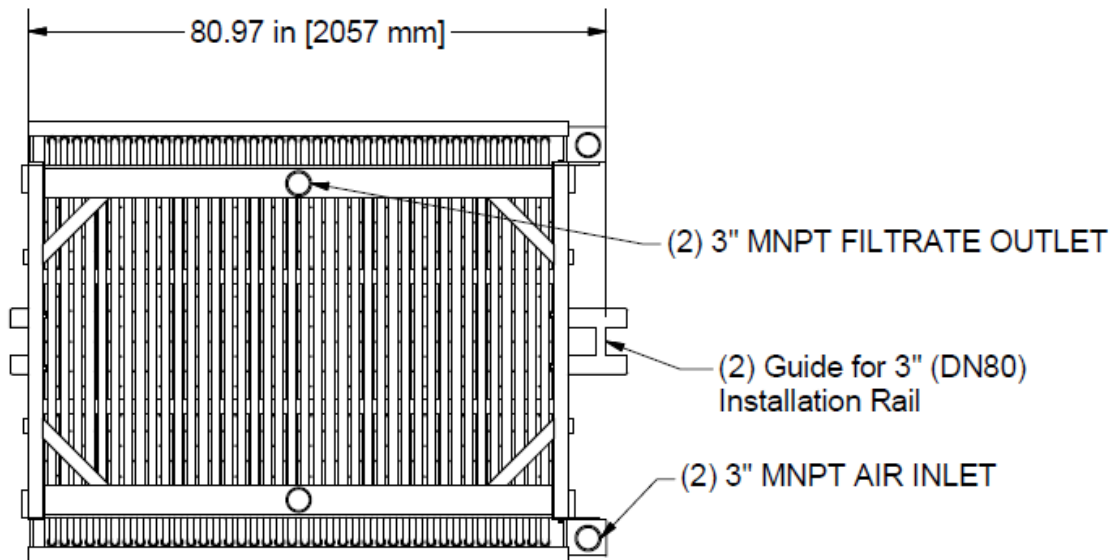
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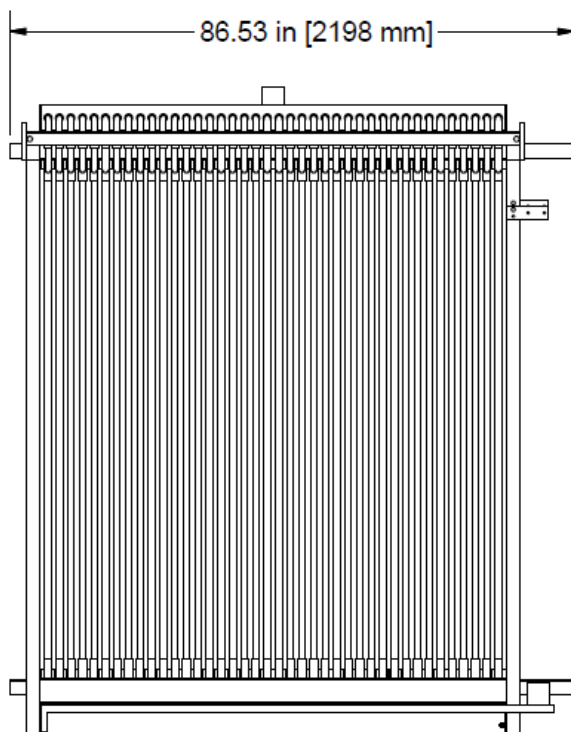
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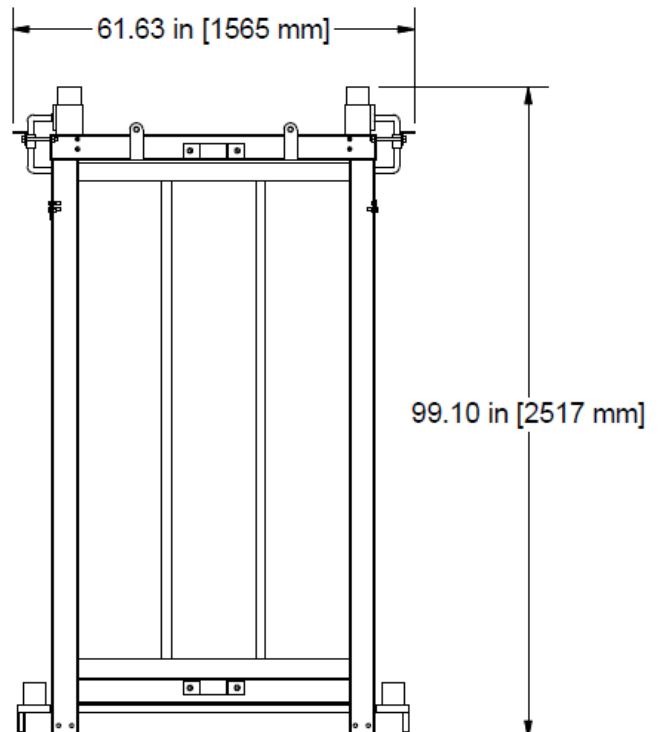
## HSM1000-ES



**Top View**



**Side View**



**Front View**

Note: Cage is made of stainless steel 304. Connections are in English units. For more detailed drawings, contact Hydranautics.

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