

Submerged UF Specification

Standard Submerged Modules & Skids

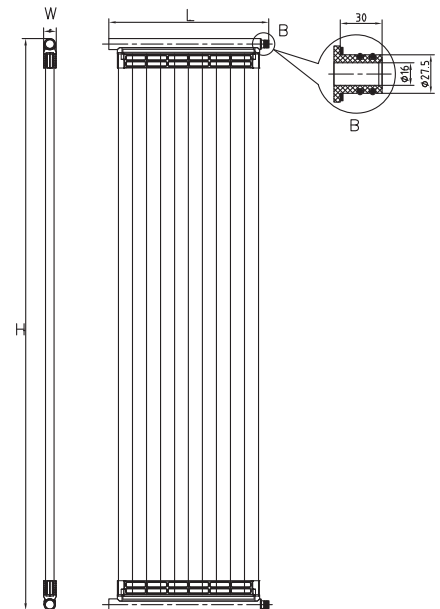
Memstar's submerged membrane modules (SMM) products combine the benefits derived from our best-in-class TIPS PVDF, and innovative module and skid designs to provide the most compact, simple, and reliable solution for customers. SMM products are typically applied in membrane bioreactor (MBR) applications treating municipal and industrial wastewaters. They are designed to effectively meet the needs of customers designing a new facility or replacing existing skids of any other manufacturer.

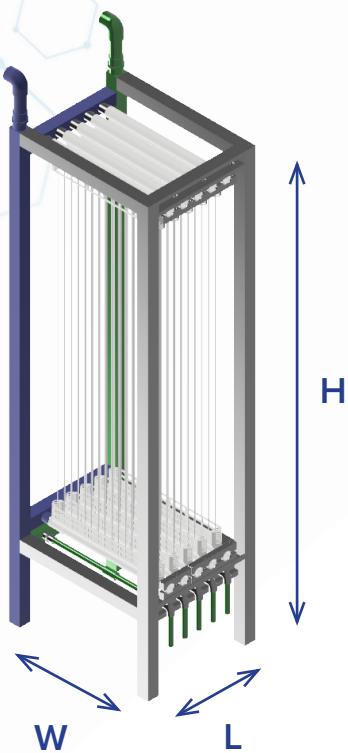
Key Features and Benefits

- **High packing density = Fewer skids, smaller footprint, higher productivity**
- **Patented air scouring technologies = Low energy consumption**
- **High mechanical strength = Long life**
- **Extreme caustic and oxidant tolerance = Long life, challenging applications**
- **Dense crystalline and monolithic structure = Direct Integrity Testing capability**

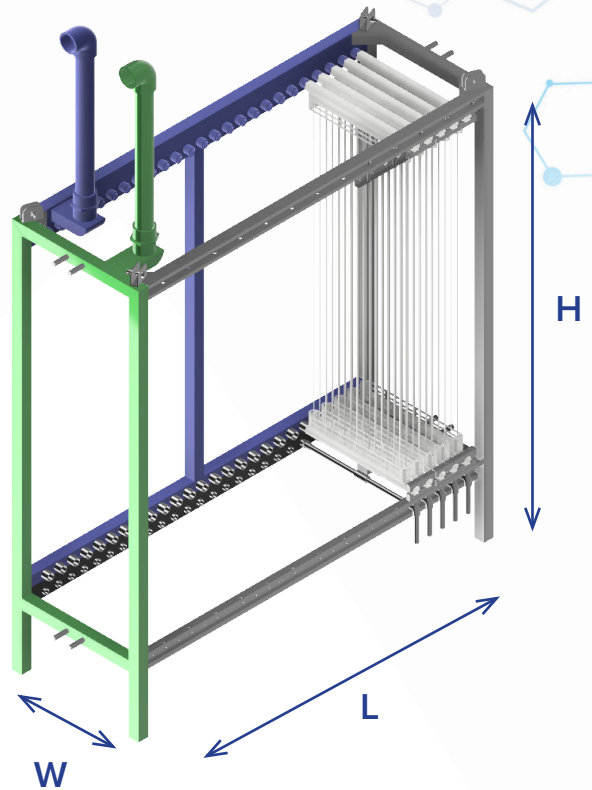
Module Specifications

Module Type	SMM-1015T	SMM-1522T	SMM-2030T
Membrane Material	PVDF (TIPS)		
Nominal Pore Size (um)	0.04		
Filtration Mode	Outside-in		
Housing Material	ABS		
Potting Material	Epoxy/Polyurethane		
Filtration Surface Area (m ²)[ft ²]	15 [161]	22 [237]	30 [323]
Wet Weight (kg) [lbs]	9 [20]	11 [24]	13 [29]
L (mm) [inches]	571 [22.5]	571 [22.5]	571 [22.5]
W (mm) [inches]	45 [1.8]	45 [1.8]	45 [1.8]
H (mm) [inches]	1,040 [40.9]	1,540 [60.6]	2,040 [80.3]
Filtrate Pipe Port Pipe Port	Single OD32 UPVC	Dual OD32 UPVC	Dual OD32 UPVC





5 Module Skid



25 Module Skid

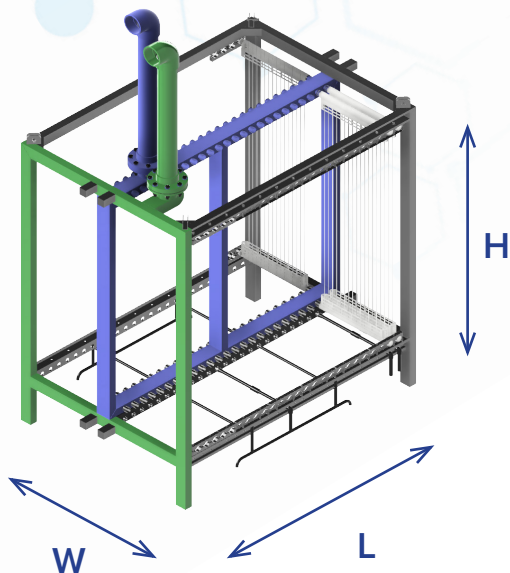
	5 Module Skids			25 Module Skids	
Module Name	SMM-1015	SMM-1522	SMM-2030	SMM-1522	SMM-2030
Skid Surface Area (m ²) [ft ²]	75 [807]	110 [1,184]	150 [1,614]	550 [5,918]	750 [8,070]
Flowrate municipal applications* m ³ /day [gpm]	41 [441]	59 [635]	81 [872]	297 [3,196]	401 [4,358]
Flowrate industrial applications* m ³ /day [gpm]	29 [312]	43 [463]	58 [624]	213 [2,292]	291 [3,131]
L (mm) [inches]	495 [20]	495 [20]	495 [20]	1,935 [76]	1,935 [76]
W (mm) [inches]	640 [25]	640 [25]	640 [25]	690 [27]	690 [27]
H** (mm) [inches]	1,440 [57]	1,940 [76]	2,440 [96]	1,940 [75]	2,440 [96]
Filtrate Connection* (DN-mm) [inches]	DN38 [1-1/2"]	DN38 [1-1/2"]	DN50 [2"]	DN65 [2-1/2"]	DN80 [3"]
Air Connection* (DN-mm) [inches]	DN38 [1-1/2"]	DN38 [1-1/2"]	DN38 [1-1/2"]	DN65 [2-1/2"]	DN65 [2-1/2"]
Max. Shipping Weight*** kg [lbs]	150 [331]	180 [397]	210 [463]	460 [1,014]	580 [1,279]
Lifting Weight**** kg [lb]	200 [441]	240 [529]	300 [661]	750 [1,654]	1,000 [2,205]
Skid Frame Material	SS316				

* Typical values provided may change base on project specific requirements

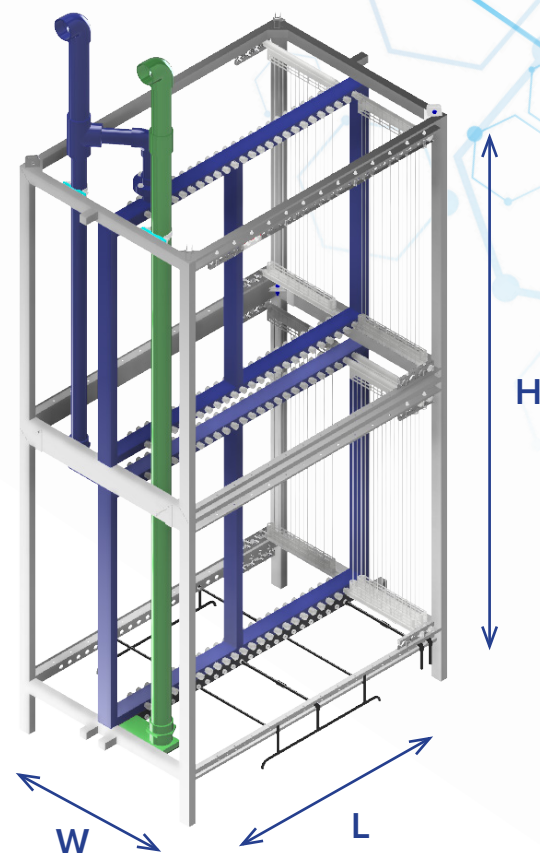
** Skid only not inclusive of any lifting apparatus

*** Crated with maximum number of modules

**** Varies with number of modules and solids accumulation



50 Module Skid



100 Module Skid

	50 Module Skids		100 Module Skids	
Module Name	SMM-1522	SMM-2030	SMM-1522	SMM-2030
Skid Surface Area (m ²) [ft ²]	1,100 [11,836]	1,500 [16,140]	2,200 [23,672]	300 [32,280]
Flowrate municipal applications* m ³ /day [gpm]	594 [6,391]	810 [8,716]	1,189 [12,794]	1,621 [17,442]
Flowrate industrial applications* m ³ /day [gpm]	427 [4,595]	582 [6,262]	853 [9,178]	1,164 [12,525]
L (mm) [inches]	1,935 [76]	1,935 [76]	2,085 [82]	2,085 [82]
W (mm) [inches]	1,280 [50]	1,280 [50]	1,280 [50]	1,280 [50]
H** (mm) [inches]	2,085 [82]	2,530 [100]	3,730 [147]	4,730 [186]
Filtrate Connection* (DN-mm) [inches]	DN100 [4"]	DN100 [4"]	DN100 [4"]	DN125 [5"]
Air Connection* (DN-mm) [inches]	DN100 [4"]	DN100 [4"]	DN100 [4"]	DN100 [4"]
Max. Shipping Weight*** kg [lbs]	830 [1,830]	950 [2,095]	1,600 [3,527]	2,100 [4,630]
Lifting Weight**** kg [lbs]	1,400 [3,087]	2,000 [4,410]	2,100 [4,630]	3,600 [7,937]
Skid Frame Material	SS316			

* Typical values provided may change base on project specific requirements

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**** Varies with number of modules and solids accumulation

MODULE OPERATING PARAMETERS	ALLOWABLE RANGE
Operating temperature (°C) [°F]	5 – 45 [41-113]
Typical flux (LMH) [gfd] ¹	8 – 30 [5-18]
Instantaneous chlorine tolerance (ppm)	5,000
Maximum lifetime chlorine tolerance (ppm-hrs)	1,000,000
Maximum transmembrane pressure (bar) [psi]	0.5 [7]
Maximum backwash pressure (bar) [psi]	0.5 [7]
Oil content in feed water (ppm)	< 2
pH range	Operating: 1 – 12; Cleaning: 1 – 14
Air scour rate (m ³ /hr/module) [cfm/module]	2 - 2.5 [1.3 - 1.6]
Membrane tank MLSS ² (mg/L)	5,000-10,000 Recommended - 6,000-8,000
Particle size in feed water ³ (mm)	≤ 2

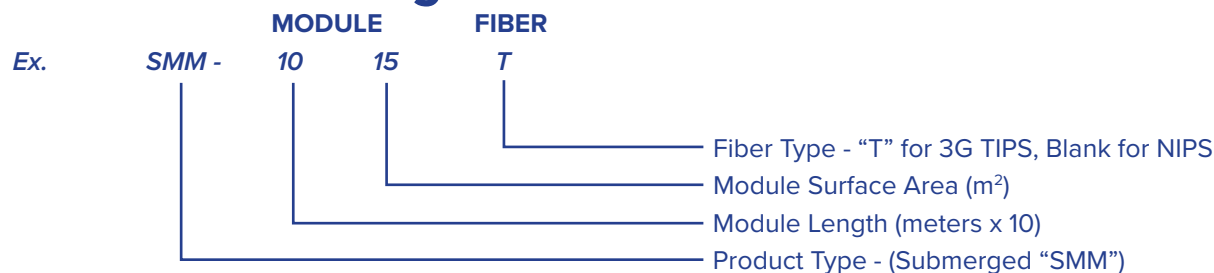


1 - Flux selection depends on feed type and water quality. Please consult Memstar for flux selection.

2 - Please consult Memstar for higher values.

3 - The primary concern is sharp objects entering the treatment system such as branches, plastic pieces, sand, etc.

Module Numbering Guide



Skid Numbering Guide

