

HF-Zmbr Membrane Series

Submerged hollow fiber membranes are installed in the filtration tank to separate the treated effluent from the biomass, providing a high-quality permeate (free of suspended solids and partly disinfected). The unique design of reinforced membranes incorporates braiding to significantly improve their ability to withstand the harsh operating environment of a Membrane Bioreactor, increasing their lifespan. Hollow fiber membranes are assembled in proprietary modules that provide the optimal degree of restraint and system robustness.

Membrane modules are fitted within supporting frames called cassettes, which can be equipped with a variable number of modules according to your specific requirements.

Membrane material:	PVDF
Nominal pore size:	0.02 µm
Membrane configuration:	Reinforced hollow fiber
Fiber diameter:	1.0 mm (internal), 2.0 mm (external)
Filtration mode:	Out-to-in
Frame material:	SS AISI316L*

* Other stainless steel types are available upon request.

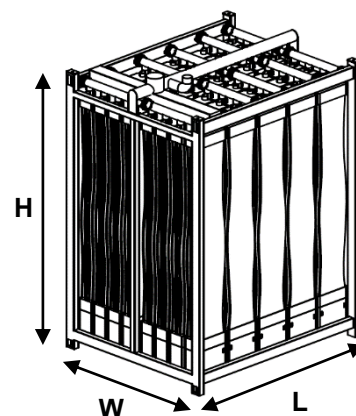


Membrane Cassette Specifications

Model	No. of modules (max.)	Length (L) [mm (in)]	Width (W) [mm (in)]	Height (H) [mm (in)]	Membrane area (max.) [m ² (ft ²)]	Scouring air flowrate (max.) [Nm ³ /h (scfm)]
HF-Zmbr-U12	12	1,320 (52.0)	884 (34.8)	2,780 (109.4)	624 (6717)	62.4 (38.9)
HF-Zmbr-U14	14	1,525 (60.0)	830 (32.7)	2,659 (104.7)	728 (7,836)	72.8 (45.4)
HF-Zmbr-U20	20	2,120 (83.5)	884 (34.8)	2,780 (109.4)	1,040 (11,194)	104 (64.8)
HF-Zmbr-U40	40	2,120 (83.5)	1,746 (68.7)	2,770 (109.1)	2,080 (22,389)	208 (130)
HF-Zmbr-U48	48	2,520 (99.2)	1,700 (66.9)	2,777 (109.3)	2,496 (26867)	250 (156)

Minimum half of the maximum number of modules are to be fitted within the frame

Model	Permeate extraction connection	Scouring air connection	Weight (shipping) [kg (lb)]	Weight (lifting) [kg (lb)]
HF-Zmbr-U12	1 x DN80	1 x DN50	570 (1,257)	1,290 (2,844)
HF-Zmbr-U14	1 x DN100	1 x DN65	665 (1,466)	1,505 (3,318)
HF-Zmbr-U20	1 x DN100	1 x DN65	1,000 (2,203)	2,250 (4,960)
HF-Zmbr-U40	1 x DN150	1 x DN80	1,900 (4,189)	4,300 (9,478)
HF-Zmbr-U48	2 x DN100	1 x DN80	2,280 (5,027)	5,160 (11,376)



Updated January 18, 2024

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Recommended Operating Conditions

Parameter	Value
Maximum filtration transmembrane pressure (TMP)	-0.6 bar
Maximum backwash transmembrane pressure (TMP)	+1.5 bar
Temperature range	5-40°C
pH range	1-12
Chlorine concentration (typical / maximum)	500-1,000 / 5,000 mg/L
Maximum chlorine exposure	2,880,000 ppm x hour
Maximum citric acid concentration (typical / maximum)	1,000-2,000 / 15,000 mg/L
Maximum hydrochloric acid concentration	3%

Note:

- During chemical cleaning, PCI Membranes suggests keeping the pH of the cleaning solution between 1 and 11 and the temperature of the cleaning solution below 40°C.
- Please contact PCI Membranes for technical support when the above chemical agents are not working. We will offer technical suggestions for alternative cleaning solutions. The performance of standard chemical agents could be insufficient in case of particular applications and/or operating conditions.

Important information

During transportation, modules must be protected from moisture, sun exposure, heavy loads, and violent collisions or bumps, and be secured in such a way to prohibit capsizing. The environmental temperature range shall be between 0 and 40°C.

The membranes are preserved with a solution containing 79% Water, 20% Glycerin, 0.5% Sodium Dodecyl Sulfate and 0.5% Isothiazolinone, which protects the membrane from drying out and prevents the growth of microorganisms. Hence, the vacuum-sealed package shall be intact during and after transportation/storage.

During storage, membrane modules must always be fully protected and be stored in a dry, clean, non-corrosive, non-polluted atmosphere, and far from sources of cold or heat environment. The environmental temperature range shall be between 0 and 40°C.

During transportation from the storage to the installation site, membrane modules must be placed within a secured, dedicated area and adequately covered to avoid direct sunlight and wind exposure.

If the modules are stored according to the above conditions, the maximum storage time can be 1 year. After 1 year, the preservation solution must be renewed (according to the same formula specified above).

Once the membrane cassettes and modules are installed within the membrane tank, in case of a short-term process downtime, the membranes must be chemically cleaned before re-starting normal operation. In case of a long-term process downtime, the membranes must be chemically cleaned and soaked with water and sodium hypochlorite (NaOCl, 5 ppm). If the NaOCl concentration within the membrane filtration tank is less than 0.5 ppm, operators must renew the NaOCl solution immediately.

Disclaimer: The information and data contained in this datasheet are based on our general experience and are believed to be correct. They are given in good faith and are intended to provide guidelines for the selection and use of our products. Since the conditions under which our products may be used are beyond our control, this information does not imply any guarantee of final product performance and we cannot accept any liability with respect to the use of our products. The quality of our products is guaranteed under our conditions of sale. Existing industrial property rights must be observed.

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