PENTAIR

X-FLOW SEAFLEX 64
ULTRAFILTRATION MEMBRANE

MEMBRANE ELEMENT DATASHEET

SEAFLEX HP
ARTICLE CODE: 22F1FL895H

GENERAL INFORMATION

Seaflex 64 is used as pre-treatment for seawater reverse osmosis. Mode of operation is feed-and-bleed with a minor crossflow or dead-end mode with regular backwash (permeate only) and chemically enhanced backwash. The Seaflex 64 module is used in applications for standard seawater with low to moderate TSS and/or organic load.

GENERAL SOLVENT RESISTANCE

Since the resistance of the membrane to solvents strongly depends on the actual process conditions, the indications given below should only be considered as guideline.

Acids	++
Bases	++
Organic esters, ketones, ethers	-
Aliphatic alcohols	+
Aliphatic hydrocarbons	+
Halogenated hydrocarbons	--
Aromatic hydrocarbons	--
Polar organic solvents	--
Oils	++

CLEANING CHEMICAL RESISTANCE

Sodium Hypochlorite
- Typical 200 ppm, at ≤ 40 ºC at ≥ pH 10
- Maximum 500 ppm
- 250.000 ppm hours cumulative; ≥ pH 10

Chlorine Dioxide
- Typical 1 ppm, at ≤ 40 ºC
- Maximum 2 ppm
- 90.000 ppm hours cumulative; pH 11

Hydrogen Peroxide
- Typical 200 ppm, at ≤ 40 ºC
- Maximum 500 ppm
- 350.000 ppm hours cumulative

Note:
The above figures for oxidant contact represent the membrane resistance to each individual oxidizing agent. The total combined exposure for Sodium Hypochlorite and Chlorine Dioxide will be calculated as follows:

Combined exposure ($NaOCl + ClO_2$) = 2.6 x Exposure to ClO_2 (in ppm hours)+ Exposure to NaOCl (in ppm hours) < 250.000 ppm hours

As a good working practice and in order to maximise the lifetime of the membrane it is advised to reduce the membrane exposure to oxidising agents to a minimum. Exposure limits are also affected by temperature, pH and the presence of metals. In order not to exceed maximum exposure limits, membranes must be preserved free of any oxidising agent when the plant is stopped.

Acids

Hydrochloric Acid	+ +
Nitric Acid	+ +
Sulphuric Acid	+ +
Phosphoric Acid	+ +
Acetic Acid	+ +
Citric Acid	+ +

pH > 2 during filtration
pH > 1 during cleaning

Bases

|	
Sodium Hydroxide (<4%)	+ +
Potassium Hydroxide (<4%)	+ +

pH < 12 during filtration
pH < 13 during cleaning

MEMBRANE CHARACTERISTICS

- Hydrophilic membrane composed of a blend of polyvinylpyrrolidone and polyethersulfone
- A nominal pore size of 20 nm
- Structure asymmetric/microporous
- High performance and a very good anti-fouling behaviour
- Typical permeate quality SDI<3, turbidity <0,1 NTU

ELEMENT SPECIFICATIONS

Membrane diameter [mm/mil]	Effective membrane area [m²/ft²]	Feed connection D_0 [mm/Inch]	Module length L_0 [mm/Inch]	Permeate connection d_0 [mm/Inch]
0.83 [32.7]	64 [687]	220.0 [8.66]	1537.5 [60.51]	42.6 [1.68]
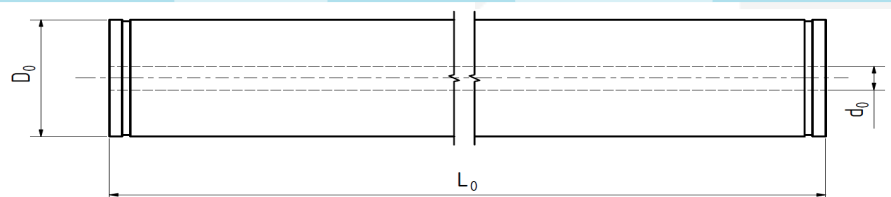
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OPERATING SPECIFICATIONS

Max. system pressure	Max. trans-membrane pressure	Max. backflush pressure	Temp. range
[kPa/psi]	[kPa/psi]	[kPa/psi]	[°C/°F]
300 [43]	300 [43]	300 [43]	0-40 [32-104]

- Backwash water should be free of particulates and should be of UF permeate quality or better

- Backwash pumps should preferably be made of non-corroding materials, e.g., plastic or stainless steel. If compressed air is used to pressurize the backwash water, do not allow a two-phase air/water mixture to enter the element

- To avoid mechanical damage, do not subject the membrane module or element to sudden temperature changes, particularly decreasings. Bring the module or element back to ambient operating temperature slowly (max. value 3 °C/min). Failure to adhere to this guideline can result in irreparable damage

Operation of membrane modules at any combination of maximum limits of pH, concentration, pressure or temperature, during cleaning or production, will influence the membrane lifetime.

TECHNICAL SPECIFICATIONS

Weight Specifications
Dry weight of membrane element ca. 34 kg [75 lbs]

Membrane element filled with water ca. 66 kg [145 lbs]

Materials of Construction

Housing	PVC grey
Flow distributor	PVC/PP
Potting	PU resin
Membrane	PES/PVP

Process Characteristics (Water, 20 °C)

Hydraulic membrane diameter	Crossflow flow rate (*)	Pressure-drop across module at 1 m/s	Pressure-drop across module at 2 m/s
[mm/mil]	[m³/h/gpm]	[kPa/psi]	[kPa/psi]
0.83 [32.7]	26.9*v [36*v]	64 [9]	136 [20]

(*) superficial velocity (v) in m/s [ft/s]

STORAGE

New membrane modules can be stored as supplied in the original packaging. The membrane elements contain an aqueous preservation solution of glycerine (20wt%) and sodium metabisulfite (1wt%).

Membrane modules should be stored in a dry, normally ventilated place, away from sources of heat, ignition and direct sunlight. Store between 0 and 40 °C.

The membrane modules should not be subjected to any freezing temperatures.

Shelf life is a maximum of 6 months for unused modules in unopened packaging under correct storage conditions after transfer of ownership for X-Flow BV to the Client. After the maximum period of 6 months all warrantees are null and void unless otherwise agreed in writing between the parties.

After use, the UF membrane modules need to be stored wet at all times. To avoid biological growth during shutdowns or storage, wet membranes could be treated with a compatible biocide. The membrane is compatible with many common disinfecting agents or biocidal preservatives.

Typically for short-term shutdowns (1 – 7 days), a daily backwash with UF permeate quality water for 30 seconds at 240 lmh, should be adequate for bacteria control. Before start of the shutdown period, the modules must be cleaned by a standard Chemical Enhanced Backwash (CEB).

In case of long-term storage (> 7 days), membranes should be disinfected. The membranes should be cleaned using a CEB before the disinfection step is carried out. For disinfection, a 0,5% sodium metabisulfite solution can be used. In both short and long term storage situations, the modules should remain filled with storage solution.

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