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X-FLOW COMPACT 44G HELIX - ULTRAFILTRATION MEMBRANE

MEMBRANE ELEMENT DATASHEET

8 INCH 5.2 MM Helix Compact 44G
ARTICLE CODE : 8881KQK99R

APPLICATIONS

- Pre-treatment RO and NF
- Surface water
- Drinking and process water production
- Recovery of sandfilter backwash water
- Effluent treatment
- Membrane bioreactor
- Wastewater treatment
- Treatment of oil-in-water emulsions

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, pH >2	+
Bases, pH <11	+
Organic esters, ketones, ethers	—
Aliphatic alcohols	++
Aliphatic hydrocarbons	++
Halogenated hydrocarbons	++
Aromatic hydrocarbons	+
Polar organic solvents	—
Oils	++

Sodium Hypochlorite

- Typical 200 ppm, at ≤ 40 °C
- Maximum 500 ppm
- 250.000 ppm hours cumulative at 30 °C

CLEANING CHEMICAL RESISTANCE

Depending on the nature of the feed solution the following cleaning agents can be chosen:

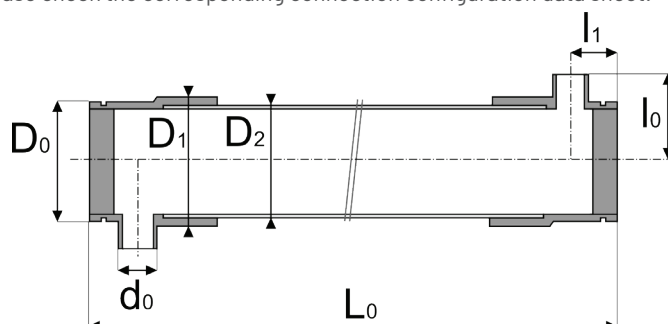
NaOCl (active chlorine)	500 ppm max.
H ₂ O ₂	1000 ppm max.
NaOH	pH ≤ 11
Nitric acid	pH ≥ 1
Phosphoric acid	pH ≥ 1
EDTA	pH ≤ 11
Citric acid	
Enzymatic compounds	

It is recommended to keep the pH between 1 and 11 and not to exceed a temperature of 40 °C during cleaning and/or disinfection. If those standard cleaning techniques fail to remove the foulants, more concentrated cleaning solutions can be tried. Please contact X-Flow for recommendations. It has to be stressed, however, that no warranty can be given on the efficiency of any cleaning nor on the membrane performance after such cleaning attempts.

ELEMENT SPECIFICATIONS

Hydraulic membrane diameter [mm]	Membrane area [m ²]	Feed connection D ₀ [mm]	Module length L ₀ [mm](±1)	Saddle diameter D ₁ [mm]	Module diameter D ₂ [mm]	Permeate connection d ₀ [mm]	Permeate length l ₀ [mm](±1)	Permeate position l ₁ [mm](±1)
5.2	44	220.0	4000	250	208	73.0	165	90

For connection specifications please check the corresponding connection configuration data sheet.



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OPERATING SPECIFICATIONS

Max. feed pressure	Max. permeate pressure	Max. transmembrane pressure	Max. temp.
[kPa]	[kPa]	[kPa]*	[°C]
1000	1000	at 20 °C -100 ~ +250	60
		at 30 °C -100 ~ +250	
		at 40 °C -100 ~ +250	
		at 50 °C -50 ~ +250	
		at 60 °C -50 ~ +250	

* TMP limits are set locally at membrane level. Exceeding the limits can permanently damage the membrane structure and integrity. The crossflow velocity during filtration or backwash influences the TMP over the length of the module. Limits should be set for worst case conditions:

Worst case conditions

Max TMP = Pressure feed - pressure permeate

Min TMP = Pressure concentrate - pressure permeate

TECHNICAL SPECIFICATIONS

Weight Specifications

Dry weight of membrane element
ca. 55 kg [121 lbs]

Membrane element filled with water
ca. 120 kg [265 lbs]

Materials of Construction

Housing	GRE, drinking water quality
Potting	EP resin
Membrane	- Material composed of polyvinylidene fluoride - Carrier is a composite polyester woven/non woven

Process Characteristics (water, 20°C)

Hydraulic membrane diameter	Crossflow flow rate (*)	Pressure-drop across module (laminar flow)(**)	Pressure-drop across module (turbulent flow)
[mm]	[m³/h]	[kPa]	[kPa]
5.2	53.5 x v	1.3 x L ₀ x v	15.6 x v ^{1.75}

(*) superficial velocity (v) in m/s

MEMBRANE CHARACTERISTICS

- Backwash water should be free of particulates and should be of permeate quality or better
- To avoid mechanical damage, do not subject the membrane module or element to sudden temperature changes, particularly decreases. Do not exceed 60 °C process temperature. Bring the module or element back to ambient operating temperature slowly (typical value 3 °C/min). Failure to adhere to this guideline can result in irreparable damage
- It is strongly advised to use 2 permeate ports during filtration and backwash. Only using 1 permeate port can have negative influence on filtration performance and fouling removal during backwash
- Hydrophilic tubular polyvinylidene fluoride membrane cast on a polyester carrier
- The Helix structure of the membrane surface enhances the turbulence and reduces the membrane fouling
- Structure asymmetric
- Mean pore size of 30 nm
- Developed for use in large-scale processes for water purification
- High performance and a very good anti-fouling behaviour
- Membrane elements can be backflushed for efficient membrane cleaning resulting in a higher average product flux

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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 warranties 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.

To avoid biological growth during shutdowns or storage, wet membranes should be treated with a compatible biocide. The membrane is compatible with many common disinfecting agents or biocidal preservatives. For short-term shutdowns, a daily flush with permeate quality water containing up to 2.0 ppm free available chlorine for 30 to 60 minutes may be adequate for bacteria control.

In case of long-term storage, membranes should be cleaned before the disinfection step is carried out. For disinfection, a 0.5% sodium metabisulfite solution can be used. In either situation, modules should be stored hydraulically filled.

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.



X-FLOW BV

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Note: The information and data contained in this document are based on our general experience and are believed to be correct. They are given in good faith and are intended to provide a guideline 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 intellectual property rights must be observed.

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