

# X-FLOW COMPACT 33V HELIX - ULTRAFILTRATION MEMBRANE

## MEMBRANE ELEMENT DATASHEET

8 INCH 5.2 MM Helix Compact 33V  
ARTICLE CODE : 78C1KQB99S

### APPLICATIONS

- Pre-treatment RO and NF
- Surface water
- 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  $\leq 40\text{ }^{\circ}\text{C}$
- Maximum 500 ppm
- 250.000 ppm hours cumulative at  $30\text{ }^{\circ}\text{C}$

### CLEANING CHEMICAL RESISTANCE

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

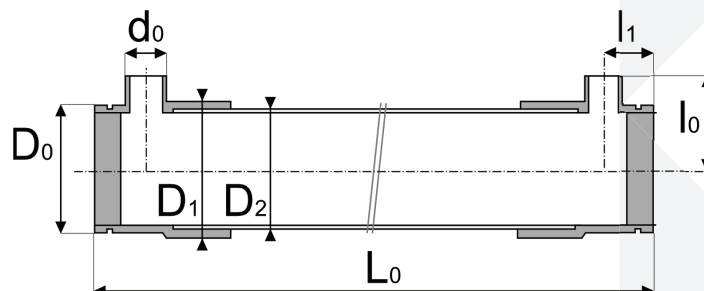
NaOCl (active chlorine)	500 ppm max.
H <sub>2</sub> O <sub>2</sub>	1000 ppm max.
NaOH	pH $\leq 11$
Nitric acid	pH $\geq 1$
Phosphoric acid	pH $\geq 1$
EDTA	pH $\leq 11$
Citric acid	
Enzymatic compounds	

It is recommended to keep the pH between 1 and 11 and not to exceed a temperature of  $40\text{ }^{\circ}\text{C}$  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 <sup>2</sup> ]	Feed connection D <sub>0</sub> [mm]	Module length L <sub>0</sub> [mm] ( $\pm 1$ )	Saddle diameter D <sub>1</sub> [mm]	Module diameter D <sub>2</sub> [mm]	Permeate connection d <sub>0</sub> [mm]	Permeate length l <sub>0</sub> [mm] ( $\pm 1$ )	Permeate position l <sub>1</sub> [mm] ( $\pm 1$ )
5.2	33	220.0	3000	240	213	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]
20- 60 °C 800	at 20 °C 650	at 40 °C -100 ~ +250	60
	at 30 °C 550	at 60 °C -50 ~ +250	
	at 40 °C 450		
	at 50 °C 380		
	at 60 °C 300		

\*) negative TMP correlates with backwash pressure

- Backwash water should be free of particulates and should be of 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 decreasing. Do not exceed 40 °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

#### MEMBRANE CHARACTERISTICS

- 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

#### TECHNICAL SPECIFICATIONS

##### Weight Specifications

Dry weight of membrane element  
ca. 45 kg [100 lbs]

Membrane element filled with water  
ca. 110 kg [242 lbs]

##### Materials of Construction

Housing PVC, 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]	[m <sup>3</sup> /h]	[kPa]	[kPa]
5.2	53.5 x v	1.3 x L <sub>0</sub> x v	3.9 x L <sub>0</sub> x v <sup>1.75</sup>

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

(\*\*) module length (L<sub>0</sub>) in m

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### STORAGE

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New membrane modules can be stored as supplied.

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. After use, UF membranes need to be stored wet at all times.

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 1% sodium metabisulfite solution can be used. In either situation, modules should be stored hydraulically filled.



#### X-FLOW BV

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