

X-FLOW COMPACT 5.1G - 5.2MM

ULTRAFILTRATION MEMBRANE

MEMBRANE ELEMENT DATASHEET

3 INCH 5.2 MM Compact 5.1G
ARTICLE CODE : 7381KPB99RH

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:

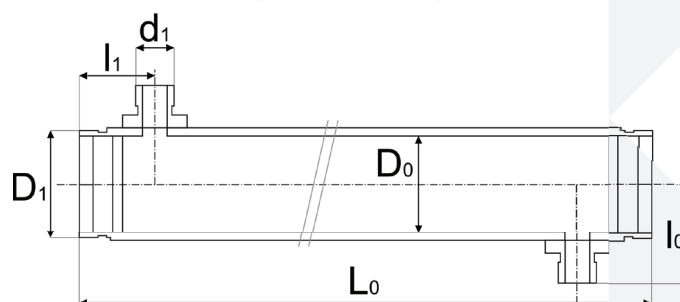
NaOCl (active chlorine)	500 ppm max.
H2O2	1000 ppm max.
NaOH	pH ≤ 11
Nitric acid	pH ≥ 1
Phosphoric acid	pH ≥ 1
EDTA	pH ≤ 11
Citric acid	
Enzymatic compounds	

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

Membrane diameter [mm]	Membrane area [m²]	Module diameter D ₀ [mm]	Module length L ₀ [mm] (±1)	Feed connection D ₁ [inch]	Permeate connection d ₁ [inch]	Permeate length l ₀ [mm]	Permeate position l ₁ [mm] (±1)
5.2	5.1	90	3000	3	1	80	66

For connection specifications please check the corresponding connection configuration



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OPERATING SPECIFICATIONS

Max. feed pressure	Max. permeate pressure	Max. transmembrane pressure *)	Max. temp.
[kPa]	[kPa]	[kPa]	[°C]
20- 70 °C 800	at 20 °C 650	at 20 °C -100 ~ +500	70
	at 30 °C 550	at 30 °C -100 ~ +500	
	at 40 °C 450	at 40 °C -100 ~ +500	
	at 50 °C 380	at 50 °C -50 ~ +500	
	at 60 °C 300	at 60 °C -50 ~ +500	
	at 70 °C 100	at 70 °C -40 ~ +500	

*) 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 decreasings. Do not exceed 70 °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
- 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. 6 kg [14 lbs]

Membrane element filled with water
ca. 15 kg [35 lbs]

Materials of Construction

Housing	Glass fibre reinforced epoxy, 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	8.3 x v	1.2 x L ₀ x v	3.6 x L ₀ x v ^{1.75}

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

(**) module length (L₀) in m

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STORAGE

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.



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