



OLTRE
LIQUID SEPARATION

OLTRE_{SUB}-M Submerged MBR MEMBRANE MODULES

PRODUCT DESCRIPTION	Membrane Material	PVDF
	Membrane Configuration	Capillary
	Normalized Filtration Pore Size	0.075µm
	Potting Material	Epoxy
	Housing Material	PVC/ABS
	Membrane ID/OD	0.9/1.5 mm (0.035/0.059")
	Preservative	Glycerin (35%)

MODULE SPECIFICATIONS	Model	Membrane area
	OLTRE _{SUB} -0640-M	14m ² (150.7 ft ²)
	OLTRE _{SUB} -0660-M	22m ² (236.8 ft ²)
	OLTRE _{SUB} -0680-M	30m ² (322.9 ft ²)

APPLICATION DATA	Typical Filtrate Flux	<50L/m ² h (<85GDF)
	Maximum Applied Feed Pressure -	0.05 - 0.05 MPa (-7.3-7.3psi)
	Maximum TMP	0.2 MPa (30psi)
	Maximum Backwash Pressure	0.2 MPa (30psi)
	CIP Chlorine Concentration	2000ppm
	Operating Temperature	10-40°C (50-104°F)
	Operating pH Range	1-10
	Operation Mode	Outside-in, direct Flow, Cross flow, continues air scrubbing

TYPICAL PROCESS CONDITIONS	Backwash Flux	70-150L/m ² h (19-255 GFD)
	Backwash Duration	30-120 seconds
	Backwash Frequency	15-60 minutes
	CEB Frequency	0-24 times per day
	CEB Duration	2-20 minutes
	Cleaning Chemicals©	NaClO, NaOH, HCL, citric acid or oxalic acid

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SPECIAL FEATURE

Robust Membrane (State of The Art Technology)

OLTRE_{SUB} membrane is made by unique technology called as "Complex Thermally Induced Phase Separation" (c-TIPS) technology which endows to membrane high crystallinity. As a result the membrane has exceptional chemical resistance, mechanical strength and longer life time.

Permanently Hydrophilic Membrane (State of The Art Technology)

The stabilized operating flux for most of the UF or MF membrane products is much lower than their initial flux resulting from the loss of membrane hydrophilicity as a result of polymer reconfiguration. Oltremare OLTRE_{SUB} through extensive R&D and state of the Art polymerization technologies, now ensures steady flux by fixing the hydrophilicity permanently, using an innovative cross-link technology.

Low operation pressure

Typically, OLTRE_{SUB} membrane is designed to run at pressure as low as 0.02MPa (3.0psi) to produce enough water.

Oxidation-inert Membrane

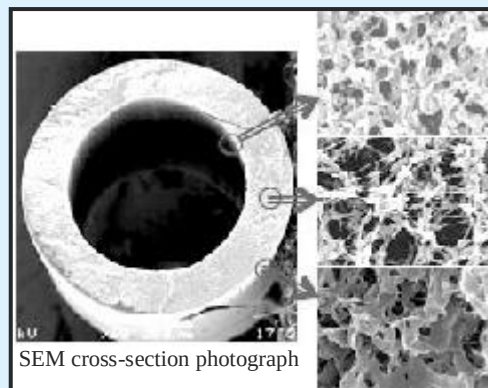
OLTRE_{SUB} Series membrane modules can be cleaned thoroughly by strong oxidant because of the chemical inertness of PVDF polymer

Internal Air Channels (State of The Art Technology)

An individual air diffuser is installed below each of the membrane modules so that air can be evenly bubbled through the membrane bundle. The pollutants may effectively be scrubbed away by air bubbles.

Soft Potting (State of The Art Technology)

The "roots" of the capillaries are the weakest portions in membrane modules and may be broken during operation. These portions of membranes in OLTRE_{SUB} UF modules are protected by a soft layer of potting material.



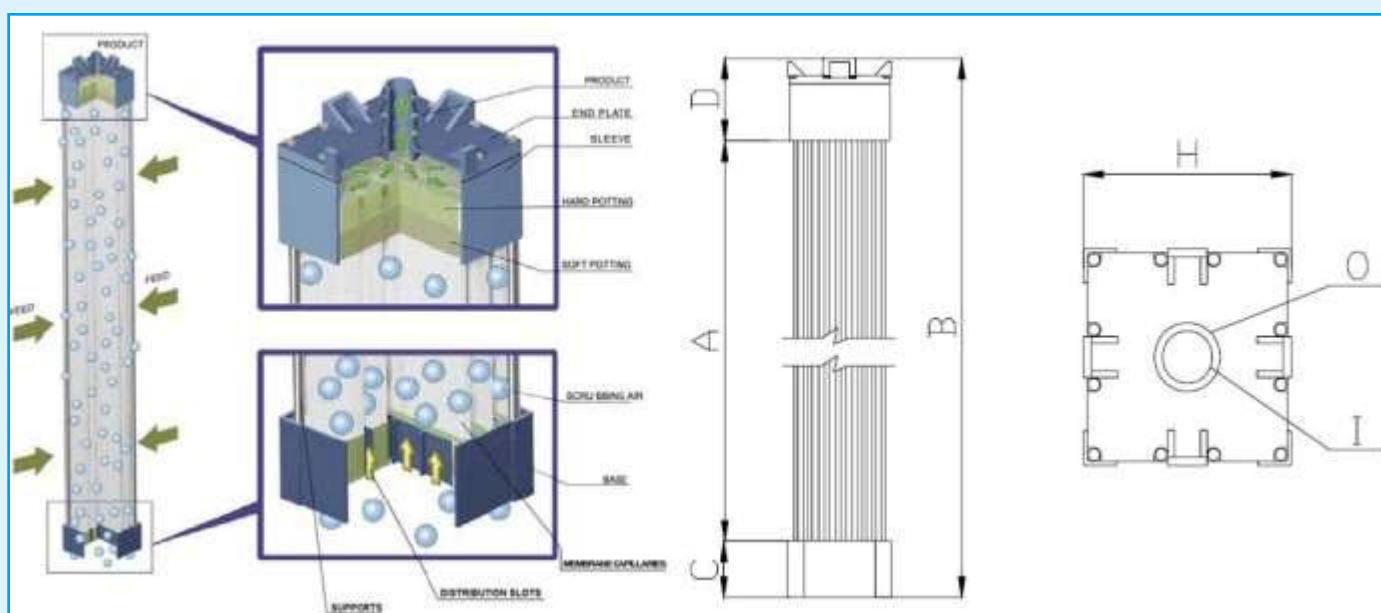
APPLICATION

OLTRE_{SUB} membrane modules can be used to waste water treatment by membrane bioreactor process, waste water treatment by enhanced bioreactor process, waste water recovery from waste water and enhance drinking water treatment.



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MODULE DIMENSIONS

	A	B	C	D	H	I	O
OLTRE _{SUB} -0660-M	1375mm (54.1")	1590mm (62.6")	95mm (3.7")	120mm (4.7")	158mm (6.2")	φ 30mm (φ1.18)	φ 40mm (φ1.57")
OLTRE _{SUB} -0680-M	1875mm (73.8")	2090mm (82.3")	95mm (3.7")	120mm (4.7")	158mm (6.2")	φ 30mm (φ1.18")	φ 40mm (φ1.57")

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