

Flat Sheet Membranes

› SUBMERSIBLE FLAT SHEET MEMBRANE BIO-REACTOR

Membrane Bio-Reactors have become recognized as a state-of-the-art wastewater treatment technology. Being German manufactured, it is clearly at the forefront of the field with its unique patented flat sheet composite polymer membrane which is resistant to fouling, clogging and braiding. Its advanced design, combined with an inherent simplicity of construction, provides unsurpassed operational efficiency, performance and reliability.

State of the art wastewater treatment technology resistant to fouling, clogging and braiding.

› Flat sheet ultrafiltration membrane

With a pore size of 0.04 microns, the membrane effectively blocks all bacteria and most viruses.

Manufactured from permanently hydrophilic polyether sulfone (PES), the membrane provides consistent stable operation, high flux rates and low transmembrane pressures.

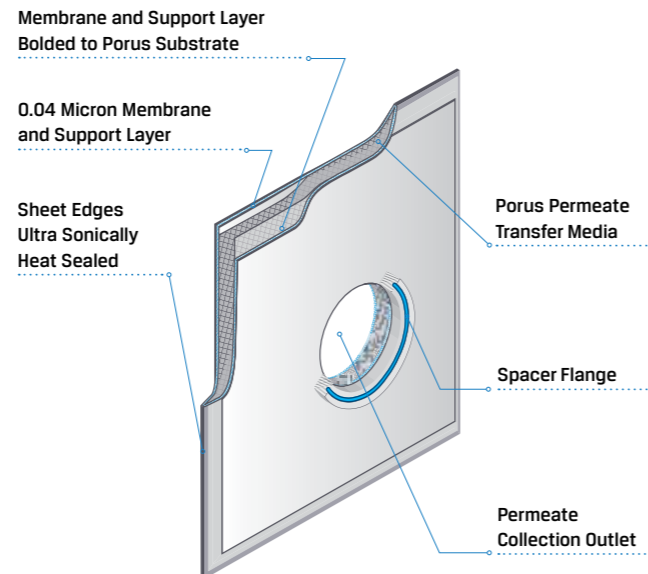
› Membrane construction

The unique flat sheet composite polymer bonded membrane panel is formed in a continuous process by fusing the smooth ultrafiltration membrane sheets onto a strong porous fibre central substrate.

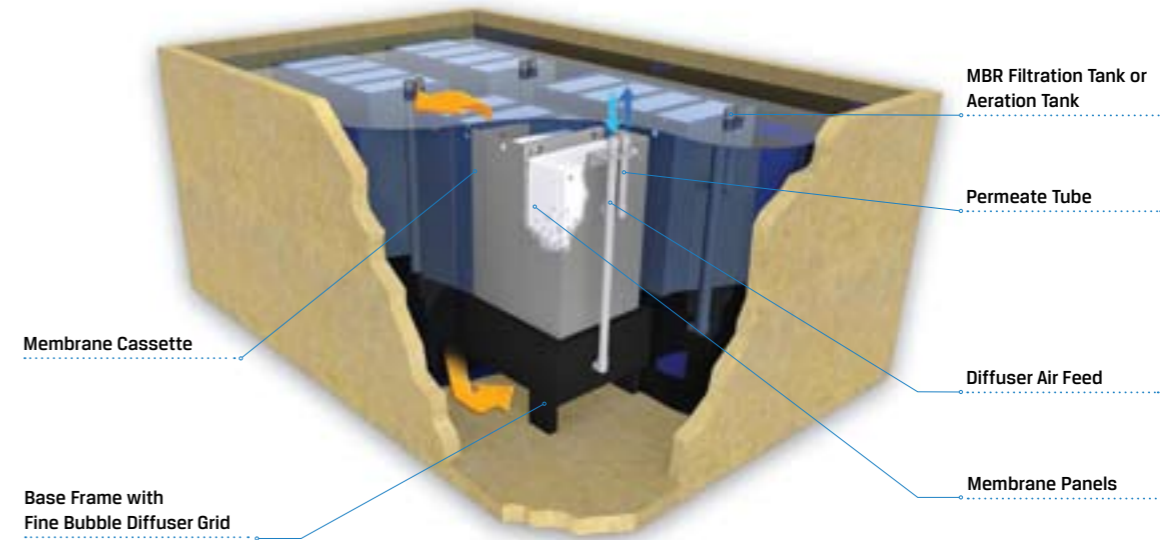
Membrane panels are trimmed to size, edges ultrasonically heat sealed and a centrally located spacer flange is adhered in place. Each membrane panel is individually tested for integrity. During assembly, the spacer flanges are joined together to form a central permeate collection manifold.

› Pressure backflush using permeate water

Due to its unique and robust membrane structure, it is the only flat sheet membrane module capable of being pressure back-flushed using permeate water. Fully automatic backflush cleaning cycles help maintain stable flux rates. As a result of the permeate water backflush, the need for chemical assisted cleaning is greatly reduced with the benefit of significant savings in chemical costs, safer operation and less impact on the environment.



BC100F membrane module



› Resistance to fouling, clogging and braiding

Our smooth flat sheet ultrafiltration membrane panels are suspended within the cartridge frame with a gap around all sides and are naturally

resistant to fouling and braiding with hair or fibres, a problem which plagues hollow fibre and capillary type MBR membranes.

During filtration, aeration scouring causes the membrane panels to flex which assists in preventing clogging.

› Flat sheet membrane specifications

MEMBRANE SURFACE AREA	m ²	10	25	50	100	400
Rated flow	L/Hr	170	425	850	1700	6,800
Rated flow	m ³ /day	4	10	20	40	160
Peak flow	L/Hr	300	750	1500	3000	12,000
Rated flux rate*	L/Hr/m ²	17	17	17	17	17
Peak flow flux rate**	L/Hr/m ²	30	30	30	30	30
Filtration suction pressure	mbar	50 - 400	50 - 400	50 - 400	50 - 400	50 - 400
Backflush pressure max.	mbar	150	150	150	150	150
Operating temperature	°C	5°C - 40°C	5°C - 40°C	5°C - 40°C	5°C - 40°C	5°C - 40°C
pH range		2 to 11	2 to 11	2 to 11	2 to 11	2 to 11
Standard specific aeration***	m ³ /m ³	0.6	0.6	0.6	0.6	0.4
Air scour flow required	m ³ /Hr	6	15	30	60	160
Air scour flow required	m ³ /min	0.1	0.25	0.5	1	2.7
Membrane material		PES	PES	PES	PES	PES
MWCO	kDa	150	150	150	150	150
Pore size	µm	0.04	0.04	0.04	0.04	0.04
Chlorine resistance	ppmh	100,000	100,000	100,000	100,000	100,000
Maximum suspended solids	g/L	12	12	12	12	12
Minimum suspended solids	g/L	4	4	4	4	4
Cassette type		1 x C10	1 x C25	2 x C25	4 x C25	4 x C100
Cassette frame material		PVC	PVC	PVC	PVC	PVC
Base frame material		PE	PE	PE	PE	PE
Connections: Permeate		1" PVC socket	1" PVC socket	Flange DN32	Flange DN32	Flange DN100
Aeration		1/4" PVC socket	1/4" PVC socket	Flange DN32	Flange DN32	Flange DN65
Dry weight	kg	-	-	125	225	800
Wet weight	kg	-	-	200	300	1100
Length base frame	mm	-	-	586	1270	1298
Length total	mm	313	483	1024	1600	1810
Width	mm	630	630	702	702	1152
Height	mm	1575	1575	1563	1563	2763

* Ambient temp = 18° C. Increasing ambient temp x 4° C increases flux by 12%. Decreasing ambient temp x 4° C decreases flux x 9%.

** Membrane flux can be temporarily increased for short periods. I.e. hours

*** Aeration rate can be optimised according to flux rates and MLSS values.