



AQUABRANE
WATER TECHNOLOGIES PVT. LTD.



redefining ultrafiltration



ABOUT US

A CLASS APART QUALITY & TECHNOLOGY

Aquabrane Water Technologies Pvt. Ltd, a group company of Aquabrane Holdings Pte. Ltd, Singapore was incorporated with an investment from private equity investor & an Indian partner with a vision to promote cutting edge Ultrafiltration Technologies. Aquabrane is specialized in developing, manufacturing & marketing of best in class Ultrafiltration Membranes for water & waste water treatment. Aquabrane has made substantial investment in research & development and manufacturing plant in Maharashtra, India.

Aquabrane also deals in Ceraflo®, a proprietary multi-channel ceramic membrane plates designed to remove suspended particulates, colloidal material, bacteria and high molecular weight material ranging from 1.0 micron (microfiltration) to 0.01 micron (ultrafiltration)

VISION

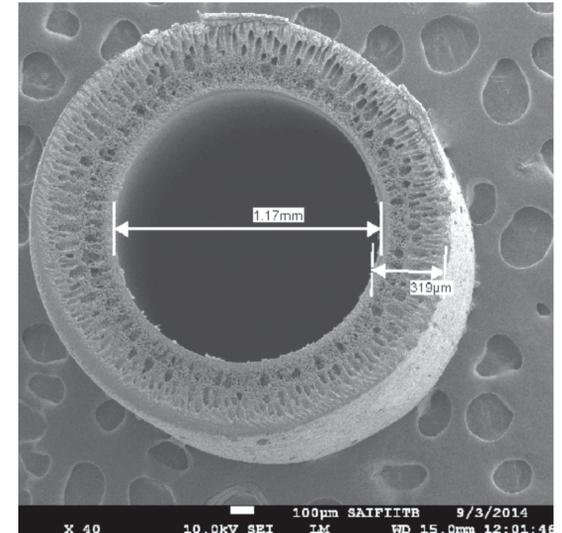
- Be a globally renowned Ultrafiltration Membrane manufacturer, offering cutting edge Ultrafiltration technologies for water & waste water treatment.
- Be the most preferred supplier of Ultrafiltration Membranes.
- Provide simple and viable Ultrafiltration solutions.
- Maximize the returns to investors & network of partners while being mindful of our overall responsibilities.

MISSION

We will accomplish our vision through complete customer satisfaction by providing quality products & services on time and to budget. We will continue to invest in our human resource, research & development and manufacturing capabilities while incorporating latest technologies.



S Series Ultrafiltration Membrane Modules



Aquabrane uses the dry jet wet spinning phase inversion technology for manufacturing the hollow fiber Ultrafiltration membranes. The membranes are manufactured using highest quality polymers & chemicals under continuous supervision of well experienced scientific and technical team. Continuous R&D is being carried out to further optimize the membrane performance.

MEMBRANE DEVELOPEMENT

Aquabrane has developed a consistent high quality Out-to-In hollow fiber Ultrafiltration Membrane with extremely low Transmembrane Pressure (TMP).

The membranes are tested by leading government & private institutes for its consistency, specification & uniformity of pore size distribution.

Aquabrane has long-term membrane research partnerships with several universities and research institutes.

Periodically the SEMs (Scanning Electron Microscope) images of the membranes are sent to various institutes for Quality audit-check.

QUALITY COMES
WITH CONSISTENCY

PRODUCT DATA SHEET

Model		S 860	S 830	S 430
Membrane Specification	Membrane Material	Modified PES		
	Surface Properties	Hydrophilic		
	Fiber ID	1.2 mm		
	Fiber OD	2 mm		
	Wall Thickness	0.4 mm		
	Membrane Area (m ²)	40	20	6
	Pore Size	0.03 μ m		
Module Characteristics	Membrane Material	Modified PES		
	Housing Material	UPVC		
	End Cap Material	Glass Filled ABS	UPVC	
	Nozzle Size	1.5"NPT	0.5/0.75"NPT	
	Potting Material	Aquabrane Proprietary Potting Compound		
	Weight (Empty / water filled) - Kgs	35/40	23/27	6/7.5
Operating Parameters	Flow Path	Outside - In		
	Operating Mode	Dead End or Cross Flow		
	Clean Water Flux at 20 Deg. Cel.	125 LMH		
	Maximum Feed Pressure	1.5 bar (22 psi)		
	Transmembrane Pressure (TMP)	0.55 - 0.83 bar (8 - 12 psi)		
	pH - Continuous Operation	3 - 9		
	pH - Cleaning	2 - 11		
	Temperature	0 - 45°C		
	Chlorine Tolerance	100000 ppm hrs		
	Maximum Feed TSS	100 mg/L		
	Maximum Feed Turbidity	150 NTU		
	Maximum Total Oil & Grease	< 1 PPM		
	Maximum NaOCl - Continuous	20 PPM		
	Backwash Flux Range	Greater of 1.5 times Constant Flux or 3m ³ /hr	Greater of 1.5 times Constant Flux or 1.5 m ³ /hr	Greater of 1.5 times Constant Flux or 0.5 m ³ /hr
	Backwash Feed Pressure	1 - 1.4 bar (14 - 20 psi)		
	Backwash Frequency & duration	Depending upon feed water quality, backwash to be carried out with 20 ppm NaOCl at an interval of 20 - 60 mins or 20% Increase in TMP, whichever is earlier for 30 - 60 seconds. However 1 backwash with 200 ppm NaOCl must be carried out once a day.		
	Forward Flush	60 Sec forward flush is recommended once in 12 hours for fresh water & once In 6 hours for waste water & sea water.		
	Air Scouring - Pressure	0.55 - 1 bar (8 - 15 psi)		
	Air Scouring - Volume	7 Nm ³ /hr	3.6 Nm ³ /hr	1.75 Nm ³ /hr
	Air Scouring - Duration	30 Secs + Backwash time		
Maximum NaOCl during Cleaning	1000 ppm			

MODULE PROPERTIES	MODEL		
	S860	S830	S430
L(mm)	1667	1030	918
L1(mm)	1428	791	760
L2(mm)	1271	635	640
L3(mm)	156	156	120
D(mm)	219	219	114
P1(∅ inch)	1 1/2" MNPT	1 1/2" MNPT	3/4" MNPT
P2(∅ inch)	1 1/2" MNPT	1 1/2" MNPT	3/4" MNPT
P3(∅ inch)	1 1/2" FNPT	1 1/2" FNPT	3/4" MNPT
P4(∅ inch)	1 1/2" MNPT	1 1/2" MNPT	3/4" MNPT
P5(∅ inch)	1 1/2" FNPT	1 1/2" FNPT	3/4" MNPT
W1(mm)	150	150	82
W2(mm)	282	282	146
W3(mm)	75	75	NA

PORT CONFIGURATION:

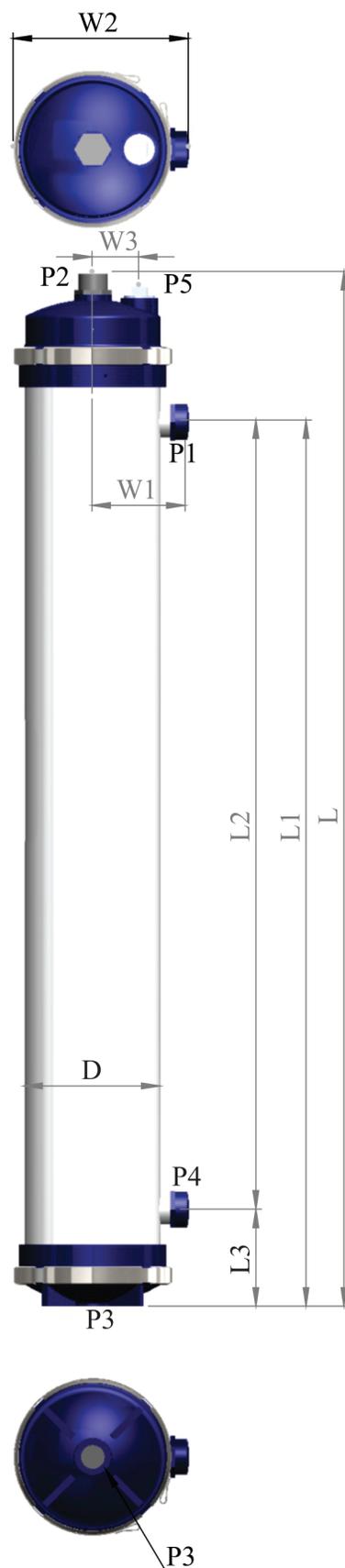
P1 : FEED INLET / CIP & BACKWASH OUTLET

P2 : AIR INLET

P3 : FILTRATE / BACKWASH

P4 : CIP INLET / CONCENTRATE

P5 : FILTRATE OUTLET (OPTIONAL)



SALIENT FEATURES

- Pore diameter of 0.03 μm effectively removes suspended solids, colloids, bacteria & viruses and provides consistent treated water quality from various feed water sources.
- Modified PES Chemistry with permanent Hydrophilicity. Multiple ports options offers simple, automated operation with flexibility in service and maintenance.
- Dead end / cross flow operation depending upon feed water quality.
- Lower operating cost due to Low Transmembrane Pressure (TMP) (4 – 8 psi)
- Low Transmembrane Pressure (TMP) ensures lesser particle penetration into the surface pores, enabling easier removal during backwash.
- High Resistance to Fouling & Oxidants.
- No aggressive Chemical Enhanced Backwash.
- Environmental friendly due to low CIP requirements and hence low generation of chemical waste.
- Maintenance friendly with simple & easy to follow fiber repairing procedures.
- Additional port on feed side helps to optimally design the operational sequence & duration while handling feed with high TSS.
- No complicated operating & cleaning procedures.
- Easy to follow storage guidelines and best in class warranties & site support.
- High temperature and Oil & Grease resistant membranes available on request.



TYPICAL APPLICATIONS

Drinking water

Surface & well water purification

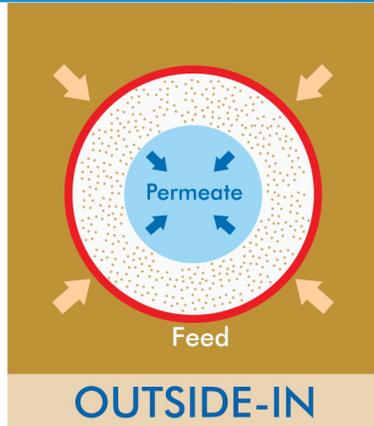
Pretreatment to RO/NF & SWRO Plants

Industrial process water treatment

Tertiary treatment in sewage treatment plants

Industrial & municipal waste water recycling

Advantages of Outside-In Flow as compared to Inside-Out flow configuration



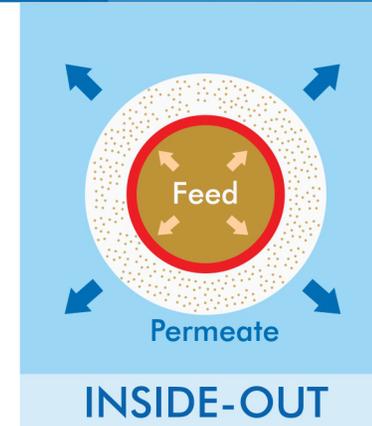
- Solids remain outside of lumen.
- Cleaning is easier & less frequent.
- Allows uniform flow distribution and higher solids loading.
- More tolerant towards particulate fouling.
- Foulant removal is more effective during back wash with air scouring & CIPs.
- Prevents irreversible chocking of Membrane Fibers during surges in feed water quality.

QUALITY ASSURANCE

TYPICAL TREATED WATER QUALITY

Turbidity	< 0.1 NTU, 90% of the time
SDI	< 3, 90% of the time
TSS	< 1 ppm
Bacteria, Giardia & Cryptosporidium	> 5 log removal
Viruses	> 3 log removal

- Manufacturing the Ultrafiltration Membrane Modules at such a high quality level without a properly through-out quality assurance process is unimaginable.
- There are series of quality checks of fibers prior to module assembly.
- Each module is wet tested for its flow & permeate quality prior to dispatch
- Each module has the unique serial number to ensure complete traceability upto the raw material stage.



- Fine prescreening is required to prevent the solids from entering the lumen.
- Cleaning is aggressive & more frequent.
- Higher solids loading may cause fiber blockage.
- Less tolerant towards particulate fouling.
- Aggressive CEBs & CIPs may be needed for effective removal of foulants.
- Inside-Out membrane may inevitably foul.

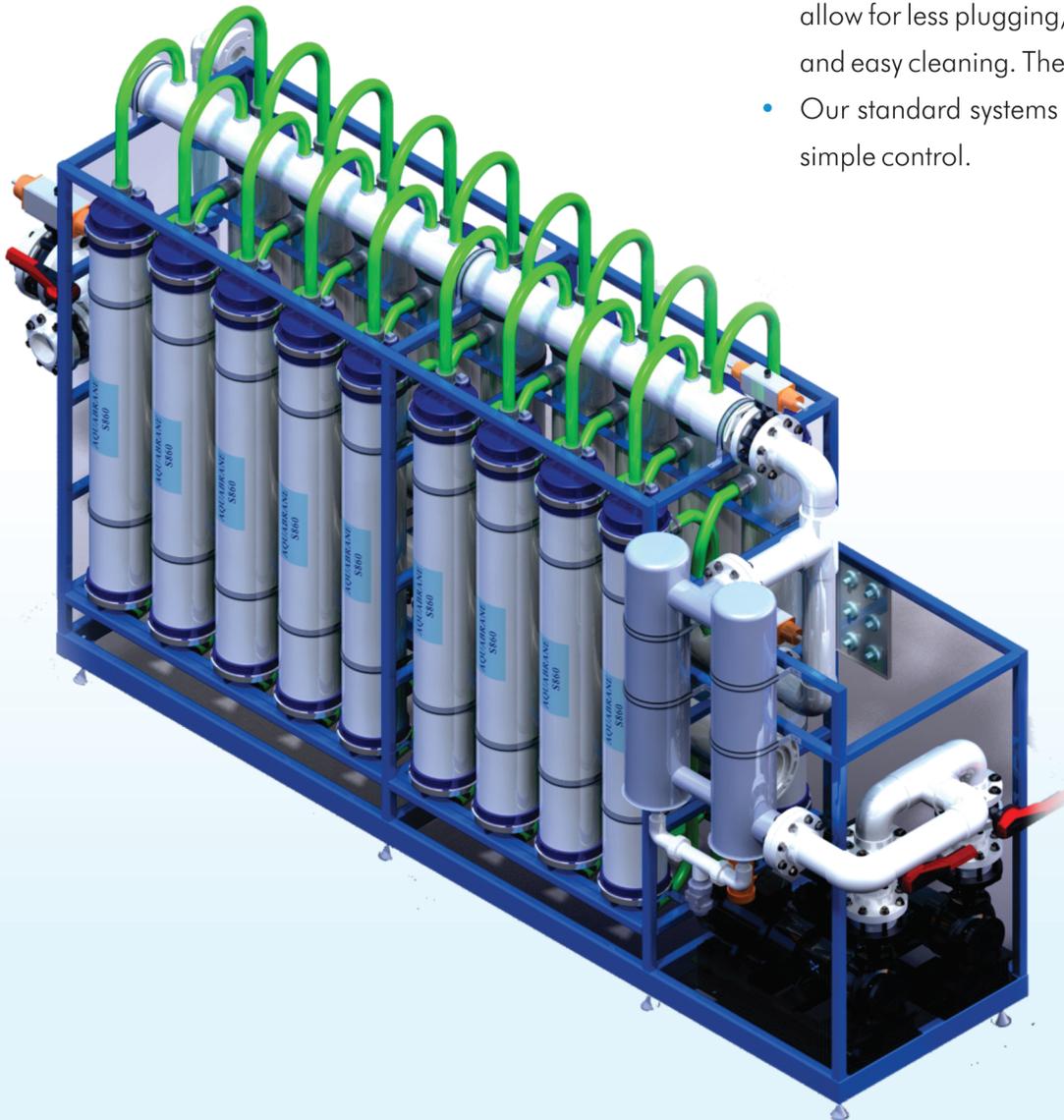
QUALITY POLICY

- Aquabrane Water Technologies Pvt. Ltd. is committed to serve it's customers and meet their needs and expectations in the design, manufacture, inspection, supply and support of hollow fiber ultrafiltration membranes for water and waste water treatment systems.
- Aquabrane Water Technologies Pvt. Ltd. aims towards total customer satisfaction, so as to provide innovative, high shelf-life UF membrane products and services to achieve increased customer delight as well as to ensure compliance with the requirements of the Quality Management System and its continual improvement.



Pre-engineered Rack

- Aquabrane offers fully pre-engineered off the shelf Ultrafiltration systems, designed and manufactured for an automated operation. Aquabrane Ultrafiltration system is easy-to-use, plug-and-play system capable of treating water from wide range of sources for various applications. A fully automatic control panel is used to control the different operating modes of the ultrafiltration process: filtration, backwashing and cleaning.
- With the professional knowledge and solid engineering experience, Aquabrane can provide the standard and custom Ultrafiltration systems with flow range from 1 m³/hr to 100 m³/hr.
- Aquabrane Ultrafiltration systems are based on Outside – In flow configuration, which allow for less plugging, uniform flow distribution, higher solids loading, higher flow area and easy cleaning. The system can be operated in dead-end as well as cross-flow mode.
- Our standard systems are designed for reliable, long term trouble free operation, with simple control.



BENEFITS

Easy to install, operate and maintain

Low capital and operating costs

Low power consumption and chemical usage

Efficient, reliable operation with minimum downtime

Low fouling membrane modules with outside – in configuration

Very fine nominal pore diameter (0.03 μ m)

Effectively removes suspended solids, colloids, bacteria & viruses from various feed source

Can be easily back washed and air scoured to improve the performance and extend the operating life by removing the fouling layer

Consistent, high quality product water

Ceraflo Ceramic Membrane Modules

About Ceraflo

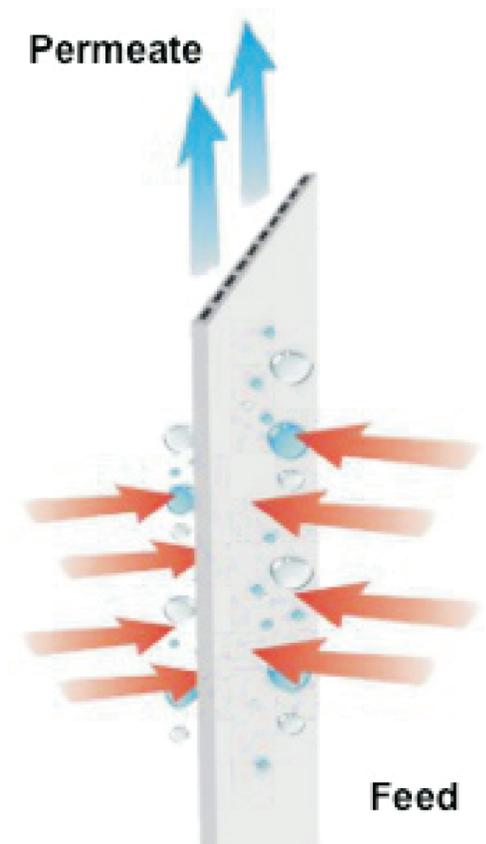
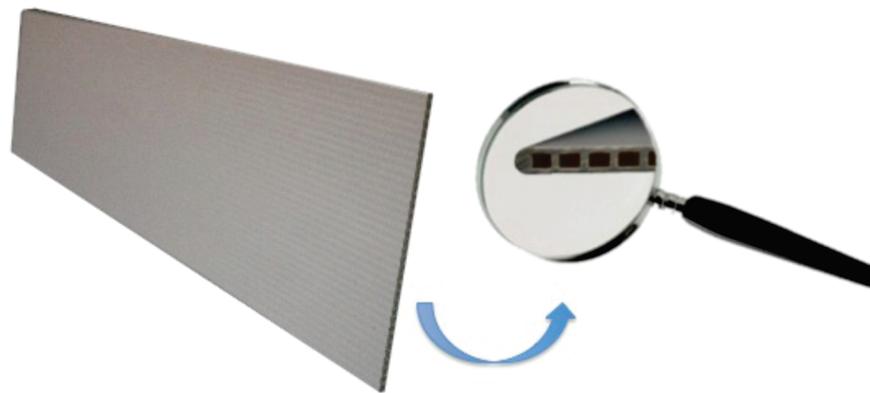


Ceraflo Pte Ltd, Singapore, manufactures low cost high quality ceramic membranes for water and wastewater filtration. It develops, designs and manufactures its own ceramic membranes to market individually or together with other components as a system.

The ceramic membrane filtration system is applicable for the treatment of water and wastewater in consumer, industrial and municipal markets.

Ceraflo is the first Asian company outside Japan to manufacture ceramic membranes multi-channel plates and in large commercial quantities to deliver affordable water and wastewater treatment solutions.

Ceraflo® is a proprietary multi-channel ceramic membrane plate designed to remove suspended particulates, colloidal material, bacteria and high molecular weight material ranging from 1.0 micron (micro-filtration) to 0.01 (ultra-filtration).



CERAFLO® CERAMIC MEMBRANE PLATES/MODULES/SYSTEMS

Properties

- Low cost
- Small footprint
- Anti-fouling
- Hydrophilic
- Thermal resistant
- Variable pore size
- Low maintenance

Advantages

- Designed based on proprietary manufacturing know-how
- Compact modules with high degree of flexible configurations and scalability
- High resistant to both chemical and biological contaminants
- Requires less energy during filtration cycles
- Ability to withstand high temperature feed water
- Ability to design for various applications
- Less chemical and backflush cycles

SUBMERGED CERAMIC MODULE



Model	CS46	CS36
Number of membranes	46 plates	36 plates
Filtration	Out-In filtration	
Ceramic material	Alumina oxide	
Module material	ABS plastic	
Pore size (μm)	0.5 micron	
Membrane surface area	5 sqm	4 sqm
Capacity** (l/h)	City water: 200 - 400 River water: 100 - 200	Waste water: 50 - 100 MBR: 30 - 50
Dimensions (mm)	560 x 360 x 143	
Dry Weight	20 kg	18 kg
Operating pressure	-0.1 bar to -0.5 bar	
Operating temperature	80 °C max	
pH Range	2 - 12	
Product Turbidity	≤ 0.1 NTU	

* The module specifications can be customized

** These values have been obtained from verification tests subjected to the condition of the influent

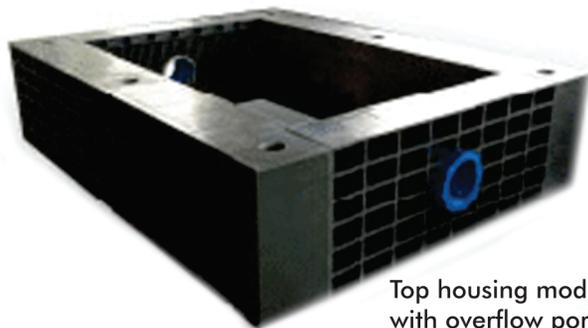
PRESSURIZED CERAMIC MODULE



Bottom housing module with aeration pipe & feed port



Pressurized module (CP) with bottom housing



Top housing module with overflow port

Model	CP46	CP36
Number of membranes	46 plates	36 plates
Filtration	Out-In filtration	
Ceramic material	Alumina oxide	
Module material	ABS plastic	
Pore size (μm)	0.5 micron	
Membrane surface area	5 sqm	4 sqm
Capacity** (l/h)	City water: 200 - 400 River water: 100 - 200	Waste water: 50 - 100 MBR: 30 - 50
Dimensions (mm)	600 x 466 x 145	
Dry Weight	23 kg	21 kg
Operating pressure	0.1 bar to 0.5 bar	
Operating temperature	80 °C max	
pH Range	2 - 12	
Product Turbidity	≤ 0.1 NTU	

Revolutionary tank-less design

- Reduction of physical footprint from elimination of buffer space within the water tank
- Full access to ceramic modules at all times
- Continual operations during cleaning maintenance and replacement of modules except for affected column

ADVANTAGES

■ Superb physical properties

- Robust against all kinds of industrial wastewater containing solvent, oil & other chemicals.
- High dirt tolerance.
- Suitable for separation of hard solids from water.
- Pre-treatment system for preventing damage to membrane generally not needed.

■ High reliability and long lifespan

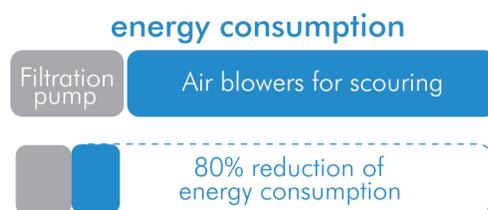
- High mechanical strength, resilient to strong chemicals and high temperature.

■ Easy maintenance

- Simple backwash and on-line cleaning removes the need for daily maintenance.
- Membrane surface can easily be cleaned by air scouring or water jet.
- Both pressurized and open tank systems available
- Simple system design.

■ Energy saving

- Flat sheet structure with optional air back-flush facilitate more effective cleaning.
- Ceramic Membrane Bioreactor requires low volume. of scrubbing air thereby reducing energy consumption.
- High hydrophilicity means low energy consumption.



■ Small footprint

- Higher-flux results in less than half the footprint compared to that of flat sheet type of polymer.

Typical applications

- Water treatment
- Industrial wastewater treatment
- Sewage treatment
- Pretreatment for desalination and RO
- Suspended solids removal/bacteria removal
- Water recycling
- Clarifying
- Membrane Bioreactor (MBR)
- Swimming pools and water features

Our Expertise:

Ultrafiltration Membranes

Ultrafiltration Systems

Ceramic Membranes Modules



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