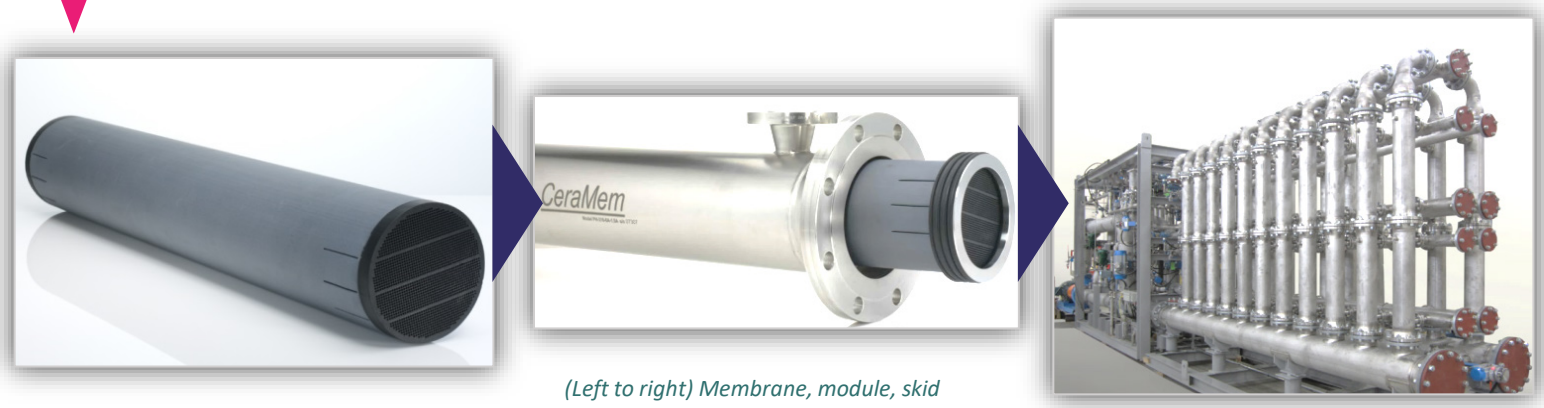
CeraMem® Ceramic Membranes and Modules
Technical Data Sheet



(Left to right) Membrane, module, skid

CeraMem® ceramic membranes are large-diameter monolithic ceramic membranes mainly composed of Silicon Carbide. CeraMem membranes have provided a robust solution for water and wastewater treatment needs across a variety of industries for over 30 years. Used either in dead-end or in crossflow operation, CeraMem membranes offer a large membrane area in a compact footprint compatible with a wide range of conditions.

Markets	Specific Applications
Oil & Gas	Produced water and frac flowback reuse (straight de-oiling, or combined with silica and hardness removal), tailings ponds recycle, desalter blowdown de-oiling, slop oil recovery
Wastewater	Oily wastewater removal for primary metal and metal finishing applications, combined heavy metal and O&G removal from alkaline cleaner recovery, mining tailings pond recycle, wastewater recovery for industrial laundry, bilge water treatment for disposal, industrial Membrane Bio-Reactor (MBR)
Water	Emergency water: treatment of surface water in disaster relief conditions to produce drinking water
Chemicals	Brine filtration (sodium bicarbonate, chlor-alkali), solids removal from chemical streams (solvents, latex dispersions, glycerin, paints, polymers, sulfuric acid)

What Makes CeraMem® Unique?

- Highly electrophilic Silicon Carbide provides high fouling resistance with high O&G content
- Large-diameter monolith allows for high packing density
- High operating temperatures, > 40°C
- Competitive life-cycle cost
- Reduced power consumption due to low fouling tendency allowing low velocity operation
- Sustainable through upsets and varying feed water quality
- Viable for use with chemically aggressive fluids (high/low pH/solvents)

WATER & MEMBRANES

CeraMem®

ALSYS Group

CeraMem® Ceramic Membranes

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CeraMem® Membrane Technical Specifications

Membrane Features		
Geometry:	Multi-channel tubular	
Support Material:	SiC	
Membrane Materials:	TiO_2, SiO_2, Al_2O_3, SiC	
Membrane dimensions:	5.6” diameter (142 mm), 34” length (864 mm)	
Feed channel diameter:	2 mm	5 mm
Membrane area	113-115 ft^2 (10.5-10.7 m^2)	54 ft^2 (5 m^2)
Maximum Temperature:	Above 130°C, dependent on seals and housing selection	
Maximum Trans-Membrane Pressure:	10 bar, dependent on housing selection	
Recommended Crossflow Velocity:	6.5-10 ft/sec (2-3 m/sec), dependent on application	
Volumetric Flow Rate for 6.5 ft/sec	225 gpm (50 m^3/hr)	
Pressure Drop at 6.5 ft/sec for 2 mm Channel **Pressure Drop at 6.5 ft/sec for 5 mm Channel**	7 psi (0.5 bar), H_2O @ 77°F (25°C) 3 psi (0.2 bar), H_2O @ 77°F (25°C)	

Housings and Assembly

Housing features	
Housing Material	CPVC, stainless steel (304, 316L, 2205, 2507, Hastelloy), Fiberglass
Boot Seal Material	EPDM, Viton 70 / 90
Connection Type	Victaulic, ANSI flange

CeraMem® Membrane Types

Type	Membrane Pore Size (nominal)	Separation Membrane Material	pH Range
MF	0.2 µm	SiC	0-14
MF	0.2 µm	Alpha alumina	2-13
MF	0.1 µm	Alpha Alumina	2-13
MF	0.1 µm	Titania	2-13
UF	50 nm	SiC	0-14
UF	10 nm	Titania	2-13
UF	5 nm	Silica	2-9

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