



# CERAMIC MEMBRANES AND SUBSTRATES

Mantec has been involved in the manufacture of ceramic Crossflow Filtration membranes and substrates for many years, and has enjoyed success with these products in a number of varied applications.

### Membranes

Ceramic membranes are operated in the crossflow filtration mode, a continuous process in which the feed stream flows parallel (tangential) to the membrane filtration surface and generates the two outgoing streams. This mode has the benefit of maintaining a high filtration rate for membrane filters compared with the direct flow filtration mode of conventional filters.

### Substrates

Mantec Technical Ceramics manufactures a range of high-quality ceramic substrates in various geometries specifically for the membrane OEM market. The substrate has been developed such that the OEM can deposit an effective membrane coating onto the channels for use in applications such as pervaporation, microfiltration and ultrafiltration. Substrates are generally supplied in Alpha Alumina, although other materials are available.



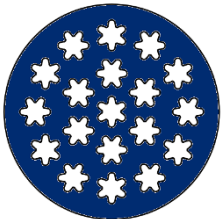


### Energy Efficient Crossflow Filtration

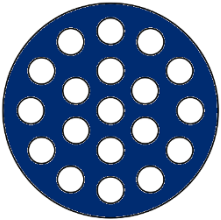
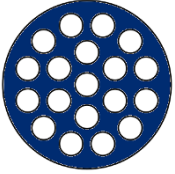
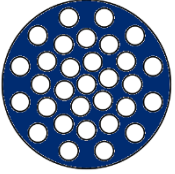
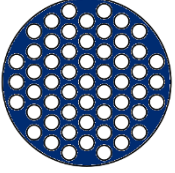
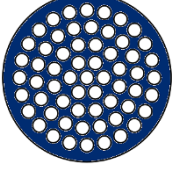
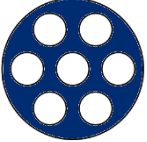



The Star-Sep™ Membrane filter has been specifically developed for efficient crossflow microfiltration. The filter channel's unique 'star' form increases the filtration area and induces turbulence at lower crossflow velocities.

Not only does this lower the volume compared with a circular channel of the same diameter, but also results in a reduction of the pumping energy requirement.



<b>Substrate Material</b>	Alumina
<b>Membrane Material</b>	MF: Alumina, UF: TBA
<b>Microfiltration Coatings</b>	0.2, 0.35, 0.5, 0.8, 1.2 µm
<b>Ultrafiltration Coatings</b>	Available upon request.
<b>Operating Pressure (bar)</b>	8 max
<b>Bursting Pressure (bar)</b>	>32 for diameters 21mm and above
<b>Chemical Resistance</b>	pH: 0-14 (compatible with organic solvents)
<b>Clean in Place (CIP)</b>	2% sodium hydroxide solution, 2% hydrogen peroxide solution, 2% nitric acid solution

	<b>Channel Diameter mm</b>	<b>Number of Channels</b>	<b>External Diameter mm</b>	<b>Length mm</b>	<b>Filtration Area m2</b>
	Outer 4.6 Inner 2.8	19	32	600 1200	0.17 0.33
	Outer 4.6 Inner 2.8	7	21	600 1200	0.07 0.14
	Outer 4.6 Inner 2.8	4	21	600 1200	0.06 0.11

	Channel Diameter mm	Number of Channels	External Diameter mm	Length mm	Filtration Area m2
	4	19	32	600 1200	0.14 0.28
	3.5	19	25	600 1200	0.12 0.24
* 	2.8	31	25	600 1200	0.17 0.34
* 	2.2	55	25	600 1200	0.25 0.50
* 	2	61	25	600 1200	0.23 0.45
	4	7	21	600 1200	0.05 0.10
	6	4	21	600 1200	0.05 0.09
	14	1	21	600	0.02
	7	1	10	600	0.01

\* Available in 2022





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