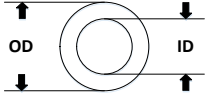

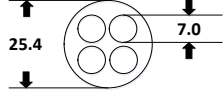

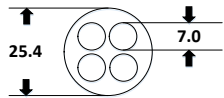

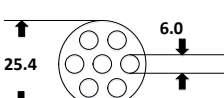

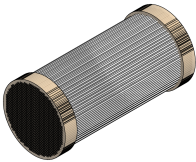


## TECHNICAL DATASHEET CERAMIC MEMBRANES

SUBSTRATE CHARACTERISTICS	
Substrate material	aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )
Mean pore diameter of substrate	0.1 – 0.2 – 0.6 – 1.0 - 2.0 μm
Length of elements	max. 1200 mm
Structure	symmetric, coatings are possible
Configuration	multiple options
Temperature resistant in air	up to 1200 °C (hollow fiber modules max. 70 °C)
pH stability	0-14*

There are many configurations available, with a variety of diameter, length and the number of channels of an element. The following table summarizes the standard configurations.

Configuration	Design	No. of channels	OD/ID [mm]	Length [mm]	Surface [m <sup>2</sup> ]	Drawing
Single bore		1	<18.0/ >1.0	≤ 1200	0.003 ~ 0.06	
4-tube system		4	25.4/ 7.0	≤ 1200	~ 0.11	
Multi-bore		4	25.4/ 7.0	≤ 1200	~ 0.11	
Multi-bore		7	25.4/ 6.0	≤ 1200	~ 0.16	
Hollow fiber	1" module with hollow fibers	19	4.8 3.0	204	~ 0.03	
Hollow fiber	4" module with hollow fibers	200	4.8 3.0	440	~ 0.7	
Hollow fiber	8" module with hollow fibers	1056	4.8 3.0	440	~ 3.6	

HOLLOW FIBER CERAMIC MEMBRANES	
Substrate material	aluminum oxide
Operating mode	crossflow
Membrane structure	Symmetric
Porosity of material	39 %

PARAMETERS	UNITS	1" MODULE	4" MODULE	8" MODULE
Outside diameter	mm	25.4	87.2	210.2
Outside / Inside fiber diameter	mm	4.8 / 3.0	4.8 / 3.0	4.8 / 3.0
Insert length	mm	204	440	440
Effective length	mm	166	360	360
Effective membrane area	m <sup>2</sup>	0,03	0,7	3.6
Number of fibers	-	19	200	1056
Permeability (demi water 25°C)	l/m <sup>2</sup> ·h·bar	1350	1350	1350
Pore size [nm] <sup>1)</sup>		600	600	600
Weight element	kg	0,1	2,3	14
OPERATING PARAMETERS				
Operating temperature	°C	70	70	70
pH	-	2-11	2-11	2-11
Maximum operating pressure	bar	tbd	tbd	tbd
Maximum thermal shock	°C/min	tbd	tbd	tbd
HOUSING				
Material		PP / SS304 / SS316		
Seal		NBR/Silicon/PTFE		
Module length	mm	220	460	460
Permeate outlet	mm	6	12	32
STORAGE				
Temperature	°C	10-60	10-60	10-60

1) Different pore sizes available on request.

Membrane structure	symmetric					Asymmetric	
Membrane pore size	2000 nm	1000 nm	600 nm	200 nm	100 nm	40 nm	20 nm

