

ProCEM
Modular Ceramic
Membranes

ProCEM

Ceramic Membranes

I2M – ACCELERATING NEW TECHNOLOGIES

i2M GmbH (Innovation to Market) is a special member of the MANN+HUMMEL Group dedicated to marketing new developments outside of the existing group divisions. Our mission is to be simple, fast and effective. So we work as a professional team in an agile setup – enabling new ideas and empowering markets. The products we create help to solve demanding challenges in the areas of clean air, life sciences and energy.

PROCEM – BUILT TO PERFORM

ProCEM is our product range of tubular ceramic membrane – built to withstand harsh process conditions and to optimize your process recovery. ProCEM operates in cross-flow mode to ensure stable and flexible operation, and delivers high filtration performance in applications from nano- to micro-filtration.

Applications include:



Food &
Beverage



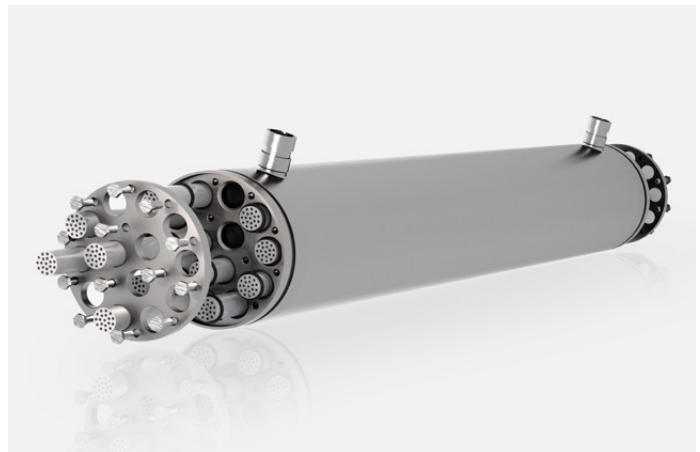
Pharmaceutical



Biotechnology



Chemical
Processing



PROCEM – DESIGN

ProCEM ceramic membranes are a fixed physical barrier to ensure high filtration qualities. With a modular design, ProCEM is easily adaptable to individual applications. ProCEM also features plug-and-play fitment with standard connections to make installation quick and easy.

KEY BENEFITS

- Chemical, mechanical and thermal stability
- Low total cost of ownership – high fluxes and durability
- Dry storage
- High abrasion resistance

TECHNICAL DETAILS

- External arrangement for stable operation in cross-flow mode
- Transmembrane pressure up to 5 bar
- Temperature resistance up to 140 °C (sterilization)
- High separation quality
- Fast and effective cleaning via backwashing
- MWCO/Pores size from 500 Dalton to 130 nm

ProCEM

Technical Data



MEMBRANE

	Technical Specifications
Membrane length	1200 mm
Outer diameter MCE	25.4 mm
Inner diameter channel	3.3 mm
Pore size/MWCO	80 nm
Number of channels	19
Support material	Al ₂ O ₃
Coating material	Al ₂ O ₃
Membrane surface	0.24 m ²
Cross section area	162.5 mm ²
Weight	1.1 kg
Clean water flux	1900 LMH @ 25 °C



HOUSING AND SEALING

	Technical Specifications
Housing length	1209 mm
Housing diameter	168.3 mm
Housing material	316 Ti
Number of membranes	13
Total membrane surface	3.07 m ²
Total cross section area	2112.59 mm ²
Permeate connection	2 x 1" Victaulic
Feed & retentate connection	2 x 6" Victaulic
Weight	32.5 kg
Membrane sealing diameter	Ø 25.4 x 3.5 mm
Membrane sealing material	EPDM, NBR, Viton, PTFE, Silicone

ProCEM

Technical Information

GENERAL INFORMATION

Product	ProCEM Ceramic Membranes
Support material	Al ₂ O ₃
Membrane material	NF: ZrO ₂ / UF: TiO ₂ / MF: Al ₂ O ₃
Length	1200 mm
pH-stability	0 - 14

All membrane designs are suitable for steam sterilization ≥ 121 °C

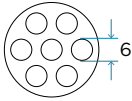
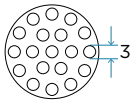
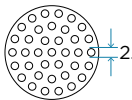
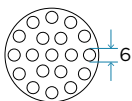
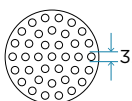
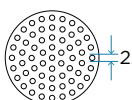
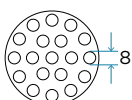
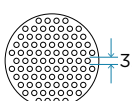
MEMBRANE CUT OFF/PORE SIZE

NF		UF		MF		
500 Da	4 kDa	20kDa	50 kDa	30 nm	80 nm	130 nm

OPERATION SPECIFICATION

	ProCEM Ceramic Membranes
Temperature	5 - 100 °C
pH	0 - 14
System pressure	0 - 10 bar
Transmembrane pressure	Max. 5 bar
Volume flow	15 - 45 m ³ /h
Cross flow velocity	2 - 6 m/s
Backwash pressure	Max. 5 bar
Backwash flow	4 - 10 m ³ /h
Cleaning agents	NaOCl, NaOH, Citric Acid
Cleaning frequency	Every 2 - 4 weeks

MEMBRANE SPECIFICATION

OD (mm)	ID (mm)	Channel	Surface (m ²)	Illustration
25.4	6	7	0.16	
25.4	3.3	19	0.24	
25.4	2	37	0.28	
41	6	19	0.43	
41	3.8	37	0.53	
41	2.5	61	0.57	
52	8	19	0.57	
52	3.3	85	1.06	
52	2	211	1.06	