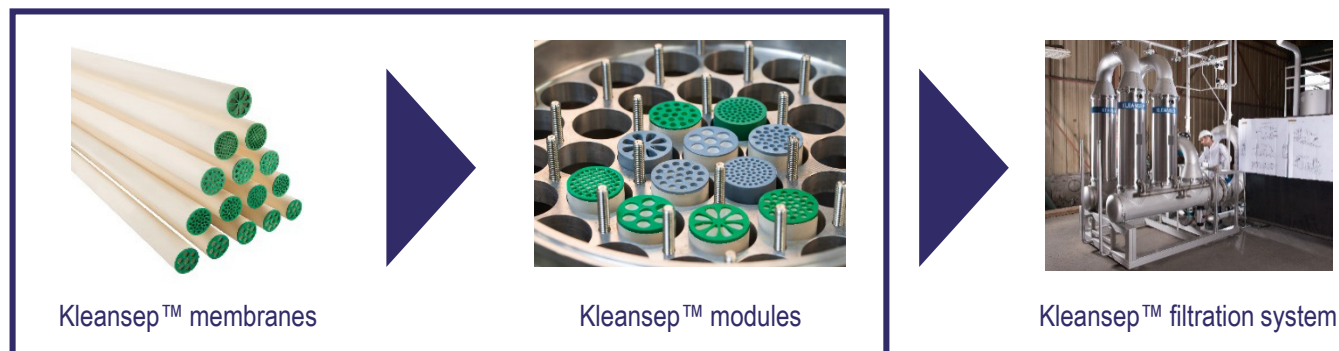


# Kleansep™ ceramic membranes and modules

## Technical data sheet





### Historical ranges market leaders



ALSYS ceramic membranes are tube-shaped filters with an asymmetrical membrane structure. With their unique design and construction, KLEANSEP™ products are well-suited to a wide range of applications.



### Experiences in the field of ceramic membranes technology

Recycle Water and Liquids		Process	
 Water	 Oil & Gas	 Chemistry	 Feed & Food
Treatment of industrial, domestic waste water through cross-flow filtration technologies		Production of chemicals, pharmaceuticals, animal feed or human food ingredients through cross-flow filtration technologies	
Bioreactor treatment	Recycling of produced water	Bio-based formulations and materials	Industrial biotechnology by fermentation
Recycling of liquid resources	Treatment of oily water	Chemical and pharmaceutical processes	Filtration of sugar, starch derivatives and beverages

### What makes Kleansep™ unique ?

- High temperatures resistance
- High mechanical resistance ceramic materials
- Compatible with extreme environments (including oxidizing agents, corrosive materials, and solvents)
- High oil and turbidity tolerance
- **Reliable filtration performance**
- Tubular module: flexible membrane surface area from 0,16 m<sup>2</sup>/module to 69 m<sup>2</sup>/module
- High durability module: housings available in a variety of materials, gaskets available in different types of elastomers

### Reliable filtration performance

- Temperature up to 150°C
- Max. TransMembrane Pressure : 10 bar
- pH range : 0 – 14
- Membrane materials: ceramic oxides (ZrO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>)
- Housing materials: steel (316L, 316Ti, Duplex, Super-duplex, Hastelloy ...), Fiber-glass (FRP) or Plastic (CPVC, ...)
- Gasket materials: NBR, EPDM, FPM, SILICONE





# Kleansep™ ceramic membranes

## Kleansep™ membranes technical features

Channels diameter (mm)	Membrane area (m <sup>2</sup> )	Ceramic tube length (mm)	External diameter (mm)	Number of channels	Code
6	0,16	1178 ± 0,5 mm	25 ± 0,5 mm	7	X
5	0,2	1178 ± 0,5 mm	25 ± 0,5 mm	8	E
4,5	0,2	1178 ± 0,5 mm	25 ± 0,5 mm	12	D
3,5	0,25	1178 ± 0,5 mm	25 ± 0,5 mm	19	W
2,8	0,34	1178 ± 0,5 mm	25 ± 0,5 mm	31	H
2,2	0,5	1178 ± 0,5 mm	25 ± 0,5 mm	52	C
2	0,45	1178 ± 0,5 mm	25 ± 0,5 mm	61	S

### General features

Geometry: Multichannel tubular  
 Support materials: TiO<sub>2</sub> – Al<sub>2</sub>O<sub>3</sub>  
 Membrane materials: ZrO<sub>2</sub> or TiO<sub>2</sub>  
 End sealing: 1 mm or 16 mm

### Thermal and chemical resistance

Maximum Temperature : Up to 150°C  
 Sterilization : 121°C  
 Sterilization by oxidizing agents : yes

### Membranes pore size and cut-off

Microfiltration : 1,0µm 0,8µm 0,45µm 0,2µm 0,1µm HR  
 Ultrafiltration : 300 kD HF, 150 kD, 50 kD, 15 kD, 8 kD  
 Nanofiltration\* : 5 kD, 1 kD

\* Nanofiltration product are shaped with 19, 31 & 61 channel geometries

### Mechanical and chemical resistance

Maximum TransMembrane Pressure: 10 bar  
 Bursting pressure: 80 bar  
 pH range: 0 à 14  
 Unaffected by solvents and radiation



# Kleansep™ modules

## Kleansep™ modules technical features

MODULES GEOMETRY		Membrane area per module depending on the membranes (m <sup>2</sup> )						
Number of membranes	Modules Code	X	E	D	W	H	C	S
		7	8	12	19	31	52	61
1 membrane	Module K01	0,16	0,2	0,2	0,25	0,34	0,5	0,45
3 membranes	Module K03	0,48	0,6	0,6	0,75	1,02	1,5	1,35
7 membranes	Module K07	1,12	1,4	1,4	1,75	2,38	3,5	3,15
19 membranes	Module K19	3,04	3,8	3,8	4,75	6,46	9,5	8,55
37 membranes	Module K37	5,92	7,4	7,4	9,25	12,58	18,5	16,65
67 membranes	Module K67	10,72	13,4	13,4	16,75	24,48	33,5	30,15
99 membranes	Module K99	15,84	19,8	19,8	24,75	33,66	49,5	44,55
138 membranes	Module K138	22,08	27,6	27,6	34,5	46,92	69	62,1

### Housing general features

Steel type:
 

- Inox 316L
- Inox 316Ti
- Titanium
- Uranus B6 (904L)
- Hastelloy C22
- Hastelloy C276

Connection type:
 

- Clamp
- Flange (ISO,ANSI or DIN)

### Gaskets general features

Gaskets type:
 

- Single gasket / module
- Individual gasket / membrane

Gaskets elastomer materials:
 

- NBR
- EPDM
- FPM
- SILICONE