

ABSOLUTE PES

Asymmetric membrane in hydrophilic polyethersulfone

Technical characteristics

- Hydrophilic polyethersulfone membrane with asymmetric pore structure, with no electric charge
- Absolute porosity 0.2µm - 0.45µm - 0.65µm - 0.8µm - 1.2µm, the microbiological protection is defined by specific microorganisms
- Membrane integrity testable multiple times
- Wide compatibility with regenerating and sanitizing products
- Food grade
- Configuration suitable for frequent chemical regeneration

Microbiological retention

- Logarithmic reduction (LRV) is calculated as follows:

$$LRV = \log_{(10)} = \frac{\text{Number of microorganisms upstream of filter}}{\text{Number of microorganisms downstream of filter}}$$

- The Health Industry Manufacturers Association (HIMA) considers as sterile for a given microorganism, filters that have LRV equal to or greater than 7.

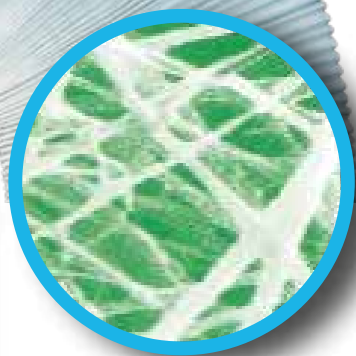
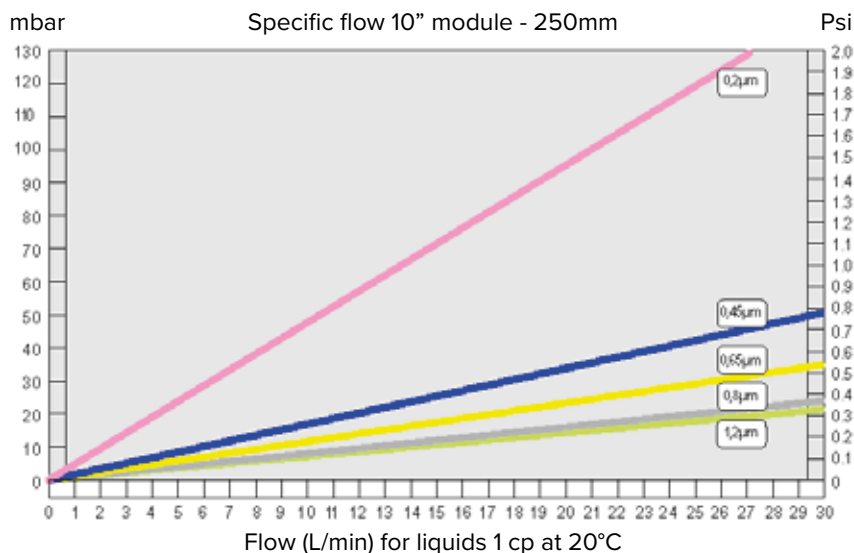
	0.2 µm	0.45 µm	0.65 µm	0.8 µm	1.2 µm
<i>P. diminuta</i>	S	R			
<i>L. Oenos</i>	S	S	R	R	
<i>Acetobacter</i>	S	S	R	R	
<i>Brettanomyces</i>	S	S	R	R	
<i>S. Cerevisiae</i>	S	S	S	S	S

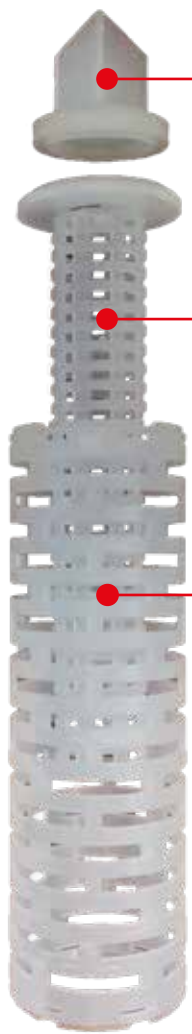
S = Sterile

R = Accentuated reduction

Validation

- The membranes used in **ABSOLUTE PES** cartridges are tested and validated.
- All **ABSOLUTE PES** cartridges are subjected to a double integrity test:
 - every single module before assembly
 - the entire filter element assembled before delivery
- This exclusive DANMIL validation system ensures the absolute integrity of the filter element.





Terminal with no internal cavity.

Weldings made for heavy duty applications, with high temperature and pH excursions.

The tolerance between cage and pleated filter plate allows dilatation during thermal excursions.



Detail of the welding, excluding "traps" or fluid retention.



Filter elements are fluxed with extra pure water and then dehydrated with hot and sterile air flow.



The stainless steel ring is a reinforcement to maintain the joint size stable, it is detachable for disposal.

Construction materials

Filter membrane	Asymmetric hydrophilic polyethersulfone
Support and drainage layers	Polyester
Internal and external cage	Polypropylene
End supports	Nylon
Reinforcing ring	Stainless steel aisi 316 L
Standard 'O' rings	Silicone
Material coupling	Thermowelding
Filter plate coupling	Ultrasound

Operational data

Filter surface	0.65 m ² for a 250 mm module (10")
Max operating temperature	80°C
Max Δp operating at 20°C	5 Bar (72.5 PSI)
Max Δp at 121°C with steam	0.3 Bar (4.3 psi)

Regeneration and sanitation

- **ABSOLUTE PES** cartridges can be repeatedly regenerated with hot water (max 80°C), sterilized with steam up to 121°C. They can also be used in hot caustic cycle, even with peroxide.
- DANMIL technical office can provide compatibility technical details but above all validations for complete work cycles.

Integrity test

		0.2 μm	0.45 μm	0.65 μm	0.8 μm	1.2 μm
BUBBLE POINT	bar	3.1	1.7	1.2	1.0	0.8
	psi	44	24	17	14	11
PRESSURE TEST	bar	2.5	1.4	1.0	0.8	0.6
	psi	36	20	14	11	8
MAX. DIFFUSION FLOW FOR MODULE (AIR)	ml/min	25	25	25	25	25
MAX. DIFFUSION FLOW FOR MODULE (NITROGEN)	ml/min	23	23	23	23	23

ABSOLUTE PES FILTER ELEMENTS ARE PACKAGED IN WHITE ROOM. THE RIGID CARDBOARD PACKAGE HAS ANTI-SHOCK TERMINAL PARTICULARS.