MINIPILOT and POLYPILOT

Data sheet

Crossflow filtration pilots system with ceramic and/or polymeric membranes

The MINIPILOT and the POLYPILOT are crossflow filtration units used to test various membranes (ceramic or polymeric materials, cut-off, etc.). Depending on your project phase:

- The MINIPILOT is a laboratory tool adapted to preliminary feasibility studies of filtration processes and to test the performance of different types of membranes.
- The POLYPILOT is a semi-industrial pilot with industrial-scale membranes, to design a filtration system and study the process parameters (flowrate, pressure drop, transmembrane pressure, tangential flow velocity, temperature, etc.)

Your project phase: from the MINIPILOT to the POLYPILOT

MINIPILOT

- Laboratory pilot
- Permeate flowrate 2 l/h max.*
- Tank 5 liters
- Ceramic tubular membrane, monochannel (MicroKleansep™) and polymer membrane (Rayflow®)
- Power supply: 220V
- Microfiltration, Ultrafiltration

Why MINIPILOT is unique?

→ Quick test of feasibility (is it filterable or not?)
→ Comparison ceramic and polymeric membrane
→ Low volume tank
→ Easy to use (assembling, dismantling and operating)

POLYPILOT

- Semi-industrial pilot with industrial-scale membrane
- Permeate flowrate 150 l/h max.*
- Tank 25 liters
- Ceramic tubular membrane, multichannel (Kleansep™) and polymer spiral membrane (Persep™)
- Power supply: 380V
- Microfiltration, Ultrafiltration, Nanofiltration, Reverse Osmosis

Why POLYPILOT is unique?

→ Feasibility study with industrial-scale membranes used in the industrial filtration system
→ Support the process design
→ Studies of process parameters (flowrate, pressure drop, volume concentration factor, cleanability, transmembrane pressure, temperature)
→ Cleaning and regeneration analysis

(*) Depends on the type of product filtered and type of membrane. Permeate flowrate value: 250 LMH
How the pilots systems work

**MINIPILOT**

- Footprint Length x Width x Height: 950 x 600 x 1000 mm
- Materials in contact with liquid: Stainless steel 316L and EPDM or FPM or NBR gaskets (seals)
- Unloaded weight: 70 kg
- Circulation flowrate: 0 to 500 l/h
- Pressure range: 0 to 4 bar
- Electricity: 220V
- Power: 0.4 kW
- Operating volume tank: from 1 to 5 liters
- Filtration type: MF/UF
- Instruments: Indicators (Local display)
- Possible options: Thermoregulator group

**POLYPILOT**

- Footprint Length x Width x Height: 1100 x 950 x 1765 mm
- Materials in contact with liquid: Stainless steel 316L and EPDM or FPM or NBR gaskets (seals)
- Unloaded weight: 290 kg
- Circulation flowrate: 0 to 4000 l/h
- Pressure range: 0 to 40 bar (60 bar on demand)
- Electricity: 380V 3-phase
- Power: 3 kW
- Operating volume tank: from 8 to 25 liters
- Filtration type: MF/UF/NF/OI
- Instruments: Indicators (Local display)
- Possible options: Digital sensor, Electrical heater, Backpulse/Backwash

**MODULES and MEMBRANES**

<table>
<thead>
<tr>
<th>Range</th>
<th>MicroKleansep™</th>
<th>Rayflow®</th>
<th>Kleansep™</th>
<th>Persep™</th>
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</thead>
<tbody>
<tr>
<td>Membrane area:</td>
<td>80 cm²</td>
<td>2 x 125 cm²</td>
<td>from 0.15 to 0.5 m²</td>
<td>2.5 m²</td>
</tr>
<tr>
<td>Membrane geometry:</td>
<td>Monochannel L : 400 mm Ø ext. 10 mm</td>
<td>Flat sheet 75 x 160 mm</td>
<td>Multichannel L : 1178 mm Ø ext. 25 mm</td>
<td>Spiral wound 2540</td>
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<tr>
<td>Maximum transmembrane pressure:</td>
<td>4 bar</td>
<td>4 bar</td>
<td>10 bar</td>
<td>40 bar</td>
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<tr>
<td>Maximum temperature:</td>
<td>80°C</td>
<td>50°C</td>
<td>100°C</td>
<td>45°C</td>
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<tr>
<td>Module material:</td>
<td>Stainless steel 316L</td>
<td>PMMA</td>
<td>Stainless steel 316L</td>
<td>Stainless steel 316L</td>
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<tr>
<td>Membrane material:</td>
<td>Oxide-based ceramic</td>
<td>PAN or PVDF or PES</td>
<td>Oxide-based ceramic</td>
<td>Depending on membrane</td>
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<tr>
<td>Hydraulic diameter/ Liquid path thickness:</td>
<td>6 mm</td>
<td>0,5 and 1,5 mm</td>
<td>6 - 5 - 4,5 - 3,5 - 2,8 - 2,2 - 2 mm</td>
<td>Depending on membrane</td>
</tr>
<tr>
<td>pH :</td>
<td>0-14</td>
<td>3-10</td>
<td>0-14</td>
<td>Depending on membrane</td>
</tr>
<tr>
<td>Cut-off:</td>
<td>Microfiltration: 0.45 µm, 0.2 µm, 0.1 µm HR</td>
<td>from 30 nm (~150 kD) to 200 nm</td>
<td>Microfiltration: 1,0 µm, 0.8 µm, 0.45 µm, 0.2 µm, 0.1 µm HR</td>
<td>Microfiltration: 0.1 µm</td>
</tr>
<tr>
<td></td>
<td>Ultrafiltration: 300 kD HF, 150 kD, 50 kD, 15 kD</td>
<td></td>
<td>Ultrafiltration: 300 kD HF, 150 kD, 50 kD, 15 kD, 8 kD</td>
<td>Ultrafiltration: 300 kD, 150 kD, 50 kD, 15 kD</td>
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<td></td>
<td></td>
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<td>Nanofiltration: 150 D and 300 D</td>
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<td>Reverse osmosis</td>
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**Contacts**

Europe: +33 (0)4 66 85 95 36
North America: +1 857 504 2250
Asia: +86 (0)21 6350 3377

orelis@alsys-group.com
www.alsys-group.com