

## Crossflow filtration pilot systems with ceramic and/or polymeric membranes

The MINIPILOT and the POLYPILOT are versatile crossflow filtration units used to test ceramic or polymeric membranes.

- The MINIPILOT is a laboratory equipment designed to perform preliminary feasibility studies.
- The POLYPILOT 150 can be used for testing one module with one tubular multi-channel ceramic membrane, or one module with 2,5" spiral wound membrane. This unit can be used to study the process parameters (flowrate, pressure drop, transmembrane pressure, tangential flow velocity, temperature, etc.) needed in order to design a full-scale system at optimum design conditions.
- The POLYPILOT 500 can be used for testing one module with three tubular multi-channel ceramic membranes, or two modules with 4" spiral wound membrane. This unit can be used to acquire process design data or used as a small production unit.

## Wide range of process capacities

### Laboratory pilot

### Semi-industrial pilot with full-scale membranes



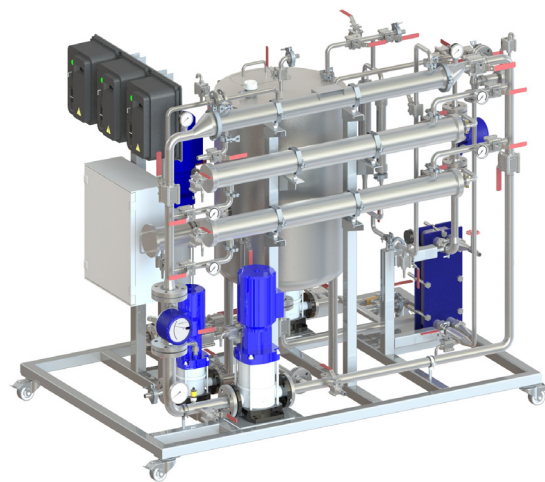
**MINIPILOT**

- Permeate flowrate 2 l/h max.\*
- 5 l tank
- Tubular mono-channel ceramic MF, UF
- Flat-sheet polymeric MF, UF



**POLYPILOT 150**

- Permeate flowrate 150 l/h max.\*
- 25 l tank
- Tubular multi-channel ceramic MF, UF, NF
- Spiral wound polymeric MF, UF, NF, RO



**POLYPILOT 500**

- Permeate flowrate 500 l/h max.\*
- 200 l tank
- Tubular multi-channel ceramic MF, UF, NF
- Spiral wound polymeric MF, UF, NF, RO

(\*) Depends on the type of filtered product and type of membrane. Permeate flux value: 250 LMH

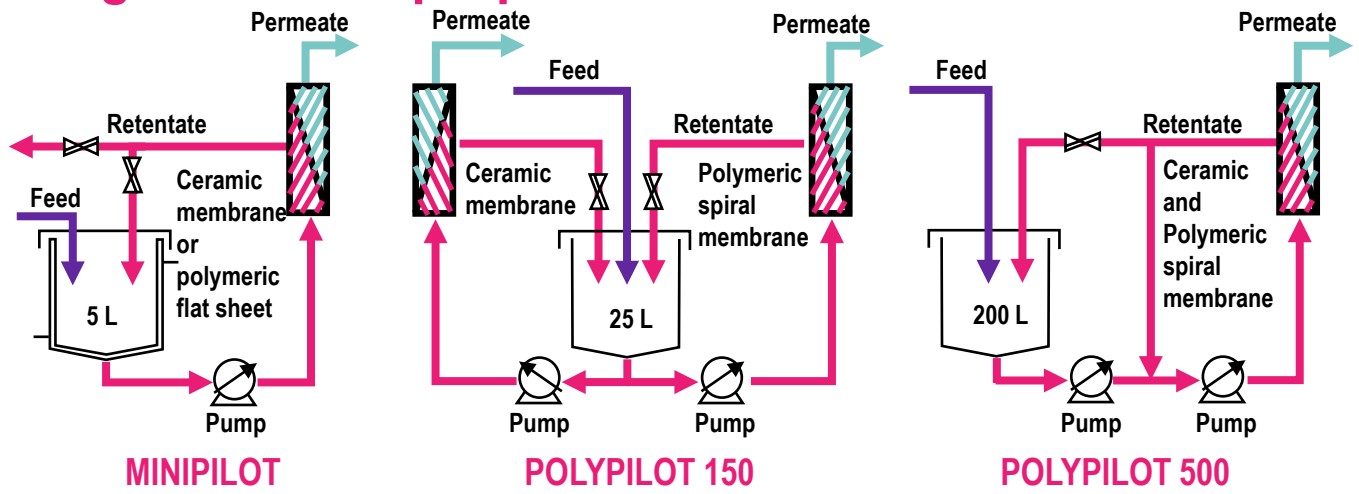
## MINIPILOT features

- Quick results
- Ceramic and polymeric laboratory membrane
- Low working volume
- Easy set up and operation

## POLYPILOT features

- Process results are directly scalable to a full-scale system
- Enables parametric study of the key process parameters, (including flowrate, pressure drop, concentration factor, cleanability, transmembrane pressure, and temperature)
- A pilot with closed loop
- A small batch production unit with low power consumption
- Operation with either ceramic or polymeric full-scale membranes

# Operating mode and properties



| Length x Width x Height                   | 950 x 600 x 1000 mm   |  | 1100 x 950 x 1765 mm   |  | 1990 x 1290 x 1760 mm  |  |
|---|---|--|--|--|--|--|
| Wetted surfaces                           | 316L stainless steel and EPDM or FPM or NBR gaskets (seals)   |  |  |  |  |  |
| Empty weight                              | 70 kg   |  | 290 kg   |  | 600 kg   |  |
| Circulation flowrate                      | 0 to 500 l/h  |  | 0 to 4000 l/h  |  | 0 to 13000 l/h   |  |
| Pressure range                            | 0 to 4 bar  |  | 0 to 40 bar (60 bar optional)  |  | 0 to 40 bar  |  |
| Electric power supply                     | 220 V   |  | 2 x power plugs 380 V 3-phase  |  | 1 x power plugs 380 V 3-phase  |  |
| Circulation pump motor                    | 0,4 kW  |  | 3 kW   |  | 6 kW   |  |
| Mini and maxi working volume              | 1 - 5 l   |  | 8 - 25 l   |  | 20 - 200 l   |  |
| Membrane type                             | MF / UF   |  | MF / UF / NF / RO  |  | MF / UF / NF / RO  |  |
| Instruments                               | Indicators (local display)  |  |  |  |  |  |
| Tank                                      | 5 l   |  | 25 l   |  | 200 l  |  |
| Options                                   | Thermoregulator group   |  | Digital sensor, Electrical heater, Backpulse / Backwash  |  |  |  |
|   | MicroKleansep™  | Rayflow®   | Kleansep™  | Persep™  | Kleansep™  | Persep™  |
| Membrane area                             | 80 cm <sup>2</sup>  | 2 x 125 cm <sup>2</sup>                                  | from 0,15 to 0,5 m <sup>2</sup>  | 2,5 m <sup>2</sup>   | from 0,45 to 1,5 m <sup>2</sup>  | 4 m <sup>2</sup> - 14 m <sup>2</sup>   |
| Membrane geometry                         | Tubular mono-channel<br>400 mm long   | Flat-sheet   | Tubular multi-channel<br>1178 mm long  | Spiral wound<br>2,5"   | Tubular multi-channel<br>1178 mm long  | Spiral wound<br>4"   |
|   | Ø ext. 10 mm  | 75 x 160 mm  | Ø ext. 25 mm   | 2540   | Ø ext. 25 mm   | 3838-3840-4040   |
| Membrane type                             | Ceramic   | Polymer  | Ceramic  | Polymer  | Ceramic  | Polymer  |
| # of membranes / module                   | 1   | 1  | 1  | 1  | 3  | 1  |
| Maximum transmembrane pressure            | 4 bar   | 4 bar  | 10 bar   | 64 bar   | 10 bar   | 40 bar   |
| Maximum temperature                       | 80°C  | 50°C   | 100°C  | 45°C   | 100°C  | 45°C   |
| Module material                           | 316L stainless steel  | PMMA   | 316L stainless steel   |  |  |  |
| Membrane material                         | Oxide-based ceramic   | PAN or PVDF or PES                                       | Oxide-based ceramic  | Depending on membrane  | Oxide-based ceramic  | Depending on membrane  |
| Hydraulic diameter/ Liquid path thickness | 6 mm  | 0,5 and 1,5 mm   | 6 - 5 - 4,5 - 3,5 - 2,8 - 2,2 - 2 mm   |  | 6 - 5 - 4,5 - 3,5 - 2,8 - 2,2 - 2 mm   |  |
| pH  | 0-14  | 3-10   | 0-14   |  | 0-14   |  |
| Cut-off                                   | <b>Microfiltration</b><br>0,45 µm, 0,2 µm, 0,1 µm HR<br><b>Ultrafiltration</b><br>300 kD HF, 150 kD, 50 kD, 15 kD | <b>Ultrafiltration</b><br>from 30 nm (~150 kD) to 200 nm | <b>Microfiltration</b><br>1,0 µm, 0,8 µm, 0,45 µm, 0,2 µm, 0,1 µm HR<br><b>Ultrafiltration</b> :<br>300 kD HF, 150 kD, 50 kD, 15 kD, 8 kD<br><b>Nanofiltration</b><br>5 kD, 1 kD (19, 31 & 61 channels only) | <b>Microfiltration</b><br>0,1 µm<br><b>Ultrafiltration</b><br>300 kD, 150 kD, 50 kD, 15 kD<br><b>Nanofiltration</b> :<br>150 D and 300 D<br><b>Reverse osmosis</b> | <b>Microfiltration</b><br>1,0 µm, 0,8 µm, 0,45 µm, 0,2 µm, 0,1 µm HR<br><b>Ultrafiltration</b><br>300 kD HF, 150 kD, 50 kD, 15 kD, 8 kD<br><b>Nanofiltration</b><br>5 kD, 1 kD (19, 31 & 61 channels only) | <b>Microfiltration</b><br>0,1 µm<br><b>Ultrafiltration</b><br>300 kD, 150 kD, 50 kD, 15 kD<br><b>Nanofiltration</b><br>150 D and 300 D<br><b>Reverse osmosis</b> |

## Contacts ☎:

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