MINIPILOT and POLYPILOT

Technical 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

Laboratory pilot → Milestone → **Semi-industrial pilot with industrial-scale membrane** → Milestone → **Industrial membrane filtration system**

MINIPILOT

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

POLYPILOT

- 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 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)**

Why POLYPILOT is unique ?

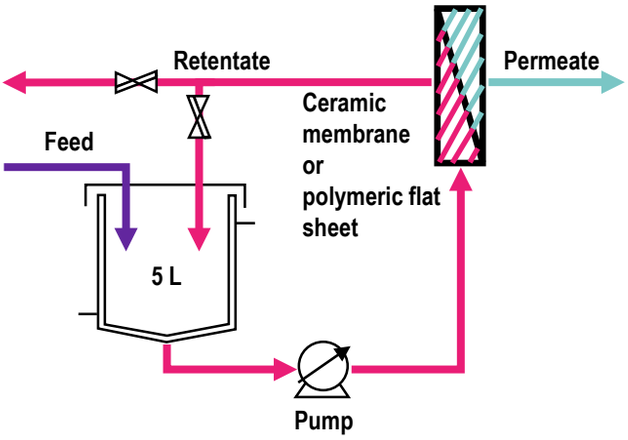
- → **Feasibility study with industrial-scale membranes used in the industrial filtration system**
- → **Support the process design**
- → **Studies of process parameters (flowrate, pressure drop, volume concentration factor, cleanability, transmembrane pressure, temperature)**
- → **Cleaning and regeneration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

WATER & MEMBRANES

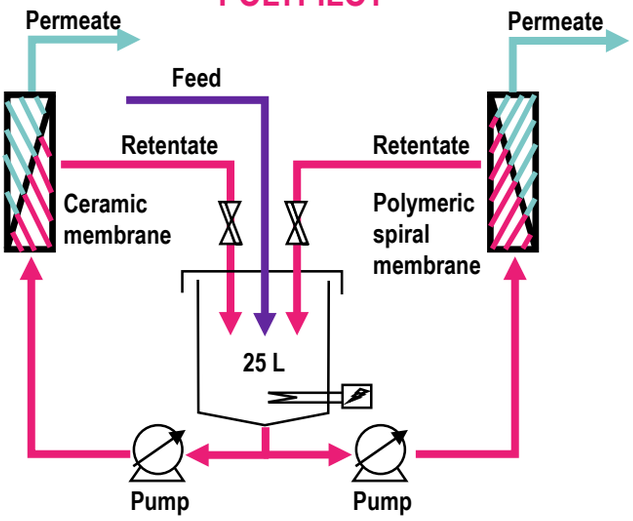
(*) Depends on the type of product filtered and type of membrane. Permeate flowrate value: 250 LMH

How the pilots systems work

MINIPILOT



POLYPILOT



Performances

	MINIPILOT	POLYPILOT
DESIGN		
Footprint Length x Width x Height:	950 x 600 x 1000 mm	1100 x 950 x 1765 mm
Materials in contact with liquid:	Stainless steel 316L and EPDM or FPM or NBR gaskets (seals)	
Unloaded weight:	70 kg	290 kg
Circulation flowrate:	0 to 500 l/h	0 to 4000 l/h
Pressure range:	0 to 4 bar	0 to 40 bar (60 bar on demand)
Electricity:	220V	2 x power plugs 380V 3-phase
Power:	0,4 kW	3 kW
Operating volume tank:	from 1 to 5 liters	from 8 to 25 liters
Filtration type:	MF/UF	MF/UF/NF/OI
Instruments:	Indicators (Local display)	
Possible options:	Thermoregulator group	Digital sensor, Electrical heater, Backpulse/Backwash

MODULES and MEMBRANES

Range	MicroKleansep™	Rayflow®	Kleansep™	Persep™
Membrane area:	80 cm²	2 x 125 cm²	from 0,15 to 0,5 m²	2,5 m²
Membrane geometry:	Monochannel L : 400 mm Ø ext. 10 mm	Flat sheet 75 x 160 mm	Multichannel L : 1178 mm Ø ext. 25 mm	Spiral wound 2540
Maximum transmembrane pressure:	4 bar	4 bar	10 bar	40 bar
Maximum temperature:	80°C	50°C	100°C	45°C
Module material:	Stainless steel 316L	PMMA	Stainless steel 316L	Stainless steel 316L
Membrane material:	TiO_2 - ZrO_2	PAN or PVDF or PES	TiO_2 - ZrO_2	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	Depending on membrane
pH :	0-14	3-10	0-14	Depending on membrane
Cut-off:	Microfiltration: 0,45 µm, 0,2 µm, 0,1 µm HR Ultrafiltration: 300 kD HF, 150 kD, 50 kD, 15 kD	from 30 nm (~150 kD) to 200 nm	Microfiltration: 1,0 µm, 0,8 µm, 0,45 µm, 0,2 µm, 0,1 µm HR Ultrafiltration: 300 kD HF, 150 kD, 50 kD, 15 kD, 8 kD Nanofiltration: 5 kD, 1 kD (only 19, 31 & 61 channels)	Microfiltration: 0,1 µm Ultrafiltration: 300 kD, 150 kD, 50 kD, 15 kD Nanofiltration: 150 D and 300 D Reverse osmosis

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