

# Free Flow Plate™ Cross Flow Pilot Plants

The perfect MF and UF cross flow filtration pilot plant solution. Low fouling continues filtration where the filter is kept clean by cross flow shear.

The Free Flow Plate™ pilot plants are exceptional for gaining insight into filtration processes, for selecting the right membranes and for filtering or separating almost any media in a development or even a small production set-up. The ability to work with small samples makes it the perfect tool for process development in biotech, pharma, food etc.

The pilot plants have a 2 or 4 m<sup>2</sup> membrane module utilizing 6 or 12 Free Flow Plate™ Pilot elements (HPP) respectively. Due to the open design of the 0,35 m<sup>2</sup> HPP, the pilot plants can handle very demanding feeds with high viscosity, high mass loadings and even high particulates.

Individual permeate outlets from each HPP element makes it possible to use several different membranes in the same experiment series. Thus, membrane selection for a given application is made straight forward.

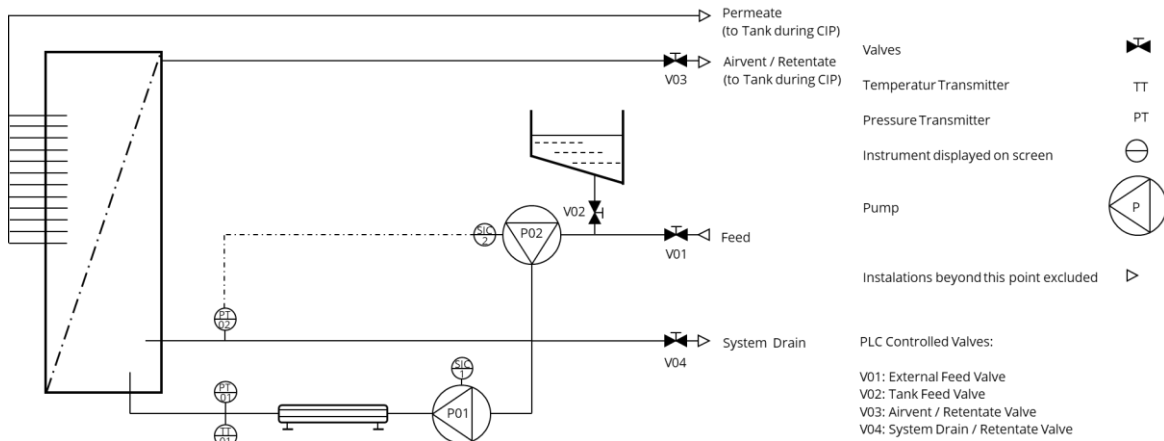
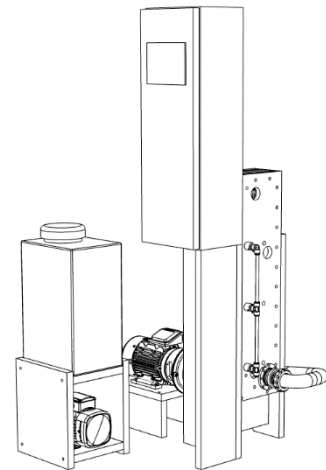
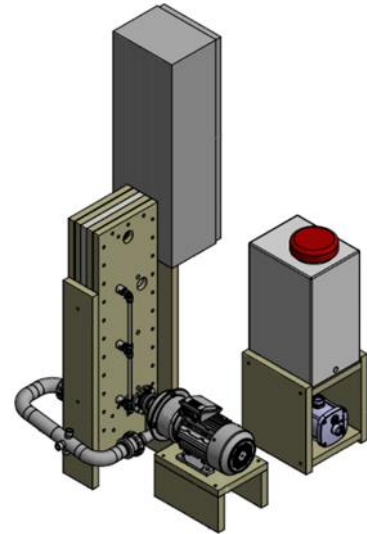
The pilot plants have clear polymer windows giving excellent visibility of the membrane during operation and cleaning. A groundbreaking feature that makes it possible to visually follow fouling build-up and membrane cleaning processes.

The standard pilot plants are easy to use with manual valves, PLC controlled centrifugal pumps, limited instrumentation and an optional heat exchanger. The standard pilot plants can however be customized with additional instrumentation and automation if required.

All temperatures, pressures and pump speeds are logged automatically for later analysis.

All media contacting parts are in durable polymeric materials or stainless steel. The Free Flow Plate™ pilot plants can conform to FDA materials and sanitary standards if required.

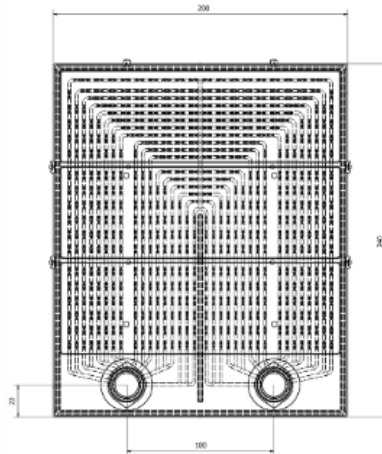
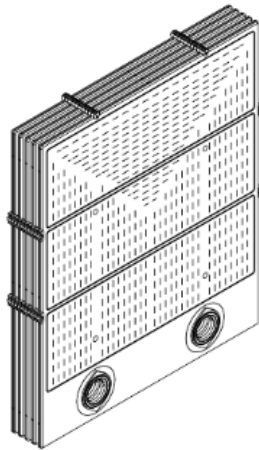
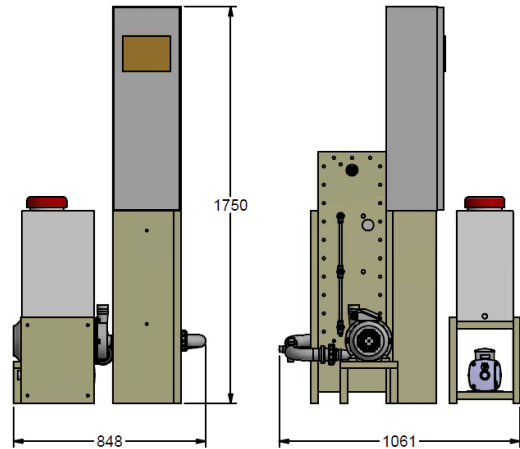
SANI Membranes can also design and produce a custom pilot plant from scratch - tailored for your specific application and special needs. Pilots utilizing the industrial 2,5 m<sup>2</sup> HP1 module are also possible.



# Technical Data Free Flow Plate™ Pilot Plants and HPP Modules

Free Flow Plate™ Pilot Plant Data	
Membrane Type	Free Flow Plate Pilot Elements - HPP
Membrane Area	2,1 m <sup>2</sup> (6 x 0,35 m <sup>2</sup> ) or 4,2 m <sup>2</sup> (12 x 0,35 m <sup>2</sup> )
Dimensions (L x W x H)	1061 mm x 848 cm x 1750 cm
Pressurized Air	6 bar
Pressure Pump	0,43 kW 400 V AC 2900 RPM Centrifugal Pump
Circulation Pump	2,2 kW 400V AC 2900 RPM Centrifugal Pump
Feed/CIP Tank	40 L
Dead Volume	6 L for 2,1 m <sup>2</sup> version and 9 L for 4,2 m <sup>2</sup> version
Instruments*	2 Frequency Converters 2 Electronic Pressure Transducers (0-6 bar) 1 Temperature Transducer (0-100°C)
Viscosity Range, Apparent	1-1000 cP (e.g. Cream Cheese+)
Temperature Range	5-85°C
Flow	Feed inlet 0-4 m <sup>3</sup> /h, circulation flow 0-15 m <sup>3</sup> /h
Operating Pressure	0-10 bar

\*Standard Pilot Plant, additional instruments and heat exchanger can be fitted



Free Flow Plate™ Pilot Element (HPP) Data	
Generic Design	Free Flow Plate™. Fused Polypropylenes
Membrane Type	Most organic membranes (MF, UF, and other filter types)
Membrane Area	0,35 m <sup>2</sup>
Dimensions (L x W x H)	242 mm x 30 mm x 202 mm
Viscosity Range, Apparent	1-1000 cP (e.g. Cream Cheese+)
Temperature Range	5-85°C
pH Range	1-14
Operating Pressure	0-10 bar
Free Chlorine	Membrane dependent

The HPP can be equipped with your membrane of choice. SANI Membranes have a line of standard MF and UF membranes from Synder, Microdyn-Nadir and others on stock. Most commercial available membranes can however also be used with the HP1. Please, do not hesitate to contact us with your membrane wishes.

**SANI**   
Membranes

MORE FILTRATION, LESS ENERGY

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