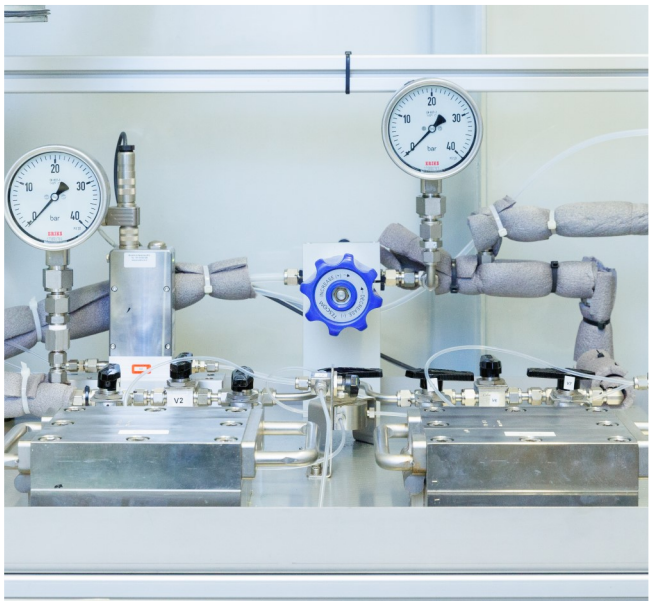
ORGANIC SOLVENT NANOFILTRATION BENCHTOP

BASIC DESCRIPTION

The organic solvent nanofiltration benchtop unit is suitable for laboratory testing of (organic solvent) membranes in a crossflow setting. It enables testing of up to 2 membranes simultaneously, including both flat-sheet (DIN A7 size) and tubular (10x250mm, 10x100mm) formats. It is equipped with a permeate flowmeter based on the Coriolis principle, allowing for logging of volumetric– and mass flows as well as the permeate density. Full recycle, batch concentration and diafiltration operational modes can be applied. The unit is temperature controlled, allowing for membrane testing at elevated temperatures at operational pressures up to 40 barG.



UNIT CHARACTERISTICS

- 2x DIN A7 flat sheet membrane housing
- Tubular housing for 10 x 250 mm membranes
- Tubular housing for 10 x 100 mm membranes
- Flow meters for feed flow, permeate flow and crossflow
- Chemically resistant (ATEX compliant) feed– and recirculation pumps
- Flexible usage of vessels, depending on type of operational mode

TYPICAL APPLICATIONS

Testing of flat-sheet or tubular membranes:

- Membrane separation performance testing
- Molecular weight cut-off (MWCO) determination
- Determination of osmotic pressure of solution at several operating conditions
- Fouling potential testing including determination of the influence of crossflow velocity

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UNIT SPECIFICATIONS

Parameter	Value
Max. number of membrane modules	2 pcs
Feed vessel volume	0.5—5.0 liter
Permeate vessel volume	0.1—5.0 liter
Unit dimensions (l x w x h)	1400 x 600 x 2000 mm
Unit weight	60 kg

MODULE SPECIFICATIONS

Parameter	Value
Effective area of flat sheet module (DINA7)	39.6 m^2
Effective area of tubular module (10x100mm)	18.8 cm^2
Effective area of tubular module (10x250mm)	47.1 cm^2
Spacer thickness (flat sheet)	0.7 mm
Flat sheet module dimension (l x w)	50.1 x 79.1 mm
Tubular module (10x100mm) dimension (l x id x od)	100 x 6 x 10 mm
Tubular module (10x250mm) dimension (l x d)	250 x 6 x 10 mm

OPERATING WINDOW

Parameter	Value
Feed flow range	0.1—40 $mLmin^{-1}$
Crossflow velocity range flat sheet module (DINA7)	0.1—0.7 ms^{-1}
Crossflow velocity range tubular module (10x100mm)	0.2—1.6 ms^{-1}
Crossflow velocity range tubular module (10x250mm)	0.2—1.6 ms^{-1}
Operational temperature range	20—50 °C
Operational pressure range	0—40 barG
Permeate flowmeter range	0.00—10.00 $mLmin^{-1}$