



Pilot Laboratory Equipment for Membrane Filtration

LabStak® M20

Flexible plate-and-frame test unit for RO, NF, UF, and MF flat sheet membranes and membrane filtration processes. The ideal unit for research and developmental work, quality assurance, as well as pilot plant process optimisation.

The LabStak® M20 will be your partner of choice, if dependable and reproducible results are crucial to your work.

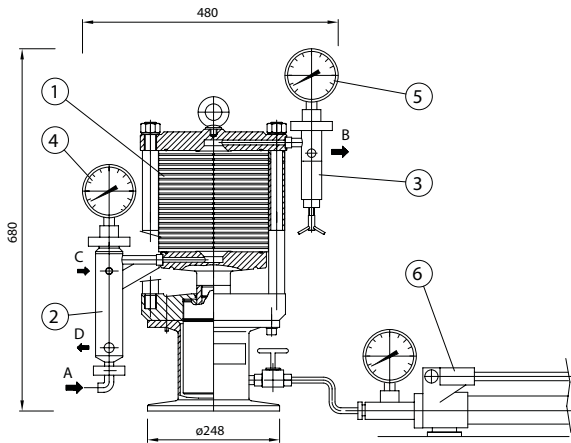
Option

Easily convertible into spiral wound test unit for sanitary full-fit 2.5" test spirals by insertion of optional Lab M20- 2.5" housing. Please contact Alfa Laval for individual applications.

Advantages

- Ideal unit for R&D and test work, membrane screening, quality assurance, pilot plant process optimization and upscaling, as well as small-scale production
- Perfect combination of plate-and-frame and spiral wound technologies in one unit
- Flexibility
 - membrane areas from 0.036 to 0.72 m² (0.018 m² per membrane)
 - simultaneous test of different membrane types
 - separate permeate outlet from each individual membrane pair
 - high operation temperature and pressure (0-60°C at 64 bar, up to 90°C at 5 bar)
 - variation of cross-flow from 3.5 to 24 l/min.
 - 2.5" spiral element can be inserted between the module flanges
- Quick and simple change of membranes and spiral element
- All product wetted materials are in compliance with FDA regulations
- Compact space-saving design
- Two external stay bolts and a low end flange with full stroke permit quick and simple alteration of the module membrane area. Any area between 0.036 and 0.72 m² (divisible by 0.036) can be inserted without use of additional tool.





All dimensions are in mm

Pos. Description of parts included

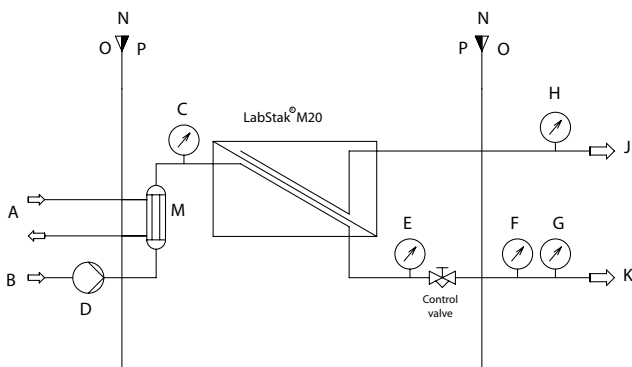
- 1 Spacer and support plates with permeate outlets and hoses
- 2 Heat exchanger
- 3 Retentate adjusting valve
- 4 Feed pressure gauge
- 5 Retentate pressure gauge
- 6 Hydraulic tool
- A Feed inlet
- B Retentate outlet
- C Cooling/heating medium inlet/outlet
- D Cooling/heating medium outlet/inlet

LabStak® M20 data	Values
Number of support plates	20
Number of spacer plates	21
Number of flat sheet membranes	40
Membrane area	0.036 – 0.72 m ²
Max. inlet pressure*	64 bar
Max. operating temperature*	90°C
Operating pH range*	1 – 14
Module weight	71 kg
Cross-flow	3.5-15 l/min.
Liquid capacity	0.27 litres + 2.14 litres/m ² membrane area

* depending on membrane type

Module parts	Material
All external steel	Stainless, AISI 304
Internal, product wetted steel	Acid resistant, AISI 316L
Support and spacer plates	Polysulphone (PSO)
Permeate hose	Silicone Rubber (Si)
Gasket and o-ring	Nitrile rubber (NBR)
Membrane lock ring	Polypropylene (PP)

Connections	Size
Cross-flow in-/outlets	3/8" BSP inlet socket, 1/2" outlet hose connector
Heat exchanger in-/outlets	1/4" BSP sockets
Permeate hose outlets	ø 1.3/3.5 mm connectors



Flow diagram of typical installation

- A = Cooling/heating
- B = Feed
- C = Pressure
- D = Pump
- E = Pressure
- F = Temperature
- G = Flow
- H = Flow
- J = Permeate
- K = Retentate
- L = Control valve
- M = Heat Exchanger
- N = Alfa Laval delivery limit
- O = Excl.
- P = Incl.