



Laboratory and Pilot Equipment Guide

Membrane testing is advisable in many projects for optimisation of the actual membrane process and subsequent downstream processing. It can also be used for making product samples for market evaluation of a new product or to optimise existing installations.

Alfa Laval equipment can generate reliable scale-up results from laboratory to small-scale production volumes. The equipment is designed to meet almost any application requirement and is available with flat sheet and/or spiral membranes.

The Alfa Laval range can be used for testing starting with volumes as small as 1000 ml.

Equipment can be offered for purchase, rental or for use in one of our application test centres.



First screening considerations in your laboratory

- What will be the final product composition
- What type of membrane gives the best performance
- What membrane system configuration offers the most economical solution
- What is the optimum operation pressure and temperature
- What product purity and yield can be obtained by diafiltration mode operation
- What concentration factor can be achieved
- What type of cleaning procedure should be applied

The Alfa Laval units have been developed to give you the correct answers to these and other vital questions.

Small-scale processing

The Alfa Laval PilotUnit design is based on using plate-and-frame and spiral configuration identical to industrial scale for the study of membrane processes. Because data gathered from these units is so accurate and reliable, scale-up is just a question of mathematics!

Small-scale equipment allows you to conduct your own experiments in order to develop new processes and products.

Smooth production scale-up

For small-scale productions Alfa Laval offers rental equipment in a wide range of plate-and-frame and spiral pilot plants starting with a few m² and up to hundreds of m² membrane area in multiple stages for both batch and continuous mode operation including the option for running a diafiltration process.

On-going production optimisation

Where an existing membrane filtration system is installed, test units can be used to provide valuable data in the continuous optimisation and troubleshooting process, for example:

- Cleaning procedure testing
- Influence of change in upstream processing
- Influence of new membrane types on the actual process



				
	LabStak™ M10 LabUnit M10	LabStak™ M20 TestUnit M20	LabStak™ M39 PilotUnit Multi	MultiSystem
R&D work	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕	⊕ ⊕	⊕ ⊕
Laboratory work	⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕	⊕
Pilot work	⊕	⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕
Production work	⊕ (Batch & semi-batch)	⊕ ⊕ (Batch & semi-batch)	⊕ ⊕ ⊕ (Batch & semi-batch)	⊕ ⊕ ⊕ ⊕ (Batch, semi-batch & continuous)
Testing volume	1-3 litres	5-50 litres	50-500 litres	500 litres to several m³ (diafiltration option included)
Application	MF & UF	MF & UF NF & RO	MF & UF NF & RO	MF & UF NF & RO
Configuration	P&F M10	P&F M20 Spiral 2.5"	P&F M39 Spiral 3.8"	Spiral 8.0"
Membrane area	336 cm²	0.036 - 1 m²	2 - 14 m²	70 – 240 m²
Pressure*	0 - 7 bar	0 - 60 bar	0 - 40 bar	0 - 40 bar
Temperature*	1 - 80°C	1 - 80°C	1 - 80°C	1 - 80°C
Capacity	0.3 - 3 l/h	2 - 30 l/h	10 - 200 l/h	100 - 6000 l/h
Electrical power installed	0.4 kW	4 kW	11 kW 27 kW	38 kW

LabStak™ = only the membrane module and **Unit** = complete filtration system

*) Please consult the specifications available on alfalaval.com for the applied membrane type for more detailed information on the operation conditions.

The information contained herein is correct at the time of issue, but may be subject to change without prior notice.