



## Alfa Laval LabStak™ M20 module and TestUnit M20

### LabStak™ modules and LabUnits for membrane filtration

#### Introduction

To select the optimum process solution it is often advisable to conduct trials on a small scale.

The range of small-scale units offered by Alfa Laval is based on the unique plate-and-frame modules or the full-fit sanitary spiral membranes — or even a combination of both.

The unit sizes vary from only a few litres of test media volume in the Alfa Laval LabUnits to more than 1,000 litres in the Alfa Laval PilotUnits.

#### Applications

The Alfa Laval TestUnit M20 is the ideal tool for quick and reliable research and development work, membrane testing, process optimization and up-scaling. It is also a popular choice for quality assurance, educational work, small-scale production etc. while keeping equipment and set-up costs to a minimum.

It is possible to test all filtration processes: Reverse osmosis, nanofiltration, ultrafiltration and microfiltration.

#### Benefits

- fully integrated system on a wheeled stainless steel table
- compact and space-saving design
- unique combination of plate-and-frame and spiral wound technologies in one unit
- easy exchange of spiral and flat sheet membranes
- simultaneous test of different membrane types
- separate permeate outlet from each individual membrane pair
- flexible membrane areas from 0.036 m<sup>2</sup> to 0.72 m<sup>2</sup>
- high operating temperature and pressure
- testing volume of 5–50 litres
- all components manufactured in compliance with FDA and EEC regulations

#### Scope of supply

The Alfa Laval TestUnit M20 is a fully integrated and wheeled plate-and-frame system for operation with the entire range of Alfa Laval flat sheet membranes.

The unit comprises an Alfa Laval LabStak™ M20 module, high-pressure pump, tank, heat exchanger, valve, pressure gauges and hydraulic hand pump for module compression.



#### Option

As an option a special design **Alfa Laval M20–2517 housing** can be inserted between the flanges of the Alfa Laval LabStak™ M20 module for spiral membrane screening in continuation of preceding flat sheet membrane screening.



## Technical Data

Model	Alfa Laval LabStak™ M20 module	Alfa Laval TestUnit M20	Alfa Laval M20–2.5 housing
Code number <sup>1</sup>	517100	531010	531601
Membrane area, m <sup>2</sup>	0.036 — 0.72	0.036 — 0.72	0.5 — 1
Max. inlet pressure, bar <sup>2</sup>	60	60	60
Operating pH range <sup>2</sup>	1 — 13	1 — 13	1 — 13
Max. operating temperature, °C <sup>2</sup>	80	80	80
Cross-flow range, l/min.	5 — 10	5 — 24	15 — 24
Hold-up volume, l	0.27 + 2.14 l/m <sup>2</sup> membrane area	3 + 2.14 l/m <sup>2</sup> membrane area	2
Number of support plates	1 — 20	1 — 20	—
Number of spacer plates	2 — 21	2 — 21	—
Number of flat sheet membranes	2 — 40	2 — 40	—
Number of permeate outlets	1 — 20	1 — 20	—
Tank size, l	—	7.5	—

<sup>1</sup> Please specify code number when ordering

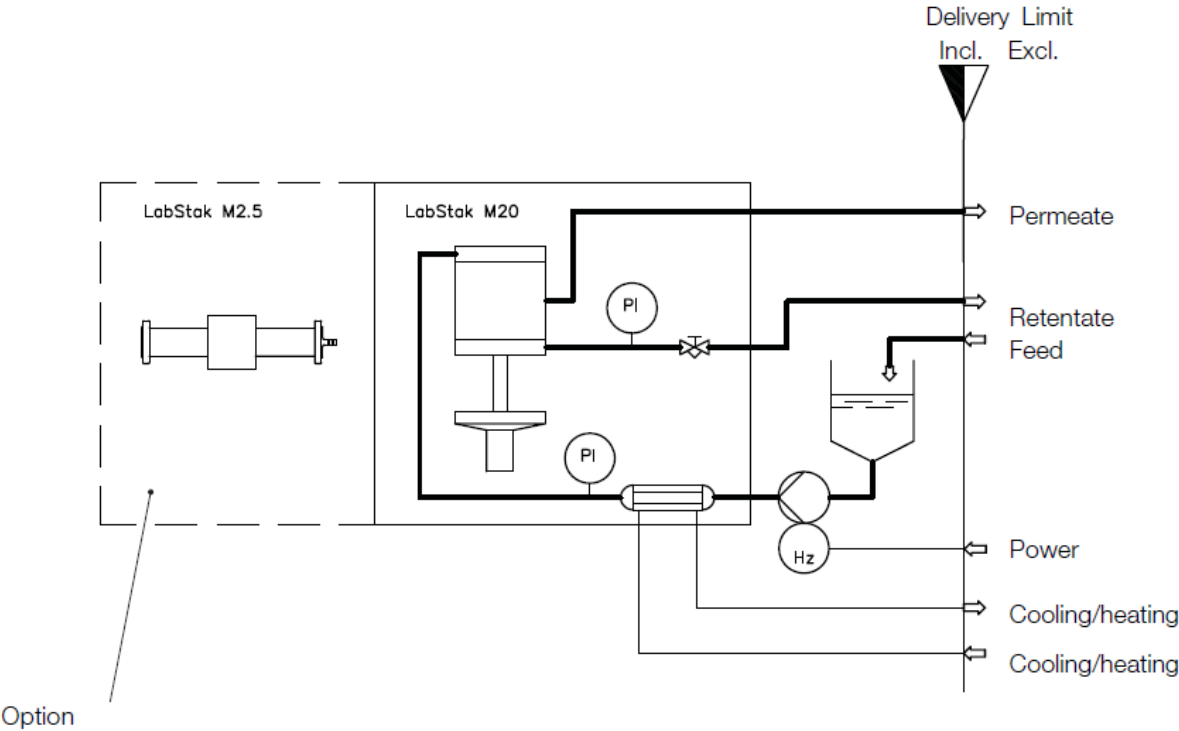
<sup>2</sup> For detailed information about operating conditions, please see the specifications for the membrane type applied

Dimensions	Alfa Laval LabStak™ M20 module	Alfa Laval TestUnit M20	Alfa Laval M20–2.5 housing
Length x width x height, mm	200 x 190 x 130	1090 x 590 x 1480	500 x 380 x 435
Weight, kg	90	205	12

## Components

Item	Alfa Laval LabStak™ M20 module	Alfa Laval TestUnit M20	Alfa Laval M20–2.5 housing
Module	—	Alfa Laval LabStak™ M20 module	Optional for spiral membranes size 2517
Support and spacer plates	Polysulphone (PSO)	Polysulphone (PSO)	—
Cross-flow pump	—	Wanner	—
Heat exchanger	Alfa Laval	Alfa Laval	—
Valve	Alfa Laval	Alfa Laval	—
Pressure gauges	Baumer	Baumer	—
Permeate outlet hose	Silicone rubber	Silicone rubber	—
O-ring set	EPDM	EPDM	EPDM
Internal, product wetted steel parts	AISI 316L	AISI 316L	AISI 316L
External steel parts	AISI 304	AISI 304	AISI 304
Wheels	—	Plastic/chromium-plated steel	—

Connections



Connections	Alfa Laval TestUnit M20	Alfa Laval LabStak™ M20 module	M20–2.5 housing
Feed inlet	Tank	3/8" female	Tank
Retentate outlet	½" hose connection	½" hose connection	½" hose connection
Permeate outlet, hose	ID 1.3, OD 3.5 mm	ID 1.3, OD 3.5 mm	½" hose connection
Cooling/heating water in/out	¼" female	¼" female	—
Electrical power	320–550 V + PE, 45–65 Hz	—	—

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