

# 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 1.8 m<sup>2</sup>
- high operating temperature and pressure
- testing volume of 5–50 litres
- the Alfa Laval LabStak™ M20 module is manufactured in compliance with FDA and EU 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.

Membranes must be purchased separately.



### Option

The **Alfa Laval M20–2538 housing** makes it possible to perform screening tests on spiral membranes before testing on flat sheet membranes. The housing is inserted between the flanges of the Alfa Laval LabStak™ module.



## Technical Data

Model	Alfa Laval LabStak™ M20 module	Alfa Laval TestUnit M20	Alfa Laval M20–2538 housing
Code number <sup>1</sup>	517100	531010	531602
Membrane area, m <sup>2</sup>	0.036 – 0.72	0.036 – 0.72	1.5 – 1.8
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
Liquid capacity, l	0.27 + 2.14 l/m <sup>2</sup> membrane area	3.0 + 2.14 l/m <sup>2</sup> membrane area	3.0 + 2.14 l/m <sup>2</sup> membrane area
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 M20–2538 housing
Length x width x height, mm	511 x 350 x 800	1090 x 590 x 1480	1197 x 118 x 130
Weight, kg	110	205	8

## Components

Item	Alfa Laval LabStak™ M20 module	Alfa Laval TestUnit M20	Alfa Laval M20–2538 housing
Module	–	Alfa Laval LabStak™ M20 module	Optional for spiral membranes size 2538
Support and spacer plates	Polysulphone (PSO)	Polysulphone (PSO)	–
Cross-flow pump	–	Wanner	–
Pump diaphragm & O-ring	–	FKM	–
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	–

## Option

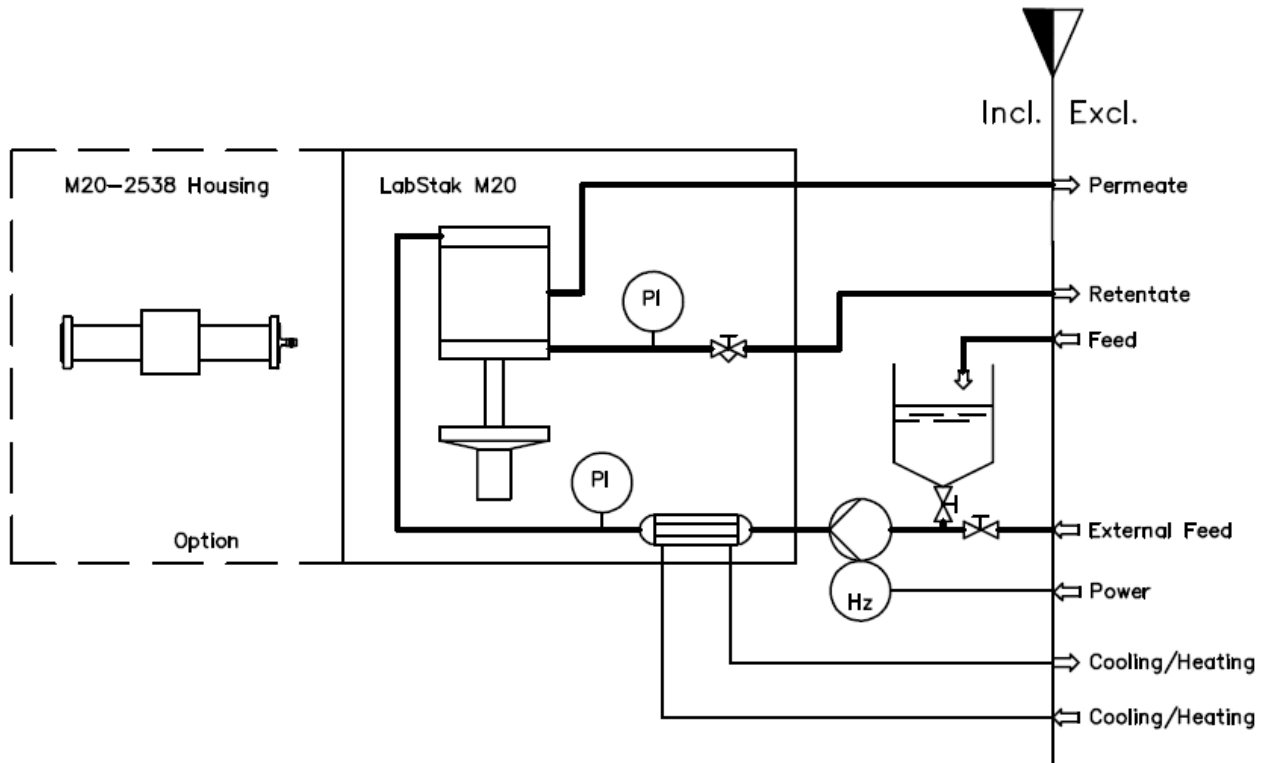
Safety filter package for Alfa Laval TestUnit M20, code No. 536079.<sup>1</sup>

<sup>1</sup> Includes 38 mm filter house, 100 micron filter cartridge and EPDM clamp gasket



## Connections

Alfa Laval Nakskov A/S  
Delivery Limit



Connections	Alfa Laval TestUnit M20	Alfa Laval LabStak™ M20 module	Alfa Laval M20-2538 housing
Feed inlet	Tank	3/8" female	Tank
Retentate outlet	1/2" hose connection	1/2" hose connection	1/2" hose connection
Permeate outlet	Hose ID: 1.3 / OD: 3.5 mm	Hose ID: 1.3 / OD: 3.5 mm	1/2" hose connection
Cooling/heating water in/out	1/4" female	1/4" female	—
Electrical power	320-550 V + PE, 45-65 Hz	—	—

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