

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 m² to 1.8 m²
- 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.



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 ¹	517100	531010	531602
Membrane area, m ²	0.036 — 0.72	0.036 — 0.72	1.5 — 1.8
Max. inlet pressure, bar ²	60	60	60
Operating pH range ²	1 — 13	1 — 13	1 — 13
Max. operating temperature, °C ²	80	80	80
Cross-flow range, l/min.	5 — 10	5 — 24	15 — 24
Liquid capacity, l	0.27 + 2.14 l/m ² membrane area	3.0 + 2.14 l/m ² membrane area	3.0 + 2.14 l/m ² 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	—

¹ Please specify code number when ordering

² 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	—
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	—

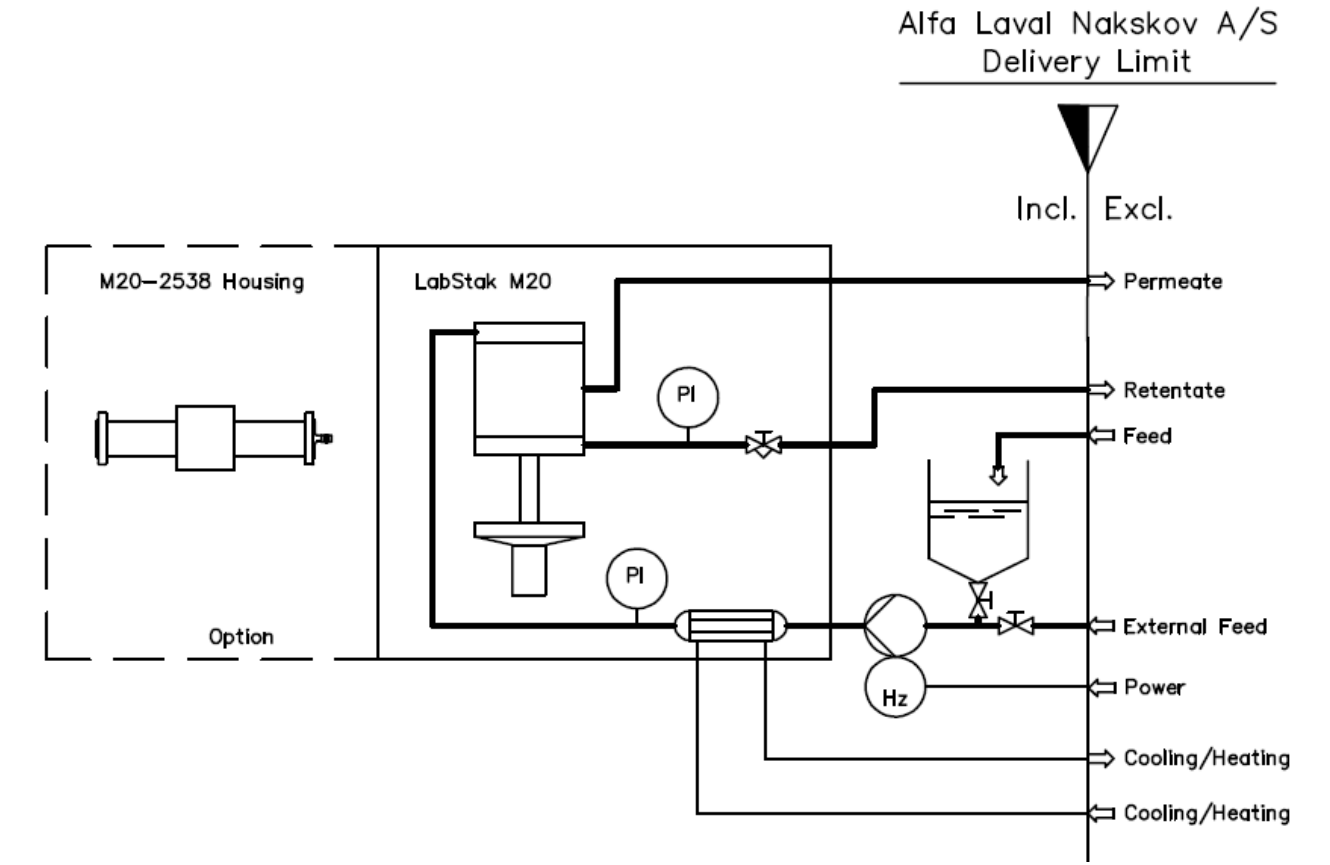
Option

Safety filter package for Alfa Laval TestUnit M20, code No. 536079.¹

¹ Includes 38 mm filter house, 100 micron filter cartridge and EPDM clamp gasket



Connections



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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