



Alfa Laval M37 module

System modules for membrane filtration

Introduction

Alfa Laval offers a range of system modules which are based on the unique plate-and-frame design.

The Alfa Laval M37 module is our high-concentration module for extremely highly viscous products. Many products are non-Newtonian so tend to thin as flow velocity is increased. This effect is fully utilized in the extraordinary design of the thin-channel system of the module M37, making the module usable for products untreatable by most other ultrafiltration systems.

The module can be equipped with the entire range of flat sheet membranes from Alfa Laval for ultrafiltration and microfiltration.

Applications

The Alfa Laval M37 module is excellently used within the biotech and pharmaceuticals industry, the food, dairy and beverages industry as well as for pulp and paper applications. Some examples are:

Biotech and Pharmaceuticals

- amino acids/organic acids — whole broth clarification
- antibiotics — whole broth clarification
- dextrans — concentration of HMW dextrans
- industrial fermentation — whole broth clarification

Food, Dairy and Beverages

- dairy — cultured milk concentration
- gums — xanthan and pectin concentration
- sugar — clarification of saccharification liquid (HFCS)

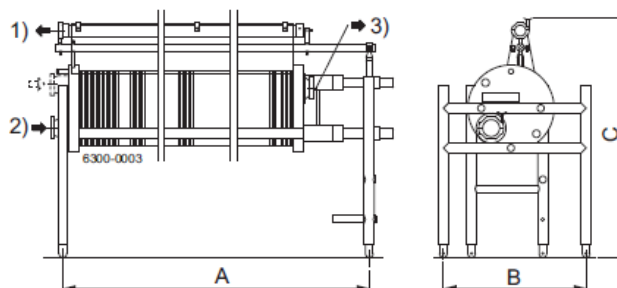
Pulp and Paper

- lignin — concentration
- lignosulphonate — concentration



Benefits

- open channel design for the handling of a wide range of viscosities
- accurate production up-scaling by increase of size or number of modules
- easy cleaning by CIP (Cleaning-In-Place)
- standard modules with up to 27 m² membrane area
- easy membrane failure detection and exchange on-site
- rugged yet flexible stainless steel and polymer construction
- low energy consumption
- operation at low pressure
- sanitary design with all components manufactured in compliance with FDA and EU regulations



- 1: size 51 clamp
- 2: size 76.1 clamp
- 3: size 76.1 clamp
- A: 691 - 2071 mm
- B: 720 mm
- C: 1205 mm

Standard sizes

The Alfa Laval M37 module is available in the following standard sizes defined by membrane area:

Membrane area, m ²	4.5	6.6	9.0	13.5	18.0	22.5	27.0
Length A, mm	691	811	961	1241	1521	1791	2071
Shipping weight, kg	205	215	230	255	280	310	335
Shipping volume, m ³	0.6	0.6	0.8	1.0	1.0	1.4	1.4

Module designation

Example: **Alfa Laval M37-13.5-3-GR60PP**

Alfa Laval M37	=	Module type
13.5	=	Membrane area, m ²
3	=	Number of sections
GR60PP	=	Type of membrane

Module data

Model	Alfa Laval M37 module
Generic design	Plate-and-frame module for cross-flow membrane filtration
Plate-and-frame design	M37-PSO plates in M37 frame
Membrane area, m ²	4.5 – 27
Membrane type ¹	All flat sheet membranes for microfiltration and ultrafiltration
Number of sections	1 or 2–3–4–5 etc. uniform sections connected in series
Number of section plates	1 less than the actual number of sections
Number of support plates	1 per 0.11 m ² of membrane area installed
Number of end plates	2 per module
Number of flat sheet membranes	2 per support plate and section plate installed
Cross-flow configuration within sections	Parallel membrane sheets of 0.055 m ²
Liquid capacity	2.3 l/m ² of membrane area installed
Dry weight, kg	157 + 5.8 kg/m ² of membrane area installed

¹ Must be ordered separately

The module is mounted on adjustable legs and the inlet/outlet flanges are connected to each other by means of horizontal bolts. One end flange and the membrane support plates can slide along the bolts.

Operating data

Model	Alfa Laval M37 module
Max. inlet pressure, bar ¹	15 up to 40°C / 10 at 60°C / 5 at 80°C
pH range	1 – 14
Max. temperature, °C ¹	80
Cross-flow range, l/min./plate	20 – 35 / support plate in one section
Differential pressure, bar/section	0.2 – 2
Viscosity range, apparent, cP	50 – 250
Max. plate stack pressure, bar	15 at 0 – 40°C / 5 at 80°C
Max. plate stack compression force, kN ²	240
Max. back pressure at permeate tube outlet, bar	0.1 at static conditions / 0.3 at dynamic conditions

¹ For detailed information about operating conditions, please see the specifications for the membrane type applied

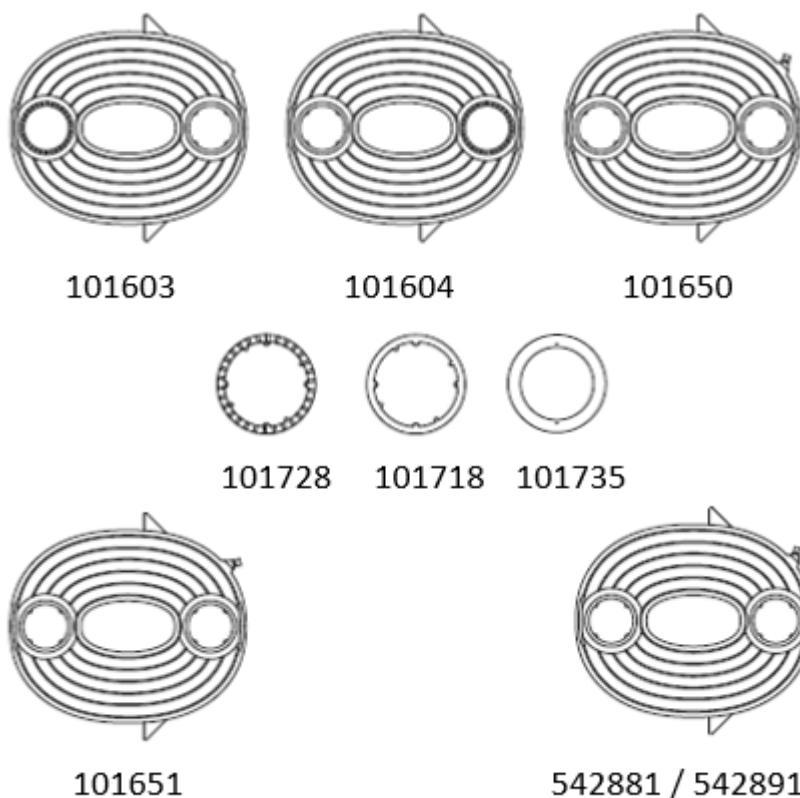
² Hydraulic tool kit, type T38, code No. 108496 to be used. Must be ordered separately

Module material

Support, section and end plates	Polysulphone (PSO)
Membrane lock ring	Polypropylene (PP)
Permeate hose	Silicone rubber (Si)
Gasket and o-ring	Nitrile rubber (NBR)
Internal/product wetted steel parts	Acid resistant steel, min. AISI 316
External steel parts	Stainless steel, min. AISI 304
Cross-flow in/outlet connections	Size 76.1 clamp ferrule ISO 2852
Permeate outlet tube connections	Size 51 clamp ferrule ISO 2852
Permeate tube and hose connector	Polysulphone (PSO)
Membrane sheet	Polymer ¹

¹ For detailed information about the membrane material, please see the specifications for the membrane type applied

Plates and accessories



Designation	Material	Code No.
End plate, top	Polysulphone	101603
End plate, bottom	Polysulphone	101604
Membrane support plate, type 0	Polysulphone	101650
Membrane support plate, type 1	Polysulphone	101651
Passage ring ¹	Polypropylene	101728
Lock ring ¹	Polypropylene	101718
Section plate, blue outlet ²	Polysulphone	542881
Section plate, grey outlet ³	Polysulphone	542891
Stop disc	Stainless steel	101735

¹ Must be ordered separately

² Blue ring at permeate outlet

³ Grey ring at permeate outlet

This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval Corporate AB. No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval Corporate AB's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

200000888-2-EN-GB

© Alfa Laval Corporate AB

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com