The Module M37 is specifically designed for ultrafiltration and microfiltration of highly viscous products (50 cP) and fermentation broths. The module is ideal for various uses in industries such as pulp and paper, biotechnology and pharmaceuticals, as well as food and beverages.

The Module M37 is developed to meet the future demands for optimized flow dynamics, low energy consumption and low-pressure operation. All materials are in compliance with FDA regulations. This membrane module is particularly suited for:

**Pulp & Paper**
- Spent sulphite liquor
- Black liquor
- Lignin concentration
- Kraft bleach effluents
- Colour removal
- Lignosulphonate concentration

**Biotech & Pharma**
- Antibiotics - whole broth clarification
- Amino acids/organic acids - whole broth clarification
- Dextranes - concentration of HMW dextranes

**Food & Beverage**
- Dairy - cultured milk concentration
- Gums - xanthan and pectin concentration
- Protein - concentration of soya, whole egg, gelatine etc.
- Beer - beer yeast concentration
- Sugar - clarification of saccharification liquid (HFCS)
- Juice - clarification of orange juice, apple juice etc.
The Module M37 is available with membrane areas of up to 27 m² (290.6 ft²) per module. It can be equipped with all types of flat sheet UF and MF membranes.

The Module M37 for ultrafiltration and microfiltration comes in the following standard sizes defined by membrane area:

<table>
<thead>
<tr>
<th>Membrane area</th>
<th>4.5 m²</th>
<th>6.6 m²</th>
<th>9.0 m²</th>
<th>13.5 m²</th>
<th>18.0 m²</th>
<th>22.5 m²</th>
<th>27.0 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length A, mm</td>
<td>691.0</td>
<td>811.0</td>
<td>961.0</td>
<td>1241.0</td>
<td>1521.0</td>
<td>1791.0</td>
<td>2071.0</td>
</tr>
<tr>
<td>Shipping weight, kg</td>
<td>205.0</td>
<td>215.0</td>
<td>230.0</td>
<td>255.0</td>
<td>280.0</td>
<td>310.0</td>
<td>335.0</td>
</tr>
<tr>
<td>Shipping volume, m³</td>
<td>0.6</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
<td>1.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Operating principles
The module can operate at temperatures up to 80°C (176°F), pressures up to 15 bar (217.6 psi), and pH between 1 and 14. The entire range of flat sheet membranes for ultrafiltration and microfiltration can be used. Please consult the Alfa Laval product descriptions for details of temperature, pressure and pH limits set by the membranes.

The Module M37 comprises
- Frame and fittings all made of stainless steel
- Support plates, end plates, and permeate collecting tubes made of polysulphone (PSO)
- Gaskets made of nitril rubber
- Permeate hoses made of silicone rubber
- Frame: The module is mounted on adjustable legs and the inlet/outlet flanges are connected to each other by means of horizontal bolts. One end and the membrane support plates can slide along the bolts.
- The Alfa Laval hydraulic tool kit type T37, flat sheet membranes and lock rings must be ordered separately

![Diagram of the Module M37](image-url)

1 = ø51cl. A = 691-2071 mm
2 = ø76cl. B = 720 mm
3 = ø76cl. C = 1205 mm
### Module data

**Module designation**
M37 - m² of membrane area - (number of sections) - (type of Alfa Laval membrane)

**Generic design**
Plate-and-frame type cross-flow membrane filtration module

**Plate-and-frame design**
M37 - polyethersulfone (PES) plates in M37 frame

**Membrane area**
4.5-27 m² (48.4-290.6 ft²)

**Membrane type**
All Alfa Laval flat sheet MF and UF membranes

**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 m² (1.18 ft²) of membrane area installed

**Number of end plates**
2 per module

**Cross-flow configuration within sections**
Parallel membrane sheets of 0.055 m² (0.59 ft²)

**Liquid capacity**
2.3 l/m² of membrane area installed

**Weight, empty/dry**
175 kg + 5.8 kg/m² of membrane area installed

### Operating data

**Cross-flow range (per plate in one section)**
20-35 l/min.

**Inlet pressure**
Max. 15 bar (217.6 psi)

**Differential pressure**
0.2-2 bar (2.9psi)/section

**Viscosity range, apparent**
50-250 cP

**Max. temperature**
80°C (176°F)

**pH range**
1-14

**Plate stack pressure/temperature**
15 bar (217.6 psi) at 0-40°C (32-104°F), sloping to max. 5 bar (72.5 psi) at 80°C (176°F)

**Max. back pressure at permeate tube outlet**
0.1 bar (1.45 psi) at static and 0.3 bar (4.4 psi) at dynamic conditions

### Materials data

**External steel**
Stainless steel (min. AISI 304 type)

**Internal/product wetted**
Acid resistant, AISI 316 type

**Support, section, and end plates**
Polyethersulfone (PES)

**Permeate tube and connector**
Polyethersulfone (PES)

**Permeate hose**
Silicone rubber (SR)

**Gasket and o-ring**
Nitrile rubber (NBR)

**Membrane lock ring**
Polyethersulfone (PFI)

**Membrane sheet**
According to Alfa Laval product descriptions

**Connections at cross-flow in/outlets**
DN 76.1 (3”), ISO 2852 clamp flange and ring

**Connections at two permeate outlet tubes**
DN 51 (2”), ISO 2852 clamp flange and ring
## Accessories

<table>
<thead>
<tr>
<th>Designation</th>
<th>Material</th>
<th>Code no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>End plate, top</td>
<td>Polysulphone</td>
<td>101603</td>
</tr>
<tr>
<td>End plate, bottom</td>
<td>Polysulphone</td>
<td>101604</td>
</tr>
<tr>
<td>Membrane support plate, type 0</td>
<td>Polysulphone</td>
<td>101650</td>
</tr>
<tr>
<td>Membrane support plate, type 1</td>
<td>Polysulphone</td>
<td>101651</td>
</tr>
<tr>
<td>Passage ring</td>
<td>Polypropylene</td>
<td>101728</td>
</tr>
<tr>
<td>Lock ring</td>
<td>Polypropylene</td>
<td>101718</td>
</tr>
<tr>
<td>Section plate, blue outlet</td>
<td>Polysulphone</td>
<td>101781</td>
</tr>
<tr>
<td>Section plate, grey outlet</td>
<td>Polysulphone</td>
<td>101791</td>
</tr>
<tr>
<td>Stop disc</td>
<td>Stainless steel</td>
<td>101735</td>
</tr>
</tbody>
</table>

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