



# Flat sheet membranes

## Microfiltration FSM Series

The range of microfiltration membranes from Alfa Laval covers a broad spectrum of flux properties and molecular weight cut-off values.

The membranes are based on a unique construction on polypropylene (PP) support material. All materials used for the production of these membranes comply with FDA regulations (CFR) Title 21 and the membranes are thus suitable for use within food and pharmaceutical processing applications.

Flat sheet membranes are available by the metre (max. 5 m), as standard sheets (size 20 x 20 cm), and of course in all Alfa Laval plate-and-frame configurations.



Designation	Process	Pore size	Characteristics
FSM0.45PP	MF	0.45 µm	Fluoro polymer

### Recommended operation limits

#### Production

	FSM
pH range	1-11
Pressure, bar	1-10
Temperature, °C	0-60

#### Cleaning (3 hours per day)\*

	FSM
pH range	1-11.5
Pressure, bar	1-5
Temperature, °C	0-65

\* Please consult Alfa Laval's cleaning description

## Application data

### Typical product applications for microfiltration membranes

Fermentation broths: Antibiotics, disrupted cell suspensions, polysaccharides, organic acids, vinegar etc.
Chemical synthesis: Polymer, surfactant, product recovery etc.
Beverages: Juice, wine, beer, coffee, tea etc.
Sugars: Beet and cane juice, starch hydrolysate/HFCS, fructose etc.
Waste water: Oil emulsions, dye etc.
Water recycling: Effluent control, product recovery etc.

### Important information

New membranes must be cleaned prior to first use. The cleaning procedure should be in accordance with the instructions of Alfa Laval's cleaning description for the membrane type concerned. The customer is fully responsible for the effects of incompatible chemicals on membranes.

- Keep membranes moist at all times after initial wetting.
- If the operating specifications given in this product description are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during system shutdowns, it is recommended that Alfa Laval membranes be immersed in a protective solution.
- Avoid permeate back pressure at all times.

### Operation guidelines

Avoid any abrupt pressure or cross-flow variations on the membrane modules during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage.

A start-up procedure from standstill to operational condition is recommended as follows:

- The non-pressurised plant should be refilled with water.
- Feed pressure should be gradually increased over a 30-60 second time scale.
- Before initiating cross-flow at high permeate flux conditions (e.g. start-up with high temperature), the set feed pressure should be maintained for 5-10 minutes.
- Cross-flow velocity at set operating point should be gradually achieved over 15-20 seconds.
- Temperature variations should be gradually controlled over 3-5 minutes.

Alfa Laval reserves the right to change specifications without prior notification. ALFA LAVAL is a trademark registered and owned by Alfa Laval Corporate AB.

ESE00769EN 1201

© Alfa Laval

### How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information direct.