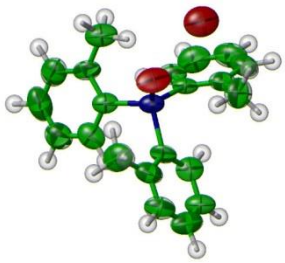


MMS
Membrane Solutions

SW40 Semi-Automatic

Membrane Solutions for the Pilot Plant

Pilot Membrane System

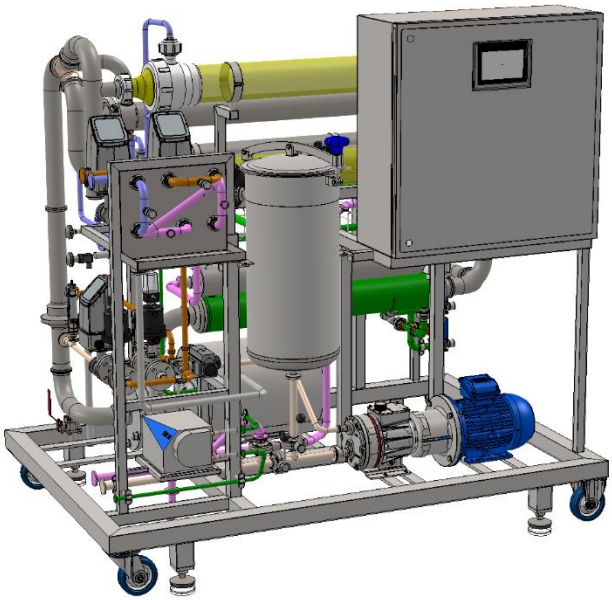
The MMS SW40 system is an easy to use pilot membrane unit for microfiltration, ultrafiltration, nanofiltration and reverse osmosis operations.

Applications such as fractionation, purification and concentration of molecules can be tested.

The pilot system can be equipped with different types of modules for test applications.

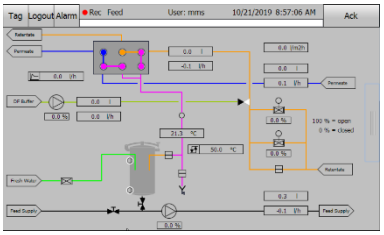
Key Features

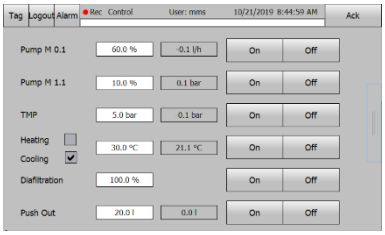
- Batch operation. Optional continuous operation and diafiltration.
- Semi-automatic system with CIP sequence.
- Optional CIP station for automatic dosing.
- Operating pressure up to 40 bar with automatic pressure control.
- Testing of spiral wound membranes. Optional testing of ceramic membranes.
- Two pump system (pressure & circulation pump) with speed control for variable
- Multitube heat exchanger for automatic temperature regulation.
- Human-machine interface (HMI) with data logging.



Example System 1

Batch operation with diafiltration.
2 Spiral wound 3838, ceramic and hollow fibre kits.





Further Information

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MMS
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SW40 Semi-Automatic

Applications

Aroma and Colorant Sector
Herbal extract fractionation & concentration
Natural colour purification & concentration
Aroma sterilization & concentration
Evaporator condensate treatment

Bio-Pharmaceutical Sector
Enzyme & protein concentration
Peptide concentration & de-salting
API or Oligosaccharide purification & concentration
Solvent recovery or exchange

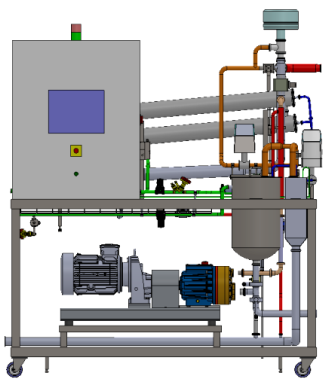
Natural Oils Sector
De-waxing
De-colourization
Purification
Concentration
Oil/water separation

Food & Extract Sector
Protein or Extract fractionation & concentration
Hydrolysate fractionation & concentration
Sugar fractionation & concentration
De-alcoholization of beer and wine
Soy milk debittering

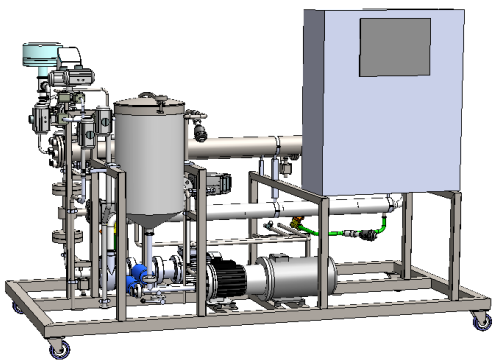
Chemical Sector
Acid/Caustic recovery
Catalyst separation
Solvent exchange & recovery
Polymer purification & concentration
Condensate water purification

Biofuels Sector
Organic acid clarification & purification
Organic acid concentration
Sugar clarification & concentration
Ethanol purification
Condensate water recovery

For a specific application not listed above ask our specialists at info@mmsx.com



Example System 2
Batch operation.
2 Spiral wound 3838.



Example System 3
Batch operation.
2 Spiral wound 3838 and ceramic kit.

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SW40 Semi-Automatic

Specifications

Operation Mode	Semi-automatic batch operation with pressure and temperature controllers and programmable CIP sequence
Intended use	Liquid food products and aqueous solutions
Membrane type	Spiral wound module 3838/3839 (other membranes types available)
Membrane area	~5 - 7 m^2 per spiral wound module 3838/3839
Feed requirements	Particle size < 100 µm (for spiral wound)
CIP tank volume	35 l with lid
System dead volume	25 - 40 l (depending on system configuration)
Heat exchanger	Multitube (~0.9 m^2)
Working pressure	0.5 - 40 bar
Working temperature	5 - 80 °C (limitations due to membrane possible, heating/cooling water required)
Feed flow	~0.6 – 1.8 m3/h
Crossflow	Up to 40 m3/h
Installed power	8 kW (400/50Hz)
Space requirement	1800 x 1200 x 1800 mm (L x W x H) (depending on system configuration)
Weight	~700 kg
Frame	Stainless steel (304), on wheels
Tubing	All tubing and fittings of material 316L
Seals & O-Rings	EPDM, FKM and PTFE
Components	All steel components in contact with product are made of 316L if not otherwise stated
Instruments	2 Pressure transducers (2 x 0 - 50 bar)
	1 Temperature transducer (0 - 100 °C)
	1 Permeate flow transducer (25 – 1000 l/h) (magnetic)
	1 Level sensor CIP tank
HMI	1 Touch panel for process control including USB port for data logging

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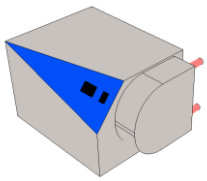
Options

Diafiltration Kit

A diafiltration pump and a flow transducer (magnetic) are integrated into the control system for continuous diafiltration.



Loop Flowmeter

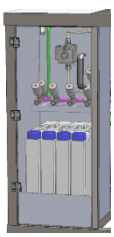
Additional flow transducer (magnetic) in the circulation loop.

Continuous Operation

The system will be modified for continuous operation (continuous removal of retentate and permeate streams).

CIP Station

Additional CIP station for automatic dosing (4 chemicals).



Additional Membrane Types

- 2 Spiral wound 3838/3839
- Spiral wound 8038
- Ceramic kit
- Hollow fibre kit
- Tubular kit

Membrane Cut-Offs

Wide range of pore sizes and cut-offs available:

- Microfiltration (0.1 – 1.4 µm)
- Ultrafiltration (1 – 250 kDa)
- Nanofiltration (100 – 1000 Da)
- Reverse Osmosis