

Instruction for use

PuraMem® 280 and S 600 Membrane Module

SPECIFICATIONS PURAMEM® 280 AND PURAMEM® S 600

General

- Membrane Material: Polyimide (PuraMem® 280) and Silicone-coated polyimide (PuraMem® S 600)
- Flat Sheet: 210 x 297 mm
- Spiral-Wound Modules:

Type	1812	2512	2520	2540	4020	4040	8040*
Nominal Size (Dia x L)	1.8"×12"	2.5"×12"	2.5"×20"	2.5"×40"	4.0"×20"	4.0"×40"	8.0"×40"
Membrane Area (m ²) ¹	0.11	0.17	0.60	1.8	2.0	5.4	24.0
Typical Feed Flow (L.h ⁻¹)	150	500	500	500	1500	1500	7500
Standard Feed Spacer (all) ¹	30 mil (0.76 mm)						

* Female type of permeate tube connection.

SOLVENT STABILITY

- PuraMem® membranes are stable in mild and non-polar solvents²:
 - e.g. Alcohols (e.g. Methanol, Ethanol, 2-Propanol)
 - Aliphatic hydrocarbons (e.g. Hexane, Heptane)
 - Aromatic hydrocarbons (e.g. Toluene, Xylene)
 - Butyl Acetate, Ethyl Acetate
 - Methyl-Ethyl-Ketone
 - Methyl-tert-Butyl-Ether
- PuraMem® membranes are not recommended for use in aqueous/water mixtures. For aqueous/organic solvent mixtures, please contact us for membrane recommendations.

USE CONDITIONS

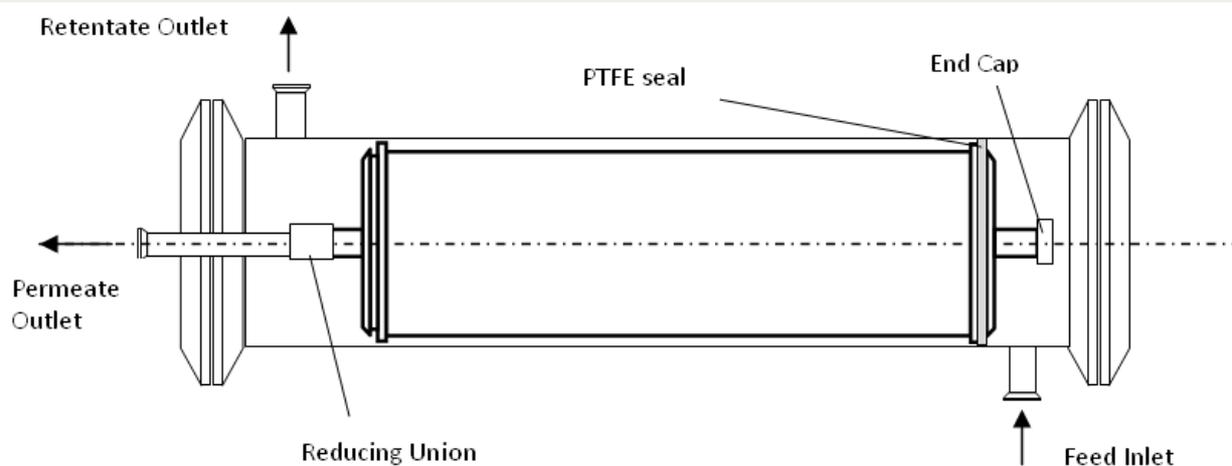
Membrane Code	PuraMem®	PuraMem® S
MWCO (g.mol ⁻¹) ^{3,4}	280	600
Minimum Flux (L.m ⁻² .h ⁻¹) ³	18	30
Typical Operating Pressure (barg)	20–40	20–40
Maximum Pressure (bar)	60	60
Maximum Temperature (°C)	50	50
Allowable pH	7	7

¹ Membrane area is a nominal value and depends on the spacer dimensions used in the module.

² Data referring to membrane sheets with pure solvents. If you intend to use a solvent not listed above please contact us for further advice.

³ Performance Data are approximate and based on flat-sheet membrane. Test conditions: toluene at 30 bar and 30°C.

⁴ Based on rejection of styrene oligomers dissolved in toluene. MWCO = molecular weight cut-off which is defined as the molecular weight at which 90% rejection is obtained from a curve of rejection versus molecular weight of styrene oligomers dissolved in toluene.



MODULE INSTALLATION PROCEDURES

1. Membrane module should be installed inside a housing in a way that the PTFE seals is facing the feed inlet.
2. Close or block one side of the permeate tube of the membrane module, using a $\frac{3}{4}$ " compressed fitting cap.
3. Connect the centre tube of the housing flange to the membrane module permeate tube, using a $\frac{3}{4}$ " x $\frac{1}{2}$ " compressed fitting reducing union. Please make sure that the tubes are connected straight, and do not apply excess force onto the tubes while tightening the nuts.
4. Hold the assembly horizontally and insert the membrane module inside the housing slowly. Please keep the assembly straight and do not bend the module or tube, and do not force the module into the housing
5. Attach the flange with centre tube onto the housing using the clamps.
6. Attach the blank flange to the other end of the housing using the clamps

PRECONDITIONING OF MEMBRANE MODULES

DuraMem® membranes are shipped with a preservative in the membrane. Each module should be rinsed with the process solvent prior to use with a feedstock to remove the preservative. The instructions below describe the preconditioning process:

1. Install the membrane module(s) in the housing(s) of a membrane plant.
2. Fill the feed tank of the plant with fresh process solvent, at least 50 L solvent per m² of installed membrane

3. Set the temperature of the system up to 50 °C.
4. Start the feed pump and set the system pressure between 3–5 bar, or until steady retentate and permeate flows are obtained.
5. Collect the permeate into a separate tank with the retentate circulating back to the feed tank.
6. Increase slowly the system pressure to the desired operating value.
7. Permeate the required volume of fresh solvent through the membrane or continue the permeation until the permeate is colorless.
8. Permeate can be recirculated to the feed tank and the membrane module is ready for use,
9. If needed steps 2 – 7 can be repeated

The above procedure for module preconditioning is indicative, based on acetone, and for guidance only. The procedure can be modified and solvent usage increased/reduced depending on the application and the process tolerance for preservative in solution after preconditioning. Please contact us for the use of solvent not listed in the specification.

Note – After the initial preconditioning process, the module must be kept wet at all times and not allowed to dry out.

Note – Stable membrane performance is achieved after 2 to 4 hours of filtration.

STORAGE OF USED MODULES

Once installed and preconditioned, the membrane module should not be removed from the module housing. If the module will not be used for prolonged periods, the module housing should be filled with an appropriate organic solvent and the module stored *in situ*. The preconditioning procedure should be carried out prior to re-use. Please contact us if you have any questions.

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