

Instruction for use

DuraMem® Membrane Module

SPECIFICATIONS DURAMEM® 150, DURAMEM® 200, DURAMEM®300, DURAMEM® 500, DURAMEM® 900

General

- Membrane Material: Modified Polyimide
- Modules:

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

* Female type of permeate tube connection.

SOLVENT STABILITY

- Type T1 DuraMem® Membranes
Stable in Solvents¹
 - Acetone, Tetrahydrofuran
 - Methanol, Ethanol
 - Methyl-tert-Butyl-Ether
 - Methyl-Ethyl-Ketone, Methyl-iso-Butyl-Ketone
 - Butyl Acetate, Ethyl Acetate
- Type T2 DuraMem® Membranes
Stable in Solvents¹
 - Dimethylformamide,
 - Dimethylsulfoxide,
 - N-Methylpyrrolidone
- Type T1 and T2 DuraMem® Membranes are generally stable in aqueous/organic solvent mixtures. Please contact use for more information.

USE CONDITIONS

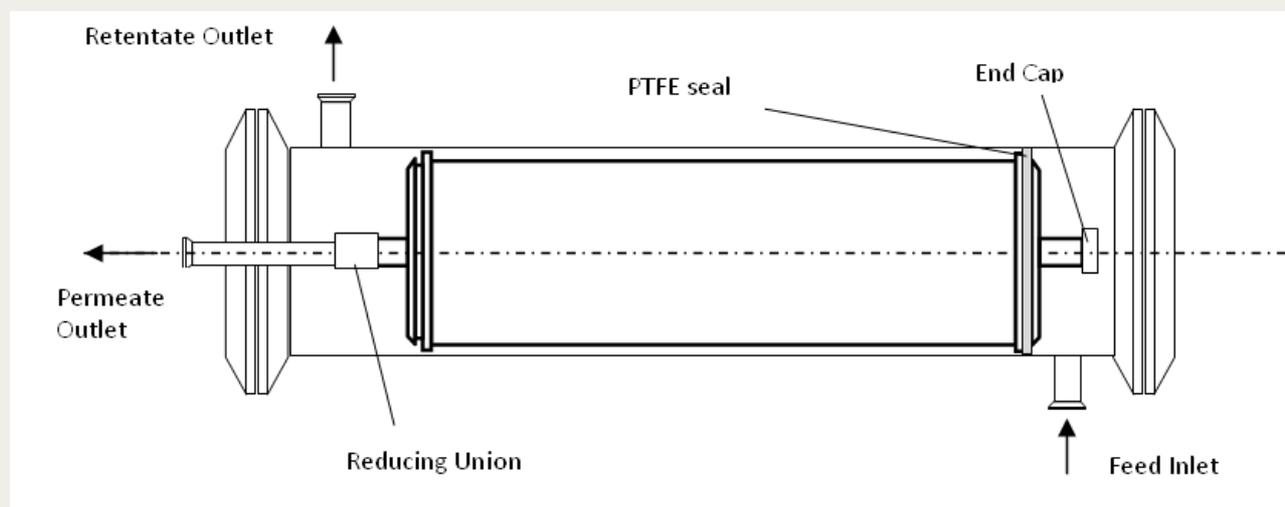
Membrane Code	DuraMem®				
	150	200	300	500	900
MWCO (g.mol ⁻¹) ^{2,3}	150	200	300	500	900
Maximum Pressure (barg)	60	60	60	20	20
Maximum Temperature (°C)	50 (for all)				
pH	7 (for all)				
Maximum pressure drop per element (bar)	0.5 (for all)				
Maximum permeate pressure (bar)	0.2 (for all)				

¹ Data referring to pure solvents. If you intend to use a solvent not listed above please contact us for further advice.

² Performance Data are approximate.

³ Based on rejection of styrene oligomers dissolved in acetone, MWCO = molecular weight cut-off, defined as MW at which 90% rejection is obtained from a curve of rejection versus molecular weight of styrene oligomers dissolved in acetone. See Journal of Membrane Science 291 (2007) 120–125.

MODULE POSITION IN HOUSING



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
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

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

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 4 hour of filtration.

STORAGE OF USED MODULES

Once a module has been wetted, the membrane surface must be kept wet to maintain flux and rejection characteristics. After use, it is recommended that the module is stored in the process solvent. If the module will not be used for prolonged periods, it should be stored in a dedicated solvent-filled container. The module preconditioning procedure should be repeated before a module is reused.

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