

Pressurized UF Product Line

Memstar pressurized UF is ideally suited for a wide range of water and wastewater treatment applications including RO pretreatment, wastewater recycle and surface water treatment.

Memstar has pioneered development of a proprietary TIPS PVDF hollow fiber technology and innovative module designs to maximize water recovery and minimize life cycle cost. Memstar pressurized technologies are currently used at over 220 sites worldwide to treat more than 1,500,000 m³/day (400 million gallons/day) in both industrial and municipal water and wastewater applications.

Key Advantages:

- 1 High Recovery**
 - Unique air scouring process effectively removes solids and eliminates traditional backwash
- 2 Minimal Footprint**
 - Large surface area modules to minimize the number and size of skids
 - High fiber packing density
- 3 Lower Operating Costs**
 - Long membrane life due to high mechanical strength and superior chemical resistance
 - High permeability due to permanent hydrophilicity
 - Dual filtrate ports allow for lower operating pressure
 - Stable high flux with reduced fouling
 - Reduced chemical usage
 - Symmetric TIPS PVDF technology eliminates the risk of delamination and minimizes the impact of abrasion
- 4 Ability to Treat Most Challenging Waters**
 - High mechanical strength to minimize fiber breakage
 - Extreme pH and oxidant (including ozone) tolerance to remove/prevent severe fouling and restore performance



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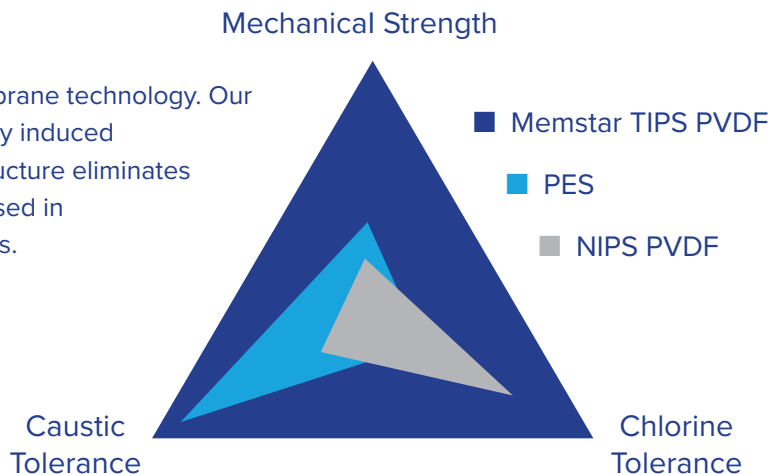
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Fiber Technology

At the core of Memstar's products is the hollow fiber membrane technology. Our single layer PVDF fiber is manufactured through a thermally induced phase separation (TIPS) process. The dense crystalline structure eliminates the need for reinforcement. Other widely used materials used in ultrafiltration lack the optimal combination of characteristics. Our TIPS PVDF membrane is:

- Several times stronger than other PVDF fibers
- Permanently hydrophilic
- Easy to clean - tolerates chemical cleaning across the full pH range



Product Offering

Our pressurized UF product portfolio gives the flexibility to select the right module for any given project. Shorter modules can be used for height limited applications. Modules can be grouped into the most appropriate skid size to meet treatment requirements.

Module Type	UF-1010ET	UF-1015ET	UF-1020ET
Filtration Surface area (m ²) [ft ²]	55 [592]	80 [861]	120 [1,290]
Membrane material	PVDF (TIPS)		
Pore size (µm)	0.04		
Filtration mode	Outside-In		
pH range	Operating: 1 – 12; Cleaning: 1 – 14		
Typical flux (LMH) [gfd]	40 – 120 LMH [25-70 gfd]		



Applications and Experience

Wastewater Reuse – The ability to effectively clean organic foulant at high pH makes our pressurized UF modules ideal for treating challenging wastewaters. Memstar has extensive experience in both municipal and industrial applications, for example, Gaoyang Upgrade – 200 MLD (52 MGD) and SINOPEC Tianjin Wastewater Reuse – 16 MLD (4.2 MGD), respectively.

Surface Water Treatment – Memstar pressurized UF modules provide over 5.5 log removal of virus and cryptosporidium for surface drinking water application. For example, the 50 MLD (13.3 MGD) Jiangcun Water Treatment Plant.

Seawater RO Pretreatment – Memstar pressurized UF is ideally suited to treat seawater RO feed to reduce the fouling potential of downstream reverse osmosis elements. In particular, our high surface area modules are advantageous for large projects and can reduce the size and number of skids to minimize the system cost and complexity. For example, the 7.2 MLD (1.9 MGD) Senoko Power Plant in Singapore.