EuroTec®
Engineered Membrane Solutions

# ETUF Series
## Ultrafiltration Membranes

Evolution In Membrane Technology

Product Brochure

## ABOUT US

EuroTec (A First Line Company) is established in Singapore as a membrane technology company specializing in developing and manufacturing proprietary high anti-fouling PVDF hollow fibre membranes and modules for use in ultrafiltration applications. Our NSF-certified advanced membrane technology is widely used in desalination, effluent polishing and potable water treatment plants that provide effective removal of suspended solids, micro-pollutants, virus and bacteria, with extensive global presence.

Our continuous innovation in UF membrane know-how and extensive technical support in implementing sustainable solutions that address some of the world's most challenging water problems has defined us with the reputation of quality and reliability that have earned the trust of many long-term clients.

## EUROTEC ULTRAFILTRATION MEMBRANES

The main objective of the UF membrane is to provide a reliable retention of suspended solids and microorganisms, making it ideal for drinking water applications, wastewater recycling and as an excellent pre-treatment to reverse osmosis (RO) systems.

The key know-how is the membrane itself. EuroTec develops high-strength, high-porosity and chemically-resistance PVDF hollow fibre membranes with a small and narrow pore-size distribution, resulting in consistently superior filtrate quality and excellent permeability with low transmembrane pressure (TMP).

The EuroTec ultrafiltration membranes are engineered to provide cost effective solutions with high operating reliability and superior filtrate quality through years of research and actual implementation in various water applications that undergo challenging circumstances has proven its viability and resilience in quality performance.

## APPLICATIONS

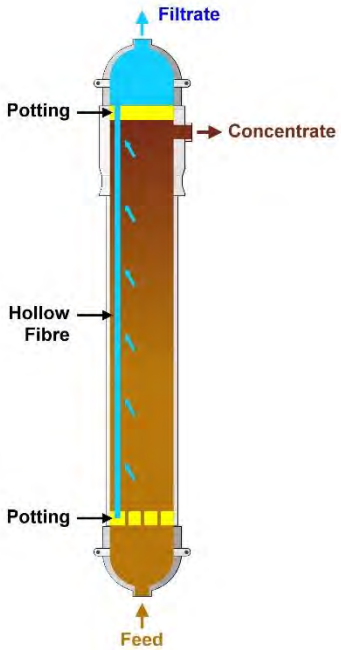
EuroTec UF membranes are suitable for use in a multitude of applications – from the recycling of wastewater for process purposes, desalination, surface water treatment to the purification of city water for residential drinking water usage.

- Potable Water
- Process Water
- Municipal Wastewater Recycling
- Industrial Wastewater Recycling
- Desalination
- Ultrapure Water
- City Water Purification
- Niche Applications

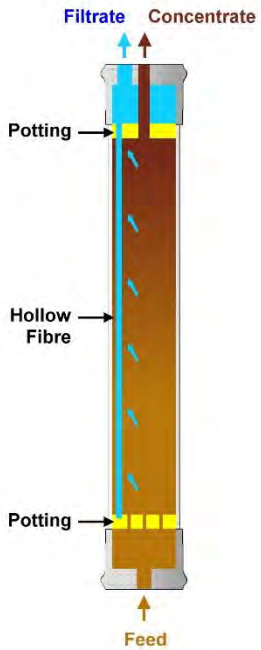





## FILTRATION PROCESS

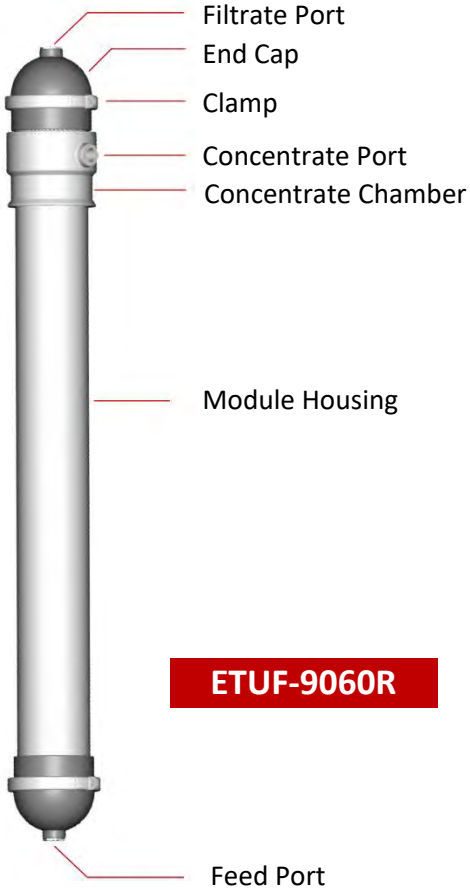



ETUF-9060R

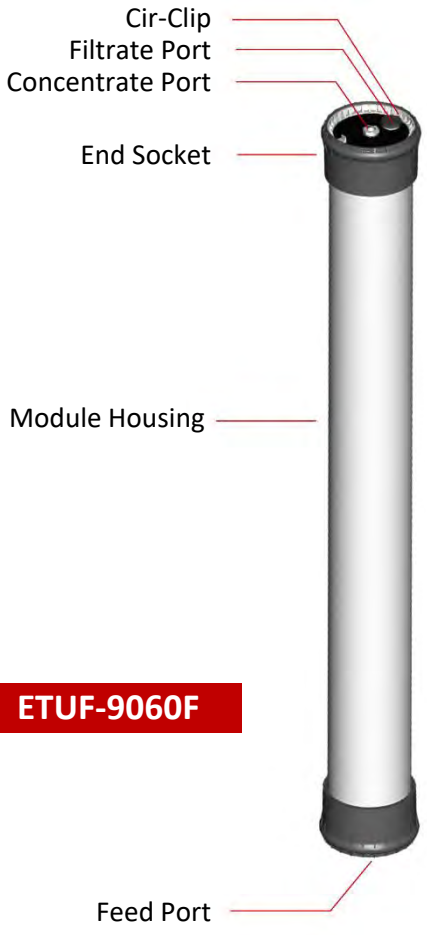



ETUF-9060F

## MODULE PARTS




**ETUF-9060R**




**ETUF-9060F**

## KEY SPECIFICATIONS

| Models / Specifications | Unit | ETUF-9040R | ETUF-9060R | ETUF-9060F | ETUF-9076D |
|---|---|---|---|---|---|
| Membrane Material | - | PVDF | PVDF | PVDF | PVDF |
| Membrane Area | $m^2$ | 40 | 60 | 60 | 76 |
| Pore Size | µm | 0.025 | 0.025 | 0.025 | 0.025 |
| Filtration Mode | - | Outside-In | Outside-In | Outside-In | Outside-In |
| Bacterial Removal | LRV | 6 | 6 | 6 | 6 |
| Overall Diameter | mm | 344 | 344 | 258 | 275 |
| Overall Length | mm | 1,600 | 2,340 | 2,130 | 2,360 |
| Feed Connection (Size/ Type) | - | 1.5” FNPT | 1.5” FNPT | 1.5” FNPT | DN50 |
| Concentrate Connection (Size/ Type) | - | 1.5 “FNPT | 1.5” FNPT | 1.0” FNPT | DN50 |
| Filtrate Connection (Size/ Type) | - | 1.5” FNPT | 1.5” FNPT | 1.5” FNPT | DN50 |
| Maximum Feed Pressure | bar | 2.5 | 2.5 | 2.5 | 6.0 |
| Temperature Tolerance | °C | 5 – 40 | 5 – 40 | 5 – 40 | 5 – 40 |
| pH Tolerance (Operation) | - | 1 – 12 | 1 – 12 | 1 – 12 | 1 – 12 |

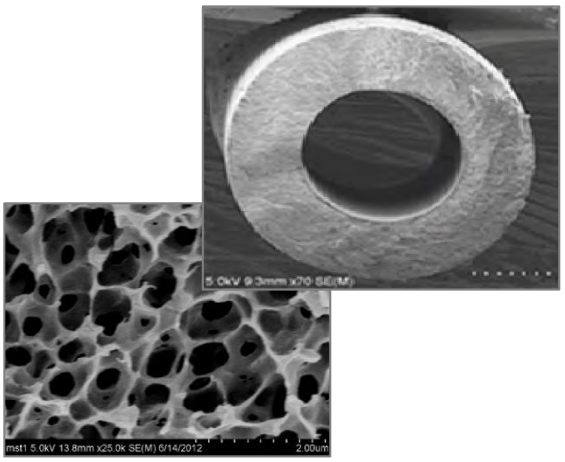
# KEY FEATURES

## High Strength and Durability

The EuroTec UF membrane hollow fibres are designed to have a sponge-like structure without the presence of macrovoids to compromise its structural integrity.

This is achieved by using a unique VNIPS fibre spinning method.

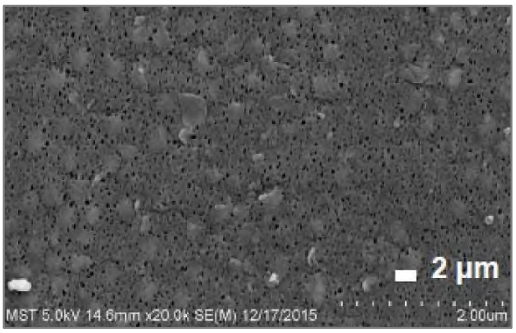
The result is a high strength, high durability membrane with very minimal fibre breakages that able to deliver a long service life with low requirement of maintenances.



## High Porosity Single-Skin Membrane Layer

The surface of the EuroTec UF membrane is essentially a highly porous, hydrophilic filtration layer. In addition, the fibre is designed to be single-skinned where the filtration occurs only at the surface and the rest of the membrane is the porous supporting layer. Each fibre is also of asymmetric structure.

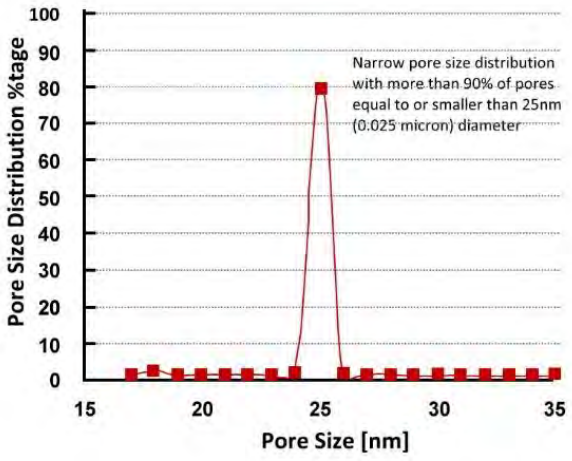
Consequently, all these factors collectively allow for higher permeability and the achievement of higher flux rates.




## Narrow Pore Size Distribution

High porosity is only desirable when pore size distribution, i.e. the size differences between each individual pore, is well-controlled. If pore sizes vary too much, the large pores tend to be fouled quickly leading to a rapid drop in permeability.

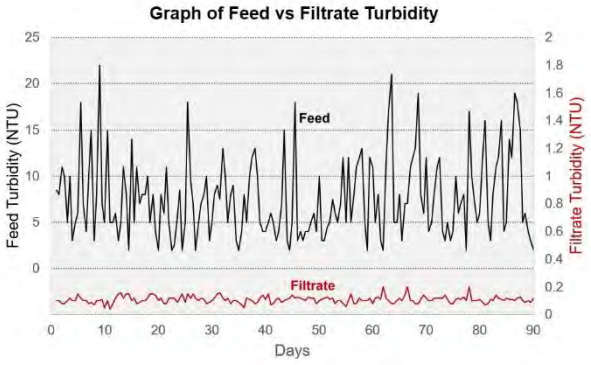
With EuroTec unique fibre spinning technology, our UF membrane is able to achieve an extremely narrow pore size distribution. The pore sizes at the surface of the membrane are consistently of 0.025 micron diameter with very minimal deviation.



# KEY FEATURES

## Consistent, Superior Filtrate Quality

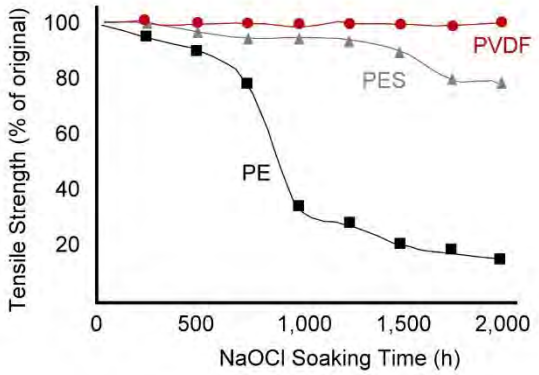
EuroTec UF membrane is consistently able to provide high quality filtrate output despite of the wide fluctuations in feed water quality. As an absolute barrier, anything larger than the rated pore size (which includes suspended solids and microorganisms) will be retained, regardless of the type of constituents in the feed water. This gives assurance to users and operators that only filtrate output of low turbidity and virtually non-existent microorganisms are provided for direct usage or further downstream treatment.




## Excellent Chemical Stability and Resistance

The EuroTec UF membrane's base chemistry is a modified quality of Polyvinylidene fluoride (PVDF) material, which inherently has higher chemical resistance – especially in terms of oxidizer tolerance as well as being able to operate within an extremely wide pH range (max: 1 – 13).

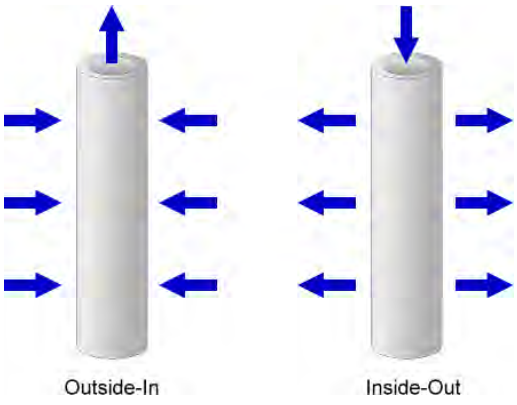
This has a direct positive impact on membrane lifetime as higher chemical resistance translates to slower rates of wear-and-tear, of which can be largely attributed to the frequency of chemical cleaning cycles and the membrane surface direct contact with chemical agents in the feed water.




## Outside-In Flow Mode

The EuroTec UF hollow fibre membrane is of outside-in flow configuration, which in comparison to inside-out flow membrane, allows for higher fouling tolerance as well as more effective removal of foulants from the surface via a combination of backwash and air scouring.

The outside-in flow membrane is more versatile in regards to the type and quality of feed water it can accept. Also, it typically requires less pre-treatment such as coagulation and flocculation.

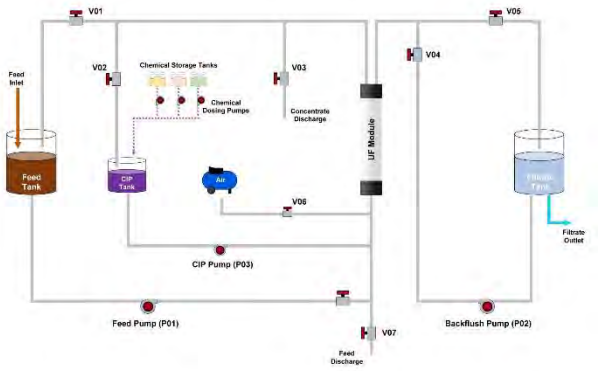


# UF SKID SYSTEM

## Basic Configuration

The schematic diagram on the right illustrates a typical EuroTec UF membrane system design consisting of feed pump, backflush pump, CIP pump, air compressor, CIP tank with various chemical dosing pumps and respective storage tanks.

System can be designed according to the level of automation required with pressure transmitters, automated motorized or pneumatic valves and flow sensors with a control panel including PLC and touchscreen HMI.




## Standard modular design

EuroTec is able to supply standard UF membrane systems with modular design to cater for the required flow on seawater desalination, surface water treatment and wastewater recycling applications.

- Modular Design
- Customizable
- Compact
- Easy Installation
- High System Efficiency
- Reliable Performance

## Project references Photos




**EuroTec Water Pte Ltd**
*(A First Line Company)*
57 Ubi Ave 1, #07-11
Ubi Centre, Singapore 408936
Tel: +65-6721-9707
+65-6721-9708
Email: sales@eurotec.sg
Web: www.eurotec.sg



Doc. No. ETUF-CTL-P1202405-003-F