

Datasheet



Advanced Water Treatment Solutions:
Ultrafiltration (UF) Systems



What is Ultrafiltration?

Ultrafiltration (UF) is one of the most sophisticated membrane filtration methods in water and wastewater treatment technologies, specifically designed for "high-precision separation." Its core principle relies on driving water through specially engineered semi-permeable membranes using forces such as pressure gradients or molecular diffusion. Ultrafiltration systems effectively eliminate suspended solids, bacteria, viruses, and other microorganisms from the water source.

How Do Ultrafiltration Systems Work?

Going beyond traditional filtration methods, this system utilizes semi-permeable membranes with a microscopic pore structure ranging from 0.01 to 0.1 microns.

To ensure maximum efficiency and equipment safety, our ultrafiltration systems are engineered based on the following sequential technical stages:

Pre-Filtration: In order to protect the lifespan of the UF membranes—the heart of the system—water is first cleared of coarse particles. This pre-filtration stage serves as a critical safety step that prevents mechanical clogging of the membrane pores.

Membrane Separation: Pre-treated water is directed to the semi-permeable ultrafiltration membranes. In this process, which operates via pressure differential, water molecules and essential minerals pass through the 0.01-micron pores. Meanwhile, bacteria, viruses, colloidal substances, and macro proteins are trapped by an absolute barrier and removed from the system.

Backwash and Performance Protection: To maintain a constant filtration efficiency, the flow direction is reversed at specific intervals. In this process, known as "Backwash," clean water is applied to the membrane pores with reverse pressure to dislodge and remove accumulated particles. Thanks to this automation, the system continues to operate at high performance without the need for operator intervention.



Advantages of Ultrafiltration System

- High-capacity production of quality and clean water
- Customizable water quality according to sectoral needs
- Easy installation and commissioning
- Container type portable solutions
- High quality solution in the treatment of industrial wastewater
- Low energy consumption

Ultrafiltration Systems Application Areas

- Reverse Osmosis System Pre-Treatment
- Wastewater Recovery
- Food and Beverage Industry
- Industrial Process Water
- Health Sector
- Drinking and Utility Water Treatment

Why Ultrafiltration with Ptech GmbH Assurance?

Tailor-Made Engineering

Instead of standard packages, we project the most suitable membrane structure and system capacity for your business needs in line with your raw water analysis.

Advanced Technology and Component Quality

We reduce your operational risks to zero by using world-standard, high-strength membranes and long-lasting instruments in our systems.

Sustainable Partnership

As Ptech GmbH, we measure our success by the high performance of the systems we have established even years later. We are always with you with spare parts continuity and expert technical field support.



+49 163 7037447

info@ptech-gmbh.com • www.ptech-gmbh.com



Ptech

ENERGY - WATER - SEWAGE TREATMENT TECHNOLOGY

Umwelttechnik GmbH



+49 163 7037447
info@ptech-gmbh.com
Katzwanger Str. 150, 90461
Nürnberg, Germany

📷 ptechgmbh
🌐 Ptech Umwelttechnik GmbH
📺 @PtechGmbH

www.ptech-gmbh.com