

UF'ICE: Ultrafiltration by ICE

UF'ICE⁽¹⁾ general principle

Increase of the quality controls, customers in search of guarantees... Water used by food industry and bottlers must be perfect, anytime.

Thanks to its experience and expertise in the protection of water quality, I.C.E. offers this guarantee with its ultrafiltration range: **UF'ICE**.

UF'ICE is the result of 20 years development and continuous improvement.



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UF'ICE main features

UF'ICE is a stand-alone **compact** unit, completely **skid mounted** and **ready for connection**. It can be installed very quickly.

UF'ICE is equipped with **ICE'View SCADA**: data saving for traceability and QA purpose.

An integrated CIP⁽²⁾ with preset CIP procedures makes **user-friendly** cleaning operations.

The internal and automatic procedure of **integrity testing** enables an easy detection of membranes breakdown.

⁽¹⁾ UF: ultrafiltration

⁽²⁾ CIP: cleaning in place

UF'ICE: Ultrafiltration by ICE

Advantages of UF'ICE

- ↓ Clarification and disinfection are made within a single step.
- ↓ UF guarantee a constant quality for treated water, regardless of raw water fluctuations.
- ↓ Savings on operation cost (no consumable or cartridge replacement).
- ↓ Chemicals consumption is very low.
- ↓ Ideal protection for Reverse Osmosis pre-treatment.
- ↓ Hygienic design, according to food and beverage GMP⁽³⁾.

Performances

- ↓ Turbidity < 0.1 NTU.
- ↓ 6 logs bacteria removal and 4 logs virus removal.
- ↓ SDI < 2.

NSF certification available.

The UF'ICE Process

- Sanitary design: absence of dead ends and complete cleanability.
- Integrated Cleaning In Place system (CIP), with automated cycles.
- Compact and modular system.
- Integrity test in situ, for Quality Control follow-up.
- Stainless steel equipment: better stability in time and food-grade compliance.
- CEB (chemical Enhanced Backwashes): combined cleaning with selection among a list of chemical recipes.

The guarantee of reliability and long lifetime.

In partnership with **INGE**®, I.C.E. proposes a performing membrane filtration technology with PES⁽⁴⁾ membranes.

Advantages of PES modules from INGE®



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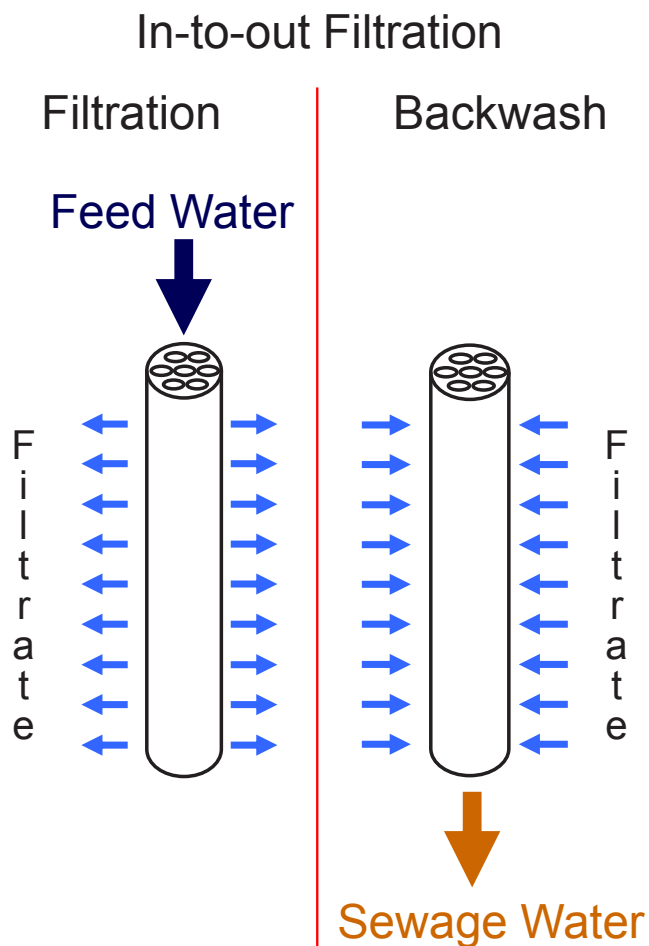
- ↓ The largest pH range among all membrane materials.
- ↓ Narrow distribution of pore size. Even if the cutting threshold is the same, Bacteria rejection will be at least 6 logs for PES membranes.
- ↓ Multi-channel fibres: membrane diameter is larger than single channel membrane (4 mm instead of 1.2 mm). There will be less breakages of membranes because of a higher mechanical resistance.



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The guarantee of a crystal clear water

Technical data



Ultrafiltration is a physical barrier stopping all particles and micro-organisms within a limit of 0.02 microns.

dizzer® module with perforated inner tube



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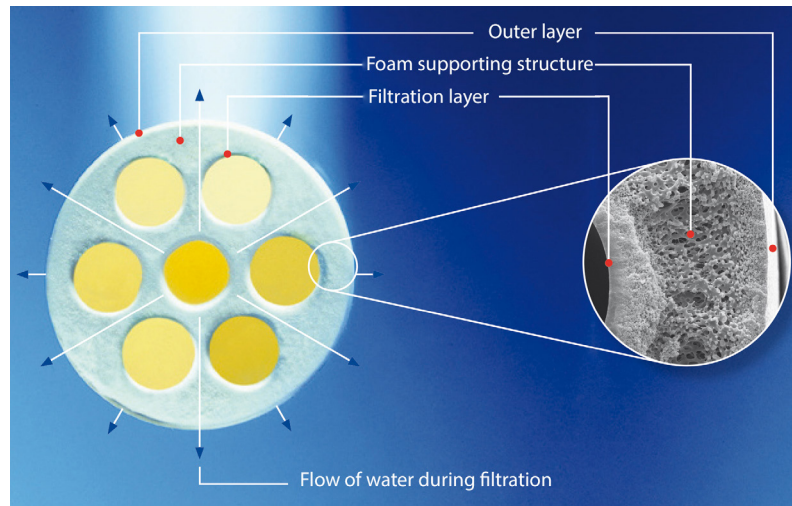
- Modified polyethersulfone membranes (PESM) for excellent permeability and hydrophilic characteristics.
- Excellent resistance to chemical aggressions (alkaline, acid, chlorine).
- Pressurized filtration for optimal permeability.
- No risk of retention for material trapped thanks to PES⁽⁴⁾ anti-fouling properties and In-Out filtration.
- Self-adaptive process.
- Various cleaning processes (backwashing, flushing cycles, maintenance and recovery cleaning).

⁽³⁾ GMP: good manufacturing practises

⁽⁴⁾ PES: Polyethersulfone

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UF is an advanced membrane filtration process. Therefore there is no need of air-scoured backwash, which will avoid the membranes weakening and cancel air consumption.



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