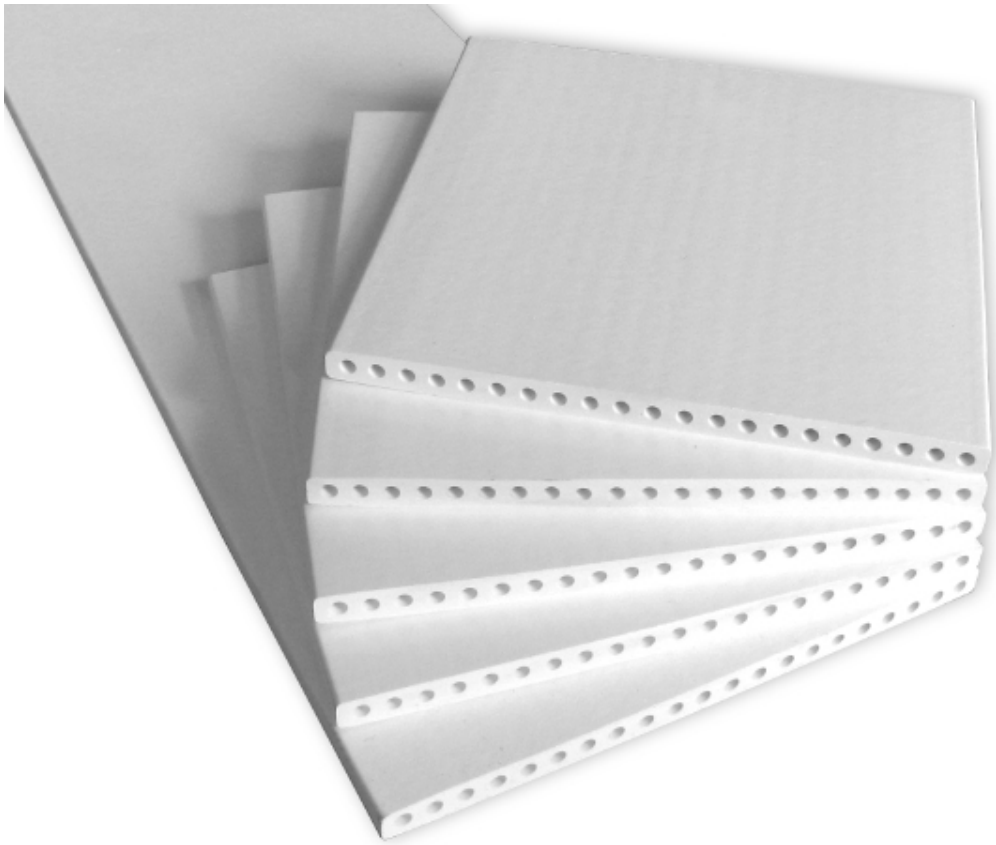
itn Water Filtration



Water Filtration by Ceramic Flat Membranes – CFM

- Asymmetric ceramic membrane structure
- Specific Nano-coated filter layer for individual filtration process
- Advanced submerged out-to-in filtration
- Outstanding material resistance for stable long-life operation
- Comprehensive product program
- Wide range of filtration applications

itn The Filtration People

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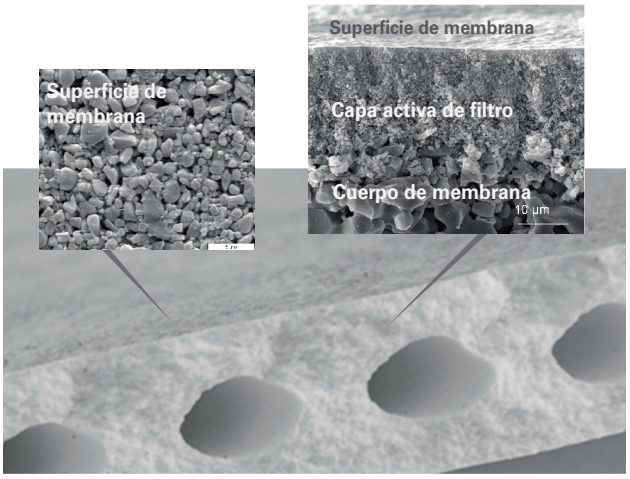
The Ceramics make the difference.

CFM Systems® (Ceramic Flat Membrane) combines the advantages of an asymmetric inorganic filter and submerged flat membrane filtration. The advanced design enables an unprecedented technical and economical water treatment in different fields of application.

- Extremely robust filtration material with resistance to high temperatures and chemicals.
- High quality of filtered water– Specific definition of nano-coated filter- active layer leads to a targeted removal of suspended solids and other focused compounds.
- Highest flux rates and easy cleaning options thanks to asymmetric membrane design with filter active layer on the outside.



Advanced Out-to-In Filtration

CFM Systems® is submerged in a filtration tank and connected to a suction pump. The feed water (raw water) is passing the membrane from out-to-in during filtration process. Suspended solids and other compounds are collected on the membrane outside and the filtered water is passing through the membrane body to the filtered water channels.

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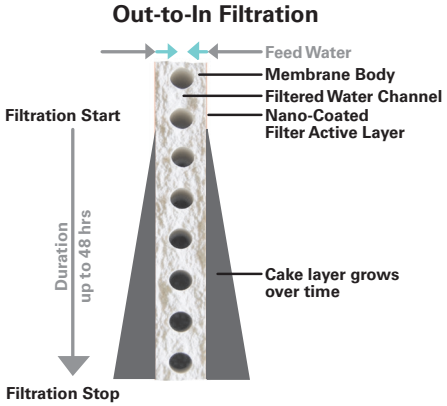
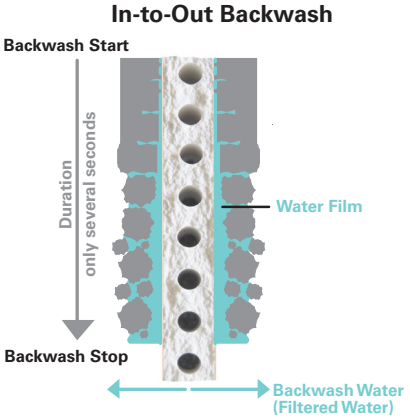


The collected suspended solids are forming a cake layer. In common out-to-in membranes or pressurized systems (in-to-out) a cake layer formation needs to be avoided because blocking of the membranes limits flux performance and causes high efforts for cleaning and frequent backwash. With ItN Nanovation's nano-coated layer technology even a sticky cake layer can be easily removed (comparable with "Lotus" effect). CFM Systems® even enables a targeted growth of cake layer of up to several millimeters. The cake layer is used as additional pre-filter and adsorption layer which lead to outstanding filtered water quality and the removal of dissolved compounds by targeted adsorption. The formed cake layer can be fully and easily removed by high-pressure backwash (In-to-Out). Within seconds a water film is generated between the nano-coated membrane and the cake layer. During the course of backwash the the cake layer slips down from the membrane.



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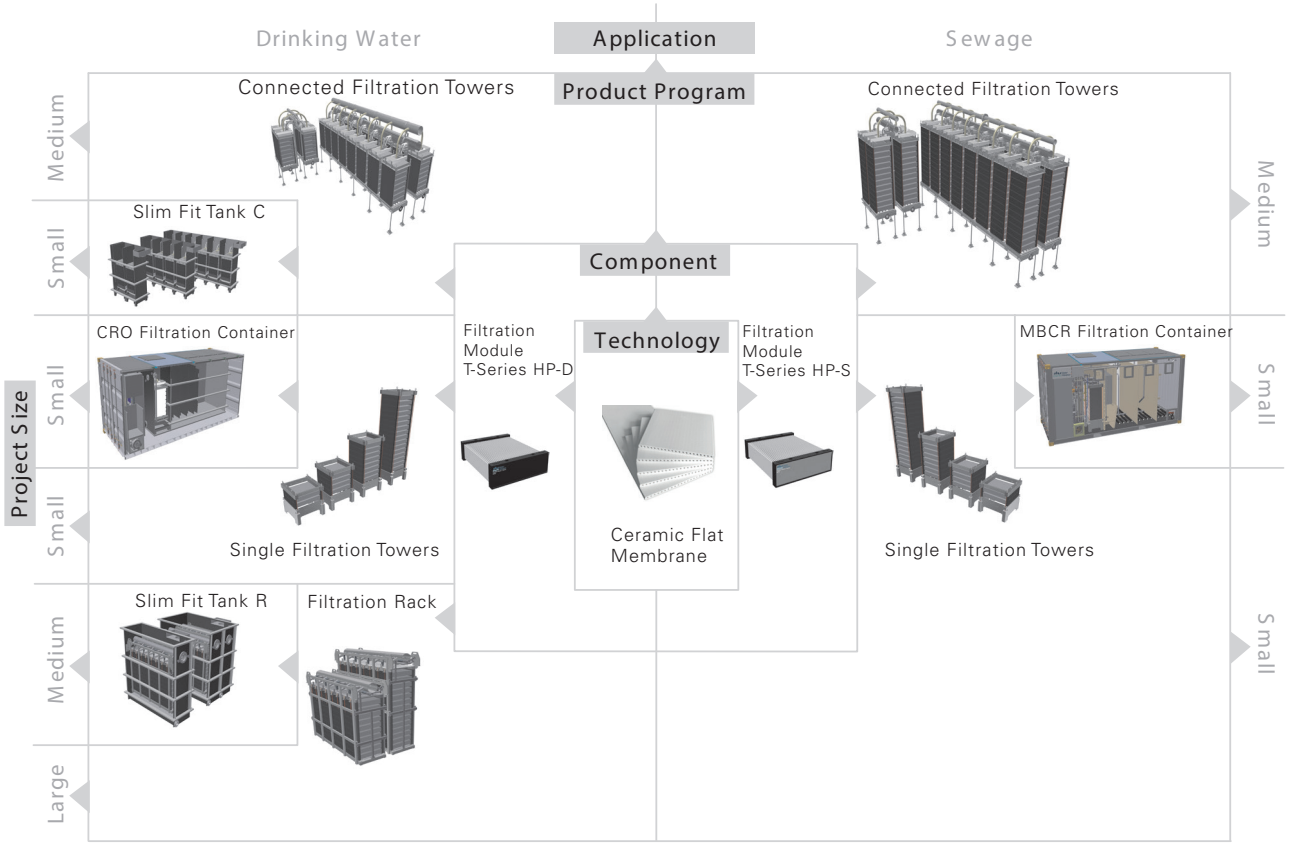
Nanotechnology – Packed into a Comprehensive Product Program



Using nanotechnology, ItN Nanovation has developed specific filter active layers for a targeted filtration process depending on application and customer requirements.
For Sewage treatment the BioSys Layer is used for a maximum removal of microorganisms.
For Drinking Water applications different coatings are available, e.g. the InOxi-Ads Layer for a maximum adsorption and removal of carcinogenic compounds.
The development of specific nano-layers was focused on a maximum process performance at highest flux rates offering easy cleaning options.

The Ceramic Flat Membrane is molded in Filtration Modules. For each application a T-Series standard module is used containing Ceramic Flat Membranes with a specific nano-coating.
Depending on the project size the modules are assembled in different types of frames either with an air scouring system only (Single Filtration Tower) or complete pipe equipment (Connected Filtration Towers and Filtration Racks).
All products, towers or racks as well as filtration tanks (Slim Fit Tank) and complete filtration containers (MBCR and CRO Filtration Container) are available individually.

The Perfect Solution for Your Application

Applications & Purposes

Treatment Targets / Removal of

	Drinking Water	RO Feed	Reuse	Industrial Feed Water
Iron & Manganese	✓ Ground Water Surface Water	✓ Ground Water Surface Water		✓ Ground Water Surface Water
Carcinogenic & Harmful Compounds, e.g. Radium	✓ Ground Water	✓ Ground Water		✓ Ground Water
Microorganism, e.g. Germs, Bacteria, Algae	✓ Ground Water Surface Water Sea Water	✓ Ground Water Surface Water Sea Water	✓ Sewage	✓ Ground Water Surface Water Sea Water Sewage
TOC Total Organic Carbon	✓ Ground Water Surface Water Sea Water	✓ Ground Water Surface Water Sea Water		✓ Ground Water Surface Water Sea Water Sewage
TSS Total Suspended Solids	✓ Ground Water Surface Water Sea Water	✓ Ground Water Surface Water Sea Water	✓ Sewage	✓ Ground Water Surface Water Sea Water Sewage

ItN Nanovation's ceramic membrane technology and process know-how cover a wide range of filtration applications with specific treatment and removal targets as per customer requirements.
CFM Systems® has been successfully implemented in a number of drinking water and sewage applications.
The in-house engineering and development team has implemented unprecedented treatment solutions which we previously considered as unsurmountable challenges by other filtration and membrane technologies.
For Sewage treatment ItN Nanovation has developed a containerized complete solution using the advanced process combination based on a 3-step MBBR and ceramic filtration (MBCR – Moving Bed Ceramic Reactor) which has been operating successfully at several customer sites worldwide.

For drinking water treatment CFM Systems® filtration has been combined with chemical pre-treatment processes in order to specifically remove carcinogenic compounds as radium, making it suitable for treatment of highly contaminated ground water, which is the only – limited – source of drinking water in arid areas. The process combination has been operating since 2010 in large-scale plants.
As we are constantly expanding our range of applications and products, you can find the most up-to-date information on our portfolio on our website.

TÜV International Certification THÜRINGEN CERT ISO 9001 15 100 85891 TIC

NSF Certified to NSF/ANSI 61

NSF certification applies only to Filtration Rack (T) / Filtration Unit Standard / Single Tower Connectable Unit (T)

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