CERAFILTEC[®] CLEAN WATER. EVERYWHERE.

Ceramic Filtration Technology - more than ultrafiltration

Product Design Concept





Products



Engineering Services

PROJECTION

The right process design and project cost understanding



Detailed calculation package to filtration process and pre-treatment requirements, power and chemical consumption, equipment list and more



PLANT LAYOUT DESIGN

For the most efficient construction and future operation



We provide civil works structure, filtration tank design, piping and instrumentation design, P&IDs and process philosophy



Assembly, installation, process start-up and more



CERAFILTEC's installation team will be at your site and supervise your team for a fast and smooth plant commissioning and operation





INSTALLATION & COMMISSIONIN

How It Works

OUT-TO-IN FILTRATION

Single ceramic plate with filter active layer on the outside of the membrane. Suspended solids are rejected on the membrane surface and forming a cake layer while clean water is passing through the membrane body and is collected at both end caps.



IN-TO-OUT BACKWASH

Reversed flow direction to filtration. A very small amount of filtered water is used to backwash the membrane. Within seconds, the formed cake layer comes off in flakes. Air-scouring can enhance the cake layer removal.



Novel Double Line Sprinkler

The integrated sprinkler system is used as water jet to enhance the removal of cake layers during on-air backwash.

At lower flow rates, the sprinkler can also be used for an efficient chemical cleaning by spraying concentrated chemicals over the ceramic flat sheet membrane surface (on-air cleaning). Due to the capillary force of the membrane pores, the chemicals are sucked into the membrane (CapClean mode).



- Sprinkler mode as mechanical cleaning with a spray flow up to 20 m³/hr @ 2 bar
- CapClean mode as chemical cleaning with a spray flow up to 8 m³/hr @ 1 bar



Sprinkler mode

CapClean mode

Active Cake Layer Filtration (ACLF)

The module is designed as submerged solution with an out-to-in filtration process. It allows a targeted formation of a cake layer on the ceramic surface, contrary to pressurized membrane filtration solutions in which a cake layer formation needs to be avoided.

The cake layer can be used as additional filter barrier for enhanced removal of very small particles and colloidal fractions. Sorption and catalytic processes inside the cake layer enable the selective removal of dissolved contents, like radium, uranium, arsenic or organics. The formed cake layer can function as protective coating to minimize biofouling or scaling. An improved filtered water quality can be achieved.

PRESSURIZED MEMBRANE FILTRATION



- Filtration pressure on feed side (membrane outside) Compression of formed cake layer leads to high pressure losses Dutside
- High feed pressure can lead to passing of deformable contents, like TEP which decrease filtered water quality
- High power consumption
- High cleaning efforts

CAKE LAYER FILTRATION WITH CERAMIC FLAT MEMBRANES

- Filtration pressure on filtered water side (membrane inside)
- Formed cake laver at ambient pressure - no compression
- High flux operation at
- very low pressure I ow power
- consumption
- Easy to clean



Reference Overview



CERAFILTEC is a German-based technology solution provider specializing in developing and producing high-performance ceramic modules and components. With over 25 years of experience in the water and wastewater industry, we have a long history of providing innovative solutions to our partners and customers. Today, we are a leading global technology supplier of advanced ceramic modules, offering a wide range of products and services to solve the most challenging problems concerning water.

Our partners and customers include project developers, EPCs, contractors, systems integrators, OEMs, and plant operators. We provide our filtration technology along with project-specific engineering to enable local partners to offer the most competitive and reliable treatment solution to their end customers.

Our team of highly skilled engineers and technicians is dedicated to provide the highest quality products and services to our partners and customers. We are committed to continuous innovation and improvement, and we are constantly expanding our product portfolio to meet the ever-changing needs of our partners and customers.



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