

Kontaktor® Membrane Filtration Systems



Introduction

K-A-B filtration technologies involve the use of patented ceramic membrane elements, known under the registered name Kontaktor®. KAB Environmental Technologies has been developing filtration technologies since 1990 and is located in Höhr-Grenzhausen, Germany, a city with over 2000 years of history working with ceramics. It is also the location of the internationally acclaimed Research Institute for Glass and Ceramics, FGK, specializing in the applied materials research of technical ceramic compounds.

Process Overview

Kontaktor® membrane elements are a unique and innovative filtration solution that offers the durability of ceramic based membranes at superior cost-performance advantages for drinking water, wastewater and exhaust gas treatment. Kontaktor® membrane elements are modular in design allowing for series installations creating a unique membrane reactor. This reactor combines aeration, clarification and micro-filtration processes, eliminating the need for additional plant process equipment. The ceramic membranes are resistant to heat and chemicals making them the most reliable filtration solutions for a wide variety of applications. Kontaktor® membrane elements are available in varying porosity and membrane coatings depending on the final application. A unique back flushing process eliminates membrane fouling and solids build-up, while at the same time increasing the filtration efficiency of the total system. Kontaktor® membrane elements can be easily integrated into an existing treatment facility that requires upgrades or engineered into a new facility design.

Applications

Kontaktor® ceramic membrane elements have a broad range of applications that include:

- Efficient aeration of small decentralized residential septic systems and large-scale municipal wastewater aeration basins to improve the microbiological environment for more effective wastewater treatment.
- Micro and Ultra-filtration with an automated membrane cleaning process for drinking and wastewater treatment.
- Filtration and catalytic oxidation of organic contaminants in surface or ground water.
- Cleaning of industrial process exhaust gases through the injection of adsorption fluids.

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Features and Benefits

Kontaktor® membrane filter <i>Features</i>	Engineering and Operator <i>Benefits</i>
Membrane bio-reactor (MBR) process for continuous flow filtration	Performs equalization, biological treatment, aeration and clarification in a single reactor. Eliminates the need for separate aerators, clarifiers and disinfection equipment resulting in capital cost savings.
Fine Bubble Aeration Cycle through pore diffusion using back flushing cycle.	<ul style="list-style-type: none"> Increases the oxygen transfer efficiency (OTE) increasing overall treatment plant efficiency. Saves money by using less power than coarse bubble aerators. A membrane self-cleaning process saves time and money by eliminating facility downtime for diffuser maintenance and extends filter service life. Satisfies high oxygen demand requirements.
MF/UF/NF Cycle	Membrane elements lend themselves to a variety of micro-filtration (MF), ultra-filtration (UF) and nano-filtration (NF) applications in order to meet stringent water quality standards.
Broad Porosity range	Flexibility and control of effluent or gas discharge concentration in order to meet permit specific requirements
50-350 mm filter element diameter range	Minimal footprint requires less space, ideally suited for in-pipe/in basin installations for retrofitting or designing into new facilities.
Modular Design	Filter elements are vertically stacked, racked and later expanded depending on facility capacity requirements.
Wet and/or Dry Installation	System design flexibility by allowing membranes to be installed either in-basin or top-side applications.
Ceramic-based membrane	<ul style="list-style-type: none"> Highly chemical resistant High temperature resistance Low fouling tendency Rigid construction does not require additional reinforcement to prevent delaminating or tearing typical of cellulose or polymeric membranes.
In-line Injection Ports	Enables direct injection of air, flocculation and cleaning agents for more precise control and monitoring.
Low Pressure Operation	Saves electricity by requiring fewer air blowers.



Mobile Drinking Water Treatment Plant using Kontaktor®-membranes for Micro and Ultra-filtration of surface water

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