

## Installation Example

2 examples out of approx.100 installations

### DWTP in Shizuoka, Japan

Capacity : 10,000m<sup>3</sup>/day  
(417m<sup>3</sup>/h , 2.6 MGD)

Raw water : Groundwater

Operation Start : Year 2007

Features of the Project :

- High Recovery Rate  
(zero wastewater discharge to outside the plant)



### DWTP in Kanagawa, Japan

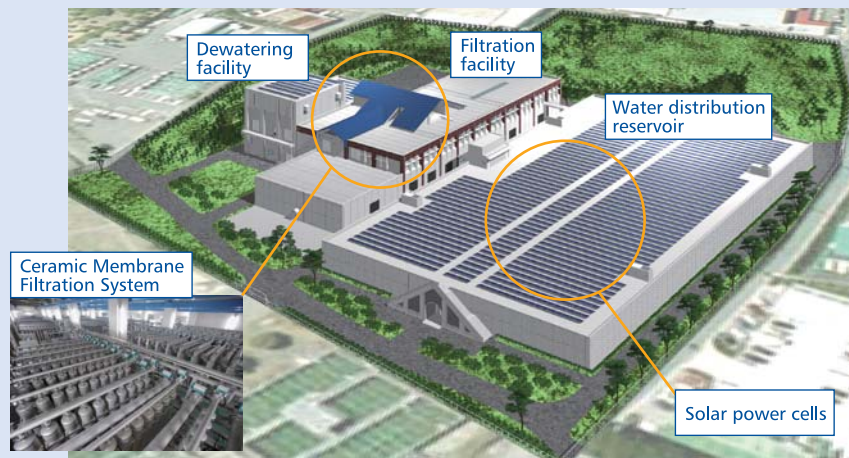
Capacity : 171,070m<sup>3</sup>/day  
(7,128m<sup>3</sup>/h , 45.1 MGD)

Raw water : Surface water

Operation Start : Year 2014 (scheduled)

Features of the Project :

- Natural Energy Utilization  
(water level difference, Solar Panel)
- Privatization Project  
(20-year operation and maintenance)



DWTP : Drinking Water Treatment Plant

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METAWATER

BEYOND ENGINEERING

System

# Ceramic Membrane Filtration System



METAWATER Co., Ltd.



# Ceramic Membrane Filtration System Promises Safe Water

The Ceramic Membrane Filtration System is a reliable technology to produce safe and secure water. METAWATER has one of the advanced systems in the world. With its unique characteristics, we can offer optimal water treatment solutions for increasing demands relevant to water all over the world.



DWTP in Ehime, Japan

## Features of the Ceramic Membrane Filtration System

Solution for high quality and excellent water treatment

### Safe and High Quality Water

The 0.1  $\mu\text{m}$  pore size membrane removes most of impurities, organisms, and harmful bacteria.

### Stable Operation

The system can operate without shutdown even in a sudden turbidity increase in raw water.

### High Water Recovery Rate

More than 98% of raw water is recovered as treated water because of dead-end filtration and low backwash frequency.

### Easy Operation & Maintenance

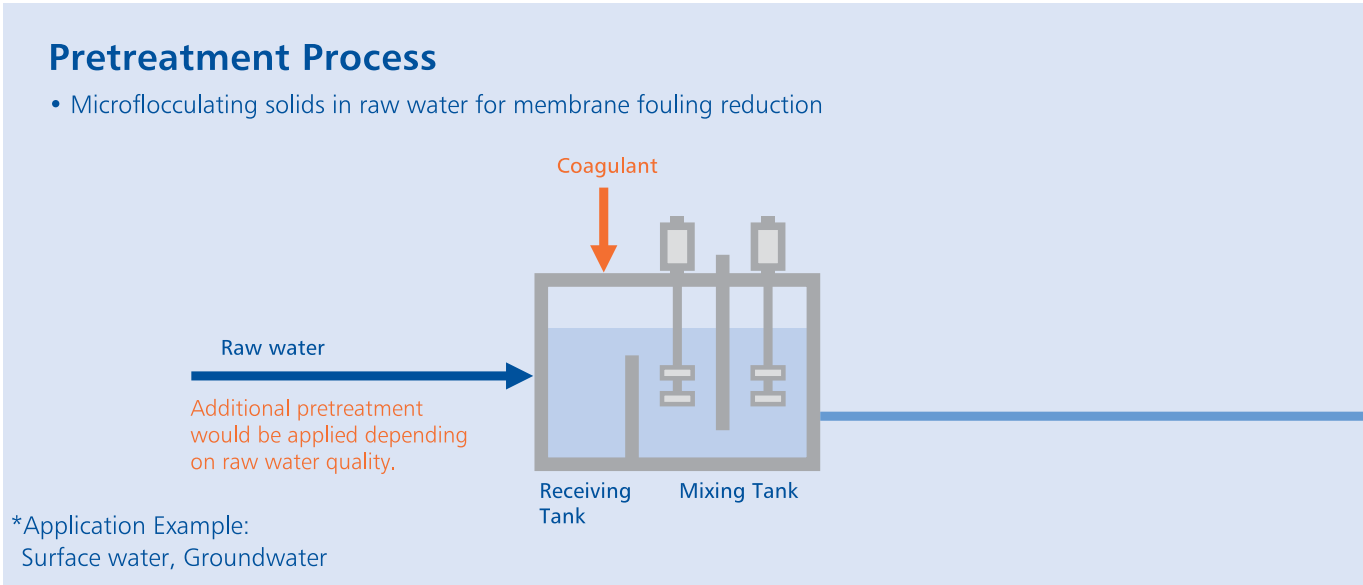
Mechanically and chemically strong ceramic membrane offers simple operation.

### Low Operation Cost

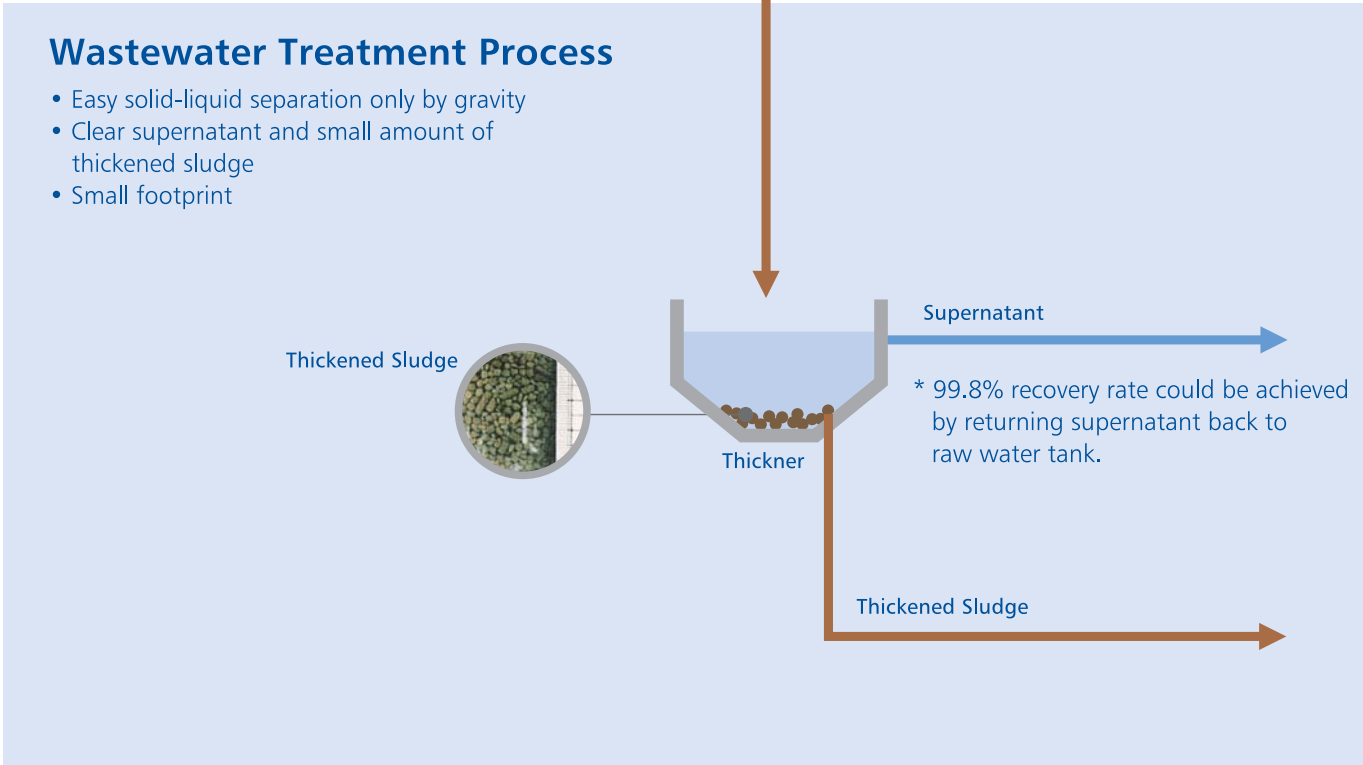
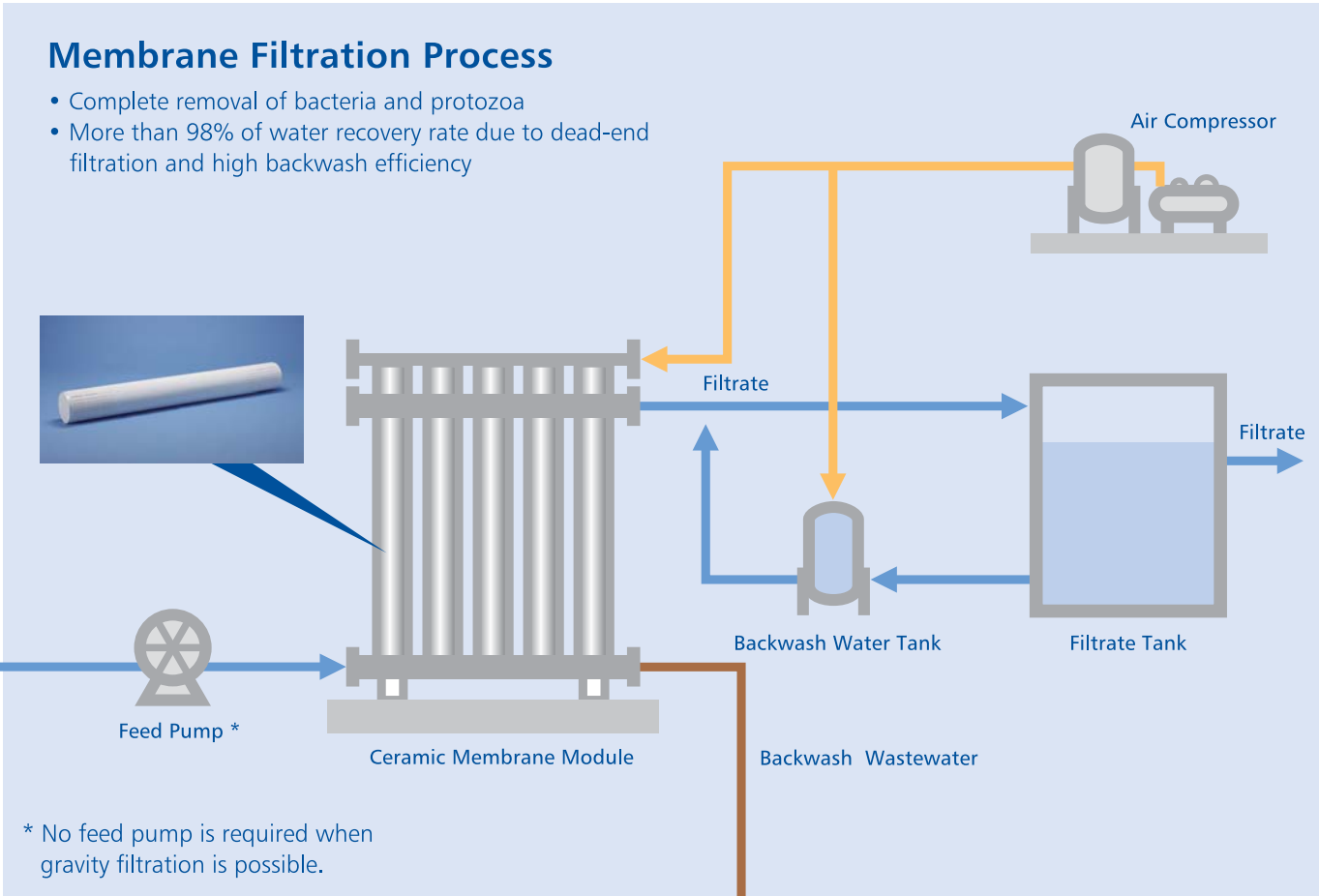
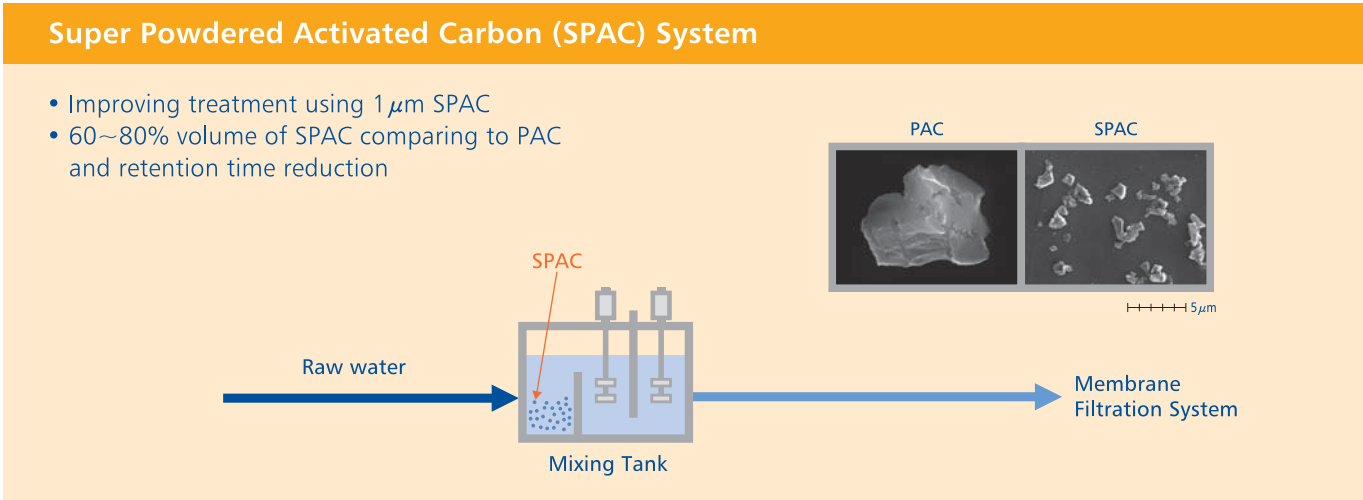
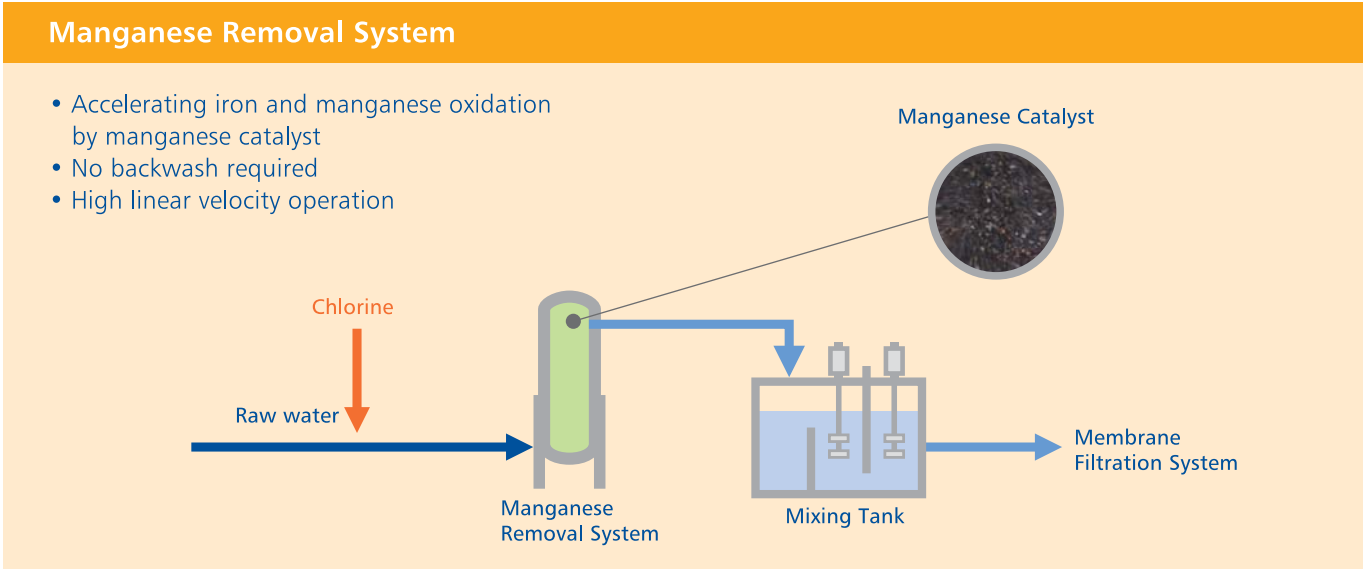
Higher energy efficiency and longer membrane life significantly reduce operating cost.

# Schematic Flow

METAWATER provides the most suitable system for raw water quality fluctuation.

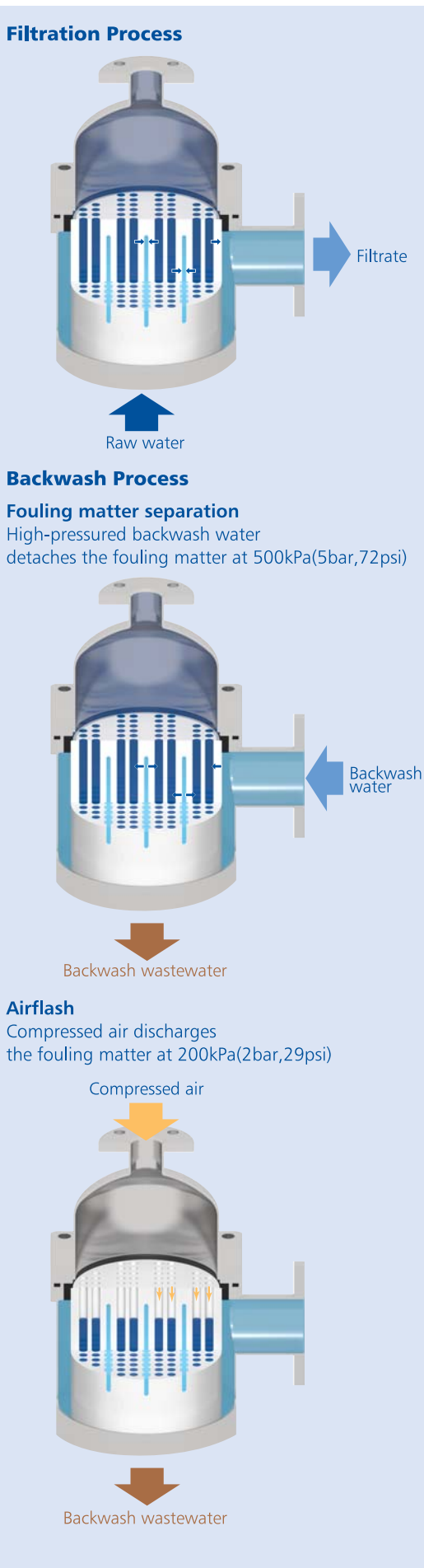
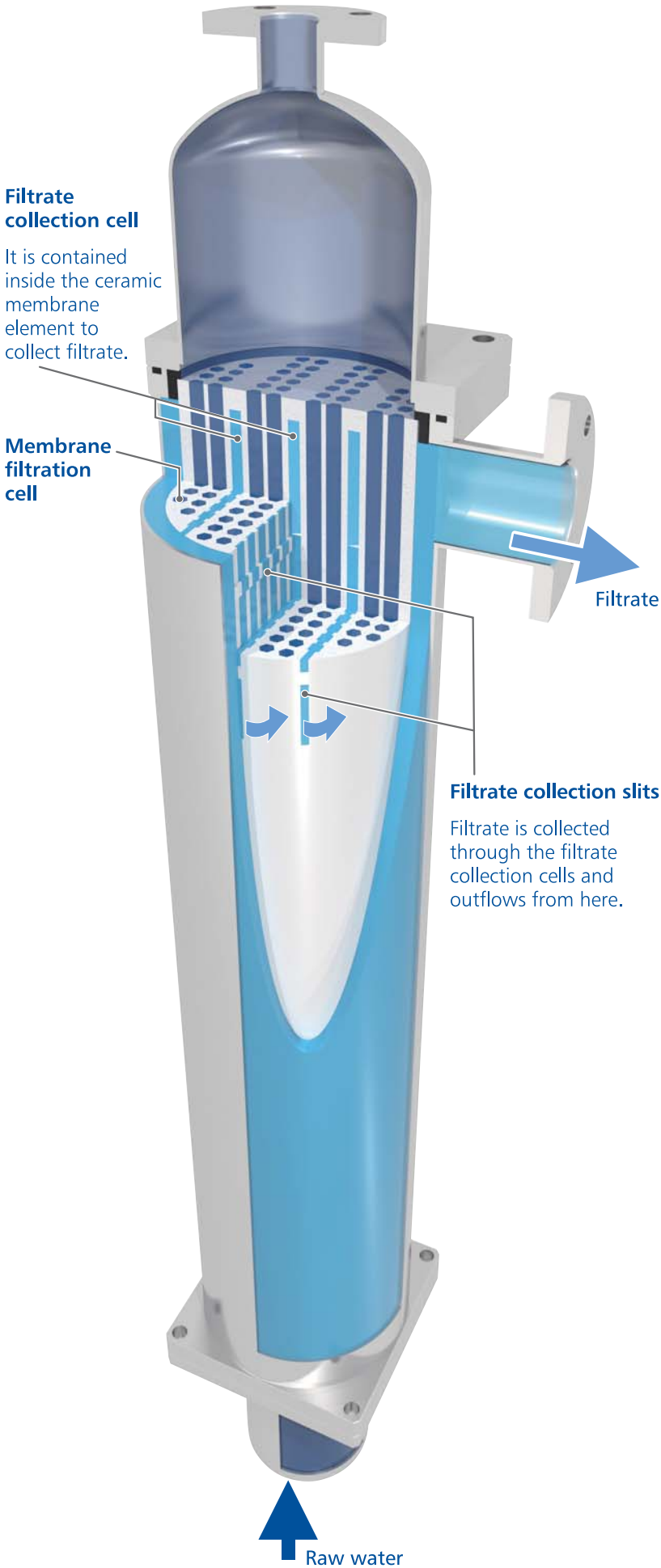


## Example of Additional Pretreatment





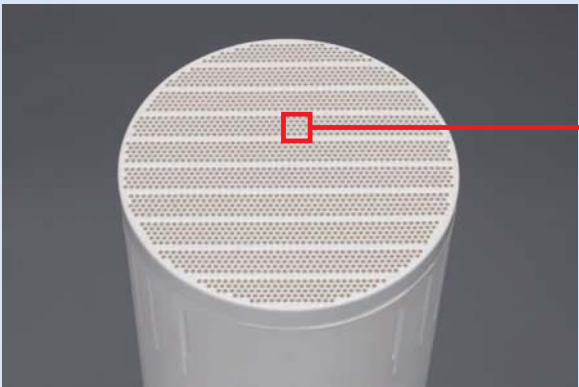
Filtration Mechanism



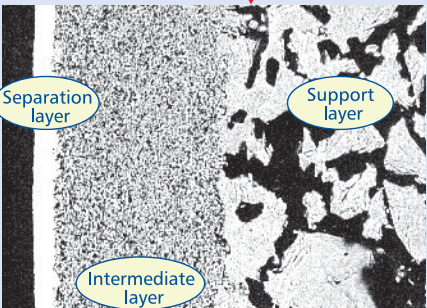
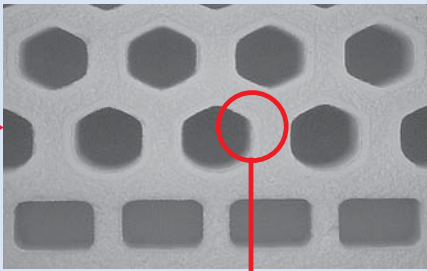
Features of Ceramic Membrane Element

The unique features of ceramic membrane element facilitate the ideal system design that meets the needs of every water treatment plant.

- **High Mechanical Strength and Resistance to Chemicals**  
The ceramic material is highly resistant to pressure, heat, and corrosion, resulting in no membrane breakage.
- **Long Operation Life**  
The ceramic membrane element maintains its performance for a long time.
- **Low Environmental Impact**  
Used membranes can be reused as raw ceramic material.



Ceramic membrane element



**Membrane Element Specifications**  
Type: Inner pressure monolithic  
Material: Ceramics  
Nominal pore size: 0.1  $\mu$ m  
Outer diameter x Length: O.D.180mm x 1,500mmL  
Membrane cell inner diameter: approx. 2.5mm  
Membrane area: 25m<sup>2</sup>

Newly developed water treatment system for small scale  
Package Type Drinking Water Treatment Plant (DWTP)

- Features of Package Type DWTP
- Shortening Work Periods
  - Space Saving
  - Low Cost
  - Unattended Operation

System Specification

System Configuration		1Element 2Module	2Element 2Module	3Element 2Module	3Element 3Module
Standard Treatment Capacity (m <sup>3</sup> /d)	Ground water	100~200	200~400	300~600	450~900
	Surface water	75~150	150~300	225~450	338~675
Size		2.1mW x 5.2mL (*1)			2.1mW x 6.3mL (*2)

(\*1) 2.1mW x 7.3mL including raw water tank  
(\*2) 2.1mW x 9.4mL including raw water tank

