



# MBBR Pack

The modular standardized  
wastewater treatment solution

**WATER TECHNOLOGIES**

# MBBR Pack

## A complete modular,

### The stakes

Local authorities and industries have to deal quickly with rapid changes in the volumes of wastewater to be treated and the concentration of carbon- and nitrogen-based pollutants to be eliminated. Whether deciding to install a new sewage treatment plant or to upgrade an existing plant to meet discharge standards, a growing number of facilities are looking for comprehensive, flexible biological treatment options.

Customers want effective solutions that can be quickly delivered and installed, enabling them to reduce their infrastructure and civil engineering costs while ensuring continuity of treatment for their communities or their production processes.

In a context of economic pressure, customers not only expect reliable, proven standardized solutions with a positive impact on production, installation and commissioning costs, but also a high level of service combining training, maintenance, technical support and operations.

**To meet all these customers needs, Veolia Water Technologies has developed MBBR Pack, the ideal modular packaged solution for treating wastewater.**

### Flexible solution for:

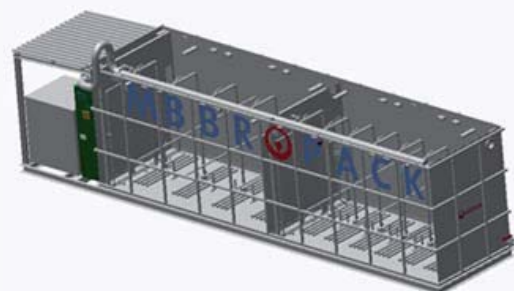
- > Food & Beverage Plants
- > Chemical & Petrochem Plants
- > General Manufacturing
- > Oil Refineries
- > Pharmaceutical & Biopharm Plants
- > Industrial Paint & Coating Plants
- > Grain Processing & Ethanol Plants
- > Municipal housing development
- > Resorts, Hotels & Business Parks
- > Temporary worker camps
- > Remote locations & Construction sites
- > Remediation sites



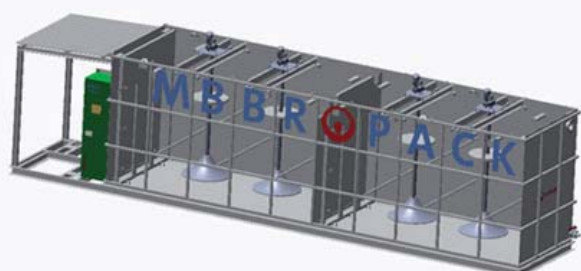
# standardized wastewater solution

## Three Packs to suit your needs

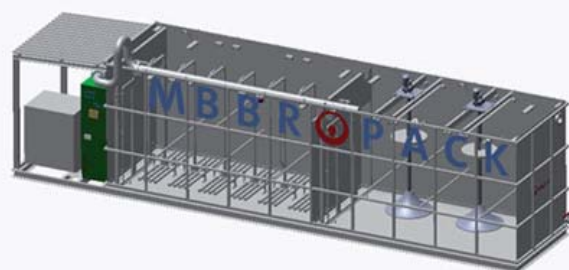
The MBBR Pack is available in several configurations, depending on the customer's treatment goals for carbon and/or nitrogen. AnoxKaldnes carriers are a vital component in MBBR Pack.



Aerobic configuration  
**AEAE**



Anoxic configuration  
**ANAN**



Anoxic - Aerobic configuration  
**ANAE**

## High Performances Solution

### Municipal wastewater

Configuration	Application	Load Removed			Acheivable Effluent		
		BOD lbs/d	NH4-N lbs/d	Nox-N lbs/d	sBOD mg/L	NH4-N mg/L	Nox-N mg/L
AEAE	BOD/BOD	330	-	-	<10	-	-
AEAE	BOD/Nit	70	12	-	< 5	<2.5	-
AEAE	Nit/Nit	-	20	-	<5	<5	-
AEAE	Nit/Nit	-	15	-	<5	<1	-
ANAN	PDN/PDN	-	-	60	<5	-	<5
ANAE + AEAE	PreDN/BOD + Nit/Nit	100	25	15	<5	<5	<15

- Assumes 10° C.

### Industrial wastewater

Configuration	Application	Load Removed		Removal Efficiency		
		BOD lbs/d	TN lb/d	sBOD %	NH4-N %	TN %
AEAE	BOD/BOD	330	-	-	-	-
AEAE	BOD/Nit	80	30	95	90-95	-
ANAE + AEAE	PreDN/BOD + Nit/Nit	160	70	95	90-95	50-80

- Assumes 25° C.

## Flexible bundling possibilities

To deal with the problems and quality objectives that each municipal and industrial customer has and to provide them with comprehensive solutions, the MBBR Pack can be combined with many Veolia processes in pre-treatment or in post-treatment.

## RELATED SERVICES

- **Hydrex™ 6000** water treatment chemicals from Veolia should be used for optimized plant operation.
- **Local after-sales service and support teams** offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.

Pre-treatment	Biological treatment	Post-treatment
IDRASCREEN™ Screen Filter	 <p>MBBR Pack Technology</p>	IDRAFLOT™ DAF
IDRAFLOT™ DAF		ACTIFLO® Clarification
SPIDFLOW® Rapid DAF		HYDROTECH™ DISCFILTER Disc Filtration
		SPIDFLOW® Rapid DAF

## Technical data

Item	Info
Tank material	Epoxy coated carbon steel
Piping material	Stainless steel AISI304
Net volume	12,150 Gallons
Carriers	K5 (45% of the net volume)
Dimensions for transport	38.4 ft (L) x 7.9 ft (W) x 9.8 ft (H)
Empty weight	20,000 lb
Dimensions in operation	38.9 ft (L) x 8.6 ft (W) x 11.8 ft (H)
Weight in operation	132,300 lb
Water depth	7.5 ft
Automation 24/7/365	PLC - Allen Bradley / HMI - Siemens
Noise	< 70 [dB (A)]
Marking and standards	UL - Where Applicable

## Scope of supply

Included in the scope
Tank
Blower
Sieves
Piping
Manual valves
Diffusers
Carriers
Automation panel
Sensor levels
Oxygen and temperature sensor

# standardized wastewater solution

## All of Veolia's experience in a Plug & Play customer solution

By integrating the Moving Bed Biofilm Reactor, biological treatment technology developed by Veolia subsidiary AnoxKaldnes over 25 years ago, the MBBR Pack meets market needs with a packaged solution.

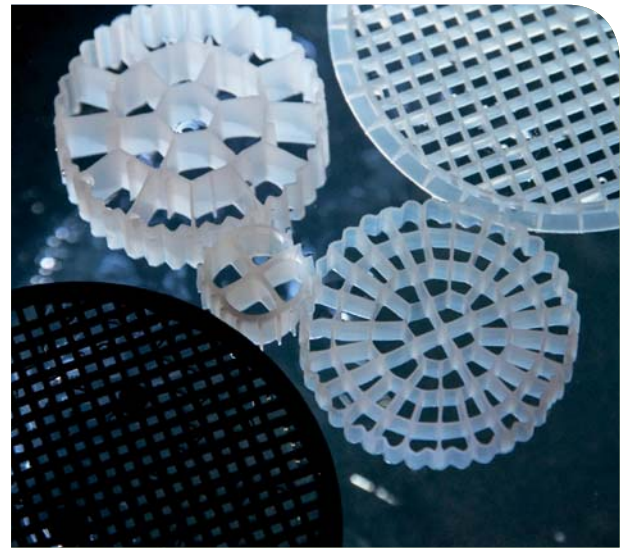
The MBBR Pack provides all the advantages of a conventional MBBR system, in a standard prefabricated, easy to install package. By combining the modules with each other, you get a packaged solution that can meet your specific plant needs.

## High treatment capacity in a very small footprint

MBBR Pack technology is based on the biofilm principle, which uses microorganisms for biological treatment of wastewater.

The microorganisms grow on the surfaces of plastic carriers in the treatment reactor. As the carriers move through wastewater in the reactor, microorganisms utilize contaminants present in the effluent for their biological activity. The proprietary design of the carriers ensures that maximal surface area is provided for the development of biofilm, enabling high treatment capacity in a very small footprint.

The flexibility of the patented AnoxKaldnes™ MBBR Pack technology allows the design of very compact and efficient solutions for new installations as well as upgrades of existing biological processes.



### KEY BENEFITS

Customized biological solution  
in a standardized package

- > **Quick delivery** and easy installation
- > **Limited engineering costs**
- > Small footprint
- > **Limited on-site infrastructure needed**
- > Easy transportation
- > Robust biological system resistant to:
  - Toxic shocks
  - Fluctuating flows
  - Varying loads
- > Automatic operation – userfriendly  
Human Machine Interface
- > **Built-in easy to expand:**
  - Modular units
  - Easy carrier addition
- > AnoxKaldnes laboratory expertise support
- > 25 years of experience and more than 1,000 MBBR references worldwide

# Resourcing the world

## **Veolia Water Technologies**

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