

XEALIO



ALPHA SERIES

Containerized Wastewater Treatment Plants

www.xealio.com

About Alpha Series

Containerized Wastewater Treatment Unit

The Alpha Series is a compact, containerized wastewater treatment solution designed for rapid deployment and reliable operation.

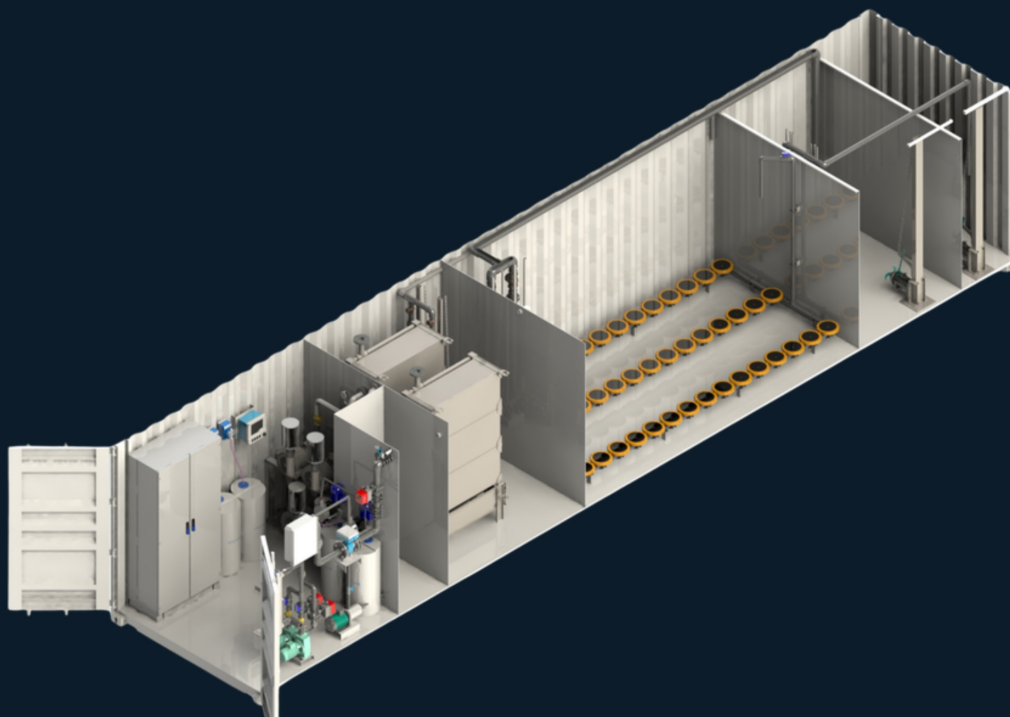
The benefits of using containerized WWTP are wide-ranging. These solutions come pre-assembled, arrive on site ready for operation and are designed to minimize the daily attention required to operate and maintain the plant.

XEALIO



Advantages of Alpha MBR

Xealio offers complete pre-assembled MBR plants as containerized systems (ISO & Custom sizes). This facilitates easy transportation, shorter project lead times and rapid commissioning of the MBR plant.



The Xealio MBR Advantage

Advanced Treatment Performance

Delivers consistently high-quality effluent suitable for strict discharge limits and water reuse applications.

Modular Scalability

Designed with a flexible modular architecture that allows seamless capacity expansion as operational demands grow.

Optimized Footprint

Engineered to maximize treatment efficiency within a highly compact layout, reducing land and infrastructure requirements.

Plug-and-Play Installation

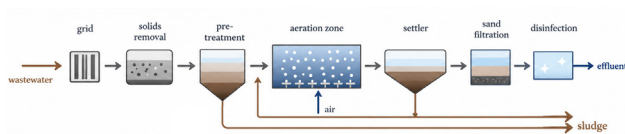
Pre-piped, pre-wired, and factory-tested systems minimize on-site construction activities, reducing installation time and project complexity.

Traditional wastewater treatment uses large settling tanks. Alpha MBR technology replaces these tanks with advanced membranes. This makes the system more efficient and takes up less space.

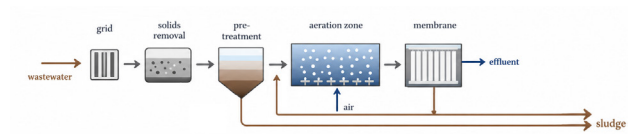
Alpha

MBR

Membrane Bioreactor Technology



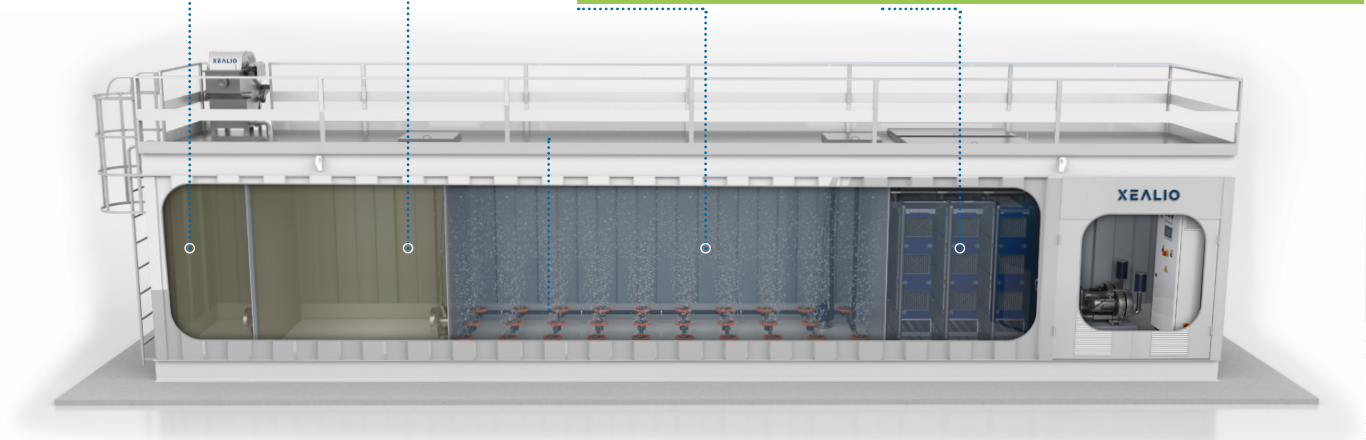
Conventional Biological Treatment



MBR Treatment

Alpha MBR Options

Anaerobic	+	Anoxic	+	Aerobic	+	MBR	Option I
		Anoxic	+	Aerobic	+	MBR	Option II
				Aerobic	+	MBR	Option III



Anaerobic Tank :

In the anaerobic reactor phosphate accumulating organisms assimilate the necessary pre-cursor chemicals to allow for removal of soluble phosphates downstream in the aerobic reactor.

Aerobic Tank :

After anoxic zone, the denitrified wastewater enters into the aerobic tank. Process air blowers feed fine bubble diffusers installed at the bottom of the aerobic tanks to provide oxygen for biomass in the aerobic zone. Air is dissolved and used by biomass under aerobic reactions.

Anoxic Tank :

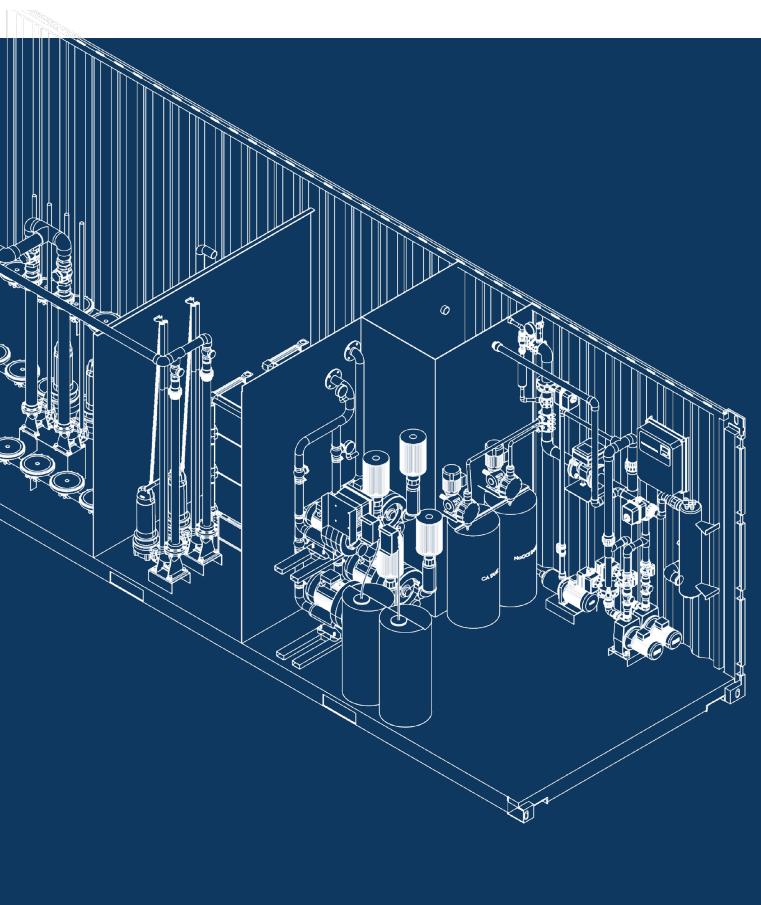
Primary function of the anoxic process is de-nitrification or nitrate reduction. In the absence of dissolved oxygen, the biomass oxidizes organics using available oxygen molecules from nitrate (NO_3^-).

Membrane Tank:

The Alpha MBR reactor physically separates suspended solids and biomass from the treated water, producing a low-turbidity effluent. Pathogen reduction depends on membrane characteristics and the selected disinfection system.

System Design & Engineering

At Xealio, our experienced engineers design and deliver advanced wastewater treatment solutions worldwide, combining innovation, reliability, and practical expertise to meet the unique requirements of every project.



Factory Tested

Every unit is pre-commissioned and factory-tested before leaving our facility.

Commissioning & Training

Our experienced field engineers provide on-site commissioning and comprehensive operator training

Remote Support

Cloud diagnostics and live operator assistance

Spare Parts

Fast access to critical components, minimizing downtime and ensuring operational continuity.

Alpha MBBR containerized wwtp system is an attached growth biological treatment process in which microorganisms develop as biofilm on freely moving carrier media inside the biological reactor.

Alpha

MBBR

Moving Bed Biofilm Reactor



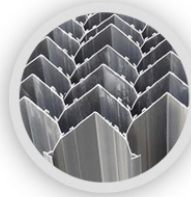
Screw Screen

Intended for the extraction of medium and fine waste solids from wastewater.



MBBR Bio media

Bio media provides increased surface area for the biological microorganisms to attach and grow.



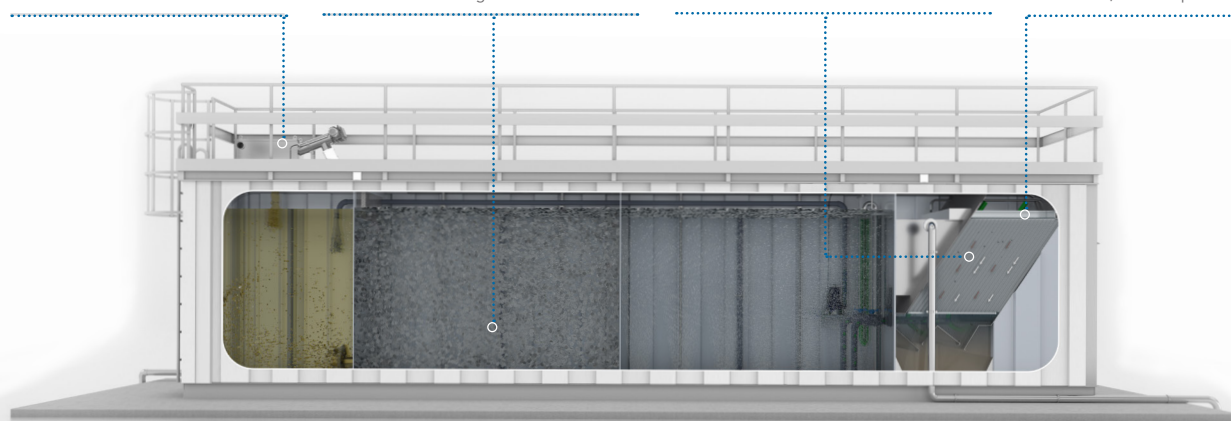
Lamella Clarifier

High rate inclined plate lamella clarifier for wastewater sedimentation.



Clarified Water Weirs

The clarified water is discharged over overflow weirs (AISI 304, AISI 316 Stainless Steel) on the top of the clarifier.



Biofilm media provides increased surface area for the biological microorganisms to attach and grow. The increased surface area reduces the footprint of the tanks required to treat the wastewater.

Depending on the project requirements, Alpha MBBR systems can incorporate screening, anoxic treatment, aerobic biofilm treatment, clarification, disinfection and sludge storage within a compact modular structure.



Containerized



Scalable



**Plug
& Play**



**Smart
Operation**

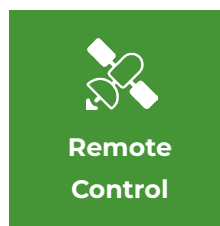


Remote Control

Alpha WWTP units are designed to operate fully automatically. Remote control module can be added optionally. Optional remote connectivity enables secure access to operating data, alarms and trends, allowing faster technical support, diagnostics and authorized software updates.

This innovative interface empowers you to take complete control of your Membrane Bioreactor (MBR)

- Access from PC, smartphone or tablet to the HMI via the Internet
- Access protection via password security protocol
- Real-time data and trend check-up



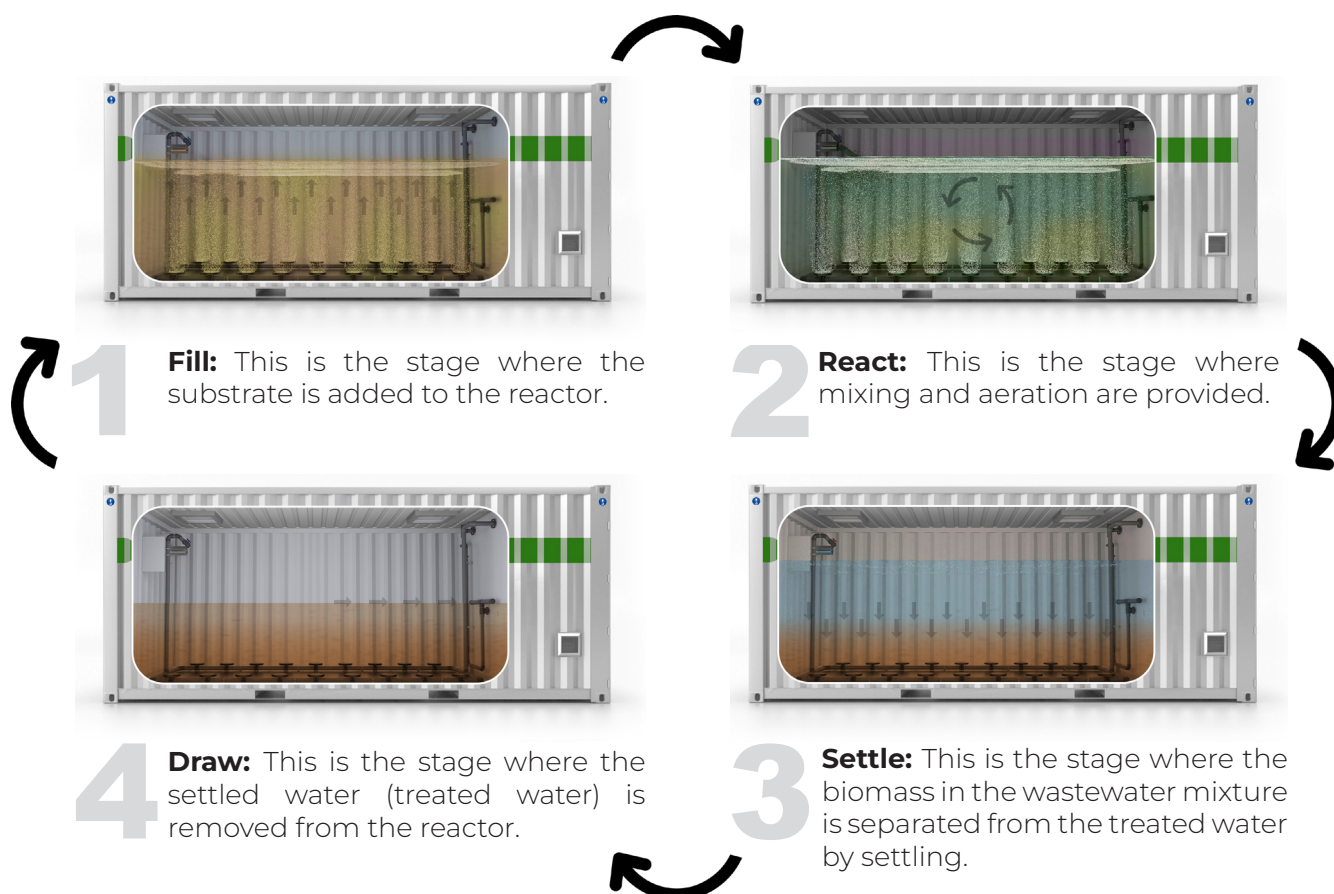
At Xealio, we offer SBR wastewater treatment technology as a compact, flexible, and highly effective solution for treating domestic, municipal, and industrial wastewater. SBR technology performs the main biological treatment stages sequentially within a single reactor.

Alpha SBR

Sequencing Batch Reactor

In an SBR system, the process is performed in time instead of in space, as is the case with conventional wastewater treatment systems which usually have separate tanks for each treatment step. This implies that the wastewater is processed in a controlled batch in a single reactor tank. This results in reduced need for extra clarifiers, sludge return pumps and complicated hydraulic arrangements, and makes it particularly suitable for compact and containerized treatment plants.

A typical SBR treatment cycle consists of four basic steps, occurring sequentially:



At Xealio we incorporate SBR technology into engineered wastewater treatment systems that are practical, automated and flexible to meet site needs. Controlling modern SBR systems can be achieved using timers, sensors, dissolved oxygen monitoring and PLC based automation, resulting in flexible process control while maintaining the reliability of operation.

Application Areas



**High
Efficiency**



**Easy
Transport**



**Up to 5-Year
Structural
Warranty**



**Remote
Control**

Engineered for Challenging Environments

Xealio delivers consistently high-quality effluent suitable for strict discharge limits and water reuse applications.

From remote mining camps and oil & gas facilities to municipalities, hospitals, military bases, and humanitarian operations, our containerized systems provide consistent treatment performance wherever needed.

Designed for rapid deployment, simple operation, and long-term reliability,

Xealio solutions help organizations meet environmental regulations while minimizing infrastructure requirements.



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