

EPL Co., Ltd.



STP, SpTP & WWTP Process



IRBC-BBR Process

Introduction



This process is the combination technology of Rotating Biological Contactor(RBC) immersion device and biological reactor to optimize the treatment of Total Organic Carbon, Total Nitrogen and Total Phosphorus.

Features

- High-efficiency Advanced Process**
 - Capable of treating high-concentration nitrogen, phosphorus and organic matter
- Easy to Improve Existing Facilities**
 - Easy to replace old existing RBCs
 - Easy adjustment without major changes on existing civil structures
- Easy Maintenance**
 - Easy operation and maintenance due to the simple treatment process
- Economical CAPEX and OPEX**
 - Low CAPEX and OPEX
 - Minimization of the installation area

Performance comparison

Category	IRBC-BBR Process	Standard activated sludge Process	A ² /O Process
Treatment efficiency	T-N : 80 ~ 95%	T-N : 20 ~ 30%	T-N : 60 ~ 75%
	T-P : 75 ~ 90%	T-P : 10 ~ 20%	T-P : 50 ~ 70%
	BOD : 96% ~	BOD : 90% ~	BOD : 90% ~

* The above performance may vary depending on site conditions, water characteristics, etc.

Application

High Concentration Treatment Plant

- Livestock and Septage treatment plant
- Food wastewater treatment plant
- Leachate treatment plant
- Food processing wastewater treatment plant

Sewage/Septage/Wastewater Treatment Plant

- Sites with severe influent load fluctuations
- Sites with low influent load concentrations where microbial growth is limited
- Sites where need advanced process for nitrogen and phosphorus treatment

Other Treatment Facility

- Sites with difficult to build facilities due to limited site area
- Sites where need pretreatment to reduce the load on the existing process

Reference

Location	Capacity
Giheung Septage Treatment Plant	100m ³ /day
Jangseong-gun Septage Treatment Plant	60m ³ /day
Namhae-gun Septage Treatment Plant	50m ³ /day
Uiryeong-gun Septage Treatment Plant	130m ³ /day
Busan 00 Sanitary Office	3,500m ³ /day
Yongin 00 Septage Treatment Plant	90m ³ /day
00 Gimcheon Factory Wastewater Treatment Plant	1,300m ³ /day
00 Pyeongtaek Factory Wastewater Treatment Plant	600m ³ /day
00 Food Factory Wastewater Treatment Plant	1,000m ³ /day

Uiryeong-gun Septage Treatment Plant



Busan 00 Sanitary Office



Namhae-gun Septage Treatment Plant

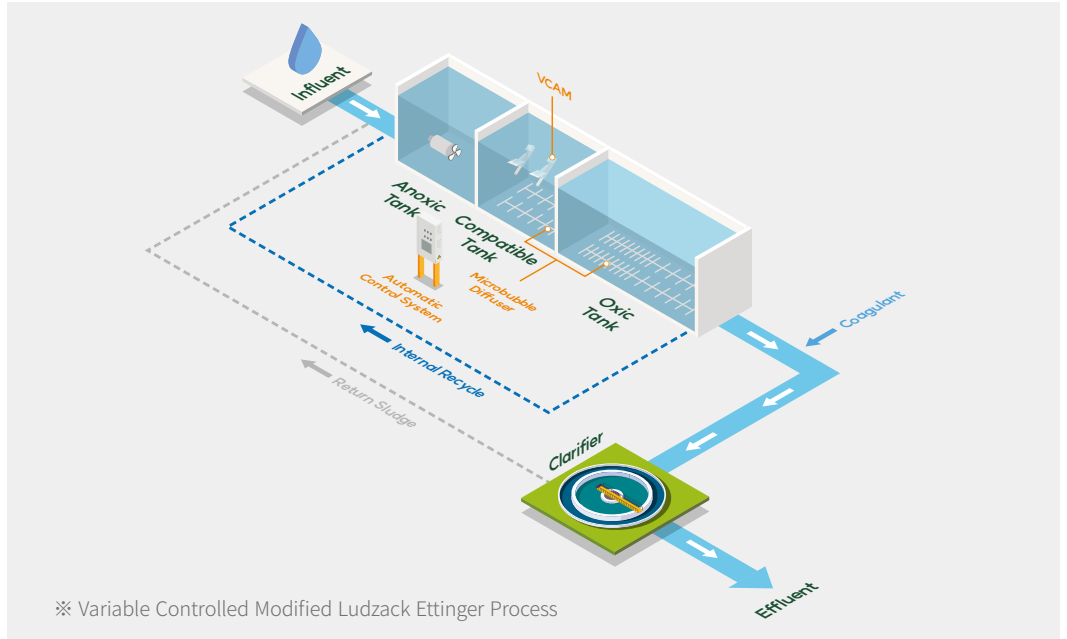


00 Food Factory Wastewater Treatment Plant



Variable Controlled MLE Process

Introduction

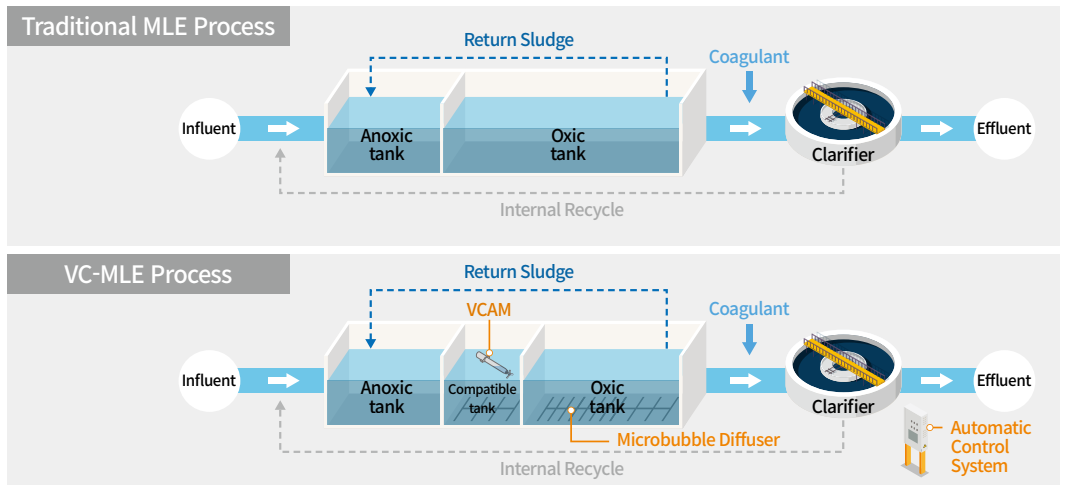


This specialized MLE process can actively respond to seasonal load fluctuations and temperature changes and is optimized for nitrogen removal. The compatible tank can be converted into an aerobic or anoxic condition depending on the operation conditions.

Features

- Active response to load fluctuations and temperature changes through a variable-controlled aeration system
- Energy saving through automatic control of turbo blower according to the dissolved oxygen concentration
- Maximization of oxygen delivery through microbubble diffuser
- Optimization of T-N & TOC removal
- T-P removal through chemical injection
- Easy maintenance through simplified process
- Application to existing sewage and wastewater treatment plants for process-switch to the advanced treatment

Comparison Flow Diagram



Application

Sewage/Septage/ Wastewater Treatment Plant

- Treatment plant with nitrogen removal challenges
- Treatment plant with low DO concentrations and difficulty in nitrification
- Treatment plant with difficulty in changing existing structures
- Treatment plant with high power consumption due to excessive air pollution

High Concentration Treatment Plant

- Wastewater treatment plant
- Leachate treatment plant
- Food wastewater treatment plant
- Livestock and Septage treatment plant

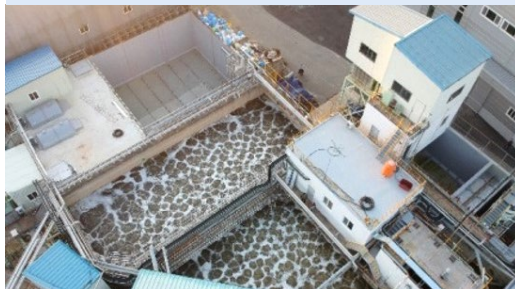
Other Treatment Plant

- Sites with significant influent load fluctuations
- Sites where need adjustment due to difficulty in removing nitrogen

Reference

Location	Capacity
Busan 00 Sewage Treatment Plant	1,400m ³ /day
Ulsan 00 Sewage Treatment Plant	40,000m ³ /day
Pyeongtaek 00 Sewage Treatment Plant	75,000m ³ /day
Gyeongsan Public Sewage Treatment Plant	40,000m ³ /day
Busan 00 Sewage Treatment Plant	65,000m ³ /day
Ulsan 00 Sewage Treatment Plant	250,000m ³ /day
00 Food Factory Wastewater Treatment Plant	1,000m ³ /day
Busan 00 Leachate Treatment Plant	800m ³ /day

00 Food Factory Wastewater Treatment Plant



Busan 00 Leachate Treatment Plant



Busan 00 Sewage Treatment Plant



Pyeongtaek 00 Sewage Treatment Plant



Variable Control Aerator & Mixer

Introduction



This multi-functional equipment can actively control the amount of aeration and mix the bioreactor according to the influent load fluctuations. Depending on the condition of bioreactor, it can supply additional air.

Features

- Multi-functional equipment with mixing and aeration
- Completely mixing of the bioreactor by adjusting the installation angle
- Generating microbubbles
- Simple structure for easy maintenance
- Ability to actively respond to load fluctuations
- Competitive cost

Application

Sewage/Septage Treatment

Instream Flow Water Treatment

Sludge Digester

Aeration Tank

Oxidation ditch

Lagoon

Comparison Data



1. Induction of denitrification by maintaining anaerobic conditions
2. Only mixing without supplying air



1. Nitrification by smooth air supply
2. Increase in oxygen delivery rate through microbubbles

Reference

Location	Capacity
Gyeongju 00 Public Sewage Treatment Plant	45kW
Busan 00 Instream Flow Water Treatment Plant	7.5kW
Uiryong gun 00 Public Sewage Treatment Plant	11kW, 7.5kW

Microbubbles Diffuser



Introduction

As it is made of silicon polyurethane material, our microbubble diffuser has high durability, excellent resilience, and high oxygen delivery efficiency.

Features

- Excellent efficiency of oxygen delivery
- Constant generation of microbubbles
- High durability
- Long-term use due to excellent resilience
- Excellent resistance to oil and chemical
- No hardening
- Resistant to high temperatures

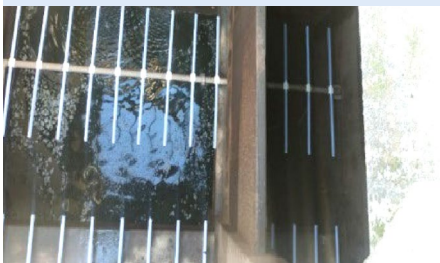
Comparison Data

Silicone-Polyurethane	Composite Rubber
<ul style="list-style-type: none"> · Excellent efficiency of oxygen delivery · Constant air discharge by the air guide design · Excellent strength due to the silicon polyurethane material · Long-term use by excellent elasticity and resilience · Excellent resistance against chemical and oil · No hardening due to the property of the material 	<ul style="list-style-type: none"> · Easy hardening due to containing the plastic component · A lot of stretching · Slot clogging due to weak resilience · Low resistance against chemical and oil · Decrease performance as the sealing ability deteriorates over time · Weakness against ultraviolet rays

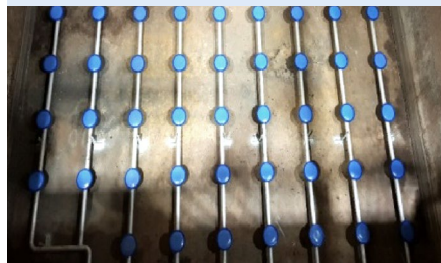
Reference

Location	Capacity
Busan 00 Sewage Treatment Plant	65,000m ³ /day
Ulsan 00 Instream Flow Water Treatment Plant	250,000m ³ /day
Jeju 00 Sewage Treatment Plant	130,000m ³ /day
Busan 00 Sewage Treatment Plant	160,000m ³ /day
Gyeongsan 00 Sewage Treatment Plant	40,000m ³ /day
Pyeongtaek 00 Sewage Treatment Plant	75,000m ³ /day
Busan 00 Leachate Treatment Plant	800m ³ /day
Busan 00 Sewage Treatment Plant	179,000m ³ /day

Ulsan 00 Instream Flow Water Treatment Plant



Busan 00 Leachate Treatment Plant



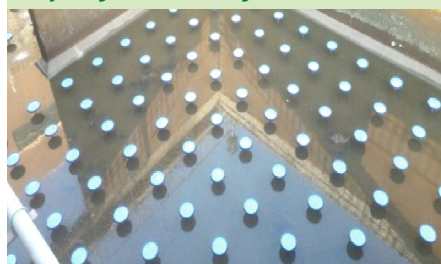
Jeju 00 Sewage Treatment Plant



Busan 00 Sewage Treatment Plant



Pyeongtaek 00 Sewage Treatment Plant



Busan 00 Sewage Treatment Plant

