

# We are pleased to offer KUBOTA Submerged Membrane Unit

as the solution to various requirements in wastewater treatment

KUBOTA Submerged Membrane Unit has been developed to create environmentally-friendly treated wastewater. Basically, it is a solid-liquid separation device with micro pores. It is very compact but it enables you to get high quality effluent. The applications are various such as sewage treatment, industrial wastewater treatment and Jokaso.

1

SOLUTION

## Permeate without SS

Membrane separation system removes not only SS but substances difficult to biodegrade such as detergent, by taking advantage of its longer SRT(Sludge Retention Time). Nutrients such as nitrogen and phosphorus can also be cleared. This enables the treated water to be re-used.

2

SOLUTION

## Simple Maintenance

Volume control of return sludge or microscopic observation of the microorganism is not necessary. All that is required is control of trans-membrane pressure and basic water analysis, both of which can be easily learned. Telemetry is also available as option.

3

SOLUTION

## Energy Conservative Operation

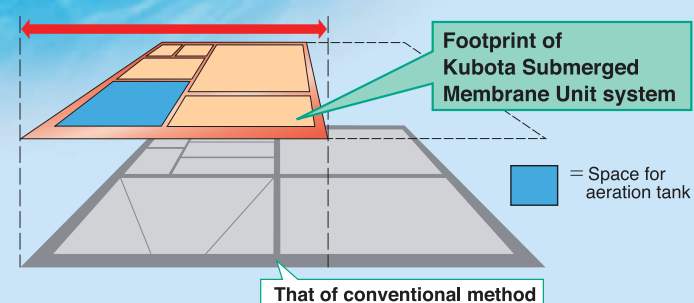
KUBOTA Submerged Membrane Unit system is designed for energy conservation. Even the air used for the biological treatment also cleans the membrane by our unique cross flow action.

4

SOLUTION

## Remarkably Small Footprint

KUBOTA Submerged Membrane Unit is installed in an aeration tank. Since it carries out high-concentration activated sludge treatment, no settling tank or sludge concentration tank is required. The size of the aeration tank is also minimized.

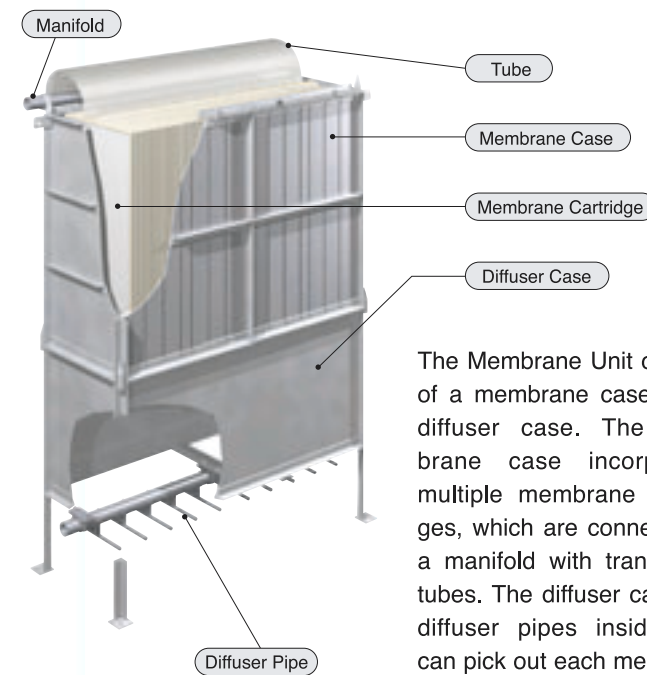


**POINT 1** Easy Check-up and Parts Exchange

**POINT 2** Cleaning by Aeration and Water Flow

**POINT 3** Stable and High Quality Effluent

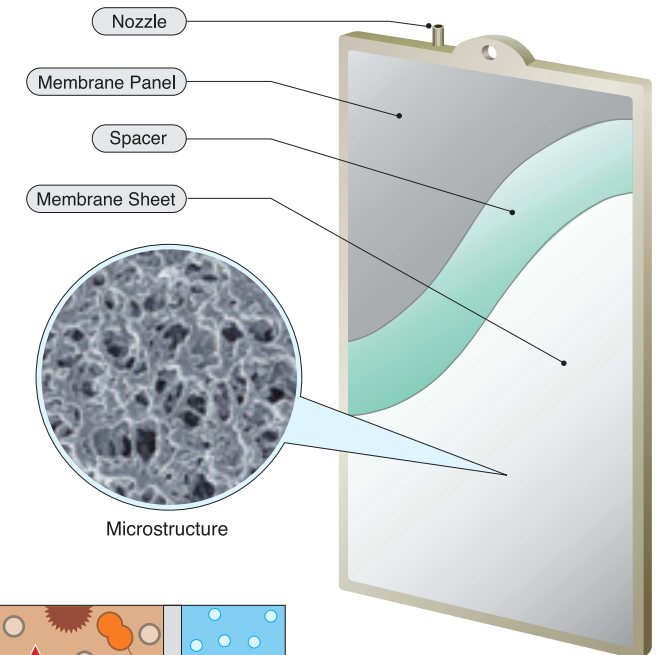
### STRUCTURE 1 Structure of Membrane Unit



The Membrane Unit consists of a membrane case and a diffuser case. The membrane case incorporates multiple membrane cartridges, which are connected to a manifold with transparent tubes. The diffuser case has diffuser pipes inside. You can pick out each membrane cartridge for maintenance.

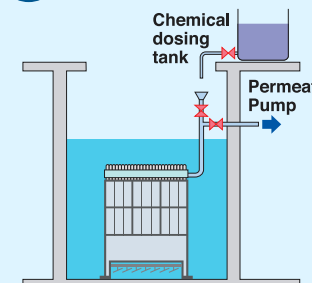
### STRUCTURE 2 Structure of Membrane Cartridge

Membrane sheets are ultrasonic-welded on both surfaces of membrane panel. They are made from chlorinated polyethylene with nominal  $0.4\mu\text{m}$  pores. Permeated water goes through spacers and comes out by the nozzle.



### A In-Situ Chemical Cleaning

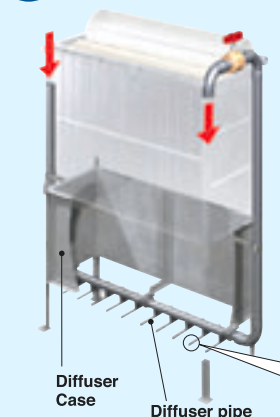
Very easy!



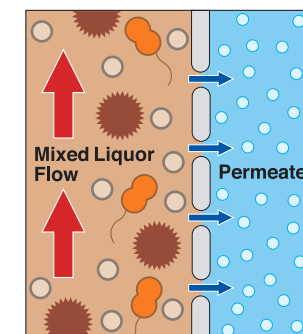
You can clean the membrane cartridges in-situ with chemicals such as sodium hypochlorite for organic fouling or with those such as oxalic acid for inorganic fouling.

### B Diffuser Cleaning

Easy maintenance with unique system



By opening the cleaning valve, you can clean the diffuser system with mixed liquor. If you install a magnetic valve, you can do it automatically. Usually, this valve is closed for aeration.



### Cross Flow Filtration

Mixed liquor flows parallel to the membrane surface, while water permeates through the membrane. Cross flow prevents the membrane surface from fouling.

### KUBOTA's Membrane Cartridge

You can replace the membrane cartridge easily. It makes your maintenance work easier and maintenance cost lower.

Membrane Type	Type 203	Type 510
	width	226mm
height	316mm	1000mm
thickness	6mm	6mm
effective area	0.1m <sup>2</sup> /pc	0.8m <sup>2</sup> /pc

Type 203 Type 510



# Sample Applications of KUBOTA Submerged Membrane Unit System

## ● Application into the RC tank

Necessary number of Kubota Submerged Membrane Units are laid out in the RC tank. Installation of the guide rail system will enable the easy lift up & down of the units during maintenance.



In this sample, **Double-Decker System** is adopted.

### Double-Decker Application

Double-Decker System has achieved savings on:

- (1) Footprint for installation
- (2) Air volume for cross flow cleaning

## ● Application into the FRP tank



Package Model incorporating KUBOTA Submerged Membrane Units into the FRP tank. It is widely used for Jokaso and industrial wastewater. Smaller size tank compared with that of the conventional method reduces the construction cost.

# KUBOTA Submerged Membrane Unit



**All-round Player in Wastewater Treatment  
featuring Small Footprint,  
Energy Saving and High Quality Effluent**

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