For Earth, For Life

Kubota

For Water and Our Life

KUBOTA Submerged Membrane Unit®

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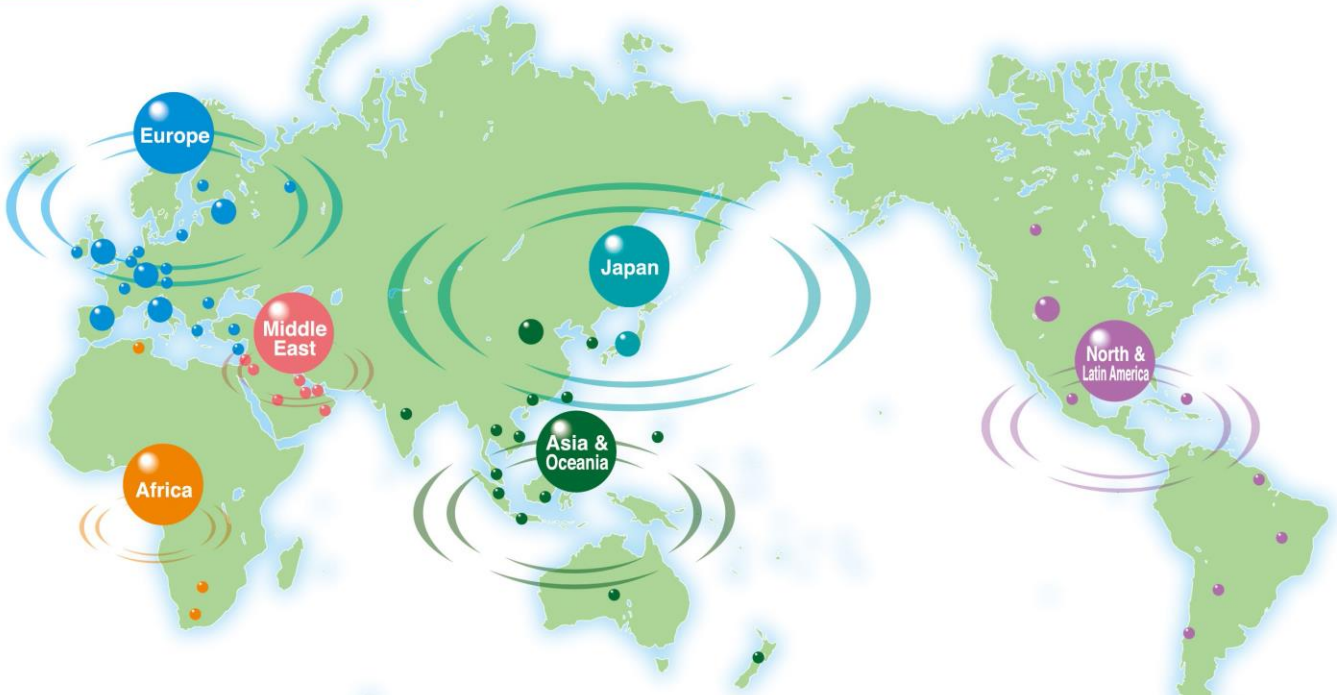
Various Applications

Since every wastewater has different characteristics, MBR plant design would be different. KUBOTA Corporation has a great number of applications and unparalleled experience to meet your specific requirements.

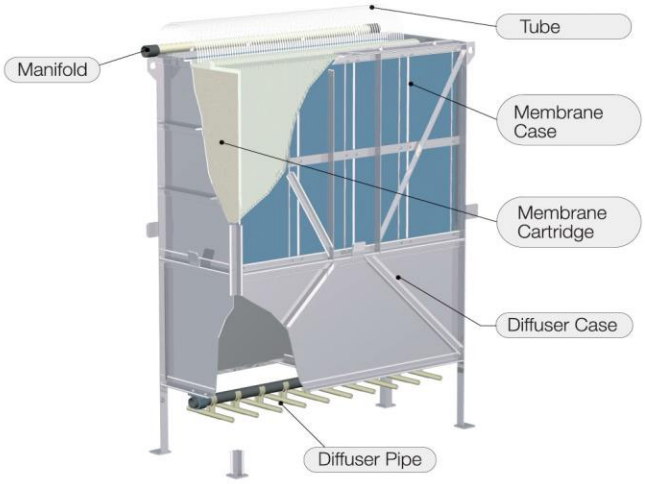
Global Installations



More than 4,500 All Over the World

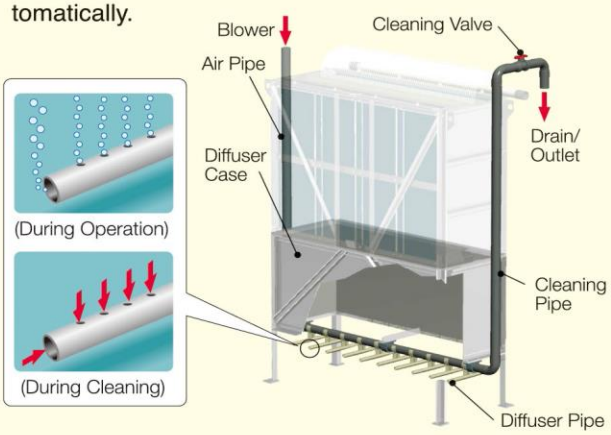
Structure of the Membrane Unit

The Membrane Unit consists of a Membrane Case (upper part) and a Diffuser Case (lower part). The membrane case houses multiple membrane cartridges that are connected to a manifold pipe via transparent tubes, while the diffuser case houses a diffuser. You can pull out individual membrane cartridges for maintenance work.



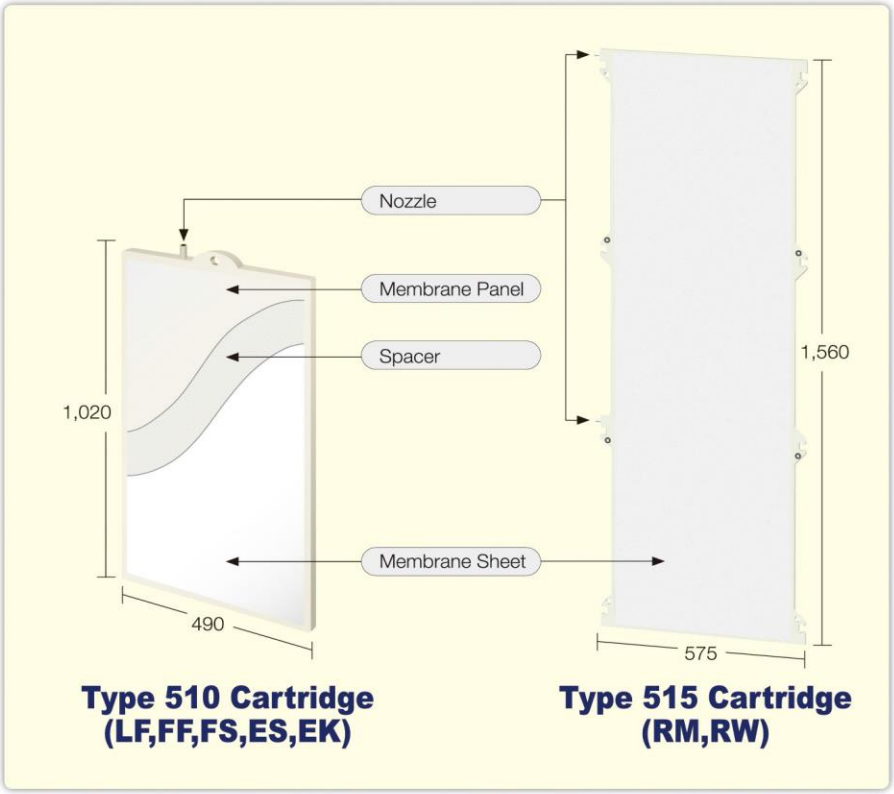
Diffuser Cleaning: Easy maintenance with unique system

By opening the cleaning valve, you can clean the diffuser system utilising a backflow of mixed liquor and air. This valve is closed during aeration. If a magnetic valve is installed, this operation can be performed automatically.

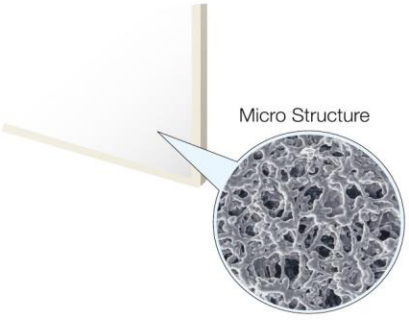


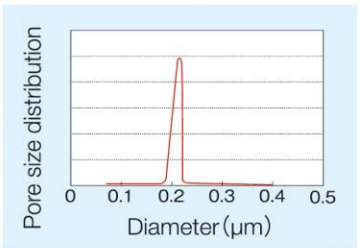
Structure of the Membrane Cartridge

The Membrane Sheet is welded on each side of the membrane panel. Treated water permeates through the membrane sheets and spacers to come out via the nozzle.
Type 515 cartridge has two (2) nozzles. These can permeate from all over the membrane sheets equally to prevent the larger membrane sheet from fouling for a long time.



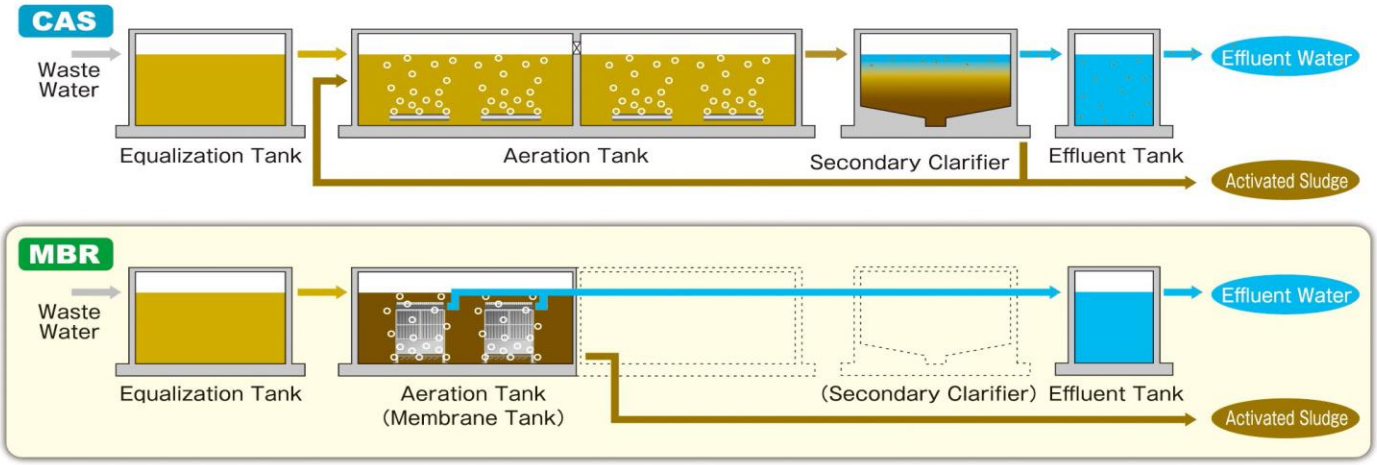
The membrane sheet is made from Chlorinated Polyethylene with a maximum pore size of 0.4µm (average: 0.2µm).





Conventional Activated Sludge System (CAS) vs. Membrane Bioreactor (MBR)

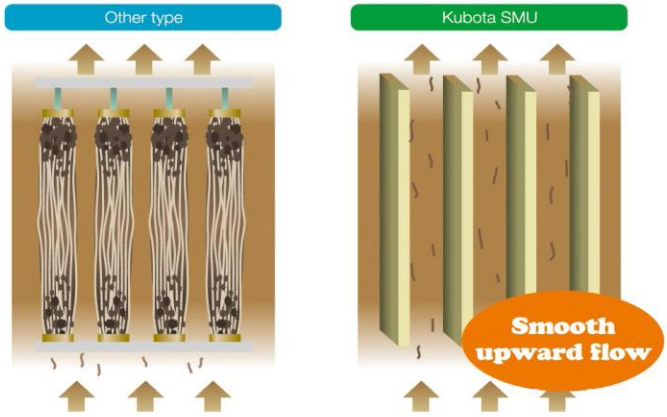
The footprint of the MBR system is considerably smaller than that of a CAS system. The MBR system does not require a primary or secondary clarifier, while also having a reduced size of aeration tank.



Features of the Kubota SMU

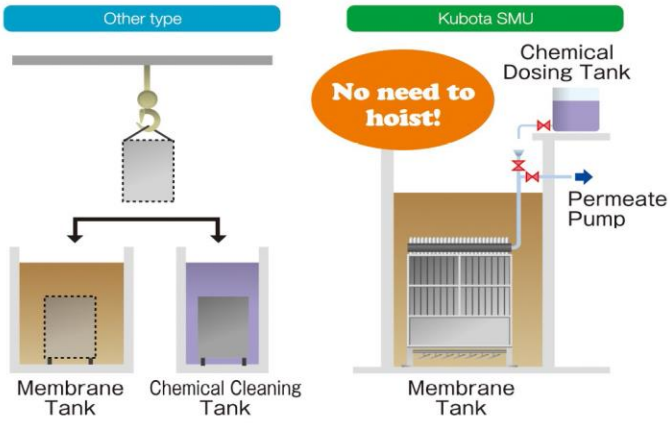
1.Simple Structure

The Flat Plate structure of the membrane cartridge presents less obstacles to scouring flow. Less screening residues such as coarse solids and fibres to be tangled to the KUBOTA Submerged Membrane Unit® can reduce the need and frequency of chemical cleaning.



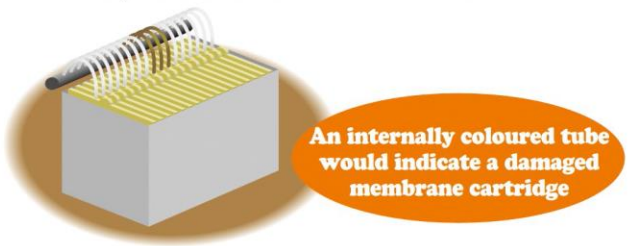
2.Simple Chemical Cleaning

You can clean the KUBOTA Submerged Membrane Unit® in-situ with chemicals such as sodium hypochlorite for organic fouling or oxalic acid for inorganic fouling. Since the membrane unit do not need to be removed from the membrane tank and placed in a separate purpose-built chemical cleaning tank, this system results in significant resource savings.



3.Simple Maintenance

You can locate a damaged membrane cartridge easily by lowering the water level in the tank and visually checking the individual permeate tubes, with no need to drain the tank or inspect the entire membrane unit.



4.Simple Replacement

Since membrane cartridges can be individually removed, you do not need to replace the entire membrane module or remainder of functional cartridges.

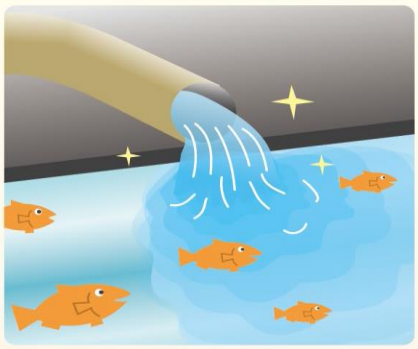
Merits for End User

Assured Compliance

Solid-liquid separation is carried out with Kubota SMU, and high effluent quality can be achieved.
Permeate from Kubota SMU can be recycled/reused for toilet flushing, irrigation, etc.

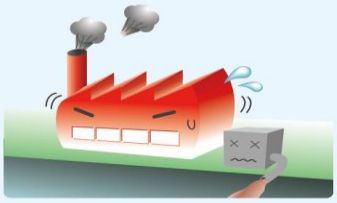
Consistent quality effluent cannot be achieved. / Effluent quality is not stable.

In the Conventional Activated Sludge System (CAS), effluent quality depends on the condition of a final clarifier.
Replacing CAS with an MBR System based on Kubota SMU can reduce effluent TSS and give a higher Solids Retention Time (SRT).
Lower effluent TSS concentration and higher SRT can result in improved Total Nitrogen (TN) removal and a more stable operation.

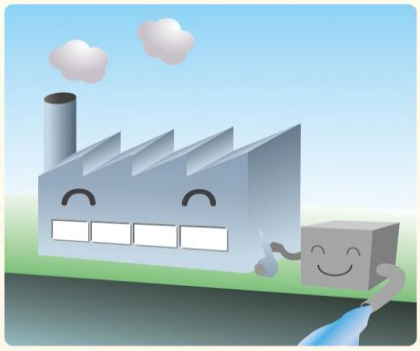


Reduced Land Area

While planning an increase in a factory's output, the existing wastewater treatment plant does not have enough hydraulic capacity.



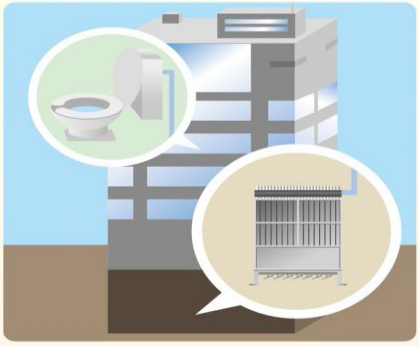
Retrofitting Kubota SMU to an existing plant leads to increased treatment capacity without the need to build new tanks. This is due to the higher hydraulic capacity of the MBR process based on Kubota SMU (up to 3 times) compared with CAS, which results from a 3-fold increase in sludge concentration (12-18 g/L vs. 4-6 g/l). Moreover, a final clarifier is not necessary with the MBR process. Tanks no longer required, such as aeration tanks and clarifiers, can be used for other purposes.



Water Reuse / Recycling

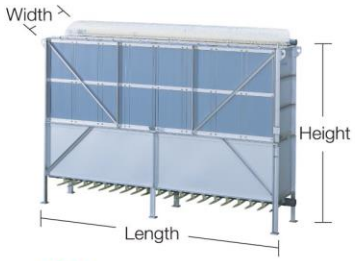
If you want to reuse the treated water,

Permeated water from Kubota SMU is highly treated, and coliforms are significantly removed. In case a Reverse Osmosis (RO) stage is applied after the MBR process, permeated water can be used directly as feed into the RO stage.



Multiple Products

Unit Type		Total Membrane Surface (m^2)	Nominal Dimensions (mm)			Weight (dry) (kg)
			Height	Width	Length	
LF	10	8	1,300	512	150	60
FF	25	20	1,526	600	442	150
	50	40			792	250
FS	50	40	1,526	600	792	255
	75	60			1,142	350
ES	75	60	2,026	600	1,142	370
	100	80			1,492	480
	125	100			1,842	590
	150	120			2,201	700
	200	160		620	2,921	950
EK	300	240	3,506	600	2,201	1,360
	400	320		620	2,921	1,850
RM	150	218	2,490	575	2,251	1,050
	200	290			2,925	1,340
RW	300	435	4,290	575	2,251	2,030
	400	580			2,925	2,590



ES type

EK type

RW type

Kubota SMU models in all illustrations are with pickling treatment. Kubota SMU design and specifications are subject to change without notice.

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