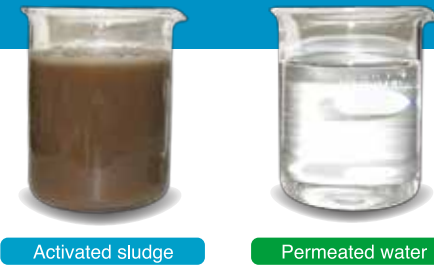


Merits for End User

Assured Compliance

Solid-liquid separation carried out with Kubota Submerged Membrane Unit® consistently achieves high quality effluent. This allows permeate from Kubota Submerged Membrane Unit® to be recycled/reused for toilet flushing, irrigation, etc.



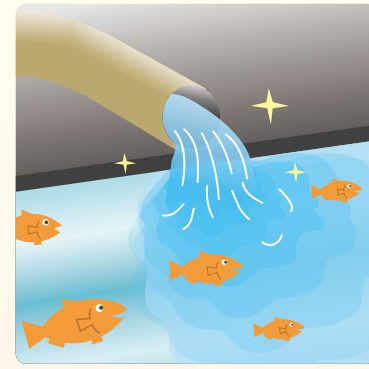
Activated sludge

Permeated water

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

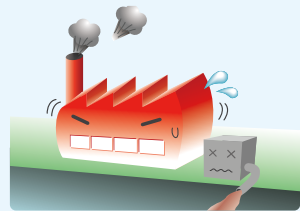


In the Conventional Activated Sludge (CAS) system, effluent quality depends on the condition of the final clarifier. Replacing a CAS system with a Kubota MBR System can reduce effluent TSS and allow for a higher Solids Retention Time (SRT). A lower effluent TSS concentration and higher SRT can result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

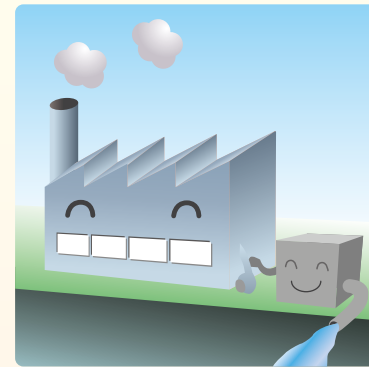


Reduced Land Area

When production is increased, existing wastewater treatment plants do not have enough hydraulic capacity.



Retrofitting an existing plant with a Kubota MBR System can lead to increased treatment capacity without requiring new tanks. This is due to the increased hydraulic capacity of the Kubota MBR System, which can be up to three times higher than that of the CAS system. This 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. Existing final clarifier can be used as pre-aeration tank or sludge storage tank, etc with the MBR process.

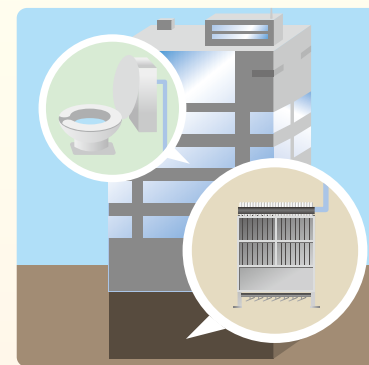


Water Reuse / Recycling

The water reuse demand are increasing due to lack of water, cost saving, etc..



Permeated water from the KUBOTA Submerged Membrane Unit® is highly treated, and coliforms are significantly removed. So it can be reused for irrigation, toilet flushing, or other reclaimed water applications. For Reverse Osmosis (RO) application, permeated water requires no further treatment before direct feed into the RO process.



Multiple Products

Unit Type	Total Membrane Surface Area		Nominal Dimensions						Weight (dry)	
	(m ²)	(ft ²)	Height		Width		Length		(kg)	(lbs)
LF	10	8	1,300	4.27	512	1.68	150	0.49	50	110
	25	20	1,526	5.01	600	1.97	442	1.45	140	309
FF	50	40	1,526	5.01	600	1.97	792	2.60	220	485
	75	60					1,142	3.75	310	683
	100	80					1,492	4.90	410	904
	125	100					1,842	6.04	510	1,124
	150	120					2,201	7.22	610	1,345
	200	160					2,921	9.58	820	1,808
FS	75	60	2,026	6.65	600	1.97	1,142	3.75	330	728
	100	80					1,492	4.90	430	948
	125	100					1,842	6.04	530	1,168
	150	120					2,201	7.22	630	1,389
	200	160					2,921	9.58	860	1,896
	300	240					4,682	14.84	1,290	2,848
ES	75	60	3,006	9.86	600	1.97	2,201	7.22	1,200	2,646
	100	80					2,921	9.58	1,630	3,594
FK	300	240	3,506	11.50	600	1.97	2,201	7.22	1,220	2,690
	400	320					2,921	9.58	1,670	3,682
EK	300	240	2,490	8.17	575	1.89	2,251	7.39	1,070	2,359
	400	320					2,925	9.60	1,365	3,009
RM	150	218	4,290	14.07	575	1.89	2,251	7.39	2,070	4,564
	200	290					2,925	9.60	2,635	5,809
RW	300	435	4,290	14.07	575	1.89	2,251	7.39	2,070	4,564
	400	580					2,925	9.60	2,635	5,809



FS type



FK type



RW type

Kubota SMU models in all illustrations are with pickling treatment. Kubota SMU design and specifications are subject to change without notice. KUBOTA Submerged Membrane Unit® is a registered trademark of KUBOTA Corporation in Australia, Benelux, China, Germany, Spain, France, U.K., Hong Kong, Israel, Italy, Turkey and USA.

2018.10.eight

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For Earth, For Life



KUBOTA Submerged Membrane Unit®

KUBOTA Submerged Membrane Unit®

Various Applications

Every kind of wastewater has different characteristics and may require unique process design. With 30 years of experience supported by MBR research and development as the flat-sheet membrane pioneer, Kubota is an expert in designing MBR systems to meet your specific requirements.



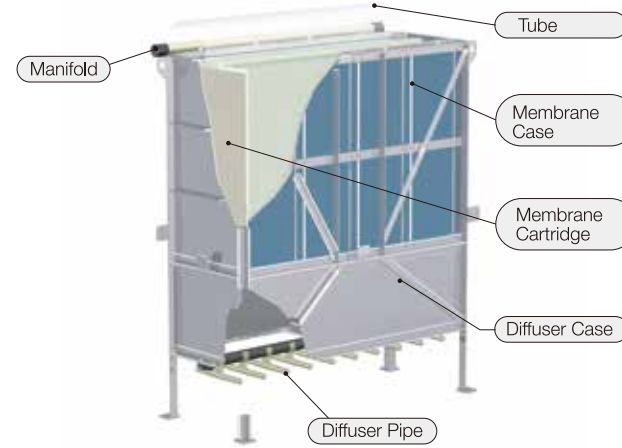
Global Installations



6,000+ Installations All Over the World.

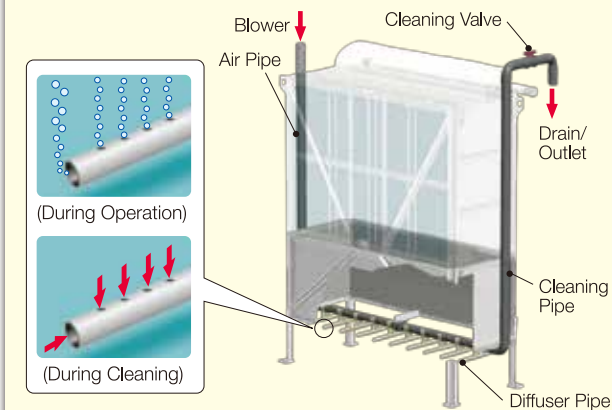
Structure of the Membrane Unit

The Membrane Unit consists of a Membrane Case (upper) and a Diffuser Case (lower). The Membrane Case houses multiple Membrane Cartridges that are connected to a Manifold pipe via transparent Tubes, while the Diffuser Case houses a coarse bubble diffuser. You can remove individual Membrane Cartridges for easy maintenance work.



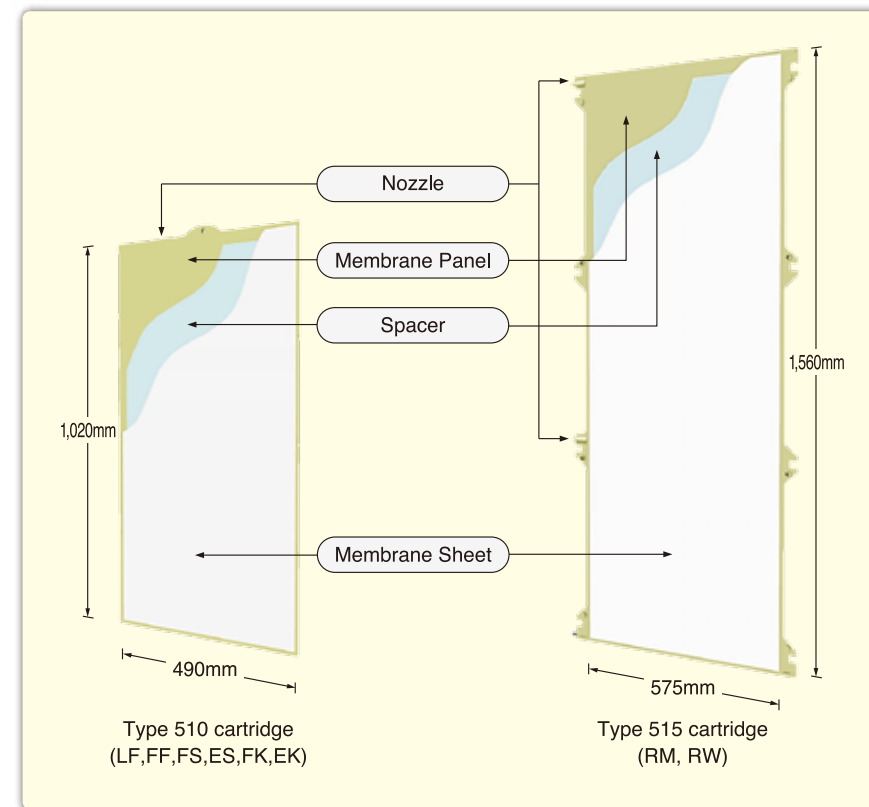
Diffuser Cleaning: Easy maintenance with unique system

During normal aeration, the Cleaning Valve is closed, forcing air out of the Diffuser. When the Cleaning Valve is opened, the diffuser system is flushed with a backflow of mixed liquor and air. If an automated valve is installed, this operation can be performed automatically.

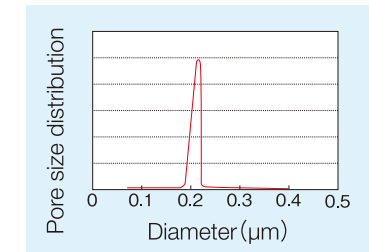
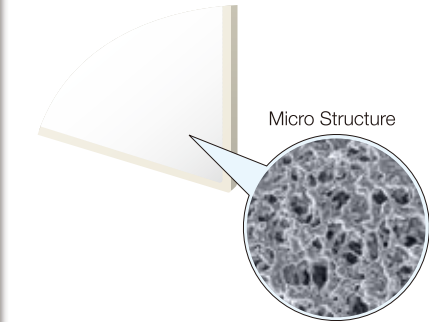


Structure of the Membrane Cartridge

The Membrane Sheet is welded on each side of the Membrane Panel. Treated water permeates through the Membrane Sheets and Spacers to exit the Cartridge through the Nozzle. Type 515 cartridge has two (2) Nozzles. The placement of these Nozzles allows equal permeation across the Membrane Sheet's surface, helping to prevent uneven fouling.

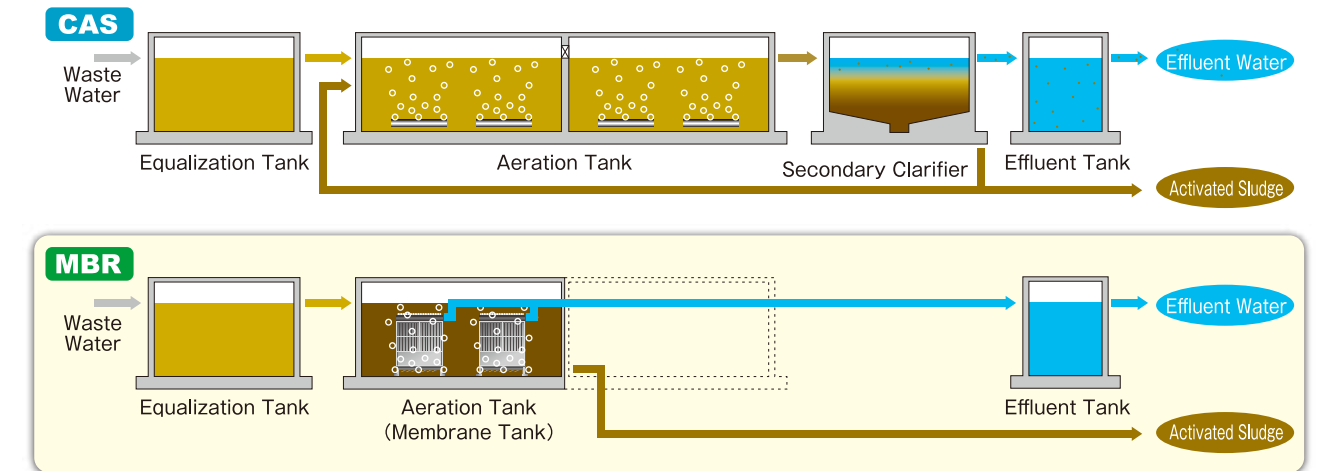


The Membrane Sheet is made from chlorinated polyethylene and has a maximum pore size of 0.4 μm (average: 0.2 μm).



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

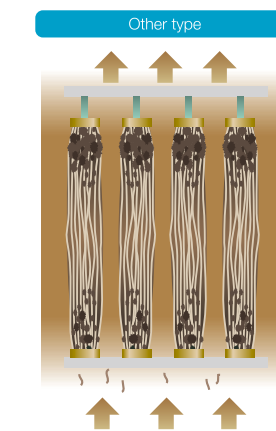
The footprint of the MBR system is considerably smaller than that of CAS system. The MBR system requires less aeration tank volume than a CAS system, and does not require a primary or secondary clarifier.



Features of Kubota MBR System

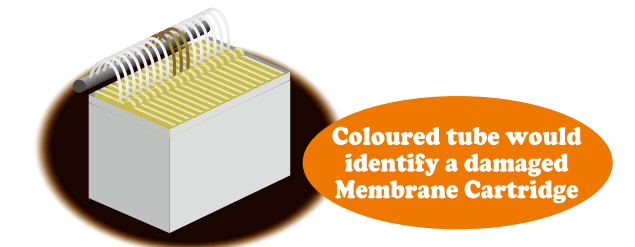
1.Simple Structure

The flat plate structure of the Membrane Cartridge presents fewer obstacles to scouring flow than a hollow fiber membrane structure. Screening residues such as coarse solids and fibers are less likely to be tangled within the KUBOTA Submerged Membrane Unit®, which will reduce the need and frequency of chemical cleaning.



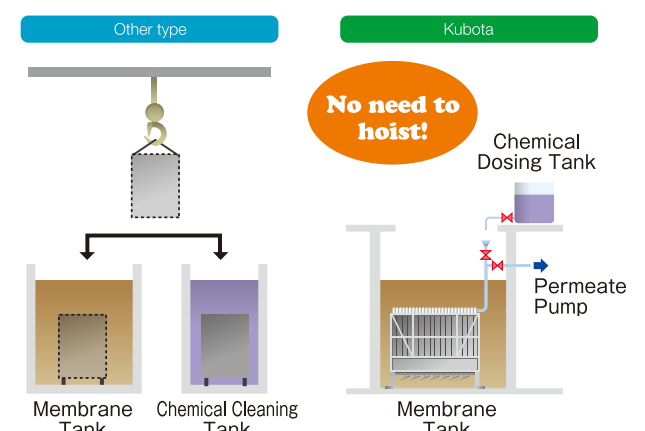
3.Simple Diagnosis

You can easily locate a damaged Membrane Cartridge by lowering the water level in the tank and visually checking the individual transparent permeate tubes; there is no need to drain the tank or inspect the entire Membrane Unit.



2.Simple Chemical Cleaning

Chemical cleaning of the KUBOTA Submerged Membrane Unit® is done in-situ with chemicals such as sodium hypochlorite for organic fouling and oxalic acid for inorganic fouling. Since the Membrane Units do not need to be transferred to a separate chemical cleaning tank, the Kubota MBR System results in significant resource and labor-hour savings.



4.Simple Replacement

Since Membrane Cartridges can be individually removed, you do not need to replace the entire Membrane Case or remaining functional cartridges.

