

HYDRASub[®] MBR

Membranes Bioreactor (MBR) Solutions for Treatment of Various Types of Wastewater

Membrane Bio Reactor (MBR) MBR is a hybrid wastewater treatment technology that combines biological treatment by activated sludge and physical treatment by membrane filtration. Compared to conventional activated sludge treatment, MBR and particularly HYDRASub[®] produces high quality permeate water suitable for RO treatment and reduces drastically footprint by elimination of sedimentation tank and operation at higher Mixed Liquor Suspended Solids (MLSS).

Key HYDRASub[®] Applications:

- **Domestic waste water**
 - Municipalities
 - Hotels, apartment complexes
 - Grey waters
- **Industrial waste water**
 - Food and Beverage Industry – Beer, Dairy, etc.
 - Automobile Industry
 - Oil Refineries
 - Chemical industry



Key Features:

- **High operating flux:** Minimized membrane area which lowers the CAPEX and OPEX
- **Lower footprint:** Compact systems with reduced height which minimizes the energy consumption
- **Simple operating process:** No backwash, membrane cleaned with air scouring
- **Durable construction:** Supported PVDF hollow fiber, highly resistant to chlorine, 0.4 µm pore size

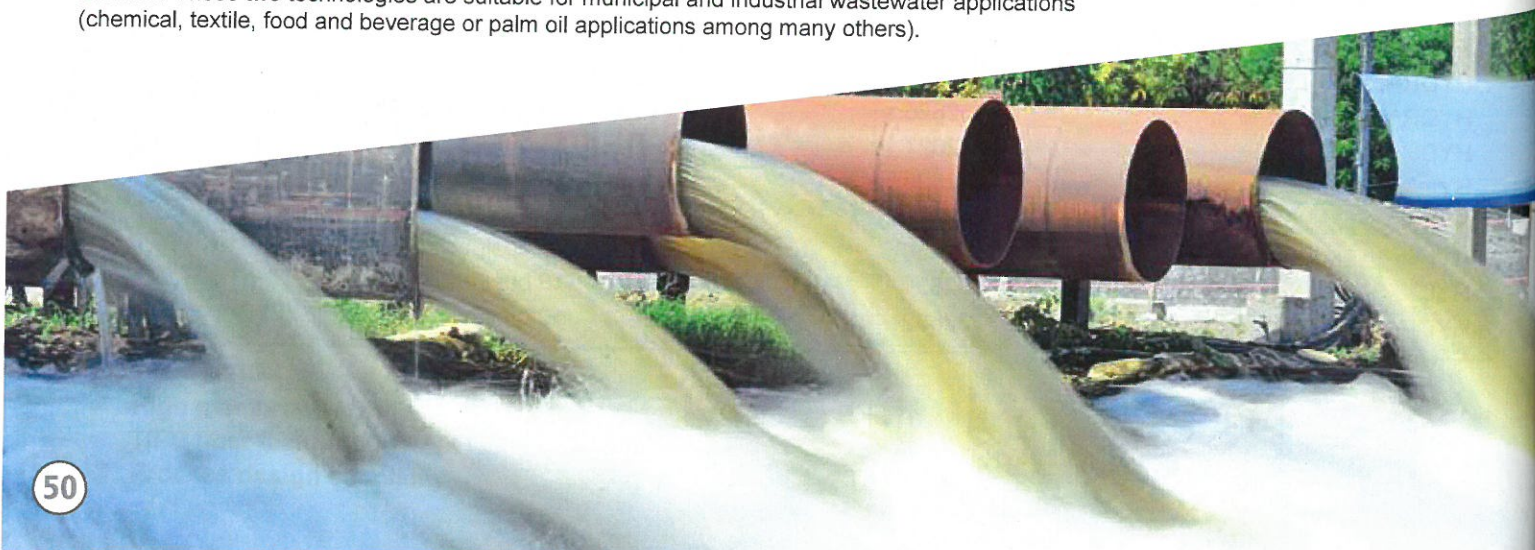
HYDRASub[®] Product Offerings:

HYDRASub[®] modules are comprised of PVDF hollow fiber elements, permeate adaptors, stainless steel cages (SS304 or SS316) and a unique air diffuser design. The modules are available in a wide range of sizes from 15 to 2400 m² membrane area, covering all ranges of flow. Two types of technologies are available:

HYDRASub[®] technology uses a microfiltration fiber with a pore size of 0.4 µm. Modules size proposed are ranging from 15 to 1500 m²

HYDRASub[®]MAX technology uses an ultrafiltration fiber with a pore size of 0.05 µm. Modules size proposed are ranging from 40 to 2400 m².

Hydranautics has designed and patented a unique diffuser system incorporated within the stainless steel cage for optimized aeration. These two technologies are suitable for municipal and industrial wastewater applications (chemical, textile, food and beverage or palm oil applications among many others).



Module portfolio with HYDRAsub® and HYDRAsub®MAX elements:

Module	Technology	Element	Membrane area (m ²)	Typical flow – Sewage (m ³ /day)	Typical flow – Industrial (m ³ /day)
HSM125-ES to HSM1500-ES	HYDRAsub®	HSE25	125 to 1500	90 to 1080	60 to 720
HSMMAX200- ES to HSMMAX2400-ES	HYDRAsub®MAX	HSE40	200 to 2400	150 to 1750	100 to 1200

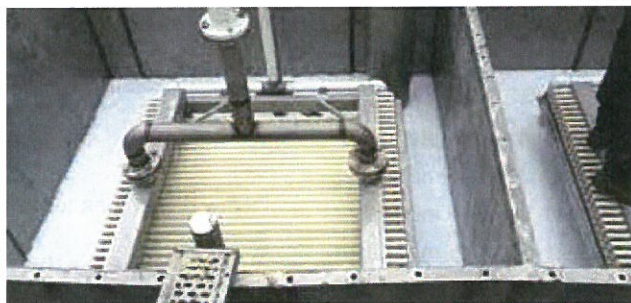
HYDRAsub® modules are available in following sizes: HSM125-ES, HSM250-ES, HSM375-ES, HSM500-ES, HSM750-ES, HSM1000-ES and HSM1500-ES

HYDRAsub®MAX modules are available in following sizes: HSMMAX200-ES, HSMMAX400-ES, HSMMAX600-ES, HSMMAX800-ES, HSMMAX1200-ES, HSMMAX1600-ES and HSMMAX2400-ES

For containerized compact systems, shorter elements HSE15 and HSE24 are also available.



Module	Technology	Element	Membrane area (m ²)	Typical flow – Sewage (m ³ /day)	Typical flow – Industrial (m ³ /day)	Module height (mm)	Module width (mm)	Module length (mm)
HSM15-ES to HSM75-ES	HYDRAsub®	HSE15	15 to 75	10 to 55	5 to 40	1722	461	1473
HSMMAX24-ES to HSMMAX120-ES	HYDRAsub®MAX	HSE24	24 to 120	15 to 90	12 to 60			



MBR feed (L) and permeate (R)

Ordering

Hydranautics Model	Culligan Part Number	Standard Lead Time
HSM75-ES	D1032634	10 business days
HSM125-ES	D1032635	10 business days
HSM250-ES	D1032636	10 business days
HSM375-ES	D1032637	10 business days
HSM500-ES	D1032638	10 business days
HSM750-ES	D1032639	10 business days
HSM1000-ES	D1032640	10 business days
HSM1500-ES	D1032641	10 business days
HSMM200-ES	D1032642	10 business days
HSMM400-ES	D1032643	10 business days
HSMM600-ES	D1032644	10 business days
HSMM800-ES	D1032645	10 business days
HSMM1200-ES	D1032646	10 business days
HSMM1600-ES	D1032647	10 business days
HSMM2400-ES	D1032648	10 business days
HSE15	D1032649	10 business days
HSE25	D1032650	10 business days
HSME40	D1032651	10 business days