HITACHI
Inspire the Next

MBR-RO
SEWAGE RECYCLING SYSTEM

MBR-RO SEWAGE RECYCLING SYSTEM

- Secondary treated effluent such as MBR effluent is reclaimable by Hitachi Aqua-Tech's brackish water RO systems to produce reusable water at reasonable cost.

- With the combination of MBR system and RO system, the product water quality is further improved for more applications.

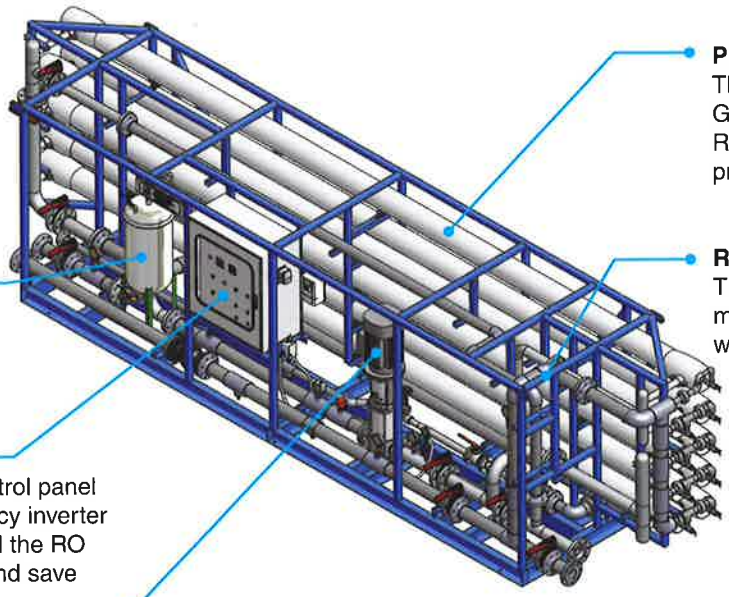
3,000,000 litres/day production capacity MBR-RO in Dubai,UAE

500,000 litres/day capacity MBR-RO in Abu Dhabi,UAE

FEATURES AND BENEFITS

1) Standardized systems with competitive price	6) Fast delivery with in-house fabrication capability
2) Energy and cost efficient	7) Minimum site work required
3) High quality equipment and materials	8) High quality product water
4) Easy process control and monitoring	9) Designed for ease of shipping
5) Excellent proven track records	10) High reliability with excellent service support

MBR-RO SYSTEM EXPLODED VIEW



Pressure Vessels & Membranes
The pressure vessels are made of GRP* material. The high performance RO membranes are installed in the pressure vessels.

RO Skid
The RO skid is made of mild steel material. It is sand blasted and coated with 3 layers of coating.

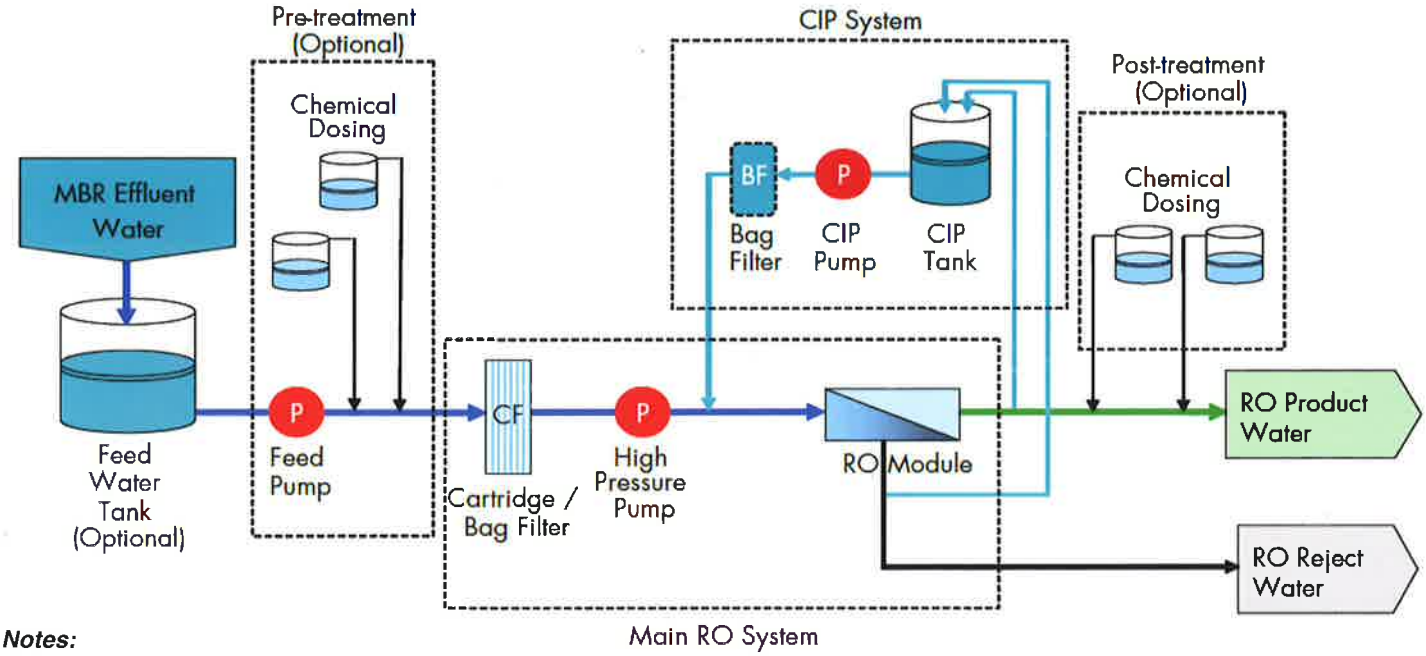
Cartridge/Bag Filter
The cartridge / bag filter is used to prevent particulate matter from entering the RO membranes.

Electrical Control Panel
A PLC* is installed in the control panel for easy operation. A frequency inverter is also included in it to control the RO high pressure pump speed and save energy.

RO High Pressure Pump
The RO high pressure pump is used to pressurize the RO feed water to overcome the osmotic pressure and push the product water through the RO membrane. It is made of stainless steel such as SS316.

Notes:
**PLC – Programmable Logic Controller GRP – Glass-reinforced Plastic*

GENERAL PROCESS FLOW DIAGRAM

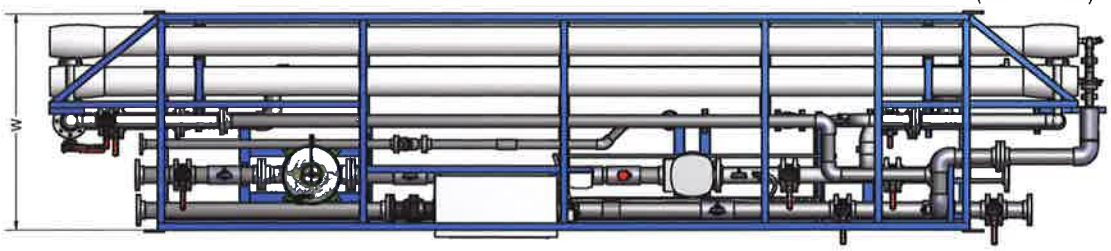


Notes:
**CIP - Cleaning In Place*

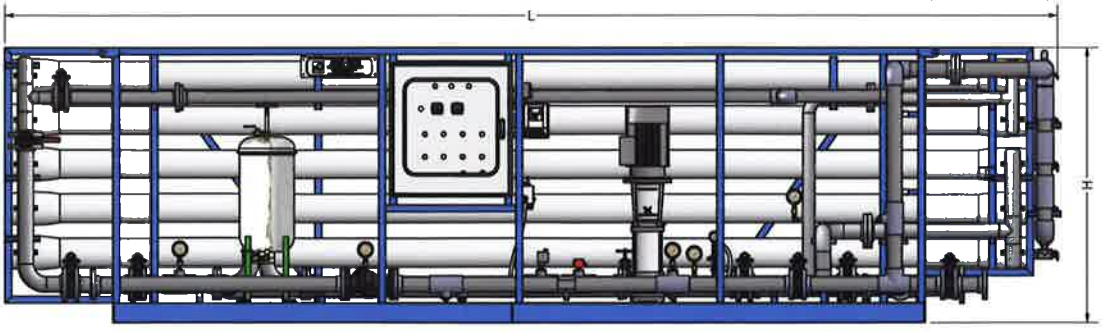
1,000,000 litres/day production capacity MBR-RO in Dubai, UAE

TYPICAL MBR-RO MAIN SKID LAYOUT

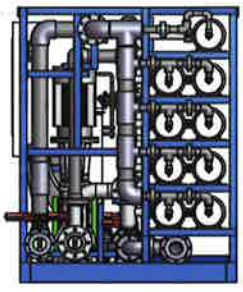
(Plan View)



(Front View)



(Side View)



TYPICAL SPECIFICATIONS OF MBR-RO SEWAGE RECYCLING SYSTEMS

Model MBR-RO-	Product Water Flow	Feed Water Flow	Main RO Skid Dimensions (L x W x H)	Overall* Floor Space	Overall* Shipping weight	Overall* Electrical Loading	Overall* Power Consumption
	(m^3/day)	(m^3/day)	(m x m x m)	(m^2)	(kg)	(kw)	(kwh/day)
100T	100	125	3.9 x 1.4 x 1.9	27	1,800	7	150
200T	200	250	3.9 x 1.4 x 1.9	32	2,300	15	345
400T	400	500	6.5 x 1.3 x 1.9	43	3,000	22	520
500T	500	625	6.5 x 1.5 x 2.1	45	3,400	22	520
600T	600	750	6.5 x 1.6 x 2.1	50	3,700	28	665
800T	800	1,000	6.5 x 1.7 x 2.1	55	4,000	31	750
1000T	1,000	1,500	7.8 x 1.6 x 2.1	60	4,500	43	1,025
1500T	1,500	2,000	7.8 x 2.0 x 2.1	66	5,500	55	1,300

Notes:
** Overall system includes main RO system which comes with Pre-treatment, Post-treatment and CIP systems.*

TYPICAL WATER QUALITY MBR-RO SEWAGE RECYCLING SYSTEMS

Ion	Concentration (ppm)		Ion	Concentration (ppm)	
	Feed	Product		Feed	Product
Ca^{2+}	63.9	0.9	CO_3^{2-}	0.0	0.0
Mg^{2+}	18.2	0.2	HCO_3^-	219.2	9.1
Na^+	415	14.5	SO_4^{2-}	235	3.3
K^+	10.2	0.5	Cl^-	511	17.3
Ba^{2+}	0.0	0.0	F^-	0.2	0.0028
Sr^{2+}	0.0	0.0	NO_3^-	17.5	1.1
NH_4^+	5.4	0.3	SiO_2	3.9	0.2
TDS	1500	47	pH	6.5	6.5 - 7.5

Design Criteria:
1) Recovery: 70~80% 2) Feed water temperature: 25°C

OPTIONS

- **Solar Powered System**
  clean energy which reduces commercial electricity consumption
- **Containerized RO System**
  customized and built into brand new / used 20 foot / 40 foot containers that meet international quality standards

Solar powered system

Containerized RO system

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