

Job references (with daily maximum flow)

Food Processing Wastewater:
Lei Garden -250m³/day



Sewage / Blackwater:
Sai Kung Residential Development
Plant peak flow – 4,170m³/day



Dunwell Membrane Bio-Reactor (DMBR)

Advance Sewage / Wastewater /
Greywater Recycling Treatment Plant

- Eliminates public sewage pipes
- 100% Water Reuse On Site
- Multiple Applications
- Remote Monitoring System
- Space Saving

Greywater:
Altira Macau
Plant peak flow – 250m³/day



Greywater / Rainwater: Tin Shui Wai Government Building
Greywater system peak flow - 58m³/day
Rainwater system peak flow - 48m³/day



DECL_DMBR_201804

Dunwell Engineering Co., Ltd
Member of Dunwell Group

Office & Plant : 8 Wang Lee Street, Yuen Long Industrial Estate,
Yuen Long, N.T., Hong Kong
Tel : (852) 2443 8188
Fax : (852) 2789 3346
Email : decl@dunwellgroup.com



DUNWELL
G R O U P

Introduction

Dunwell Membrane Bio Reactor (DMBR) is an advanced wastewater treatment process for maximum treatment capacity requirement from sixty to several thousand m³ per day. The system combines the strength of membrane separation, biological treatment and aeration technologies to treat the wastewater. Its high quality effluent can be reused directly on site.

Unlike the traditional activated sludge with sedimentation process, DMBR has greater treatment efficiency and takes up less space which is one of the reasons why it is taking a more important role in the environmental engineering industry. It is applicable for grey water, black water, municipal wastewater, commercial wastewater or industrial wastewater.



24-hour Remote monitoring system

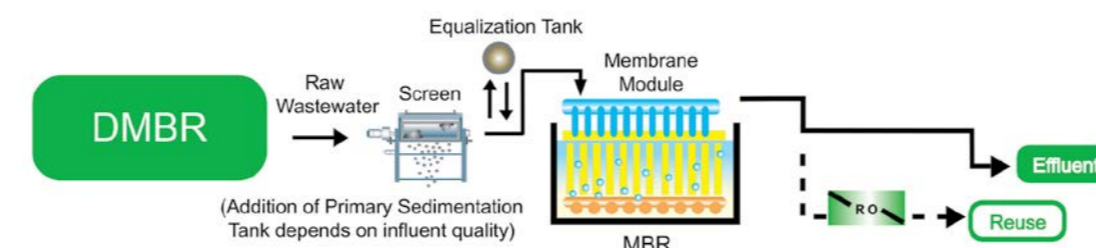
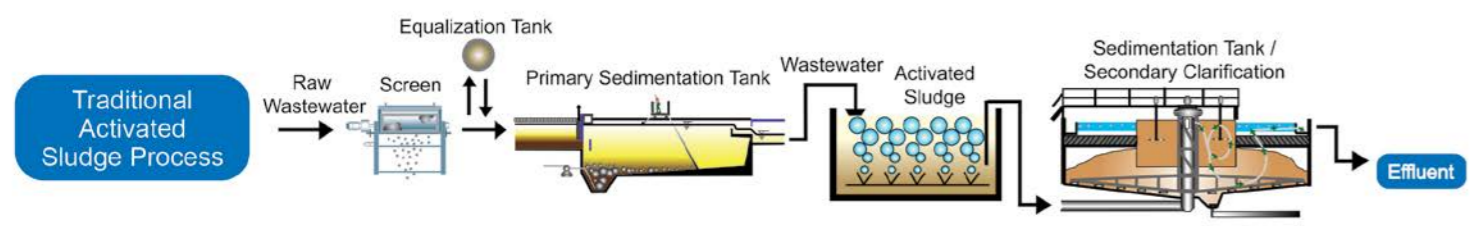
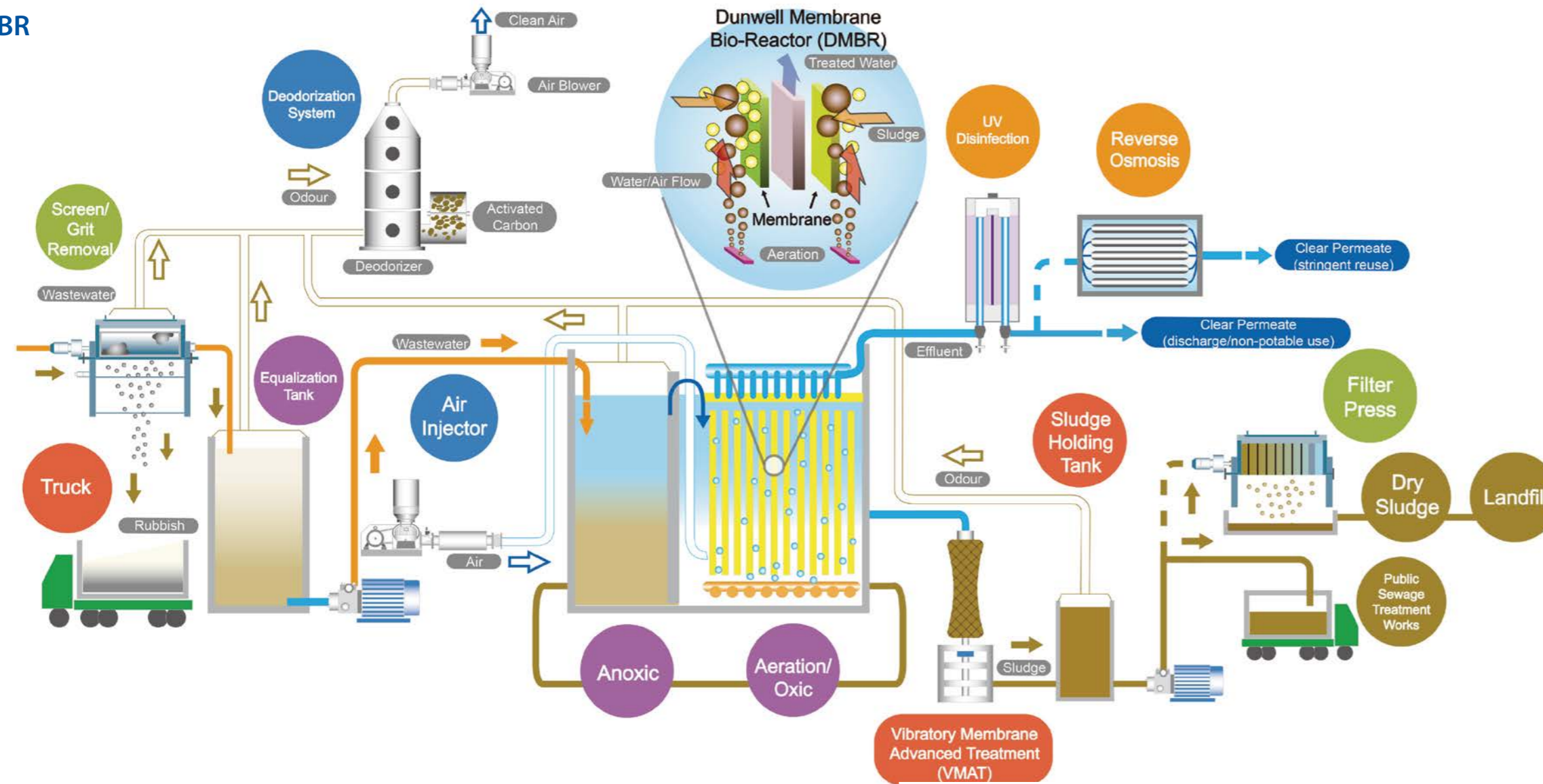


Real-time camera monitoring system

Advantages

- On site reuse of treated water
- Automated control by Programmable Logic Controller (PLC)
- 24-hour remote monitoring system
- Eliminates sewage piping
- Easy to install in existing aeration tank, increasing plant capacity in same footprint
- High concentration of Mixed Liquor Suspended Solid (MLSS) (10,000-20,000mg/L) greatly improves efficiency
- Completely removes suspended solids from effluent
- Membranes have excellent durability and chemical resistance
- Can easily add UV disinfection or Reverse Osmosis to further enhance effluent quality
- Save 30% or above for space used by traditional sewage treatment process
- VMAT helps for further space saving by thickening sludge before filter press

Process flow of DMBR



DMBR effluent comparison against alternative standards

	HK Standard for discharge to Grade A ⁺ inland water	HK Standard for discharge to Grade B ⁺⁺ inland water	HK Standard for discharge to Grade C ⁺⁺⁺ inland water	HK Standard for Water Reuse	Discharge from DMBR
Coliform bacteria (n/100ml)	< 1	100	1,000	< 1	<1 (with UV or Chlorine)
Total Suspended Solids (mg/l)	10	30	20	N/A	<10
BOD ₅ (mg/l)	10	20	20	10	<5
COD (mg/l)	50	80	80	N/A	<30
pH	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	N/A	6.5 - 8.5
Chlorine (mg/l)	N/A	N/A	N/A	>1	Depends on application

⁺ Abstraction for potable water supply

⁺⁺ Irrigation

⁺⁺⁺ Pond fish culture

Case Studies for various applications

Wastewater Source	Parameters	Influent	Max. Flow rate	Effluent	Removal rate(%)
Food processing	BOD (mg/L)	1,590	250 m ³ /day	<5	99.9
	CODCr (mg/L)	2,600		<20	99.0
	SS/ (mg/L)	380		<1	100
Greywater	BOD (mg/L)	<=200	58 m ³ /day	<5	95.0
	SS/ (mg/L)	<=200		100	
Blackwater	BOD (mg/L)	210	4,170 m ³ /day	<5	97.6
	SS/ (mg/L)	240		<1	99.6
Landfill leachate	CODCr (mg/L)	~10,000	300 m ³ /day	99.4	100
	SS/ (mg/L)	<500		<1	