

PRODUCT DATA SHEET



Moving Bed Bioreactor (MBBR)

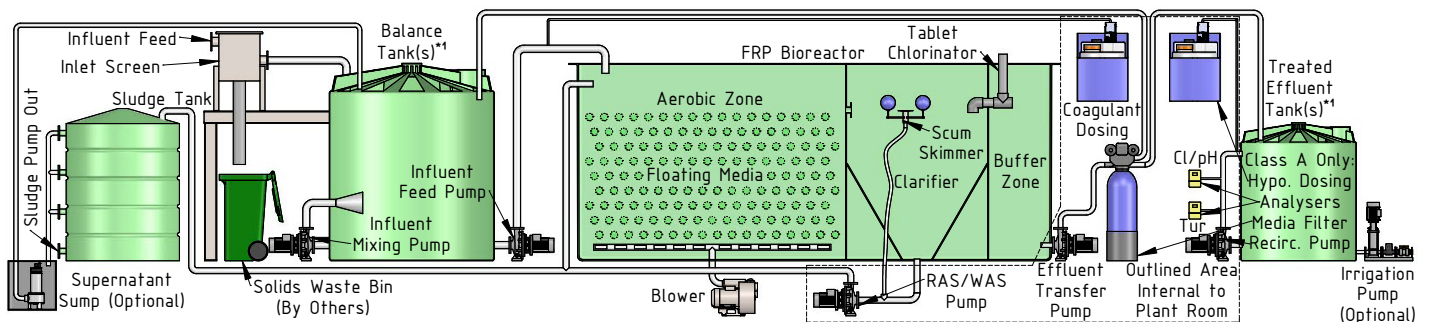
water | wastewater | sewage

OVERVIEW

MAK Water's Moving Bed Bioreactor (MBBR) type packaged sewage treatment plants are designed to treat domestic strength sewage, to achieve "Class C" treated effluent, suitable for reuse in "risk category low" applications or for discharge to environment. With the optional "Class A" upgrade, treated effluent suitable for reuse in "risk category medium" applications is achieved.

The standard treatment process includes influent screening, balance tank mixing, aerobic treatment, clarification and effluent disinfection (chlorine tablets). The optional "Class A" upgrade includes an auto-backwashing glass media filter, secondary chlorination via tank recirculation and residual trim hypochlorite dosing, and analysers for online monitoring of treated effluent turbidity, free chlorine and pH.

MAK Water's MBBR Bioreactors are corrosion resistant and are self-contained, modular systems for easy deployment to remote locations.



STANDARD SPECIFICATIONS

Parameter	Units	MBBR-125	MBBR-150	MBBR-200	MBBR-250	MBBR-300	
Treatment capacity	m ³ /day	125	150	200	250	300	
*1Balance tank volume (recommended)	m ³	125	150	200	250	300	
*1Treated effluent tank volume (*2minimum)	m ³	9.0	11	14	18	21	
Sludge tank volume	m ³	30	30	50	50	2 x 30	
Thickened sludge waste volume	m ³ /day	1.9	2.3	2.9	3.6	4.3	
*3Irrigation pump duty	m ³ /hr @ 350 kPa	10.4	12.5	16.7	20.1	25	
Ambient temperature (min/max)	°C	1/43 (-15/50 with optional container insulation)					
Power supply	-	AC 415 V, 3 Phase, 50 Hz					
Power consumption	Class C (max)	kW	28	35	40	49	58
	Class A (max)	kW	35	41	47	56	65
	*3Irrigation pump	kW	2.2	3.0	4.0	5.5	5.5
Footprint	FRP bioreactor(s) & access platform(s)	m	7.4 x 4.2	8.8 x 4.2	11.4 x 4.2	7.4 x 7.6	8.8 x 7.6
	Containerised plant room	m	6 x 2.4 (ISO 20')				
	Sludge tank(s)	Øm	4	4	4.5	4.5	2 x 4

Characteristics	Units	Influent	**Class C effluent	**Class A Effluent
Temperature	°C	15~35	-	-
pH	pH units	6.5~8.5	6.5~8.5	6.5~8.5
Biological oxygen demand (BOD)	mg/L	**≤350	<20	<20
Suspended solids (TSS)	mg/L	**≤350	<30	<30
Oil & grease	mg/L	<10	-	-
Total nitrogen (T-N)	mg/L	≥20	N/A (no reduction)	
Total phosphorus (T-P)	mg/L	<16	4~12 (variable according to coagulant dose rate)	
Total dissolved solids (TDS)	mg/L	<2,000	-	-
Turbidity	NTU	-	N/A	<5 (95%ile)
E.Coli	cfu/100 mL	-	<1,000	<10
Free chlorine	mg/L	-	0.2~2	

*1 Sold separately, *2 For 15 min.mg/L contact time, *3 Optional equipment, *4 Based on QLD guidelines, *5 Referenced from Metcalf & Eddy (5th edition, 2014), typical composition of untreated domestic wastewater; higher/lower design values available on request.

STANDARD INCLUSIONS + OPTIONS

✓ = Standard Supply, o = Optional Supply

Equipment	MBBR-125	MBBR-150	MBBR-200	MBBR-250	MBBR-300	
Automatic inlet screen (2mm)	✓	✓	✓	✓	✓	
Influent mixing pump	✓	✓	✓	✓	✓	
Influent feed pump	✓	✓	✓	✓	✓	
FRP bioreactor(s) with aluminium access platform(s) & ladder(s)	Aerobic zone with floating media & blower					
	Clarifier with scum removal system					
	Buffer zone/tank with tablet chlorinator					
	Bioreactor roofing (COLORBOND® steel sheeting)					
Containerised plant room with air conditioning, overhead lighting & GPO for maintenance	Chemical dosing – coagulant					
	RAS/WAS pump					
	Effluent transfer/filter feed (& backwash) pump					
	Class A only	Auto-backwashing media filter				
		Treated effluent tank recirculation pump				
		Hypochlorite dosing				
	PLC control system with HMI					
Plant room insulation						
Sludge tank with supernatant sampling points & discharge valves						
Supernatant sump with submersible pump & level control						
Irrigation pump with level control & mechanical flow totaliser						
Instrumentation	Standard package					
	Premium package with ClearAccess™ remote monitoring					

Instrumentation & Controls		Standard Package	Premium Package
Level switches	Balance tank	✓	-
	Sludge tank	✓	✓
	Chemical dosing tank(s)	✓	✓
	Supernatant sump (optional)	✓	✓
Level transmitters	Balance tank	-	✓
	Buffer tank	✓	✓
	Treated effluent tank	✓	✓
Flow switches	Effluent transfer pump (Class C)	-	✓
	Treated effluent recirculation pump (Class A)	-	✓
	Irrigation pump (optional)	-	✓
Pressure switches	Balance tank mixing pump	✓	✓
Pressure indicators	Balance tank mixing pump	✓	✓
	Influent feed pump	✓	✓
	Blower discharge	✓	-
	RAS/WAS pump	✓	✓
	Effluent transfer pump (Class C)	✓	✓
	Media filter feed pump (Class A)	✓	-
	Media filter discharge (Class A)	✓	-
	Irrigation pump (optional)	✓	✓
Pressure transmitter	Treated effluent recirculation pump (Class A)	✓	✓
	Media filter feed pump (Class A)	-	✓
	Media filter discharge (Class A)	-	✓
Magnetic flow transmitter	Influent feed pump	✓	✓
Mechanical flow totaliser	Irrigation pump (optional)	✓	✓
Free chlorine and pH analyser (Class A)		✓	✓
Turbidity analyser (Class A)		✓	✓
ClearAccess™ remote monitoring & control capabilities		-	✓

MODEL SELECTION

- 125 Capacity – 125 m³/day
 - 150 Capacity – 150 m³/day
 - 200 Capacity – 200 m³/day
 - 250 Capacity – 250 m³/day
 - 300 Capacity – 300 m³/day
- C Treatment to Class C
 - A Treatment to Class A
 - X Roofed bioreactor – without
 - R Roofed bioreactor – included
 - X Plant room insulation – without
 - P Plant room insulation – included
 - X Supernatant sump – without
 - S Supernatant sump – included
 - X Irrigation pump – without
 - I Irrigation pump – included
 - X Standard instrument package
 - P Premium instrumentation package
 - X Specifications – standard
 - C Specification – custom

NEED A QUOTE?

COMPLETE THIS TABLE AND EMAIL TO...

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MBBR

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