

# PRODUCT DATA SHEET

## Moving Bed Bioreactor Plus (MBBR+)

water | wastewater | sewage

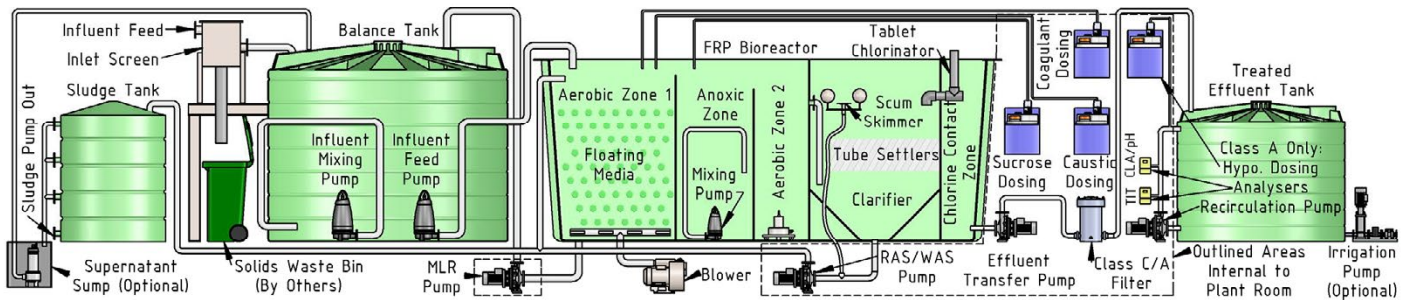


### OVERVIEW

MAK Water's Moving Bed Bioreactor Plus (MBBR+) type packaged sewage treatment plants are designed to treat domestic strength sewage, to achieve "Class C" treated effluent, *plus enhanced nutrient removal*, 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, anoxic & aerobic treatment for *nitrification and denitrification*, clarification, effluent sterilization (chlorine tablets) and bag filtration (100 micron). The optional "Class A" upgrade includes an auto-backwashing aseptic glass media filter (5 micron), secondary chlorination via tank recirculation and residual trim hypochlorite dosing, and analyzers 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+090	MBBR+125	MBBR+175	MBBR+250	MBBR+300
Treatment capacity (min/max)		m³/day	22.5 / 90	31.3 / 125	43.8 / 175	62.5 / 250	75 / 300
*1Balance tank volume (recommended)		m³	125	160	250	343	413
*1Treated effluent tank volume (recommended)		m³	90	125	175	250	300
Sludge tank volume		m³	22.5		32	50	
Sludge waste volume (min/max)		m³/month	2.7 / 11.0	3.0 / 12.2	5.3 / 21.3	7.6 / 30.4	9.9 / 39.5
*2Irrigation pump duty		m³/hr @ 350 kPa	11.25	15.63	21.88	31.25	37.5
Ambient temperature (min/max)		°C	1 ~ 43				
Power supply		-	AC 380~450 V, 3 Phase, 50/60 Hz				
Power consumption	Class C (max)	kW	16.5	25.5	33.5	48.5	63.5
	Class A (max)	kW	19.5	27.5	36.5	53.5	68.5
	*2Irrigation pump	kW	4	5.5	7.5	11	15
Footprint	FRP bioreactor(s) & access platform(s)	m	12 x 3.2	12 x 5.6	12 x 5.6	12 x 8.8	12 x 8.8
	Containerised plant room	m	6 x 2.4	*3N/A	6 x 2.4	*3N/A	6 x 2.4

Characteristics	Units	Influent	**Class C effluent	**Class A effluent
Temperature	°C	15~35	-	
pH	pH units	6.5~8.5	6.5~8.5	
Biological oxygen demand (BOD)	mg/L	*5≤350	<20	
Suspended solids (TSS)	mg/L	*5≤350	<30	<10
Oil & grease	mg/L	<10	-	
Total nitrogen (T-N)	mg/L	<80	<10 (or 70 mg/L reduction from influent value)	
Total phosphorus (T-P)	mg/L	<16	1~2 (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 Optional equipment, \*3 Plant room integral to FRP bioreactor, \*\*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+090	MBBR+125	MBBR+175	MBBR+250	MBBR+300
Automatic inlet screen (2 mm)		✓	✓	✓	✓	✓
Influent mixing pump		✓	✓	✓	✓	✓
Influent feed pump		✓	✓	✓	✓	✓
FRP bioreactor(s) with access platform(s) & ladder(s)	Aerobic zone 1 with floating media, blower & MLR pump	✓	✓	✓	✓	✓
	Anoxic zone with submersible mixing pump	✓	✓	✓	✓	✓
	Aerobic zone 2 with submersible aerator	✓	✓	✓	✓	✓
	Clarifier with scum removal system	✓	-	-	-	-
	Clarifier with tube settler & scum removal system	-	✓	✓	✓	✓
	Chlorine contact zone with tablet chlorinator	✓	✓	✓	✓	✓
	Bioreactor roofing (COLORBOND® steel sheeting)	o	o	o	o	o
Plant room with air conditioning, overhead lighting & GPO for maintenance	Chemical dosing – coagulation, sucrose & caustic	✓	✓	✓	✓	✓
	RAS/WAS pump	✓	✓	✓	✓	✓
	Effluent transfer/filter feed (& backwash) pump	✓	✓	✓	✓	✓
	Class C Bag filter (100 µm)	✓	✓	✓	✓	✓
	Class A Auto-backwashing aseptic glass media filter (5 µm)	o	o	o	o	o
	Class A Treated effluent tank recirculation pump	o	o	o	o	o
	Class A Residual trim hypochlorite dosing	o	o	o	o	o
PLC control system with HMI		✓	✓	✓	✓	✓
Sludge tank with supernatant sampling points & discharge valves		✓	✓	✓	✓	✓
Supernatant sump with submersible pump & level control		o	o	o	o	o
Irrigation pump with level control & mechanical flow totaliser		o	o	o	o	o
Instrumentation	Standard package	✓	✓	✓	✓	✓
	Premium package with ClearAccess™ remote monitoring	o	o	o	o	o

Instrumentation & Controls		Standard package	Premium package
Balance & chlorine contact tank float level switches		✓	-
Chemical dosing & sludge tank float level switches		✓	✓
Pressure switches		✓	✓
Pressure gauges		✓	✓
Magnetic flow transmitters (influent feed pump & MLR pump)		✓	✓
Aerobic tank dissolved oxygen analyser		✓	✓
Aerobic tank pH analyser		✓	✓
Class A only	Aseptic glass media filter pressure transmitter	✓	✓
	Treated effluent chlorine & pH analyser	✓	✓
	Treated effluent turbidity analyser	✓	✓
Variable speed drives	Influent feed pump	✓	✓
	MLR pump	✓	✓
	Aeration blower	✓	✓
Balance & chlorine contact tank level transmitters		-	✓
ClearAccess™ remote monitoring & control capabilities		-	✓

## MODEL SELECTION

- 090** Capacity – 90 m³/day  
**125** Capacity – 125 m³/day  
**175** Capacity – 175 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** 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

MBBR+ --- - - - - - - -

NEED A QUOTE?

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