

MBBRa

Applications

Orenco's Moving Bed Biofilm Reactor - Aerating (MBBRa) provides secondary treatment for effluent in residential, municipal, commercial, and industrial wastewater treatment systems that are required to meet BOD/TSS/ammonia limits, achieve nitrification, and/or reduce high-strength BOD preceding secondary treatment.

The MBBRa is suitable for the following:

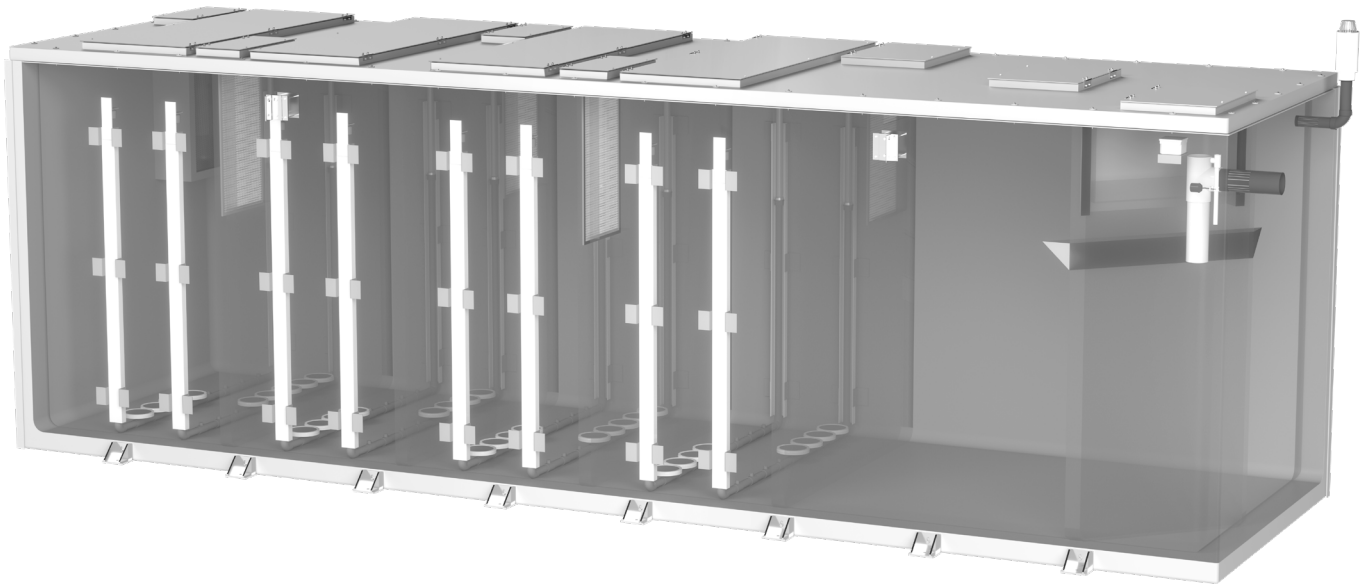
- Treatment of BOD/TSS
- BOD reduction for high-strength waste
- Nitrification
- Permanent and mobile locations
- At-grade or above-grade installation
- A wide range of climates

General

Orenco's MBBRa provides BOD/TSS treatment and nitrification for primary effluent. Its modular design and accessibility make it both easy and simple to install, operate, and maintain.

MBBRa units feature vessels with single-piece, vacuum-molded construction designed for watertightness. The standard size is 10ft (3.0m) wide × 11ft (3.4m) tall with custom lengths. Standard walls are 6in (152mm) foam-core fiberglass with an R-36 (RSI 6) insulation value to maintain interior temperatures in climatic conditions of -60° to 125°F (-51° to 52°C) and provide consistent treatment in a variety of environments. Orenco MBBRa units use durable stainless steel air diffuser lines that transition to PVC under the waterline to a removable, air diffuser manifold. The biofilm carrier is made of a durable plastic material for effective treatment and longevity.

All MBBRa units require a separate controls building. For units installed above grade, safety railings are an available option.



Orenco's MBBRa provides secondary treatment for residential, municipal, commercial, and industrial wastewater treatment systems (MBBRa-1035 cutaway view shown)

Materials of Construction

| | |
|----------------------|--|
| Walls/floor/tank top | Infused foam core, fiberglass laminate |
| Access lids | PET foam core, fiberglass laminate |
| Access lid gaskets | Neoprene, EPDM, SBR |
| Lifting brackets | Steel |
| Exterior coating | Tuff Coat®* UT-200 |
| Mixing device | PVC, fiberglass |
| Biofilm carrier | HDPE |

* Tuff Coat is a registered trademark of Modern Recreational Technologies, LLC

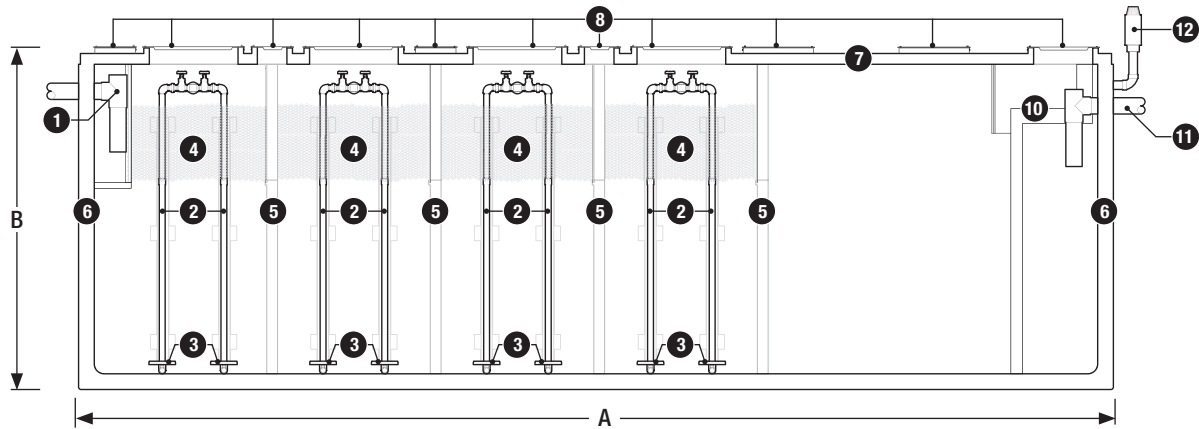
Specifications

| | MBBRa-1025 | MBBRa-1030 | MBBRa-1035 |
|------------------------------------|---------------|---------------|---------------|
| Nominal Dimensions, ft (m)* | | | |
| A | 25 (7.6) | 30 (9.1) | 35 (10.7) |
| B | 10 (3.0) | 10 (3.0) | 10 (3.0) |
| C | 11 (3.4) | 11 (3.4) | 11 (3.4) |
| Volume, gal (m³)* | | | |
| | 16,000 (60.6) | 20,500 (77.6) | 24,000 (90.8) |

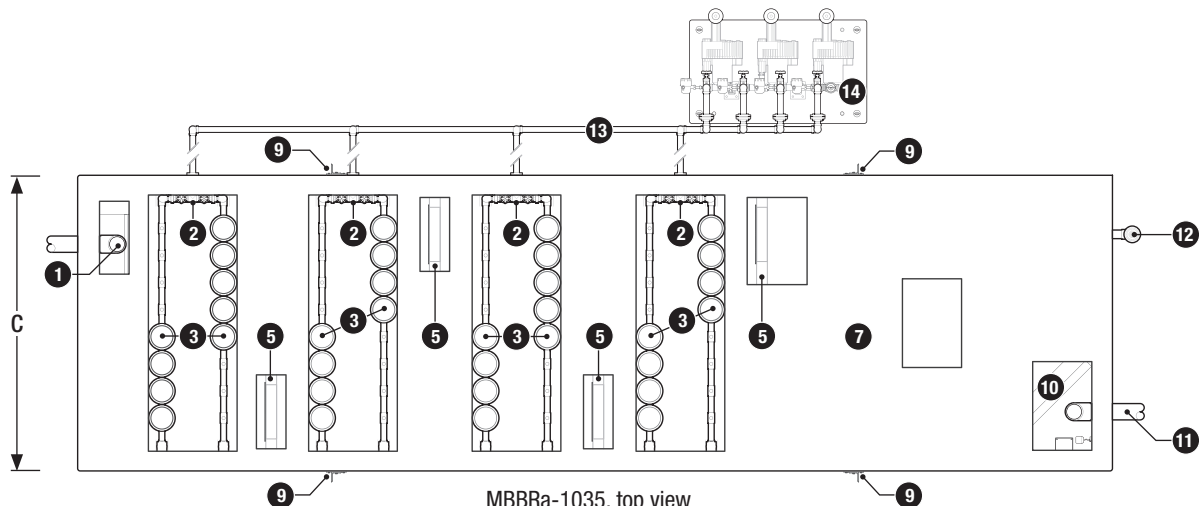
Required Flow (per air diffuser)

1.5-2.5 cfm (0.04-0.07 m³/min) per bubble

* See Orenco MBBRa drawings for exact dimensions and specific unit configurations



MBBRa-1035, side cutaway view



MBBRa-1035, top view
(access lids removed, no biofilm carrier shown)

MBBRa Components

- | | | | |
|-------------------------------------|----------------|--------------------|---|
| 1. Inlet with media retention plate | 5. Baffle | 9. Lifting bracket | 13. Air line |
| 2. Air diffuser manifolds (duplex) | 6. Tank wall | 10. Weir | 14. Air blower (3-blower configuration) |
| 3. Air diffusers (quantity varies) | 7. Tank top | 11. Outlet | |
| 4. Biofilm carrier | 8. Access lids | 12. Air vent | |