

Watercore Membrane Bioreactor (MBR) : the highest effluent quality in wastewater treatment

Watercore MBRs (membrane bioreactors) produce a high-quality effluent that can be discharged to environmentally sensitive areas or can also be recycled

EDGECLIFF, NSW, AUSTRALIA, October 19, 2021

/EINPresswire.com/ -- Watercore [MBRs \(membrane bioreactors\)](#) produce a high-quality effluent that can be discharged to river, ocean, or environmentally sensitive areas, but it can also be recycled for recreational field irrigation, agriculture, artificial waterfalls and recreational pond makeup, nonpotable domestic use, cooling tower makeup, vehicle washing, fire protection, dust control, construction, etc.

A membrane bioreactor is an activated sludge system in which the secondary clarifier is replaced with a set of microfiltration or ultrafiltration membranes. This technology has been in the market since 1969 and is now widely used in all-size applications.

MBRs are characterised by:

Small footprint

- Low concern about the reclaimed water quality due to complete suspended solids capture across the membrane
- Lower [water disinfection dose](#) due to the low turbidity effluent

The use of MBR technology offers an opportunity to implement some of the objectives of the "Australian Guidelines for Water Recycling: Managing Health and Environmental Risk" in a controlled and responsible framework.

Remote monitoring and logging of the most critical process parameters will guarantee a safe operational environment for end-users, underground water bodies and rest of stakeholders.



WATERCORE MBR Series Technical data sheet
Membrane Bioreactor for Wastewater Treatment

PROCESS DESCRIPTION

Membrane bioreactors (MBR) are activated sludge processes where the final gravity clarifier is replaced with a filtering membrane.

MBRs produce a high quality effluent that can be discharged to river, ocean, or environmentally sensitive areas, but it can also be recycled for recreational field irrigation, agriculture, artificial waterfalls and recreational pond makeup, nonpotable domestic use, cooling tower makeup, vehicle washing, fire protection, dust control, construction, etc.

MBR SYSTEM BENEFITS

- Excellent effluent quality allows water recycling or direct discharge in sensitive environments
- Small footprint (50% approx.) compared with other activated sludge processes
- Low disinfection doses are required as most bacteria and viruses (>98%) are retained by the membrane

TYPICAL MBR EFFLUENT QUALITY

- Suspended Solids (TSS) < 2 mg/L
- Turbidity < 1 NTU
- COD < 30 mg/L
- BOD < 3 mg/L
- Nitrogen as NH₄-N < 1 mg/L
- TN < 5 mg/L
- TP < 1 mg/L
- Faecal coliforms < 100 (count in 100 mL)

MAIN COMPONENTS

- Equalization Tank: Flow equalization is a crucial step to secure efficient use of the entire system without causing hydraulic or organic overloads. It is sized on a project basis to buffer peak flows.
- Aeration Tank: where various microorganisms cooperate to oxidize biodegradable organics and nitrogen. Approximately 30% to 60% of the carbons in the biodegradable organics are assimilated to live microorganisms while the rest of them are oxidized to CO₂. Organic and inorganic nitrogen are also oxidized to nitrate.
- Anoxic tank: removal of nitrogen is enhanced when molecular oxygen (O₂) is not present for bacterial respiration and combined oxygen contained in nitrate (NO₃-N) is used as an alternative oxygen source. Molecular nitrogen (N₂) is then released.
- Microfiltration Membrane: with a typical pore size of 0.4 microns, the filtration membrane provides a physical barrier to organic and inorganic matter suspended in the water as well as bacteria and viruses.

Watercore is a registered name of Abscore Engineering Pty Ltd
Level 5, 203-233 New South Head Rd, Edgecliff NSW 2027
ABN: 75 613 403 302

watercore.com.au
1300 742 010

Watercore MBR system specs

The main benefits of installing a Watercore MBR membrane bioreactor are:

- Excellent effluent quality allows water recycling or direct discharge in sensitive environments
- Small footprint (50% approx.) compared with other activated sludge processes-
- Low disinfection doses are required as most bacteria and viruses (>98%) are retained by the membrane

WATERCORE

Watercore - WATER AND WASTEWATER TREATMENT AND PURIFICATION FOR BUSINESSES



Membrane bioreactors (MBR) are activated sludge processes where the final gravity clarifier is replaced with a filtering membrane."

David Garcia

The main components of a Watercore MBR membrane bioreactor are:

- Equalization Tank: Flow equalization is a crucial step to secure efficient use of the entire system without causing hydraulic or organic overloads. It is sized on a project basis to buffer peak flows.
- Aeration Tank: where various microorganisms cooperate to oxidize biodegradable organics and nitrogen.

Approximately 30% to 60% of the carbons in the biodegradable organics are assimilated to live microorganisms while the rest of them are oxidized to CO₂. Organic and inorganic nitrogen are also oxidized to nitrate.

- Anoxic tank: removal of nitrogen is enhanced when molecular oxygen (O₂) is not present for bacterial respiration and combined oxygen contained in nitrate (NO₃⁻-N) is used as an alternative oxygen source. Molecular nitrogen (N₂) is then released.
- Microfiltration Membrane: with a typical pore size of 0.4 microns, the filtration membrane provides a physical barrier to organic and inorganic matter suspended in the water as well as bacteria and viruses.

Other optional features are:

- Advanced phosphorus removal: more than 80% of the total incoming phosphorus is typically removed by the standard MBR process. When more stringent removal rates are required, alum and ferric coagulants can reduce the phosphorus concentration in effluent down to 0.04 mg/L
- Advanced non-biodegradable COD removal: when influent contains high levels of non-biodegradable COD, PAC can be added to the aeration tank.
- Effluent disinfection (post-treatment): typical MBR virus and bacteria removal is >98%. Additional effluent disinfection can be achieved by chlorination and/or UV.

Contact one of our experts for the best [water treatment](#) advice

David Garcia

Watercore

info@watercore.com.au

Visit us on social media:

[Facebook](#)

[Twitter](#)

[LinkedIn](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/554213324>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2021 IPD Group, Inc. All Right Reserved.