

# WATER & WASTEWATER PRODUCTS AND PROCESSES

# THE AEROFLOAT DIFFERENCE

Aerofloat is an Australian owned and family run business that designs, manufactures and installs wastewater treatment systems for a range of industrial markets. Aerofloat offers custom designed solutions utilising patented Aerofloat technology, as well as other leading-edge products to address a range of wastewater treatment requirements.



## DESIGN & ENGINEERING:

Aerofloat's engineers specialise in wastewater treatment and will custom design your wastewater treatment solution based on your requirements. Utilising 3D CAD modelling, proprietary technology and innovative engineering, Aerofloat uses clever design to address a range of challenges.



## PROJECTS:

Aerofloat's Australian manufacturing team will manufacture your wastewater treatment systems locally and then install the system onsite to suit your build schedule. Aerofloat has extensive experience working on small and large jobsites.



## AFTERCARE:

Aerofloat offers competitive chemical supply contracts, system maintenance packages and ongoing support to prevent downtime and ensure your system is running effectively.

## APPLICATIONS

Aerofloat works in a wide range of industries:

### Industrial:

- Paper and pulp
- Plastic recycling
- Printing and packaging
- Laundries and textiles
- Process water reuse
- Construction water

### Food manufacturing:

- Dairy
- Meat and poultry
- Abattoir
- Brewery
- Winery
- Bakery
- Confectionary
- Small goods
- Food packaging

### Off sewer sites:

- Mining camp sites and villages
- Caravan parks and camping grounds
- Island resorts
- Small townships (up to 3000 people)
- Remote accommodation
- Residential developments
- Sport and recreation camps

# WHY AEROFLOAT?



## **Design expertise:**

Aerofloat prides itself in being able to tackle complex wastewater problems. Working in the wastewater industry since 1973, Aerofloat's staff skills include electrical, chemical, mechanical, process control and environmental engineering. This gives you the peace of mind that all of your design requirements will be covered.



## **3D CAD modelling:**

Aerofloat uses 3D CAD modelling to design your system and help you visualise the solution prior to manufacturing. Any site challenges are addressed at the design stage, assuring you there will be no surprises at the time of installation.



## **In-house capabilities:**

Aerofloat manages the entire process in-house. From 3D CAD modelling and design, to manufacturing, installation, commissioning and ongoing support and maintenance. This provides you with the confidence that Aerofloat is in control for the entire project life cycle.



## **Support guarantee:**

Aerofloat prides itself on providing robust and reliable solutions. As an Aerofloat client, you will have guaranteed access to Aerofloat engineers for ongoing advice and support, ensuring your system will run efficiently long after the system has been installed.



## **Relationships:**

Aerofloat has a number of key repeat clients and referral-based projects due to a strong history of completing projects on time and on budget – giving you the confidence that Aerofloat truly values project success.



## **Australian:**

Aerofloat is an Australian, family-owned company with local manufacturing and engineers. This provides you with a proven solution with the latest manufacturing techniques and cutting-edge design.

“

Aerofloat's 3D CAD modelling capability gave us the confidence that the system would fit in the limited space we had available. It was also great to “fly through” the plant prior to construction to see it how it met our requirements.

”

**Lindsay Crawford,**  
Brewmaster, 4 Pines

# AEROFLOAT'S CAPABILITIES

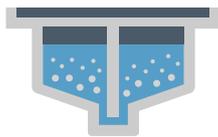
Aerofloat specialises in a range of water and wastewater treatment options, including its own patented technology and conventional treatment options.

## PHYSICAL CHEMICAL SEPARATION



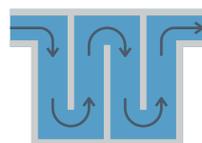
There are a range of equipment options for primary physical separation typically to remove Suspended Solids (SS) and Fat, Oil and Grease (FOG). These include: DAF (Dissolved Air Flotation), clarifiers and grease traps. Aerofloat is able to assist in incorporating new or existing physical separation equipment in any wastewater treatment design. Aerofloat can offer conventional DAFs and also has its own patented DAF technology in the AeroDAF which was designed to provide a compact, low-maintenance and affordable DAF solution. It has been successfully utilised in numerous plants across the world.

## INDUSTRIAL BIOLOGICAL TREATMENT



Aerofloat has a thorough understanding of notoriously complex biological wastewater treatments. This commonly includes reducing BOD (Biochemical Oxygen Demand) and removing nitrogen from high-strength waste. Aerofloat has patent-pending aeration lance technology that provides a unique low-maintenance solution within its biological products, including AeroMBBR (Moving Bed Biofilm Reactor), AeroSBR (Sequence Batch Reactor), AeroASR (Activated Sludge Reactor) and AeroMBR (Membrane Bio-Reactor).

## SEWAGE TREATMENT

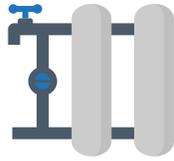


Aerofloat offers low-maintenance, cost-effective, portable sewage treatment plants for remote establishments up to 3000 people. Aerofloat's proprietary technology has taken proven sewage treatment processes and applied a more mechanically simple design, to provide superior effluent quality, whilst remaining portable and modular. The options include utilising a combination or standalone of any of the following techniques: AeroMBBR, AeroSBR, AeroASR (including the conventional forms of these technologies) and AeroMBR.

## pH CORRECTION

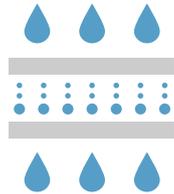


pH correction can be a simple solution if managed properly with a considered design. Aerofloat has extensive experience installing standalone pH correction systems for breweries and confectionary companies as well integrated pH correction systems as part of a larger wastewater treatment plant. Aerofloat's pH correction equipment features automated correction systems that allow staff to monitor temperature and pH levels prior to discharge.



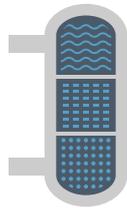
## SLUDGE DEWATERING

Aerofloat has a number of proven sludge-dewatering options that enable clients to reduce sludge disposal costs within new or existing treatment facilities. Aerofloat can assist in sizing and providing a variety of equipment options including: filter press, screw press, centrifuge, belt filter press or gravity tank dewatering.



## WATER TREATMENT

Aerofloat engineers assist in the design and construction of water treatment plants using a variety of options around clarification, filtration and disinfection process steps. Aerofloat's unique AeroDAFs have a particular advantage over conventional DAFs for the first stage of water treatment plants, as a comparative low cost option for this first treatment stage.



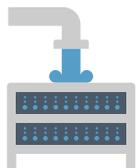
## FILTRATION

Filtration is a simple but important step in the overall wastewater treatment design. Aerofloat can recommend and install a range of solutions, including sand filters, microfiltration, ultrafiltration and reverse osmosis units.



## CHEMICAL DOSING

Aerofloat provides simple, cost-effective chemical dosing systems, either as a stand-alone unit or integrated into a full wastewater treatment plant. Design and manufacturing is completed in-house to ensure the solution is fit-for-purpose.



## SCREENING

Screening of wastewater is normally an essential process step to ensure the effectiveness of your wastewater treatment system. Aerofloat can help with inline screens, rotary drum filters, sieve bends and more.

# AEROFLOAT'S PROPRIETARY TECHNOLOGY

Aerofloat offers a range of innovative and unique patented wastewater solutions. In addition, Aerofloat has extensive experience installing more traditional forms of the technologies.

## AeroDAF

**Low maintenance:** The AeroDAF has a patented scum removal system and unique double hopper design that allows it to be self-cleaning, without the need for mechanical scrapers.

**Compact:** The AeroDAF's compact design fits into a small footprint around half the size of most traditional DAFs. Aerofloat engineers use 3D modelling to custom design a solution to address any space challenges.

**Cost effective:** The AeroDAF is designed to be mechanically simple, with a polyethylene tank and no mechanical scrapers, resulting in a cost-effective solution.

**Sealed and vented:** The AeroDAF is completely sealed and can be vented above the roofline, preventing any unpleasant odours.

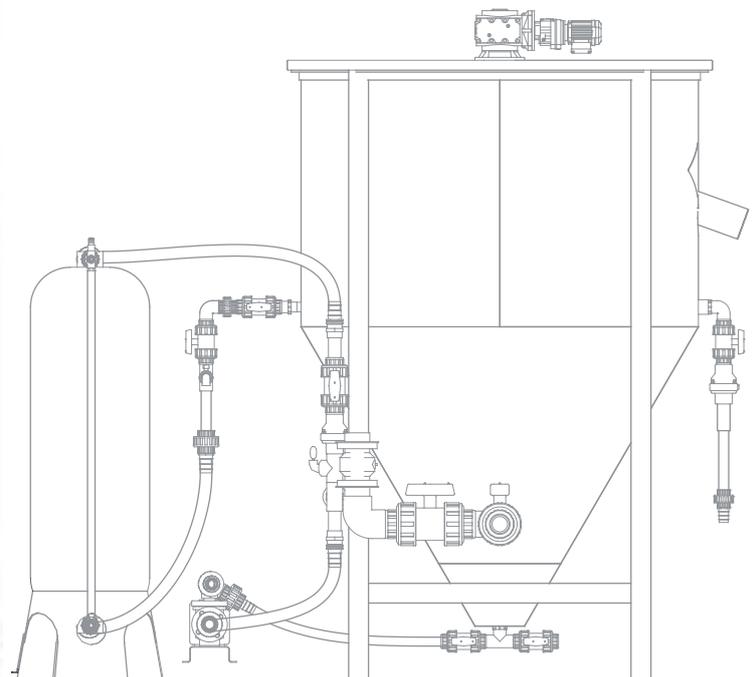
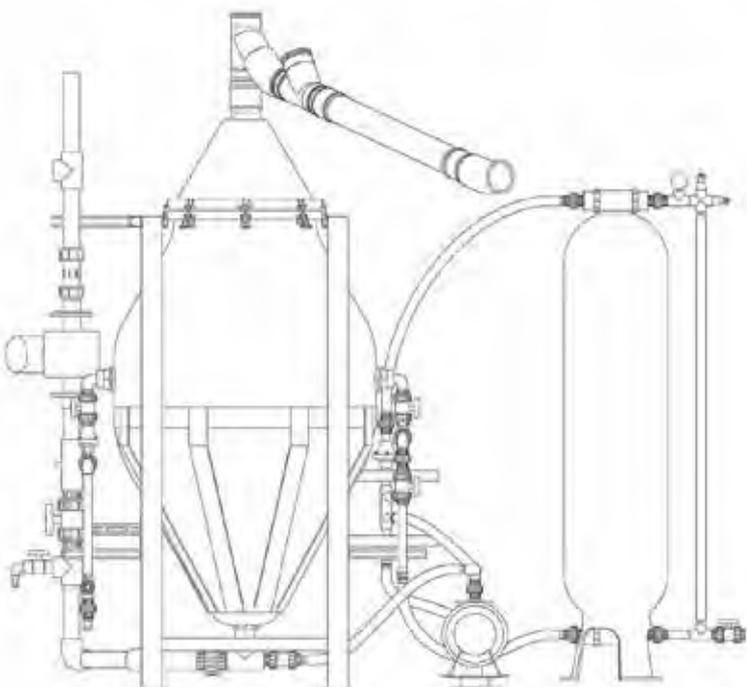
## AeroCIRC DAF

**Self-cleaning DAF:** The AeroCIRC DAF has a rotating scraper drive and 60 degree hopper bottom, ensuring that the DAF self-cleans.

**No chain scrapers:** The rotating scraper makes for a very attractive product offering with no chains to maintain or replace.

**Hydraulic sludge removal option:** By adopting the AeroDAF patented feature of hydraulic float removal, the top of the DAF tank is periodically purged.

**Superior hydraulic design:** The central mixing chamber allows for an effective solids and air contact zone plus a radial downward flowpath away from the floating sludge blanket ensuring more complete solids separation.



## AeroSBR

**Sequence steps:** The AeroSBR provides cycles of aerate, mix, settle and decant. This ensures optimal removal of nitrogen by the nitrification/denitrification process.

**Diffuser cleaning without downtime:** The unique design of the AeroSBR aeration lances, allows them to be removed for cleaning while the process is still operating. This overcomes the need to drain the tank or shut the system down.

**Clarification in same reactor:** By aerating, settling and decanting in the same reactor it overcomes the need for a separate clarifier, or in the case of the MBRs, overcomes the need for frequent membrane cleaning/replacement.

**Air Locked Syphon (ALS) Decanter:** Unlike conventional SBRs with lowering decanting weirs, the AeroALS decanter can be installed in covered tanks enabling the AeroSBR to be sealed and vented, preventing any unpleasant odours escaping.

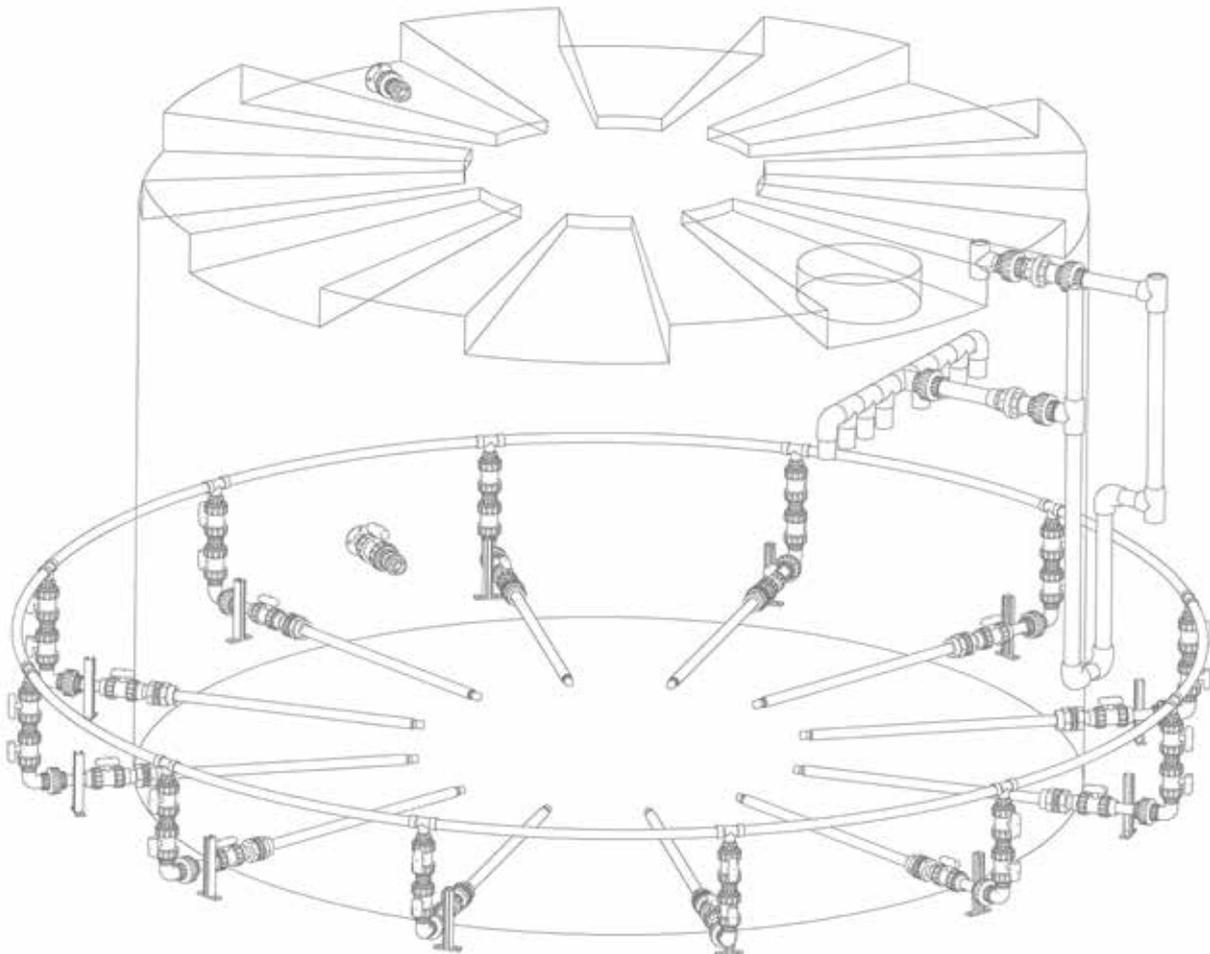
## AeroMBBR

**Easy cleaning without downtime:** The unique design of the AeroMBBRs aeration lances allows them to be removed for cleaning while the process is still operating. This overcomes the need to drain the tank, remove the bio-media or shut the system down.

**Sealed and vented:** The AeroMBBR can be sealed and vented, preventing any unpleasant odours escaping.

**Compact:** The AeroMBBR is a compact biological treatment system due to the high concentration of microorganisms in the MBBR.

**Cost effective:** The AeroMBBR tank is made of polyethylene, which makes the system durable and cost-effective.





## AEROFLOAT'S PROPRIETARY TECHNOLOGY EXPLAINED

### AeroDAF

Dissolved Air Flotation (DAF) is a physical separation technique used to remove suspended solids and fats, oils and grease from the wastewater. Aerofloat has patented DAF technology in its AeroDAF, which has combined proven traditional DAF principles with some world-first patented design elements to make a truly innovative product.

The AeroDAF uses a unique tank with a 60 degrees conical bottom and conical top and a patented hydraulic float removal system to funnel the waste float material from the top of the tank. Unlike traditional DAFs, mechanical scrapers are not required, resulting in a compact, mechanically simple and more affordable solution.

The waste material is removed from the enclosed, tank by using the hydraulics on the incoming feed stream. Most industrial waste plants will require some pre-treatment by screening, blending, hydraulic balancing and pH correction.

### AeroCIRC DAF

Circular Dissolved Air Flotation (AeroCirc) is similar to a conventional circular DAF, with a rotating scraper arm. However the AeroCirc normally includes a 60 degree hopper bottom meaning the DAF is completely self-cleaning. The AeroCirc can incorporate the patented feature of an effluent actuator on the effluent line for the hydraulic float removal. It also utilises Aerofloat's proprietary Air Dissolving System.

The small quantity of fallen solids between cycles are re-floated through the recirculation stream to the Dissolver/Saturator prior to the introduction of wastewater. Hence solids do not accumulate in the bottom of the DAF. The combination of the scraper and the hydraulic lift at the end of a cycle, ensures all solids are removed from the DAF. Chain scrapers are not required and the self-cleaning feature ensures a very attractive product offering.





## AeroMBBR

Moving Bed Biofilm Reactor (MBBR) is a biological process commonly used to remove soluble contaminants, such as BOD and COD (typically dissolved sugars and proteins). This is a process where the wastewater is aerated in the presence of micro-organisms that are attached to plastic bio-media. The micro-organisms break down the contaminants and excrete a bio-solid, which can then be removed with an AeroDAF or by sedimentation in a clarifier.

Aerofloat's AeroMBBR has patent-pending technology that makes it a simple, low-maintenance and cost-effective solution for biological wastewater treatment. The unique design of the patent-pending aeration lances allows them to be removed from the reactor while the process is still operating, without the need to drain the tank or remove the bio-media. This results in minimal downtime and easier maintenance.

## AeroSBR

Sequencing Batch Reactor (SBR) technology is a suspended growth biological treatment process whereby the microorganisms are settled and the effluent decanted within the same reactor. This is achieved by undergoing cycles of aeration, mix, settle and decant. The process degrades soluble organic material and removes nitrogen by the nitrification and denitrification process. Excess bio-solids are removed by a waste activated sludge pump.

“We couldn't be happier with our Aerofloat wastewater system. The team's expert knowledge and dedication to the job achieved outstanding results for us.”

**Terrence Duncan,**  
Operations  
Manager,  
Australian Recycled  
Plastics

# AEROFLOAT AFTERCARE SUPPORT

## PLANT SERVICING

Aerofloat offers service contracts for businesses that don't have the capacity to provide regular maintenance themselves. A wastewater treatment system should be regularly maintained and serviced to minimise downtime, maximise efficiency and ensure it complies with effluent discharge standards.

Aerofloat's service technicians can diagnose and prevent potential problems, replace worn parts, carry out system cleaning and use remote login to identify problems and provide advice.\* Weekly, fortnightly, monthly or ad hoc contracts are available.

## CHEMICAL SUPPLY

Aerofloat supplies wastewater chemicals at a competitive price, alongside expert advice from our team of engineers. Having the correct chemistry in your wastewater treatment system ensures that you achieve the optimal effluent quality and minimises costs.

## REMOTE MONITORING

Aerofloat's wastewater treatment systems can include remote monitoring capabilities that allow you to log on and control the system from your mobile or computer.\* This ensures the system controls are always within reach, even when offsite.

Aerofloat engineers can take this one step further by proactively logging onto your system to make adjustments, monitor trends, optimise settings and prevent incidents.

\*Remote monitoring hardware is required for remote login capabilities.

“We've saved money, improved our business operations and improved the quality of our recycled plastic product thanks to the high-quality of the discharged water from Aerofloat's system.”

**Terence Duncan,**  
Operations Manager,  
Australian Recycled Plastics



# CLIENT TESTIMONIALS

Aerofloat has worked with many high-profile clients across the Asia Pacific region:

“ We knew we were in safe hands with the Aerofloat team. We met other suppliers promising improbable results for a lot of money. Aerofloat was never going to leave us with something that was half-done.

**Karen Neill,**  
Director, Fresh Food Bros.

“ Understanding the regulations isn't easy if you don't specialise in the area, so I was grateful to Aerofloat's Managing Director Ray Anderson, for his patience with my questions over the journey from quote to commencement of the installation.

**Gillian Powell,**  
Chief Executive Officer,  
Fyna Foods





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