



ANOXKALDNES

## **Dissolved Air Flotation and AnoxKaldnes™ MBBR**

*The Perfect Combination*

# Why combine Dissolved Air Flotation and AnoxKaldnes™ MBBR?

The biological aerobic treatment AnoxKaldnes™ MBBR (Moving Bed Biofilm Reactor) technology combined with pre and/or post-clarification using Dissolved Air Flotation (DAF) allows an optimised treatment of wastewater due to:

- A first clarification stage through the DAF that removes pollutants that may inhibit the biological process.
- A high efficiency biological treatment thanks to our MBBR
- A post treatment through the second clarification stage using DAF in order to comply with the most stringent requirements on final effluent.

AnoxKaldnes™ MBBR (Moving Bed Biofilm Reactor) technology is a compact biological treatment that requires suspended solids separation downstream, with or without chemical addition.

Advanced DAF unit (IDRAFLOT® SPF) is a unique water mixing system for the most effective solid/liquid separation technology that increases the removal of insoluble COD, suspended solids, FOG (fats, oils and grease) and phosphorus.



## Combining technologies and expertise

Flotation is a **separation physical process of suspended solid** which consists in blowing air into a water tank to be purified. The type of flotation used by Veolia is the Dissolved Air Flotation (DAF), in which dissolved water air arises with different micro bubbles. IDRAFLOT™ progresses the flotation concept thanks to the compactness of the unit. IDRAFLOT™ units allow such a high thickening and clarification results to be defined as ultra-flotation, with the highest removal efficiency on suspended solids and fat. In addition, IDRAFLOT™ flotation units have mixing volumes intended to optimize the process and the unit global handling.

The AnoxKaldnes™ MBBR technology is used in several different process configurations to create **optimal biofilm solutions to treat wastewater**. The basic idea behind the AnoxKaldnes™ biofilm technology is to have a continuously operating, non-cloggable biofilm reactor. This is achieved by growing biofilm on small carrier elements in suspension in the reactor. With the suspended carriers, the process can be made very compact, flexible and easy to maintain.

# Benefits of Veolia's Dissolved Air Flotation and AnoxKaldnes™ MBBR

**1. Strong references with MBBR + DAF for industrial application (58+) in Asia Pacific**

**2. Compact System**

- MBBR is 2-3 times smaller compared to Activated Sludge
- DAF is much more compact than clarifier
- Concentrated sludge from DAF: reduce the sludge storage tank volume and feed directly to the dewatering unit

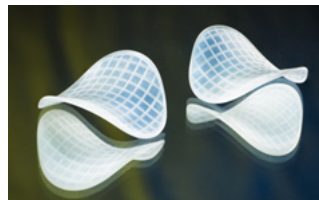
**3. Flexibility:** Possibility to add media at later stage to handle future load increase.

**4. Robustness**

- MBBR can handle load variation thanks to the biofilm process
- DAF can handle load/flow fluctuation w/o problem compared to a clarifier

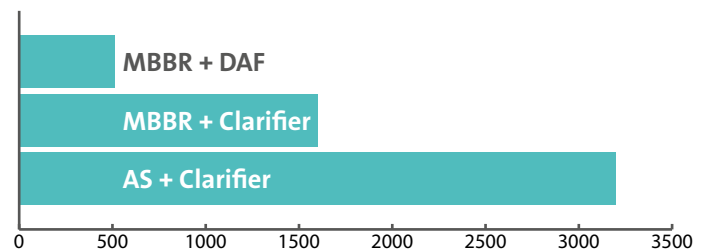
**5. Simplicity of the combination DAF + MBBR + DAF**

Repetition of the technologies, simplicity of operation, common spare parts.



## Space saving

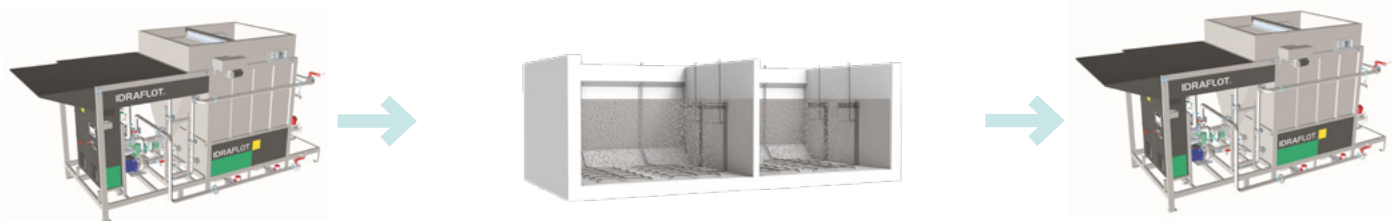
**DAF + MBBR + DAF** is a combination of very compact technologies, meaning space saving for the client. This additional land from space saving can be utilised and monetized for other purposes.



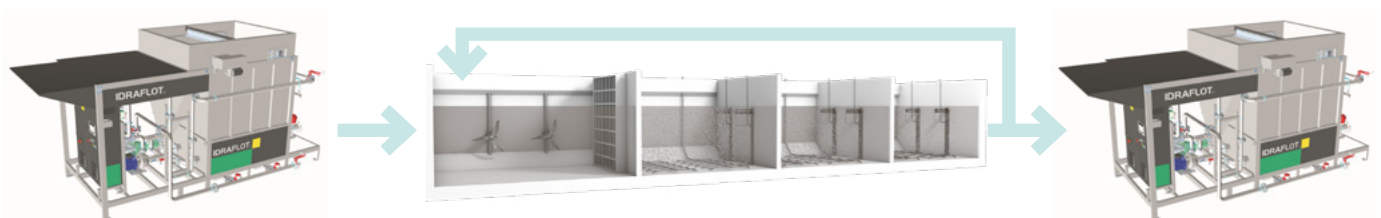
*Ref. Aquateam report no. 03-031: A footprint comparison of different processes for treatment of municipal wastewater.*

## Multiple possible combinations to offer a solution to each application

### DAF + AnoxKaldnes pure MBBR for COD/BOD removal + DAF



### DAF + AnoxKaldnes pure MBBR for COD/BOD/total nitrogen removal + DAF



# Resourcing the world

## **Veolia Water Technologies**

Remi Thelisson (Head of APAC Modular Solutions Department)  
remi.thelisson@veolia.com

Matthieu Marin Dit Bertoud (Technical Support for APAC Modular Solutions Department)  
matthieu.marin@veolia.com

**[www.veoliawatertechnologies.com/asia/en](http://www.veoliawatertechnologies.com/asia/en)**