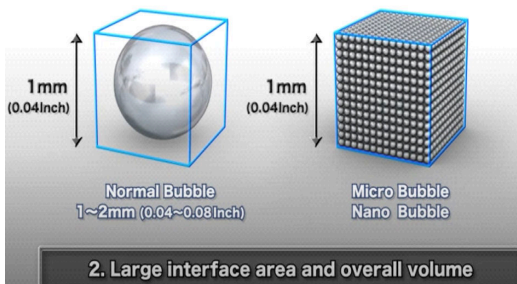
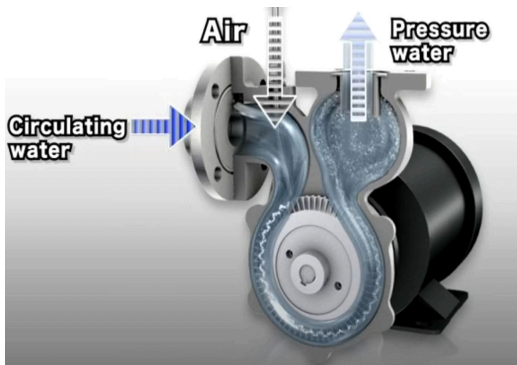


ENADAF[®] MBF

MICROBUBBLE AIR FLOTATION UNIT



GENERAL TECHNICAL SPECIFICATIONS



Endemic Micro/Nano Bubble Flotation Units, known as “ENADAF®MBF-Microbubble Air Flotation Units”, are designed for domestic and industrial water and wastewater treatment plants. These Hi-Tech Endemic products operate with high removal efficiencies using minimal energy. They are more efficient and unparalleled compared to traditional DAF systems due to their simple and easy operation features. For the production of micro/nano bubbles, we recommend using the “Micro/Nano Bubble Generator” KTM/Japan recirculation systems.

The air generator recirculation flow rate for the ENADAF®MBF unit, which uses the treated water, is typically selected in the range of $Q_r = Q_{inlet} \times 10\%-30\%$ (m^3/h), with Q_r usually being $Q_{inlet} \times 20\%$. During recirculation, the air generator absorbs atmospheric air and converts it into micro/nano bubbles according to the empirical relation $Q_r (m^3/h) \times 8\% = Q_{air} (Nm^3/h)$.

In the ENADAF®MBF unit, the air bubbles with a cloud-like structure separate and float parameters such as TSS, oil/grease, COD/BOD/N-heX from the wastewater. Floating contaminants are then removed from the system using a linear skimmer.



Compared to complex and 10 times larger bubble-based traditional DAF systems, ENADAF®MBF units achieve much better and dramatic performance with simpler operation and 25%-30% energy savings. These performances have been tested in the range of 78%-98%.

In our ENADAF®MBF design, we offer solutions with smaller areas and volumes by using “Tube Lamella SETTLER” to ensure the successful settling of suspended solids and to enhance the flotation effect of micro/nano air bubbles by providing very low surface loading rates.

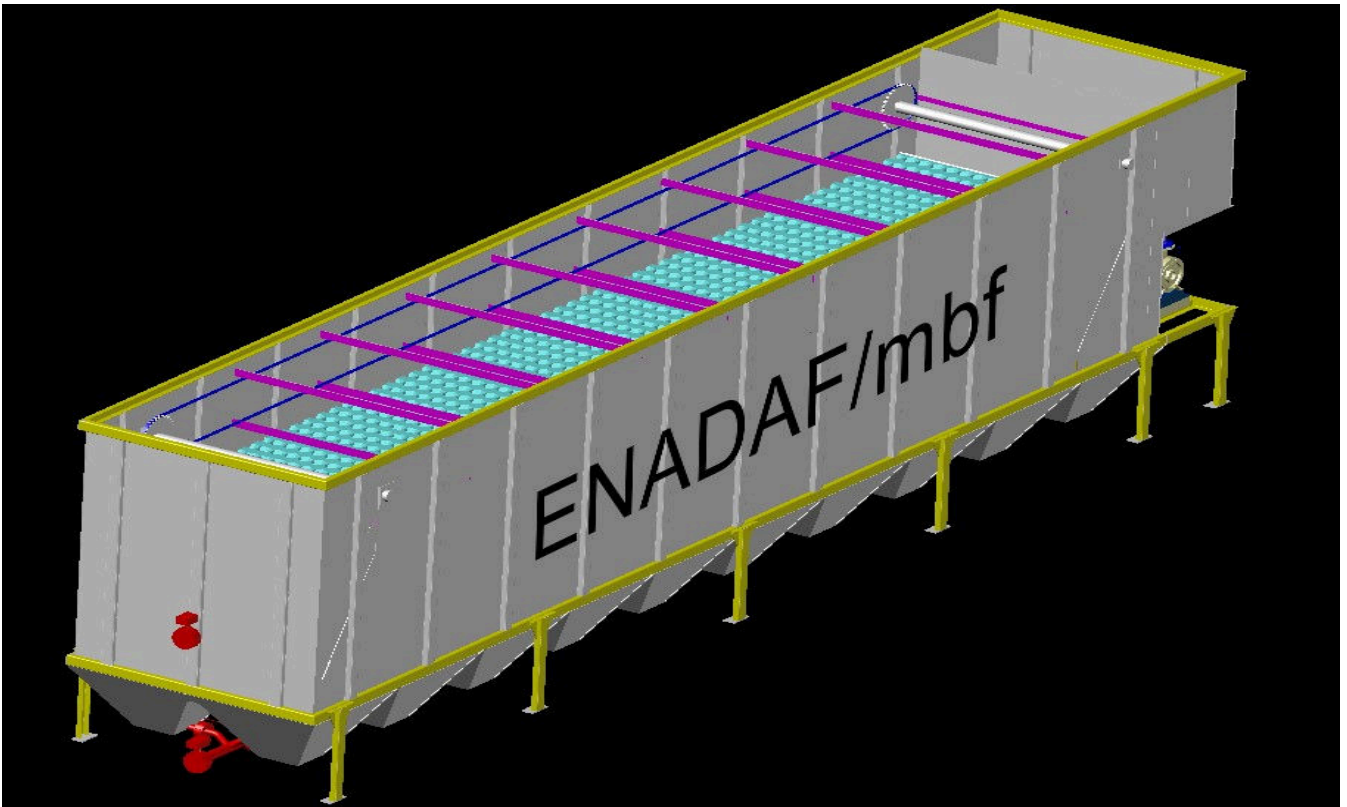
On the other hand, the system flow rate and the accompanying recirculation flow rate are distributed homogeneously, providing the most efficient micro/nano air flotation solution.

Floating waste accumulates at the top of the ENADAF®MBF tank, while settleable waste collects in the bottom cones. Floating waste is removed with a scraper and directed to the waste collection chamber. Depending on system requirements, both floating and settleable wastes are systematically and automatically removed from the system either together or separately.

Prior to the ENADAF®MBF unit, chemical dosing can be performed according to process requirements. Chemicals prepared at the dosing station can be introduced into the system through dosing pumps using our specially designed “Pipe Flocculator”.

Endemic holds ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 10002:2018 and CE certifications as one of its additional steps in providing its customers with the best customer support and a high-quality product. ENADAF®MBF is delivered in accordance with the EC Machinery Directive and welded according to European standards.





DESIGN and MANUFACTURING STYLES

The unit is produced with a compact and modular steel structure that conforms to ISO-CONTAINER dimensions, using CS-epoxy protection and materials AISI304 and AISI 316L.

The “Tube Lamella Settler” fill made from UPVC minimizes the surface loading rates. The units are equipped with sedimentation cones at the bottom. Settled particles are automatically and equally discharged from each sedimentation cone through valve adjustments.

Raw water feed and recirculation flows are homogenously distributed over the top of the cones, ensuring that the entire effective surface area functions at full efficiency. For these reasons, they operate with superior performance in minimal space and volume.

They work in perfect harmony with simple and easy operating conditions when paired with the “Pipe Flocculator” system, which is manufactured using UPVC/HDPE/SS pipes on an AISI304 frame.

If requested, the external body can be designed in reinforced concrete, but the internal components will still be produced in steel.

ENADAF®MBF unit sizing is calculated based on raw water flow (m^3/h) and SS/COD/BOD (mg/L) parameters, with recirculation flows also optimized.

BASIC FEATURES OF “ENADAF® MBF-Air Flotation Units”

- Offers high efficiency and superior operational features compared to traditional DAF systems,
- Can be fed with gravity flow and has a fixed and limited hydraulic load loss,
- Requires 25%-30% less energy compared to traditional DAF systems,
- Floating and settleable materials are automatically removed from the system,
- Atmospheric feed air is measurable and adjustable,
- The system operates quietly,
- Simple and easy to operate, requiring minimal service and maintenance costs,
- Provides an ideal solution for intake structures in RO-Desalination plants, especially for handling waste such as TSS and mucilage,
- Lacks moving and complex installation components except for the scraper, generator, and piping,
- Offers very high operational reliability with minimal need for spare parts,
- Can also be used for ozonation and similar systems,
- Can be designed for very high capacities with a compact and modular structure,
- Can be manufactured with steel or concrete construction,
- Is a suitable and safe choice for biological, physico-chemical, and biochemical treatment plants.

COMPARISON TABLE for TRADITIONAL DAF vs ENADAF® MBF

EQUIPMENT / PARAMETERS	Traditional DAF		ENADAF® MBF	
Raw water pump	1,2 m3/min	3,7 kW	1,2 m3/min	3,7 kW
Recirculation pump	0,5 m3/min	7,5 kW	0,2 m3/min	5,5 kW
Compressor	45 L/min	0,4 kW	NOT NECESSARY	
In-line mixer	NECESSARY		NOT NECESSARY	
Raw water inlet flow rate	800 m3/day		800 m3/day	
COD/BOD/SS/N-HeX (mg/L) efficiency			78% - 98%	

APPLICATION AREAS

