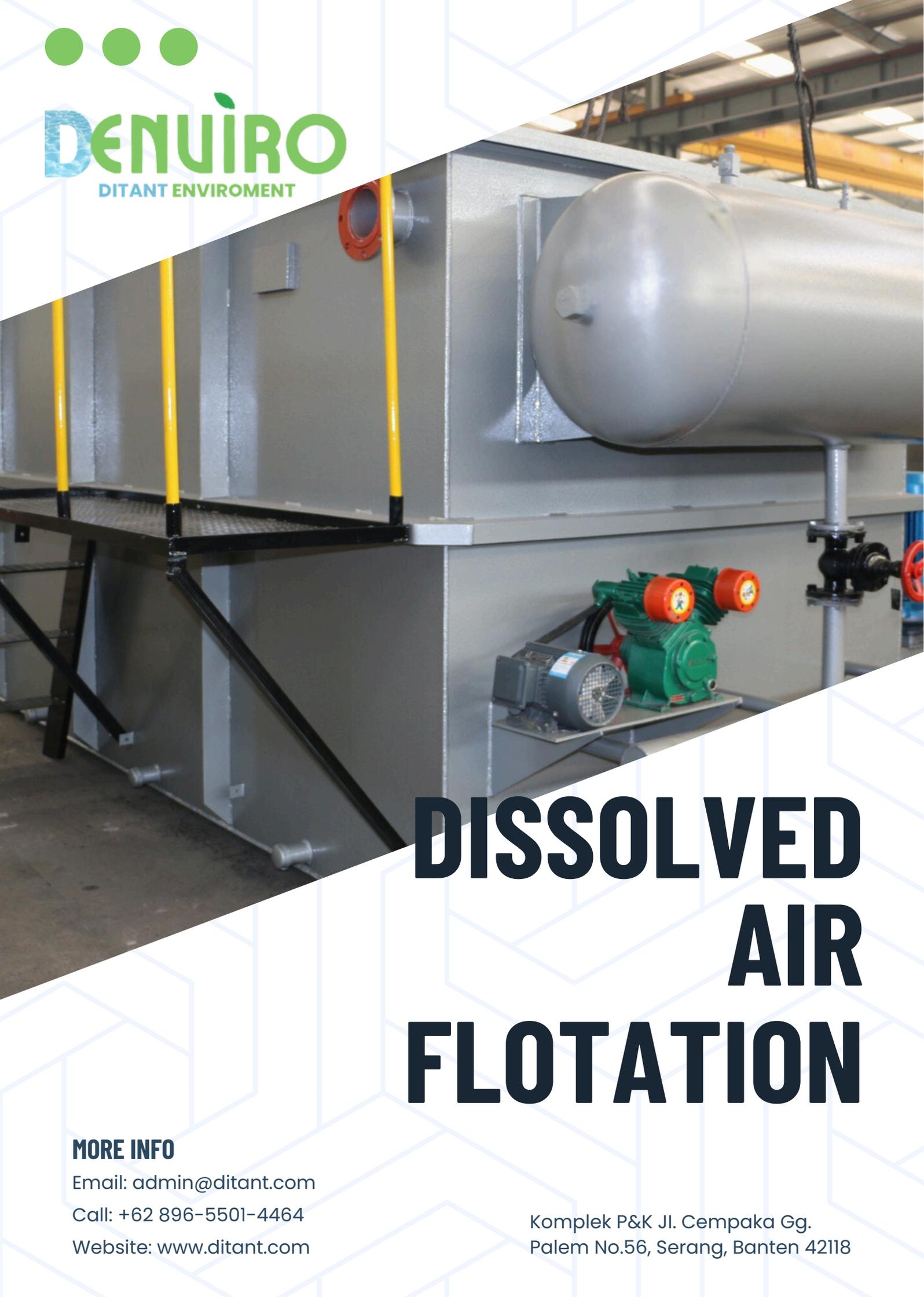




**DENUIRO**  
DITANT ENVIROMENT



# DISSOLVED AIR FLOTATION

## MORE INFO

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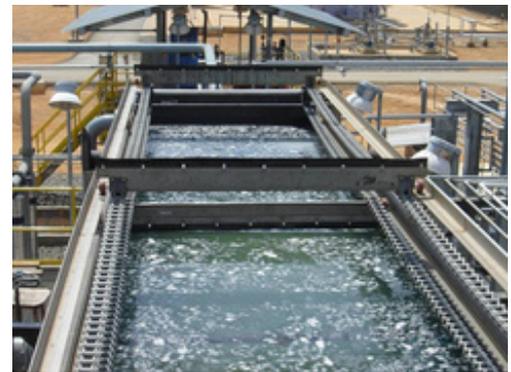
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# DESCRIPTION

**Dissolved Air Flotation (DAF)** is a water treatment process used to remove suspended solids, oils, and other contaminants from water or wastewater. It works by injecting dissolved air into the water under pressure, which then forms small bubbles. These bubbles attach to the suspended particles, making them less dense and causing them to float to the surface. Once at the surface, the particles can be removed by skimming or other means.

## Key featured of DAF

- **Air Dissolution:** Air is dissolved in water under pressure.
- **Bubble Formation:** Released air forms tiny bubbles when pressure is reduced.
- **Particle Attachment:** Bubbles attach to suspended particles, making them float.
- **Floating to Surface:** The particles rise to the surface.
- **Skimming:** The frothy layer of particles is skimmed off, leaving clean water.



# APPLICATION

**Oil & Water Separation:** Used for separating oil and grease from wastewater.

**Industrial Wastewater Treatment:** Common in industries like food processing, pulp and paper, and chemical manufacturing.

**Drinking Water Treatment:** Removes suspended solids and organic material before further treatment processes.

# SUPERIORITY

1

The area requirement is very small

4

The amount of mud is less / closer

2

Larger oil/fat components

5

More compact, so it is more practical

3

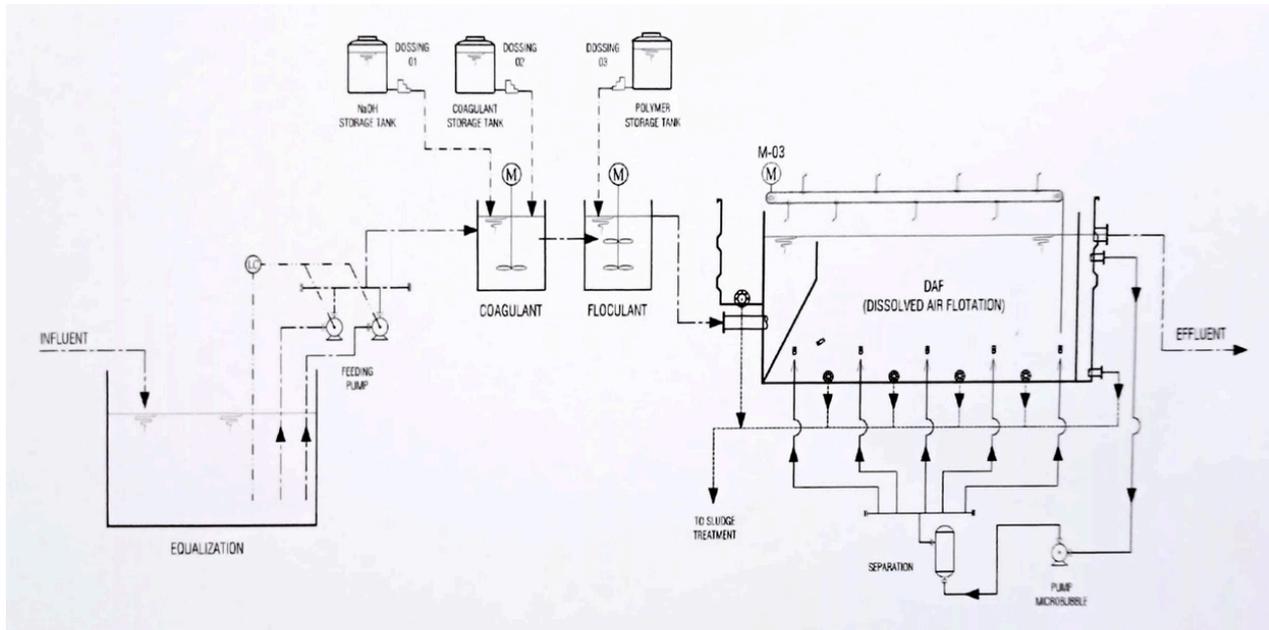
Bigger metal

# COMPARASION

Aspect	Dissolved Air Flotation (DAF)	Sedimentation Tank
Operating Principle	Uses microbubbles to float suspended particles for removal.	Relies on gravity to settle particles at the bottom.
Efficiency	High efficiency in removing fine particles, oils, and grease.	Less effective for very fine or lightweight particles.
Processing Speed	Faster particle removal due to flotation.	Slower process, as settling depends on particle density.
Space Requirement	Compact design, requiring less footprint.	Requires a larger area for settling tanks.
Removal of Oil & Grease	Excellent at removing oils and grease from water.	Limited effectiveness for removing oil and grease.
Turbidity Removal	Handles high turbidity water efficiently.	Less efficient with high turbidity.
Application Versatility	Suitable for industrial and municipal applications.	Mainly used in municipal water treatment.
Maintenance Needs	Moderate; requires air injectors and bubble generation control.	Low; occasional cleaning of settled sludge.
Initial Investment	Higher due to pressurized air system.	Lower initial cost.



# FLOW SCHEME



1

The wastewater from the equalization tank is pumped into the coagulation reaction tank along with the addition of a coagulant solution. In this tank, the coagulation process occurs.

2

The coagulated water flows into the flocculation reaction tank along with the addition of a flocculant solution. In this tank, the flocculation process takes place, which involves the enlargement of the coagulation flocs.

3

The water from the coagulation and flocculation process is then directed to the contact tank unit. At the same time, water that contains dissolved air is injected. The dissolved air in the water forms microbubbles, ranging in size from 30 microns to 50 microns.

4

By diffusing the dissolved air, the particles from the coagulation and flocculation processes will float to the surface of the water (floating separation tank). There are two filter belts that rotate simultaneously, and at a certain point, the sludge will be trapped between the filter belts. The dry sludge will exit at the end of the belt press after passing through the tightening rollers.

The dry sludge is collected and stored in the dry sludge collector. During this process, the operator must be present at the process unit, as the belt press system often causes the press/filter belts to come off track, even though the unit is equipped with a limit switch sensor.

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