SIGMA DAF Clarifiers

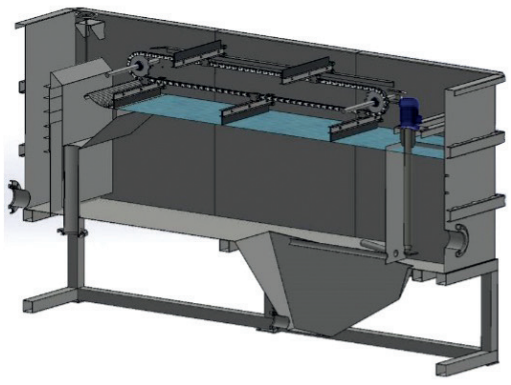
ACAF
Flotation system

Effective clarification in Cavitation *Air Flotation* CAF systems

General description of the cavitation air flotation system Sigma ACAF

Our **CAF flotation equipment** removes suspended solids, oils, fats and colloids from wastewater. They have a compact and functional design and are easy to install, operate and maintain.

The **cavitation air flotation system** injects microbubbles into the wastewater directly inside of the equipment, without the need for prior dissolution of the air in the wastewater stream. These microbubbles, once introduced into the aqueous medium, allow the flotation of buoyant particles and the sedimentation of solids in the same equipment.



Interior view of a CAF flotation system

Functioning of a cavitation air flotation system CAF

Air is sucked in from the outside by specially designed aeration equipment and is introduced pressurized into the CAF chamber where, in contact with the wastewater, air microbubbles are generated. Suspended solids adhere to these microbubbles and are floated to the surface where a system of skimmers sweeps solids, oils and greases from the surface of the water.

The solids that have settled due to their greater weight, are collected at the bottom of the equipment.

Both floated and settled sludge are directed to a sludge container.

Part of the clarified water is recirculated back into the equipment; this allows to avoid the formation of sediments on the equipment surfaces.

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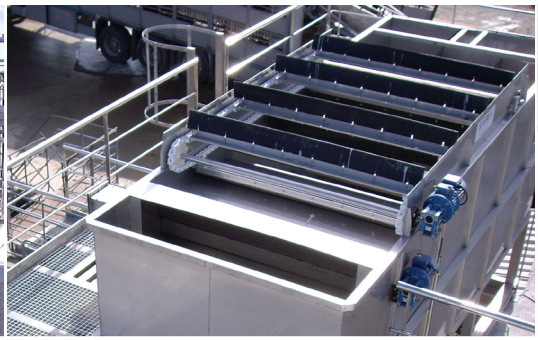


Main components

Flotation chamber

The interior of the CAF equipment houses a volume of wastewater into which the air is injected using blowers. Microbubbles are generated in this chamber and the effect of adhesion and flotation of solids takes place.

Floated solids skimmer

It is a system of metal plates driven by a simple and automatic chain mechanism. It carries away the sludge composed of floated solids, oils, fats, etc. removing them from the surface of the clarified water.

Aeration system

The aeration system of our CAFs is simple and robust, made up of a air suction pump and an injector with blower that introduces the sucked air inside from the CAF team chamber.

Applications

CAF clarification can be applied in many different processes: in pre-treatment as primary clarification generally preceded by a physical-chemical coagulation-flocculation process; as secondary clarification after a biological treatment; It is also applied in tertiary treatments.

They are adaptable equipment and designed for capacities from 3 m^3/h to large capacities of 250 m^3/h.

CAF technology is a high effective process for **wastewater applicable to all types of industries**:

- Food processing.
- Slaughterhouses.
- Meat processing and canning.
- Chemical and pharmaceutical.
- Dairy.
- Sweet drinks and juices.
- Cosmetic.
- Paper.
- Tannery.
- Leachate treatment.
- Oil and gas.
- Fragrances, perfumes and essential oils.
- Biodiesel and biomethane.
- Municipal and industrial wastewater treatment plants.

Removal performances

Sigma ACAF systems allow the separation of suspended solids, oils, fats and colloids in addition to considerably reducing the organic load, producing a very high quality clarification, in most cases complying with the discharge limits to the local sanitation network.

Removal performances obtained with the flotation system Sigma ACAF:

Total suspended solids	90-95%
Oils and fats	95-99%
COD	45-55%
BOD5	40-45%

Advantages of the flotation systems Sigma ACAF

- Simple installation and operation.
- Quick start-up.
- Compact design.
- Manufactured with high resistance materials: AISI304 o AISI316.
- Flowrate capacity from 3 to 250 m3/h.
- Does not require civil work.
- Minimal maintenance requirements: the recirculation system allows for an auto-cleaning of the equipment.
- Equipments are designed based on flowrate and solids loads.

SIGMA GROUP

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