

ACO Oil Separator

Understanding Oil Separators



Let's start with the basics...

What is an oil water separator?

Oil water separators are gravity or filter separation based pieces of equipment that separate light liquids, such as mineral oils, fuels and hydrocarbons, and suspended solids from polluted water before it is discharged into the sewer system.

Light liquids (oil) have a specific density less than 1 (water). Solids (sludge) have a specific density greater than 1

With the choices of above and below ground installations the light oil separators by ACO are available in two versions:



Class	Maximum permissible content of residual oil mg/l	Typical separating technique
I	5	Coalescing Separators
II	100	Gravity Separators

Where are oil water separators used?

- Gas station, parking area, truck yard
- Car dealership, auto repair shop, car wash
- Bus garage, military hangar and storage facility
- Engine cleaning, workshops, vehicle recycle
- Transformer stations and transformer sub stations, tank pits, fire stations
- Airport apron, locomotive workshops station, container terminal, helipads, DG set installation
- Industrial facilities with risk of accidental oil spills



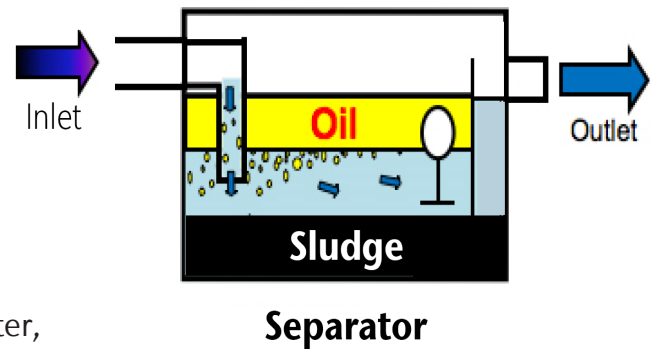
Let's get into more details...

Why do I need to use an oil water separator?

Municipal sewer bylaws and environmental laws describe situations where oil water separators are required helps to minimize water pollution and maintain clean water for society and future generations.

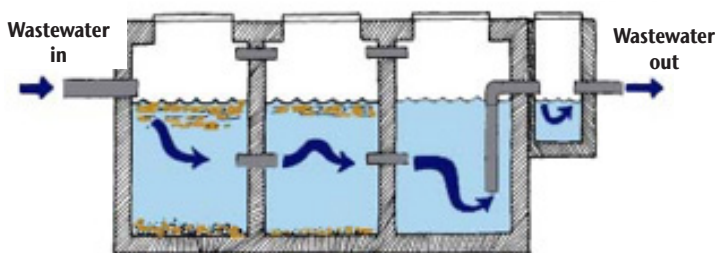
How are oils separated from water?

- All oil water separators in the construction industry are based on gravity
 - Oils have a specific gravity (0.8 – 0.94) less than water (1) – they float to the surface of the water
 - Solids, with a specific gravity higher than water, sink to the bottom
- Oil water separators were simple large boxes, usually concrete, in which the separation process took place
 - The time polluted water spends in the separator from the inlet to outlet is called THE RETENTION TIME
 - The larger the box, the more retention time, resulting in better separation



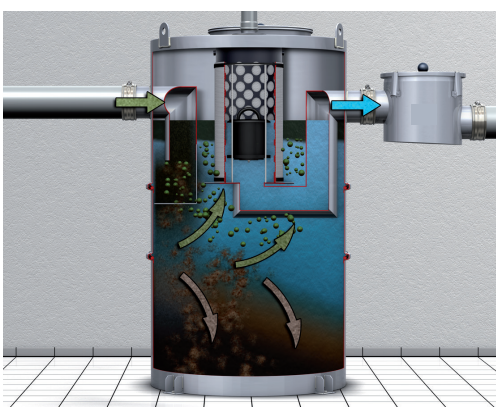
Oil Separation Technologies

Baffle Separation



- Because of space and cost, tanks got smaller
- Different techniques used to increase retention time, hence efficiency –
 - Multiple chambers inside tanks
 - Baffles to slow flow speed and/or direct flow

Coalescent Separation

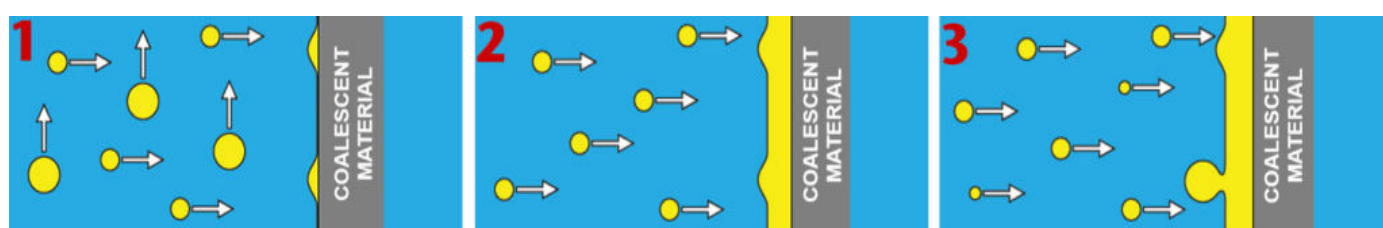


- Coalescing units added inside separators –
 - Flat plate coalescers
 - Plastic corrugated coalescing media
 - Honeycomb coalescers
 - Vertical tube coalescers
 - Knitted mesh coalescers
- With smaller boxes, and adding coalescing units inside separators, the cost of the product is reduced
- Coalescing separators are the most efficient in today's market

What is Coalescence?

The process by which two or more droplets, bubbles or particles, merge during contact to form a single droplet, bubble or particle.

- In oil water separators, the coalescence units force fine oil particles to combine into large ones, which float to the surface
- Polluted water includes solid particles – these can clog coalescence units. Proper scheduled maintenance prevents this.
- Easy to clean coalescence units provide a significant end user advantage



ACO Oil Separators are sized based on flow as opposed to tank volume. Why?

Generally, conventional oil water separator capacity is determined by “time of retention”. This is the time an oil particle spends in the separator prior to exiting. The time needed for an oil particle to rise to the surface must be shorter than the time of retention. Separators with a longer time of retention are more efficient. Time of retention can be extended by increasing separator tank size. It is common for simple separators to be sized by tank volume.

However, ACO oil separators eliminate the need for larger tanks with the use of a coalescence unit. The coalescence unit allows for highly efficient separation in a small, inexpensive tank by not allowing fine oil particles through the coalescence unit – thus extending retention time indefinitely. This allows the calculation of sludge capacity in coordination with the flow rates. The user does not have to pay for unnecessary storage capacity resulting from time of retention.

Let's talk about conventional oil separators...

Types of Conventional Oil Separators

- Conventional Gravity Separators (API)
- Parallel Plate Gravity Separators
- Hydro cyclone Water Oil Separator System
- Flotation Separators
- Baffle Separation

Disadvantage of Conventional systems

- Larger Tank sizes
- The outlet parameters will be more than 100 ppm whereas most of the authorities required the outlet parameters to be less than 20 ppm.
- Longer time for the oil separation
- The outlet parameters are inversely proportional to the inlet speed of the waste water
- If not maintained regularly more oil will pass to the outlet
- Not Environment friendly

What are the advantages of ACO Oil separators?

ACO oil separators have modern design driven by the European standard EN858. They provide market's leading oil separation efficiency in a compact tank. Oil separators have a mechanical valve that shuts off automatically when maximum oil capacity is reached. This protects the sewer system, equipment and environment.

The units are competitively priced, inexpensive to install, and maintain, and come with a 50 year structural warranty that protects against leaks.

- ACO oil separators are prefabricated
- Compact in sizes
- The outlet parameters will be ≤ 5 ppm. when tested under lab condition EN 858
- The Automatic closure unit is provided which will block the outlet in case of larger accumulation of oil inside the separator. Thus maintaining the outlet water quality within the defined limit.
- Provided with the sensors which can be hooked up to the BMS system
- Environment Friendly

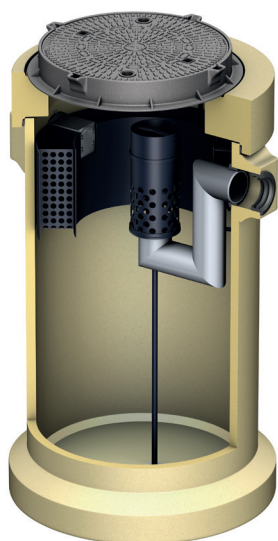
Can ACO Oil Separators be used in commercial kitchens?

No. The term 'oil' refers to hydrocarbon derivatives. Grease, F.O.G., from the food industry and fats from animal and vegetable sources behave differently than 'oil', therefore, kitchen based grease requires an ACO grease separator. Visit us at <https://www.aco.in/> for more information.

Are there any limitations to the use of oil water separators?

Yes. As a general rule gravity based oil water separators should not be used with oils that have been emulsified as the separators are unable to separate such oils

Some of ACO's prefabricated Oil Separators and Internal parts



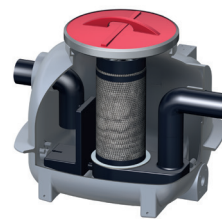
Oleopator G



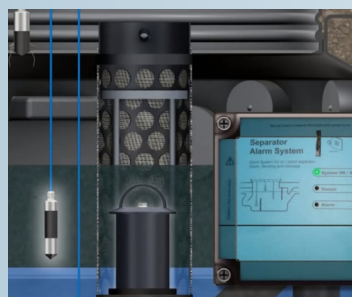
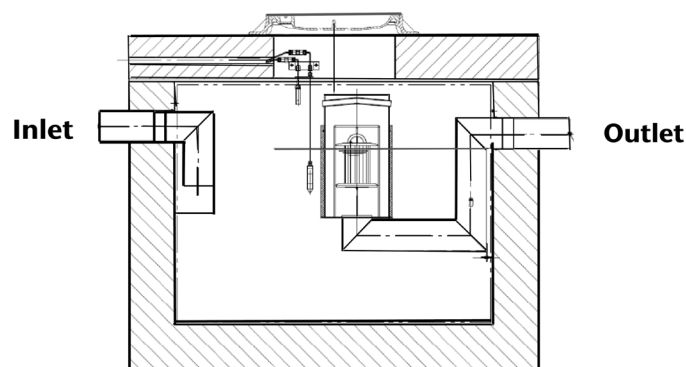
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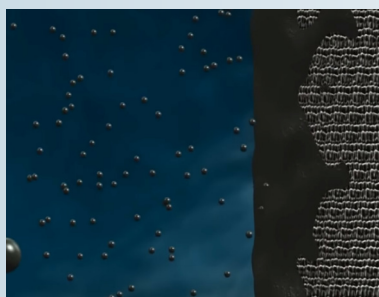
Coalisator



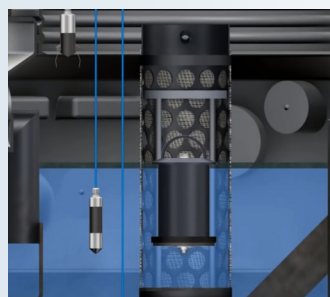
Coalisator



Oil Level Sensor



Coalescence Element



Float



Bypass

- Available from 1.5 lps to 500 lps capacity
- All the range with Class I outlet
- Available in PE-HD / GRP / SS / In situ

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