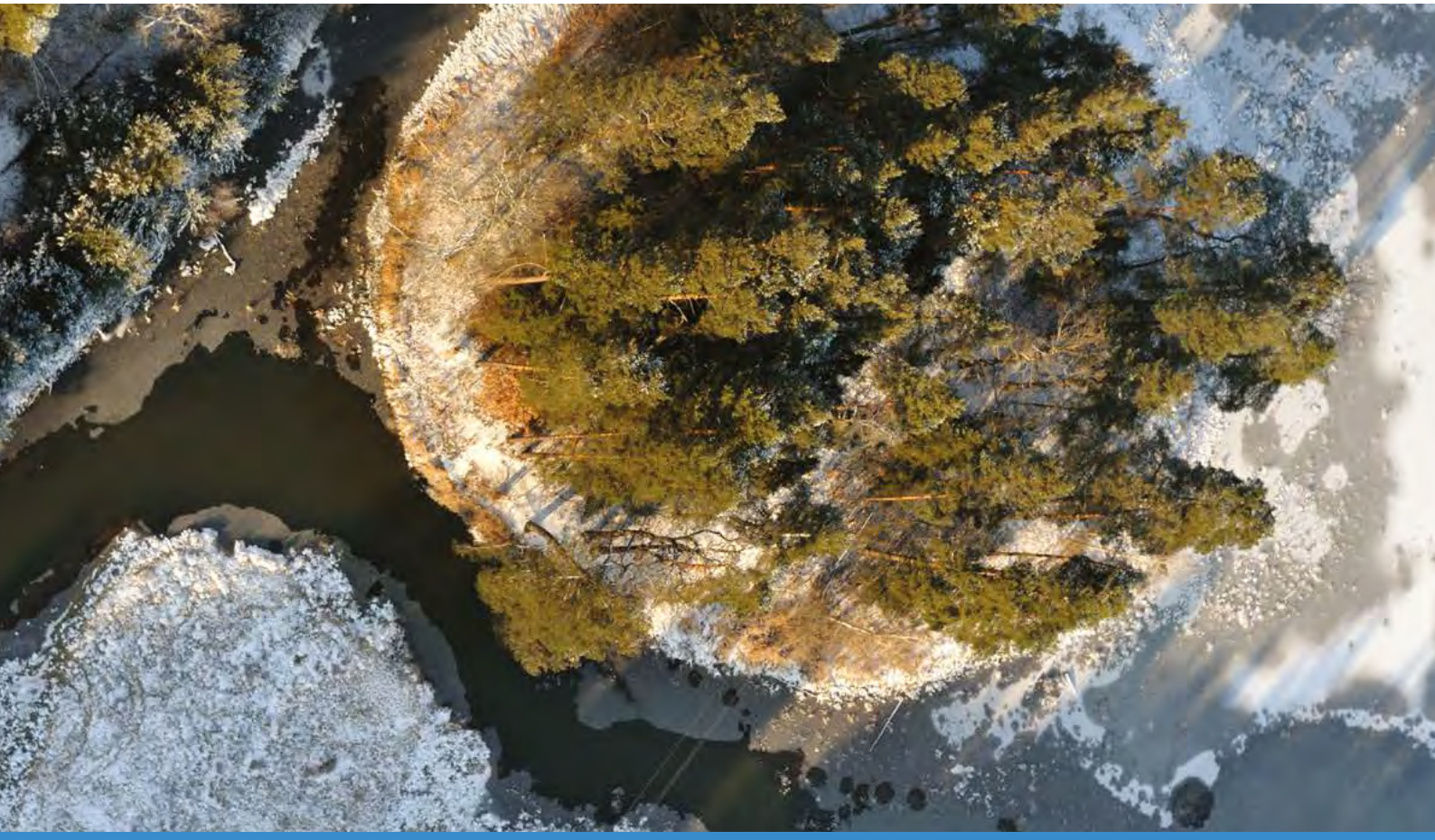
ecol-unicon



Oil separators
Grease separators
Settling tanks



Oil separators

The oil separators are devices which design allow the separation and storage of light liquids, grease and organic oils from the wastewater.

Oil separators are installed in storm and technological sewerage as one of the device used for treatment of wastewater coming from the catchment area susceptible to contamination with oil from municipal areas, roads and facilities.

Selection of technology

Ecol-Unicon has two oil separation technologies: lamella and coalescence. The choice of the right technology depends on:

- the size of the catchment
- potential occurrence of storm flow
- amount of suspension in sewage

Application

- roads and motorways
- parking lots
- Petrol stations and car washes
- railway areas
- urban transport zones
- transport equipment databases
- industrial plants, etc.

Types of oil seperation technologies

Technology	Type	Effectiveness compared to the flow Q_{nom}*	Maximal flow through the device Q_{max}	Character of the catchment area	Application
lamella	ESL-Z	< 5mg/dm³**	10-times Qnom (NS)	larger catchment areas characterized by varying wastewater flow load and pollutant load in raw wastewater	• outlets of municipal stormwater networks, • large car parks and manoeuvre areas, • industrial plants and areas, • logistic centres, • airports, roads and motorways
coalescence	ESK	< 2mg/dm³	none (only external overflow system)	small catchment areas and catchment areas characterized by a high degree of dispersion of pollutants in raw wastewater	• workshops and car washes, • petrol stations, • transport bases, • industrial plants, • small car parks, • bridges, • railway areas, • power industry

* *Result obtained when testing the device in accordance with the requirements of EN 858-1 standard*

** *Lamella separators allow wastewater treatment both in the case of nominal flow (maximum treatment efficiency) and flows larger than the nominal flow, whereas the treatments efficiency decreases with increasing flow rate.*

Construction

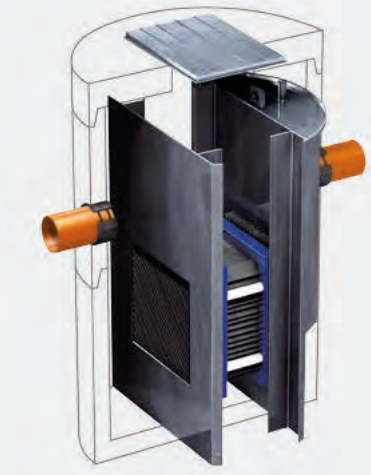
Separators have a sealed concrete chamber (EU 1000-3000 wells or a separate retention reservoir chamber), usually not requiring additional weight.
To reduce operating costs and improve environmental safety, it is possible to connect an alarm system equipped with sediment, oil and overflow sensors.

Manage your installations with BUMERANG SMART – an intelligent management system.

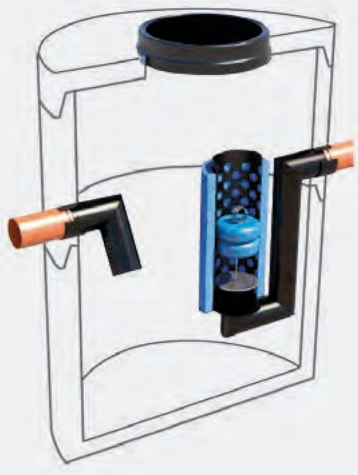
It enables constant monitoring of crucial data as well as effective control and management of the operation of your facilities.

Advantages

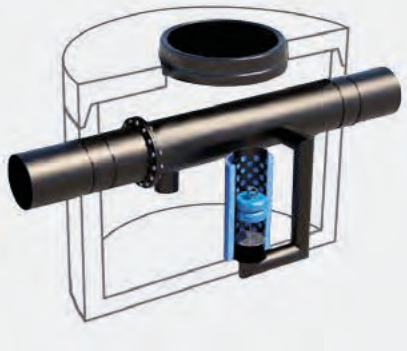
- high efficiency proved with multiple test
- possibility of installation in carriage ways of roads as well as in non-traffic: pedestrians and pedal cyclists areas
- technical solutions adapted to the catchment and receiver conditions
- easy assembly and maintenance
- possibility of attaching a sample taking device
- Easy operation from terrain level



Technological equipment of lamella separators ESL-Z



Technological equipment of coalescence separators ESK



Technological equipment of coalescence separators ESK-B II

Technological equipment of separators

Technological equipment of lamella separators ESL-Z

Construction

Lamella sections are removable components, equipped with dedicated rope set that enables pulling them out of the separator's chamber. The maximum flow reaching the lamella separator is fully subjected to pre-treatment in the lamella insert which is entirely safe for the device construction and does not cause scouring of the accumulated impurities into the outlet.

Technological equipment of coalescence separators ESK

Construction

Standard technological equipment of the high efficiency coalescence separator consists of the coalescence column as well as the installation that cuts off wastewater outflow after exceeding the permissible oil storage capacity. The float valve closure on the outlet has also a protective feature and prevents the accumulated oil substances from scouring into the outlet pipe.

Technological equipment of coalescence separators ESK-B II

Construction

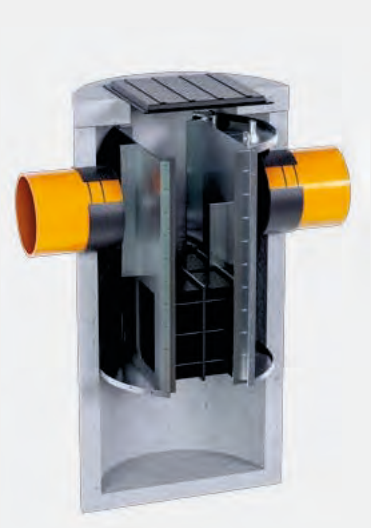
ESK-B II separators with the inner by-pass pipe, which consists of two flanged elements, are equipped with a precise system of wastewater flow regulation, that continuously controls its inflow to the interior of the device. This system provides an optimal operation conditions for the coalescence equipment (maximal effectiveness of wastewater treatment). First class separators ESK-B II conform with EN 858-1 and are CE marked.



Lamella separator ESL-Z



Lamella separator with settling tank ESL-ZH



Lamella separator with settling tank ESL-ZO

Lamella separators ESL-Z

Construction

Lamella sections are removable components, equipped with dedicated rope set that enables pulling them out of the separator's chamber. The maximum flow reaching the lamella separator is fully subjected to pre-treatment in the lamella insert which is entirely safe for the device construction and is not causing scouring of the accumulated impurities into the outlet. Contaminated wastewater with the suspension should be pre-treated in a settling tank. The sludge can be isolated directly in front of the lamella separator OS + ESL-Z or it can be integrated with the lamella separator (ESL-ZH), where the separated sediment part is located below the lamella packets.

Operation

Wastewater from the sewerage system flows to the separator through the inlet chamber. Separation of impurities occurs during the multi-layer flow through lamella insert located in the treatment section. The applied oil separation technology additionally enables trapping the easily sedimenting suspended solids at the bottom of the separation chamber.

Advantages

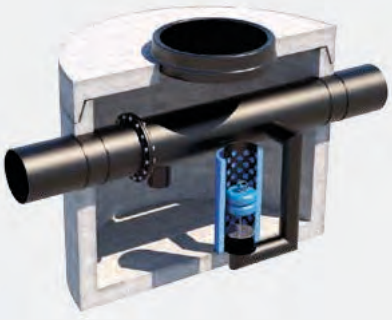
- safety - no risk of leaching petroleum substances at the maximum flow
- simple connection to the sewage system
- no by-pass - flow does not bypass the cleansing system
- Easy operation from terrain level



Coalescence separator ESK



Coalescence separator with settling tank ESK-H



Coalescence separator with by-pass ESK-B II

Coalescence separators ESK

Construction

Standard technological equipment of the high efficiency coalescence separator consists of the coalescence column as well as the installation that cuts off wastewater outflow after exceeding the permissible oil storage capacity. The float valve closure on the outlet has also a protective feature and prevents the accumulated oil substances from scouring into the outlet pipe.
ESK-B II separators with the inner by-pass pipe, which consists of two flanged elements, are equipped with a precise system of the wastewater flow regulation, that continuously controls its inflow to the interior of the device. This system provides an optimal operation of the coalescence equipment (maximum effectiveness of wastewater treatment).
Contaminated wastewater with suspension should be additionally pre-treated in the settling tank. Settling tank with coalescence separator

- can be isolated in front of the OS + ESK coalescing separator
- or it can be integrated - sedimentary part separated below the coalescing column - ESK-H, ESK-BH II.

Operation

Separation of oil substances in high efficiency coalescence separators is supported by the coalescence material. Oil substances of lower density than water, flow out onto the wastewater surface where they accumulate by forming a layer. Submerged outlet prevents the separated impurities from emerging out of the separator's chamber into the receiver.

Advantages

- utomatic cutoff of the outflow after exceeding the permissible oil storage capacity
- protection from scouring of the accumulated oil substances
- Easy operation from terrain level