Instructions for Use and Maintenance of Oil and Grease Separators

Function

The oil and grease separators operate under the principle of gravity. Oil, petrol, fuel oil, lubricants, heating oil and other light liquids have lower specific weight than water, a fact exploited by oil separators by reducing the velocity and flow of torrential or meteoric water, causing light-liquid particles to separate and rise to the surface. The filtered water thus safely flows through the outflow into the sewerage system, protecting the groundwater from potential pollutants.

Maintenance

At the beginning the amount of the extracted oil, grease or other light liquid must be monitored at least once a month; it is mandatory after every unexpected event, such as rainfall, flooding, etc. Afterwards control intervals are determined based on the actual load of the oil or grease separator. Light liquids, accumulated inside the chamber for oil and grease removal, must be removed before the thickness of the layer exceeds 10 centimetres. The thickness of the layer is measured with an aluminium measuring staff, coated with water paste. When the marginal quantity limit is reached, the extracted oil/light liquids must be drained. The removal can be executed through the entrance opening or the oil and grease separator cover. Cleaning is performed by the maintenance worker of the device, who makes sure the light-liquid waste is deposited properly and in accordance with the law to an appropriate location.

Monthly maintenance inspection includes:

- review (and cleaning, if necessary) of the silt settler,
- review of the withheld oil or derivative layer and, if necessary, removal (depending on the thickness of the layer)
- cleaning of the automatic closure device of the outflow, if installed,
- extraction and cleaning, rinsing of the coalescing filter

Clean the filter pads at an appropriate place in the open, e.g. with steam. Take the needed amount of water from the silt settler and return it there after cleaning. Insert the cleaned filter in its original position in the oil separator and then fill the equipment with clean water to the bottom edge of the outlet pipe,

- the option of taking a control sample of wastewater at the outflow of the oil separator.

When you open the cover of the oil separator, you can easily take (with an appropriate ladle) individual samples of wastewater flowing into the sewerage system.

Five-year maintenance inspection includes:

- water tightness of the system,
- the condition of the individual structural elements,
- the condition of all installed elements, especially seals.

General Instructions

It is recommended that the cleaning and maintenance are carried out by a registered company, which must be familiarised with the instructions for operation and maintenance before the start of the work.

Due to the danger of explosion, it is forbidden to work with an open flame or to smoke in the near vicinity of the devices for the separation of mineral oils, especially after the removal of the cover for access to the oil separator.

Waste material, which is accumulated during the cleaning process, must not be released into the sewerage system, running or stagnant water, cleaning plants, sinking rivers or cesspits. It has to be given to an authorised company, which will take it to special waste collection points or to recycling.

Substances, which cannot be routed into the device:

- household or domestic wastewater,
- larger amounts of meteoric water than considered when dimensioning the oil separator,
- materials which can obstruct the operation of the oil separator, e.g. chemical drying agents and substances with a lot of sediment or impurities,
- waxes and hot waxes, e.g. polymers for the protection of new cars,
- detergents, which form stable emulsions in the sewage, and non-standard cold detergents,
- sewage which does not flow peacefully, but vibrates, pulsates or reflects the operation of the pumps,
- hazardous liquid waste, such as oil emulsions of liquid derivatives, liquid contents of batteries and braking systems, antifreeze, anti-corrosion liquid, halogenated hydrocarbons, cold cleaning solvents.

All injuries observed on the oil separator must be fixed immediately. No changes of the construction design are allowed, as well as any interference with the system for the operation of the device or inflow increase.

It is necessary to monitor whether the maximum amount of accumulated oil in the tank of the separator, that is 10 cm, has already been reached. In this case, the accumulated oil has to be removed at once.

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Instructions for Installation of Oil and Grease Separators

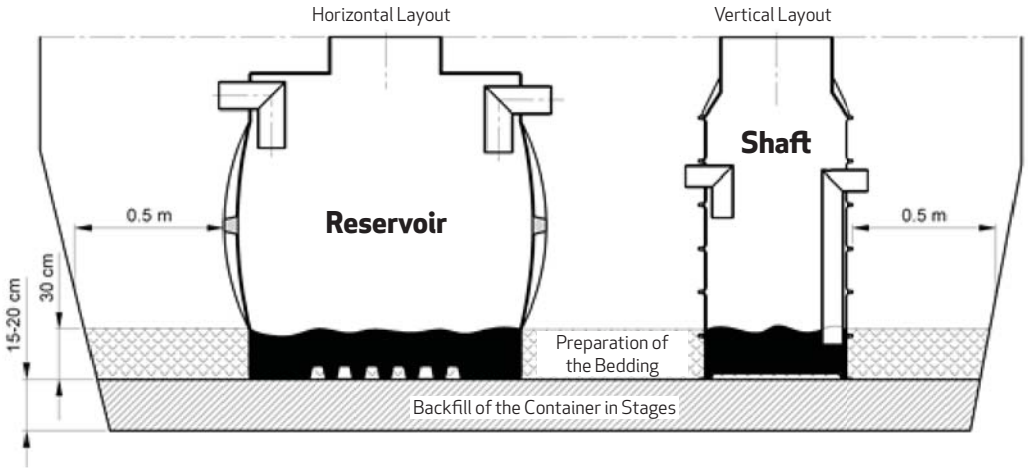
For proper installation and operation of oil separators the following must be considered:

Excavation of a Construction Pit
For the installation of the containers the dimension of the product must be considered and then borne in mind when excavating. For the correct installation of the container the size of the construction pit must be adjusted to the type of the oil separator, so that the size of the pit is 100 cm wider than the outer layout. The distance from the property must be at least 1 metre. In the case of modular installation, when calculating, it is necessary to consider the 1 metre space between the containers.

Preparation of the Bedding
PE oil separator must be placed on suitable bedding, which must be hard and compact. Appropriate backfill material must be used. Natural rounded material can have grains of sizes from 0 to 32 mm or crushed material with grains of sizes from 0 to 16 mm. Frozen material must not be used. The bedding must be 15 to 20 cm thick and compressed to 97% Proctor density. When groundwater is present, the bedding must be made out of lean concrete MB15.

Installation of the Container
Due to low weight, smaller oil separators are to be installed manually. During the mechanical manipulation of the container it can be buckled up with carrying belts around the bottom. Before installing the intake pipe, the seat and purity of the input seal have to be checked. Any impurities on the input seal or outlet fitting need to be cleaned beforehand. For easier pipe installation a suitable lubricant (potassium lubricant) for pipes and seals has to be used.

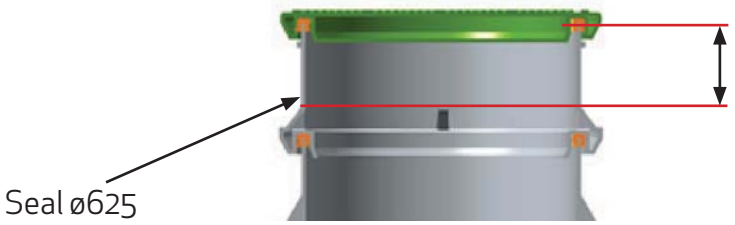
Container Backfill
The backfill of a PE container requires the use of appropriate backfill material (the same as used for making the bedding) and the proper execution of backfilling. The backfill material has to be consolidated and compressed carefully and in layers (up to 30 cm) to 95% Proctor density over a width of 50 cm from the wall of the container. Simultaneously with filling in layers, the container must also be filled in stages up to the point of fill up. If groundwater is present, an additional layer of concrete needs to be placed around the container up to the maximum level of groundwater with a minimum wall thickness of 30 cm (the thickness of the additional concrete layer is determined by the designer) or it must be anchored with stainless steel ropes, which are anchored into the base slab. When backfilling the PE container, make sure that heavy construction machinery does not drive over the shaft or in the area of infilling.



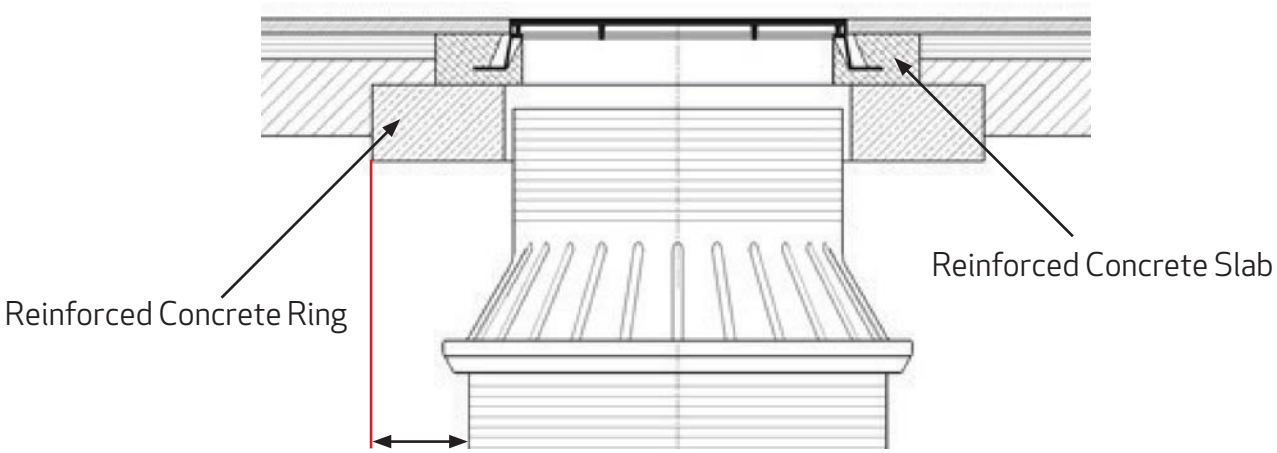
Installation of Covers and Height Adjustment

After the backfill of oil and grease separators is finished, the height of the revision manhole has to be adjusted to the neighbouring field by simply cutting the ring of the container. Factory-made tags, which allow horizontal cutting, have been made for this purpose.

The chamber can be raised. At the top of the revision manhole the technological edge needs to be cut, then a seal must be placed, some lubricant applied and the extension of either 250 or 500 mm in height installed.



When ordering oil and grease separators, PE pedestrian covers are available, either with or without a locking system, and cast iron covers of type B 125, where construction of the reinforced concrete ring is not necessary. In the case of traffic areas it is necessary to install a reinforced concrete ring and reinforced concrete slab for shafts and a reinforced concrete slab for reservoirs, whose dimensions and statics have been calculated for the particular type of roadway. The method of installation is carried out so that the reinforced concrete slab (reinforced concrete ring) is bigger than the surface of the shaft. When building the reinforced concrete ring or slab it is necessary to consider that it must not overlap the top of the shaft. The distance between the top of the shaft and the top of the reinforced concrete ring must be at least 50 mm. With bigger reservoirs and loading, it is necessary to make a relief slab, which is determined by the authorised designer. Thus the static and dynamic loading does not transfer directly to the body of the separator, but rather to the compressed backfill around the container.



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