Operating Manual

Issued: 28/05/2015

Light liquid separator Coalisator-P

system Class I according to DIN EN 858, with or without separate/integrated sludge trap. For indoor or below ground installation



Coalisator-P
without integrated or separate sludge trap
for indoor installation



Coalisator-P
with integrated sludge trap
for indoor installation



Coalisator-P
without integrated or separate sludge trap
for below ground installation



Coalisator-P
with integrated sludge trap
for below ground installation

Please read this documentation and other product-related literature carefully to ensure safe and correct use.
Give to end users and keep it safely until the product is disposed of.

Welcome

ACO Passavant GmbH (hereafter referred to as ACO) would like to thank you for placing your confidence in us, and we have supplied you with a light oil separator (hereafter referred to as the plant), which is state of the art and whose proper condition has been checked prior to delivery as part of a quality control process.

Images in these operating instructions are intended to help with basic understanding and details may vary slightly from the components supplied.

Service

If you have any questions about the plant and the operating instructions, our ACO Service team will be happy to help.

ACO Service
Im Gewerbepark 11c
36457 Stadtlengsfeld

Tel.: + 49 (0) 3 69 65 / 81 9 -4 44
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service@aco.com

Product identification

Identify the supplied plant using the characteristic data from the type plate. The type sign is either attached to the outside of the separator body (free-standing installation) or fixed within the raising tube (below ground installation).

Warranty

For information on warranties see our "General Terms and Conditions", at
http://www.aco-haustechnik.de/agb

Declaration of Performance

The Declaration of Performance for the plant can be downloaded from the following Internet address, http://www.aco-haustechnik.de/DoP

Symbols used

To aid understanding, information in these operating instructions has been marked with the following symbols:

- Useful tips and other information to make working with it easier
- Bullets
- ➔ Steps to be carried out in the prescribed sequence
- References to additional information in these operating instructions or in other documents
- Warnings

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1 For your Safety



In order to avoid injury to people or damage to property, read the safety instructions before installing or using the plant.

1.1 Appropriate Usage

The product is designated for retention of light liquid of mineral origin included with wastewater.

The product is designed for free-standing installation in frost-proof rooms or below ground installation inside and outside buildings.

The wastewater with light liquids from the following applications may be drained via the separators:

- roofed parking garages and private garages
- elevator shafts
- small car garages

It is not allowed to charge the separator with trade waste suitable to pollute waterbodies or interfere with the function of the separator. This applies especially to:

- black water
- wastewater including organic fats, oils and grease
- wastewater including significant shares of stable emulsions

Not approved items

The installation of not approved items interferes with the safety and excludes the ACO warranty. For replacement, original parts or through ACO approved spare parts have to be used exclusively.

1.2 Standards

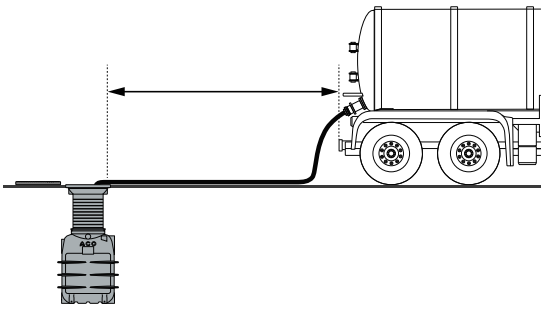
The installation and the operatoin of the separator has to be carried out according to EN 858-2.

Application limitations

- Separator are applicable only if light liquids must be separated and retained. They must not be installed in drainage and sewer systems designed for domestic wastewater.
- The drainage of areas where no light liquids occur (such as roofs and yard areas) should not be designed via light liquid separators.

1.3 Place of installation

CAUTION To avoid impacts of heavy traffic loads, a minimum distance of 3,2 meters between pump truck and separator has to be kept.



1.4 Personell qualification

Activities	Person	Skills
Layout, operational changes	Planner	■ Knowledge of building services and sanitary engineering ■ Assessment of applications of sewage technology and appropriate layout of light liquid separator systems
Installation civil engineering/ plumbing/electrical First commissioning, maintenance, repair, decommissioning, disassembly	Trained personnel	■ Excavating and backfilling pit ■ Safe use of machinery ■ Safe use of tools ■ Laying and connecting piping and joints ■ Product specific knowledge for general inspection
Disposal	Trained personnel	■ Appropriate and environmentally friendly disposal of materials and substances ■ Decontamination of hazardous substances ■ Knowledge about recycling

1.5 Personal Protective Equipment

Personal protective equipment is required for various activities relating to the plant. Personal protective equipment must be provided to staff and its use must be enforced by supervisors.

Man-datory signs	Explanation
	Safety shoes offer good non-slip protection, especially in wet areas, and resistance to piercing, e.g. by nails, and also protect the feet from falling objects, e.g. when moving items.
	Safety helmets protect you from head injuries, e.g. from falling objects or blows.
	Protective gloves protect the hands from minor bruises, cuts, infections and hot surfaces, particularly during transport, commissioning, maintenance, repairs and dismantling.
	Respiratory masks protect the wearer from dangerous substances (gasses), especially during maintenance, repairs and disassembly.

1.6 Disposal

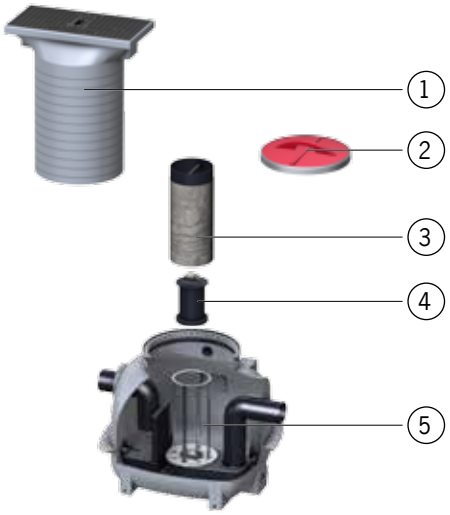
All of the plant materials are recyclable.

CAUTION Improper recycling unnecessarily endangers the environment. Regional disposal regulations are to be followed:

- Separate and recycle all steel and cast components
- Separate and recycle all rubber parts
- Separate and recycle all plastic parts

2 Product Description

2.1 Scope of Supply



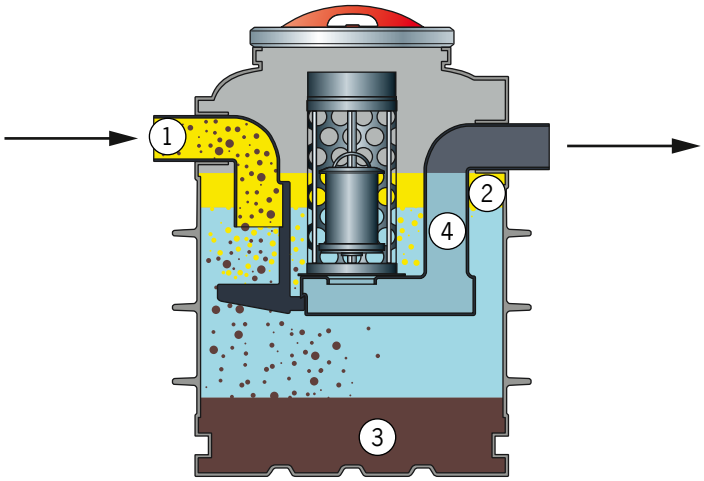
1 = Raising tube with cast iron cover
2 = Plastic cover with clamping flange
3 = Coalesence material with fabric
4 = Float switch 0.90 g/cm³
5 = Body with inserts for inlet and outlet
6 = Sealing ring (not depicted)
7 = Type plate (not depicted)

Part	Indoor installation				Below ground installation			
	NS 1,5 –	NS 1,5 SF 150 I	NS 3 –	NS 3 SF 150 I	NS 1,5 –	NS 1,5 SF 150 I	NS 3 –	NS 3 SF 150 I
	Article-No.				Article-No.			
No.	3901.00.10	3911.00.10	3903.00.10	3913.00.10	3901.10.10	3911.10.10	3903.10.10	3913.10.10
1	–	–	–	–	X	X	X	X
2	X	X	X	X	–	–	–	–
3	X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X
6	–	–	–	–	X	X	X	X
7	X	X	X	X	X	X	X	X

X = Scope of delivery – = Not scope of delivery

2.2 Function

Deposition



1 = Wastewater contains a mixture of light oil and residue solids.

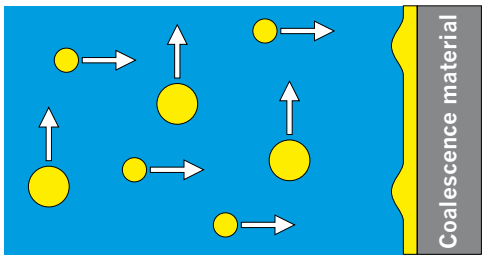
2 = Light oils have a density less than water. Under the correct conditions, these contaminants will naturally float on the top of water surface.

3 = Solids have a higher density than water and will fall to the bottom of the separator.

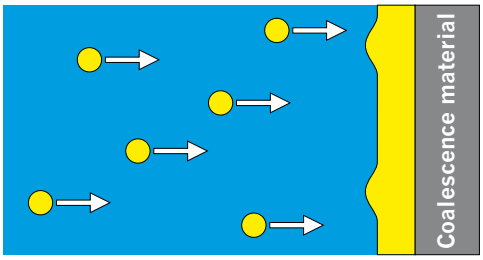
4 = Clear water flows out of the separator.

Coalescence effect

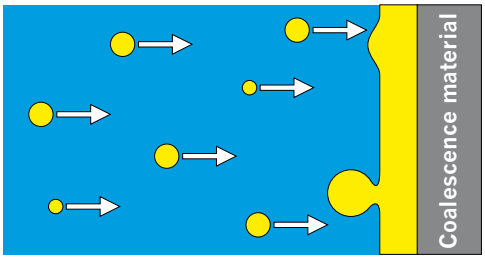
The small oil droplets that are not separated due to their density difference to water meet the oil-friendly coalescence element and bond.



The oil drop spread over the coalescence material, and additional oil droplets are adsorbed and the oil film continues to grow.



The adhesion of the oil film is exceeded. A large drop of oil begins to separate, floats upward and can therefore be separated.

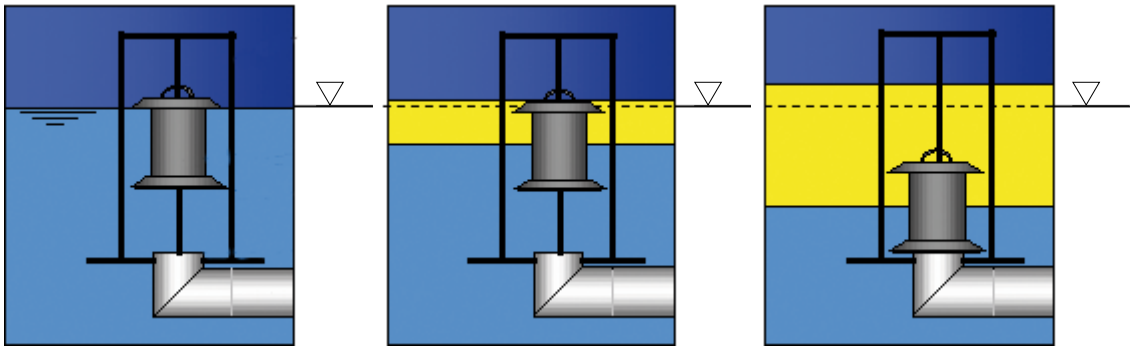


Automatic closing device

Excerpt from EN 858-2, Item 5.2 "Separators must be fitted with automatic closing devices that ensure that no isolated light oils can reach the drain of the separator."

The float switches used in all Coalisator-P separators are suitable for light liquids with a density until 0.90 g/cm³.

Float switches suitable for light liquids with higher density can be provided on demand ACO Service, 🕮 Chapter. Welcome „Service“.



Float switch swims in the water

A small part of the float switch swims above the water surface.

Float switch is submerged

Light liquid accumulates on the water surface. Float switch is submerged into the light liquid.

Float switch close

As long as light liquid layer increases, the float switch sinks accordingly until it blocks the outlet pipe. No light liquid can be drainied through the outlet pipe..

2.3 Accessories

The separator can be equipped with two sensors at maximum. For installation the relevant manual of the alarm device has to be consulted.



Description	Article-No.
Alarm device for oil and build-up detection	6751.65.11
Alarm device for oil detection	6751.65.12
Alarm device for build-up detection (backwater)	6751.65.13
Cable extension for one sensor, 1 meter	6752.00.02
Cable extension for two sensors, 2 meters	6752.00.01
Adapter set for suction line DN 65 (below ground)	3900.00.32
Adapter set for suction line DN 65 (indoor)	3900.00.31

3 Installation

Warning

Danger of injuries when installed incorrectly

- installation exlusively through qualified personnel!
- electric connectin and installation of alarm device (accessories) exclusively through qualified electrician!

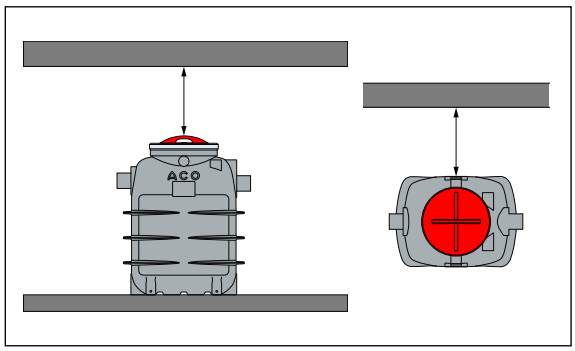
3.1 Indoor installation

Alignment of separator

Requirements:

- Room requirements:
  - frost-proff room
  - solid foundation with plain area for alignment
  - free space around the separator and all item for operation minimum 600 mm
  - room ventilation (for example through windows) available
- Power supply requirements:
  - electric power supply (option, needed for alarm devices)
  - water supply (for filling of the separator during commissioning)
- Connections:
  - Inlet piping DN 100
  - Outlet piping DN 100

➔ Align separator with a water-level and keep the minimum space requirements.



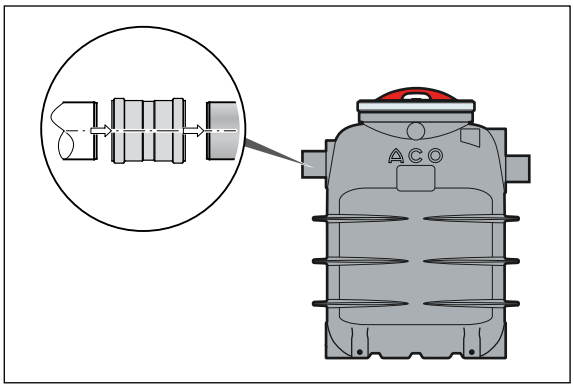
Inlet pipe connect

The inlet pipe connection is designed for pipe with ØOD 110 mm.

Precondition:

- install inlet piping with slope towards the separator
- pipe diameter of inlet pipe must not be reduced in flow direction.

➔ Use a double socket to connect inlet pipe with inlet pipe connection of light oil separator.



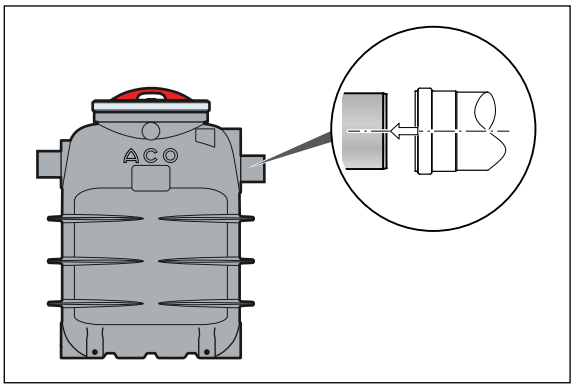
Outlet pipe connect

The outlet pipe connection is designed for pipe with ØOD 110 mm.

Precondition:

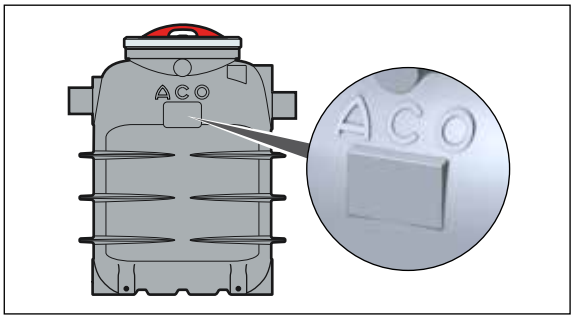
- install outlet piping with slope towards the public sewage system
- install lift plant after separator if separator is installed below the backflow level.

➔ Use double socket to connect outlet pipe with outlet pipe connection of light oil separator.



Stick down type plate

➔ The light oil separators for above ground installation are delivered with a type identification sticker. This sticker can selectively be attached at the designated area on the left or right side of the separator.

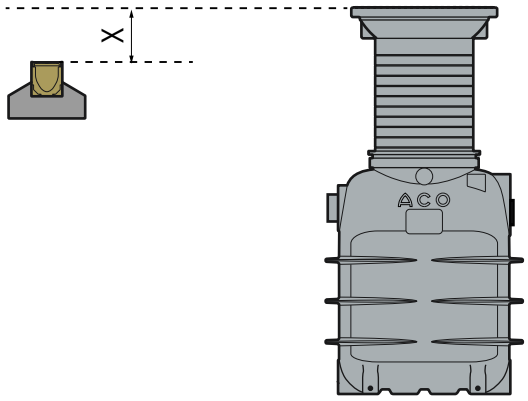


3.2 Below ground installation

Protection against escape of light liquids

CAUTION For protection against escape of light liquids, the following requirements have to be followed:

The height difference X between top of the cover and top of the gratings of the connected gullies or channels must be at least 85 mm.

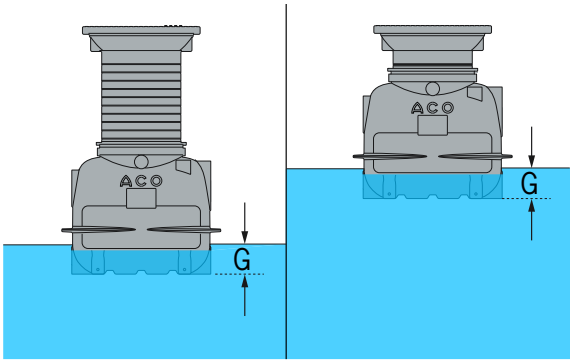


If requirements cannot be fulfilled, the separator must be equipped with an appropriate alarm device. Please ask your responsible authorities for local regulations.

Protection against upwelling

CAUTION If the ground water levels do no exceed the following limits, then the separators have not to be casted into concrete:

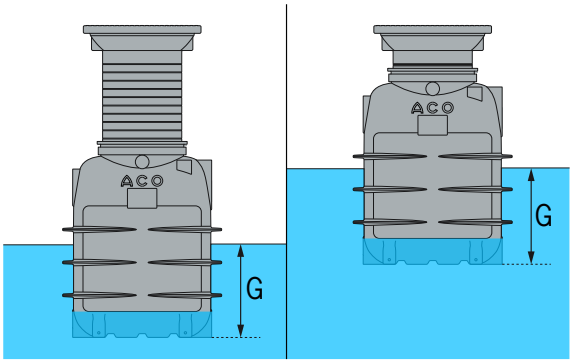
The ground water height “G” over the separator bottom must not exceed 14 mm.



True for:

- Coalisator-P Article-No. 3901.10.10
- Coalisator-P Article-No. 3903.10.10
- Sludge trap Article-No. 3900.10.20

The ground water height “G” over the separator bottom must not exceed 374 mm.

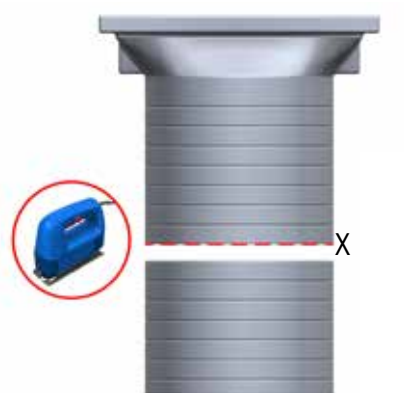


True for:

- Coalisator-P Article-No. 3911.10.10
- Coalisator-P Article-No. 3913.10.10
- Sludge trap Article-No. 3900.10.21

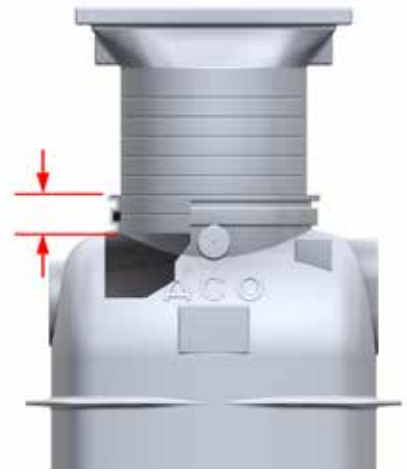
Preparation and installation of raising tube

The raising tube can be shortened every 45 mm at the designated cutting marks (x).



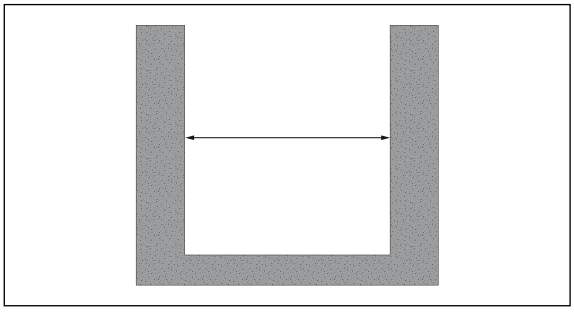
The minimum insertion depth (Z) into the separator has to be 90 mm (which is equal to the distance between two cutting marks).

If the raising tube shall be shortened at the highest available cutting mark, then the remaining tube has completely to be inserted into the tank.

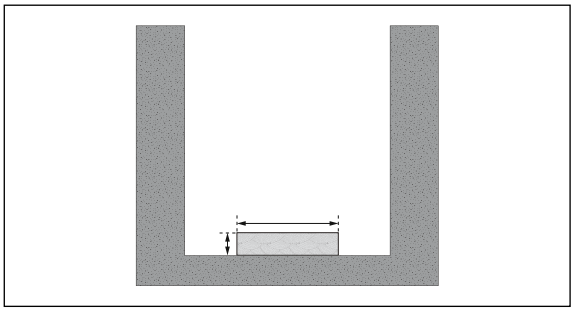


Install separator

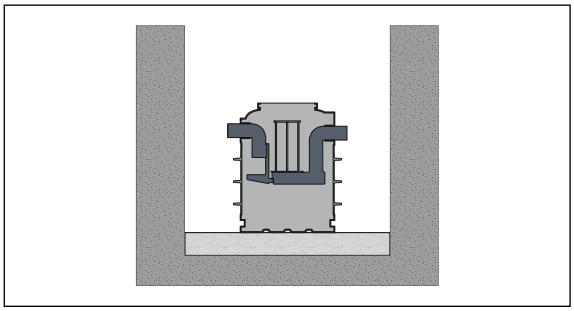
➔ The building pit must be at least 1,80 x 1,80 meters.



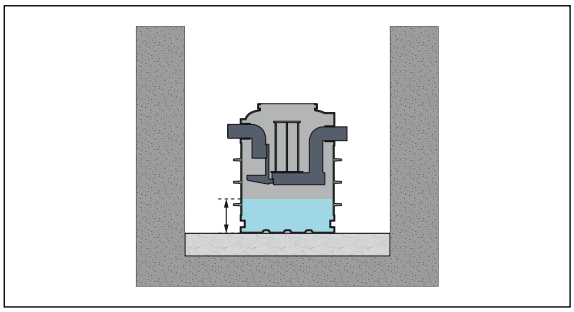
➔ The shimming must be constructed of strong compacted gravel with 800 x 800 x 200 millimeter (length x width x height).



- Place the separator in the pit and make sure that the float switch sits in the separator body .

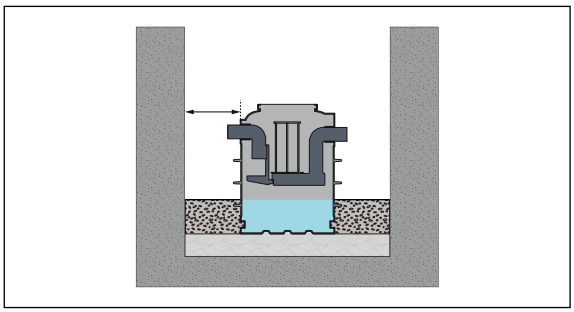


- Fill the separator with water 300 millimeter height.



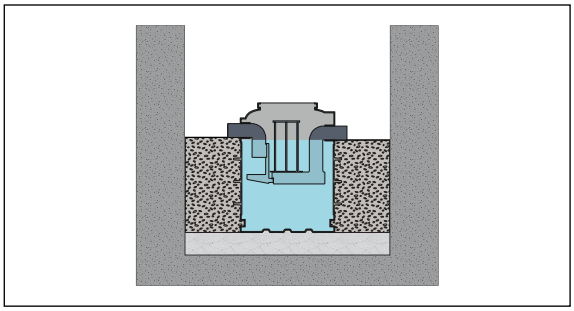
CAUTION No forces must effect the separator body.

- Put gravel layers 500 millimeter around the separator with a height of 300 millimeter.
- Compact the gravel layer with a suitable device.

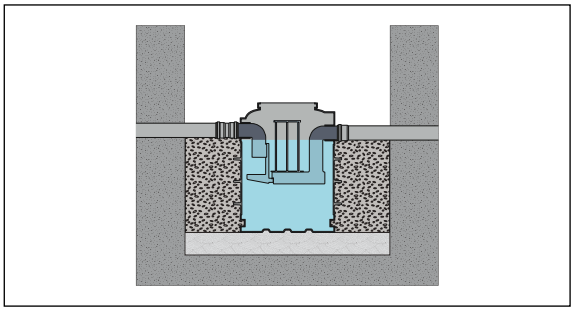


The following steps have to repated until the level of inlet and outlet connection has been reached:

- Fill the separator with water 300 millimeter height.
- Put gravel layers 500 millimeter around the separator with a height of 300 millimeter.
- Compact the gravel layer with a suitable device.

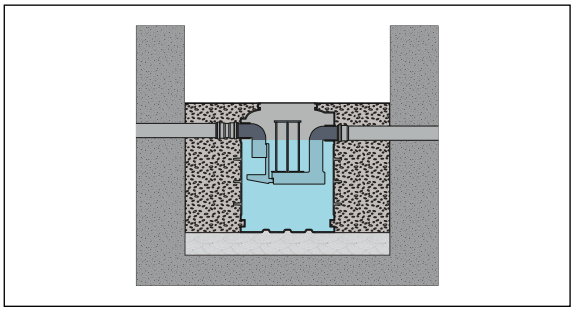


- Connect inlet and outlet piping, . Chapter 3.1 "Free-standing installation: connectioin of inlet piping" or "Free-standing installation: Connection of outlet piping".

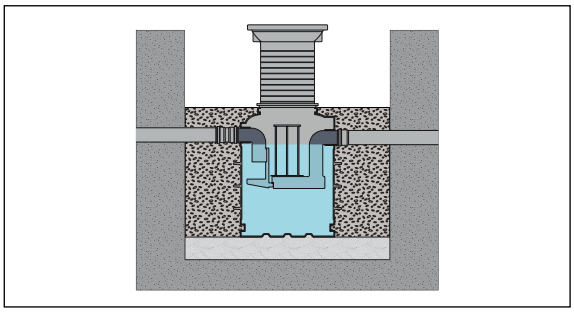


Repeat the following steps until the top of the separator body has been reached:

- Put gravel layers 500 millimeter around the separator with a height of 300 millimeter.
- Compact the gravel layer with a suitable device.

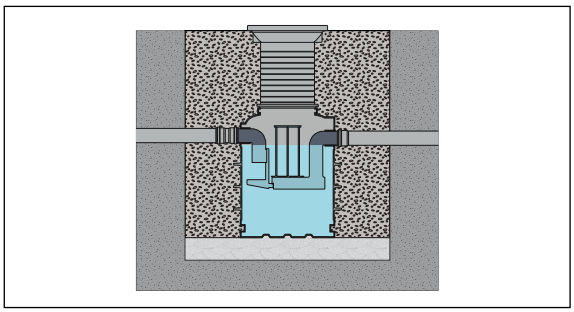


- Place sealing ring in "collar" of separator body and apply lubricant on it
- Reduce height of the raising tube according the needed total height and insert raising tube into separator body, Chapter 3.2 "Below ground installation: preparation and installation of raising tube".

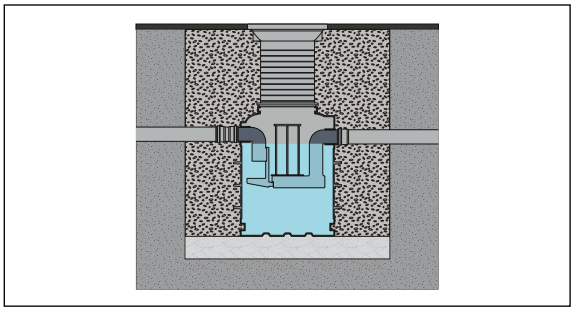


Repeat the following steps until the frame of the raising tube has been reached:

- Put gravel layers 500 millimeter around the separator with a height of 300 millimeter.
- Compact the gravel layer with a suitable device.

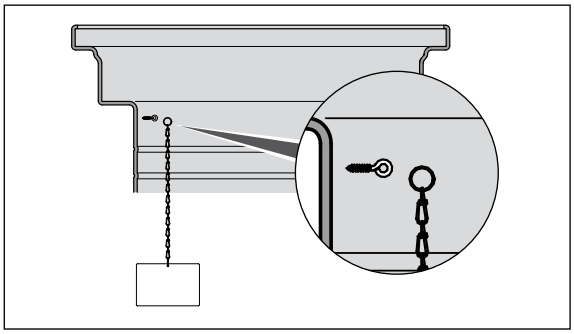


- Insert cover in raising tube.
- Finishing (asphalt, brick stones) can be constructed afterwards.



Installing type plate

- Screw the eyebolt (tob e provided by customer) with the tapping thread into the collar oft he plant housing.
- Fix key ring, delivered as a unit with the knotted chain and type plate, to the eyebolt.



4 Operation

4.1 Initial operation

Requirements:

- All connecting and assembly works must be finished
- The separator plant has to be thoroughly cleaned.
- If existing, gate valves in inlet and outlet lines have to be opened.

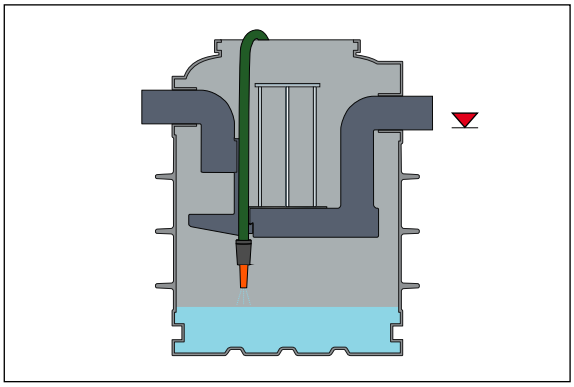
The following persons must be present during the commissioning:

- plumber
- electrician
- operating staff / operator
- disposal company

Commissioning

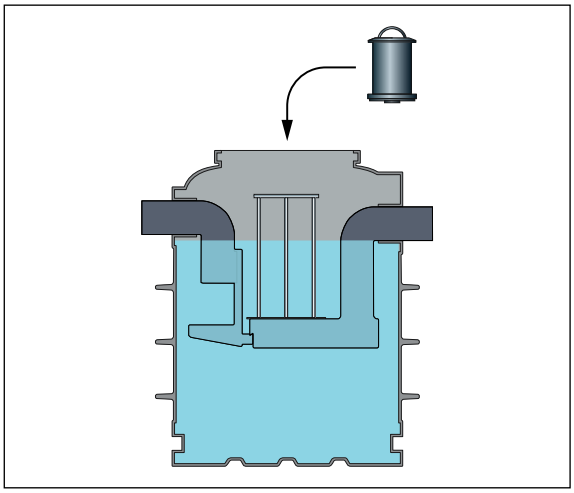
➔ Fill the separator with water.

Filling of separator may also be carried out through connected drainage equipment.



CAUTION Float switch must swim observably on the water surface (after easy immersion, the switch must return automatically to the surface).

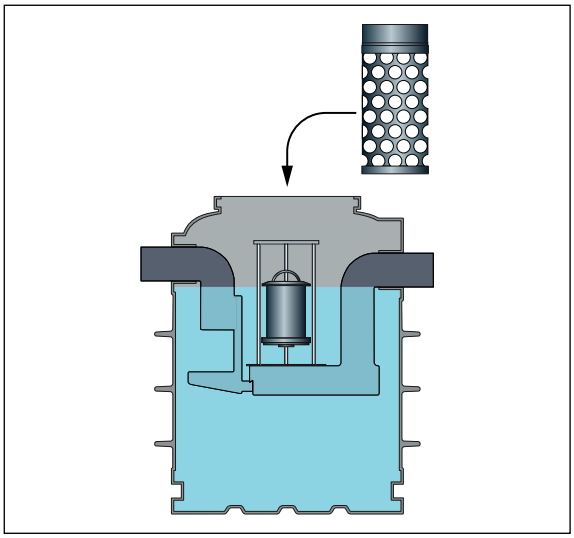
➔ Place float switch within the float cage and control float position.



➔ Insert coalescence material with fabric into the float cage.

➔ Reinsert cover.

Device is operational.



4.2 Operation

Requirements for operation

CAUTION The plant must only be operated according to its intended use. The plant works without intervention by the user.

Work required during operation is limited to:

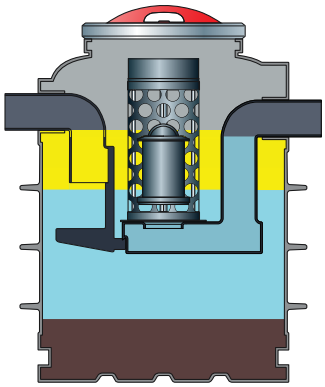
- arrange half-yearly service through experienced personnel, 📖 Chapter 5.1 „Half-yearly maintenance“
- arrange general inspection every five years, 📖 Chapter 5.2 „Gerneral inspection“

4.3 Disposal of contents

Disposal intervals

The disposal of the contents has to be carried if:

- Maximum oil storage layer has been reached
- 50% of sludge storage level has been reached



CAUTION Compliance with applicable state/national regulations is required.

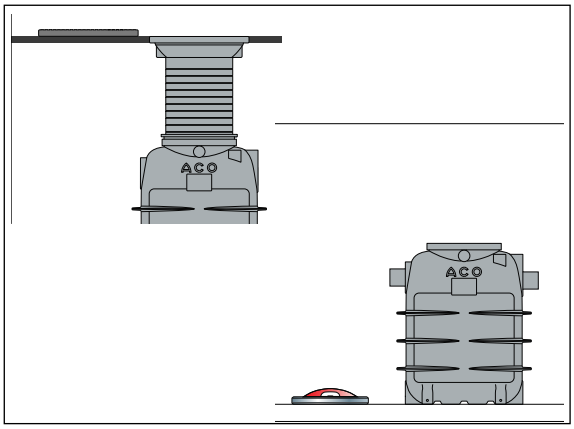
- The accrued emptying volume is composed of: 1.15 x total content of the separator.
- An adequately large disposal vehicle must be provided.
- The drainage date and removal by a suction truck (disposal vehicle) is to be arranged with an authorised disposal company. The plant should be emptied during a break in operation (no inflowing wastewater).
- The weight of the soiled coalescene material is ca. 5 kg.

CAUTION The following has to be considered during cleaning of the coalescene material:

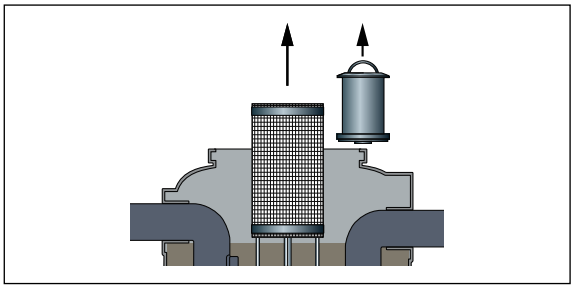
- The fabric can remain mounted on the coalescence basket when cleaning the coalescence insert.
- The coalescence fabric is only to be separated from the basket if the degree of soilage is especially high.
- The cleaning has to be carried out with a water ray (no high pressure cleaner!). In case of heavy pollution, quick separating detergents may be applied.
- If available, replace standby coalescence insert after cleaning of standard insert.

Process

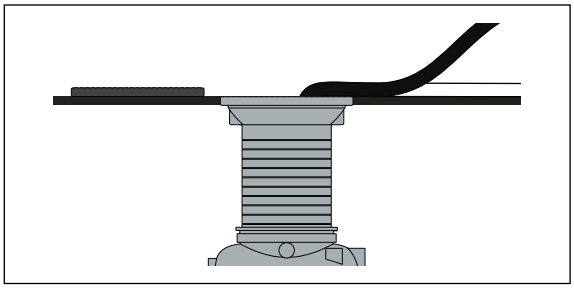
- Remove plastic cover/cast iron cover.



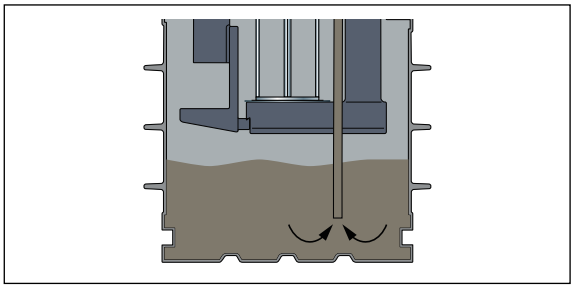
- Remove coalesence insert (basket with fabric). Clean insert at designated washing area.
- Remove float switch. Clean switch at designated washing area.



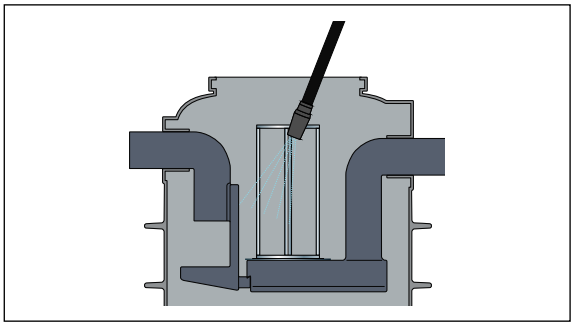
- Insert suction hose.



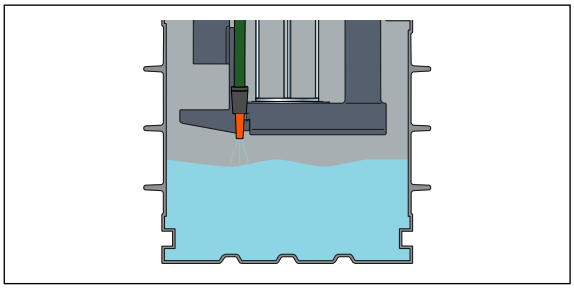
- Remove entire contents.



- Clean separator body.
- Remove cleaning water.

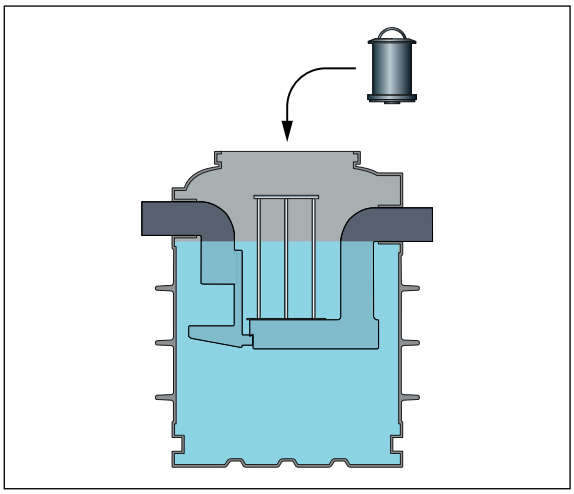


➔ Refill separator with operating water.



CAUTION Float switch must swim observably on the water surface (after easy immersion, the switch must return automatically to the surface).

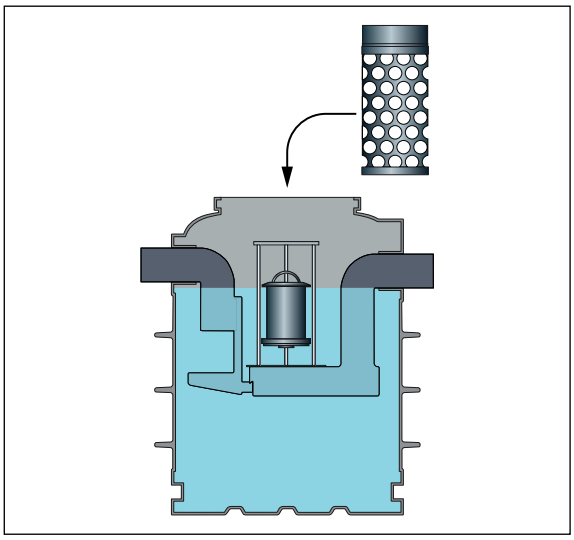
➔ Place float switch within the float cage and control float position.



➔ Re-insert coalescence material.

➔ Re-insert covers.

The separator is ready for operation again.



Interim cleaning of the coalescence material

The significant increased effiencieny of a light oil separator class I compared to a light oil separator class II is not only based on the coalescence effect through the filter material. It is also based on the fact, that the material retains smalles oil droplets as per the designation. Otherwise, these small oil droplets would flow through the separator as floating substances.

Depending on the local circumstances and not sufficient oil/sludge retention, the insert may choke the coalescence insert due to high charging long before the rotational disposal. In case of such a overloading of the filter, the resistance with the insert increases and the water level in the separator increases as well.

If an alarm device (option) is installed, a signal (visual and accoustic) will be provided in case the maximum defined water build-up level has been reached. If an alarm device is not installed, then the water build-up level has to be controlled regularly.

If the maximum defined water build-up level has been reched, an interim cleaining of the coalsence insert is necessary. If a standby coalescence insert is available, then this unit can be placed inside the separator and the cleaning of the standard insert can be carried out at convenience. In this case one has to consider, that the polluted coalesence material must not dry out.

5 Servicing

5.1 Half-yearly maintenance

CAUTION According to EN 858, the half-yearly maintenance has to be carried out throuh experienced personnel.

The following items shall be included:

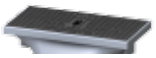
- determination of sludge volume
- measuring of the thickness of light liquids
- detection of the function of the autoamtic closure device (float switch)
- inspection of coalescene material for permeability: if the water levels in front and behind the coalescing device show significant difference
- functional test of the alarm device (option)
- cleaining of the sampling shaft

5.2 Gerneral inspection

CAUTION In intervals of at maximum five years the separator system shall be emptied and then submitted to general inspection including the following tasks:

- inspection of the e tightness of the system
- visual control of the structural condition
- inspection of the state of inbuild parts (inserts)
- inspection of the state of the electrical device (alarm device)
- checking of adjustment of autmoatic clossure device, e.g. float switches

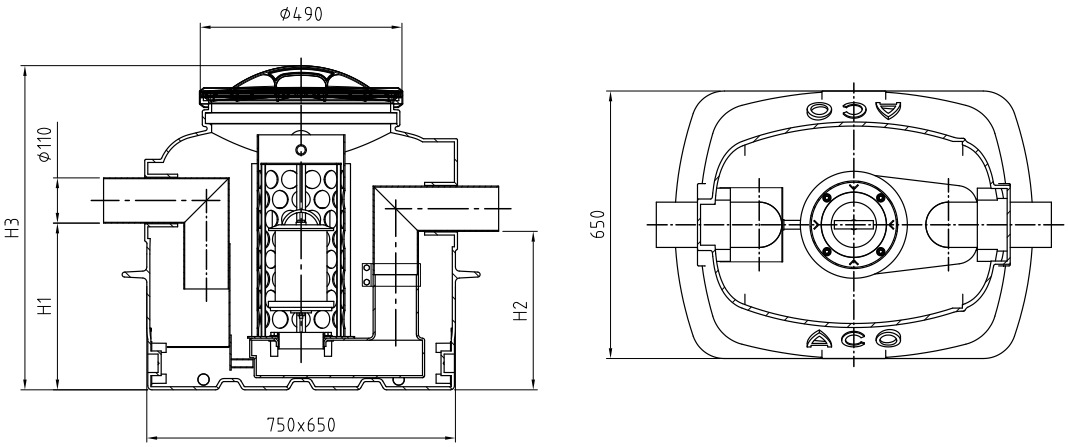
5.3 Spare parts

Spare parts	Figure	Item number
Cast iron cover		6703.11.20
Cover unit		0150.35.81
Raising tube		0170.30.02
Float switch		0150.09.53
Coalescence unit		0170.30.10
O-ring DN 100	–	0150.57.93

6 Technical Information

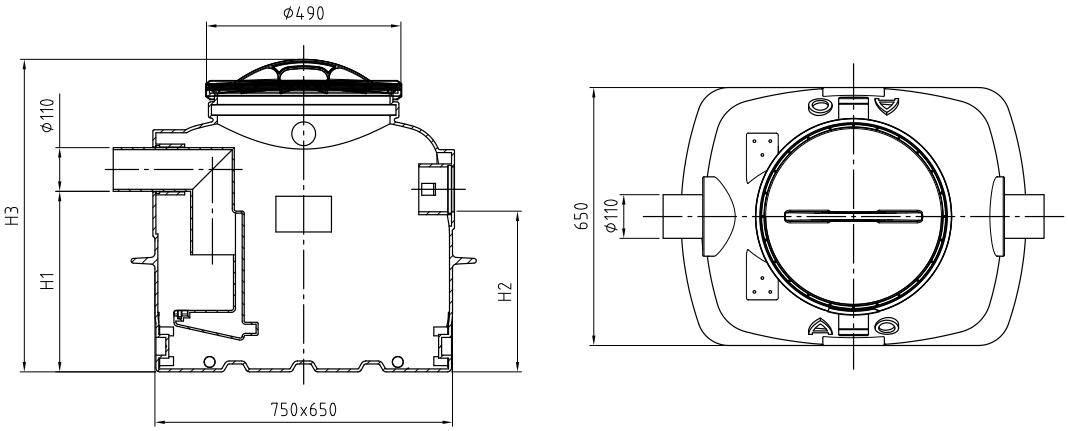
6.1 Above ground

Separator



NS	Capacity			Dimensions			Item number
	Sludge trap [l]	Total [l]	Oil storage [l]	H1 [mm]	H2 [mm]	H3 [mm]	
1,5	–	150	49	405	385	790	3901.00.10
1,5	150	300	49	765	745	1.150	3911.00.10
3	–	150	49	405	385	790	3903.00.10
3	150	300	49	765	745	1.150	3913.00.10

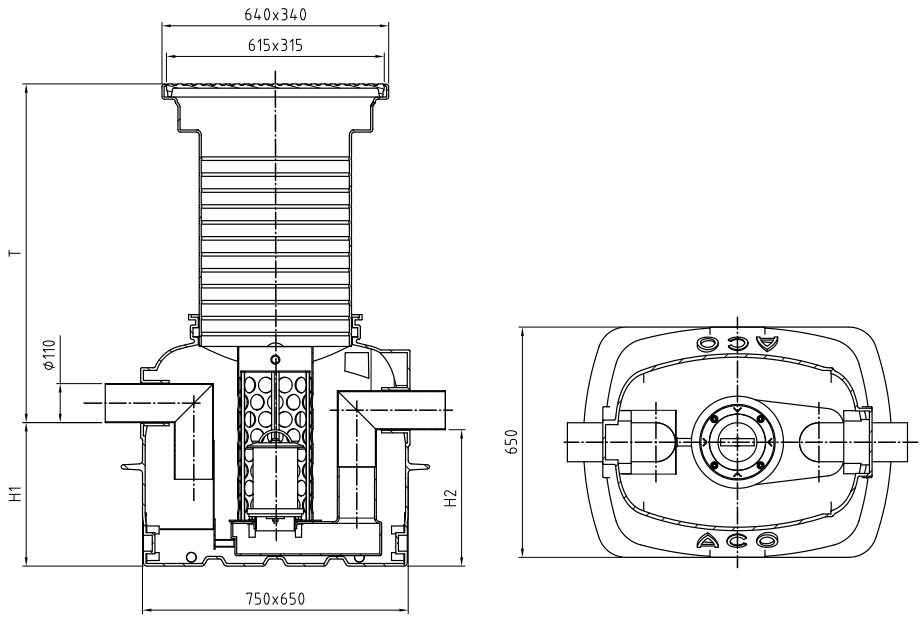
Sludge trap



Type	Capacity	Dimensions			Item number
		H1	H2	H3	
	[l]	[mm]	[mm]	[mm]	
150	150	455	405	790	3900.00.20
300	300	815	765	1.150	3900.00.21

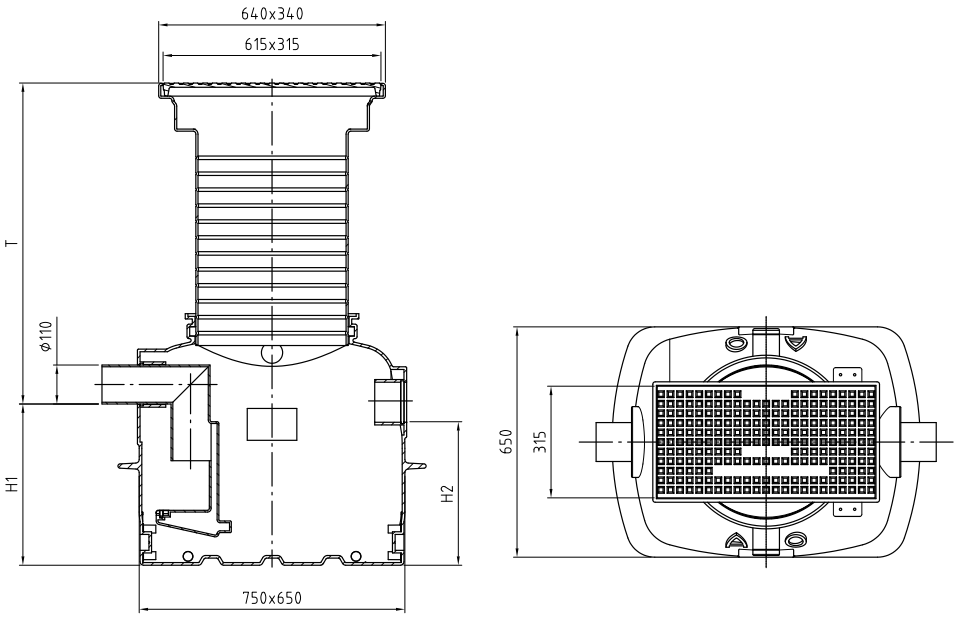
6.2 Below ground

Separator



NS	Capacity			Dimensions			Item number
	Sludge trap [l]	Total [l]	Oil storage [l]	H1 [mm]	H2 [mm]	H3 [mm]	
1,5	–	150	49	405	385	510 – 965	3901.10.10
1,5	150	300	49	765	745	510 – 965	3911.10.10
3	–	150	49	405	385	510 – 965	3903.10.10
3	150	300	49	765	745	510 – 965	3913.10.10

Sludge trap



Type	Capacity	Dimensions			Item number
		H1	H2	H3	
	[l]	[mm]	[mm]	[mm]	
150	150	455	405	460 – 915	3900.10.20
300	300	815	765	460 – 915	3900.10.21

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