Product Catalog

Storm Water Handling

PURECO

THE PURE ECO

Mission Statement

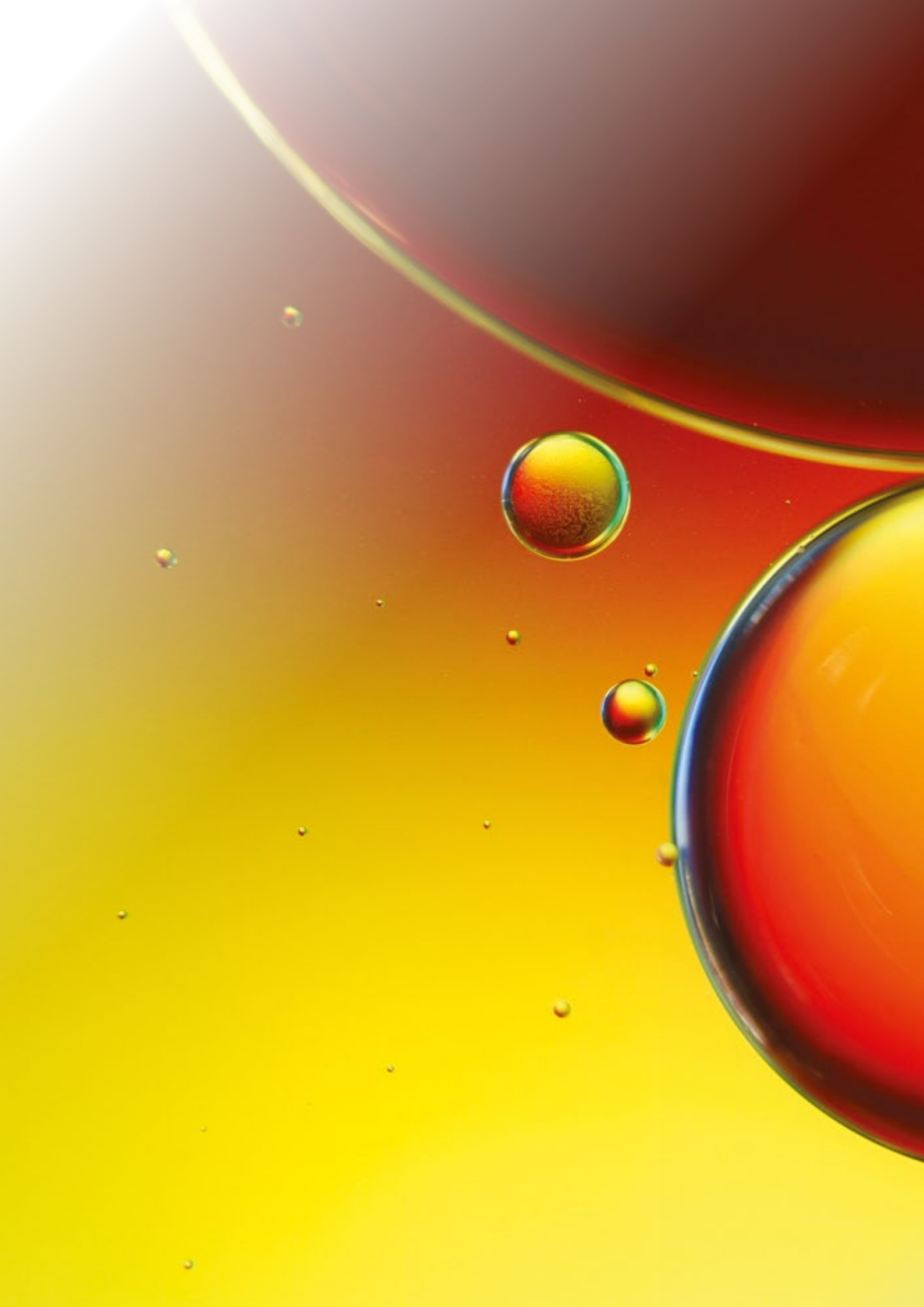
Pureco was founded in 2006 based on the founder's, Karoly Kovacs's dream of making the Danube a clean, blue river again. We encompass our key mission in our name; we work to achieve a Pure-Eco.

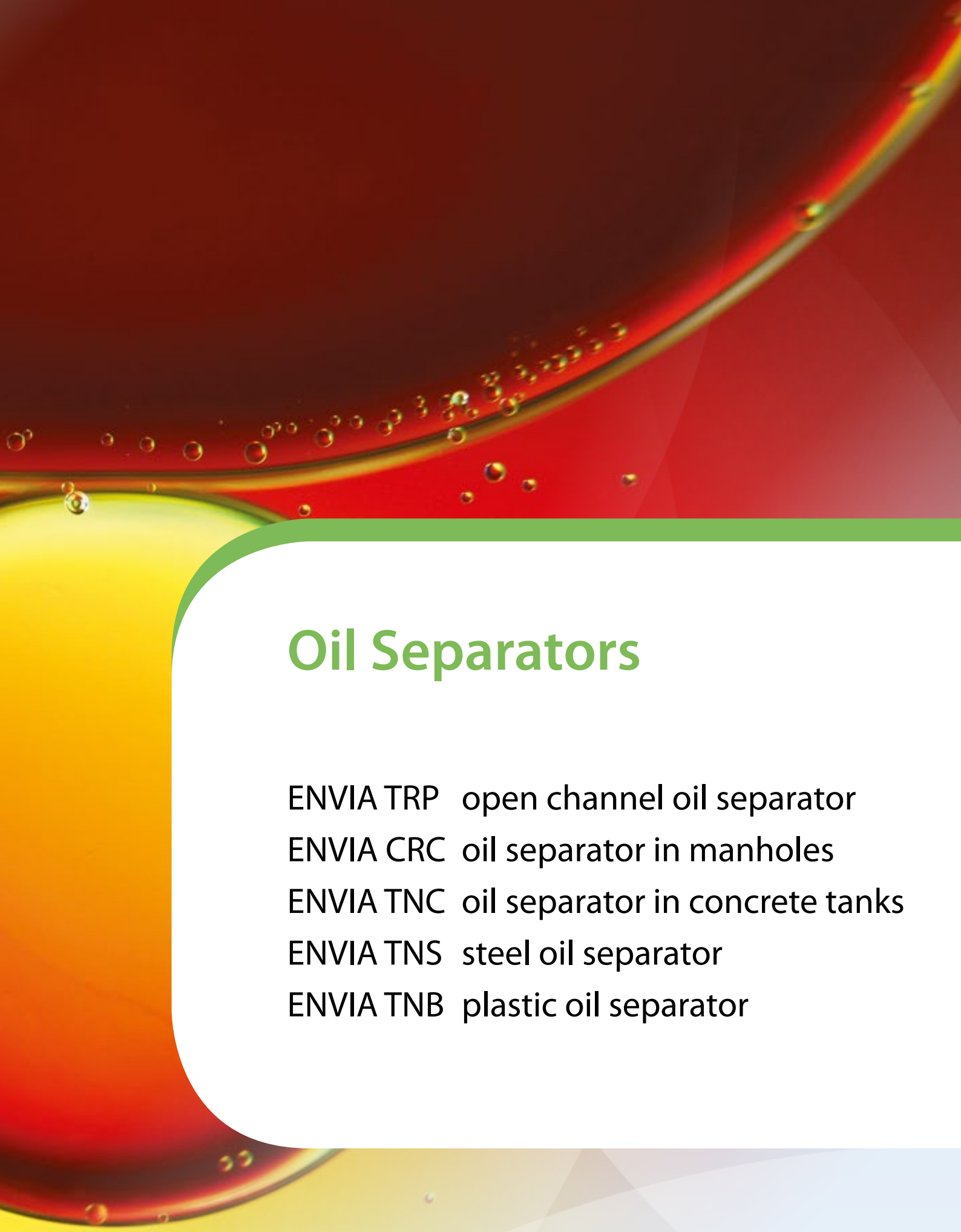
We thrive for a liveable and clean nature through efficient utilization of resource, enabling and contributing to sustainable environmental and water management. At Pureco Ltd. it is not enough to simply deliver a product, here we think in terms of innovation, development, advanced solutions and added value.

We work closely together with our partners and clients in order to come up with the most efficient and best suited and all-encompassing solutions to the given problem, task or challenge. Pureco has partaken in several international and national projects, and we always aim to provide the solutions best suited, and tailor made to the local environment, context and our client's needs. We are an innovative, dynamic company with regular product developments to accommodate the needs of the ever changing policy, climate conditions and ecosystems, and to fulfil our client's expectations. Based on our employees great amount of water management experience and knowledge, both on a national as well as on an international level, we are able to meet the needs of our municipal and industrial customers.

We emphasize the value of environmental, economic and social responsibility in all our business activities. We specialize in Rainwater treatment and management, rainwater drainage, clay pipes and profiles, globular graphite cast pipes, industrial and municipal wastewater treatment.

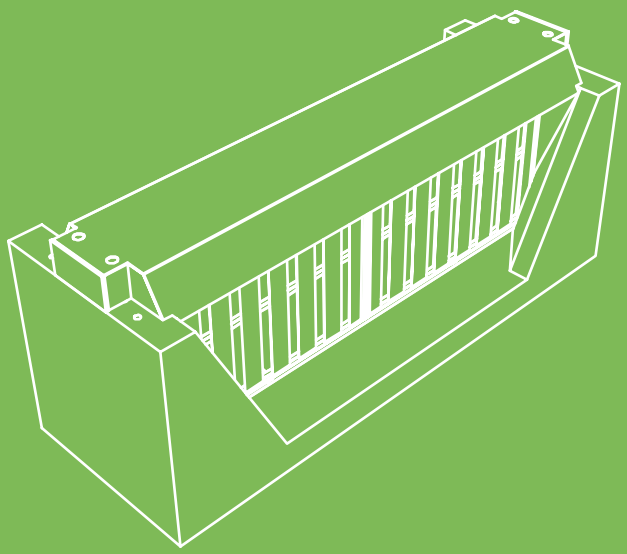
Bálint Horváth
managing director



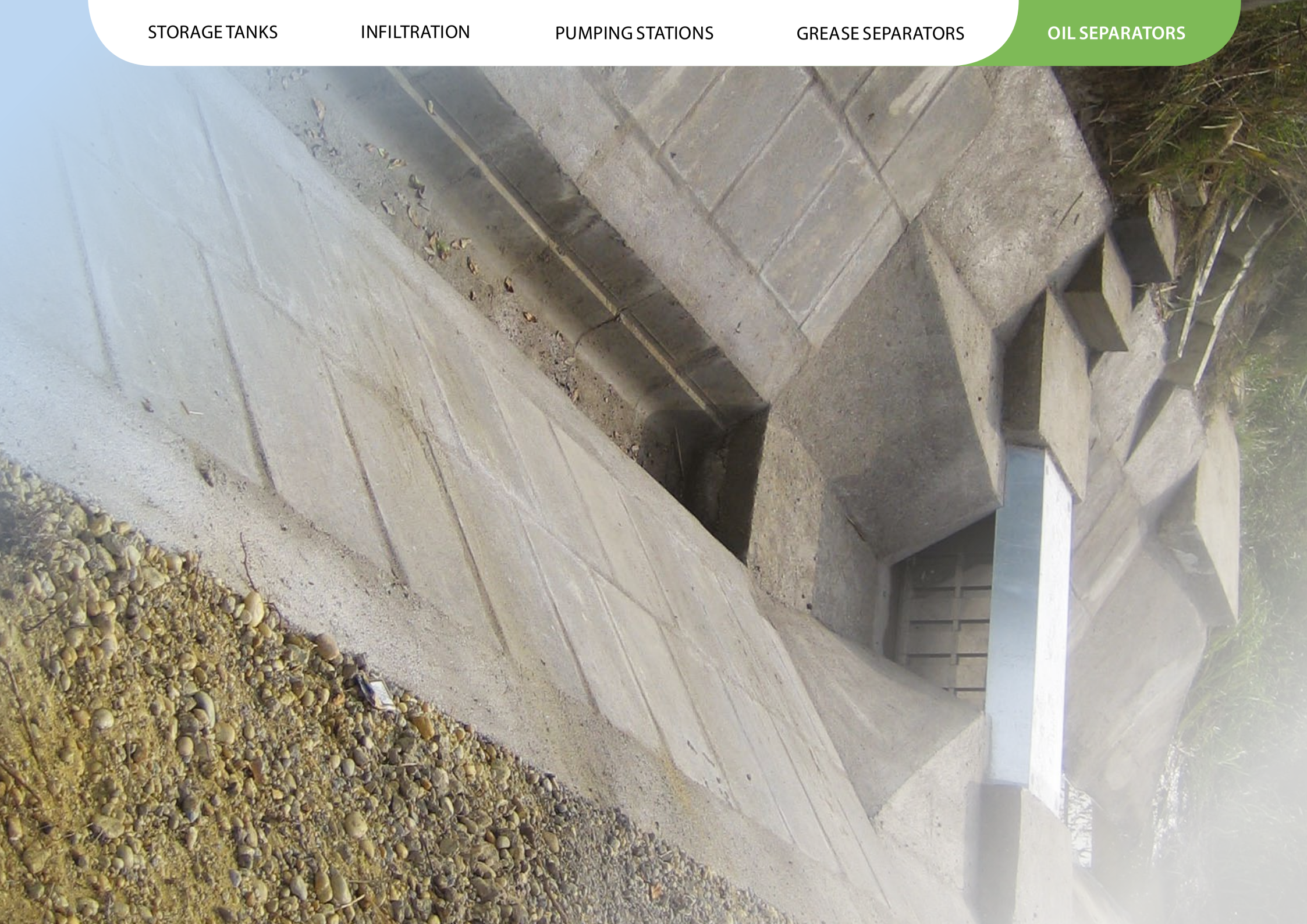


Oil Separators

ENVIA TRP	open channel oil separator
ENVIA CRC	oil separator in manholes
ENVIA TNC	oil separator in concrete tanks
ENVIA TNS	steel oil separator
ENVIA TNB	plastic oil separator



ENVIA TRP



OIL SEPARATOR – ENVIA TRP

A solution was developed by PURECO for filtering and retaining the contaminants washed away by storm water flowing down from linear engineering structures (roads, motorways, parking lots). This uniquely developed technology is in compliance with the contamination types, economical to install, simple to operate, as well as the retained materials are economically removable. The materials used for constructing the object are extremely durable. The ENVIA TRP is able to meet the task of the primary treatment of storm water with appropriate efficiency and security. Our equipment ensures that the contaminant levels of effluents are within the specified limit values, separated and retained materials are stored safely in time periods between maintenance and cleaning events. It is able to retain and store hazardous waste that may spill onto the pavement in an accident or emergency case, and it prevents damages to and pollution of the natural environment.

The application fields of the equipment

- Installation in open-surface ditches made for the drainage of storm water coming from linear traffic facilities
- An equipment to control the discharge and/or overflow of small reservoirs or lakes that in case of overflow should retain possible floating contaminants.

The technical advantages of the equipment

- Installable also in existing storm water drainage systems,
- Operable without surveillance, minimum maintenance needs,
- High-capacity equipment,
- The process it applies to cause oil drops to flow up and for retainment is well-known, tried, and tested,
- Even without filter materials, it ensures protection against emergencies for any storage tanks with an open surface.

The economic advantages of the equipment

- Lower investment costs than in the case of prefabricated oil separator equipment with a tank.
- Less earth work needed.
- Equipment with variable and wide-scale hydraulic capacities (0-300 l/s).

The materials, and the installation of the equipment

- Made from corrosion proof materials,
- Simple and fast installation with minimum tooling requirements,
- The ex-works price of these equipment is lower than that of traditional, prefabricated separation equipment with tanks
- Robust construction, compact design
- Faster installation – the time it takes to install the quipment is shorter by orders of magnitude.

Name	Article number	Efficiency	Cleaning capacity	Total flow	Height	Width	Length	Weight
			5 mg/l SZOE					
ENVIA TRP 60/120	M1A5N	5 mg/l	60 l/s	120 l/s	800 mm	1500 mm	900 mm	1290 kg
ENVIA TRP 75/150	M1B5N	5 mg/l	75 l/s	150 l/s	900 mm	1500 mm	900 mm	1440 kg
ENVIA TRP 90/180	M1C5N	5 mg/l	90 l/s	180 l/s	1100 mm	1500 mm	900 mm	1720 kg
ENVIA TRP 100/200	M1D5N	5 mg/l	100 l/s	200 l/s	1100 mm	1500 mm	900 mm	1660 kg
ENVIA TRP 125/250	D1A5N	5 mg/l	125 l/s	250 l/s	800 mm	2600 mm	900 mm	1840 kg
ENVIA TRP 150/300	D1B5N	5 mg/l	150 l/s	300 l/s	900 mm	2600 mm	900 mm	2020 kg
ENVIA TRP 200/350	D1C5N	5 mg/l	200 l/s	350 l/s	1100 mm	2600 mm	900 mm	2370 kg
ENVIATRP 225/400	D1D5N	5 mg/l	225 l/s	400 l/s	1100 mm	2600 mm	900 mm	2280 kg

Name	Article number	Efficiency	Cleaning capacity	Total flow	Height	Width	Length	Weight
			2 mg/l SZOE					
ENVIA TRP 40/80	M2A2N	2 mg/l	40 l/s	80 l/s	800 mm	1500 mm	1350 mm	1780 kg
ENVIA TRP 55/1100	M2B2N	2 mg/l	55 l/s	110 l/s	900 mm	1500 mm	1350 mm	1960 kg
ENVIA TRP 75150	M2C2N	2 mg/l	75 l/s	150 l/s	1100 mm	1500 mm	1350 mm	2320 kg
ENVIA TRP 85/170	M2D2N	2 mg/l	85 l/s	170 l/s	1100 mm	1500 mm	1350 mm	2260 kg
ENVIA TRP 100/200	D2A2N	2 mg/l	100 l/s	200 l/s	800 mm	2600 mm	1350 mm	2560 kg
ENVIA TRP 125/250	D2B2N	2 mg/l	125 l/s	250 l/s	900 mm	2600 mm	1350 mm	2780 kg
ENVIA TRP 180/320	D2C2N	2 mg/l	180 l/s	320 l/s	1100 mm	2600 mm	1350 mm	3210 kg
ENVIATRP 200/360	D2D2N	2 mg/l	200 l/s	360 l/s	1100 mm	2600 mm	1350 mm	3120 kg

ENVIA BOX drift- and light liquid separator equipment installable to open-surface storm water drainage channels or ditches

ENVIA BOX drift- and light liquid separator equipment installable to open-surface storm water drainage channels or ditches, for 5 mg/l SZOE/ TPH limit values for the territorial categories 2. 3. and 4. under Annex 2 of the Regulation 28/2004. (XII. 25.) KvVM.

	Inclusive dimensions			Mass
Article number	H [mm]	B [mm]	L [mm]	m [kg]
ENVIA® BOX D 1 A 5 W 125	500	2000	680	90
ENVIA® BOX D 1 B 5 W 150	600	2000	680	100
ENVIA® BOX D 1 C 5 W 200	800	2000	680	120

ENVIA BOX drift- and light liquid separator equipment installable to open-surface storm water drainage channels or ditches, for 2 mg/l SZOE/ TPH limit values for the territorial categories 1. 2. 3. and 4. under Annex 2 of the Regulation 28/2004. (XII. 25.) KvVM.

	Inclusive dimensions			Mass
Article number	H [mm]	B [mm]	L [mm]	m [kg]
ENVIA® BOX D 2 A 2 W 100	500	2000	1000	130
ENVIA® BOX D 2 B 2 W 125	600	2000	1000	150
ENVIA® BOX D 2 C 2 W 180	800	2000	1000	180

Key to the type code:

ENVIA® TRP M 1 A 5 N 60 / 120

Equipment to be fitted into a **TR**a**P**ezoid section

M = MONO type of equipment
D = DUO (double unit) an equipment of double design
Q = QUATTRO (quadruple units)an equipment of quadruple design

The number of filters: 1 pc. The width of the equipment: 25 cm.
The number of filters: 2 pcs. The width of the equipment: 70 cm.

The height of the weir wall/ Filter insert (cm):
A: 27,5 / 50
B: 35,0 / 60
C: 51,0 / 80
D: 43,5 / 80

for 5 mg/l SZOE/TPH value
for 2 mg/l SZOE/TPH value

Normal design: the weir wall is included by the prefabricated reinforced concrete receiver structure

Nominal treatment capacity (the by-pass line is out of operation!; l/s)

Nominal hydraulic capacity (together with the by-pass line; l/s)

DESIGN AID – ENVIA TRP

This Aid provides assistance to designers and investors to enable them to select the most suitable equipment from the ENVIA TRP/BOX product range for their installation site, that best meets the given treatment requirements and other specifications.

This document provides the equipment parameters, and it contains the operations schemes and the installation dimensions.

Please do not hesitate to contact our colleagues with your queries that emerge during the selection process. Our colleagues are entirely at your service: they send the documentation of the equipment to you, even in editable format that can be inserted into drawings; they provide on-site consultation; when and if necessary, they take part in the selection, design, licencing or construction processes.

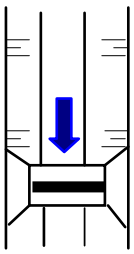
ENVIA TRP / BOX drift- and light liquid separator equipment installable to open-surface storm water drainage channels or ditches

Before and after the equipment the cross-section of the water-course bed must be paved; we recommend to make the pavement up to the dammed-up water-level. A drift-trap area should be constructed before the equipment, which can be constructed from commercially available bottom-pavement elements, lowered typically below the bottom level of the water course. The required volume is variable in accordance with the contamination levels of the water to be treated, and the types of the contamination.
Recommendation: 10-times the dimensioning value of the input water quantity (calculated in l/s) should be specified (in litres) for the volumes, in the case of public roads and motorways.

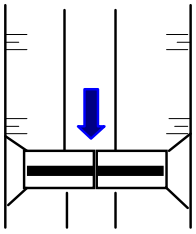
Installation sketches for the equipment

Depending on the water quantity flowing through the equipment, and in accordance with the width dimensions, the equipment may be installed as depicted by the following sketches:

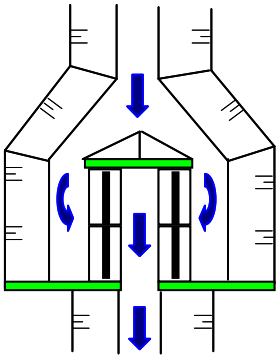
MONO



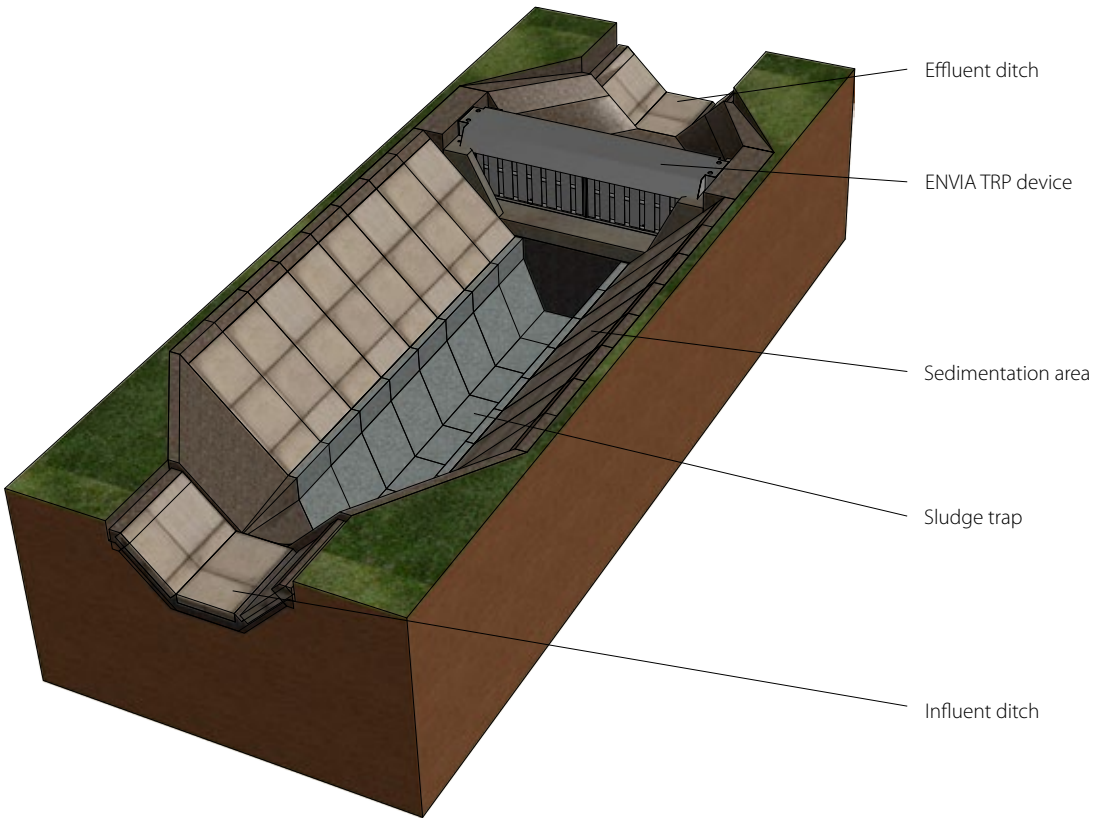
DUO



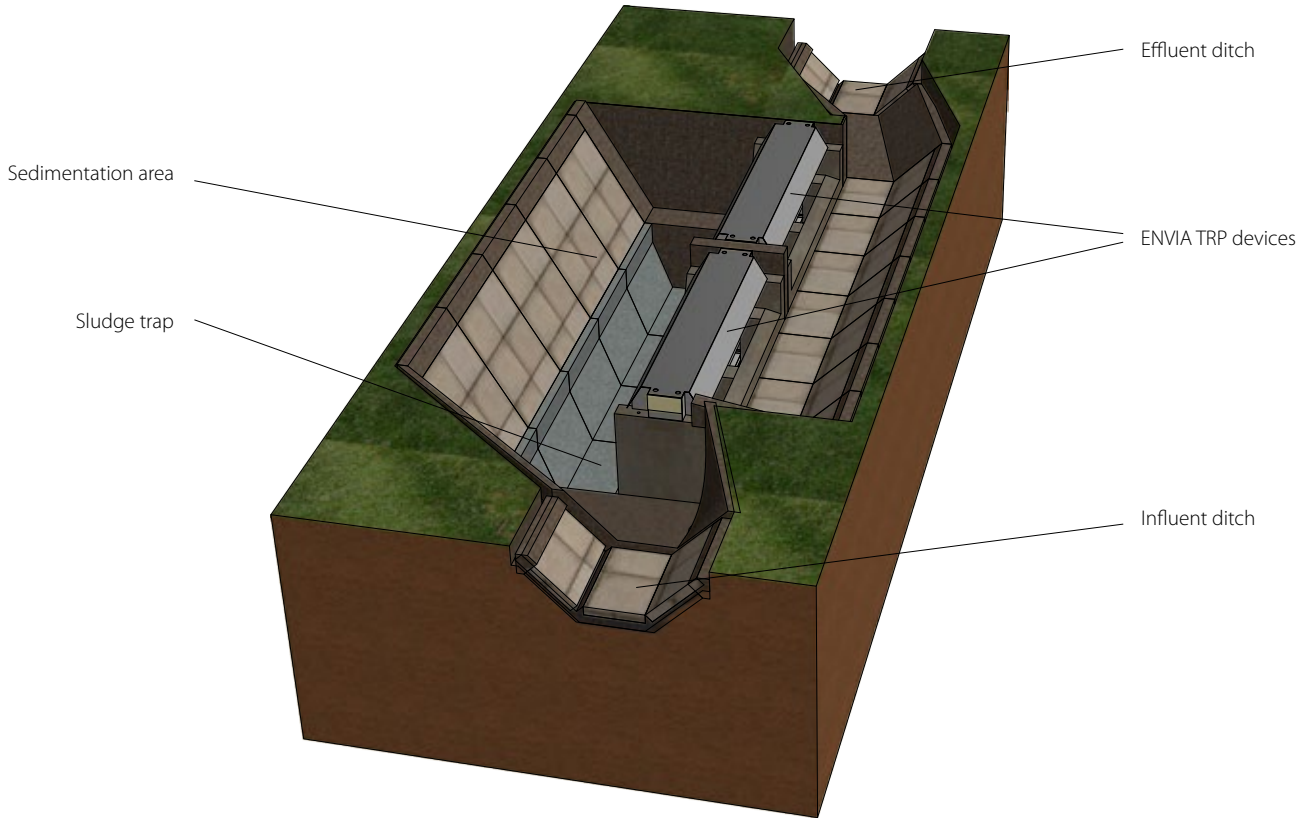
QUATTRO



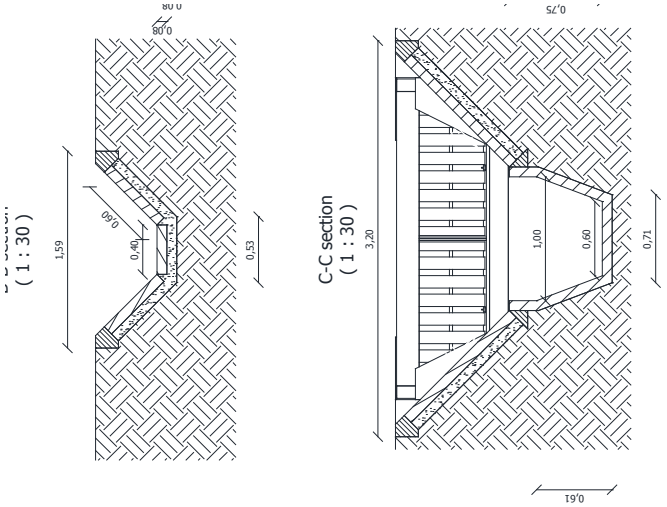
ENVIA TRP SINGLE UNIT INSTALLATION SAMPLE

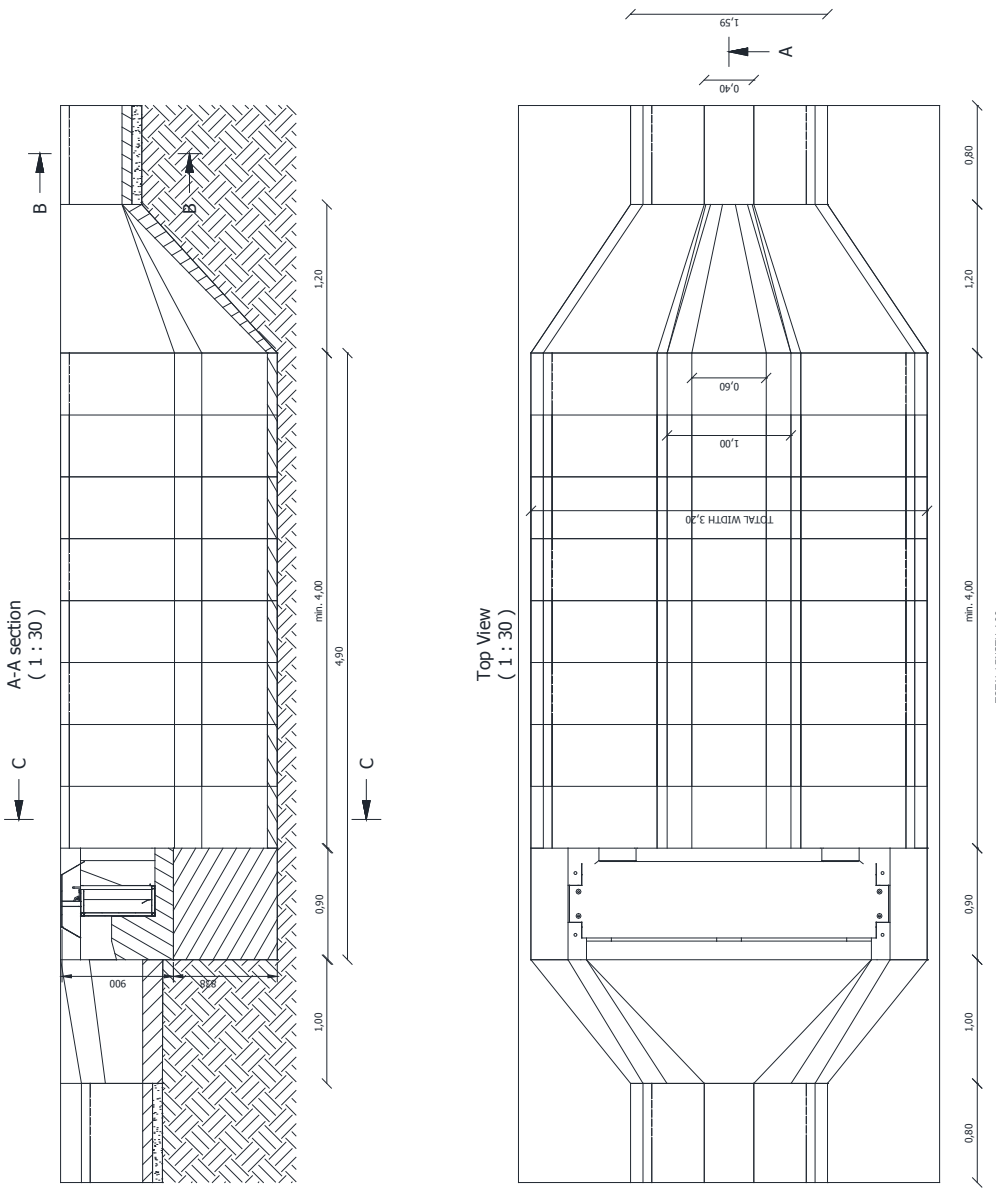


ENVIA TRP MULTIPLE UNITS INSTALLATION SAMPLE



DESIGN AID – ENVIA TRP SINGLE UNIT DESIGN





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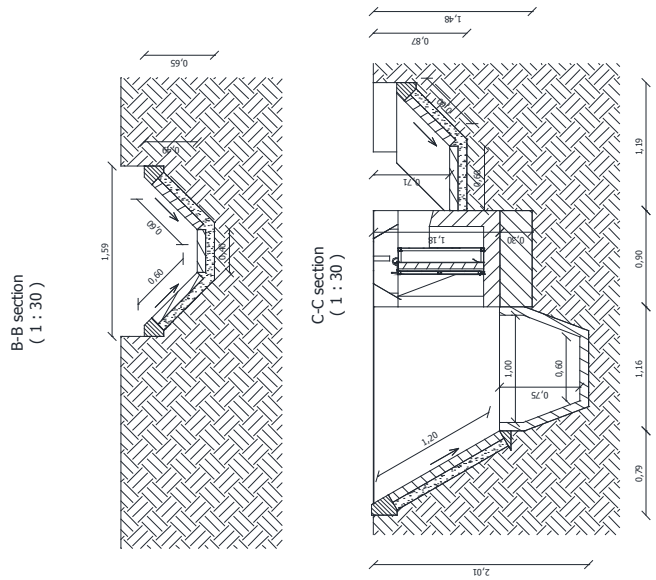

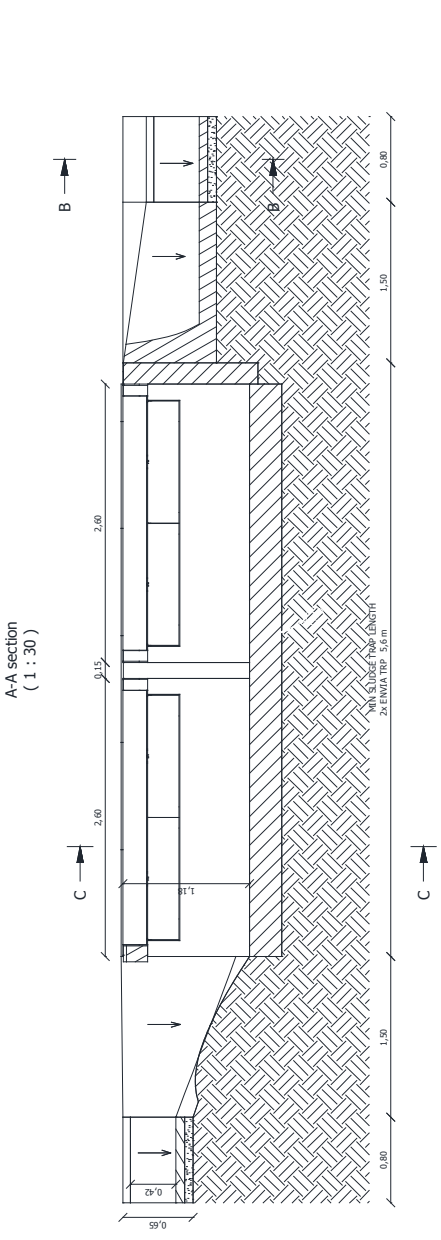

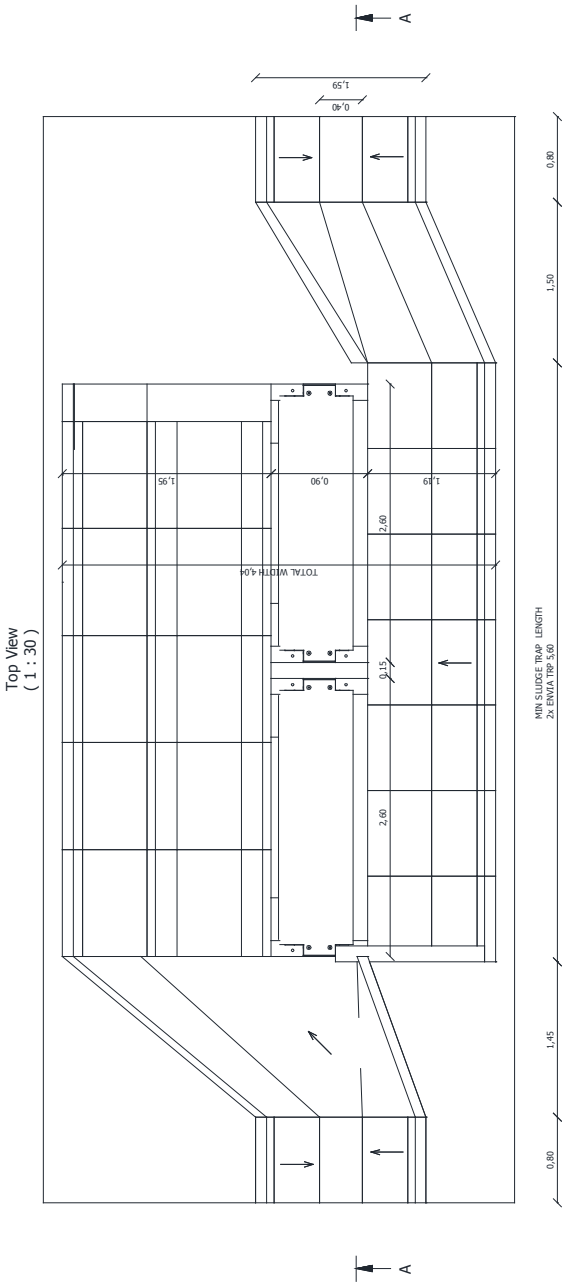

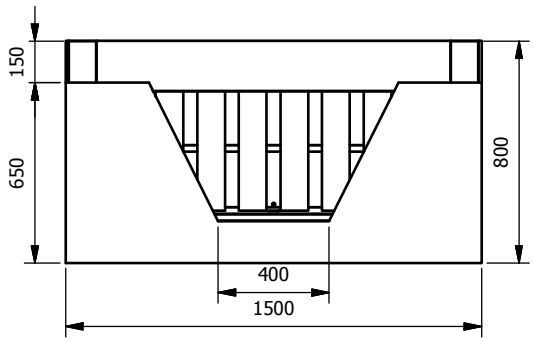

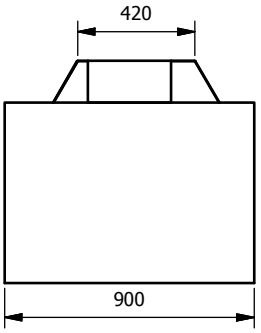

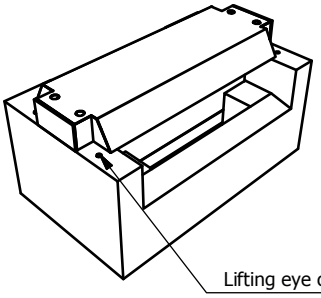

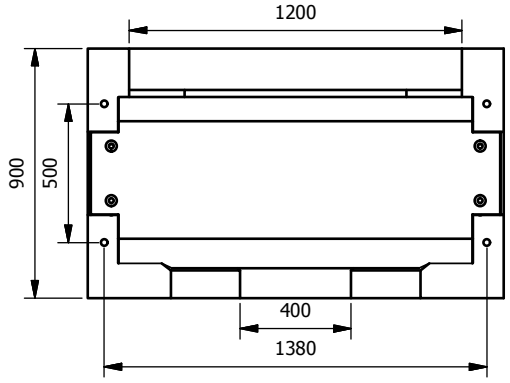

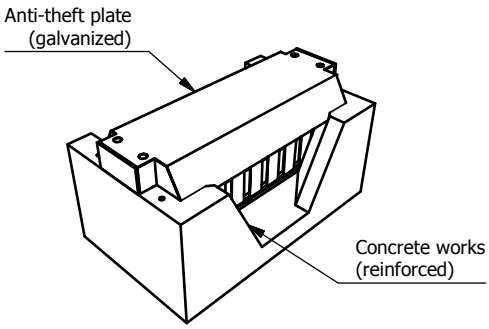

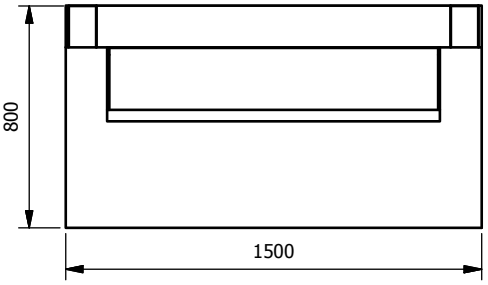

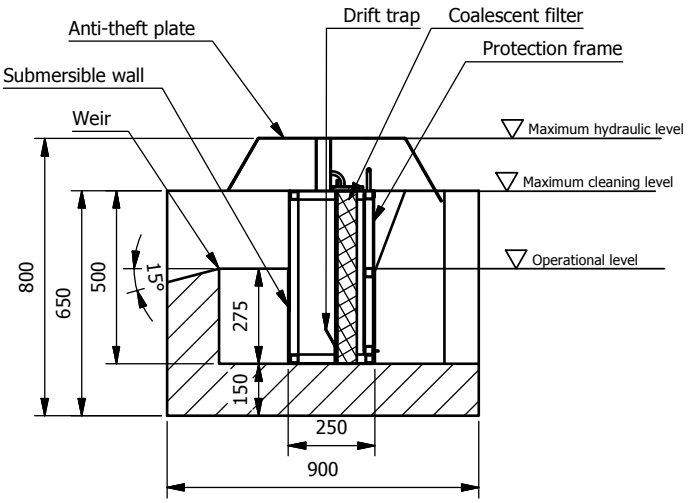

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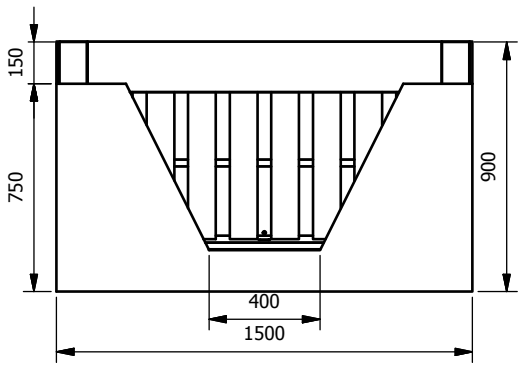
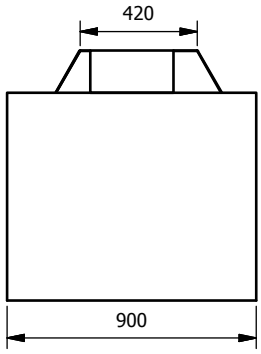
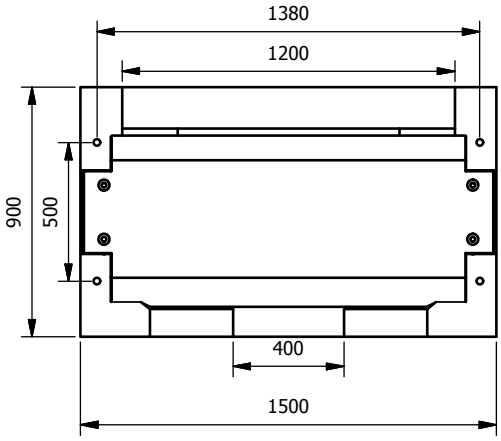
ENVIA TRP drift-trap and light liquid oil separator in open channel

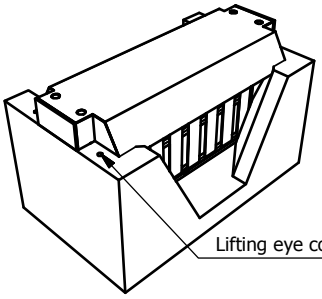
TYP:
ENVIA TRP M1A5N 60/120
Informational drawing
M= 1:25

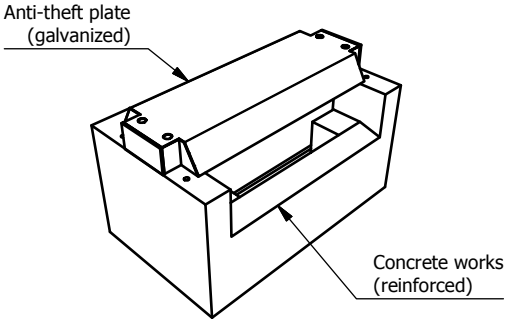
Cleaning capacity:	60	l/s
Total flow:	120	l/s
Efficiency:	5	mg/l FOG
Total weight:	1262	kg

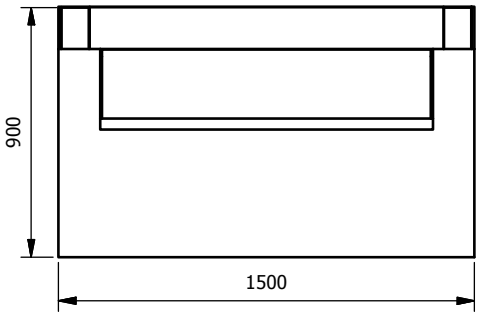


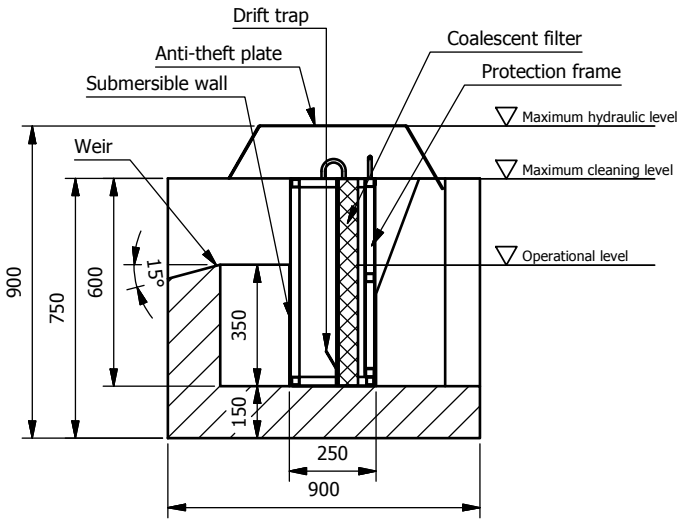












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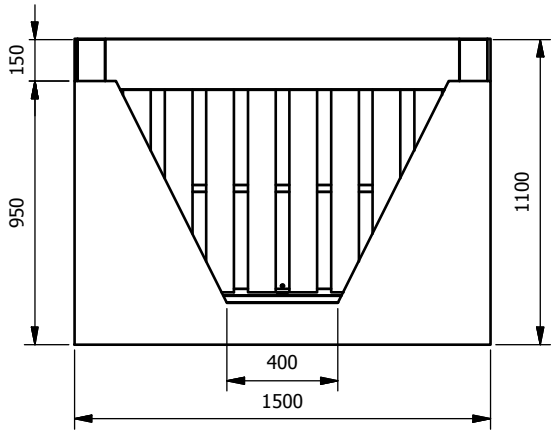
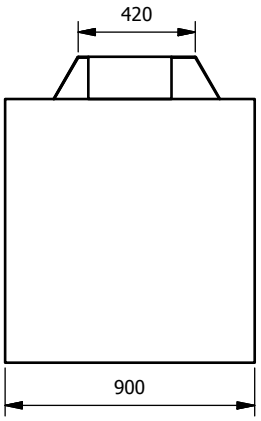
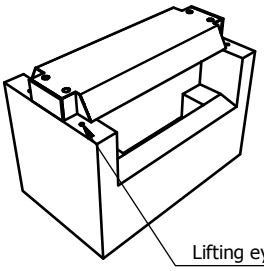
ENVIA TRP drift-trap and light liquid oil separator in open channel

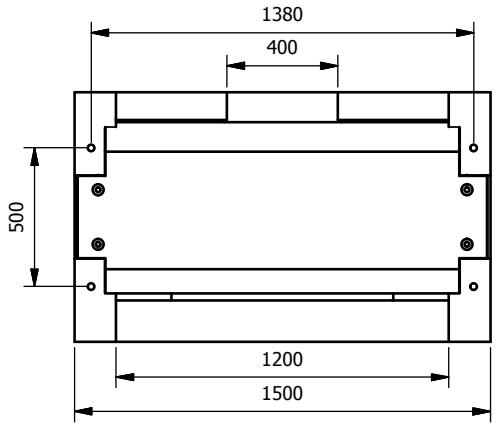
TYP:
ENVIA TRP M1B5N 75/150
Informational drawing
M= 1:25

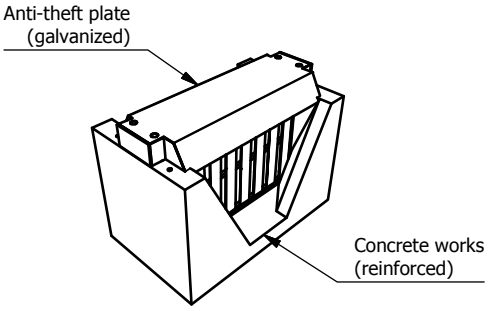
Cleaning capacity:	75	l/s
Total flow:	150	l/s
Efficiency:	5	mg/l FOG
Total weight:	1397	kg

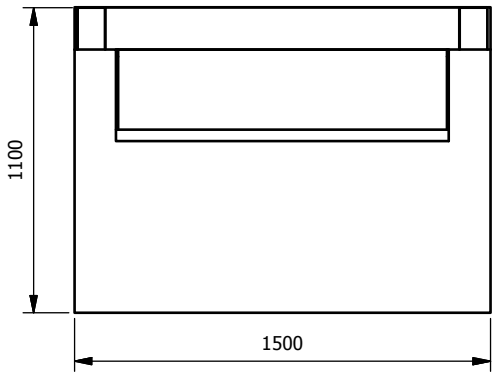


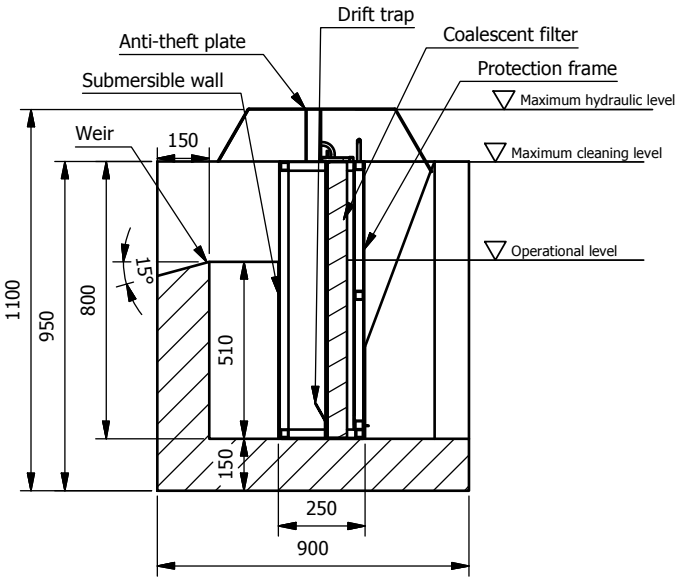












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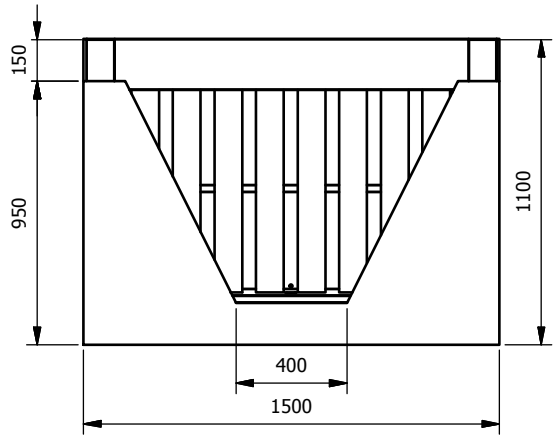
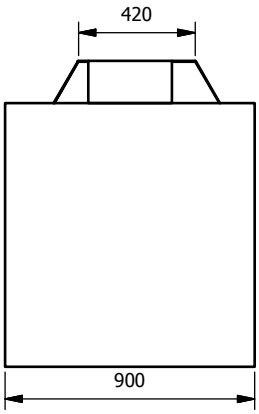
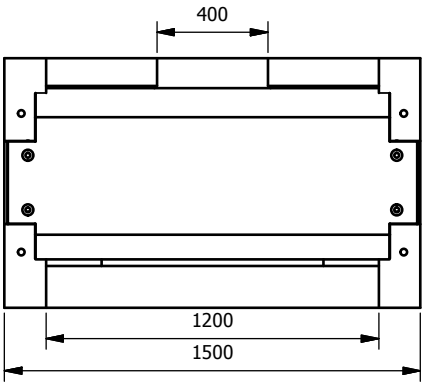
ENVIA TRP drift-trap and light liquid oil separator in open channel

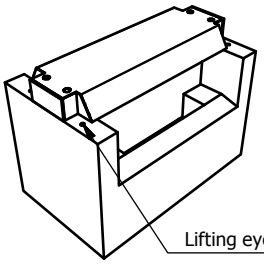
TYP:
ENVIA TRP M1C5N 90/180
Informational drawing
M= 1:25

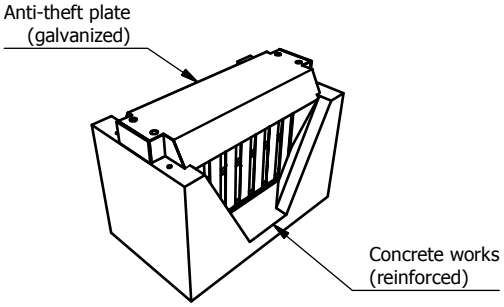
Cleaning capacity:	90	l/s
Total flow:	180	l/s
Efficiency:	5	mg/l FOG
Total weight:	1660	kg

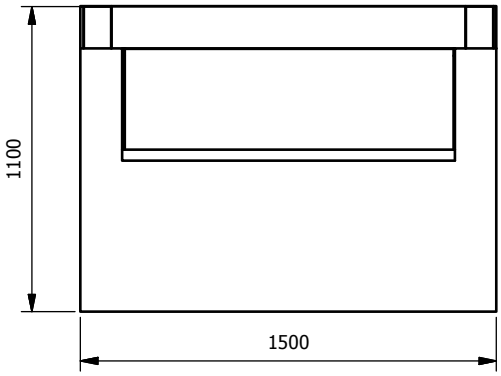


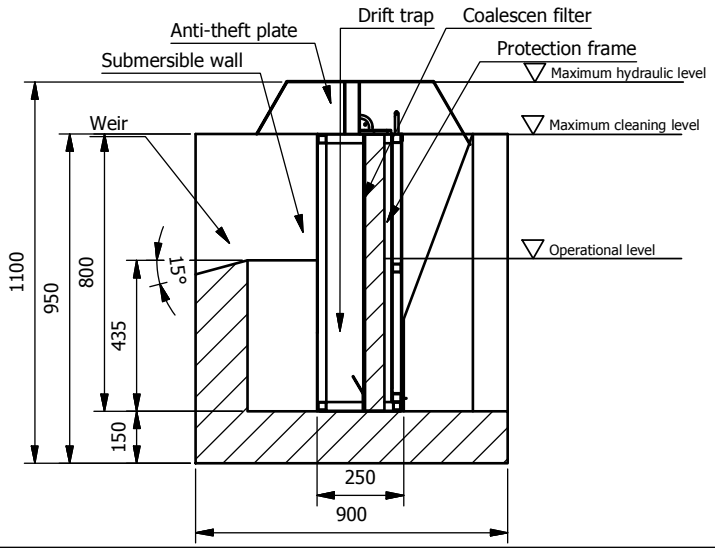












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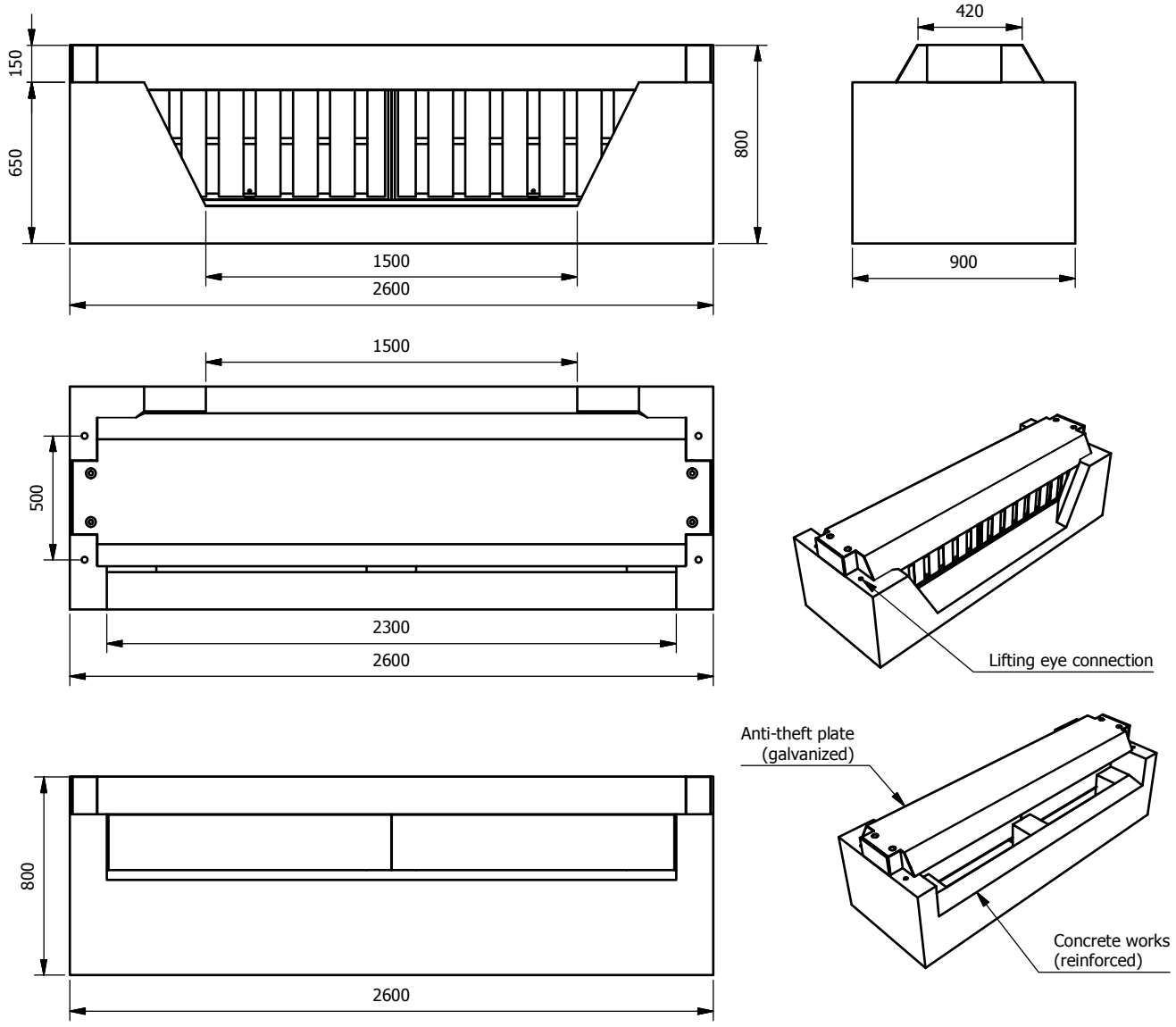
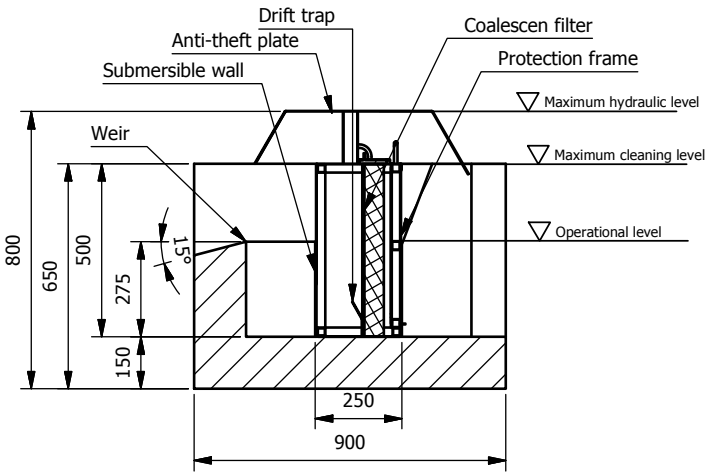
ENVIA TRP drift-trap and light liquid oil separator in open channel

TYP:
ENVIA TRP M1D5N 100/200
Informational drawing
M= 1:25

Cleaning capacity:	100	l/s
Total flow:	200	l/s
Efficiency:	5	mg/l FOG
Total weight:	1610	kg





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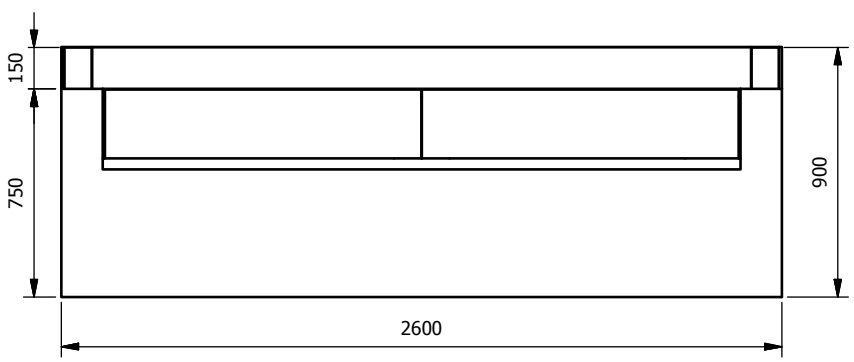
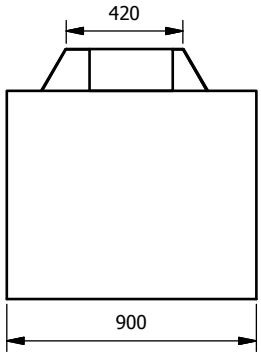
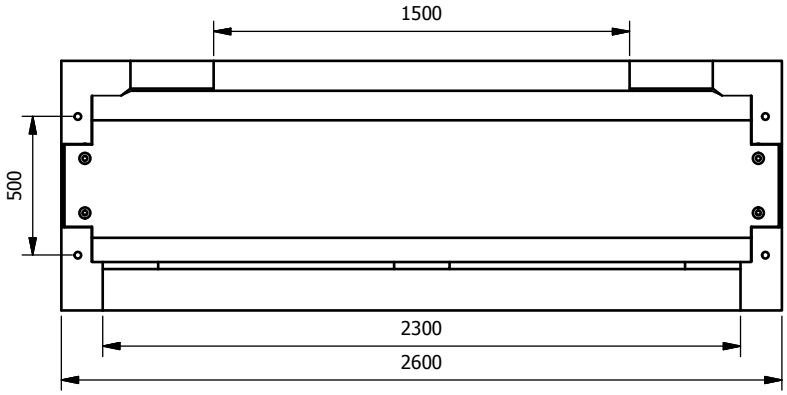
ENVIA TRP drift-trap and light liquid oil separator in open channel

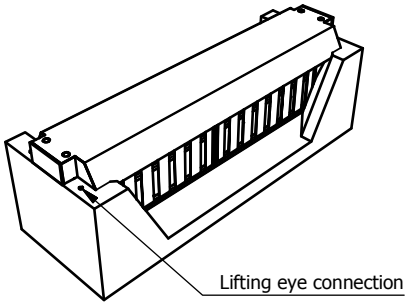
TYP:
ENVIA TRP D1A5N 125/250
Informational drawing
M= 1:25

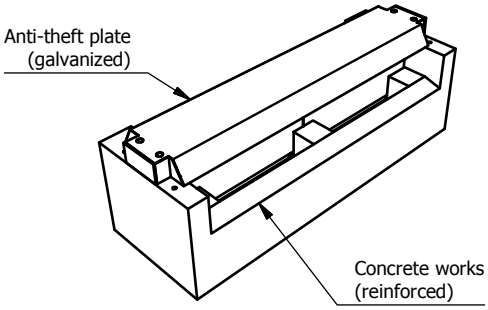
Cleaning capacity:	125	l/s
Total flow:	250	l/s
Efficiency:	5	mg/l FOG
Total weight:	1832	kg

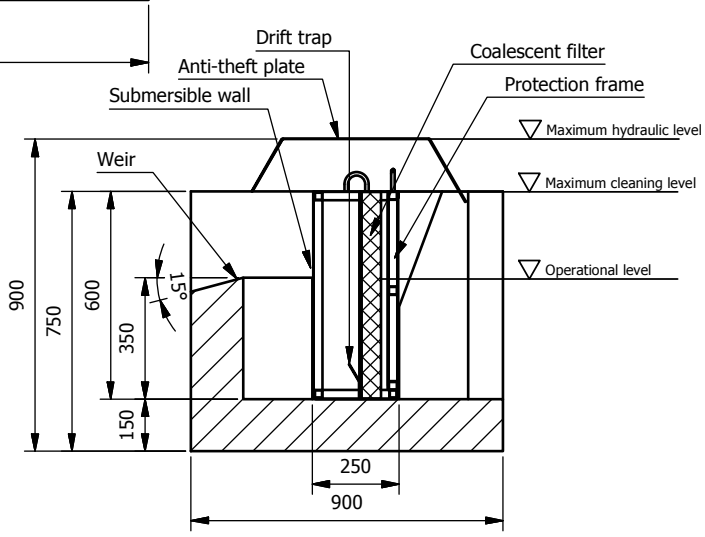












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TYP:

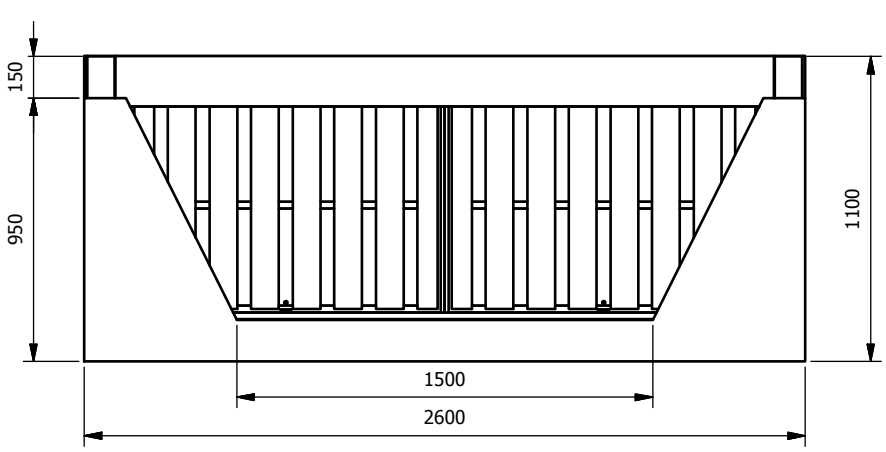
ENVIA TRP drift-trap and light liquid oil separator in open channel

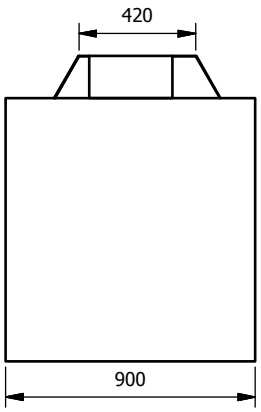
ENVIA TRP D1B5N

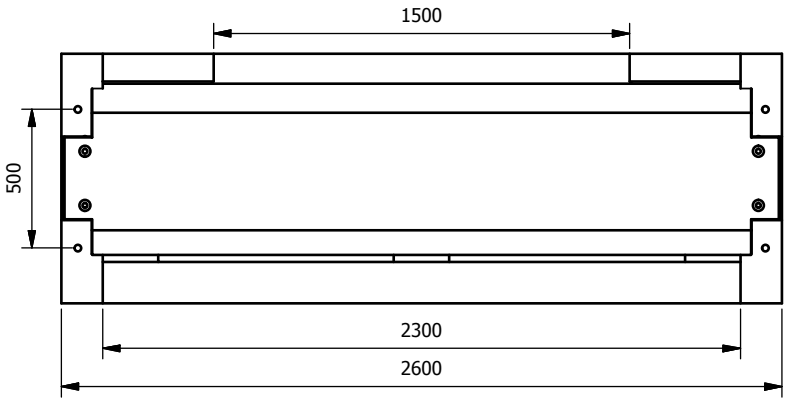
Informational drawing

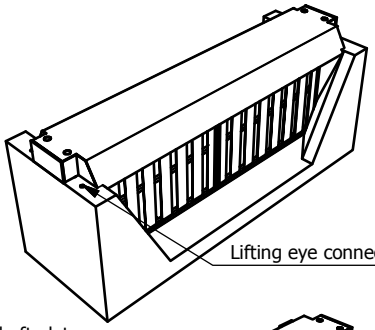
M= 1:25

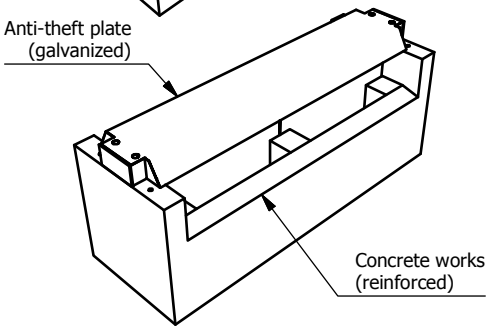
Cleaning capacity:	150	l/s
Total flow:	300	l/s
Efficiency:	5	mg/l FOG
Total weight:	2011	kg

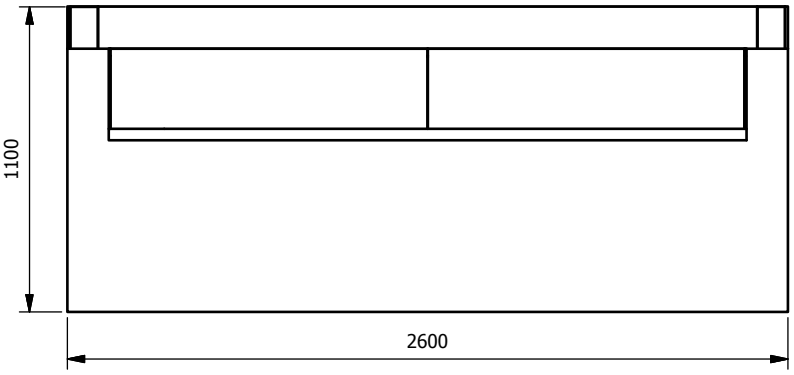


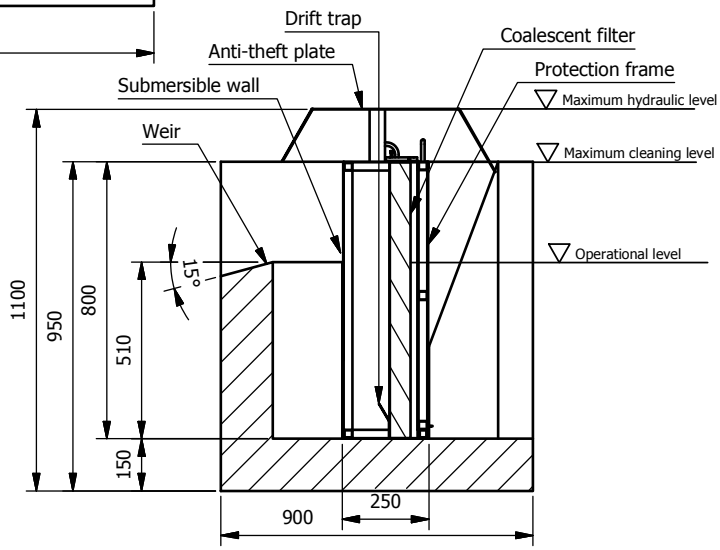












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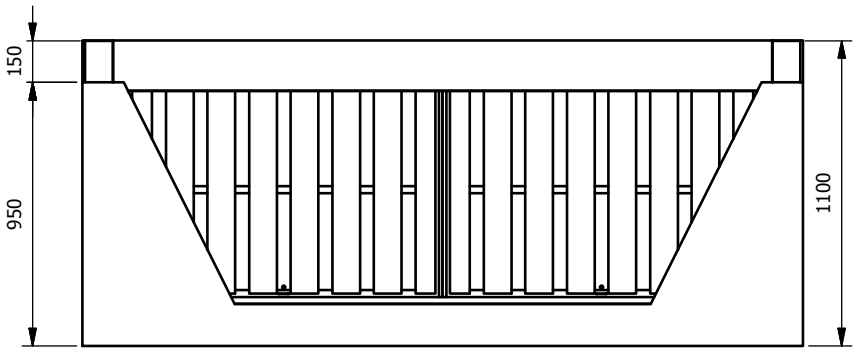
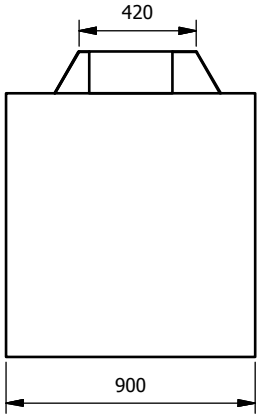
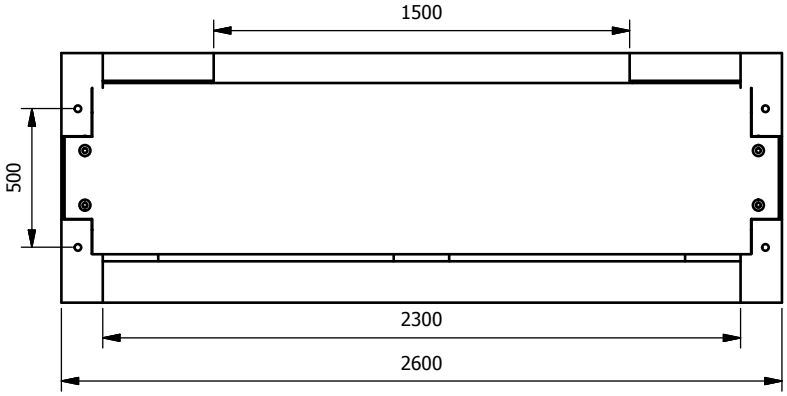
ENVIA TRP drift-trap and light liquid oil separator in open channel

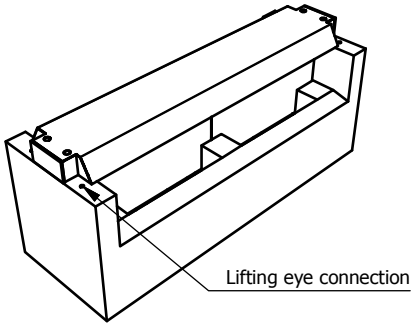
TYP:
ENVIA TRP D1C5N 200/350
Informational drawing
M= 1:25

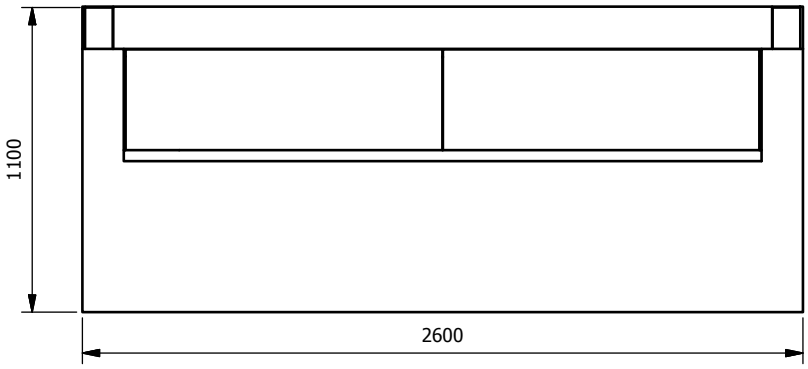
Cleaning capacity:	200	l/s
Total flow:	350	l/s
Efficiency:	5	mg/l FOG
Total weight:	2011	kg

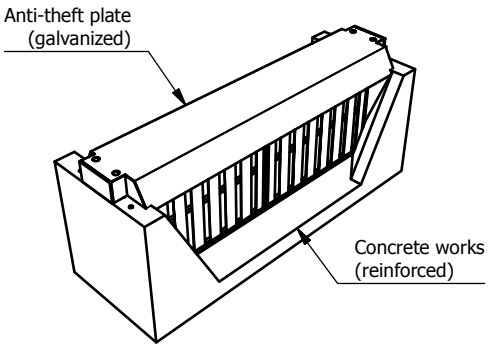


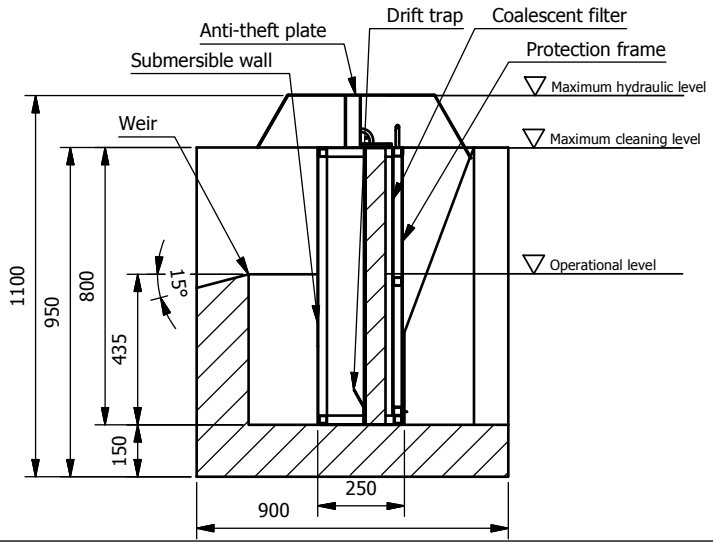












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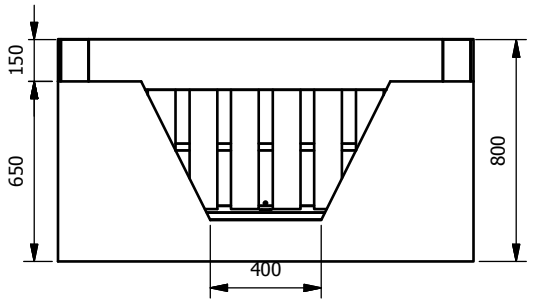
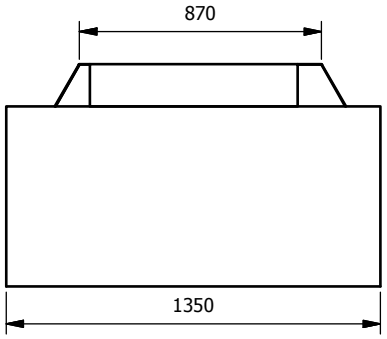
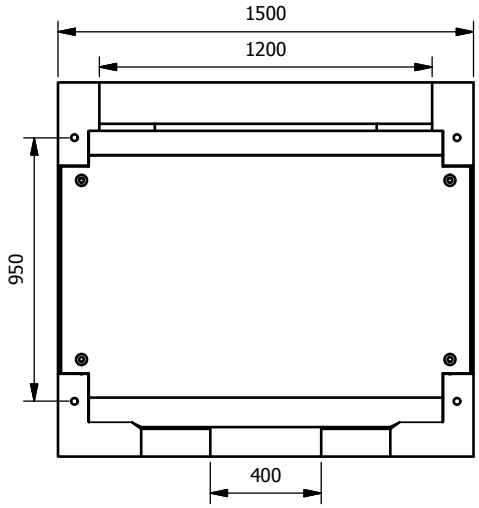
ENVIA TRP drift-trap and light liquid oil separator in open channel

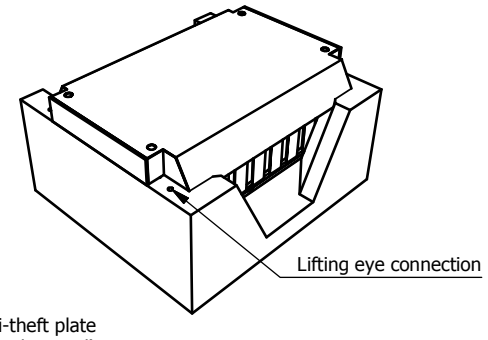
TYP:
ENVIA TRP D1D5N 225/400
Informational drawing
M= 1:25

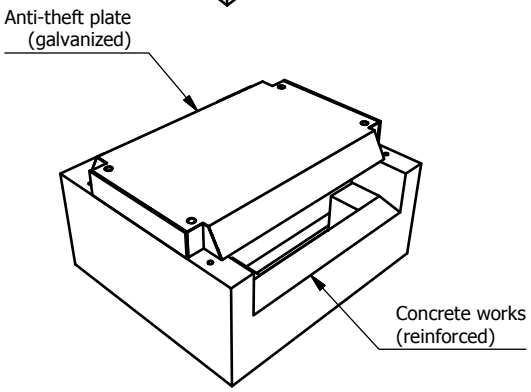
Cleaning capacity:	225	l/s
Total flow:	400	l/s
Efficiency:	5	mg/l FOG
Total weight:	2277	kg

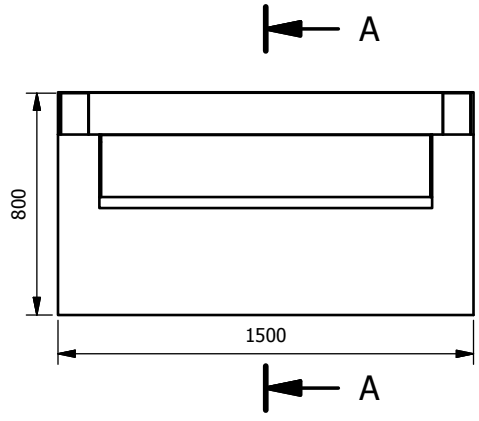


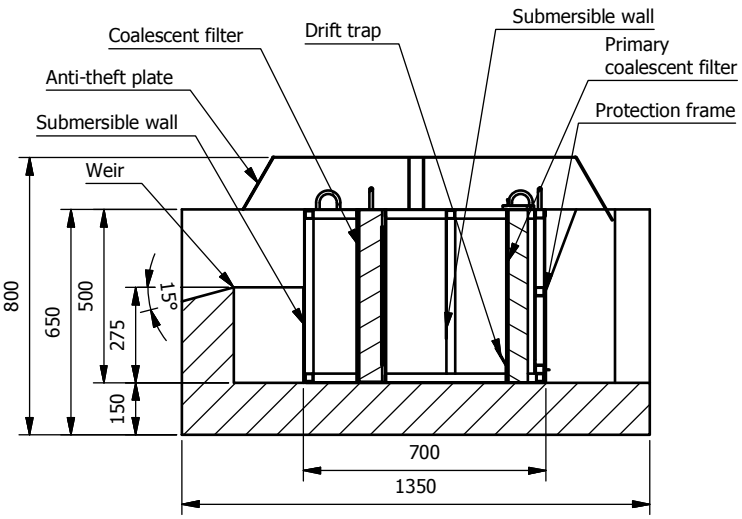












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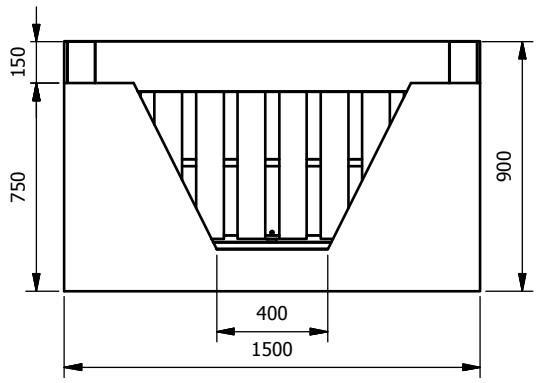
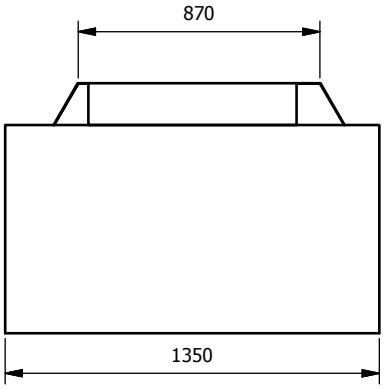
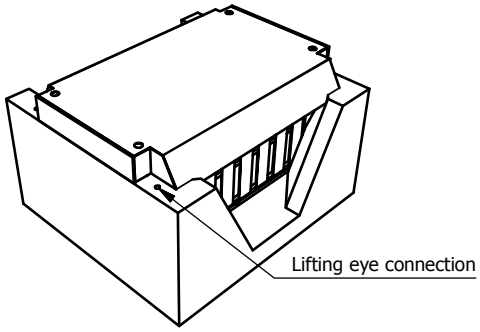
ENVIA TRP drift-trap and light liquid oil separator in open channel

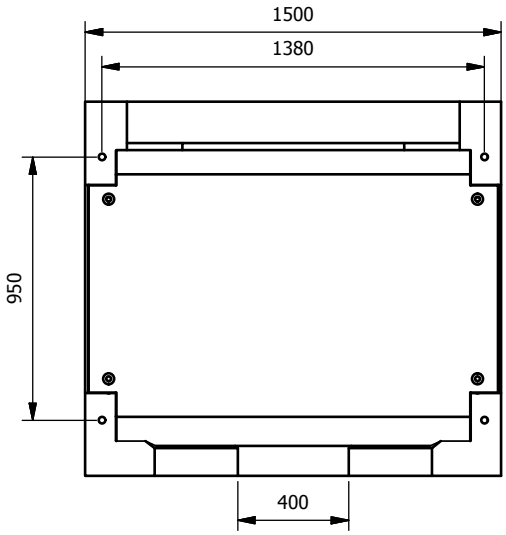
TYP:
ENVIA TRP M2A2N 40/80
Informational drawing
M= 1:25

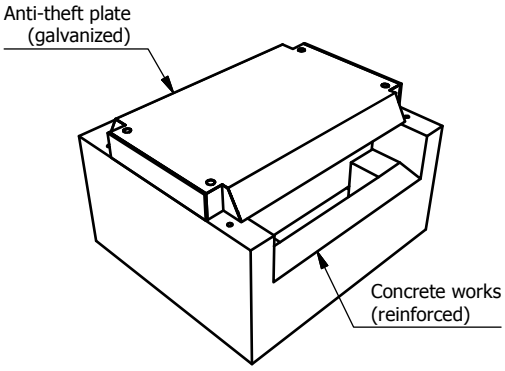
Cleaning capacity:	40	l/s
Total flow:	80	l/s
Efficiency:	2	mg/l FOG
Total weight:	1710	kg

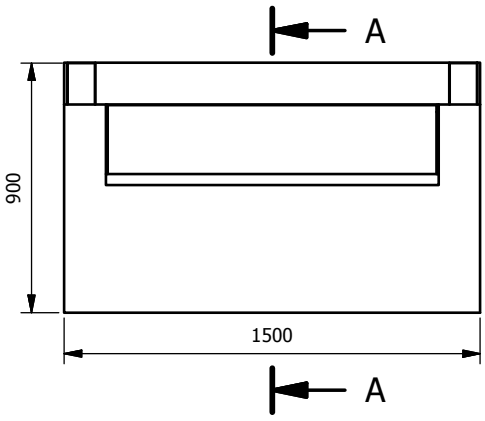


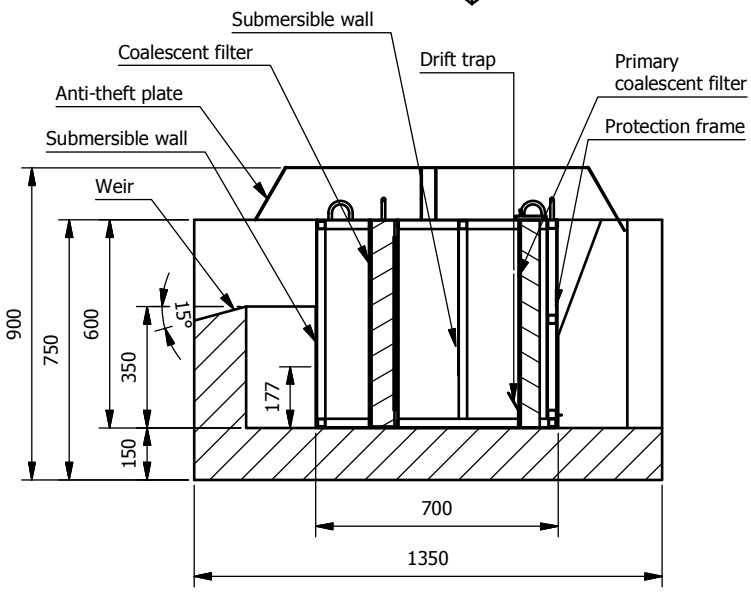












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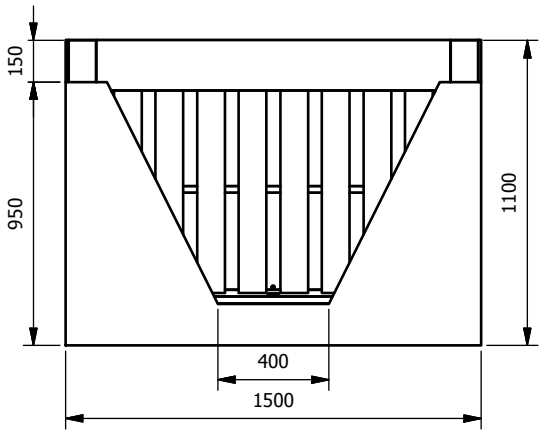
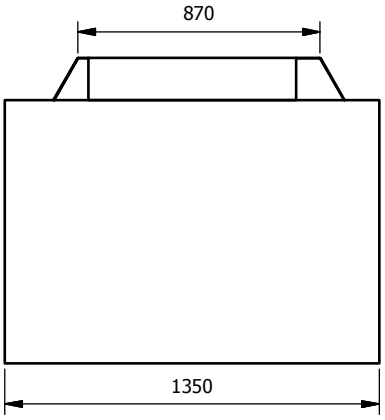
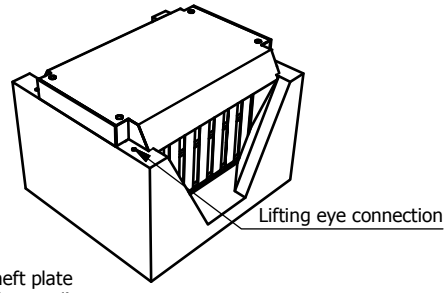
ENVIA TRP drift-trap and light liquid oil separator in open channel

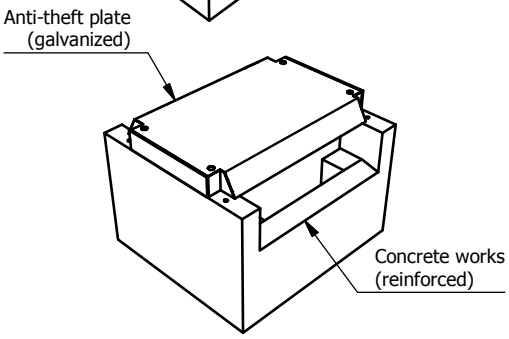
TYP:
ENVIA TRP M2B2N 55/110
Informational drawing
M= 1:25

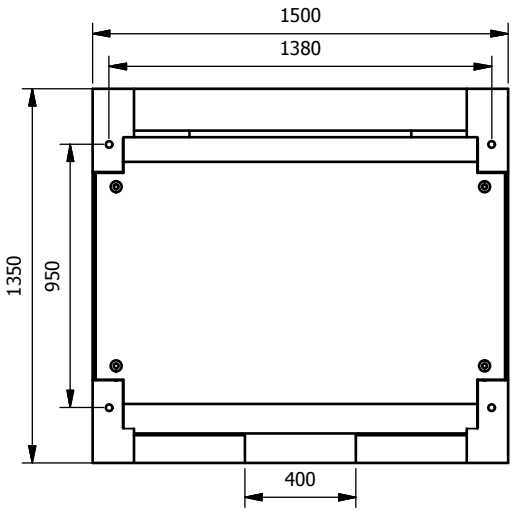
Cleaning capacity:	55	l/s
Total flow:	110	l/s
Efficiency:	2	mg/l FOG
Total weight:	1924	kg

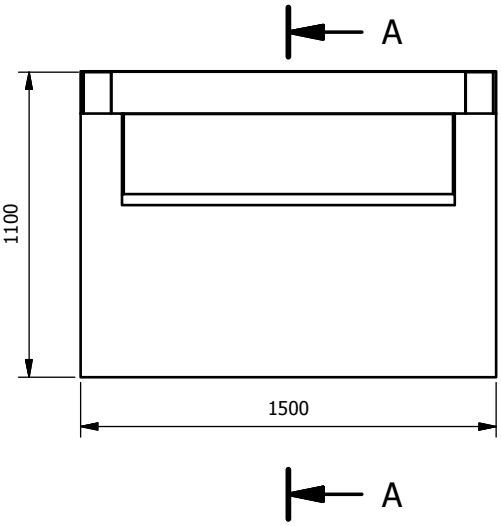


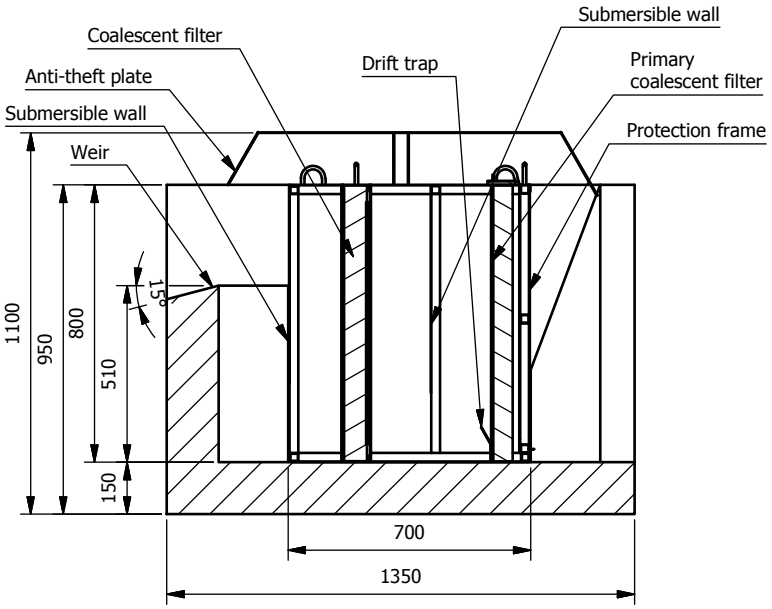












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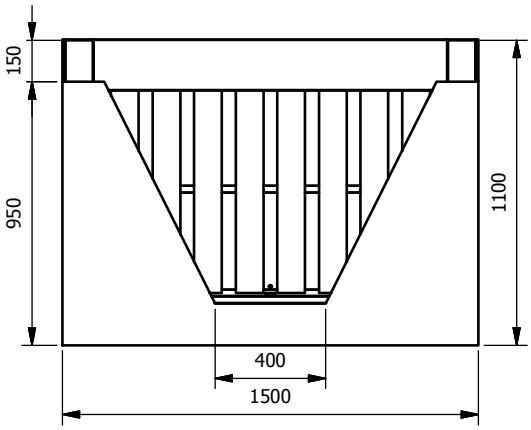
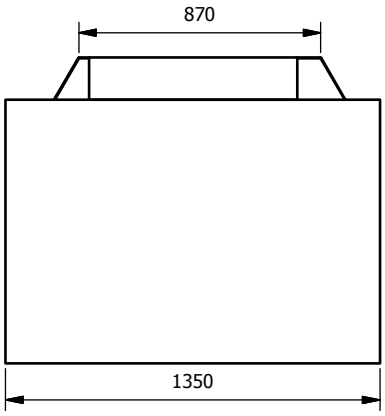
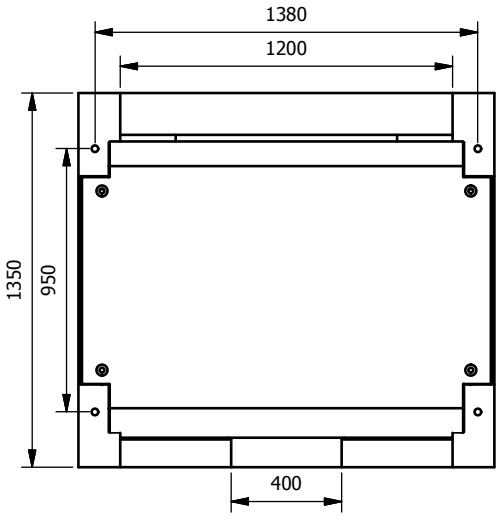
ENVIA TRP drift-trap and light liquid oil separator in open channel

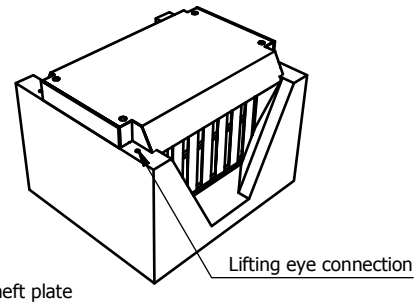
TYP:
ENVIA TRPM2C2N 75/150
Informational drawing
M= 1:25

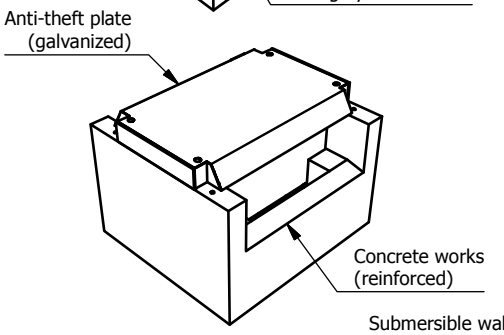
Cleaning capacity:	75	l/s
Total flow:	150	l/s
Efficiency:	2	mg/l FOG
Total weight:	2265	kg

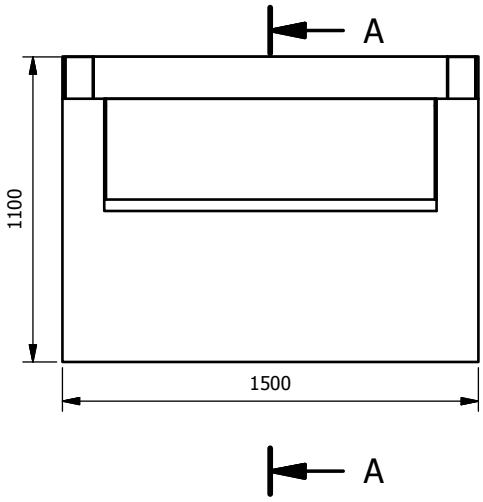


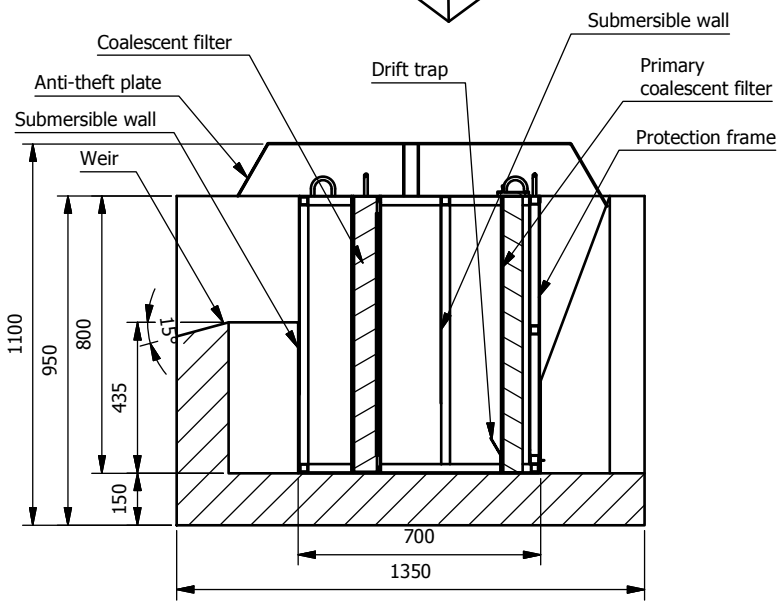












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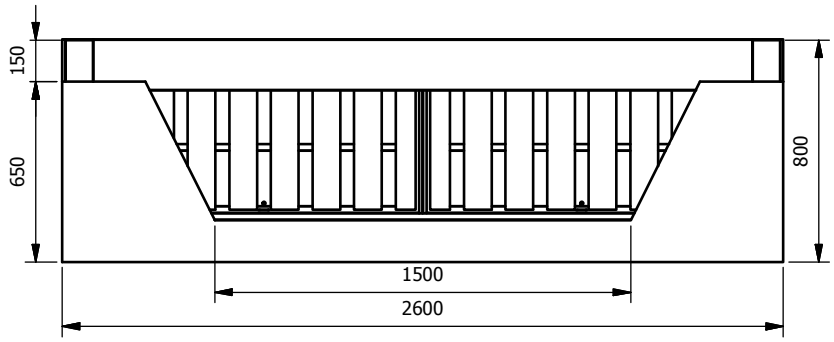
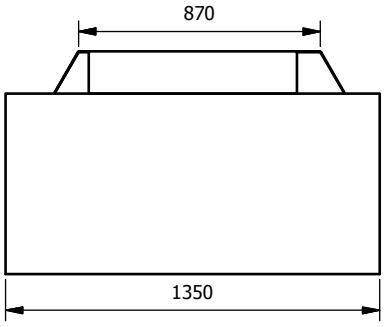
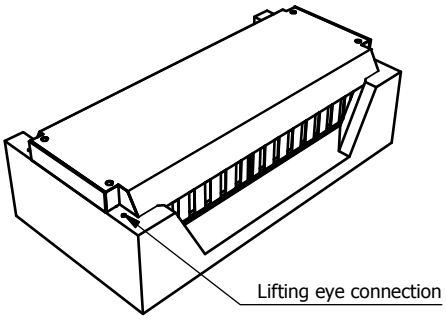
ENVIA TRP drift-trap and light liquid oil separator in open channel

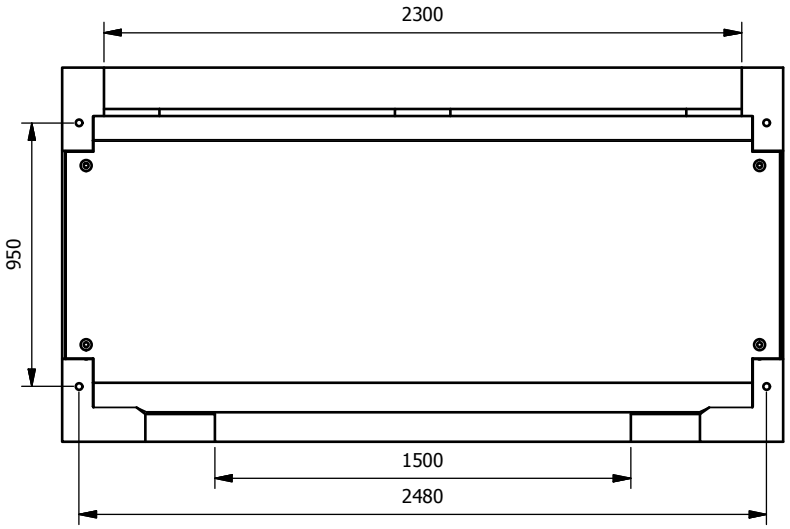
TYP:
ENVIA TRP M2D2N 85/170
Informational drawing
M= 1:25

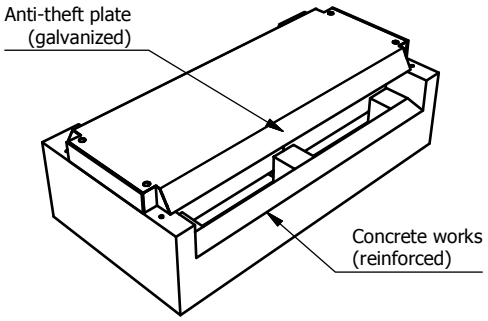
Cleaning capacity:	85	l/s
Total flow:	170	l/s
Efficiency:	2	mg/l FOG
Total weight:	2214	kg

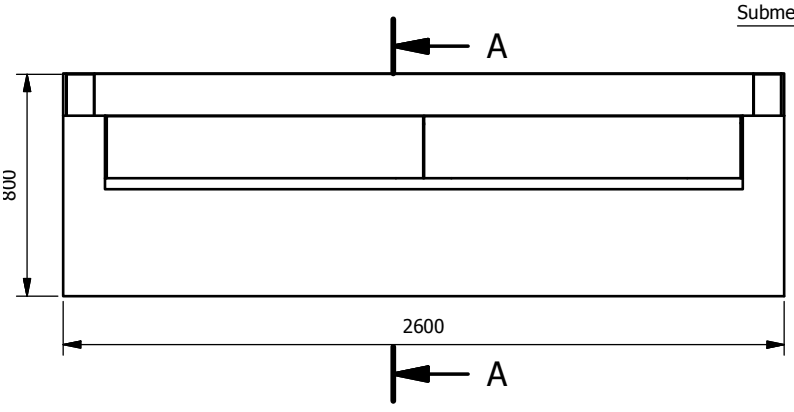


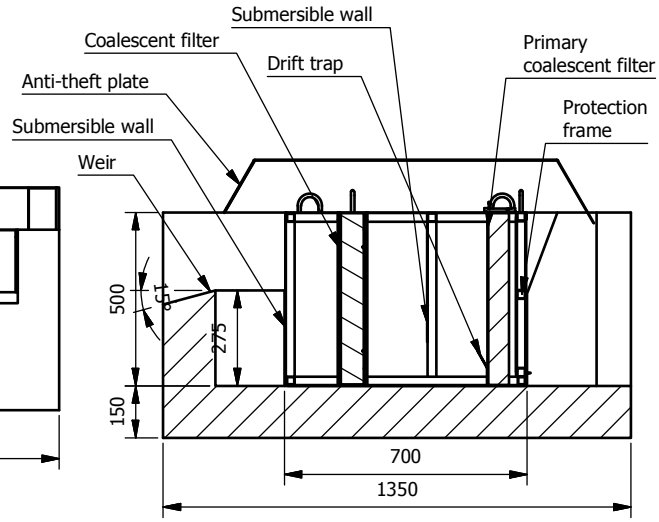












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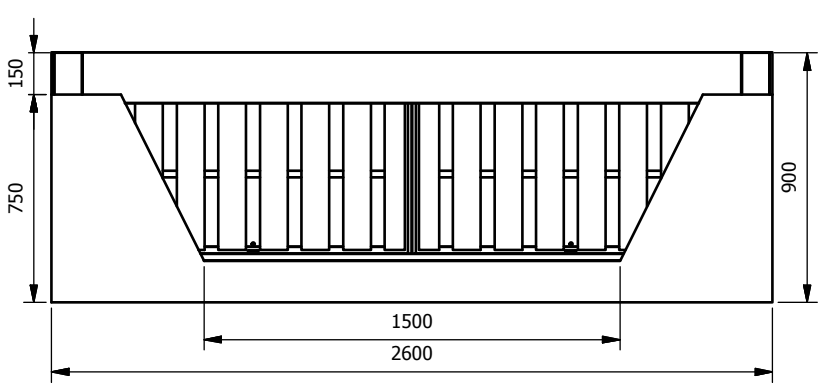
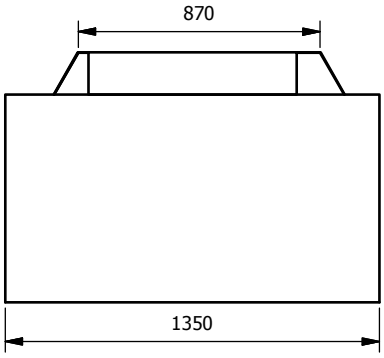
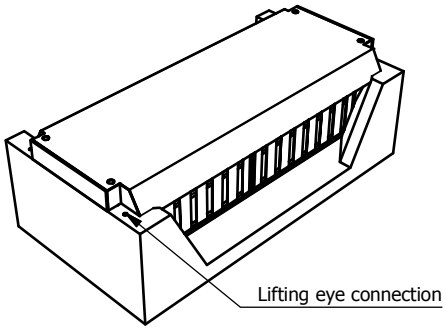
ENVIA TRP drift-trap and light liquid oil separator in open channel

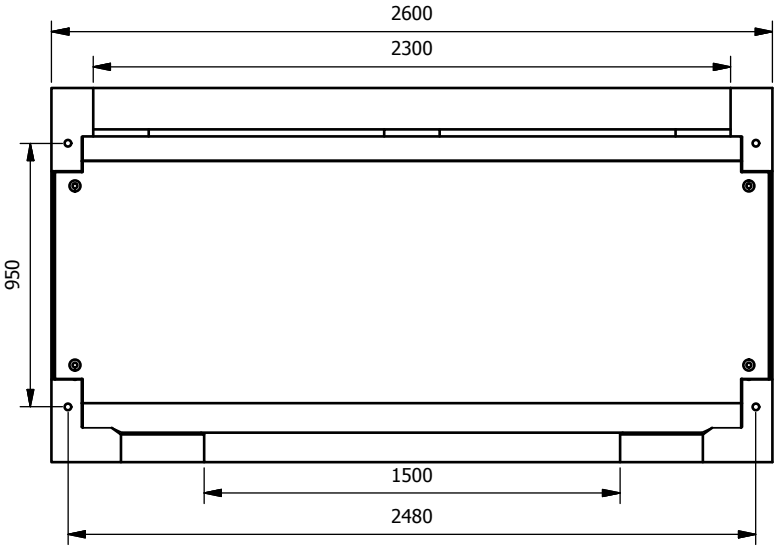
TYP:
ENVIA TRP D2A2N 100/200
Informational drawing
M= 1:25

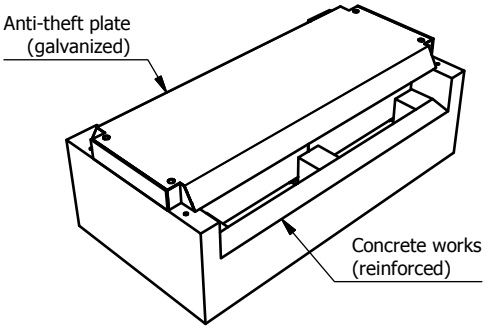
Cleaning capacity:	100	l/s
Total flow:	200	l/s
Efficiency:	2	mg/l FOG
Total weight:	2554	kg

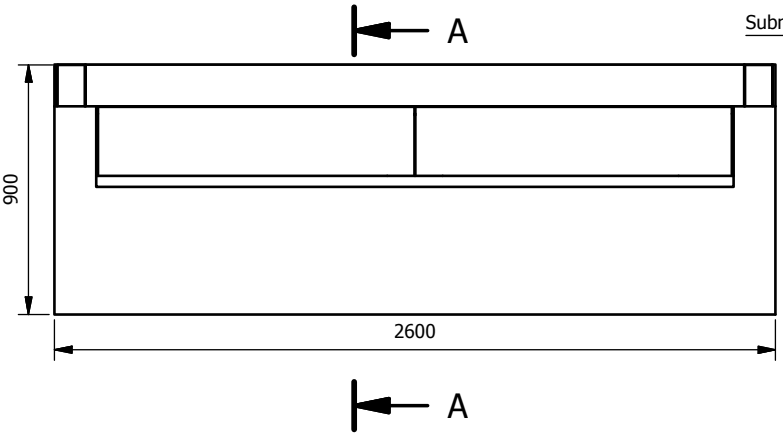


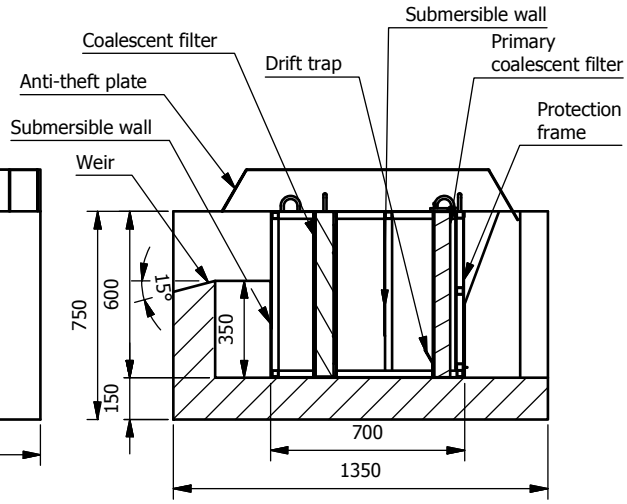












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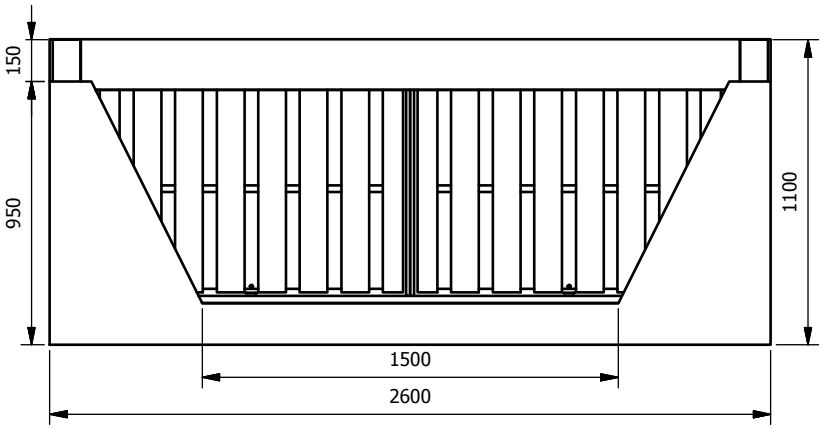
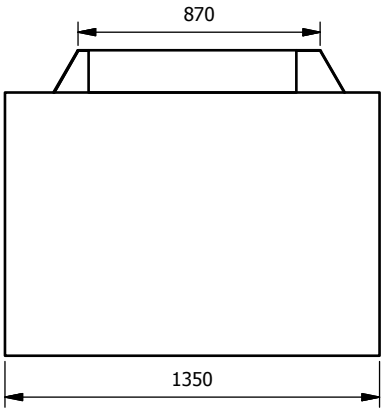
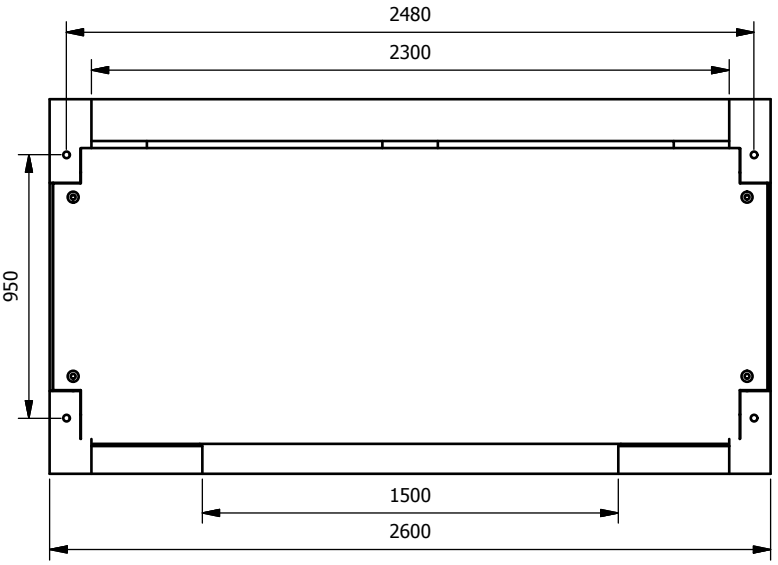
ENVIA TRP drift-trap and light liquid oil separator in open channel

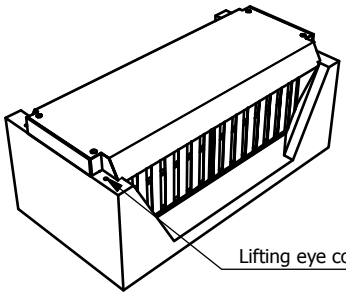
TYP:
ENVIA TRP D2B2N 125/250
Informational drawing
M= 1:25

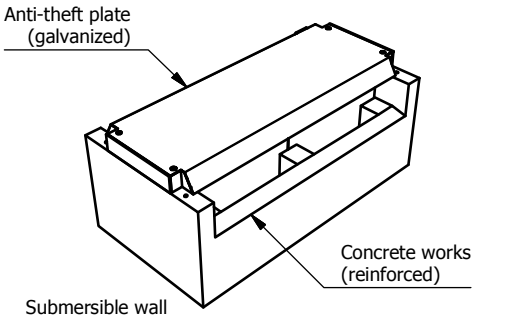
Cleaning capacity:	125	l/s
Total flow:	250	l/s
Efficiency:	2	mg/l FOG
Total weight:	2773	kg

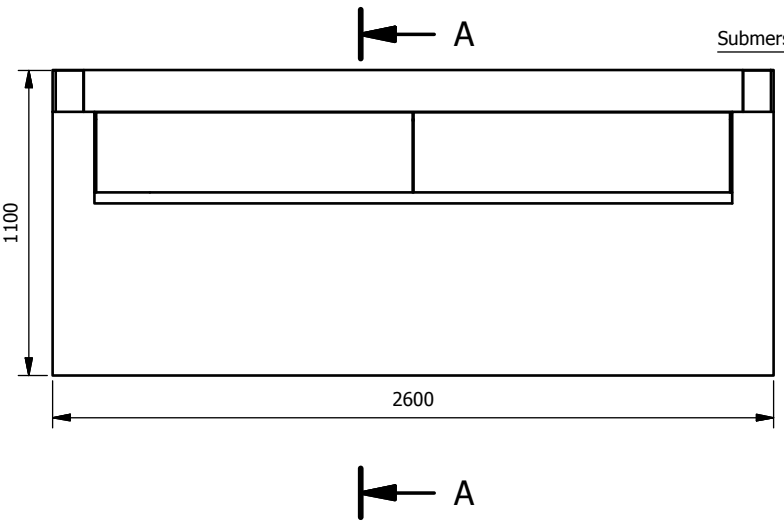


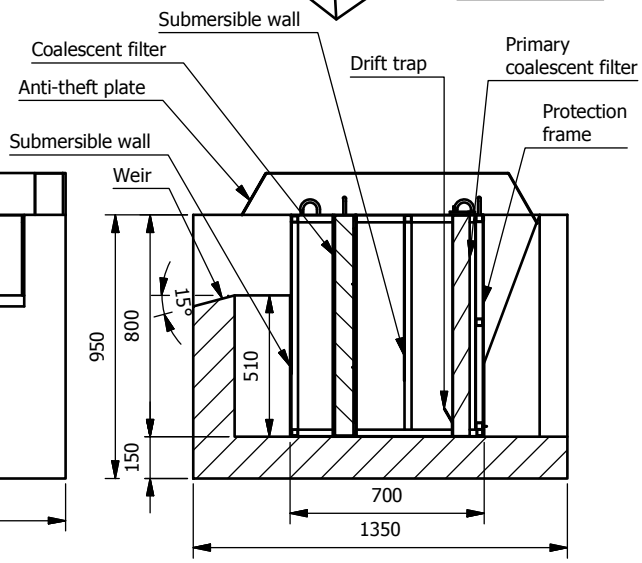












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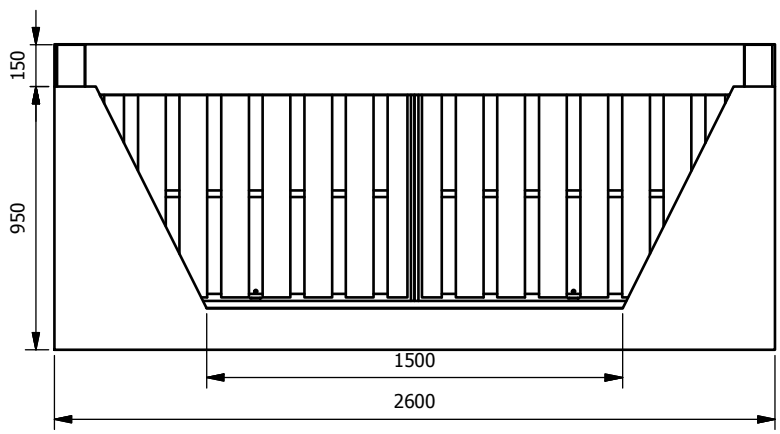
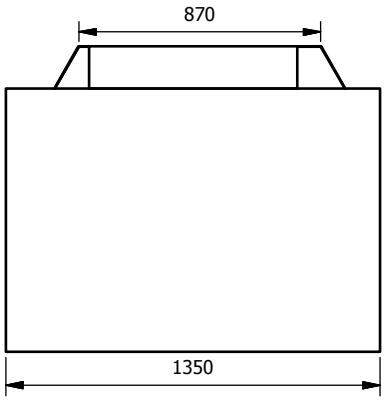
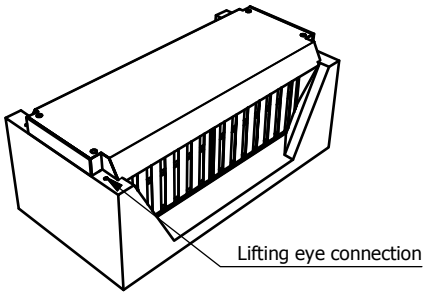
ENVIA TRP drift-trap and light liquid oil separator in open channel

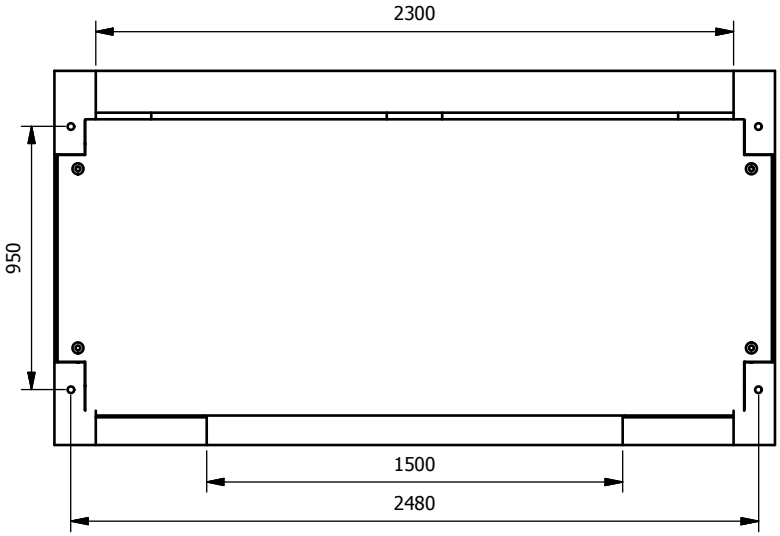
TYP:
ENVIA TRP D2C2N 180/320
Informational drawing
M= 1:25

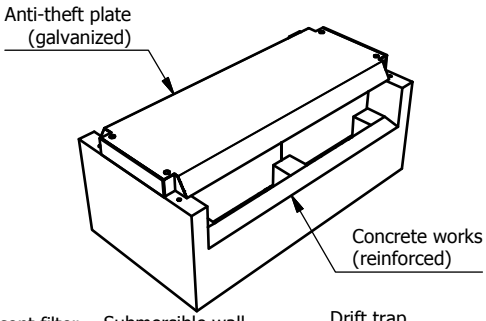
Cleaning capacity:	180	l/s
Total flow:	320	l/s
Efficiency:	2	mg/l FOG
Total weight:	3205	kg

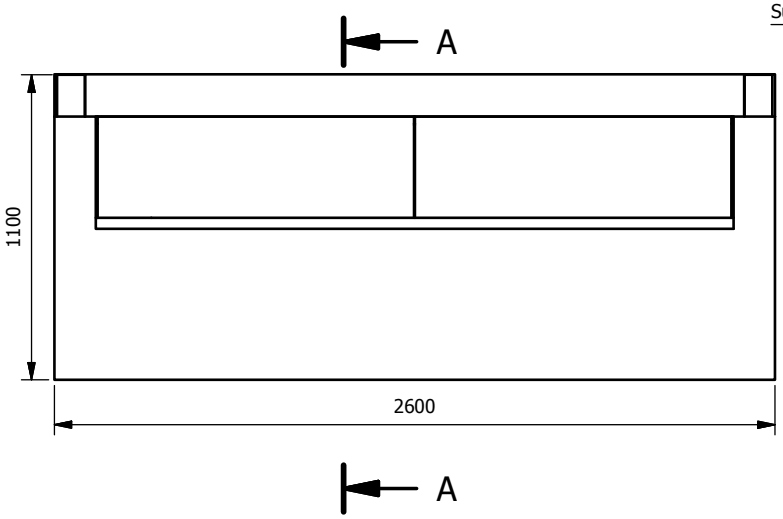


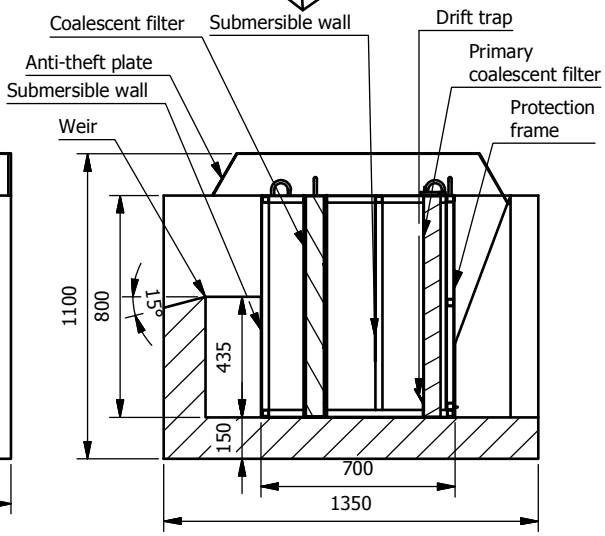












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ENVIA TRP drift-trap and light liquid oil separator in open channel

TYP:
ENVIA TRP D2D2N 200/360

Informational drawing

M= 1:25

Cleaning capacity:	200	l/s
Total flow:	360	l/s
Efficiency:	2	mg/l FOG
Total weight:	3120	kg

GENERAL INSTALLATION INSTRUCTIONS – ENVIA TRP

1. Work pit (ENVIA® TRP equipment)

A work pit with a square footprint must be made, by a slope or by strutting, depending on soil stability. Taking into consideration the stability and the supporting solutions of the work pit, the purpose is to make the smallest possible work pit necessary for receiving the prefabricated reinforced concrete receiver unit, in order to ensure that the axis of the crane's erection point (king axis) should not be too far from the installation axis, but still it should not jeopardize safe working.
If, according to the soil mechanical expert's opinion, the ground is hard enough, the lower part of the work pit can have vertical sides, and it is enough to make a slope only at the upper part.
The size of the work pit (sole dimensions): the outer contour dimensions of the receiver reinforced concrete unit + about 60 cm at each side to allow for lifting the equipment in, and for compacting.
The construction works of the work pit itself, as well as the works performed inside the work pit must be in compliance with the relevant health and safety provisions.
The points at which the crane supports itself on the ground shall be outside the breaking area around the work pit; if it is not possible, the work pit must be supported; the extra loads must be taken into account when establishing the dimensions of the supports (without anchoring or strutting, the work pit must not be loaded by the crane within the breaking area).
Depth of work pit: the installation depth of the receiver reinforced concrete unit plus the thickness of the layer of the receiver level.
The construction of the receiver level depends also on the soil-mechanical properties of the installation site; care must be taken to make proper foundation, taking into consideration the water pressure swelling in front of the equipment.
The receiver reinforced concrete unit sits onto the top of a concrete wall that closes down the drift-trap box being in front of the equipment, therefore the closing wall must be made to be able to bear loads to the required depth.
It is not allowed to place the receiver reinforced concrete unit directly into the work pit (onto the natural soil); if the work pit is excavated before the installation works take place, it must be covered if possible (to protect it against storm waters); it must be cordoned off in accordance with the specifications, as well as it must be illuminated under special installation circumstances (busy traffic).
The work pit must be protected against spontaneous waters coming from the upstream side during construction; such waters must be led away by-passing the work pit.
Should the completed soling get contaminated (falling earth, slurry, snow, etc.), it must be cleaned before the receiver reinforced concrete units are installed to avoid unwanted sinking in the future.
If it is necessary to remove water, we recommend the following method (if the water removal is possible through open water keeping): an enlarged work pit with a sump necessary for pumping.
In the case of open water keeping, care must be taken continuously to avoid hydraulic soil breakages, with special view to dynamic exposures during crane-use.
When the soil is susceptible to collapsing or breaking, either a closed row of planks or a sheet wall piling must be applied for strutting the work pit.
When the groundwater level is too high, or when an open water keeping is not applicable, the water must be removed from the soil by vacuum wells.

2. Putting the equipment to its place (ENVIA® TRP equipment)

- The prefabricated reinforced concrete receiver unit should be placed into the work pit by a crane, which should be selected by taking into consideration the place of the crane's sole, the weight of the unit to be lifted, and the required load-bearing capacity.
- A table can be used for selecting the best crane, however the best solution is to survey the site in advance.
- The ground conditions necessary to support the crane properly must be ensured.
- Access to the work pit must be provided through the construction of a road with the required load-breaking capacity, taking into consideration also the fact that the reinforced concrete units are transported by lorries used normally on public roads.
- If the employer assigns the task of transportation to the manufacturer, self-loading vehicles will be used in that case (also for smaller equipment, so the transport vehicle must be able to stand directly near the work pit).(This must be settled in advance in each case, otherwise the manufacturer/deliverer should not be obliged to lift the pieces into the work pit!).
- A rope with the required load-bearing capacity should be used for placing the reinforced concrete receiver unit into the work pit. The hoisting rope should be connected to a balance. It is forbidden to use the rope for lifting when it is in a vertex angle! In opposite cases the cover plate and/or the spacer fixed by adhesive to its side (that makes proper installation possible) may get deformed or damaged.
- The „monocules" or the hoisting hooks must be hooked into the four RD24 hoisting loops that are screwed into the LOWER hoisting sockets until collision; (the hoisting pin – Dübel - is installed in the side of the reinforced concrete unit)
- Upon specific order, the supplier provides a set (4 pcs) of hoisting loops for the installation, which is invoiced to the customer; if several units are installed, these loops are reusable: they should be removed from the already installed reinforced concrete unit, and they can be

used for the next one too. If the customer returns the hoisting loops in proper condition after the installation is complete, the supplier will repay 75% of the price it invoiced for the hoisting loops.

- If the ropes are used without a hoisting balance, there is a risk that the receiver reinforced concrete unit and the cover plate break in; the manufacturer refuses to undertake responsibility for damages or accidents caused by such practice.
- The inlet and the outlet side of the reinforced concrete receiver unit is marked accordingly, which should be taken into consideration for its installation. The flow bottom level must be checked before the unit is lifted in, and it must be adjusted to the height of adjacent ditch sections and/or the drift-trap box.
- The reinforced concrete receiver unit and any possibly installed mechanical units must be checked for damages; if damages are found, it must be immediately reported and documented.
- The customer and the constructor shall be obliged to make a statement on the condition of received equipment, when its delivery (handover) takes place
- It is practicable to put the reinforced concrete receiver unit to its place by hoisting to the properly prepared receiver floor in such a way that the contours or at least its axis and corner points are marked in advance on the receiver floor.
- It is forbidden to go down to the work pit before the structure hangs only by 20 to 30 cm above its place.
- Two persons must perform the accurate positioning of the reinforced concrete receiver unit; during the hoisting operation these two people should turn the units to the right position, within the marked points.
- It is practicable to have a third person who watches and guides the positioning operation; the purpose is to ensure that the axis of the reinforced concrete unit should coincide with the flow axis.
- If the equipment is installed in such a phase of the construction works, when there is a danger that the process equipment gets damaged or overloaded (mud washed in from the refilled earth), we recommend that the process equipment should be installed later into the receiver reinforced concrete unit; the supplier is ready to carry out these operations, against a fee, when the required conditions are available.
- The reinforced concrete receiver unit should be positioned to be horizontal, being in the same plane with the bottom level of the drainage ditch.

3. Connections

- Efforts should be taken to ensure that the equipment is installed in such a manner that – footprintwise – the axes should fall into the same line (the axis of the inlet channel and of the outlet channel, and that of the structure); in the height perspective: the flow bottom levels should be on the same level.
- The connection between the structure and the ditch section should be made so, that it should prevent the leakage of water and, through that, the collapse of the structure's foundation.

4. Backfilling

- After the receiver reinforced concrete units have been lifted in, and adjusted into their place, then the backfilling works may commence.
- Backfilled earth must be compacted in accordance with the designer's provisions based on the installation circumstances, with special view to possible collapses due to posterior solidification.
- When the covering layer is applied, attention must be paid to possible depressions around the reinforced concrete structure; the installed mechanical systems should not get injured, and earth should not enter the structures (for this reason it is practicable to cover the reinforced concrete unit, and the filter box should be installed in the reinforced concrete unit only after the earth works and pavings have been completed.

5. The construction and pavement of watercourse-beds

In front of the equipment an anterior bottom and a paved ditch section should be constructed, which functions as a settlement area and a storage area during the operations.

In the upstream bed section, a drift-trap „box" should be constructed either from prefabricated pavement blocks for ditches and watercourse beds, or from a monolythic structure; this box should be installed below the flow bottom level of the ditch, in accordance with the construction drawings and documents.

The water bed must be paved (with bed-paving concrete blocks) inside the swelled upstream area, its length should be at least the length of the drift-trap box, and its height should be the same as the maximum swelled process water level.

The equipment should be concreted (at those sides of the equipment that are in right angles with the flow direction), up to the height of the equipment (including also the cover plate) in such a manner that allows the cover plate to be lifted from the equipment during the

operation; the vertical plane of the on-site concreting should not reach above the structure; it should coincide with the outer plane of the styropor plate glued to the cover plate.
When the water quantity is more than the water flow that belongs to the maximum hydraulic permittivity, excess waters tip over the filter box; for this reason at least one row of bed-pavement concrete blocks should be installed at those sides of the prefabricated reinforced concrete receiver unit, which are parallel with the water flow, in order to protect the slope; on the upstream part: in a length of min. 4 m from the axis of the equipment; on the downstream part: in a length of min. 2 meters.
The narrowed ditch parts, and the backfills (required for the proper installation of the reinforced concrete unit into the ditch section) should also be covered by appropriate paving.
A water-jump occurs on the outlet-side after the weir wall; for this reason the ditch should be paved in at least a 4-m length, up to the height of the maximum swelled process water level.

6. Putting the system into operation

Any contaminating materials that may have entered the structure must be removed in the commissioning process.
Into the cleaned reinforced concrete receiver unit, the filter box (containing the process elements) must be lifted in by a crane in such a manner that the flow-breaker lamellas should face the inlet side.
After the filter(s) are removed, the theft-prevention pins – Dübels - must be installed into the holes that are bored in advance into the side walls of the reinforced concrete unit. Then the filter(s) should be put back to their place.
In the upper part of the side walls of the reinforced concrete receiver unit 4 pins – Dübels - are installed in accordance with the bore holes of the cover plate; the cover plate should be put on its top. Attention! These pins are not suitable for lifting the equipment!
After the theft-preventing cover plate has been put to its place, 4 individually designed bolts must be fixed into these 4 pins by using an individual tool manufactured specifically for this purpose. Attention! This tool must be handed over to the operator in the Handing-over process.
The installed process filter box must be inspected visually. If external injuries are not observed, the equipment is ready to receive water for treatment.

7. Health and safety instructions

The in-detail health, safety, and security provisions pertaining to the time of the construction works must be observed in accordance with the time of the year, the weather, and the installation site, and in accordance with the designer's provisions specified in the design documentation of related works.
Before work is started, the work tools must be checked whether or not they are damaged; Only properly trained personnel should be allowed to perform work, under continuous technical supervision and guidance.
Before the work pit is excavated, information should be collected whether such public utility lines should be accounted for in the area in question, which are not explored properly or whose traceline is not known.
Increased attention is required in the environment of power or communication lines being in use (overhead or earth cables) as well as in the vicinity of gas pipelines. If possible, power must be switched off in the lines in question.
General health and safety provisions for the hoisting and handling of loads must be observed when works are performed with cranes.
It is STRICTILY FORBIDDEN to stay inside the hoisting zone of cranes, or under hanging loads. The hoisting operations must be led by a responsible leader or craneman; hoisting of loads may start only when this person indicates so; this is applicable for the performing of any other operations.
It is the craneman or the leader who controls the works who should command (in accord with the signals provided by the person who does the job e.g. the positioning) that the load can be lowered, or the hoisting power should stop or start; when an „empty hook" is lifted, care must be taken to ensure that it should not cause damages (by swinging) to already installed mechanical equipment.
It is FORBIDDEN to stand on the reinforced concrete unit during the process it is lifted in.
Loads should be moved very slowly; the structure's weight is several tons, therefore it has a high inertia.
In the tight space that occurs in the work pit, work must be done very carefully so that the structure should not squeeze anyone to the work pit wall during the positioning process.
It is forbidden to stand or jump on the top of the mechanical parts installed into the reinforced concrete unit, or on the theft-preventing cover plate, and it should not be exposed to any other loads, as this may cause accidents or damages.
Protective gloves and protective helmets must be used when work is performed.

GENERAL OPERATION AND MAINTENANCE INSTRUCTIONS – ENVIA TRP

INTRODUCTION

This present operation instructions contains general information on the operation of sludge trapping and mineral-oil separating equipment type ENVIA TRP, manufactured and distributed by PURECO Kft.; it provides support to the operator of the equipment, enabling it to carry out this task even on its own safely from the environmental perspective. If the provisions of this document are met, the distributor undertakes to warrant the compliance of the effluent with the relevant provisions.

Light-liquid separator equipment are responsible for cleaning waters contaminated by mineral oils or by settling or suspended particles before such waters are introduced to their respective receiving bodies. Regular inspection and maintenance are preconditions for the effective operation of the equipment. The responsibility for damages due to insufficient or a completely missing maintenance and inspection shall rest with the operator, therefore you are kindly asked to carefully study and observe the provisions of this document. The operator is responsible for the surveillance of the equipment, so these tasks must be carried out even if the regular (6-monthly) maintenance is outsourced by a contract to Pureco Kft.

An anterior bottom and a covered ditch section constructed in front of the equipment are also parts of the process; these parts function as a settling area and a storage facility during the operations; it is important to construct these parts in accordance with the drawings, as they must be dimensioned in accordance with the expectable hydraulic loads and loads due to contaminants. A design aid is available for the dimensioning work. A final weir is installed as part of the equipment; this weir dams up the water on the upstream part of the ditch or water course; this way it creates the above-mentioned, natural storing and settling area, whose dimensions, length and volume, depends primarily from the design/slope of the ditch; this is made complete by a drift-trap „box"; this box should be installed under the flow bottom level of the ditch, made from prefabricated pavement elements for ditches and watercourse beds. The useful volume of this drift-trap box should be equivalent (in m3) with 1/100 of the rated capacity of the planned equipment, specified in l/s. The equipment, cooperating with the storage tank before it and with the drift-trap box work on the principle of separating physical phases; materials lighter than water flow up to the surface already in the storage area; materials, heavier than water settle down. The process components made in the equipment do not allow these materials to leave or to flow away through the equipment towards the saved side. After the installation is complete, construction debris and earth fallen into the equipment must be removed; with this the equipment is ready for operation.

The loads occurring as a result of the composition and the volume of wastewater must always be in compliance with the design- and dimensioning values.
For the cleaning of panelled surfaces, neither chemicals nor such agents that cause oils to emulsify or to get solved should be used. This equipment is not designed to retain detergents („washing agents") or materials harmful to waters (e.g. acids, alkali, or mineral salts).

DESCRIPTION OF THE OIL SEPARATOR EQUIPMENT

The separator equipment is installed in the way of stormwater flowing towards the receiver water course, typically in open-surface, paved channels or ditches. A prefabricated reinforced concrete unit accommodates the equipment; this element has an inlet side suitable to receive contaminated storm waters, joining to a drainage ditch section; it has an interim space suitable for separating light liquids, and it is also equipped with an outlet side to let treated water to flow away; its task is to create the dammed-up water-level necessary for the operations; the interim space is equipped with a filter insert.

Operating principles:
The stormwater to be treated flows through a lamellar frame (that can be pulled out for maintenance) located on the inlet side of the filter box; the lamellar frame has the following functions: energy-breaking; protection against frost and shading (protecting the coalescent filter material against UV-radiation).
The three main parts of the lamellar frame are the pull-out handle, the holding frame and the lamella sheets.
After that the water flows through the coalescent filter material that binds suspended micro oil drops that cannot flow up; it binds them on its surface due to its oilophylic and hydrophobic properties; when a sufficient number of micro oil drops are present and they are bound in sufficient vicinity, they coagulate to be an oil drop large enough to be able to flow up to the surface; the water flowing through the filter causes such drops to flow up on the other side of the filter.
The filter box has a self-supporting frame structure, which is made stronger by submerging wall(s) and weir wall(s), which are a must from the process perspective too.

The complete surface of the filter box is covered by a corrosion-proof steel shell. There are handles that serve the purpose of lifting out the filter box from its place. The water level inside the filter box is permanent, ensured by the last weir wall. The submerging wall(s) hang into the permanent water level; their function is to retain light liquids that float on the water surface. The role of the last weir wall could be played by a prefabricated reinforced concrete receiver structure, equipped by an appropriate weir edge, which is expressly intended to accommodate the filter box. Incoming water is spread inside the concrete structure in order to ensure that the loads by water are distributed over the total sectional surface of the filter box; as well as the concrete supporting blocks, made inside the concrete structure, should take up the water pressure the filter box is exposed to.

Sub-assemblies:

Prefabricated, reinforced concrete receiver unit:
This is a reinforced concrete structure, prefabricated at the manufacturing site, suitable for receiving the complete filter unit; it is suitable for connecting to the drainage-ditch section, and it carries the last weir wall that is indispensable from the process perspective. This unit is made in a design and size that meets the desired treatment efficiency requirements and the water flow volumes to be treated. When the water flow is more than the design water flow, excess water tip over the filter box; for this reason at least one row of concrete ditch-pavement panels must be installed, in order to protect the slope, at those sides of the prefabricated reinforced concrete receiver unit, which is parallel with the flow direction; also the narrowed-down parts of the ditch, necessary because of the installation of the reinforced concrete structure, should be provided with an appropriate pavement.

Dammed-up space and drift-trap box:
The characteristics of the space in which the water is swelled up by the weir wall of the prefabricated reinforced concrete receiver unit is that it creates an open-surface water-area and, at the same time, it has a longitudinal settling effect and a flow-balancing effect. The advantage of open-surface water storing is that it makes possible the departure of volatile contaminants washed down from the road pavement; further, the solar UV-radiation facilitates the degradation of hydrocarbons that flow up to the surface in the storing area. Through active evaporation the water level in the storing area gets lower, even to such an extent that settled drifts come out to the dry atmosphere (it may even dry out), which considerable simplifies the removal of drift from the drift-trap box; the quantity of hazardous waste to be disposed of lessens, as well as the fees of transportation and disposal in a landfill. Inside the dammed-up area, the water-bed must be paved up to the maximum, swelled-up process water level, and in a length of at least the length of the drift-trap box.

Cover plate to protect the structure against theft
There is a hazard of theft or injuring the filter box made from corrosion proof steel; for this reason we have equipped the unit by various mechanisms/parts that protect it against theft. One of such solutions is a cover plate (to protect the structure against theft) that covers the filter box over its top, and prevents it from catching the eye by its shine when viewed from the road; this plate also functions as a physical barrier for the removal of the filterbox. The cover plate is connected to the prefabricated reinforced concrete receiver unit. We fix also the filter box itself to the receiver reinforced concrete unit by bolts at plural points.

Flow-breaker lamellas:
At the point where the flow enters the treatment system, a flow-breaker is installed, which can be lifted out, but it cannot be removed from its place (see: the maintenance chapter). It has a construction that ensures that the energy of water is broken, and the flow is guided to the proper direction. As the water flow slows down due to the flow-breakers, coarse granules, sand, and sludge (eventually with adherent oil drops) settle down to the bottom, or into the drift-trap box, as they are heavier than water. The lamellas act also as the first delineating and supporting structure for the filtering insert.

Coalescent filter:
The water distributed by the flow-breaker lamellas flows evenly onto the surface of the filter, over the whole cross-section. The insert works on the coalescence principle: it retains suspended particles together with the oil contaminants that stick to such particles; these are stored inside the filter material; it also causes the micro oil droplets being in the suspended phase to cohere to its surface; then, after an appropriate size of oil drops is reached, it causes them to flow to the surface. The filter-insert material has a turquoise blue colour, which changes its colour due to the retained materials; the filter insert must be replaced by a new one when its original colour cannot be restored after washing.

Sludge-retaining wall:
The oily sludge that coheres to the filter material, and heavier than water, passes downwards in the filter, and collects at the bottom of the filter box. It is prevented from drifting away with the flowing water by an installed sludge-retaining wall.
Submerging wall:
This is a structurally integrated element; its task is to retain the oil caused to flow up by the filter insert, inside the dead flow area that occurs in front of the filter insert and between the insert and the submerging wall.

Weir area:
The flowing water enters another labyrinth, where, flowing through the combination of the weir- and submerging walls, its energy gets further reduced, and flows away.

Secondary, additional filter:
Its installation/application is justified when the water is discharged into receiving waters with stricter limit values, or when the installation site is exposed to increased risks (most probably the entering water is more contaminated). The filter insert material is identical with that of the above-mentioned filter; it plays a role in the further treatment of already treated water. It also provides additional safety for the receiver in those cases when the primary filter gets saturated, or when the incoming water has a higher velocity or a higher contamination level.

Weir wall and outlet channel:
This is the point at which the water leaves the process; the weir wall connects to the ditch on the outlet side, and it ensures a water level necessary for the functioning, inside the equipment. On the outlet side, a water-jump emerges after the weir wall, therefore the ditch must be paved in a length of at least 3 to 4 meters, up to the height of the maximum swelled process water level.

There are several variants for the process design of the equipment:

ENVIA® TRP
By using a prefabricated reinforced concrete receiver unit (it is not necessary to have a final weir wall placed in the filter box, as its functionality is ensured by the reinforced concrete receiver unit):

Coalescent filter in a single layer
- Flow-breaker lamella
- Coalescent filter
- Submerging wall
- Weir wall integrated to the concrete structure

Coalescent filter installed in two layers
- Flow-breaker lamella
- Coalescent filter I..
- Submerging wall
- Weir wall
- Coalescent filter II.
- Submerging wall
- Weir wall integrated to the concrete structure

ENVIA® BOX
Installed in an already existing reinforced concrete receiver structure, for instance when a previously built pearlite-type oil trap equipment is replaced; in such cases, when the existing reinforced concrete receiver unit is kept, the final weir wall placed in the filter box needs to be used, as the existing reinforced concrete receiver unit does NOT ensure that functionality.

Coalescent filter in a single layer
- Flow-breaker lamella
- Coalescent filter
- Submerging wall
- Weir wall

Coalescent filter installed in two layers
- Flow-breaker lamella
- Coalescent filter I.
- Submerging wall
- Weir wall
- Coalescent filter II.
- Submerging wall
- Weir wall

MAINTENANCE AND OPERATION:

General inspection:
the installed equipment must be visually inspected once in every 3 months. During the inspection the following must be checked:
How much is the drift-trap filled up,
Is there a floating oil-contamination on the surface of the storing area (is the water-surface iridescent)?
Is the anti-theft cover plate at its place? As it intact and unharmed?
Are there any debris or drift caught on that surface of the equipment that faces the flow (e.g. branches of trees, floating material, PET-bottles, nylon-bags, etc.)?
Can the water flow unimpededly through the equipment?
Any debris or drift caught by the flow-breaker lamellas must be removed on the occasion of the inspection. The anti-theft cover plate should be removed from its place, and the moving part(s) must be checked (flow-breaker lamella, and the secondary filter frame). By lifting these parts out, the filter inserts can also be checked visually.

In accordance with the contamination of the filter inserts, the amount of drift stored by the drift-trap, and the presence of a floating oil film on the water surface, the date of the maintenance works and of filter cleaning must be established (immediately, within 1 to 2 weeks, within 1 to 2 months, or nothing needs to be done until the next quarterly inspection).

Settled contamination, floating oil and large particles:
The separated and settled sludge must be removed from the bed of the water course/ditch, or from the drift-trap box from time to time, but at least once a year, according to the findings of general, 3-monthly inspections. With view to the fact, that the removal frequency, depending on the exposures, may be once a year (and the separated sludge may turn to be a hard layer in such a long time), it is not enough to remove only the liquid phase in such occasions. For the first step of cleaning, the floating light liquids must be removed from the storing area; these must be handled as hazardous waste. During the maintenance and cleaning works (to be carried out at least once a year.) it must be ensured that settled and hardened sludge and/or sand layers should be broken up and removed, and the whole system be cleaned. The annual maintenance, or the removal of settled drift should be scheduled to take place after a sunny and dry period; by this time the major part of floating hydrocarbons in the storing area will have been decomposed as a result of solar UV radiation, and the water level in the storing area has got lower due to active evaporation (even to such extent that the settled drift comes out to the dry atmosphere (it may even get dried). This may considerably simplify the removal of drift from the drift trap box; the volumes of hazardous waste to be transported is reduced, as well as the fees of transport and disposal in a landfill.

As part of the maintenance works, the lamellar guiding plates must be washed by a high-pressure washing equipment; the washing direction must be opposite of the water flow direction, that is, from the weir wall towards the drift trap box. At the inlet side, the contamination caught between or settled out to the lamellas must be removed; also, when the lamellar board is pulled out upwards, and fixed, the saved side of the lamellar board can also be washed conveniently.

During the operations, care must be taken to ensure an unimpeded inlet path; when there are large amounts of floating pieces of drift, it must be removed from the system.

Filter insert:
In the oil separator, the coalescent filter separates floating, free-phase (non-bound) oil droplets, as well as it retains the residual fine sludge that floats in an intermediate phase. This fine floating material, that adsorbs typically a microscopic oil film, adheres to the filter surface, and blocks it after a while.

The filter bodies must be taken out from their place, and their cleanliness must be checked; these tasks must be carried out during the quarterly general inspections or more frequently, depending on the utilisation levels, and on the basis of operating experiences. When, during the inspections, the filters are found to be saturated by greyish-brownish fine sludge (a thin, oily fine sludge trickles down from the filter), then the filters must be washed through, under any circumstances. First the main filter insert must be pulled out, then the flow-breaker lamellas must be lifted out by a handle, and a securing pin must be inserted at the outlet side; then the insert should be tipped out from its frame to open the way for washing. You are kindly asked to exercise care during such works, in order to avoid injuries. After these actions, the filter insert can be cleaned by the following method.

The removed filter should be rinsed through by using cold water through a garden hose (it is FORBIDDEN to use high-pressure washing equipment or steam-shavers). The washing may take place in the vicinity of the inlet point, either on a paved slope that belongs to the drift-trap box section, or on the sole of a paved ditch-section in front of the drift trap ditch. After cleaning, the filter can be used again. It is practicable to wear rubber boots when washing the filters, by continuously trampling upon the filter. With view to the fact, that this is one of the most important components of the system, their cleanliness and/or continuous inspection is very important. When the filter is clogged by sludge, water cannot flow through it anymore; even with an increased pressure in the oil separator, the water cannot flow through the filter with proper velocity, therefore the water level keeps rising, resulting in water filling up the section in front of the equipment; in extreme cases the contaminated water does not flow through the technology, instead it may leave untreated over the filter box to the saved side. The saturation of the filter insert may be such, that the contamination retained by the filter insert gets washed out to the clean-water side, and leaves the equipment.

Please **do not let the equipment get to such a condition** (non-operational condition, improper treatment). Please note, that the operator can be called to account in such cases!

CLEANING THE FILTER BY SOLVENTS OR BY CHEMICALS IS FORBIDDEN AND UNNECESSARY!

It is not recommended either to use high-temperature steam shaving for cleaning, as it may cause damages to the filter. It is recommended to replace the filter once in 2 to 4 years (depending on its utilisation level), or to have it replaced by the supplier.

The separated oil can be removed by a mobile oil skimmer equipment (this is carried out by the supplier under a maintenance contract).

After the cleaning/washing operation is complete, the insert should be tipped back to its place, then the lamellar board should be lowered and fixed at its own position.

When stormwaters need to be treated to achieve stricter treatment limit values (SZOE<2 mg/l), then a secondary filter must be installed in the system. In a two-stage treatment equipment a secondary filter is installed. The frame that holds the filter should be lifted out by a handle on the frame; after fixing it, the insert can be tipped out from the frame (after the delineating grill has been removed). The cleaning process is the same as for the main filter.

When the inserts are put back to their place, care must be taken to ensure that they sit exactly at the place they are intended to.

In the cleaning process, also the prefabricated reinforced concrete receiver unit, and the stainless steel fittings must be washed down. For these units it is recommended to use high-pressure cleaning equipment, by continuously sucking away the water used for washing as well as the contamination. In the case of TRP type equipment, a mobile pump can be placed in the area in front of the weir integrated into the concrete unit, on the outlet side; with this pump, the water produced during washing and considered to be a hazardous waste, must be recirculated to the drift-trap box, already cleaned.

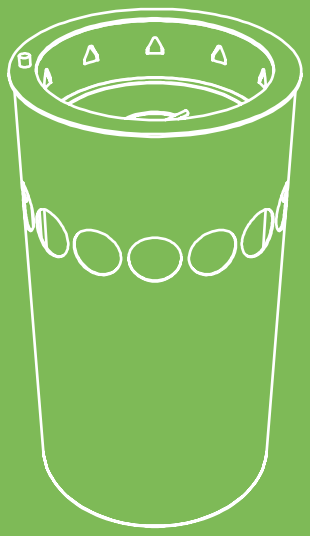
EMERGENCY EVENTS

If an emergency event occurs in the water-catchment area of the water that goes into the equipment, the equipment is able to contain spilled hazardous wastes, as a result of its combination of submerging and weir walls, up to the volume of the storing area in front of the equipment; anyhow, immediate action must be taken, the retained materials must immediately be removed, and an overhaul of the equipment (as described above) is needed. Please, give us a call!

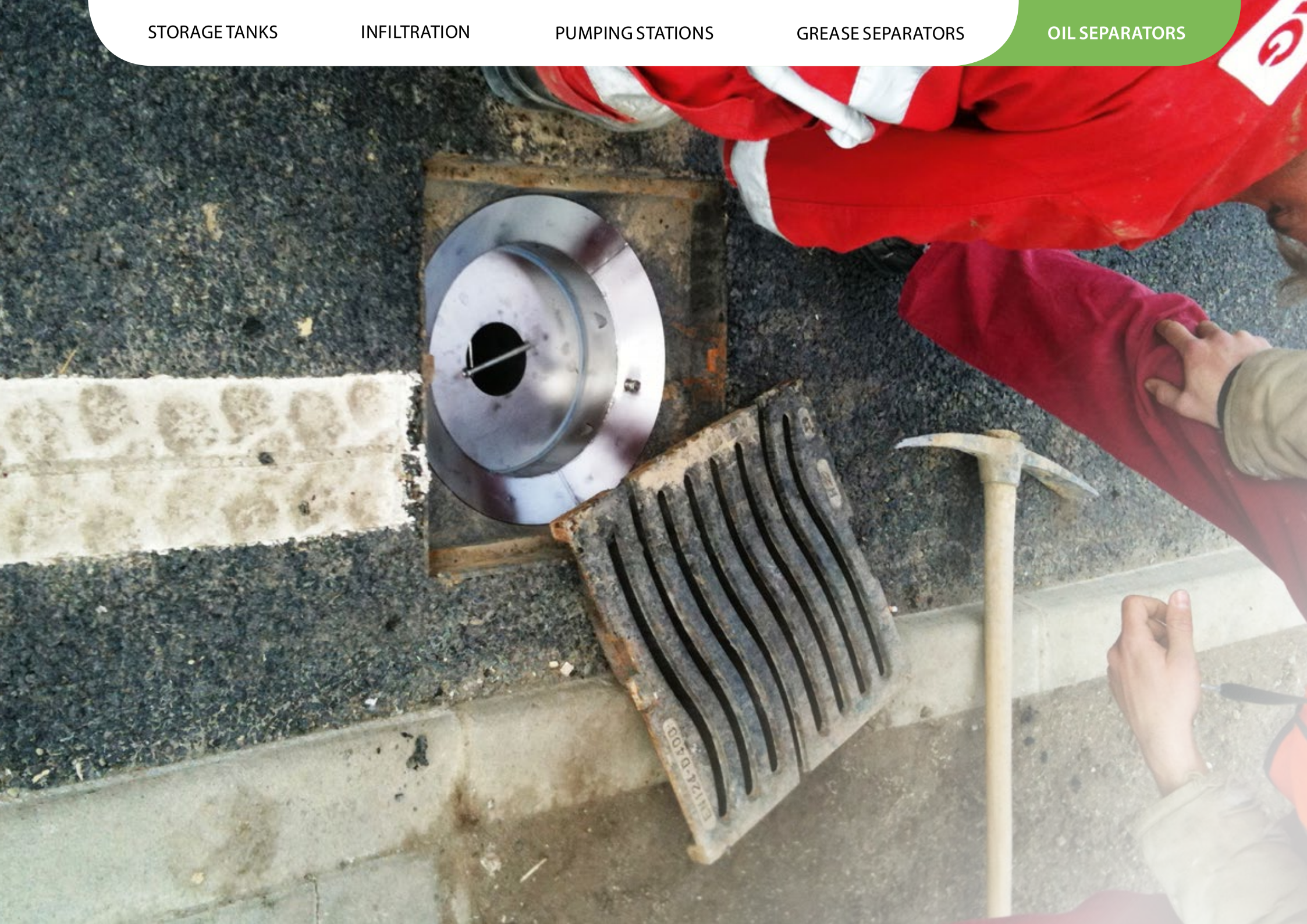
The general accident-prevention rules must be observed in the maintenance works of the equipment, with special view to the provisions for the treatment of hazardous waste. Maintenance works must be carried out only under supervision!

Increased attention must be paid to the danger of skidding! **During maintenance, it is strictly FORBIDDEN to smoke or to use naked flames!** When work is being carried out, the equipment must be cordoned off!

The material removed from the oil separator (oil, oily sludge) is considered to be a hazardous waste, which must be treated in accordance with the relevant provisions! Such materials must be disposed of by such companies only that hold authorative licences for such operations. The Employer or the responsible Operator shall be obliged to check if such a licence is held by the assigned company! An operation log must be maintained on the operation of the equipment, in which the following data must be recorded: inspections performed, maintenance and other operations; the events when hazardous wastes are disposed of, and the removed quantities.
Should you have any questions in connection with the operation of the equipment, please contact our colleagues at:



ENVIA CRC



OIL SEPARATOR – ENVIA CRC

The ENVIA CRC is installable into commercially available gully-holes through various adapters. It is recommended to install these equipments in parking lots, or in road sections with existing hazards of oil-contamination or drift. This equipment can be installed both in already existing facilities and in those being under construction.

The technical advantages of the equipment

- Installable also in existing storm water-drainage systems,
- Made from corrosion proof materials,
- Simple and fast installation with minimum tooling requirements,
- Compact design
- Fast installation

ENVIA CRC / CRC + drift- and light liquid separator equipment installable in gully holes ENVIA® CRC / CRC + drift- and light liquid separator equipment installable in gully holes, for 5 mg/l TPH limit values for the territorial categories 2. 3. and 4. under Annex 2 of the Regulation 28/2004. (XII. 25.) KvVM.

			Rated output l/s	Inclusive dimensionss		Mass
Article number				ø [mm]	h [mm]	m [kg]
ENVIA®	CRC	5	5	330	600	38
ENVIA®	CRC	10	10	440	600	53

DESIGN AID – ENVIA CRC

I. Product Description

1. The denomination and designation of the product

Denomination: ENVIA® 5/10 drift and light liquid separator equipment that can be installed into open surface rainwater drainage conduits and ditches.

Denomination: ENVIA® 5/10

2. The denomination of the manufacturer and distributor of the product

Manufacturer: PURECO Environmental and Economic Service Kft.
1118 Budapest, Rétköz utca 5.

Distributor: PURECO Environmental and Economic Service Kft.
1118 Budapest, Rétköz utca 5.

3. The name and address of the applicant (the rightful owner of the licence)

PURECO Environmental and Economic Service Kft.
1118 Budapest, Rétköz utca 5.

4. The legal regulations on the basis of which the licence is issued, and the documentation that verifies the suitability of the product

- Section 62 of Act no. LXXVIII of 1997 on the development and protection of built environment.
- The Joint Decree no. 3/2003. (1.25) BM-GKM-KvVM on the specified rules of the technical requirements, suitability verification, marketing, and use of building products
- The no 8001/2006. (K.V. Ért. 5.) KvVM information issued by the Minister of Environmental Protection and Water Conservancy on the approving organization that is entitled to issue or withdraw a technical licence for building concerning the building products used exclusively for water conservancy type of structures.
- An expert's opinion of the subject number 721/17/743701 entitled "The Examination of ENVIA® drift and light liquid separator equipment" compiled by VITUKI Kht. in October 2007.
- The Technical Conditions entitled "ENVIA® 5/10 drift and light liquid separator equipment" and marked as "PURECO-MF-2-2007", which were issued by PURECO Kft on 8 August 2007.

5. The product's usage area

Before the rainwater that is contaminated with mineral oil and settling or floating drift is conducted to a receiver, the product is used for cleaning the rainwater drained away from the surface of public roads and motorways.

6. The most important characteristics of the product concerning its application

The ENVIA® 5/10 drift and light liquid separator equipment can be installed into punctual gully-holes (which may be existing ones or ones that are under construction).

The pieces of equipment operate on the principle of physical phase separation; substances which are lighter than water come up to the surface floating, while the substances which are heavier than water settle, and the technological elements of the equipment hold these substances back and do not let them leave the equipment.

The difference between the different types of equipment is only in their dimensions; their design and principle of operation is the same.

– The principle of operation

The equipment has a cylindrical shape, and it can be installed in upright position to under gully-hole grills; the gully holes should have a minimum of ø350 mm free inner diameter. The water flows into the equipment at the top through an adapter which is placed into the gully-hole. Determined by the final weir wall, the water level is permanent here. The water which is to be cleared arrives to this place, and the part of its drift that can settle will be deposited here. The water gets into the cylindrical filter house, to which the coalescent filter material is fixed from the outside with fixing straps. The cylindrical filter chamber sits on the top of a drift-trap vessel below it, through a water- and oil-tight sealing. Water- and oil-tight sealing is used also at the fixing points to the weir wall side. The drift-trap vessel, similarly to the weir wall, is welded to the sole plate. The weir wall is actually the outer limiter wall of the cylinder-shaped equipment, fixed by welding to the fitting ring of the adapter on its upper side. The water goes out from the equipment through outlet recesses on the weir wall, and the treated water enters its receiving channel. Due to the hydraulical overloads which may occur, there are overflow boreholes in the submerging wall, and that way the coalescent filter and the submerging wall can be bypassed.

II. Sub-assemblies:

– Filter-housing:

It carries the process components, and a drift-storing/drift-trapping vessel forms also a part of it. This is also the place where retained materials are stored. The equipment can be moved by means of the lifting handle, which is on the top of the equipment.

Filter frame, coalescent filter material:

The water that enters the equipment gets rid of solid particles being in a suspended phase and of micro oil droplets unable to flow up, by flowing through the filter material. The filter material is fixed to a corrosion-proof steel frame in the following manner: the filter insert should be laid onto the inner, grilled superficies of the cylinder, and it must be fixed by three steel straps onto the frame on the outside. There is a lift-out handle on the top of the cylinder, by which it can be lifted out from or returned to the filter chamber

– Coalescent filter material

The water flows onto the filter surface through the whole cross-section evenly; there is no„dead area" from the perspective of the utilisation of the filter material; the filter insert works on the basis of coalescence: it retains floating materials/particles together with the oil-contamination that adheres to them, it stores them in its material; it also binds the micro oil droplets being in a suspended phase on its surface and, after the required size of the oil drop is reached, it causes these drops to flow up to the surface.

– Drift-trap vessel:

This is an area suitable for storing settling materials. The necessity of emptying is indicated by the fill-level of the storing area.

– Submerging wall:

It is a structurally integrated element; its task is to retain the oil flown up by the filter insert or by itself, in the dead flow area in front of the filter insert and between the insert and the submerging wall.

– Weir wall:

The weir wall is welded to the fitting ring of the adapter on its top. The water leaves the equipment through the outlet recesses being on the weir wall, and thus the treated water (effluent) reaches the recipient channel.

The types of the separator equipment ENVIA® CRC 5/10, their nominal capacities, inclusive dimensions and masses are summarized in table 1.

			Nominal capacity	Inclusive dimensions		Mass
Type			[l/s]	Ø [mm]	h [mm]	m[kg]
ENVIA181	CRC	5	5	330	600	38
ENVIA®	CRC	10	10	440	600	53

The types of the ENVIA® CRC 5/10 drift and light liquid separator equipment

7. The technical requirements, methods of examination, and checking of the product

According to Annex 2 of Decree no. 28/2004. (XII. 25.) KvVM on water pollutant materials discharge limits and certain rules concerning their application, the quality of effluent waste water (the concentration of organic solvent extract /OSE/) from the ENVIA® CRC 5 and ENVIA® CRC 10 pieces of separator equipment correspond to the specified limit value for area category 2^2 (5 mg/l).

Other technical requirements and the methods of examination and checking of the product is included in sections 5 and 6 of the Technical Conditions marked as "PURECO-MF-2-2007".

8. The most important technical conditions of using the product

By taking into consideration the MSZ EN 752-2:1999 and MI-10-455-2:1988, a designer specialist has to select the pieces of separator equipment on the basis of peak flow rates of the rainwater to be drained from the catchment area.

By taking into consideration the MSZ EN 752-2:1999 and MI-10-455-2:1988, a designer specialist has to select the pieces of separator equipment on the basis of calculations of peak flow rates of the rainwater that has to be drained from the given catchment area.

2. Receivers of other protected areas

When placing the equipment, the given location and the possibilities of installation determine the type of the necessary adapter and fitting element.

Any contaminating materials which probably may have got into the structure have to be removed before the installation of the equipment. Attention must be paid to ensure unimpeded flow during operation; if there is a great amount of drift floating on the surface of the water in the gully-hole, it has to be removed from the equipment.

The adequate cleaning effect of the equipment can be ensured only by regular inspection and maintenance. The separated, settled sludge

therefore has to be removed from the equipment, and the periodical cleaning of the filter units is also necessary.
Covered surfaces must not be cleaned with chemicals and/or with substances which enhance the emulsification and/or solution of oil.
Due to the weir-submerging wall combination used, the equipment is capable of withholding dangerous materials to a certain extent in the case of some unexpected occurrences, but it is necessary to remove the materials withheld and to carry out overall maintenance after such events.
Other important technical conditions of using the product (transportation, build-in, installation, and maintenance) are specified in sections 6 and 8 of the Technical Conditions marked as "PURECO-MF-2-2007".

9. The method of verifying the suitability of the product

The "Second option" (3) based on the "Supplier Suitability Statement" in accordance with Section 2/ii of Annex 4 of the Joint Decree no. 3/2003. (I. 25.) BM GKM-KvVM, i.e.:
the first examination of the design by a designated test laboratory;
production control by the manufacturer

10. The frequency of the supplementary inspection carried out by the organization which issued the ÉME (Technical Licence for Building)

On one occasion during the validity of ÉME.

11. The basis of issuing ÉME

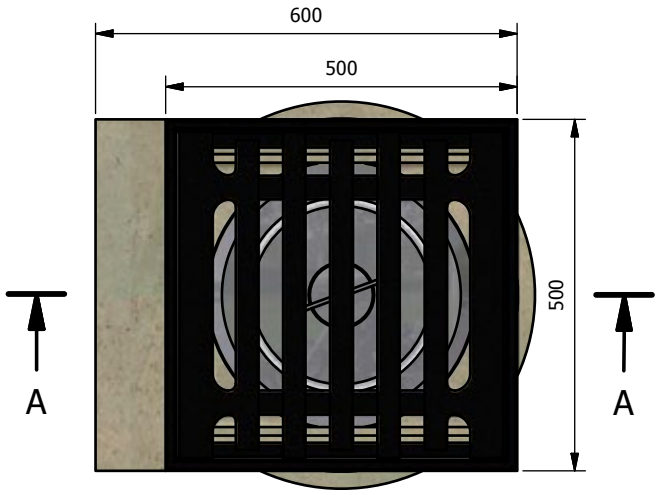
1. The application of PURECO Kft of the reference number 385-2/2007, which was received by VITUKI Kht. on 9 May 2007.
2. The Technical Conditions entitled "ENVIA® CRC 5/10 and light liquid separator equipment" and marked as "PURECO-MF-2-2007", which was issued by PURECO Kft on 8 August 2007.
3. An expert's opinion of the subject number 721/17/743701 entitled "The Examination of ENVIA® drift and light liquid separator equipment" compiled by VITUKI Kht. in October 2007.

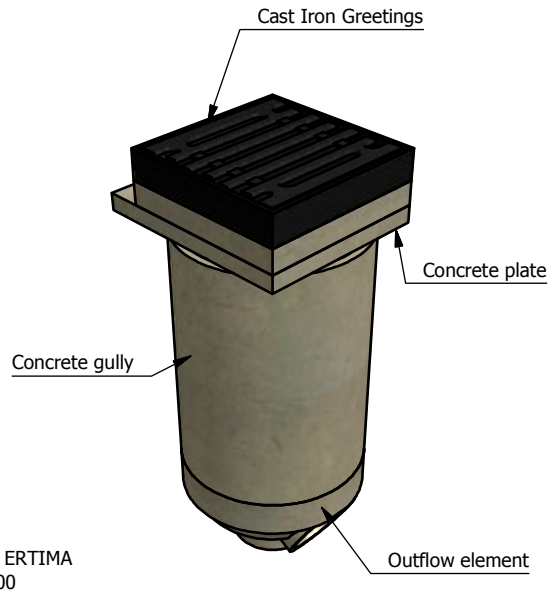
III. The conditions of using ÉME

1. In the course of its production and application the product should comply with the contents of the Technical Conditions pursuant to point II. 2. of this licence.
2. The licensee has to inform the applier (designer, builder, operator) about the contents of this ÉME (Technical Licence for Building) by making this licence and the Technical Conditions available for the applier.
3. By observing the regulations concerning business secrets, the licence holder of ÉME has to ensure that this ÉME is accessible and obtainable during the validity period of this ÉME.
4. The licensee is obliged to maintain records continuously about the places of application of the product, and about the problems and complaints which occur.
5. Data changes concerning the licence have to be reported to VITUKI Kht. by the licensee within 15 days.
6. The ÉME no. É-41/2007 applies to products that have data and technical characteristics identical with those that are included in the Technical Conditions marked as "PURECO-MF-2-2007" issued by the licensee.

The application was submitted and judged in accordance with the regulations of Joint Decree no. 3/2003. (I. 25.) BM-GKM-KvVM.

INSTALLATION SAMPLE – ENVIA CRC





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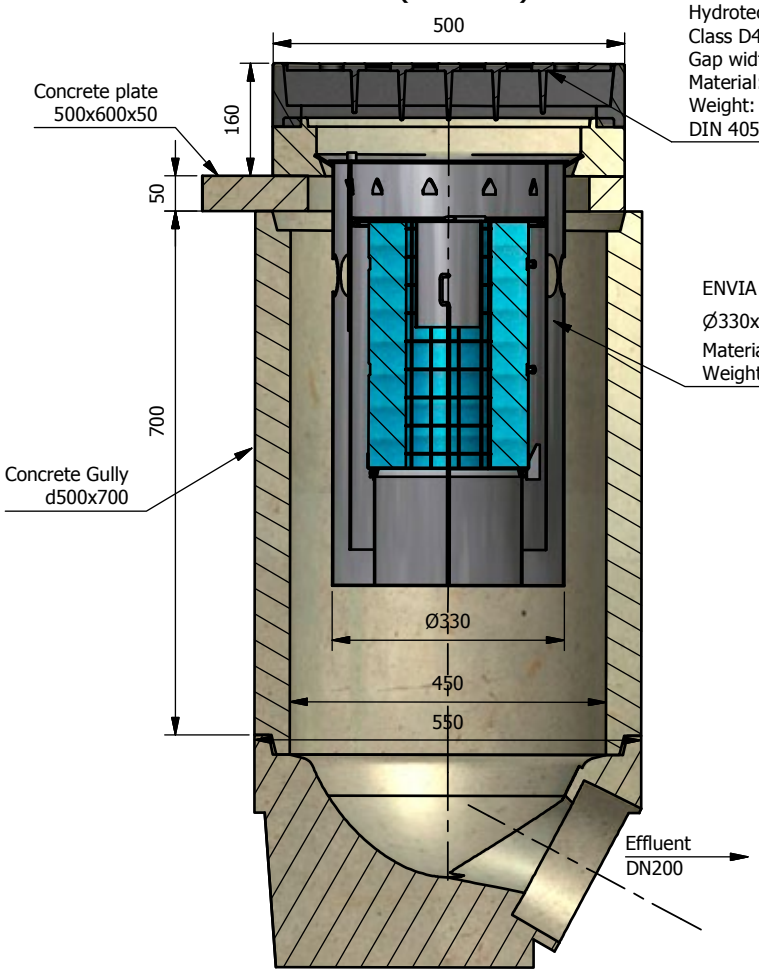
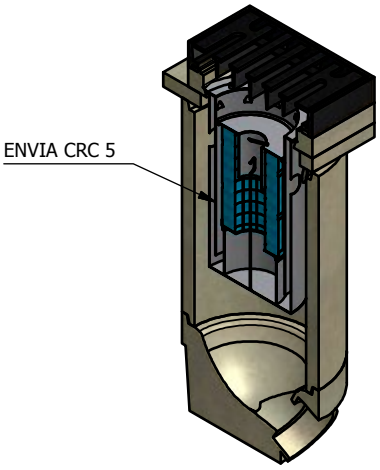


Hydrotec ERTIMA
Class D400
Gap width: 36 mm
Material: Concrete/Cast iron
Weight: ca. 103 kg
DIN 4052

ENVIA CRC 5
Ø330x605
Material: Stainles Steel
Weight: 38 kg



ENVIA CRC 5

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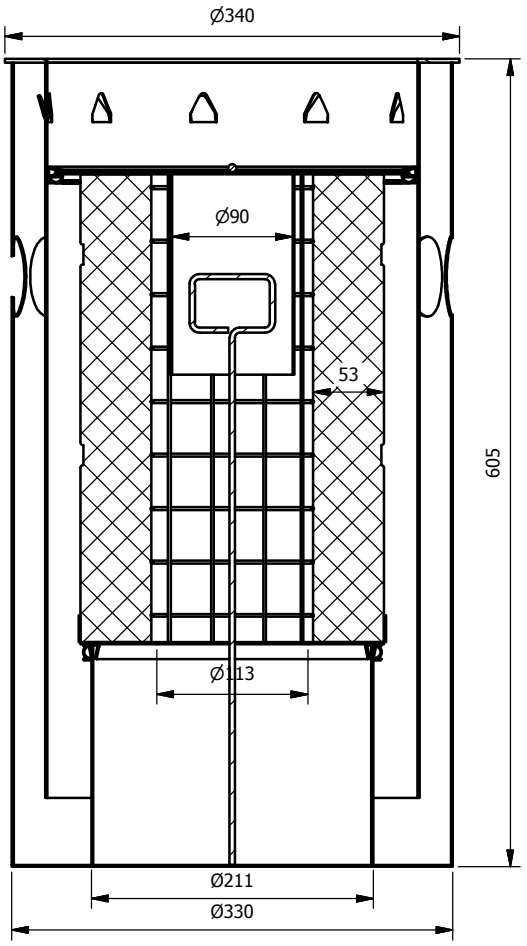
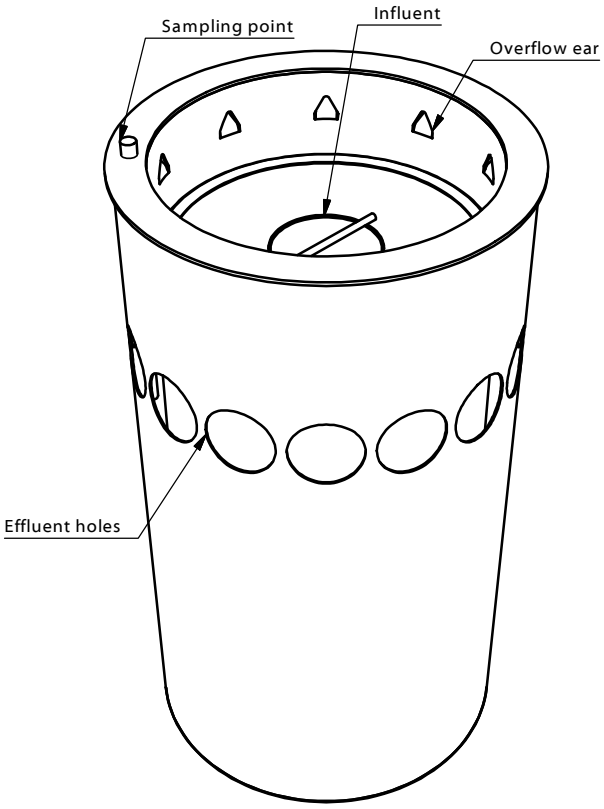
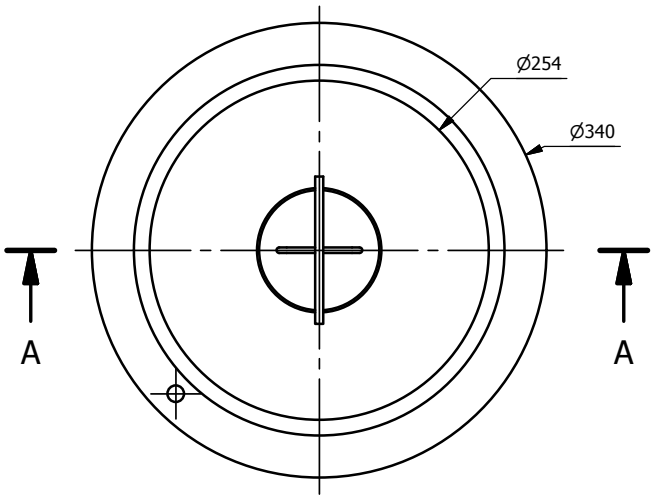




Top View (1 : 5)



PURECO
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TYP:

ENVIA CRC drift and light liquid separator installable in gully holes

ENVIA CRC combi

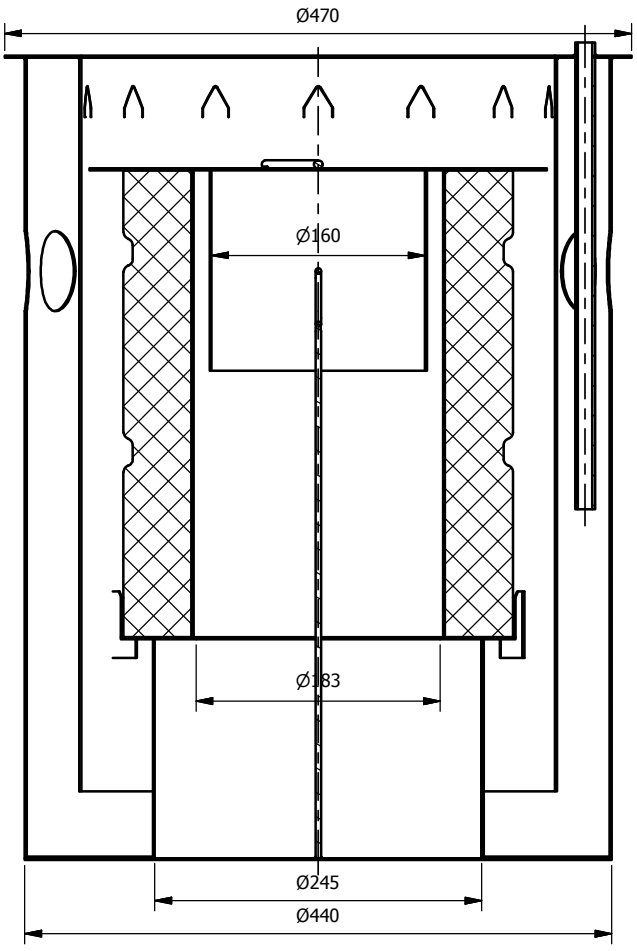
Informational drawing

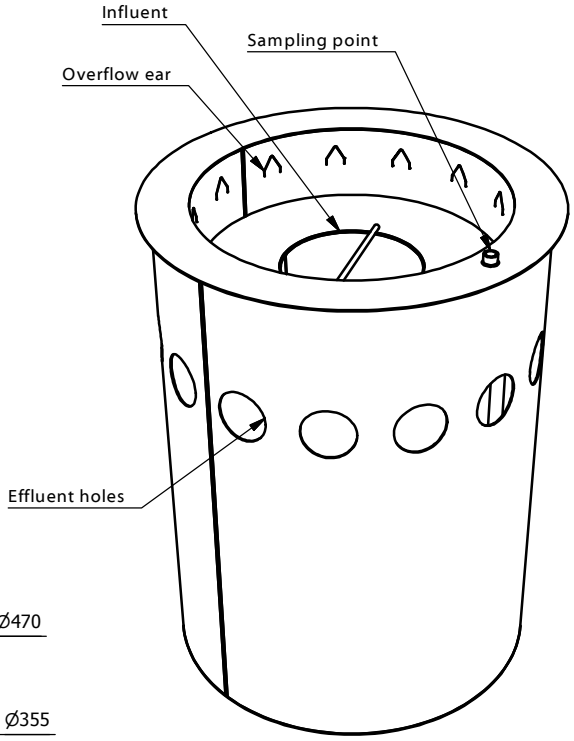
M= 1:5

Cleaning capacity:	5	l/s
Total flow:		l/s
Effeciency:	5	mg/l FOG
Total weight:	38	kg

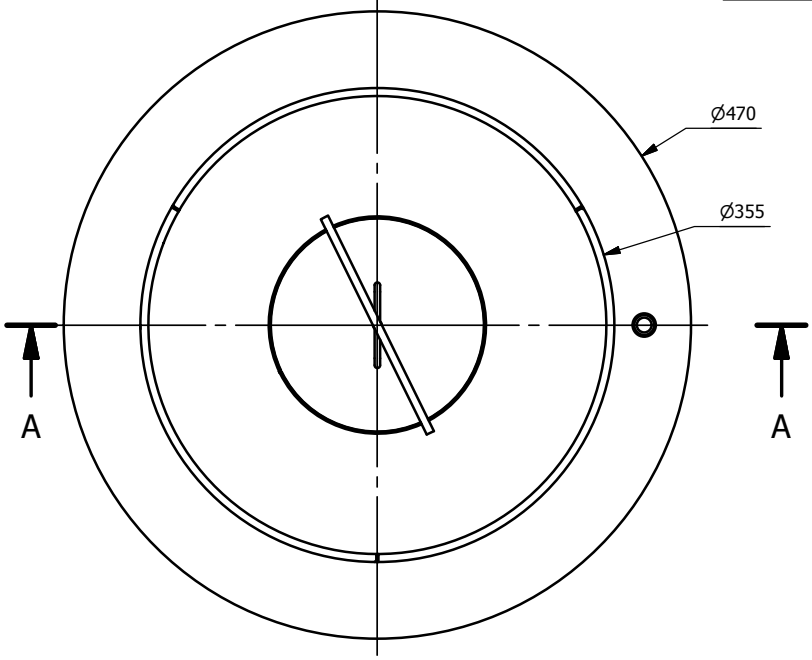
ENVIA CRC 10

A-A (1 : 5)





Top View (1 : 5)



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TYP:

ENVIA CRC drift and light liquid separator installable in gully holes

ENVIA CRC 10

Production drawing

M= 1:5

Cleaning capacity:	10	l/s
Total flow:		l/s
Effeciency:	5	mg/l FOG
Total weight:	45	kg

INSTALLATION MANUAL – ENVIA CRC

1. Installation conditions

- These equipment are installed in the case of a point collection of stormwaters; they should be installed either in existing gully holes or in gully holes being under construction.
- The installability of the equipment is determined by the size of the water-catchment area, as well as by the construction of the gully hole or shaft.
- In order to ensure the avoidance of overloading (and exceeding limit values at the same time) please do not install your equipment without prior consultation and dimensioning.
- The mode and circumstances of the installation must be settled by the manufacturer when the order is placed, as the manufacturer needs these information to be able to select the required adapter(s).

2. Installing the equipment

- We deliver the equipment from our warehouse in a ready-made, assembled condition, without the need for any kind of adjustment. Please do not disassemble it. The type of adapters and fitting elements is determined on the basis of the given location, and the installability of the equipment, so we deliver these as a separate unit upon the delivery event, based on the information the manufacturer had been provided with upon placing the order.
- In the case of already existing receivers: first the grill of the gully hole should be opened, safely secured or removed from its place; then the adapter is put to its place, and fixed in a secure and stable manner; then the equipment should be lowered into the shaft by holding it with the handle in the water collection tray; it should be placed into the adapter to ensure a full water tightness by properly seating the equipment over the whole surface.
- In the case of new installations, we recommend to purchase the gully hole grill from the manufacturer, as this can ensure a simple installation by using the proper adapter.
- Care must be taken during positioning the equipment that the equipment should not get injured or deformed, as it makes its future use impossible.

3. Putting the equipment into operation

- The commissioning process of the equipment consists of removing any contaminations that may have entered the structure.
- The joining surfaces must be checked also inside the equipment: correct joining and tightness must be ensured. If the filter insert got dislocated during transportation within its housing, it should be fixed in its right position by pushing it vertically downwards until collision.
- The installed system must be checked visually: if there are no visible outer injuries on it, the equipment is ready to receive the contaminated waters.

4. Health and safety instructions

- The in-detail health-, safety-, and security provisions pertaining to the installation time must be observed, on the basis of local conditions, with view to the time of the year and the weather at the given period, as well as in accord with the designer's provisions specified in the design documents of related works.
- Before work is started, work tools must be checked for injuries or damages; only properly trained personnel may perform work, under continuous technical supervision and guidance.
- It is dangerous to stand on installed mechanical systems, and it is also forbidden due to a risk of damages!
- Protective gloves and helmets must be worn when work is being performed!

USER MANUAL – ENVIA CRC

INTRODUCTION

This present operation instructions contain general information on the operation of sludge trapping and mineral-oil separating equipment type ENVIA CRC, manufactured and distributed by PURECO KFT.; they provide support to the operator of the equipment, enabling it to carry out this task even on its own safely from the environmental perspective. If the provisions of this document are met, the distributor undertakes to warrant the compliance of the discharged wastewater with the relevant provisions.

This equipment is responsible for cleaning waters contaminated by mineral oils or by settling or suspended particles before such waters are introduced to their respective receiving bodies.

Regular inspection and maintenance are preconditions for the effective operation of the equipment. The responsibility for damages due to insufficient or a completely missing maintenance and inspection shall rest with the operator, therefore you are kindly asked to carefully study and observe the provisions of this document. The operator is responsible for the surveillance of the equipment, so these tasks must be carried out even if the regular (6-monthly) maintenance is outsourced by a contract to Pureco Kft.

The equipment functions on the basis of the physical phase-separation principle: agents lighter than water flow up to the surface, while those heavier than water settle down, and the respective parts of the process design do not allow that such agents leave the system. After the installation is complete, construction debris and earth fallen into the equipment must be removed; with this the equipment is ready for operation.

The loads occurring as a result of the composition and the volume of wastewater must always be in compliance with the design- and dimensioning values.

For the cleaning of covered surfaces, neither chemicals nor such agents that cause oils to emulsify or to get solved should be used. Introducing, by pumping, waters contaminated by oil to the oil separator equipment should be avoided, but if it cannot be avoided, only such pumps should be used that work on the principle of the extrusion of volumes. This equipment is not designed to retain detergents („washing agents") or materials harmful to waters (e.g. acids, alkali, or mineral salts).

DESCRIPTION OF THE OIL SEPARATOR EQUIPMENT

This present equipment can be installed in drain traps/gully holes, where it can function as a trap of hydrocarbons mixed with contaminating storm waters (typically oils and oil derivatives) and as a trap of settling and floating materials. The task of the equipment is to ensure the removal of oil and drift from stormwater for a long time and by appropriate efficiency, therefore it should not contain parts sensitive to failures.

This equipment is a light-liquid separator that can be installed in point-like drain traps/gully holes. Its task is to settle down the settleable materials that float in the stormwater arriving from a relatively small water catchment area (about 250 m2 belong to one drain trap), to cause contaminants to flow up to the surface, and to retain such materials.

Operating principle:
The equipment has a cylindrical shape, and it can be installed in upright position to under gully-hole grills; the gully holes should have a minimum of ø350 mm free inner diameter. The water flows into the equipment via the gully-hole grill, through a suitable, inserted adapter. The water enters thus a cylindrical filter chamber, onto which a coalescent filter material should be fixed on the outer surfaces, by securing straps. The cylindrical filter chamber can be lifted out from the equipment by a lifting rod. The cylindrical filter chamber sits on the top of a drift-trap vessel below it, through a water- and oil-tight sealing. Water- and oil-tight sealing is used also at the fixing points to the weir wall side. The drift-trap vessel, similarly to the weir wall, is welded to the sole plate. The weir wall is actually the outer limiter wall of the cylinder-shaped equipment, fixed by welding to the fitting ring of the adapter on its upper side. The water goes out from the equipment through outlet recesses on the weir wall, and the treated water enters its receiving channel.

Sub-assemblies

Filter housing
This is actually the shell of the equipment itself. It carries the process components, there is a handle on its top to lift out the equipment from its place, and a drift-storing/drift-trapping vessel forms also a part of it. This is also the place where retained materials are stored. Floating and settled materials can be removed, and the equipment can be emptied by scooping out or by sniffing out the materials, or simply by pouring out after the equipment has been lifted out from its place.

Filter frame, coalescent filter material:
The water that enters the equipment gets rid of solid particles being in a suspended phase and of micro oil droplets unable to flow up, by flowing through the filter material. The filter material is fixed to a corrosion-proof steel frame in the following manner: the filter insert should be laid onto the inner, grilled superficies of the cylinder, and it must be fixed by three steel straps onto the frame on the outside. There is a lift-out handle on the top of the cylinder, by which it can be lifted out from or returned to the filter chamber.

Coalescent filter material:
The water flows onto the filter surface through the whole cross-section evenly; there is no „dead area" from the perspective of the utilisation of the filter material; the filter insert works on the basis of coalescence: it retains floating materials/particles together with the oil-contamination that adheres to them, it stores them in its material; it also binds the micro oil droplets being in a suspended phase on its surface and, after the required size of the oil drop is reached, it causes these drops to flow up to the surface. Depending on the contamination level of the filter material, the filter insert must be cleaned from time to time. Cleaning means that the filter material is washed by clean, cold water, after it has been removed from the filter frame. It is forbidden to use any types of detergents, high-pressure washing equipment, steam-razors, or hot water, as these cause damages to the filter material! The treatment and disposal of materials washed out from the filter in the cleaning process must be in compliance with legal rules pertaining to hazardous wastes! After washing is completed in accordance with the above description, the filter insert can be returned onto the filter frame; first it should be fixed by straps, then the assembly may be returned into the filter housing. Care must be taken to ensure that it sits up correctly!

The colour of the filter-insert material is turquoise-blue, which may become discoloured by the retained materials. The filter insert must be replaced by a new one when its original colour cannot be restored after it has been washed out.

Drift-trap vessel:
This is an area suitable for storing settling materials; it actually stores the retained materials. The necessity of emptying is indicated by the fill-level of the storing area; it can be measured by a measuring stick.

Submerging wall:
It is a structurally integrated element; its task is to retain the oil flown up by the filter insert or by itself, in the dead flow area in front of the filter insert and between the insert and the submerging wall.

Weir wall:
The weir wall acts also as the outer limiting wall of the cylinder-shaped equipment, which is welded to the fitting ring of the adapter on its top. The water leaves the equipment through the outlet recesses being on the weir wall, and thus the treated water (effluent) reaches the recipient channel.

MAINTENANCE, OPERATIONS:

Settling materials and floating particles:
The separated and settled sludge must be removed from the equipment from time to time (with a frequency as the operation requires). With view to the fact that even several months may pass without the need to remove it, depending on the utilisation level of the equipment, (and the separated sludge may turn to be a hard layer during this time), it is not enough to remove only the liquid phase from the equipment. In the cleaning process it must be ensured that the hardened layer is broken up and removed, so the equipment is cleaned completely.

In the operation care must be taken to ensure that the water should flow unimpededly into the equipment. If there are large pieces of drift in large quantities on the surface in the equipment or in the gully hole, these must be removed from the system. Contaminants settled onto or adhering to the filter insert (e.g. leaves of trees, plastic bags, etc.) reduce the flow surface, causing clogging during the operations; after such particles are removed, the equipment can work again without disturbances.

In the cleaning process the structure itself, as well as the stainless steel fittings must be washed. For the cleaning of these parts, it is recommended to use high-pressure cleaning equipment, by either continually sucking away the washing water and the contamination, or the washing should take place in a closed area to prevent the effluent washing water from entering the environment or the channels.

From time to time it must be checked if the discharge can take place freely. Should any obstacles be found here, that must be removed immediately; otherwise the water level gets swelled up in the equipment, preventing the further uptake of new water by the equipment.

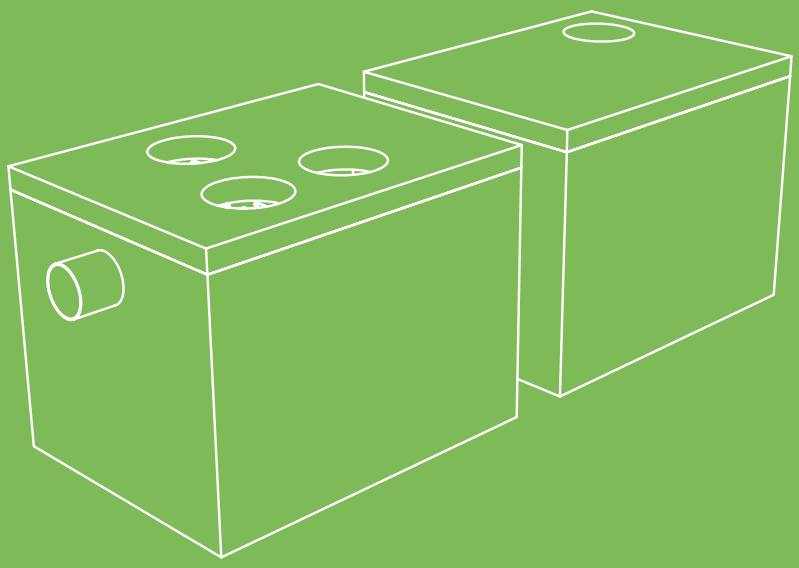
Emergency events:
If an emergency event occurs in the water-catchment area of the water that goes into the equipment, the equipment is able to contain spilled hazardous wastes, as a result of its combination of submerging and weir walls, up to the volume of the storing area in front of the equipment; anyhow, immediate action must be taken, the retained materials must immediately be removed, and an overhaul of the equipment (as described above) is needed. Please, give us a call!

HEALTH AND SAFETY PROVISIONS:

The general accident-prevention rules must be observed in the maintenance works of the equipment, with special view to the provisions for the treatment of hazardous waste; works must be carried out only under supervision!

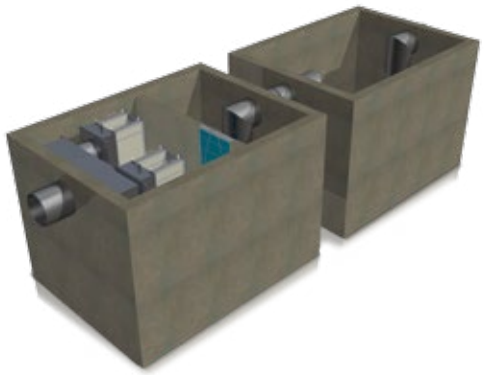
Increased attention must be paid to the danger of skidding! During maintenance, it is strictly FORBIDDEN to smoke or to use naked flames! When work is being carried out, the equipment must be cordoned off!

The material removed from the oil separator (oil, oily sludge) is considered to be hazardous waste, which must be treated in accordance with the relevant provisions! Such materials must be disposed of by such companies only that hold authorative licences for such operations. The Employer or the responsible Operator shall be obliged to check if such a licence is held by the assigned company! An operation log must be maintained on the operation of the equipment, in which the following data must be recorded: inspections performed, maintenance and other operations; the events when hazardous wastes are disposed of, and the removed quantities.



ENVIA TNC

OIL SEPARATOR – ENVIA TNC



ENVIA TNC is a conventional equipment where proven technologies are complemented by efficient performance. In order to operate it no additional energy or chemicals are needed. The integrated safety valve protects the operator from accidental environmental consequences in case of emergency, by preventing further access to the basin.
The use and installation of this equipment is subject to vehicle traffic and/or ground water (fixing). ENVIA TNC is delivered ready assembled, it is easy to install into the sewage system, fits with a familiar fit.
The operation of the equipment is simple. The additional sensor is offered as an option, the alarm system installed is able to reduce operating costs significantly. We offer site visits and consultations in order to choose the best viable solution, and in case of licensing requirements we offer help with the official procedures. The family unit is ÉME licensed.
In case it is needed we provide support with manufacturing the installation equipment and installing ENVIA TNC. All units of the ENVIA TNC comply by the emission limit value regulations in Hungary, outperforming the less stringent requirements of the EU.

Name	Capacity	Concrete quality	Tank 1	Tank 2	Tank 3	Weight
TNC 1,5 S-I	2 l/s	C35	1400x1100x1950	-	-	3.1 t
TNC 3 S-I	3 l/s	C35	1400x1100x1950	-	-	3.1 t
TNC 6 S-I	6 l/s	C35	1400x1100x1950	-	-	3.1 t
TNC 10 S-I	10 l/s	C35	1400x1100x1950	-	-	3.1 t
TNC 15 S-I	15 l/s	C35	1400x1100x1950	-	-	3.1 t
TNC 20 S-I	20 l/s	C35	3240x1740x1300	-	-	8 t
TNC 25 S-I	25 l/s	C35	3240x1740x1300	-	-	8 t
TNC 30 S-I	30 l/s	C35	3000x2300x1500	-	-	9.9 t
TNC 40 S-I	40 l/s	C35	3000x2300x2100	-	-	12 t
TNC 50 S-I	50 l/s	C35	3000x2300x2100	-	-	12 t
TNC 65 S-I	65 l/s	C35	3000x2300x2100	-	-	12 t
TNC 80 S-I	80 l/s	C35	3600x2800x1900	-	-	15 t
TNC 100 S-I	100 l/s	C35	3600x2800x1900	-	-	15 t
TNC 125 S-I	125 l/s	C35	3000x2300x2100	3000x2300x2100	-	23.9 t
TNC 150 S-I	150 l/s	C35	3000x2300x2100	3000x2300x2100	3000x2300x2100	35.9 t

Name	Capacity	Concrete quality	Tank 1	Tank 2	Tank 3	Weight
TNC 1,5 S-II	2 l/s	C35	1400x1100x1950	-	-	3.4 t
TNC 3 S-II	3 l/s	C35	1400x1100x1950	-	-	3.4 t
TNC 6 S-II	6 l/s	C35	1400x1100x1950	-	-	3.4 t
TNC 10 S-II	10 l/s	C35	1400x1100x1950	-	-	3.4 t
TNC 15 S-II	15 l/s	C35	3240x1740x1300	-	-	8.4 t
TNC 20 S-II	20 l/s	C35	3240x1740x1300	-	-	8.4 t
TNC 25 S-II	25 l/s	C35	3240x1740x1300	-	-	8.4 t
TNC 30 S-II	30 l/s	C35	3000x2300x1500	-	-	9.5 t
TNC 40 S-II	40 l/s	C35	3000x2300x2100	-	-	12.8 t
TNC 50 S-II	50 l/s	C35	3000x2300x2100	-	-	12.8 t
TNC 65 S-II	65 l/s	C35	3000x2300x2100	-	-	12.8 t
TNC 80 S-II	80 l/s	C35	3600x2800x1900	-	-	16 t
TNC 100 S-II	100 l/s	C35	3600x2800x1900	-	-	16 t
TNC 125 S-II	125 l/s	C35	3000x2300x2100	3000x2300x2100	-	24.8 t
TNC 150 S-II	150 l/s	C35	3000x2300x2100	3000x2300x2100	-	24.8 t

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

Introduction

How do oil separators work?
Oil separators can be fitted to surface water drainage systems to protect the environment from pollution by oils. They separate the oil from the water, and then retain the oil safely until it is removed. They are installed to contain oil leaks from vehicles and plant and accidental spillages. To be effective, oil separators need to be correctly designed, installed and maintained.

Where are separators needed?
Surface water may be contaminated by oil at a number of different sites. These sites need to have measures in place to prevent this oil from polluting the environment. These sites include:

- car parks typically larger than 800 m^2
- in area or for 50 or more car parking spaces
- smaller car parks discharging to a sensitive environment
- areas where goods vehicles are parked or manoeuvred
- vehicle maintenance areas
- roads
- industrial sites where oil is stored or used
- refuelling facilities
- any other site with a risk of oil contamination.

For small park areas protection we can provide the ENVIA CRC device, easy to install and maintain.

If you do need an oil separator, you will need to consider where it will discharge. It is important to speak to us as early as possible if you plan to discharge to surface water drains, to a watercourse or to the ground, as you might require our consent. In Central Europe any discharge from an oil separator will require consent. We do not issue these consents automatically and, if we allow a discharge, we might impose strict controls on the level of polluting substances in it such as oils. If you install a separator discharging to surface water you will need a Class 1 separator (see page 62)

If your separator will discharge to a public sewer, you must contact your local sewer provider before doing so. For discharges to public sewer you will need a Class 1 or Class 2 separator (see page 62). If your separator will discharge to a surface water sewer that is owned by the sewer provider, you must also contact them before you connect to that sewer.

Drainage from areas such as scrapyards, storage and handling areas for chemicals (solvents, acids etc), and washing bays are likely to be contaminated with substances other than oil, and should normally drain to the foul sewer with the approval of the sewer provider. The local sewer provider might require the discharge to have a separator and you must consult them. Discharge from such areas is not suitable for drainage to surface water drains, a watercourse or to the ground.
Drainage containing detergents should not pass to a separator that discharges to surface water because the detergents prevent the separator from working properly.

Choosing the right separator

Use the flow chart to help you select the appropriate system for your site. More than one separator might be required on larger sites or a site with many activities. You will need to consider the local circumstances and risk factors including:

- the discharge point of your proposed separator
- the environmental sensitivity of your location
- activities on your site

Separator classes
EN 858 refers to two 'classes' of separator, based on performance under standard test conditions.

Class I separators are designed to achieve a discharge concentration of less than 5 mg/litre of oil under standard test conditions. These separators are required for discharges to surface water drains and the water environment. Many Class I separators contain coalescing devices, which draw the oil droplets together and facilitate the separation.

DESIGN AID – OIL SEPARATOR TANK
ENVIA TNC, ENVIA TNS, ENVIA TNB

Class II separators are designed to achieve a discharge concentration of less than 100 mg/litre of oil under standard test conditions. They are suitable for dealing with discharges where a lower quality requirement applies such as discharges to the foul sewer(but check first with your sewer provider).

Both classes can be produced as 'full retention', 'bypass' or 'forecourt' separators (see below).
The oil concentration limits of 5 mg/litre and 100 mg/litre only apply under standard test conditions. You should not expect separators to always perform within these limits under field conditions. In addition, these levels of oil might be too high in some environmentally sensitive areas to allow the discharge to pass into the water environment without additional treatment.

Full retention separators
Full retention separators treat the full flow that can be delivered by the drainage system. The 'full flow' is normally equivalent to the flow generated by a rainfall intensity of 65 mm/hour

Full retention separators are used where there is a risk of regular contamination with oil and a foreseeable risk of significant spillages e.g. vehicle maintenance areas and retail fuel forecourts.

You need to consider the flow rates of potential spillages delivered to the separator from the drainage system and the oil storage volume of the separator needs to be sufficient to retain the entire spillage. See Section 9 for more information about preparing for emergencies.

On large sites, some short-term storage upstream of the separator might be an acceptable means of limiting the flow rate and the size of separator needed. Any surface water stored cannot be pumped through the separator unless the separator is specifically designed to receive pumped inflows and a low-shear, non-emulsifying pump is used.

Bypass separators
Bypass separators fully treat all flows, for the area served, generated by rainfall rates of up to 6.5 mm/hour. This covers most rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, e.g. where only small spillages can occur and the risk of spillage is small such as on short stay car parks.

In cases where a large spillage might occur, it is not acceptable to use a by-pass separator. The only exception to this is a major trunk road where the size and type of spillage is impossible to foresee and the surface area drained makes it impractical to provide a full retention separator. For major trunk roads a SUDS approach incorporating a number of SUDS techniques is likely to be more appropriate.

On sites where high levels of silt are likely to enter the separator, the build up of silt must not be allowed to compromise the operation of either the separator or the by-pass device. On such sites (e.g. major trunk roads and quarries) an adequately sized silt separation chamber should be installed upstream of the separator and appropriate management systems put in place to monitor the situation and remove the silt when necessary. The use of SUDS techniques can minimise the amount of silt in the surface water run-off.

Forecourt separators
This document uses the term 'forecourt' to refer to all forms of liquid-fuel dispensing outlets, both retail and non-retail, including those where only diesel is dispensed. A forecourt separator must be a 'full retention' separator, large enough to serve the catchment area of the site and have a sufficient oil storage volume to retain any foreseeable spillages.

It is important to install a forecourt separator of an appropriate size. On a forecourt where tanker deliveries are received, a separator with an oil storage capacity of 7,600 litres will meet the requirements of BS EN 858-2, clause 4.3.6. If a smaller unit is proposed, the size should be determined by undertaking a risk assessment incorporating catchment size, potential spillages during delivery, and other risks such as safety issues. If the compartment size of the tanker that delivers to your site is greater that 7,600 litres your separator should be sized accordingly. For detailed information on the design of fuel dispensing forecourts see Reference 10.

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

Sizing of separators

General

The sizing of light liquid separators shall be based on the nature and flow rate of liquids to be treated and will need to take account of:

- maximum flow rate of rain water
- maximum flow rate of waste water (trade effluent)
- density of light liquid
- presence of substances that may impede separation (e.g. detergets)

The size of the ENVIA TNC, TNP and TNB oil separators shall be calculated from the following formula:

$$NS = (Q_r + f_x * Q_s) * f_d$$

NS	nominal size of the oil separator
Q_r	maximum flow rate of rainwater, in l/s
Q_s	maximum flow rate of wastewater, in l/s
f_d	density factor for the relevant light liquid
f_x	impediment factor depending on the nature of the discharge

Impediment factor f_x

The impediment factor f_x allows for unfavourable separating conditions, e.g. where detergents are present in the wastewater. The minimum recommended impediment factors are listed below.

Name	f_x
a, to treat waste water (trade effluent) from industrial processes, vehicle washing, cleansing of oil covered parts or other sources, e.g. petrol station forecourts	2
b, to treat oil contaminated rainwater (run-off) from impervious areas, e.g. car parks, roads, factory yard areas	not relevant as Q_s=0 (only rainwater)
c, to retain any spillage of light liquid and to protect the surrounding area	1

Density factor f_d

The density factor f_d allows for differing densities of light liquids when using different combinations of system components. Additional information given in annex A.

Density g/cm³	up to 0,85	over 0,85 up to 0,90	over 0,90 up to 0,95
		Density factor f_d	
S-II-P	1	2	3
S-I-P [a]	1	1,5	2
S-II-I-P [b]	1	1	1

[a] For class I separators operating by gravity only, use f_d for class II separator.
[b] For class I and II separators.

Cleansing agents

Cleansing agent manufactures shall submit a declaration stating that the products is free from organically combined halogen compounds or BTX aromas. Only cleansing agents which form temporary stable emulsions with light liquids and then de-emulsify after cleaning process should be used. Instructions for use shall also be provided, together with the effects of mixing with other cleansing agents, particularly regarding the separation process.

Combined drainage of rainwater and wastewater

If a separator is receiving rainwater and wastewater, e.g. from vehicle washing, and the two maximum flows are not expected to occur simultaneously, then the separator can be sized for the higher flow rate.

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

Wastewater

The wastewater inflow in accordance with 4.1 cas a,, shall be calculated as the sum of the contributing flows from the following formula:

$$Q_s=Q_{s1}+Q_{s2}+Q_{s3}+...$$

where

Q_{s1} is the flow from draw-off point, in l/s;
Q_{s2} is the flow from car washes, in l/s;
Q_{s3} is the flow from high pressure cleaning units, in l/s.

Any other contributing flow shall be added.

Draw-off points

Where is not possible to determinate the maximum flow from draw-off pints bx measurement, it may be estimated by using Table 4. Table 4 takes account the probability of the likelihood of all draw-off pints, irrespective of size, being used at the same time. Calculations should be based on the flow rates from the largest draw-off points first.

Density g/cm³	**Flows from draw-off point Q_{s1}[a] in l/s**				
Nominal diameter	1st point	2nd point	3rd point	4th point	5th point and subsequent
DN15	0,50	0,50	0,35	0,25	0,10
DN20	1,00	1,00	0,70	0,50	0,20
DN25	1,70	1,70	1,20	0,85	0,30

a Values given for supply pressure of about 4 to 5 bar, other supply pressures may cause different Q_v values.

Example of Q_{s1} for 1 DN15, 1 DN20 and 2 DN25 points:

1st point DN25 = 1,7 l/s
2nd point DN25 = 1,7 l/s
3rd point DN20 = 0,7 l/s
4th point DN15 = 0,25 l/s
total Q_{s1} = 4, 35 l/s

Automatic car washes

Wastewater from low pressure car washes (with a back pressure up to 20 bar) where only carriage bodies and chassis are cleaned does not usually contain significant amount of light liquid.

Should there be wastewater from high pressure car washes (with a back pressure up to 20 bar) and/or any additional washing procedures which will result in wastewater containing light liquids, then for every car wash place or drive through a wastewater value Q_{s2} of 2 l/s plus wastewater value Q_{s3} for each high pressure unit in accordance with 4.3.4.3. shall be included. When the car wash place is multiple used, e.g. for maintenance, for plants with higher quantities waste water i.e. without mechanical cleaning devices, the actual quantity of waste water has to be considered.

A reduction of the wastewater flow rate Q_{s2} for plants with water recirculation and overflow into a sewer is not admissible.

High pressure units

Irrespective of the effective use of water from a high pressure unit, a wastewater value Q_{s3} of 2 l/s shall be considered. If there is more than one high pressure unit an additional 1 l/s shall be included for each unit.

If a high pressure unit is being used together with an automatic car wash for this unit a wastewater value Q_{s3} of 1 l/s shall be included.

Rainwater flow rate

For category b, uses (see 4.1), the size of the separator will depend on the design, rainfall intensity and the catchment area draining to the separator.

The maximum rainwater flow rate Qr in l/s shall be calculated using equation (4) in accordance with EN 752-4

$$Q_r=\Psi * i * A$$

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

where

i	rainfall intensity, in l/s*ha
A	area receiving rainfall, measured horizontally, in ha
Ψ	run-off coefficient, dimensionless

In most cases the value of the run-off coefficient can be taken as Ψ =1.

The rainfall intensity is mainly depends on the analysis of local rainfall data and shall be adopted according to local regulations.
For very large rainfall receiving areas, the rainwater flow can be divided by catchment areas and drained into several separators.

NOTE Surface areas covered by a canopy will receive reduced rainfall. For purpose of the equation, the value A may be reduced for these areas.

Spillages

For any spillage of light liquid and to protect the surrounding area uses separator system shall be sized sufficiently to retain any spillage of liquid. A higher storage capacity may be necessary.

Quantity of light liquid

When, in certain cases, a higher light liquid storage capacity than that specified in EN 8585-1 is required, e.g. when more than the usual amount of light liquid is expected, the following options can be considered:

- using a larger nominal size separator than calculated or
- creating light liquid storage capacity outside the separator or
- emptying the separator more frequently than usually

Special cases

Separators operating under special conditions, e.g. for transformer stations, compressor stations, shall be reviewed on a site-specific basis.
Separators receiving wastewater from trade or industrial manufacturing processes may need to be specially sized after investigating the composition and properties of the wastewater.

Sludge traps

Sludge traps shall only be fed from the design inlets and not positioned to allow flow directly from the surface.
NOTE This does not apply to drainage channel type silt collection, e.g. in car washes, to retain solids.

Separator systems shall in corporate a sludge trap either as a separate unit or as an integral part of the separator.

Quantity of sludge anticipated for e.g.:			Minimum sludge trap volume liter	Note
None	•	condesate	Not required	-
Small	•	processing waste water defined small sludge volume	100x	Not for separators smaller than or equal NS 10, expect for covered car parks.
	•	all rainwater collecting areas where a small amount of silt from traffic or similar appears, i.e. catchment basins on petrol tank areas and covered filling stations		
Medium	•	filling stations, car wash by hand, part washing	200x	Minimum volume of sludge traps 600 l
	•	bus washing places		
	•	waste water from garages, vehicle parking lots		
	•	power plants, machinery plants		
High	•	washing plants for site vehicles, site machines, farm machines	300x	Minimum volume of sludge traps 600 l
	•	truck wash places		
	•	automatic car washes i.e. roll-over, drive-through	300x	Minimum volume of sludge traps 5000 l

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

The PURECO oil separators marking is made up of the following components:

TNC 100-2-A

First tag	**Second tag**	**Third tag**	**Fourth tag**
TN means tank third letter indicates the material **TNC** concrete **TNS** steel **TNB** plastic box	Indicates the capacity of the separator if concrete 1-150 l/s if steel 1-300 l/s if box 0,5-10 l/s	Indicates the efficiency 5 mg/l FOG 2 mg/l FOG	Indicates the size of sludge trap A is with 100x sludge trap P is with 200x sludge trap M is with 300x sludge trap (only for request)

Example

Description: 6 500 m^2 park area in Budapest, part of the car park is an Automatic car wash. The recipient is a natural watercourse.

		Select the capacity	**How to?**	**Example**
Step 1.	Q_r	Calculate the max flow rate of rain $Q_r = \Psi * i * A$	Select the surface run off factor from annex, if you don't have detailed information use 1, Select rain intensity from annex find on page 287	0,9 x 220 x 0,65= 128,7 l/s
Step 2.	Q_s	Wastewater quantity Q_s= 2 l/s	x100 x50 x20 x10 x5	128,7 + 2 x 2= 132,7
Step 3.		Multiply by: Peak flow coefficient as stated in BS EN 1825	1, if your density up to 0,85 if higher please select the value from density factor table on page 58	132,7 x 1 =132,7 l/s
Step 4.		Round up to available NS size ENVIA TNC 1-150 ENVIA TNS 1-300 ENVIA TNB 0,5-10	TNC concrete separator, TNS steel separator TNB plastic separator	round up to 150 selected material is steel, capacity is 150 l/s
		Select Class	**How to?**	**Example**
Step 5.		Select your recipient	For Public Sewer inlet choose 5 mg/l FOG (Class II) For Surface Water inlet 2 mg/l FOG (Class I) On page 62 you will find detailed table for selection	The recipient is a natural watercourse TNS 150-2 (Class I)
		Select Sludge Trap	**How to?**	**Example**
Step 6.		Select sludge trap size	- Roads x100 marked with A - Park area x200 marked with P - Car wash x300 marked with M (only for request) please select the value from table on page 60	Water collection are is a parking area TNS 150-2-P
Final		The selceted oil separator	The selected oil separator is a steel oil separator with 150 l/s capacity, efficiency is 2 mg/l FOG, the sludg trap size is 200x	TNS 150-2-P

DESIGN AID – OIL SEPARATOR TANK ENVIA TNC, ENVIA TNS, ENVIA TNB

	Application	Remarks	Treatment before discharge into P.S.[a]	Treatment before discharge into S.W.[a]	Example
1	Rainwater from the petrol station	May not contain detergents of cleaning activities	S-II-P	S-I-P	Additional storage capacity for light liquid may be required.
2	Rainwater from oil storage and oil transfer territories		S-II-P S-IIb-P[b]	S-I-P	
3	Rainwater from vehicle parks etc.		S-II-P S-IIb-P[b]	S-I-P	
4	Rainwater from roads etc. in special cases	e.g. water catchment areas	S-II-P S-IIb-P[b]	S-I-P	
5	Cleaning (spillage and leakage) floors of work-shops, test centres, factories etc.			Discharge into surface water directly from the separator is not allowed. In very exceptional circumstances and with the agreement of the local authority the discharge into surface water with additional treatment after the separator may be permitted.	Use of absorbents.
5.1	With use of cleaning agents		S-I-P		Collect spills and drains on dry materials.
5.2	Without use of cleaning agents		S-II-P		
6	Vehicle wash				
6.1	By hand	Cleaning only car surfaces, cleansing agents free of hydrocarbons	S-P		
6.2	Automatic car washes	Cleaning only car surfaces, including underwash (low pressure), cleansing agents free of hydrocarbons	S-II-P		
6.3	By high pressure cleaner				It is advisable to re-use the treated wastewater.
6.3.1	Cleaning only vehicle surfaces without oil contamination	Cleansing agents free of hydrocarbons	S-P		
6.3.2	Cleaning vehicle surfaces with oil contamination				
6.4	Underwash		S-I-P[c]		
6.5	Engines		S-II-EBS-P		
6.6	Self-service by high-pressure cleaner				
7	Cleaning (expect car wash)	Cleaning engines or parts			It is advisable to re-use the treated wastewater.
7.1	With high-pressure cleaner		S-I-P S-II-EBS-P		
7.2	With rotocleaner		S-I-EBS-P		
8	Removal of paraffin wax or similar, e.g. from new vehicles, including anti-rost treatment		S-II-EBS-P		
9	Scrapyards		S-II-P		Collect spills and drains on dry materials, to avoid water pollution.
10	Soil treatment		S-II-P		
11	Treatment (plans) for sludge and light liquids from separators		S-I-P		

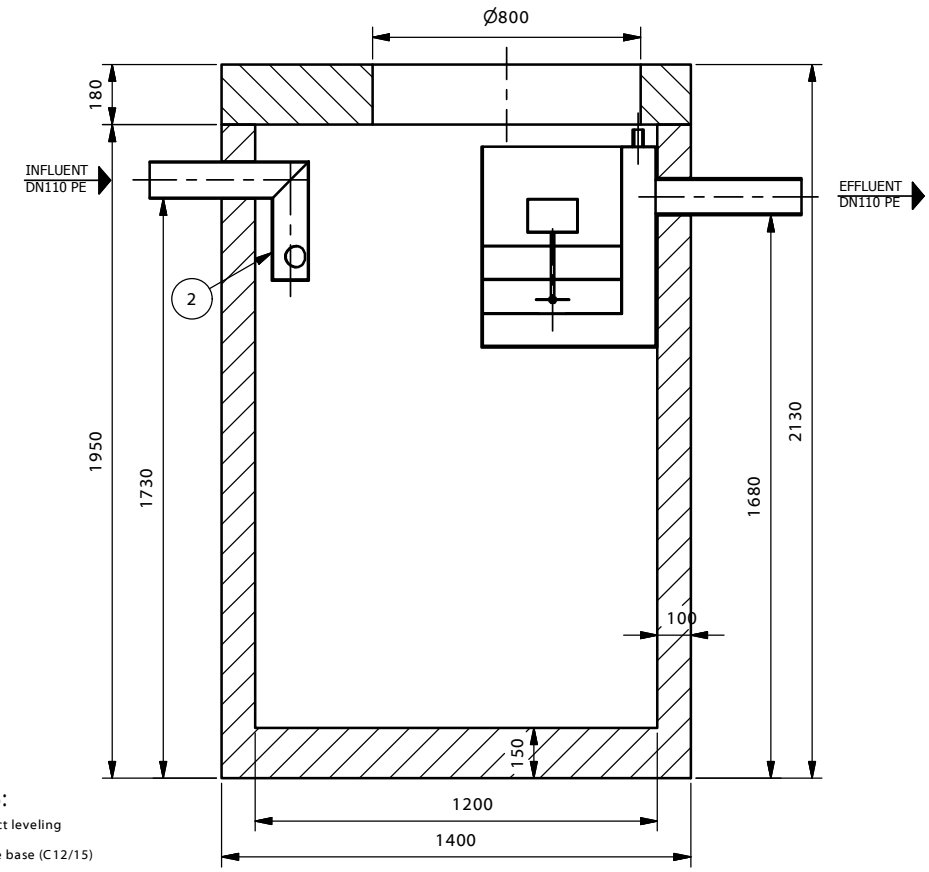
[a] After treatment the effluent is discharged in a public sewer (P.S.) or in surface water (S.W.). Effluents may be discharged if the quality is conform to the discharge standard required by local authorities

[b] Subject to local regulations

[c] - pressure less than 60 bar; - temperature less than 60 °C; - pH neutral; - using of cleansing agents in accordance 4.3.2.3

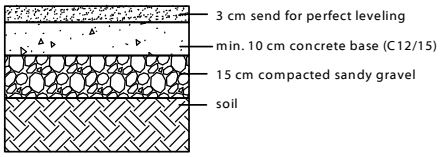
S	Sludge trap
I	Class I separator
II	Class II separator
IIb	Class II bypass separator
P	Sampling shaft
EBS	Emulsion break system or further treatment

A-A (1 : 20)



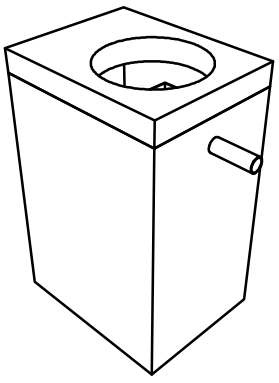
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

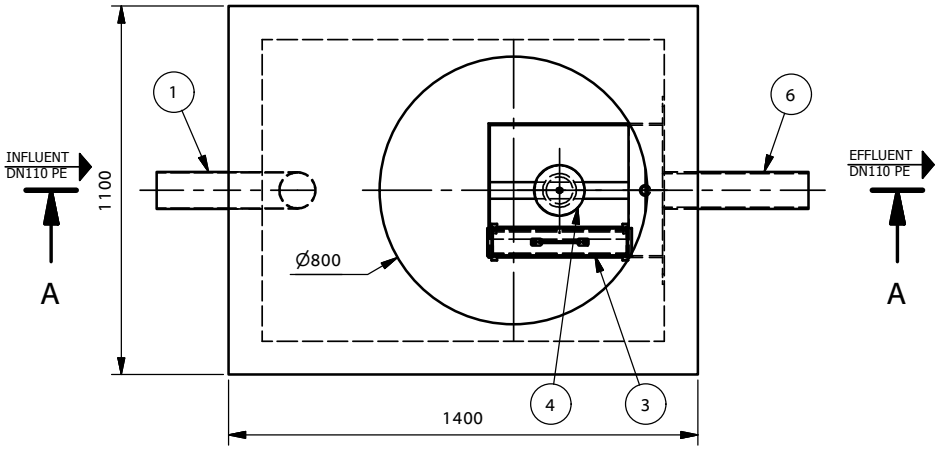
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 1,5-5-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

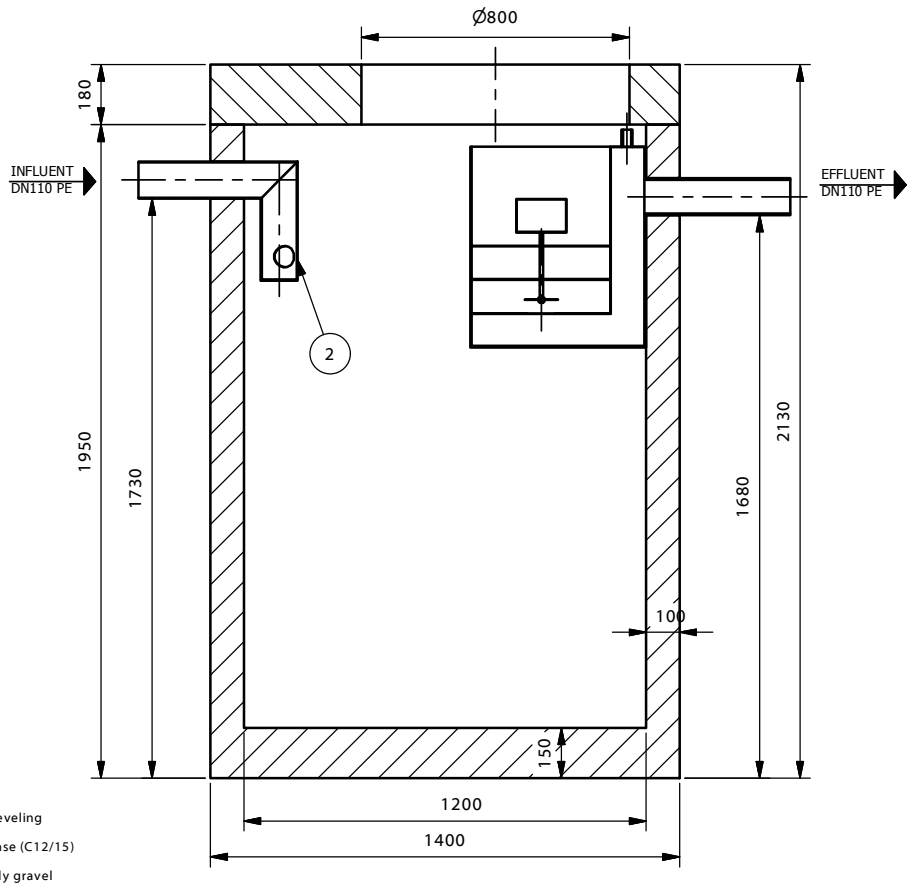
TYP: TNC 1,5-5-A

Informational drawing

M= 1:20

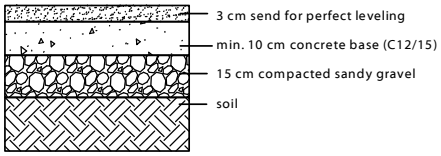
Cleaning capacity:	1,5	l/s
Efficiency:	5	mg/l FOG
Max element weight:	2,4	t
Total weight:	3,1	t

A-A (1 : 20)



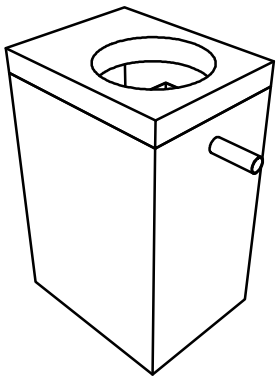
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

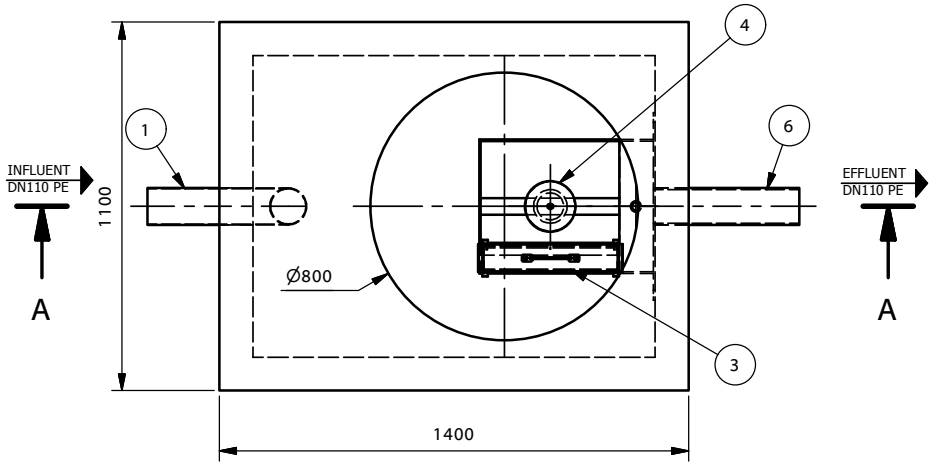
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 3-5-A





ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

TNC 3-5-A

Informational drawing

M= 1:20

Cleaning capacity:	3	l/s
Efficiency:	5	mg/l FOG
Max element weight:	2,4	t
Total weight:	3,1	t

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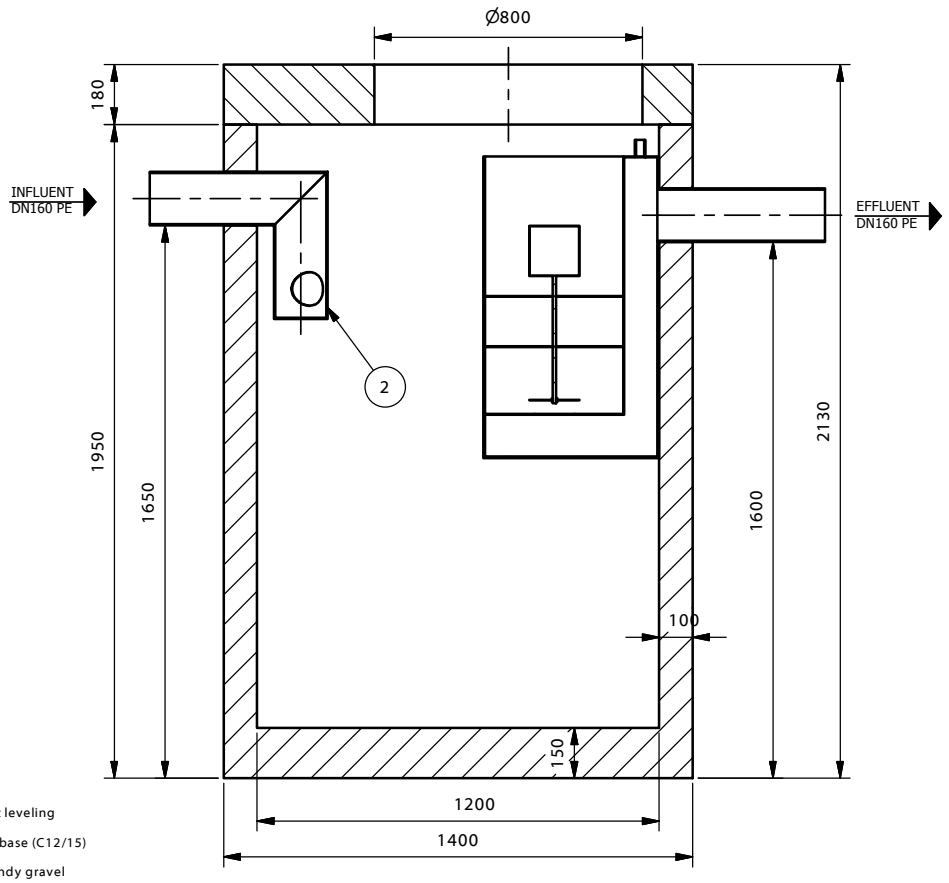
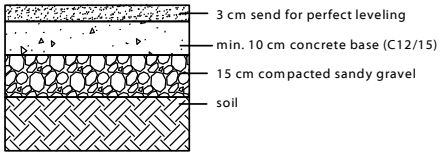
A-A (1 : 20)



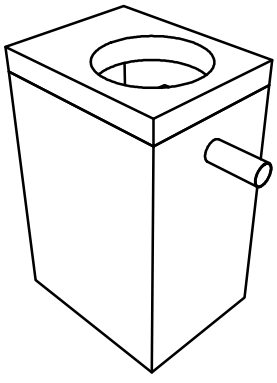
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

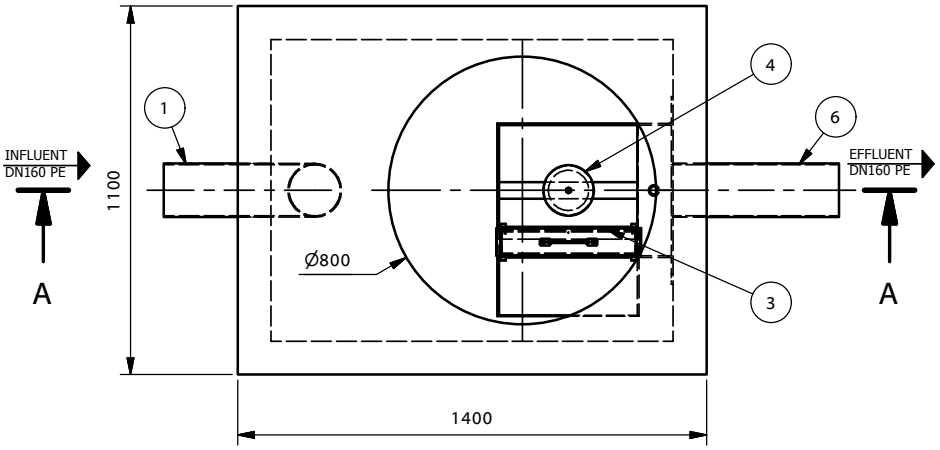
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 6-5-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

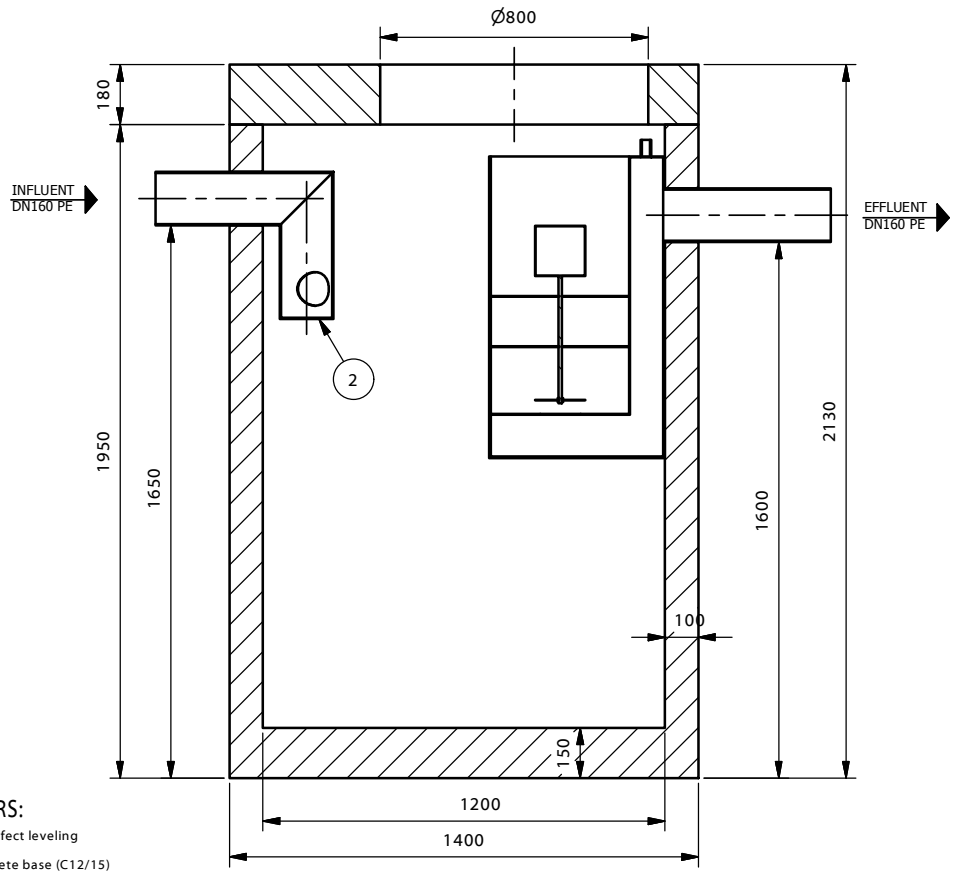
TNC 6-5-A

Informational drawing

M= 1:20

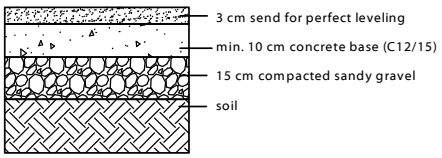
Cleaning capacity:	6	l/s
Efficiency:	5	mg/l FOG
Max element weight:	2,4	t
Total weight:	3,1	t

A-A (1 : 20)



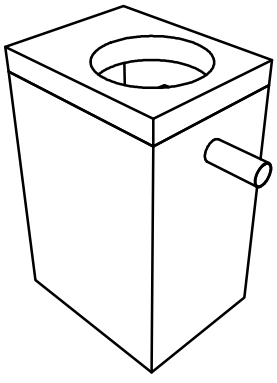
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

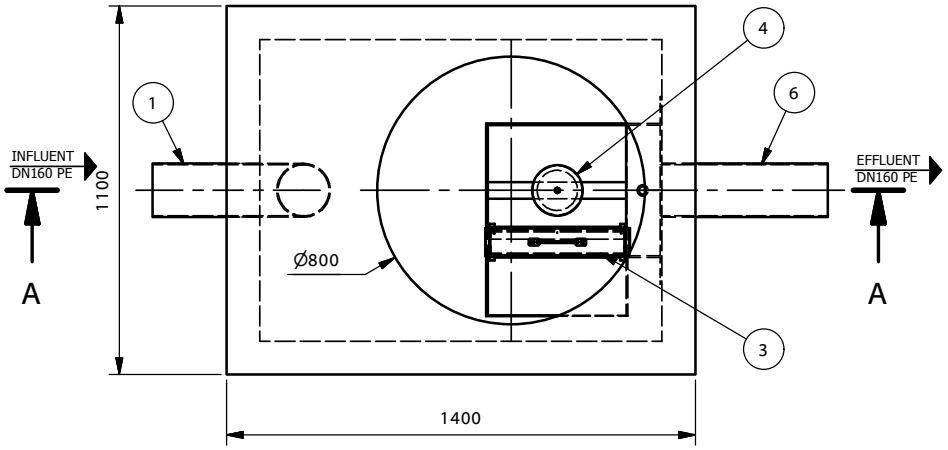
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 10-5-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

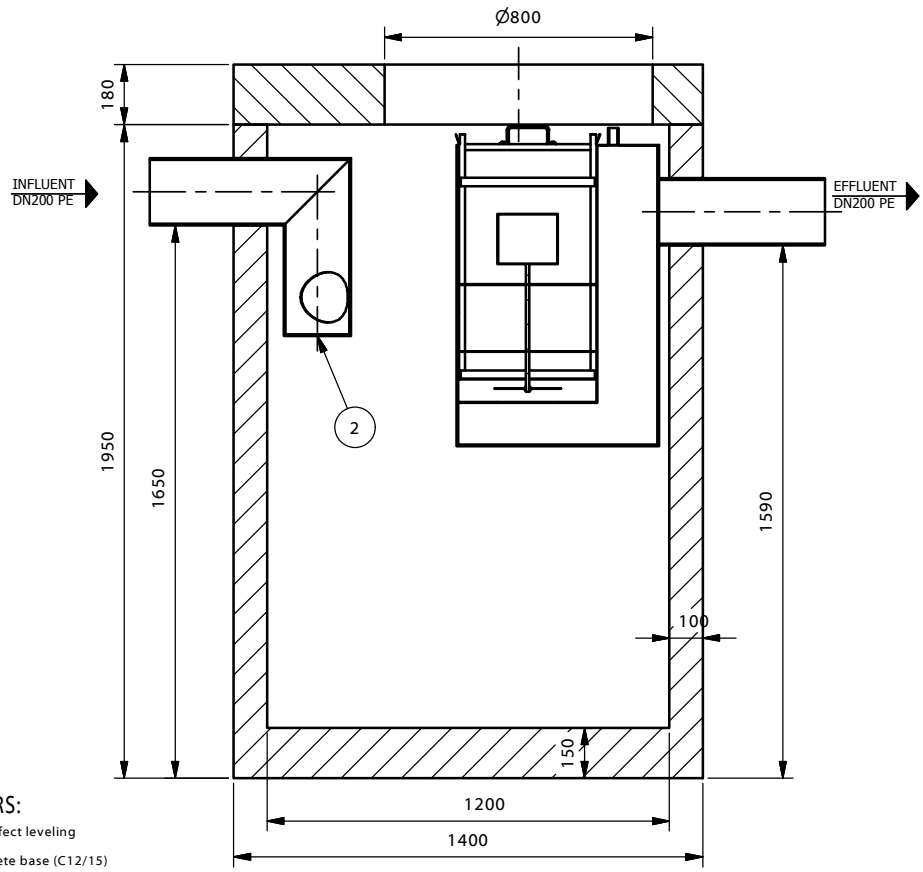
TNC 10-5-A

Informational drawing

M= 1:20

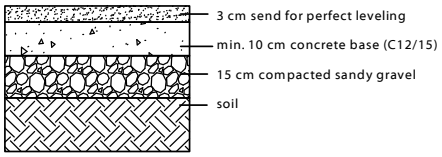
Cleaning capacity:	10	l/s
Efficiency:	5	mg/l FOG
Max element weight:	2,4	t
Total weight:	3,1	t

A-A (1 : 20)



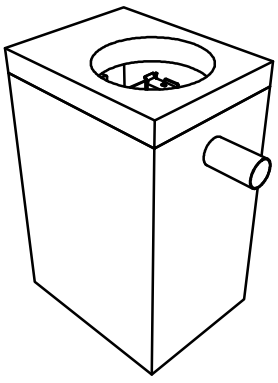
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

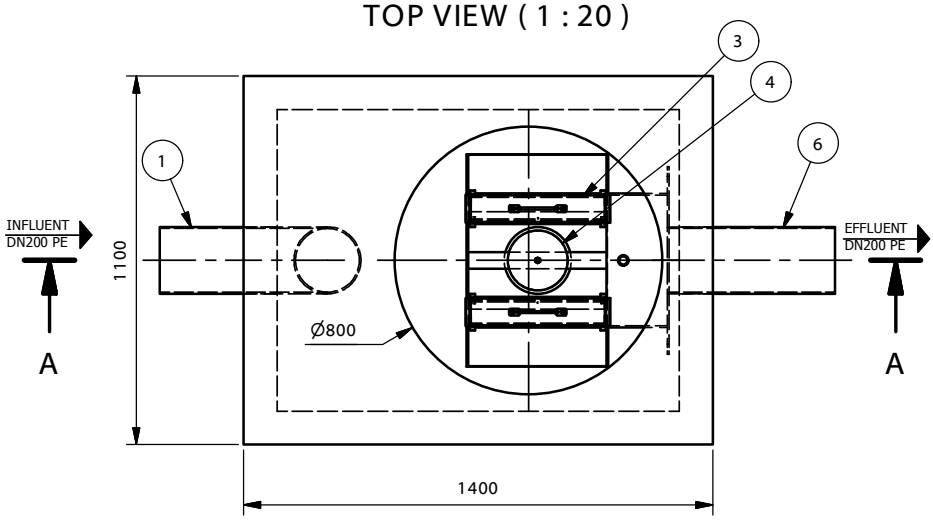
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 15-5-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

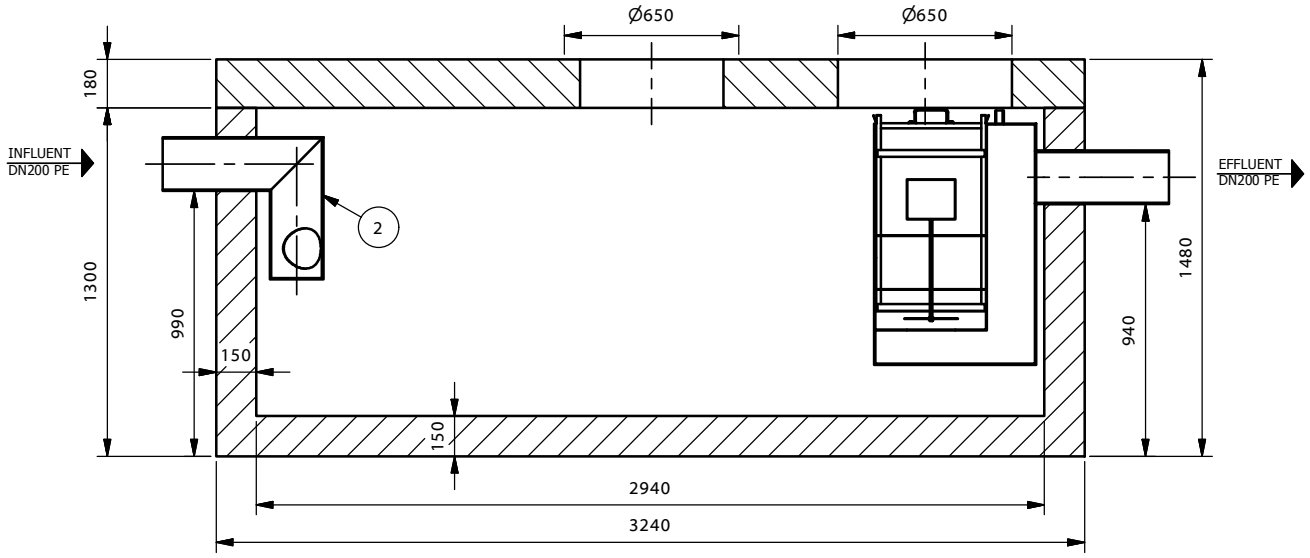
TNC 15-5-A

Informational drawing

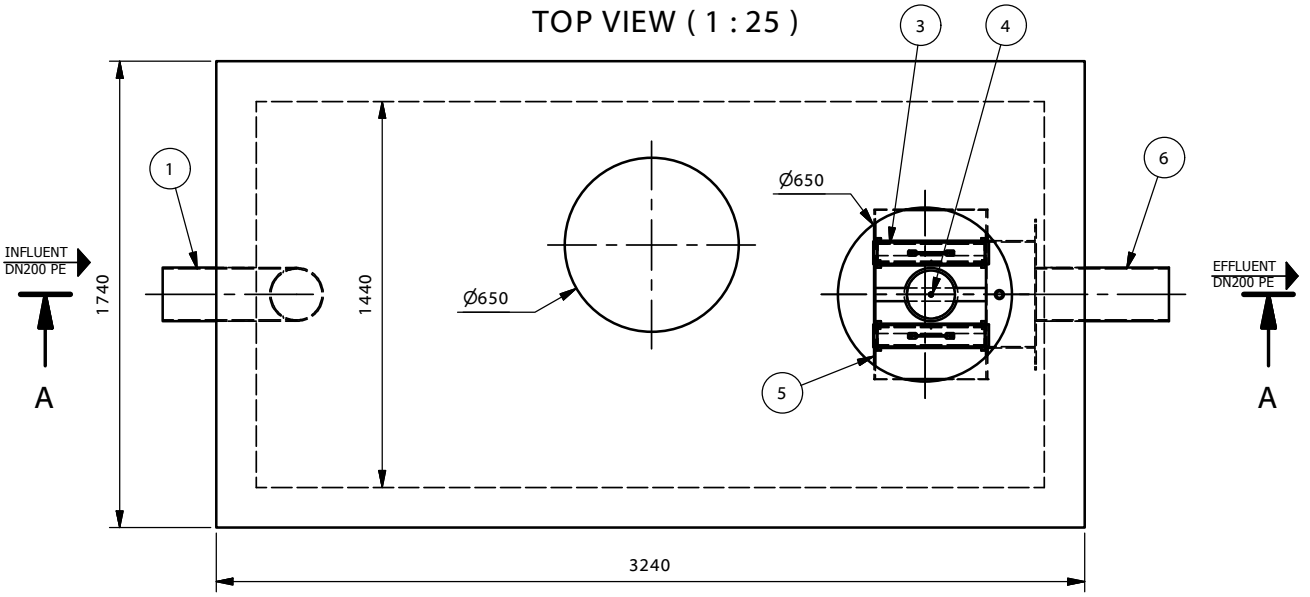
M= 1:20

Cleaning capacity:	15	l/s
Efficiency:	5	mg/l FOG
Max element weight:	3,1	t
Total weight:	2,4	t

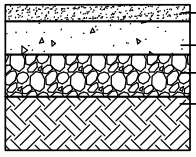
A-A (1 : 25)



TOP VIEW (1 : 25)

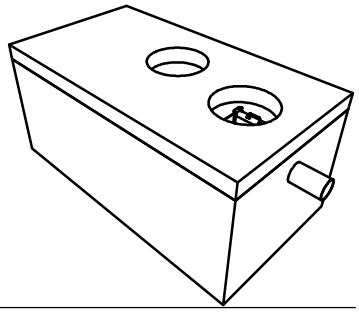


RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

TNC 20-5-A



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

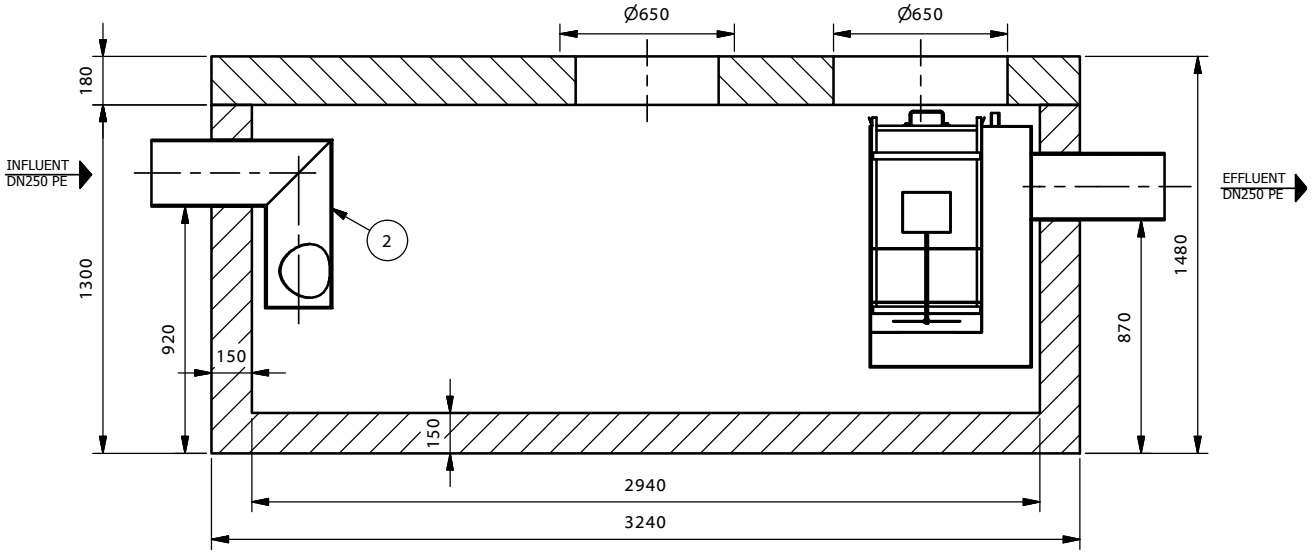
TNC 20-5-A

Informational drawing

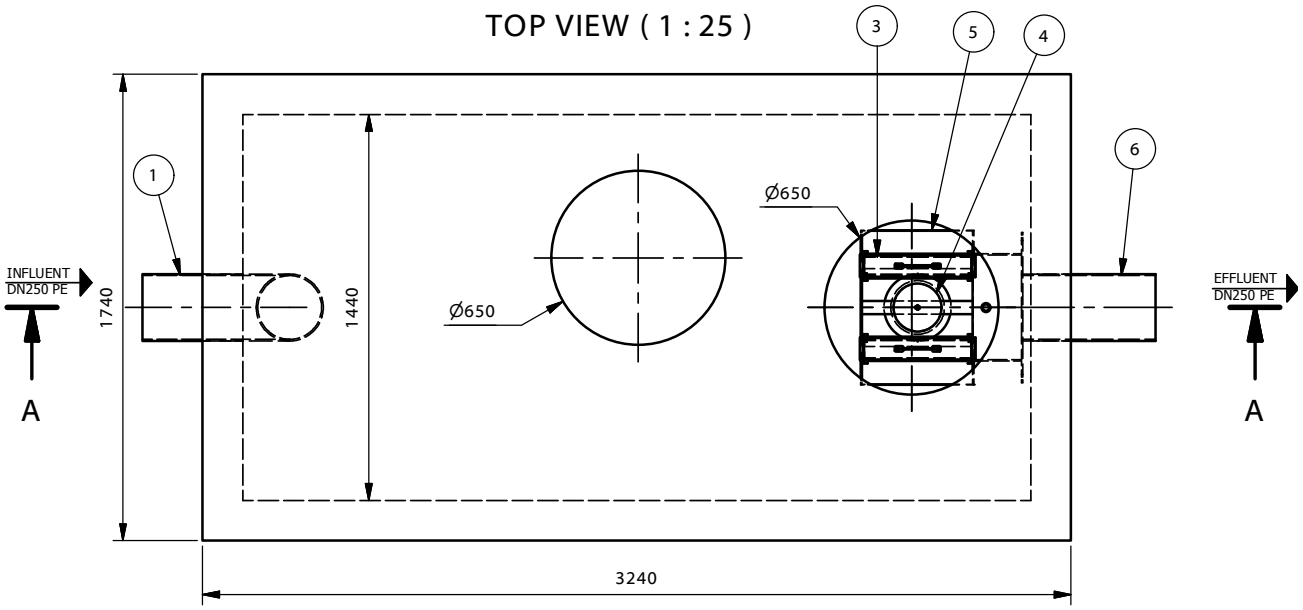
M= 1:25

Cleaning capacity:	20	l/s
Efficiency:	5	mg/l FOG
Max element weight:	5,7	t
Total weight:	8,0	t

A-A (1 : 25)

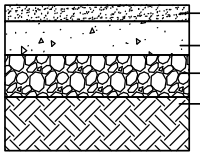


TOP VIEW (1 : 25)

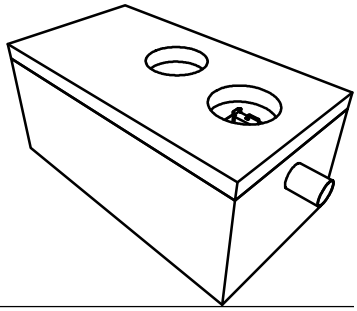


TNC 25-5-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

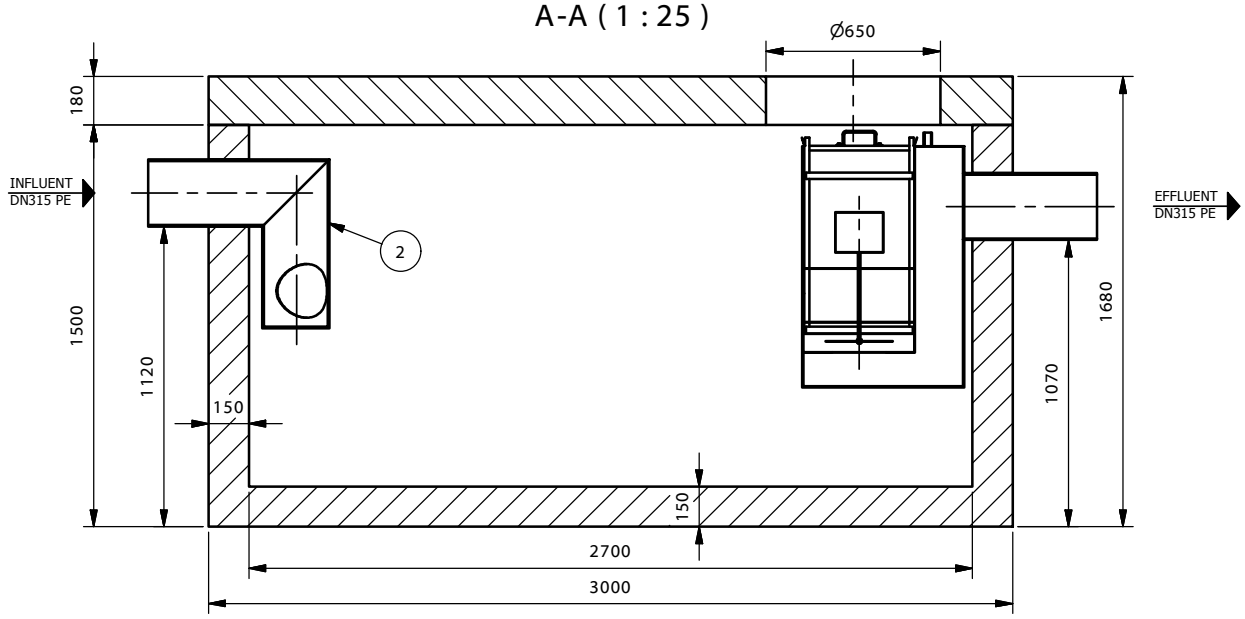
TNC 25-5-A

Informational drawing

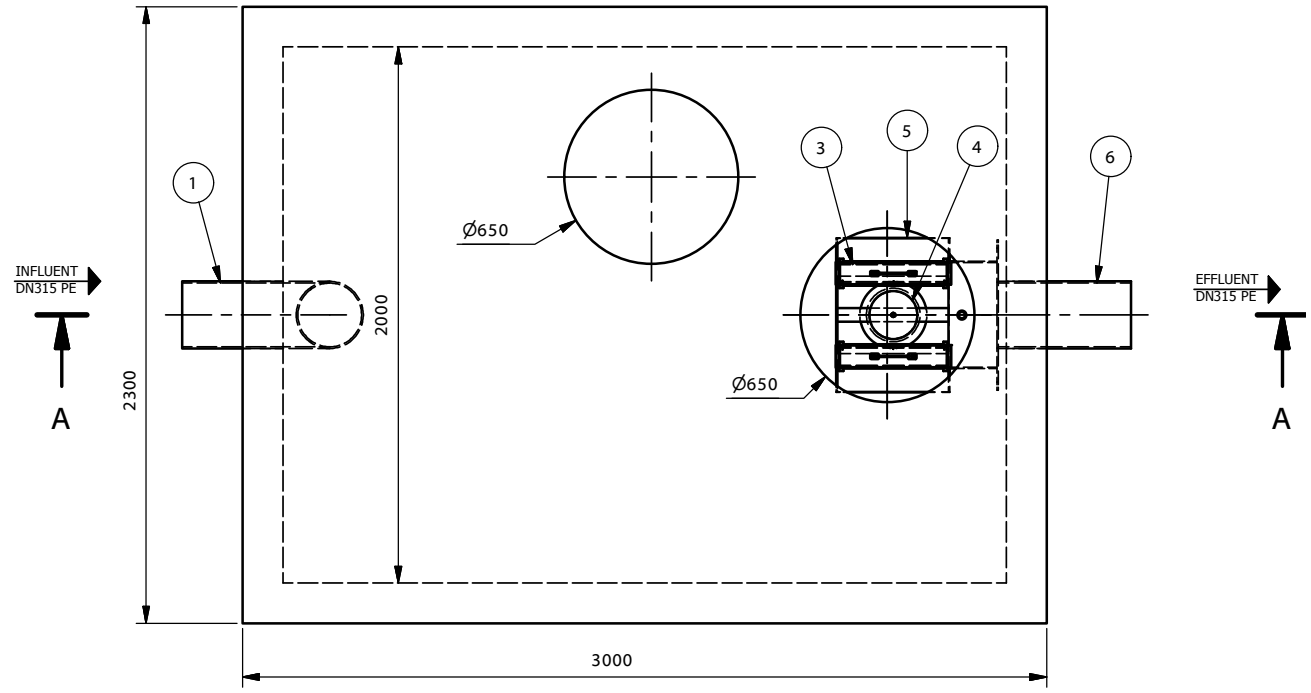
M= 1:25

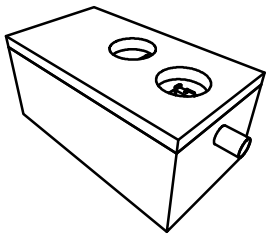
Cleaning capacity:	25	l/s
Efficiency:	5	mg/l FOG
Max element weight:	5,7	t
Total weight:	8,0	t

A-A (1 : 25)



TOP VIEW (1 : 25)

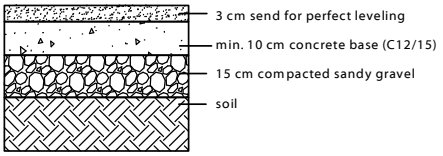




TNC 30-5-A

1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

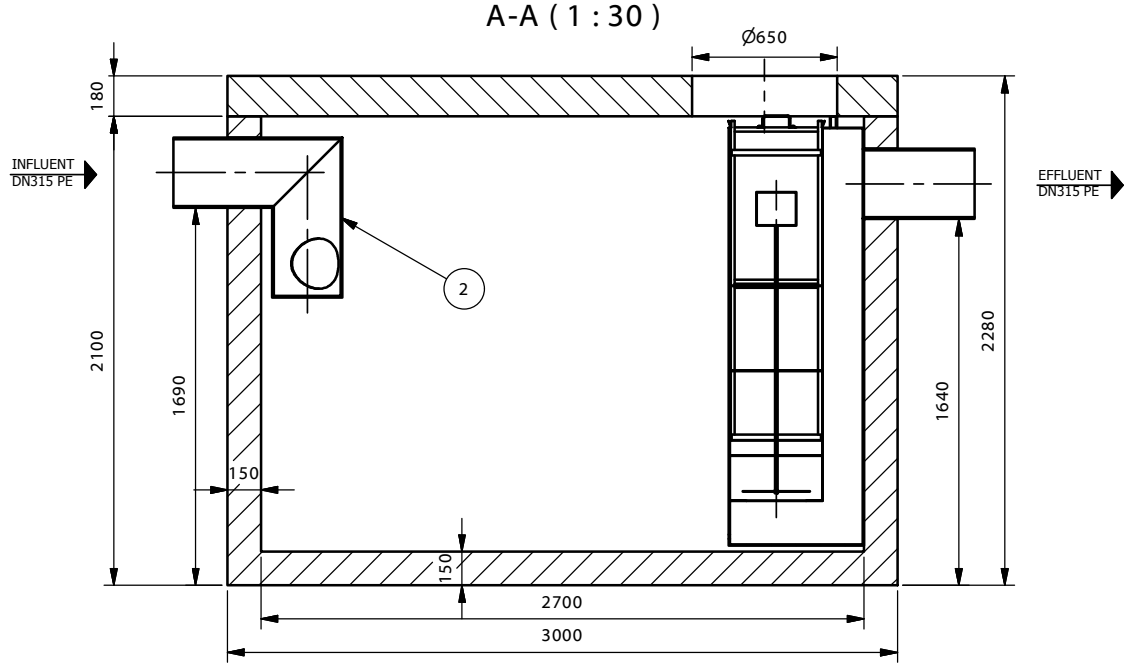
TNC 30-5-A

Informational drawing

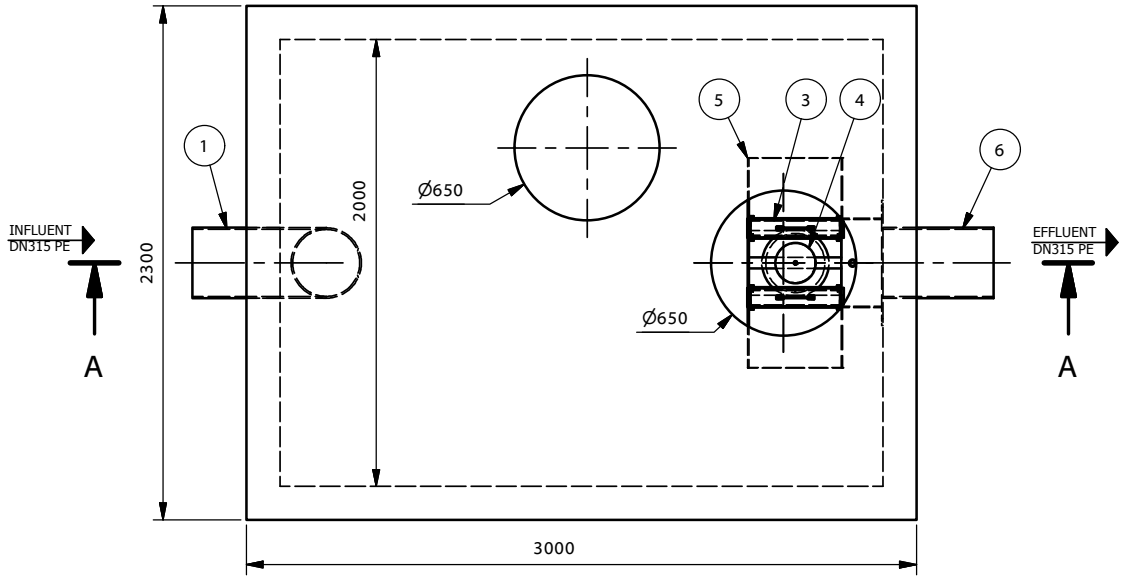
M= 1:25

Cleaning capacity:	30	l/s
Efficiency:	5	mg/l FOG
Max element weight:	7,0	t
Total weight:	9,9	t

A-A (1 : 30)

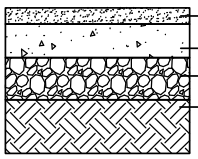


TOP VIEW (1 : 30)

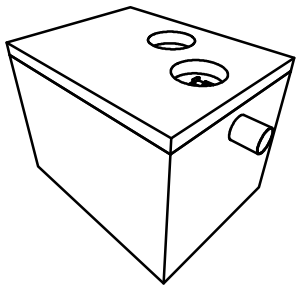


TNC 40-5-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

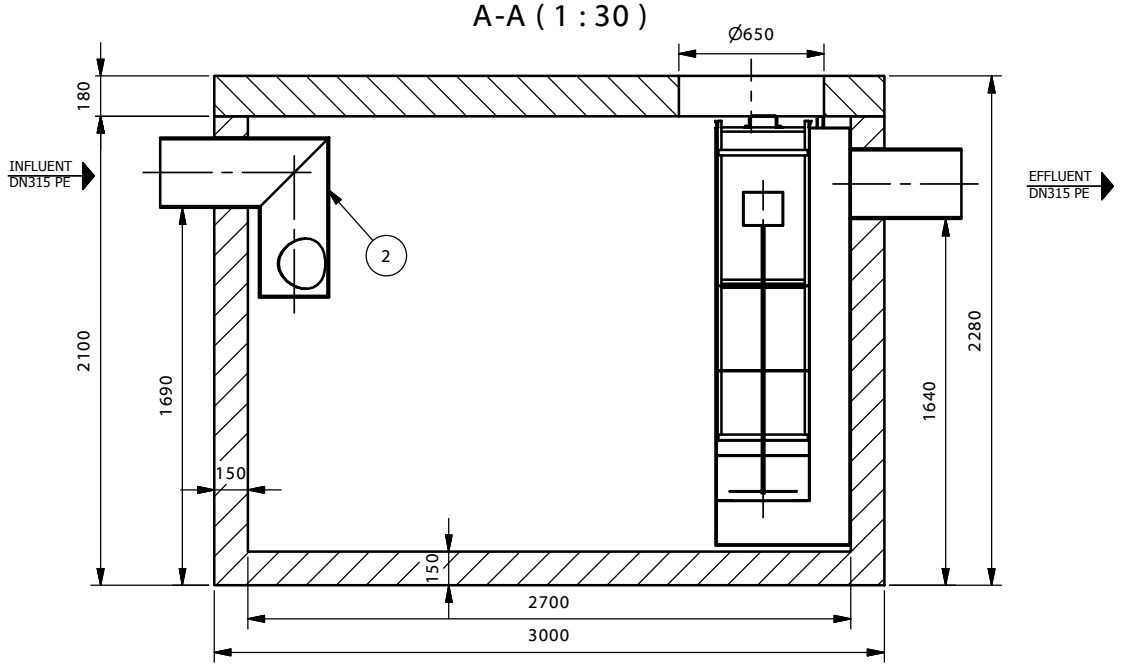
TNC 40-5-A

Informational drawing

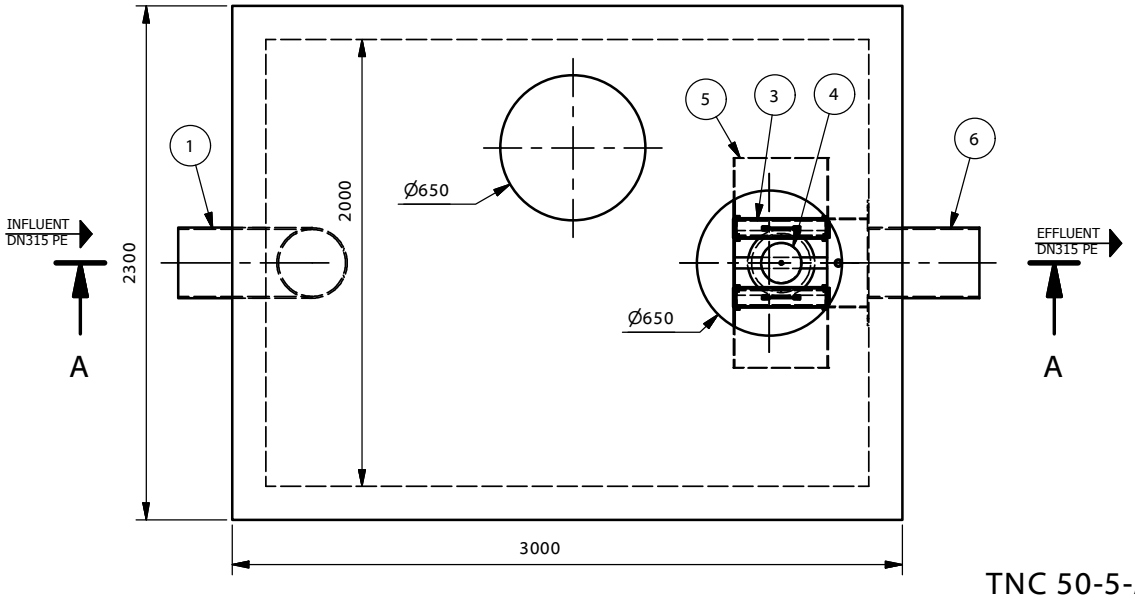
M= 1:30

Cleaning capacity:	40	l/s
Efficiency:	5	mg/l FOG
Max element weight:	9,1	t
Total weight:	12,0	t

A-A (1 : 30)

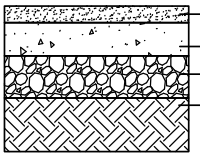


TOP VIEW (1 : 30)

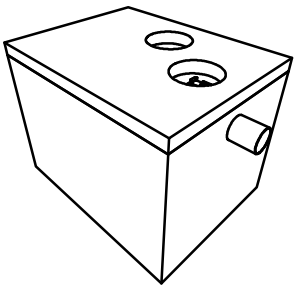


TNC 50-5-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

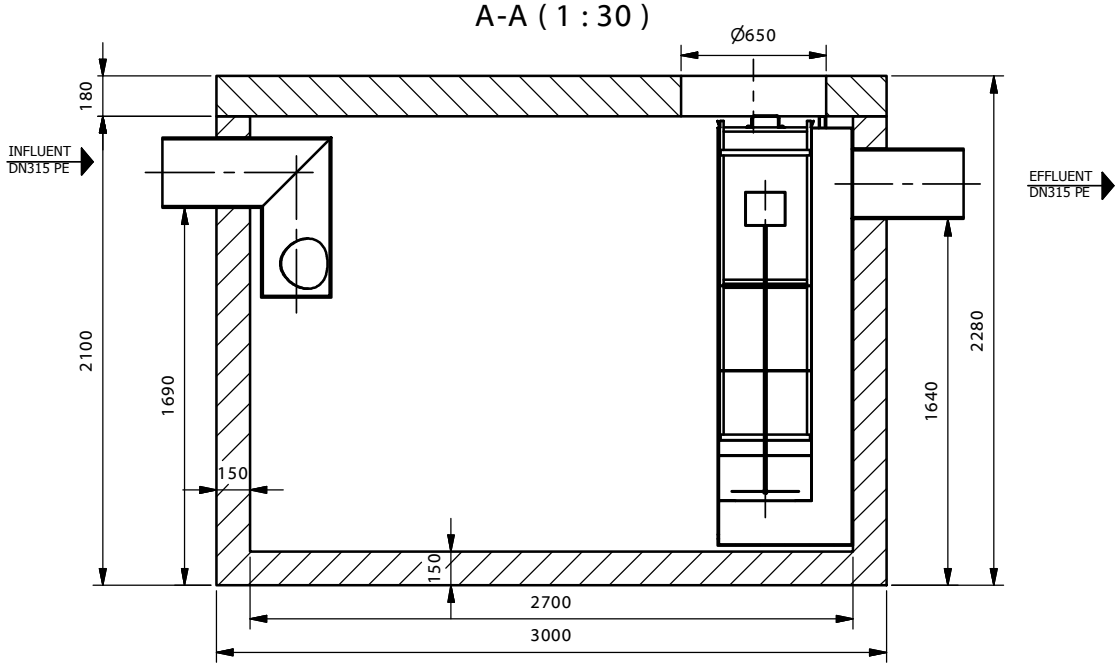
TNC 50-5-A

Informational drawing

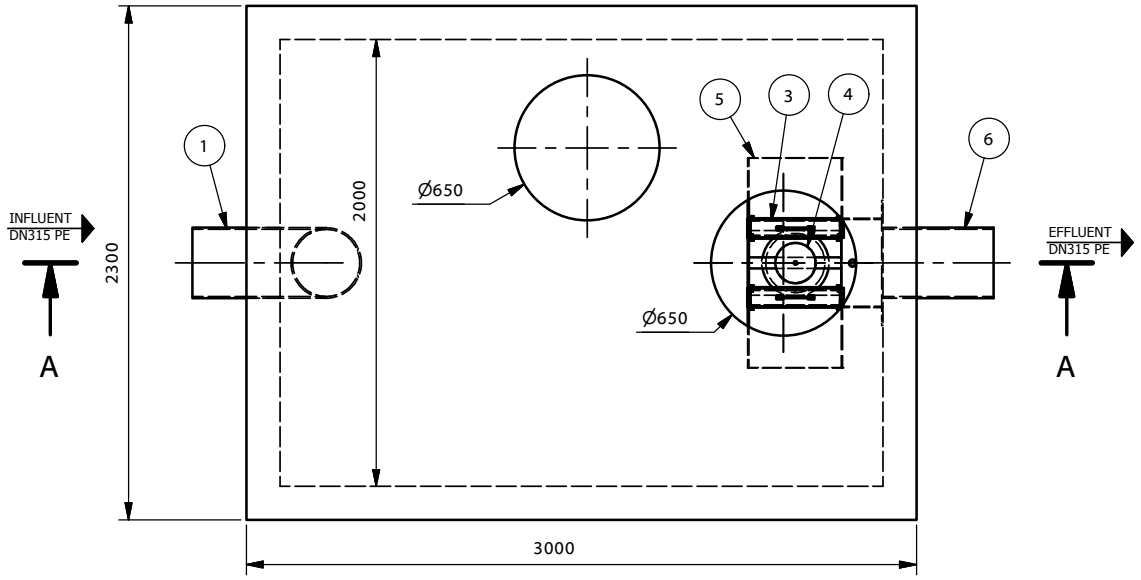
M= 1:30

Cleaning capacity:	50	l/s
Efficiency:	5	mg/l FOG
Max element weight:	9,1	t
Total weight:	12,0	t

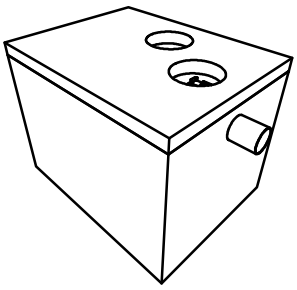
A-A (1 : 30)



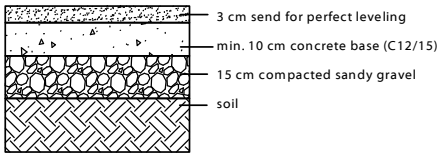
TOP VIEW (1 : 30)



TNC 65-5-A



RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

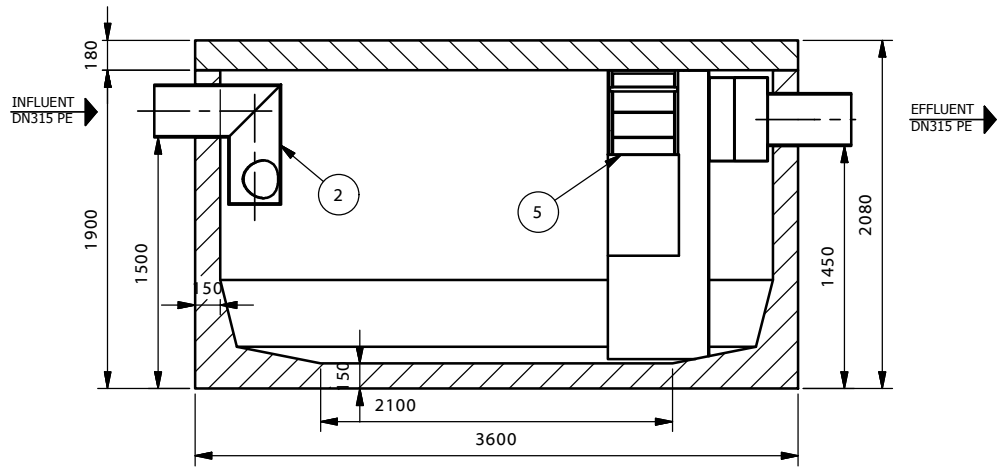
TNC 65-5-A

Informational drawing

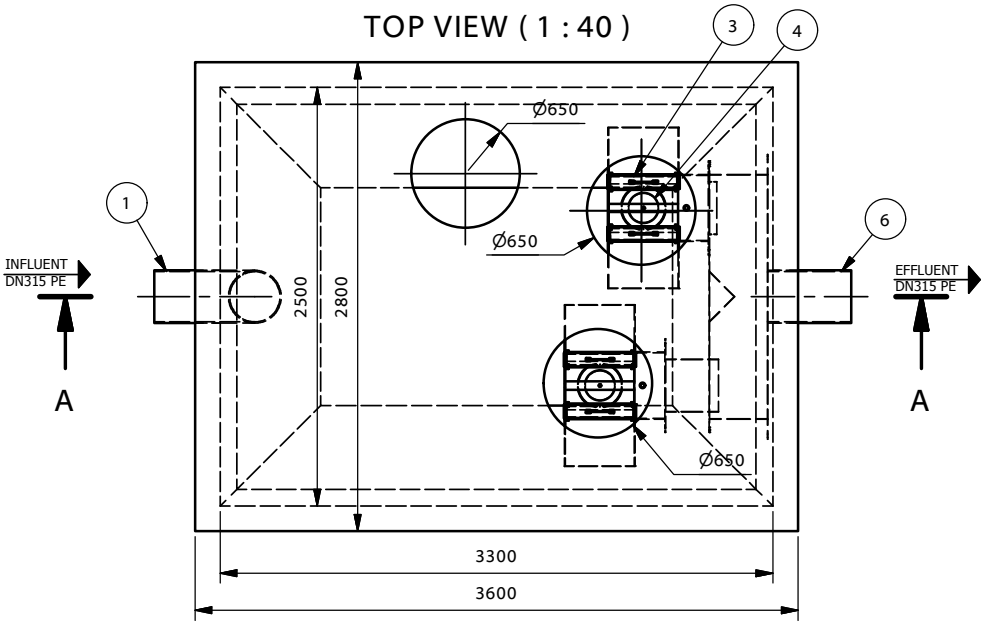
M= 1:30

Cleaning capacity:	65	l/s
Efficiency:	5	mg/l FOG
Max element weight:	9,1	t
Total weight:	12,0	t

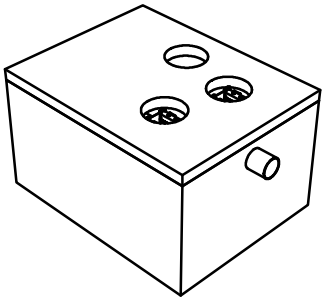
A-A (1 : 40)



TOP VIEW (1 : 40)

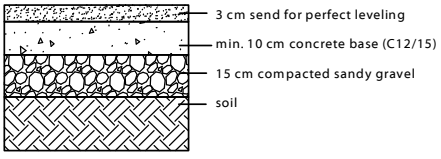


TNC 80-5-A



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

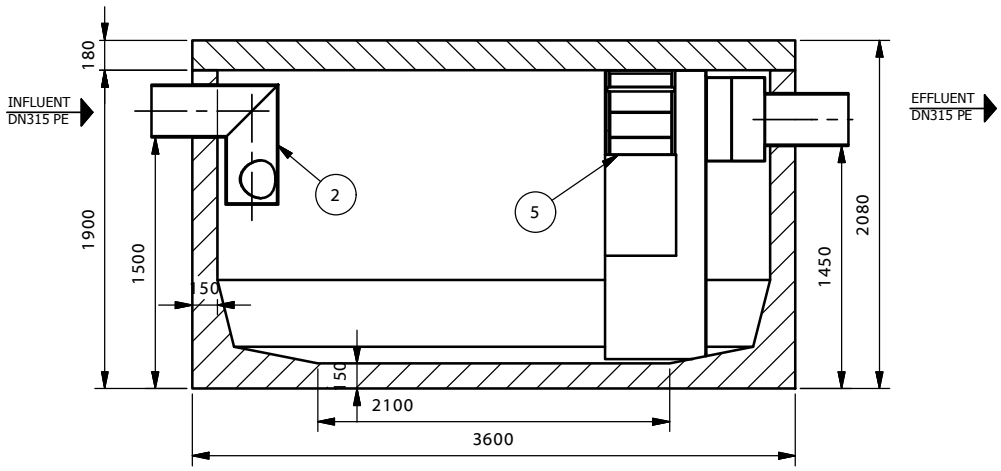
TNC 80-5-A

Informational drawing

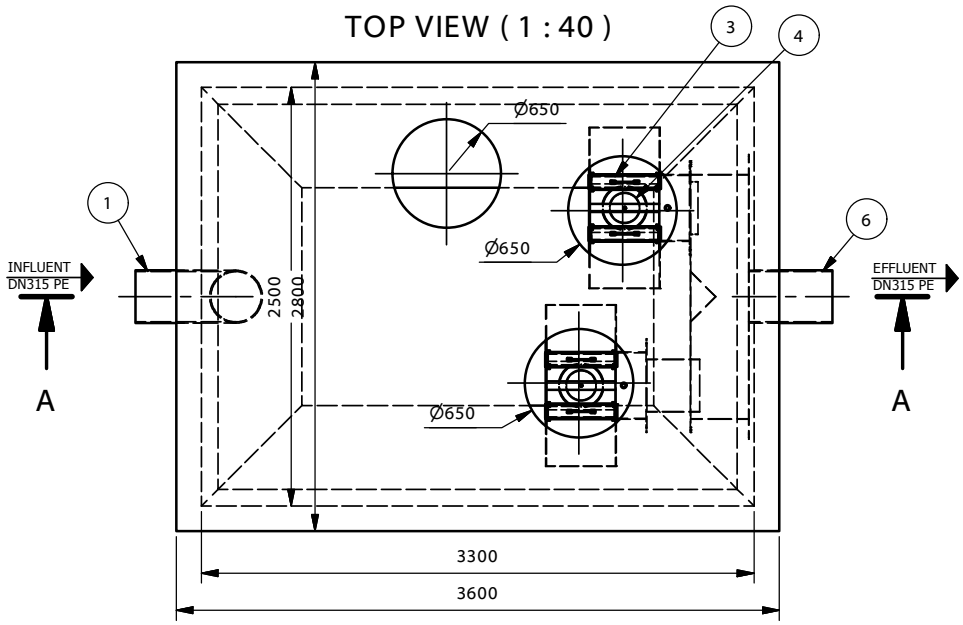
M= 1:40

Cleaning capacity:	80	l/s
Efficiency:	5	mg/l FOG
Max element weight:	10,8	t
Total weight:	15,0	t

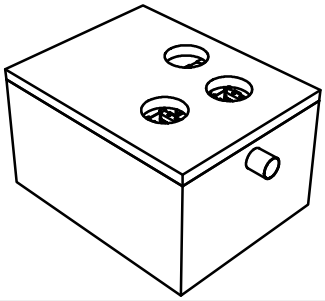
A-A (1 : 40)



TOP VIEW (1 : 40)

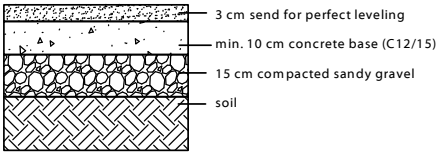


TNC 100-5-A



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

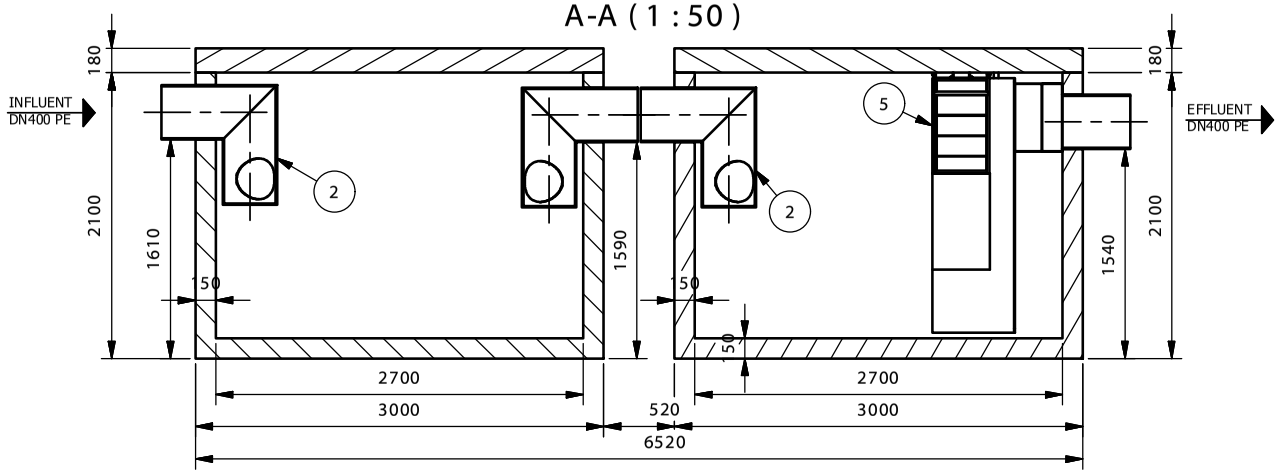
TNC 100-5-A

Informational drawing

M= 1:40

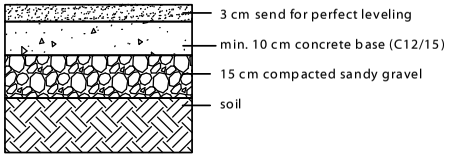
Cleaning capacity:	100	l/s
Efficiency:	5	mg/l FOG
Max element weight:	10,8	t
Total weight:	15,0	t

A-A (1 : 50)

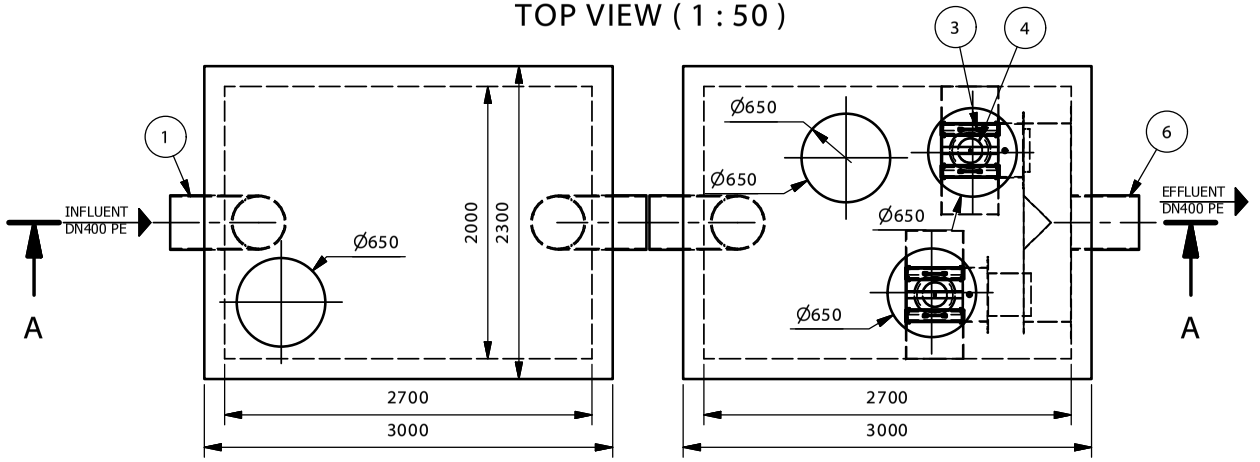


1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

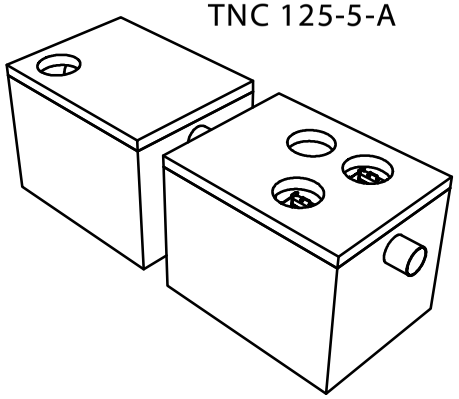
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 50)



TNC 125-5-A



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TYP:

ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

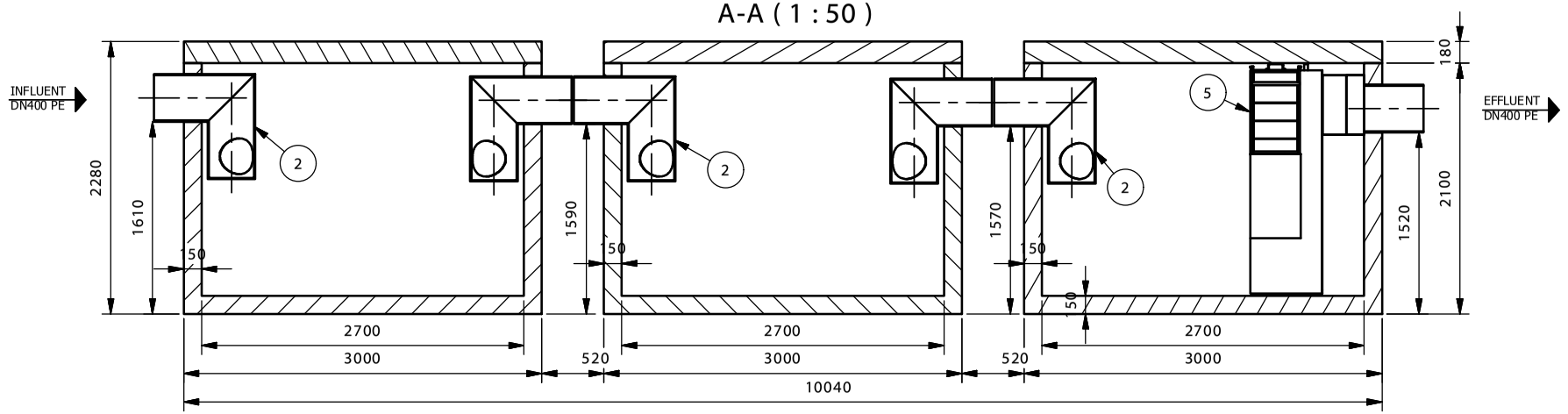
TNC 125-5-A

Informational drawing

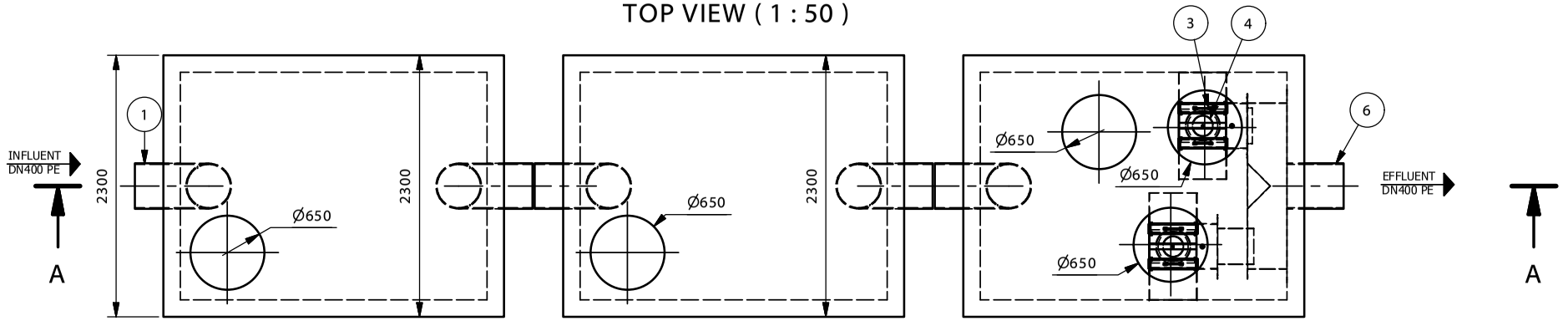
M= 1:50

Cleaning capacity:	125	l/s
Efficiency:	5	mg/l FOG
Max element weight:	9,1	t
Total weight:	23,9	t

A-A (1 : 50)

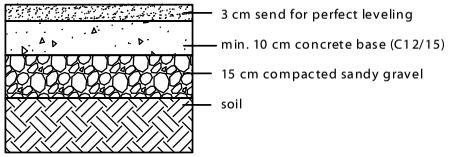


TOP VIEW (1 : 50)

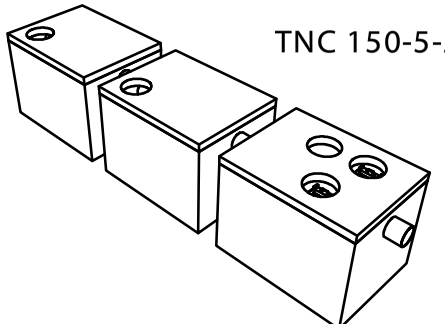


1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



TNC 150-5-A



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

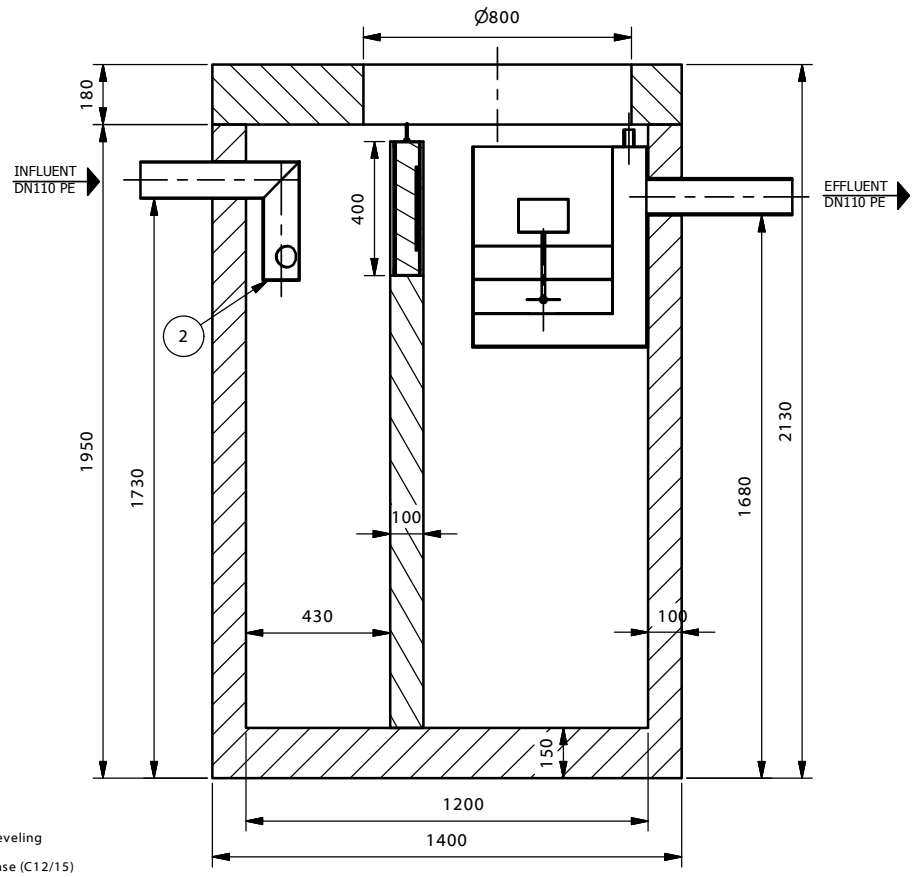
TNC 150-5-A

Informational drawing

M= 1:50

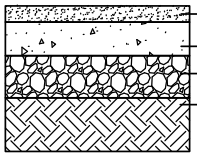
Cleaning capacity:	150	l/s
Efficiency:	5	mg/l FOG
Max element weight:	9,1	t
Total weight:	35,9	t

A-A (1 : 20)



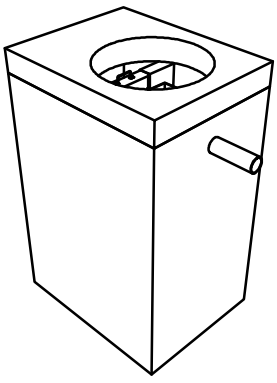
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

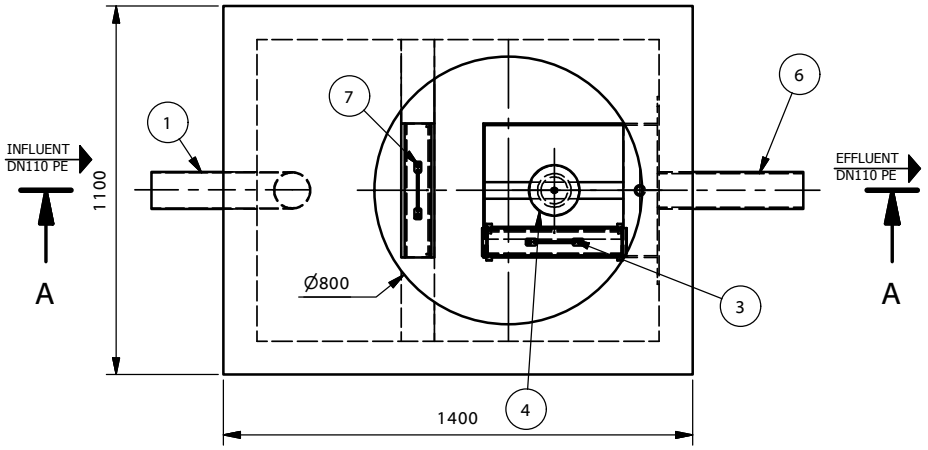
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 1,5-2-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

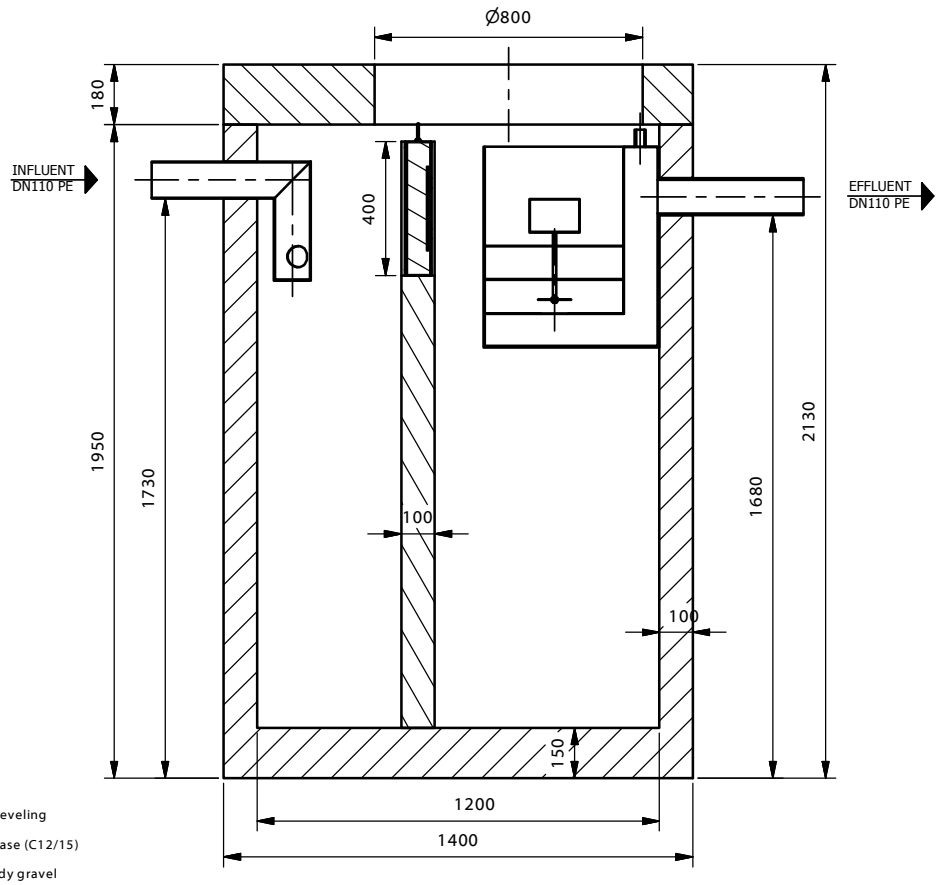
TNC 1,5-2-A

Informational drawing

M= 1:20

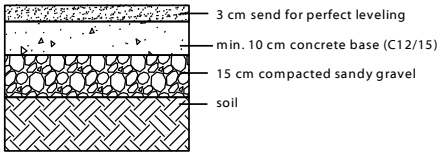
Cleaning capacity:	1,5	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	2,8	t
Total weight:	3,4	t

A-A (1 : 20)



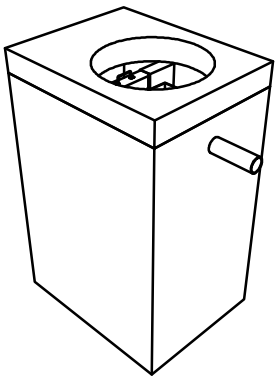
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

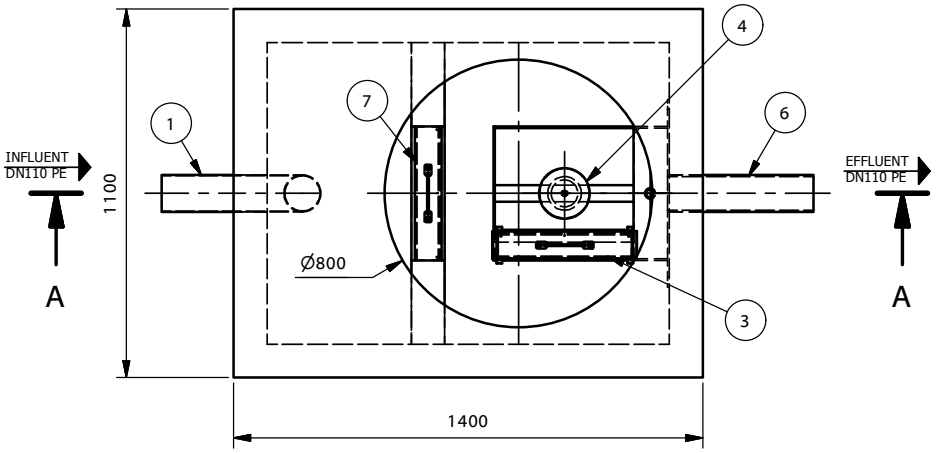
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 3-2-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

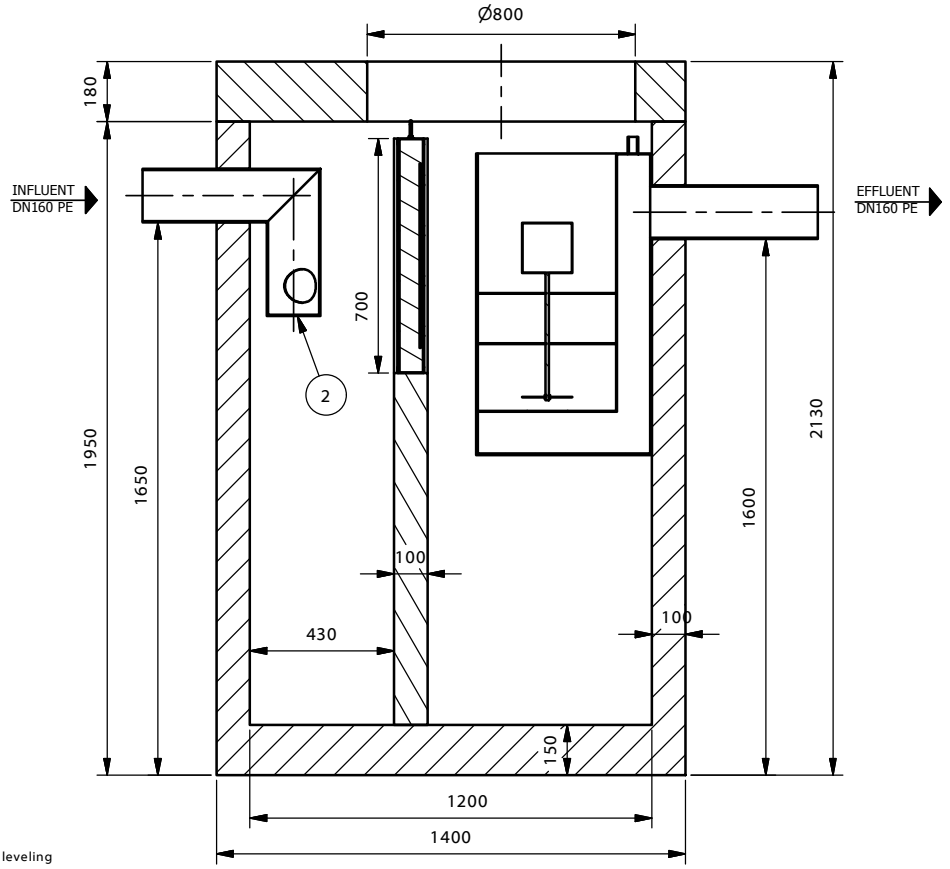
TNC 3-2-A

Informational drawing

M= 1:20

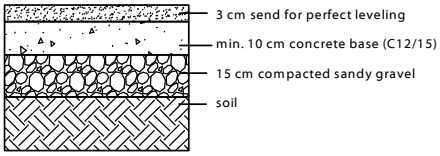
Cleaning capacity:	3	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	2,8	t
Total weight:	3,4	t

A-A (1 : 20)



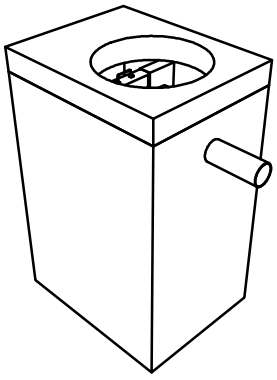
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

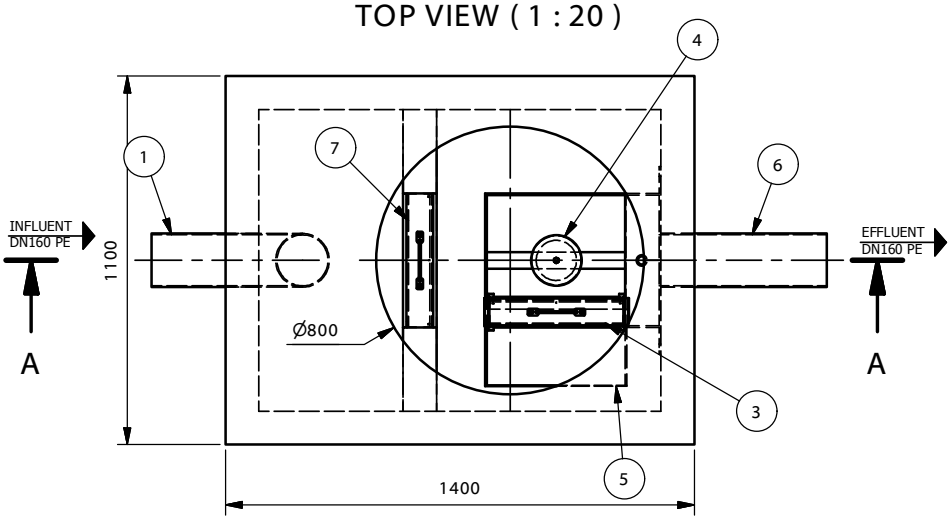
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 6-2-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

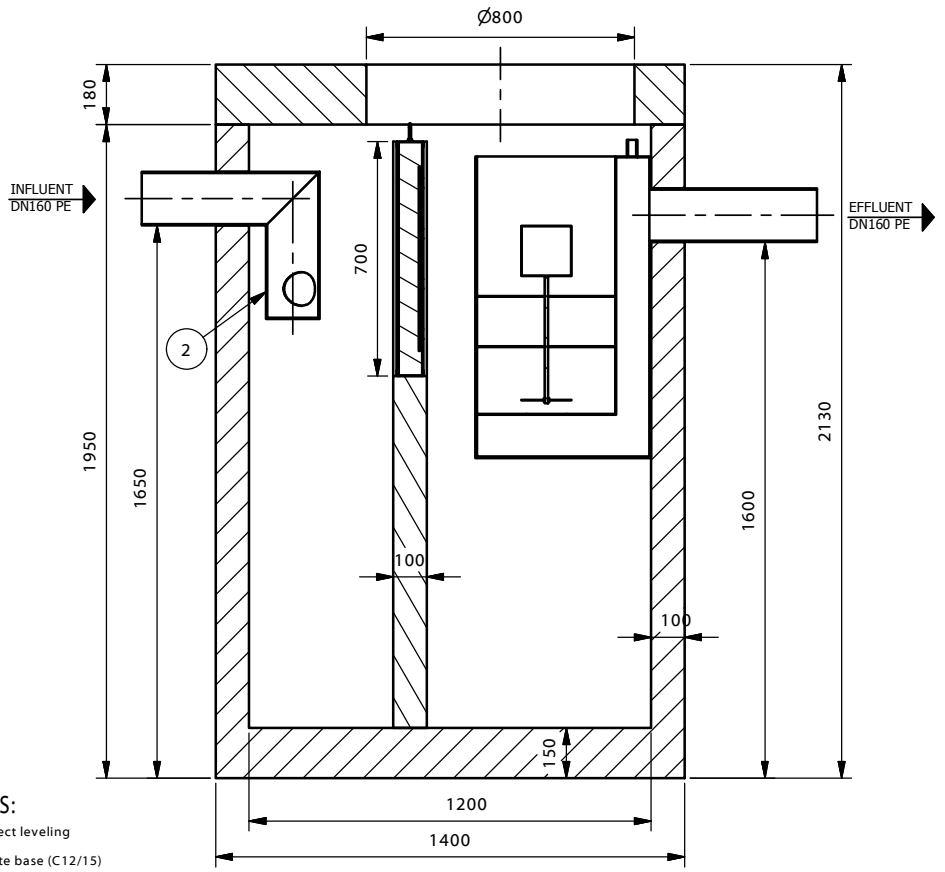
TNC 6-2-A

Informational drawing

M= 1:20

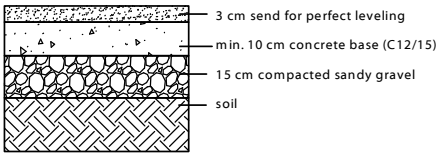
Cleaning capacity:	6	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	2,8	t
Total weight:	3,4	t

A-A (1 : 20)



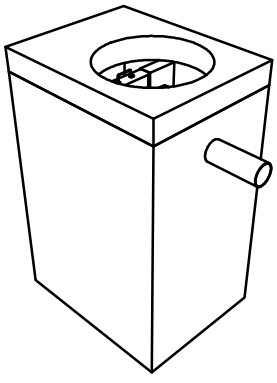
1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

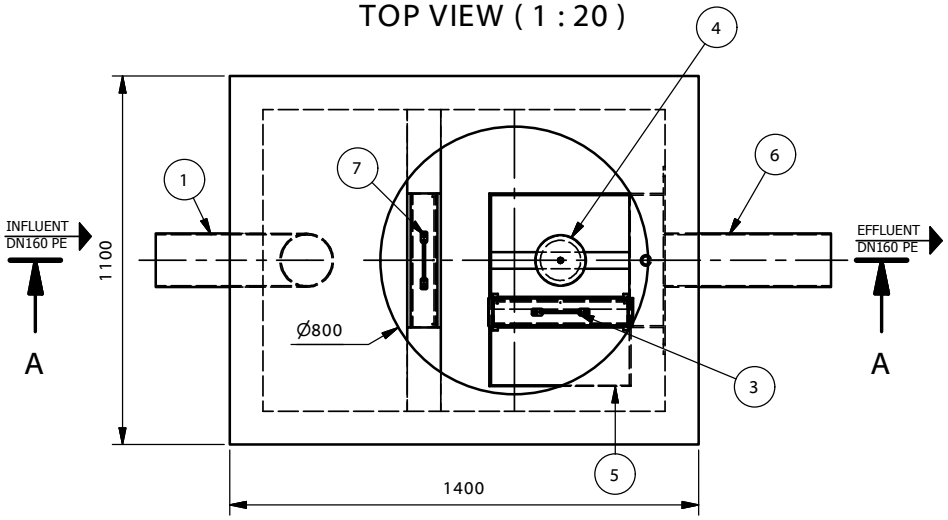
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 20)

TNC 10-2-A





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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

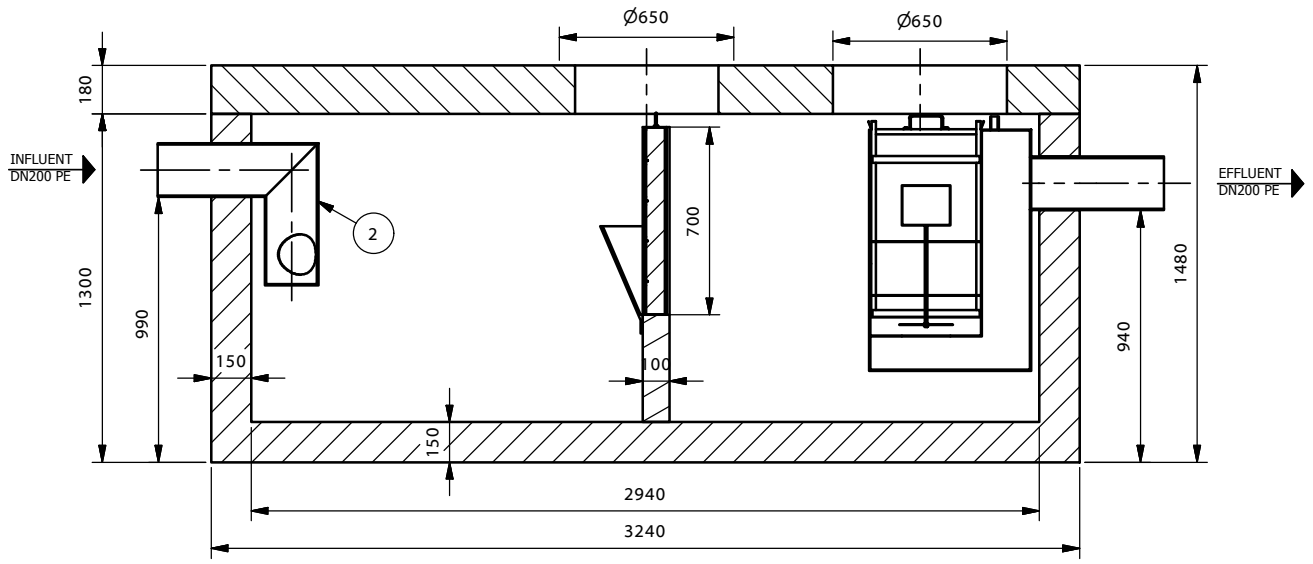
TNC 10-2-A

Informational drawing

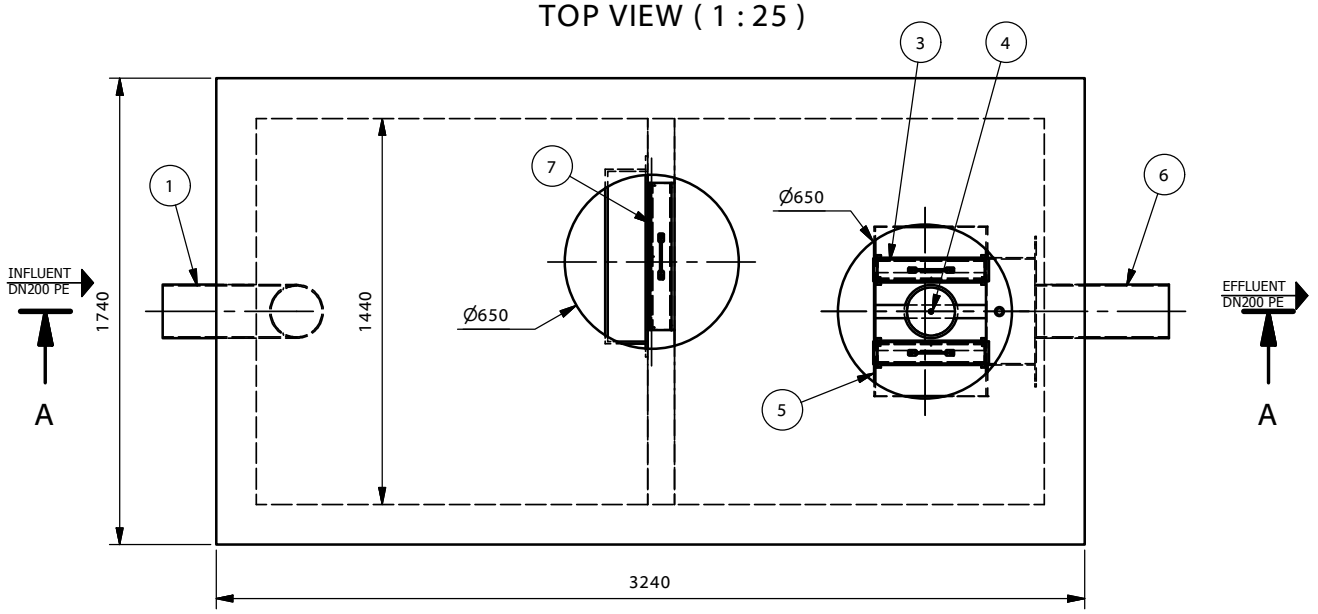
M= 1:20

Cleaning capacity:	10	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	2,8	t
Total weight:	3,4	t

A-A (1 : 25)

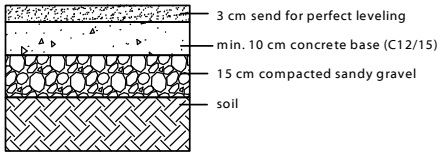


TOP VIEW (1 : 25)

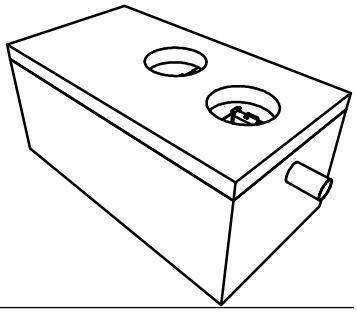


TNC 15-2-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

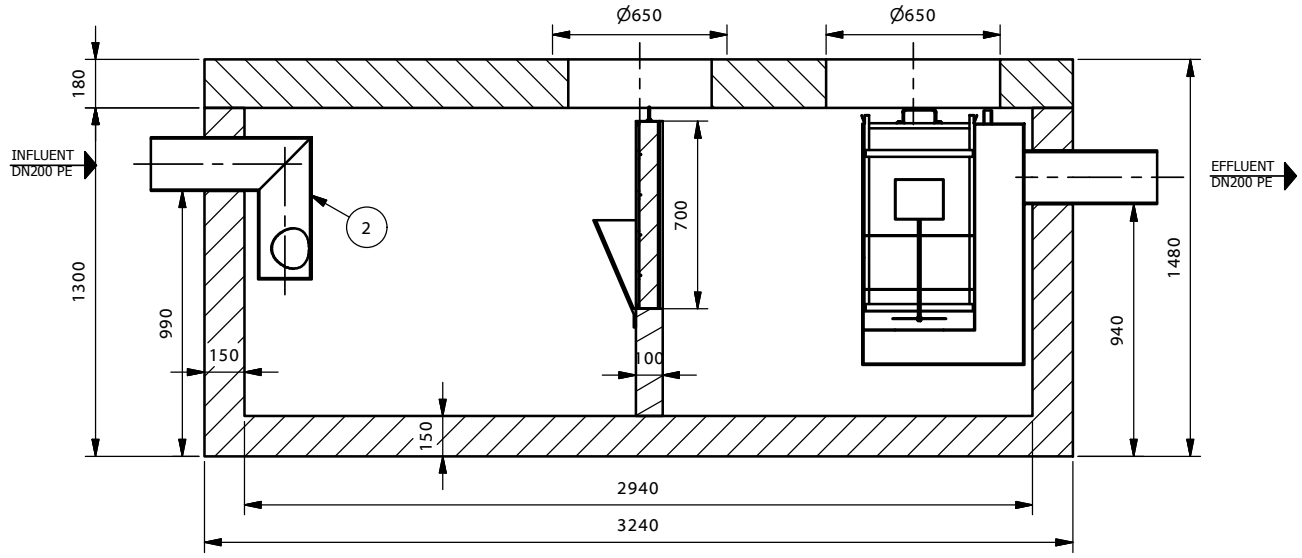
TNC 15-2-A

Informational drawing

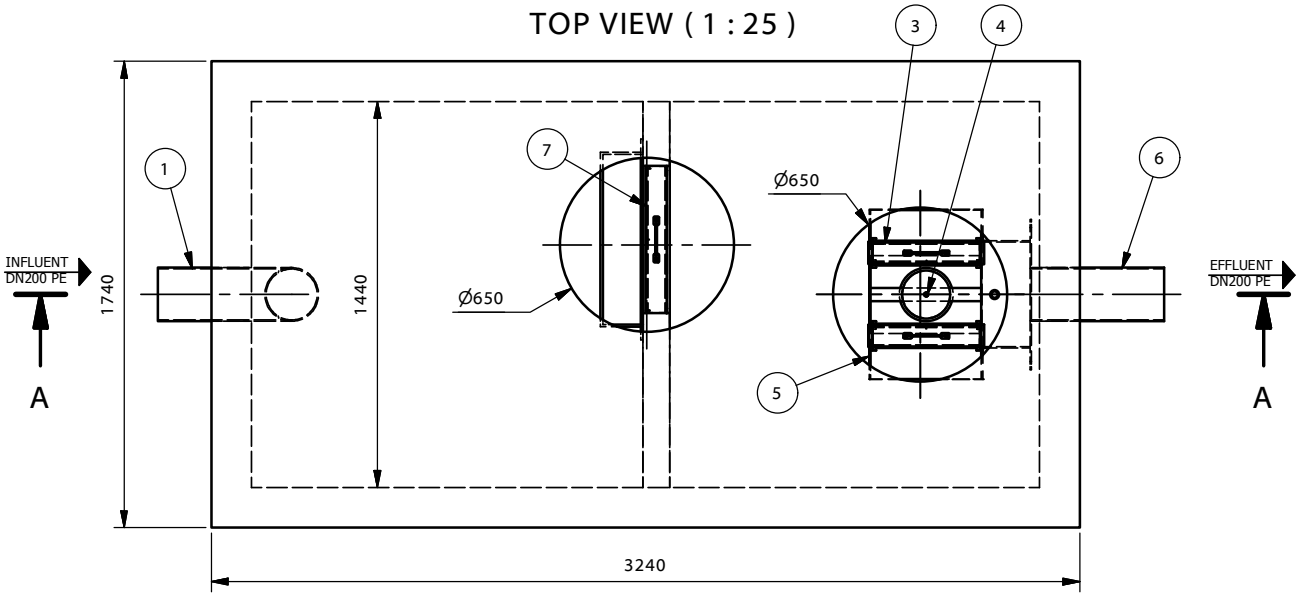
M= 1:20

Cleaning capacity:	15	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	6,0	t
Total weight:	8,4	t

A-A (1 : 25)

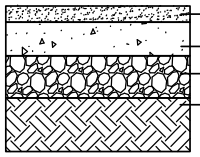


TOP VIEW (1 : 25)

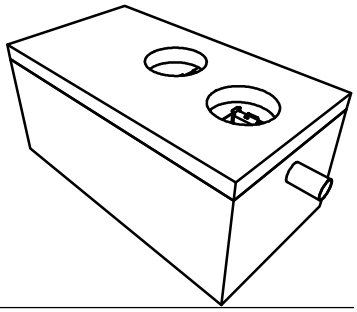


TNC 20-2-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

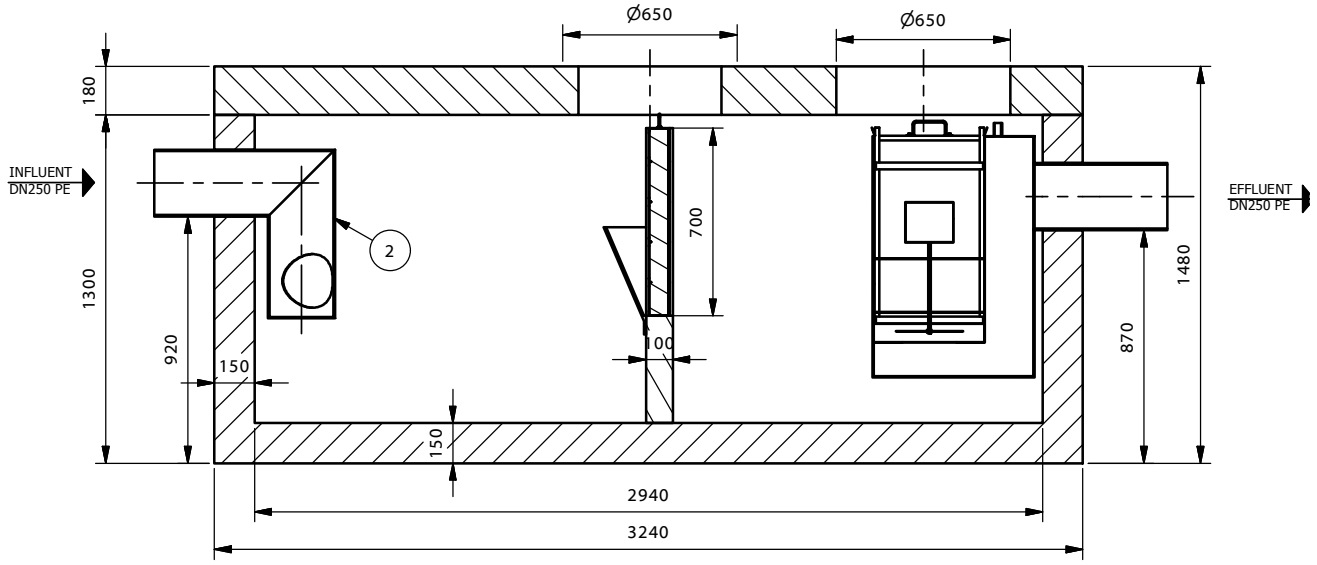
TNC 20-2-A

Informational drawing

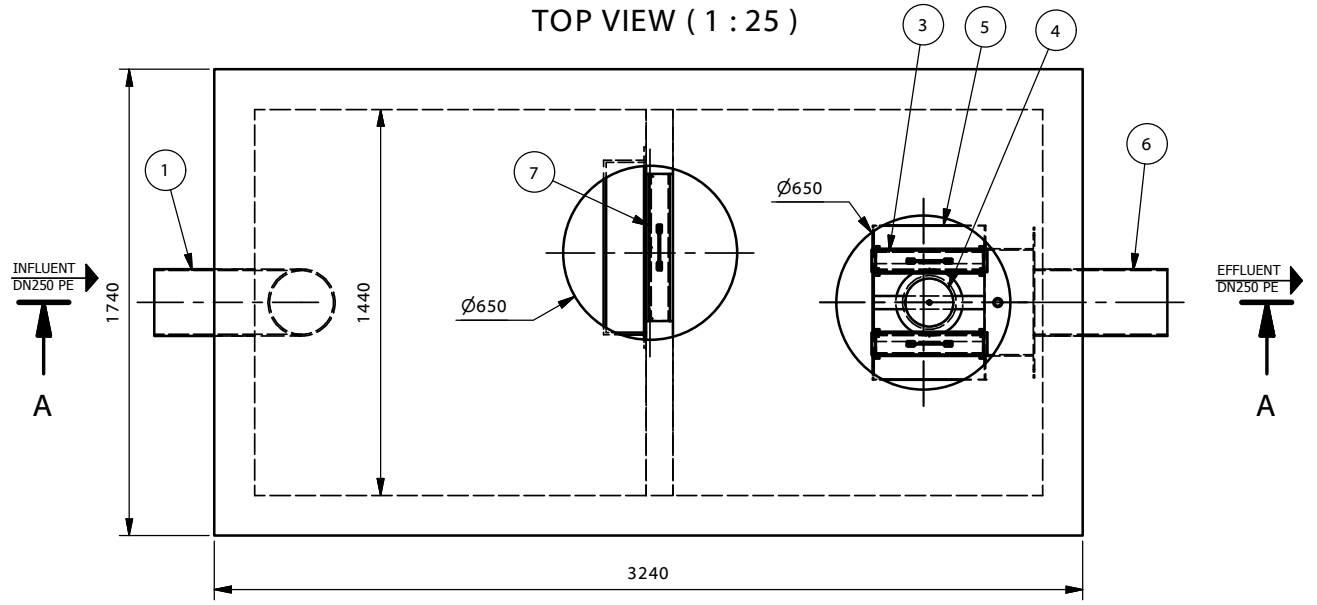
M= 1:25

Cleaning capacity:	20	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	6,0	t
Total weight:	8,4	t

A-A (1 : 25)

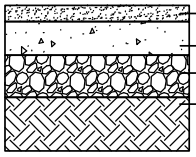


TOP VIEW (1 : 25)

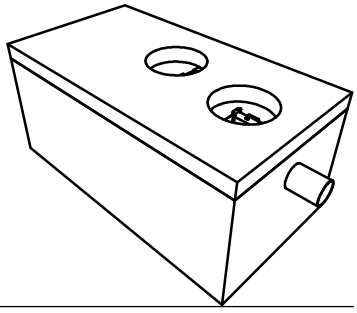


TNC 25-2-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

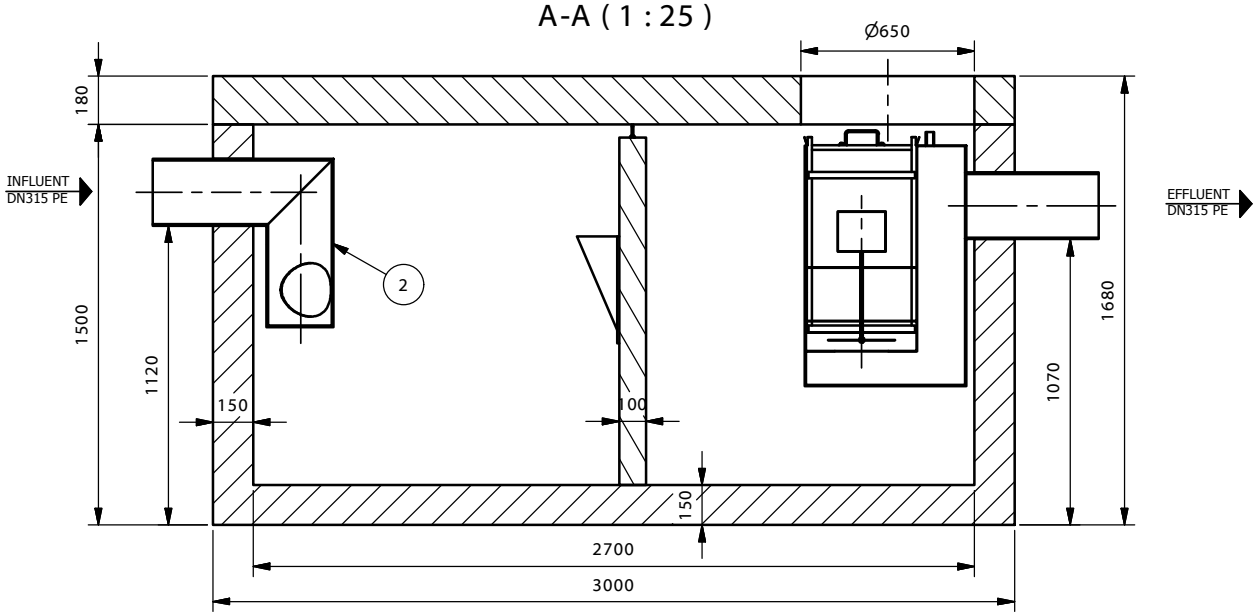
TNC 25-2-A

Informational drawing

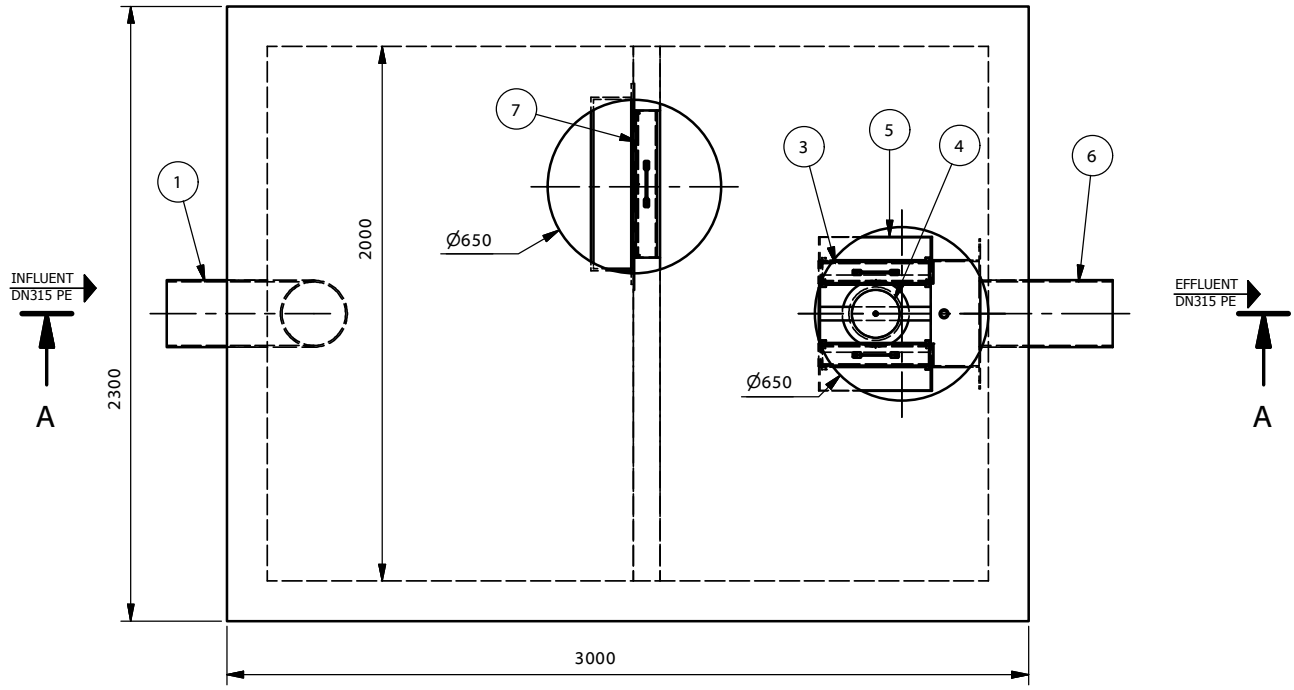
M= 1:25

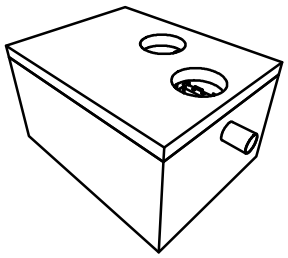
Cleaning capacity:	25	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	6,0	t
Total weight:	8,4	t

A-A (1 : 25)



TOP VIEW (1 : 25)

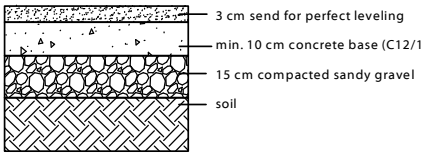




TNC 30-2-A

1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

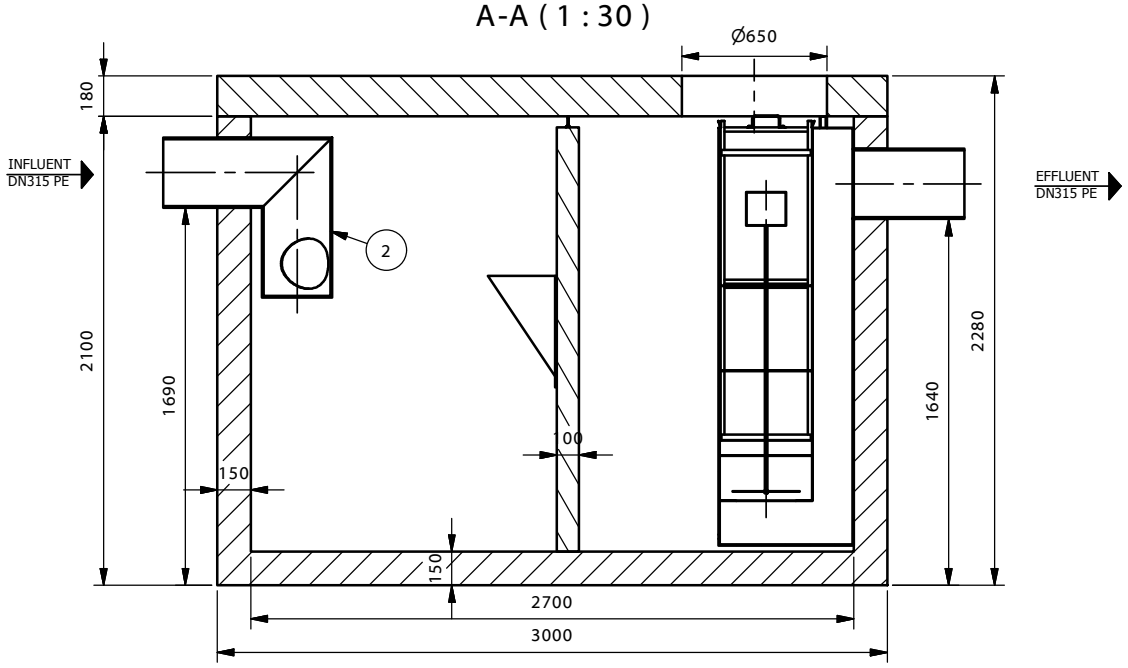
TNC 30-2-A

Informational drawing

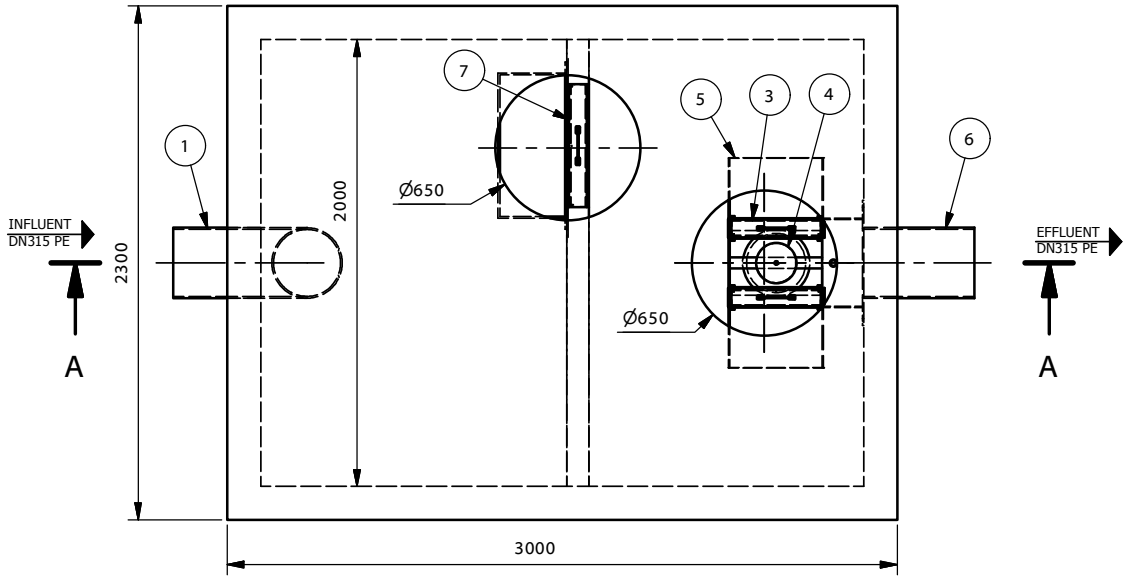
M= 1:25

Cleaning capacity:	30	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	7,6	t
Total weight:	9,5	t

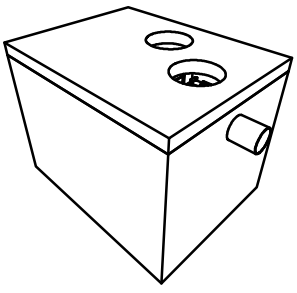
A-A (1 : 30)



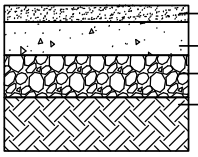
TOP VIEW (1 : 30)



TNC 40-2-A



RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

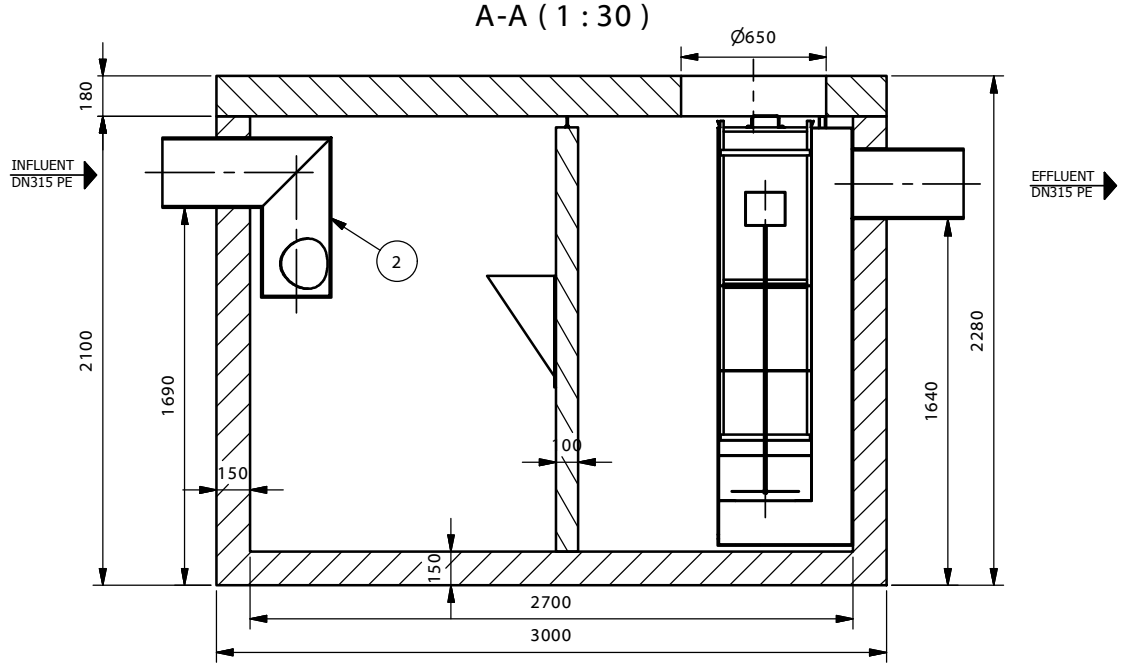
TNC 40-2-A

Informational drawing

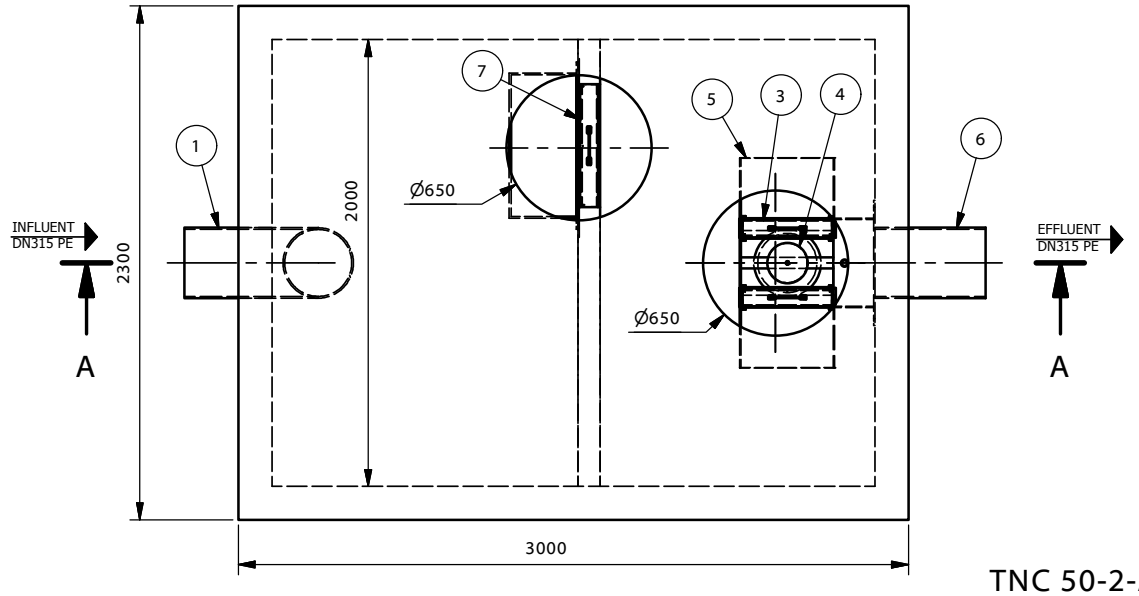
M= 1:30

Cleaning capacity:	40	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	10,0	t
Total weight:	12,8	t

A-A (1 : 30)

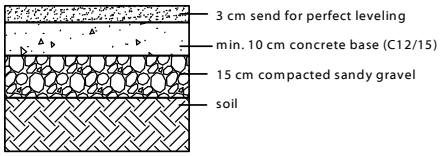


TOP VIEW (1 : 30)

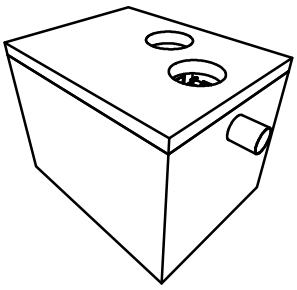


TNC 50-2-A

RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

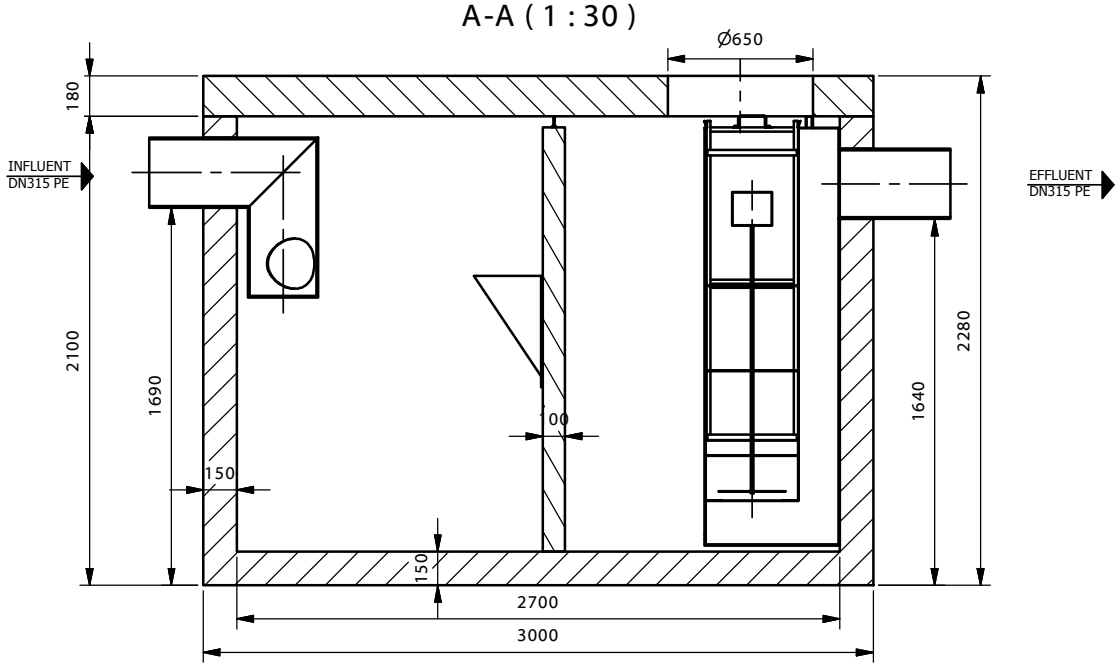
TNC 50-2-A

Informational drawing

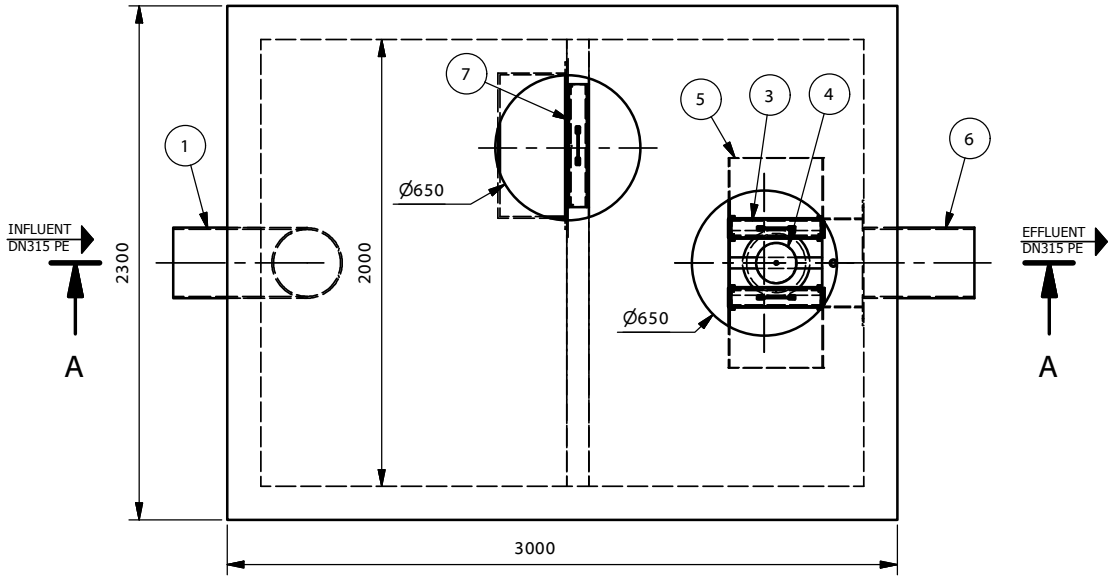
M= 1:30

Cleaning capacity:	50	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	10,0	t
Total weight:	12,8	t

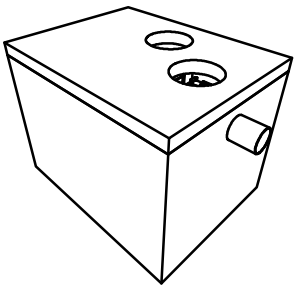
A-A (1 : 30)



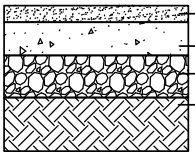
TOP VIEW (1 : 30)



TNC 65-2-A



RECOMMENDED ORDER OF LAYERS:



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

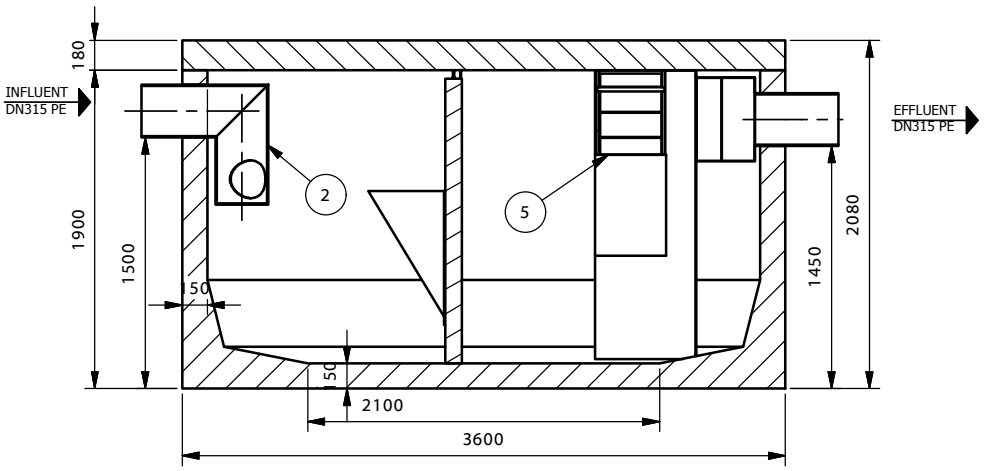
TNC 65-2-A

Informational drawing

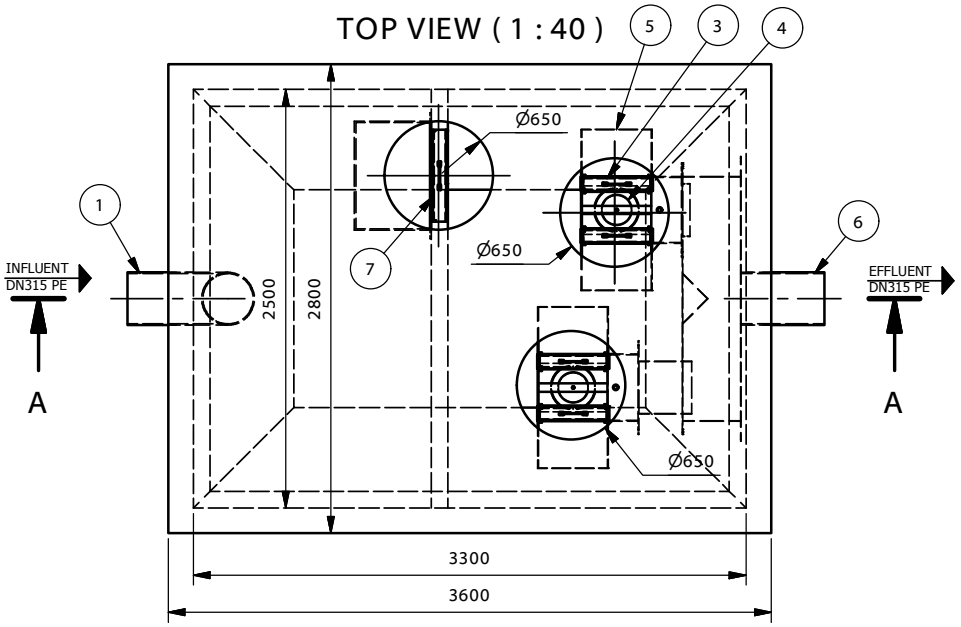
M= 1:30

Cleaning capacity:	65	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	10,0	t
Total weight:	12,8	t

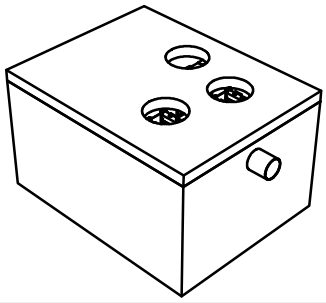
A-A (1 : 40)



TOP VIEW (1 : 40)

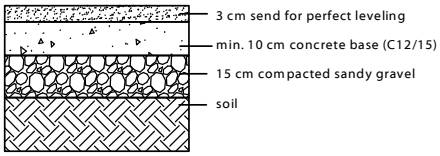


TNC 80-2-A



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

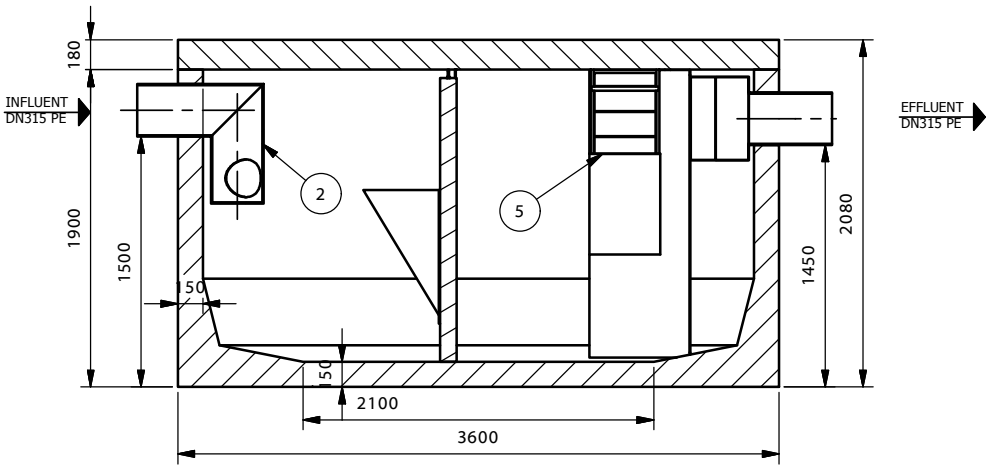
TNC 80-2-A

Informational drawing

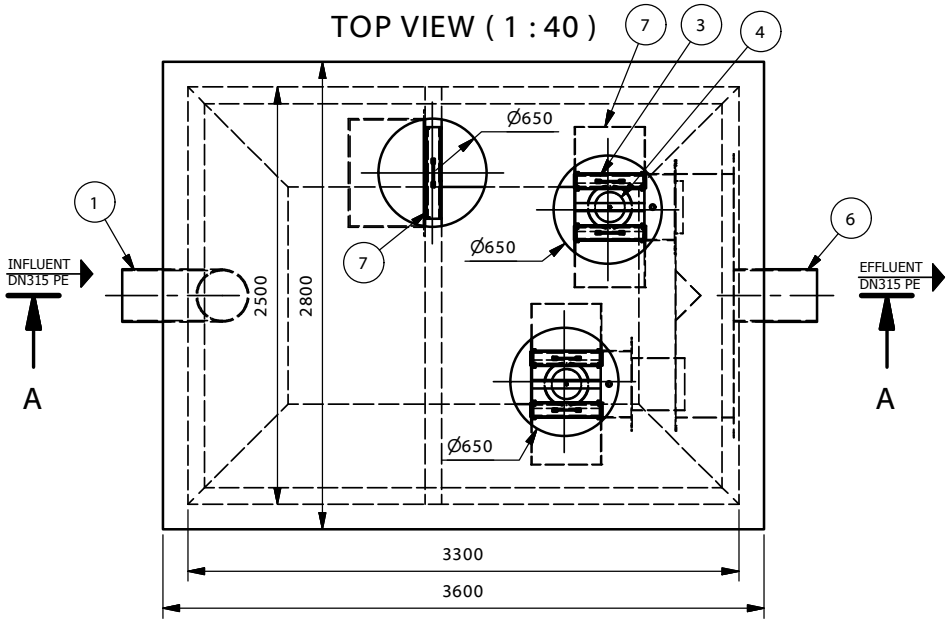
M= 1:40

Cleaning capacity:	80	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	11,8	t
Total weight:	16,0	t

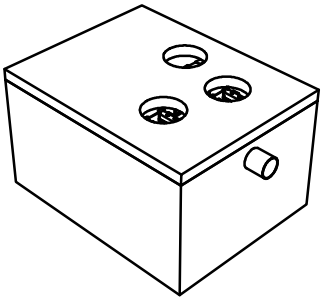
A-A (1 : 40)



TOP VIEW (1 : 40)

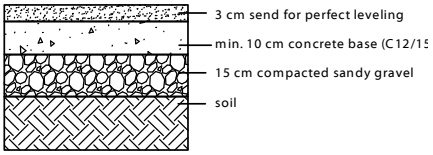


TNC 100-2-A



1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

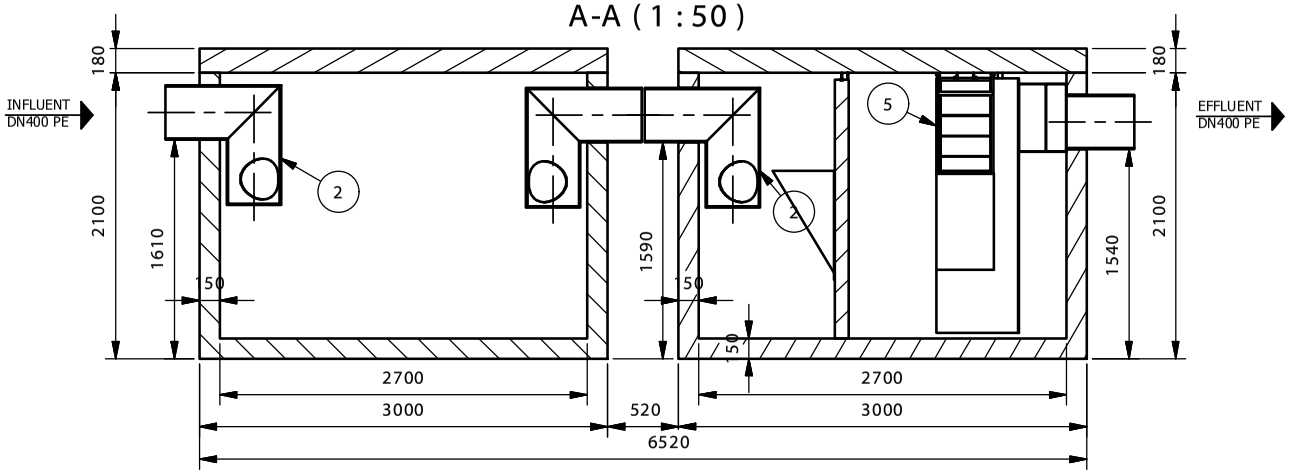
TNC 100-2-A

Informational drawing

M= 1:40

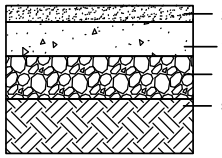
Cleaning capacity:	100	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	11,8	t
Total weight:	16,0	t

A-A (1 : 50)

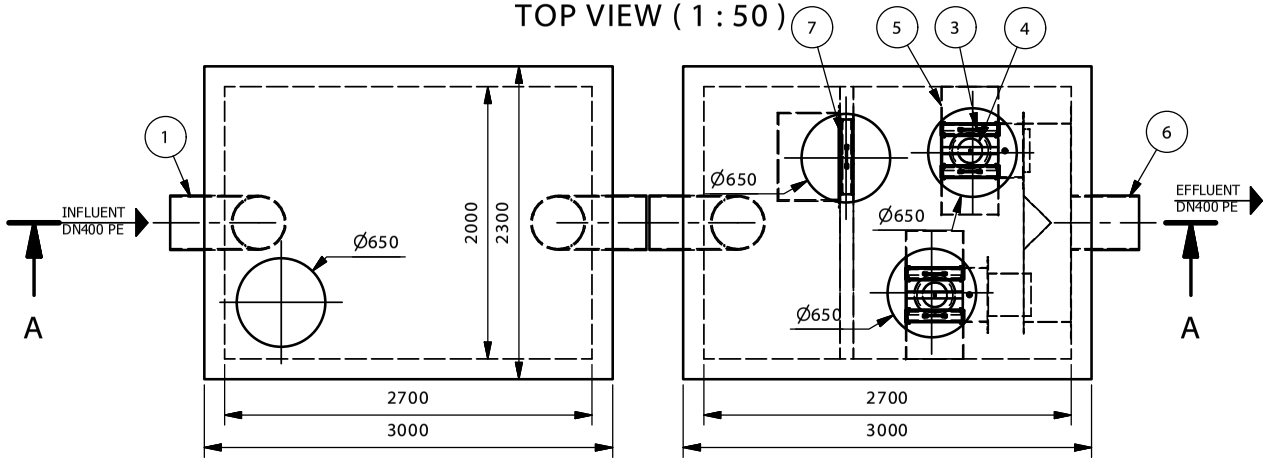


1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

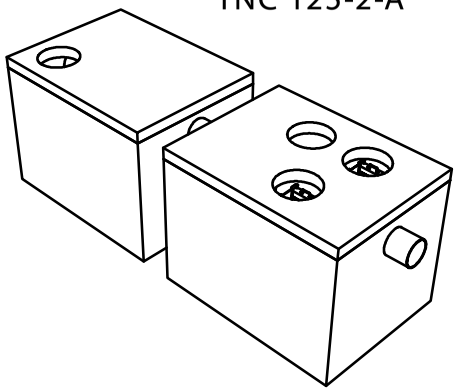
RECOMMENDED ORDER OF LAYERS:



TOP VIEW (1 : 50)



TNC 125-2-A



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

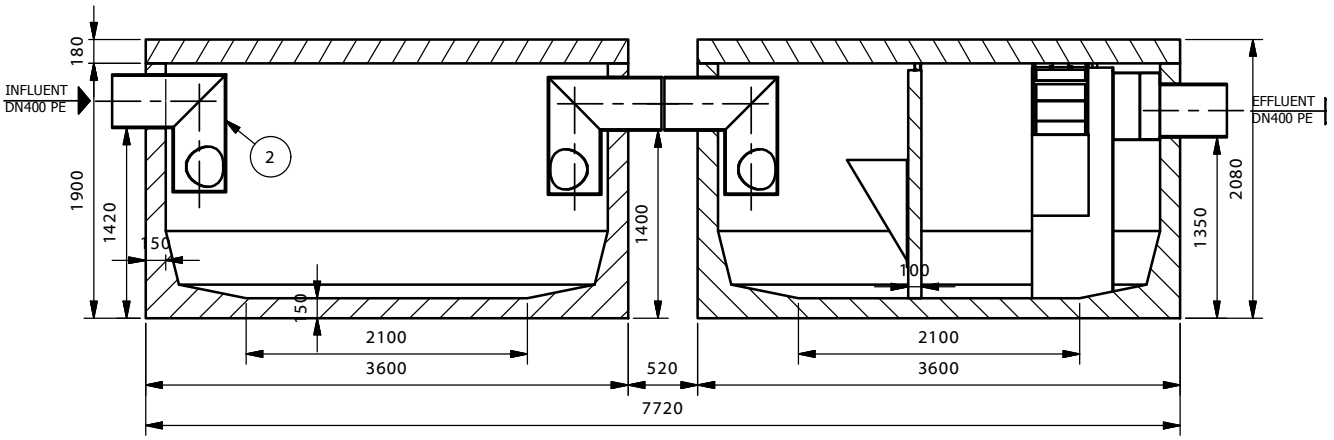
TNC 125-2-A

Informational drawing

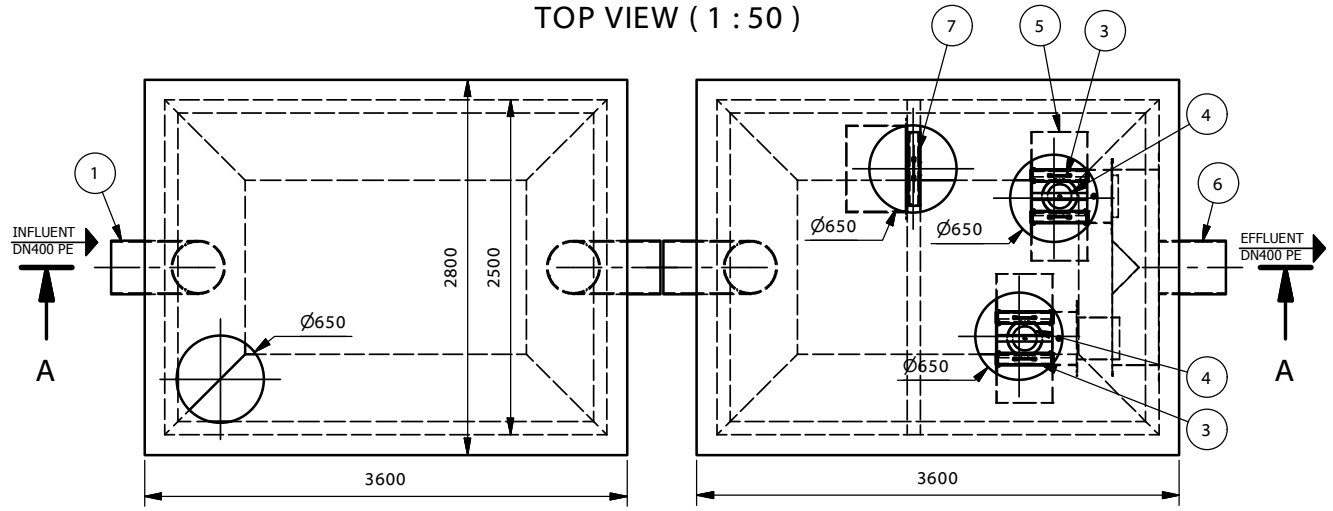
M= 1:50

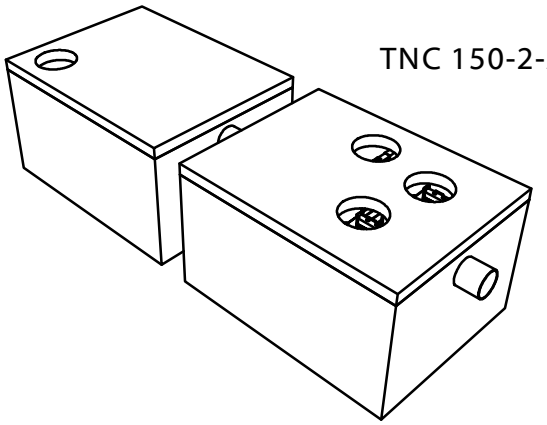
Cleaning capacity:	125	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	9,1	t
Total weight:	24,8	t

A-A (1 : 50)



TOP VIEW (1 : 50)

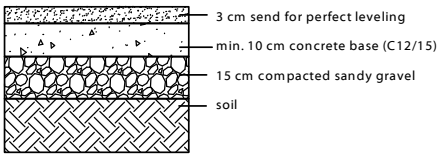




TNC 150-2-A

1. Influent pipe
2. Diffuser
3. Coalescent filter
4. Automatic closing device
5. Sludge level regulator
6. Effluent pipe
7. Pre-filter (only 2 mg/l device)

RECOMMENDED ORDER OF LAYERS:



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ENVIA TNC Oil- and light liquid separator with sludge trap in concrete shaft

TYP:

TNC 150-2-A

Informational drawing

M= 1:50

Cleaning capacity:	150	l/s
Efficiency:	0,1	mg/l FOG
Max element weight:	9,1	t
Total weight:	24,8	t

GENERAL INSTALLATION GUIDE – ENVIA TNC

I. PREPARATIONS ON SITE

Excavation of working pit:

- Effective size, width/length: is the outline measurement of the equipment + roughly 70 cm, considering projecting pipes of the equipment, craning conditions respectively compacting conditions.
- Depth: thickness of receiving base and the overall height of equipment (storage tank, reinforced concrete slab, cast iron manhole cover, setting ring as needed, neckpiece)

It is not allowed to place the equipment directly into the working pit; receiving base should be built in accordance with soil conditions:

- in case of soil having good load-bearing capacity (verified by soil mechanics expertise) roughly 15 cm thick gravel ballast, sandy gravel base needed;
- in case of average load-bearing soil 8-10 cm concrete base (C6 quality),
- in case of unfavorable soil conditions roughly 15 cm reinforced concrete base needed,
- additionally in all cases roughly 2-3 cm sand layer is needed for leveling.

If prepared base would be soiled/contaminated it should be cleaned before installation.

By the preparatory works on site it is also should be considered that the equipment(s) are transported to site with 24 ton vehicles, also extra space for fixing-soles of cranes should be ensured.

In order to guarantee safety at works, the smallest possible working pit should be excavated, ensuring that the position of the crane (lifting axle) should not fall far from the axis of location. It is important to ensure that fixing sole/support of crane should fall outside of the line of soil-breakage.

Equipment units are delivered pre-fitted for anchoring, arrangement should be coordinated in advance with manufacturer.

Before lifting operations it is inevitable to check completeness and flawless condition of delivered tanks and their mechanical units; damages/deviations should also be reported to the manufacturer, and the same time it should be indicated on the construction checklist.

II. PLACEMENT OF THE EQUIPMENT, PUTTING INTO OPERATION

Generally 3 pieces of lifting eye/lug is provided to place equipment into its working pit and at least 3 m long 3-branch craning cable should be used with adequate load-bearing capacity. It is important to keep the angle at top of lifting cables less then 60 degrees in all cases, if it would become more than 60 degrees there is a risk of buckling of the wall of the equipment. For damages and accidents resulting from above incorrect lifting manufacturer will not take responsibility!

We deliver and invoice 1 set (3 pieces) of lifting eye to all sold equipment. If they are transported back to us we will refund its cost.

It is indicated on tanks which is the ingoing and outgoing side, respectively in case of multiple tanks the process/installation order. Lifting in place should be carried out in accordance with those indications. There are match-marks indicating correct assembly position on tank and covering slab also. Top of tank sidewalls should be poured-around with laying mortar before putting on the covering slab. After that working phase it should be checked that manholes/openings on cover slab are in correct position, in addition to check whether the filtering units could be pulled up.

Tanks may be connected to each other and to the sewage system by double-siding socket, respectively by special rubber collar.

It is recommended to close ends of pipes in some way, if the equipment would be connected later to sewage network, in order to avoid mud getting into the unit.

Before filling back the soil into the work pit water-tightness test should be carried out in order to check connections. After that filling back of soil may be done by engineer's recommendations. It is advised to place cast iron manhole covers temporarily to openings, to avoid soil getting into tanks during works.

If soil backfill completed cast iron manhole covers should be leveled, frame of lid should be fixed by concrete.

Equipment should be constructed taking above information into consideration!

Before putting into operation tanks should be cleaned from casually infiltrated dirt/mud, in case of oil separators the lifting/pulling cable of float-valve should be hanged up to the hook fitted into the cover slab. After that the equipment should be filled up with clear water up to the level of outgoing pipe bottom level.

III. SAFETY AT WORK AND HEALTH PROTECTION REGULATIONS

Before commencement of works responsible technical manager should inform employees on legal prescriptions, detailed safety at work and health precautions, pertaining to actual work-process. Works should be carried out in accordance with weather/climatic conditions and environmental circumstances, also taking into considerations technical specifications written in documents of related objects.

Before commencement of works condition of tools should be checked, work may only be carried out by adequately trained personnel, under continuous supervision and control.

During craning works general safety at work prescriptions pertaining to weight-lifting and weight-transportation, standing under crane effective radius or under suspended weight is STRICTLY FORBIDDEN!! Lifting should be directed by a responsible manager or crane-hook operator, the weight may be lifted and other operations carried out only after his signaling.

It is FORBIDDEN to stand on reinforced concrete units during lifting!

Protective gloves and helmet should be used during works.

Works should be carried out obeying relevant safety at work prescriptions!

Please return to us the Construction Checklist Form filled up by the Contractor/Client. For lack of that manufacturer may refuse demands for guarantee.

HANDLING AND MAINTENANCE GUIDE – ENVIA TNC

I. GENERAL DESCRIPTION OF SEPARATOR EQUIPMENTS

Function of the mud and oil separator equipment is to separate sump and grease from sewage/wastewater polluted by animal/vegetable oil/grease before submitting into public sewage system. It must be avoided to install sewage pump before the separator equipment, if installation of pumps can not be avoided, a pump operating on volumetric displacement principle should be used. Mud and mineral oil separator equipment retains material as by its function (mud, oily drift, buoyant mineral oil derivatives) , separating them from water. The equipment is not applicable to retain dissolved material and other dangerous contaminants, i.e. acids, base, mineral salts etc. The equipment is not applicable to clean Communal (Public) sewage! It does not neutralize, decompose or reduce the quantity of contaminants in separated material, it does not reduce the quantity of contamination in any way, it stores them only, and regularly must be removed from equipment.. Paved/clad surfaces cannot be cleaned by such detergents which cause fusion, emulsification of oil.

Precondition of effective operation is the systematic monitoring and maintenance. Equipments shall be supervised at least once monthly; it is also advised to check it after extensive rainfall and showers! One of the most important components of the system is the filter-unit, it must be supervised regularly, cleaned if necessary. During regular checkups correct operation of float shall be supervised.
Damages resulting from lack of maintenance are the responsibility of the operator!

Equipments may be made of poly-ethylene, poly-propylene, reinforced concrete and steel.

Operation of the equipment
Equipments operating on the principle of physical-components-separation can only operate if they are filled with water, it is the resting water in which sedimentation or floating-up of buoyant contaminants may happen. In separators mud-compartment serves to catch sediment material. Buoyant material is retained by deflector and/or by the position of the outlet pipe. Equipment is delivered by a filtering unit (units) operating in coalescence principle, measuremented according to the capacity of the equipment - velocity of flow (filtering velocity) is established under 5 cm/s , as by professional experience proved efficiency is the highest in this order of magnitude. Filtering unit in addition to the characteristic role played in buoyancy of oil, serves as physical filter, its task is to retain physical contaminants in the suspension phase.

As security device a calibrated float operates in the equipment, set in such a way that if more than 15 cm oil layer be accumulated on the surface, or after the increased flow-velocity (hydraulic overload) closes the outgoing flow, in order to prevent washing-out of retained contaminants. Handling of equipment may be done across the manhole (adequately sized openings worked out on the top plane of the equipment).

Technical process
Sewage, contaminated by drifting mud and oil derivates, is led-in across a siphon inlet pipe into the sedimentation chamber of the equipment, or bypassing the deflector. Deflector breaks up the flow of water, turns its flow downwards, sideways. In the separating chamber, considerably wider than the sewage pipe itself, velocity of flow is decreased, consequently sedimentation of material becomes possible. Sediment mud in the separation compartment should be removed regularly (if 1/3 part of storage compartment be filled). The essential component of the equipment is the filtering unit, helps removing oil, operating on the principle of coalescence, installed in a special compartment designed to contain it, in such a way that filters may be removed without entering into the equipment for cleaning.
A safety float-valve is installed there, closing the opening for the outgoing water on the chamber, according to operational descriptions.
By the above workout manufacturer undertakes guarantee for 5 mg/l SZOE limiting value.
In equipments reaching 2 mg/l SZOE limiting value enlarged oil-separating chamber and/or a second layer of coalescent filter may be found, ensuring higher quality for outgoing water.

II. OPERATIONS MANUAL

Basic precondition of the correct operation for the equipment, of the adequate cleaning of outgoing water, is systematic supervision for the equipment, systematic removal of retained contaminants Equipment shall be checked as by need, at least once a month. Emptying frequency shall be selected according to the quantity of retained material, in such a way it may not exceed the storage capacity of the separation compartments. At least once a year the equipment should be cleaned - according to legal prescriptions pertaining to hazardous material.
If thickness of sediment material in mud-trapping chamber reaches 1/3 of water depth -respectively buoyant oil reaches the thickness of 12-14 cm in oil separating compartment-equipment should bee emptied, separated material should be removed. If the thickness becomes higher quality of outgoing water can not be guaranteed!

Filters installed in equipment may be flushed back, by their regular cleaning their life-cycle can be increased, their cleaning efficiency can be improved.

To clean the filtering unit with pressure-steam-cleaner, detergent or any other chemicals is FORBIDDEN!!

Emptying of equipment may happen by sewage transporter or sump-pump. After emptying it is recommended to flush the inner part and process units of the equipment by water jet, in order to remove accidentally resided contaminants. Flush water should be removed from the equipment. To put separator in operation again equipment shall be filled up with clean water.

At maintenance works relevant safety at work prescriptions should be obeyed!

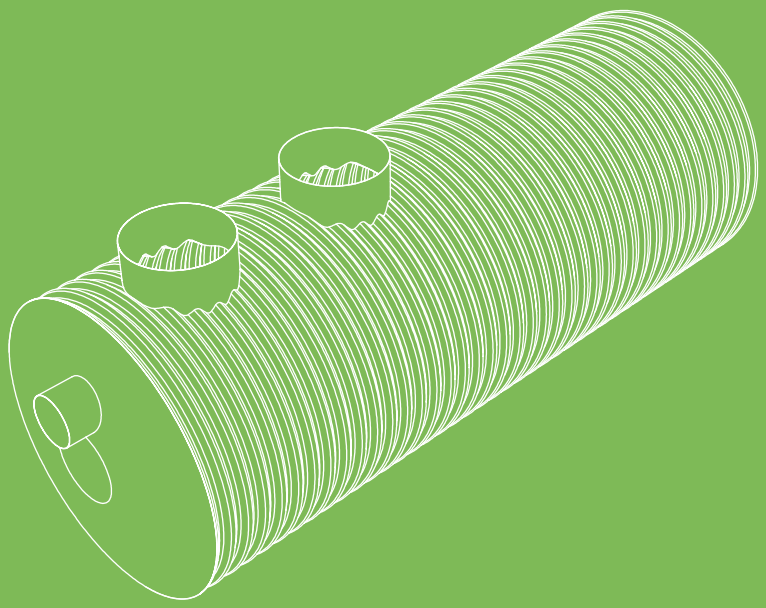
Smoking and use of free flame during works is strictly FORBIDDEN!!!

Only personnel authorized to handle and control equipment allowed entering it.
Protective cordons should be employed to surround the equipment before beginning of works, to prevent accidents by falling into tank across opened manhole.

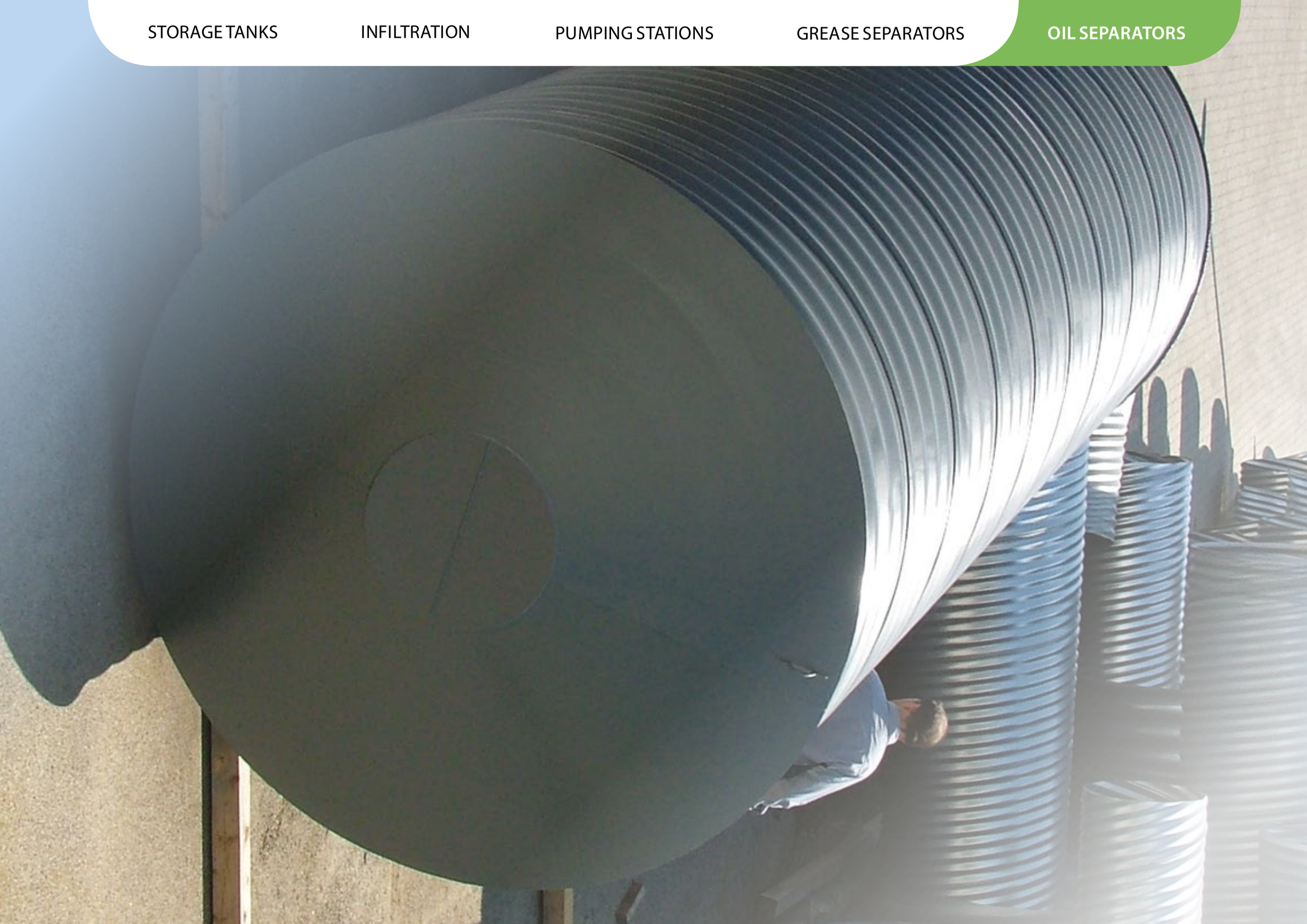
Works can not be commenced if shower or rain be forecasted, respectively work should be terminated in case of rainfall, and personnel should be evacuated from the tank.

Sediment and oil removed during cleaning should be considered as hazardous waste, storage should be done by legal prescriptions being in force, transport be done by authorized firm.

In addition record should be kept on operation and maintenance of equipment!



ENVIA TNS



OIL SEPARATOR – ENVIA TNS

The ENVIA TNS family is developed by combining the steel tank and concrete oil separator's major advantages and best features. The steel ENVIA TNS's weight is only 10% of that of a same sized concrete equipment with an 80 l/s separation capacity – (concrete separator weighs 19-20 tons, while steel plant is only 1.2 tons). The weight of the equipment and the size makes transportation and installation simpler, easier.

The benefits of the concrete over the polyethylene oil seperator that was retained in the ENVIA TNS ; it is easier to install, and immeditaly after the installation it is loadable and does not require a weight splitter.
The PURECO product range has showcased several concrete and polyethylene separators for a long time. We have found in recent years that small construction firms prefer plastic tank equipment, because they are not required to use 10+ tons of cranes for the mounting. Unloading and building in is possible with an excavator at a lot less cost.

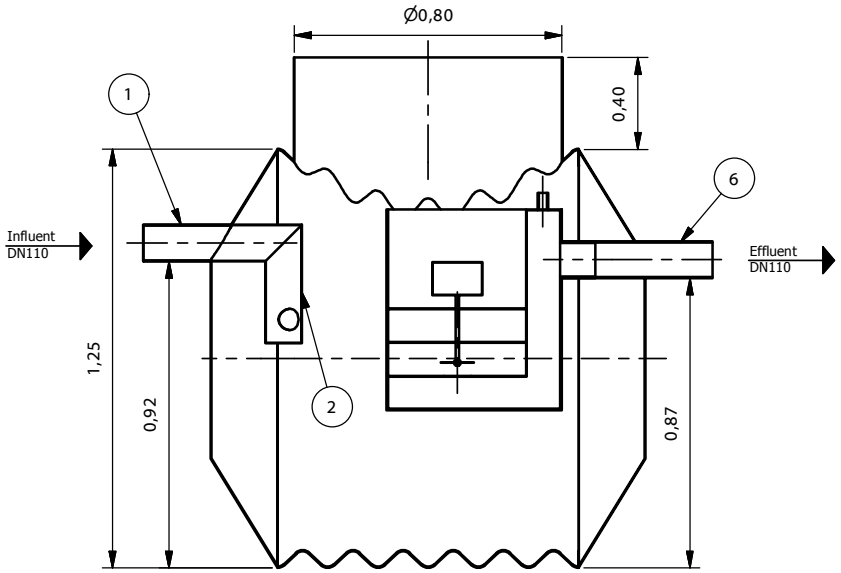
- Lightweight and durable
- Wide capacity range: 2-300 l/s
- 2 and 5 mg/l FOG
- Zinc epoxy protection

OIL SEPARATOR – ENVIA TNS PRODUCT RANGE

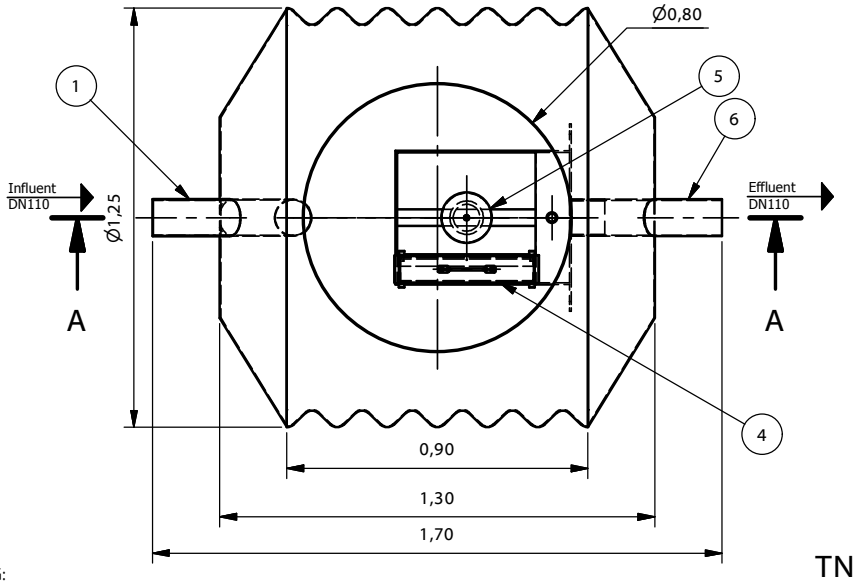
Name	**Capacity**	**Effeciency**	Sludge trap	**Diameter**	**Length**	**Weight**
ENVIA TNS 2-5-A	2 l/s	5 mg/l	100x	1.2 m	0.9 m	181 kg
ENVIA TNS 4-5-A	4 l/s	5 mg/l	100x	1.2 m	0.9 m	181 kg
ENVIA TNS 6-5-A	6 l/s	5 mg/l	100x	1.2 m	0.9 m	196 kg
ENVIA TNS 10-5-A	10 l/s	5 mg/l	100x	1.2 m	1.5 m	262 kg
ENVIA TNS 15-5-A	15 l/s	5 mg/l	100x	1.4 m	2 m	407 kg
ENVIA TNS 20-5-A	20 l/s	5 mg/l	100x	1.4 m	2.7 m	495 kg
ENVIA TNS 25-5-A	25 l/s	5 mg/l	100x	1.6 m	2.1 m	465 kg
ENVIA TNS 30-5-A	30 l/s	5 mg/l	100x	1.6 m	2.5 m	530 kg
ENVIA TNS 40-5-A	40 l/s	5 mg/l	100x	2 m	2 m	800 kg
ENVIA TNS 50-5-A	50 l/s	5 mg/l	100x	2 m	2.7 m	800 kg
ENVIA TNS 65-5-A	65 l/s	5 mg/l	100x	2 m	3.5 m	950 kg
ENVIA TNS 80-5-A	80 l/s	5 mg/l	100x	2.3 m	3.5 m	1,184 kg
ENVIA TNS 100-5-A	100 l/s	5 mg/l	100x	2.3 m	4 m	1,300 kg
ENVIA TNS 125-5-A	125 l/s	5 mg/l	100x	2.3 m	4.7 m	1,480 kg
ENVIA TNS 150-5-A	150 l/s	5 mg/l	100x	2.3 m	5.7 m	1,695 kg
ENVIA TNS 200-5-A	200 l/s	5 mg/l	100x	2.9 m	7 m	2,985 kg
ENVIA TNS 250-5-A	250 l/s	5 mg/l	100x	2.9 m	8 m	2,985 kg
ENVIA TNS 300-5-A	300 l/s	5 mg/l	100x	2.9 m	10 m	3,520 kg

Name	Capacity	Effeciency	Sludge trap	Diameter	Length	Weight
ENVIA TNS 2-2-A	2 l/s	2 mg/l	100x	1.2 m	1.6 m	294 kg
ENVIA TNS 4-2-A	4 l/s	2 mg/l	100x	1.2 m	1.6 m	294 kg
ENVIA TNS 6-2-A	6 l/s	2 mg/l	100x	1.2 m	1.7 m	315 kg
ENVIA TNS 10-2-A	10 l/s	2 mg/l	100x	1.2 m	2.3 m	380 kg
ENVIA TNS 15-2-A	15 l/s	2 mg/l	100x	1.4 m	2.5 m	540 kg
ENVIA TNS 20-2-A	20 l/s	2 mg/l	100x	1.4 m	3 m	600 kg
ENVIA TNS 25-2-A	25 l/s	2 mg/l	100x	1.6 m	2 m	510 kg
ENVIA TNS 30-2-A	30 l/s	2 mg/l	100x	1.6 m	2.5 m	600 kg
ENVIA TNS 40-2-A	40 l/s	2 mg/l	100x	2 m	2.3 m	804 kg
ENVIA TNS 50-2-A	50 l/s	2 mg/l	100x	2 m	3 m	930 kg
ENVIA TNS 65-2-A	65 l/s	2 mg/l	100x	2 m	3.5 m	1,010 kg
ENVIA TNS 80-2-A	80 l/s	2 mg/l	100x	2.3 m	3.5 m	1,300 kg
ENVIA TNS 100-2-A	100 l/s	2 mg/l	100x	2.3 m	4 m	1,400 kg
ENVIA TNS 125-2-A	125 l/s	2 mg/l	100x	2.3 m	5 m	1,610 kg
ENVIA TNS 150-2-A	150 l/s	2 mg/l	100x	2.3 m	6 m	1,830 kg
ENVIA TNS 200-2-A	200 l/s	2 mg/l	100x	2.9 m	6.5 m	2,985 kg
ENVIA TNS 250-2-A	250 l/s	2 mg/l	100x	2.9 m	8.2 m	3,145 kg
ENVIA TNS 300-2-A	300 l/s	2 mg/l	100x	2.9 m	10 m	3,625 kg

A-A (1 : 20)



Top View (1 : 20)



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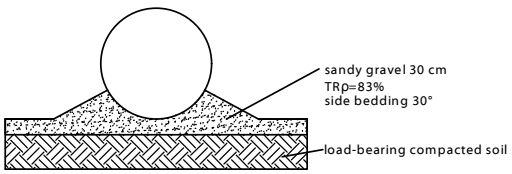
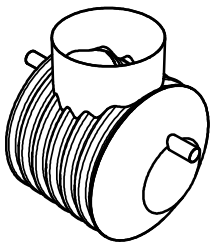


Forbidden to install on a rock or concrete bedding!
Backfilling layers must be 20-30 cm thick, compaction by layer by layer!
For more information, see the installation manual!

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 2-5-A (1 : 50)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

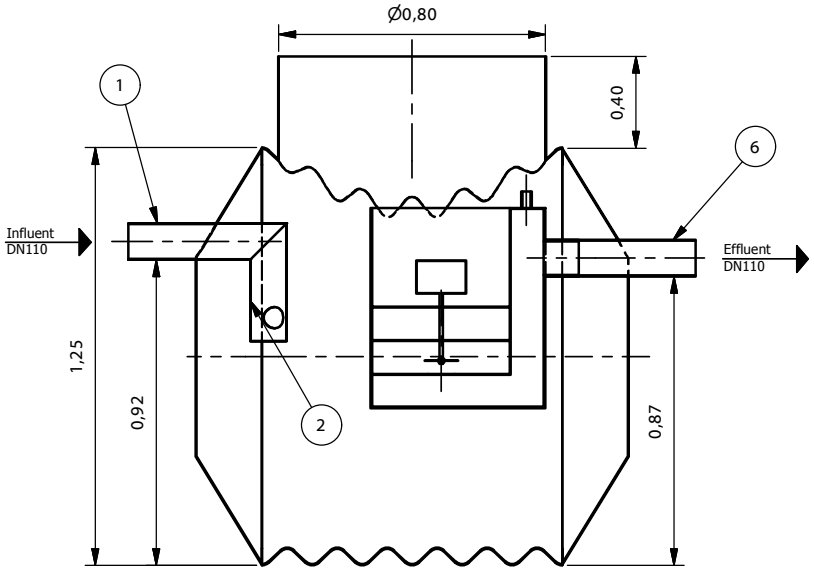
TNS 2-5-A

Informational drawing

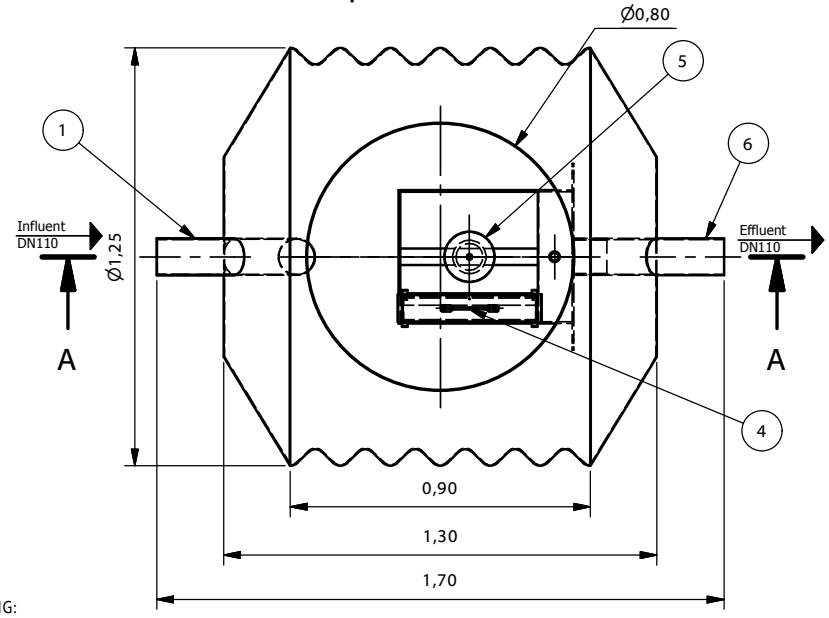
M= 1:20

Cleaning capacity:	2	l/s
Total flow:	2	l/s
Efficiency:	5	mg/l FOG
Total weight:	181	kg

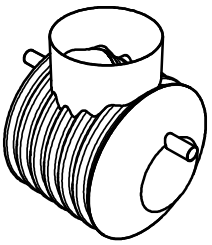
A-A (1 : 20)



Top View (1 : 20)



TNS 4-5-A (1 : 50)



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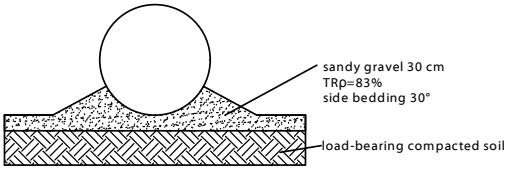

Forbidden to install on a rock or concrete bedding!
Backfilling layers must be 20-30 cm thick, compaction by layer by layer!
For more information, see the installation manual!

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

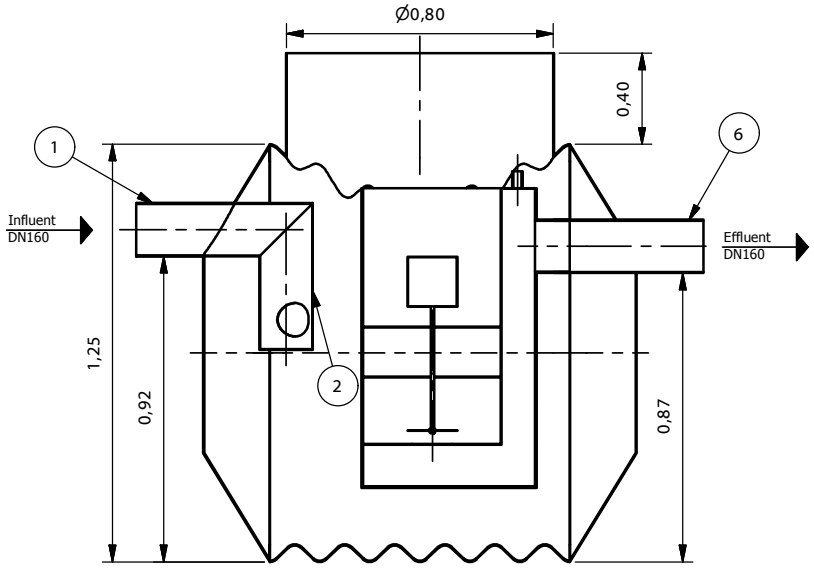
TNS 4-5-A

Informational drawing

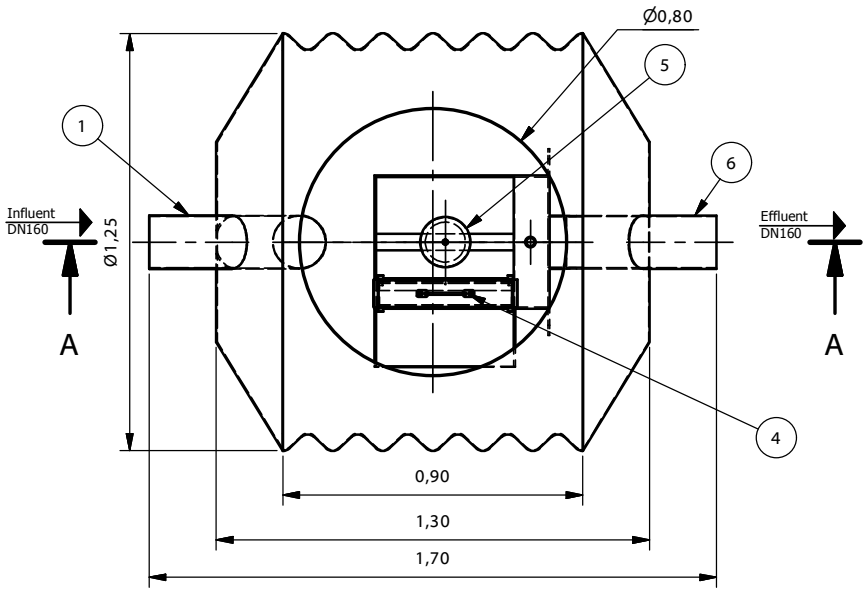
M= 1:20

Cleaning capacity:	4	l/s
Total flow:	4	l/s
Efficiency:	5	mg/l FOG
Total weight:	181	kg

A-A (1 : 20)



Top View (1 : 20)



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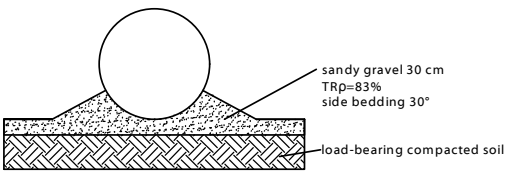

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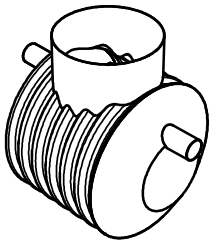
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 6-5-A (1 : 50)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

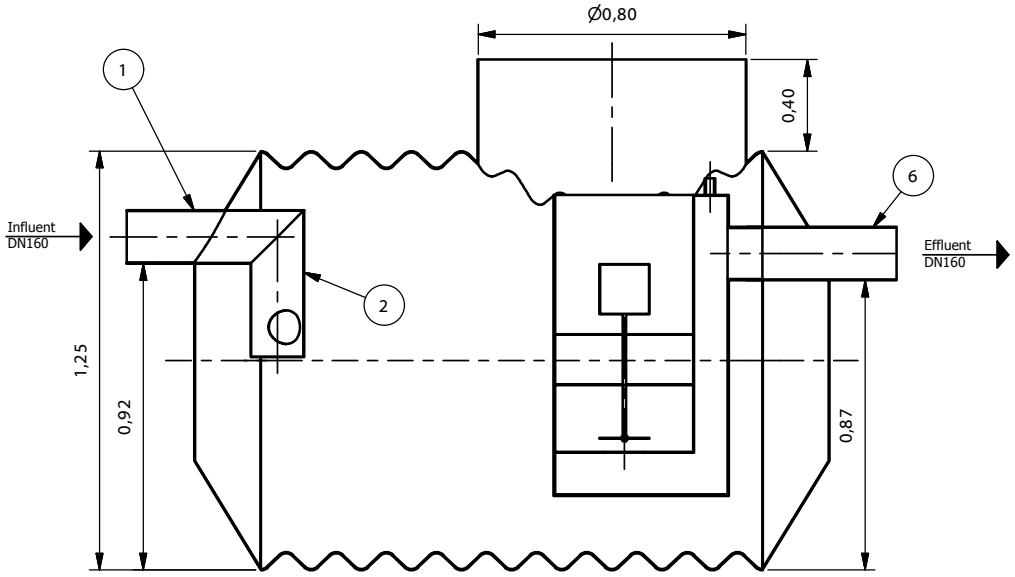
TNS 6-5-A

Informational drawing

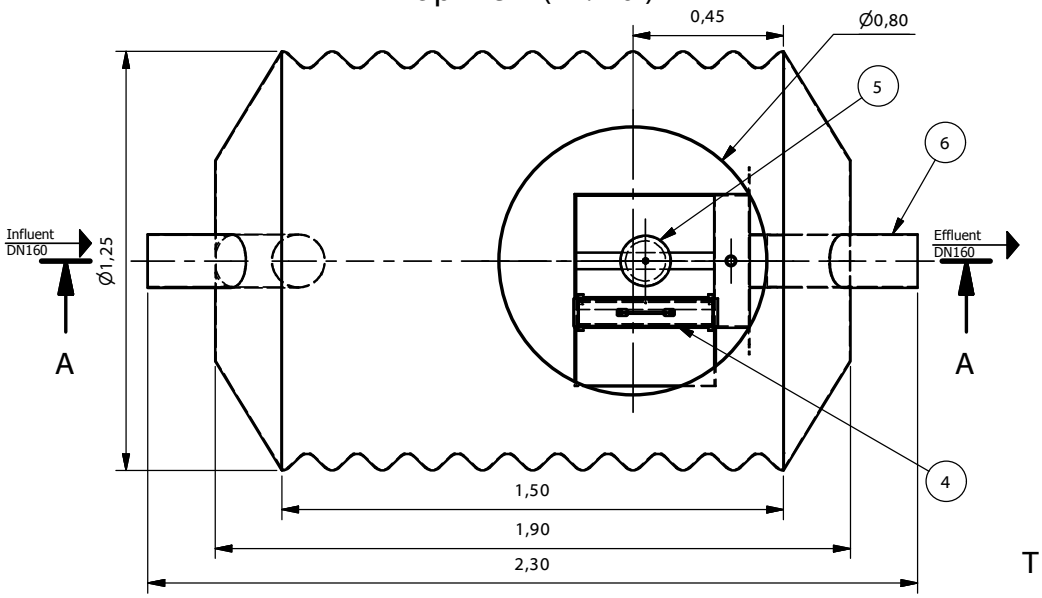
M= 1:20

Cleaning capacity:	6	l/s
Total flow:	6	l/s
Efficiency:	5	mg/l FOG
Total weight:	196	kg

A-A (1 : 20)

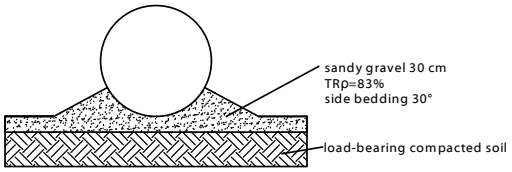


Top View (1 : 20)



TNS 10-5-A
(1 : 50)

RECOMMENDED BEDDING:



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For more information, see the installation manual!

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
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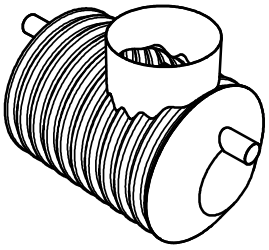

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

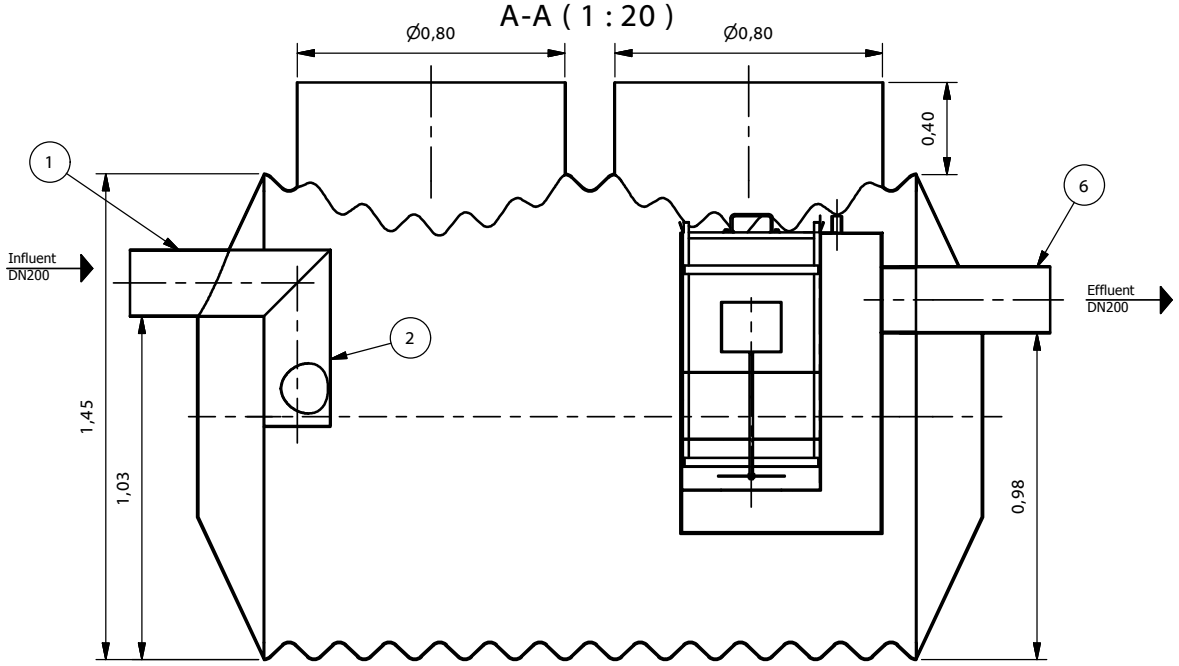
TNS 10-5-A

Informational drawing

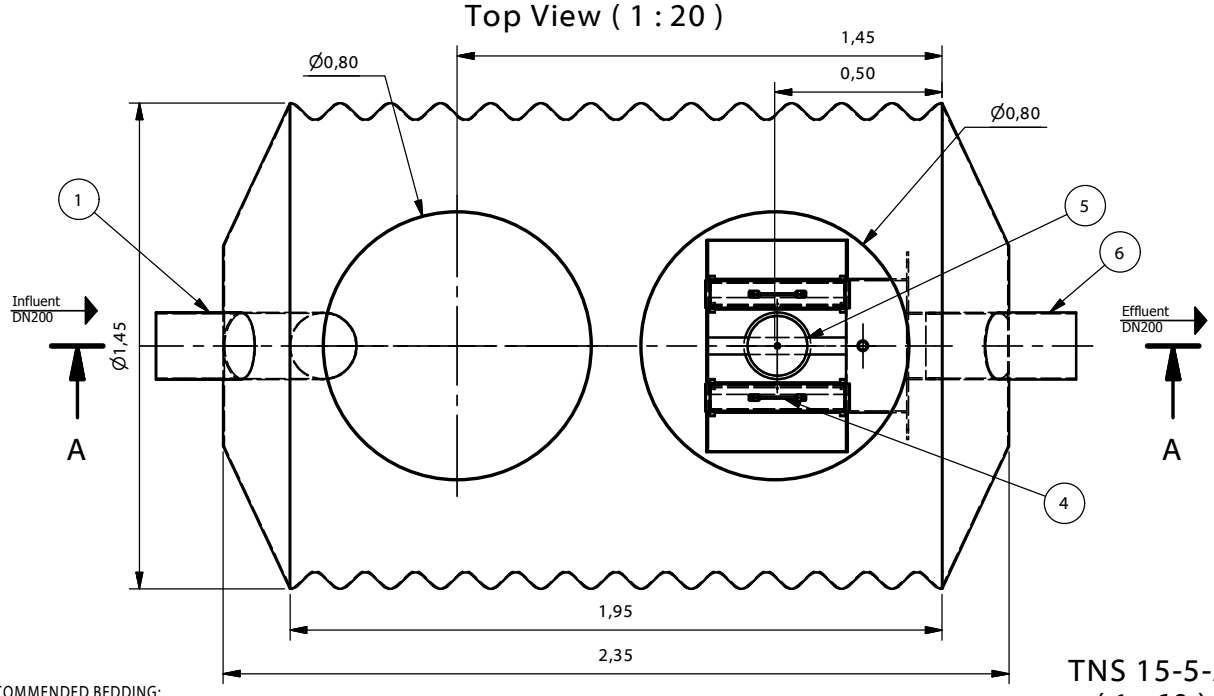
M= 1:20

Cleaning capacity:	10	l/s
Total flow:	10	l/s
Efficiency:	5	mg/l FOG
Total weight:	262	kg

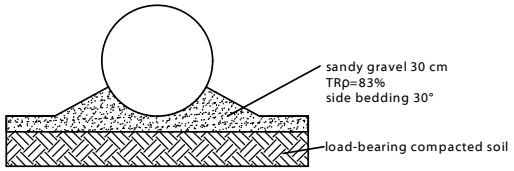
A-A (1 : 20)



Top View (1 : 20)



RECOMMENDED BEDDING:



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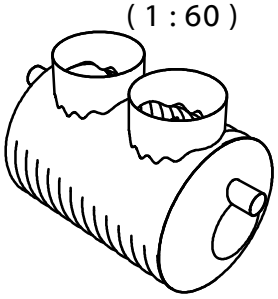
For more information, see the installation manual!

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 15-5-A (1 : 60)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

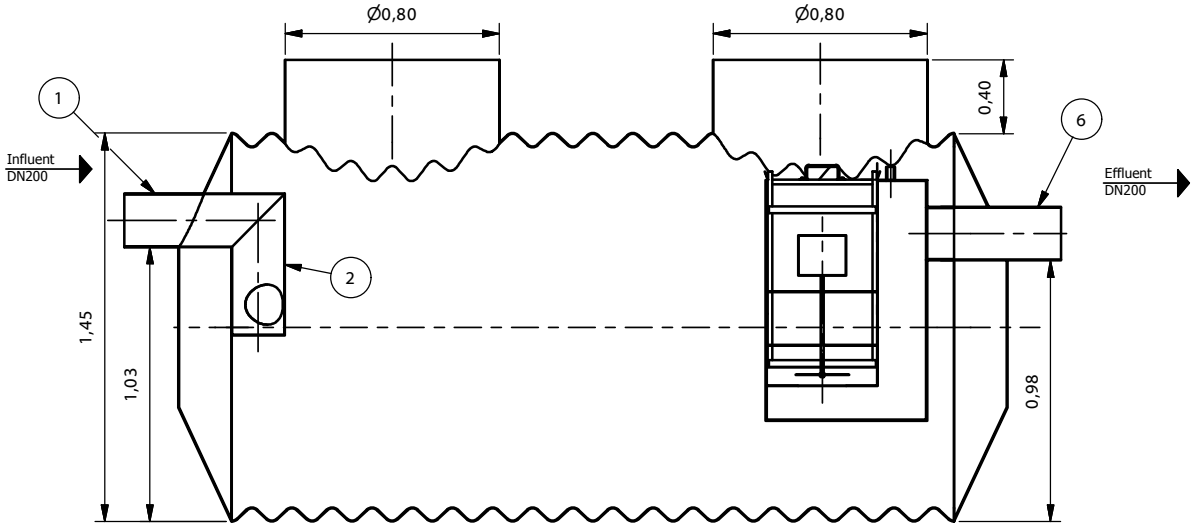
TNS 15-5-A

Informational drawing

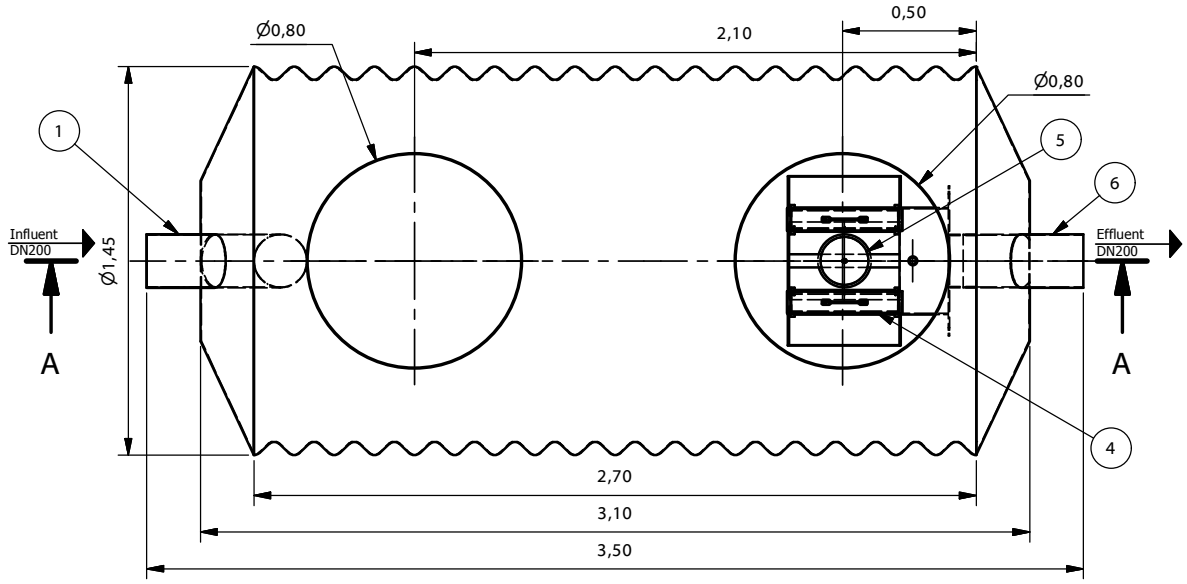
M= 1:20

Cleaning capacity:	15	l/s
Total flow:	15	l/s
Efficiency:	5	mg/l FOG
Total weight:	407	kg

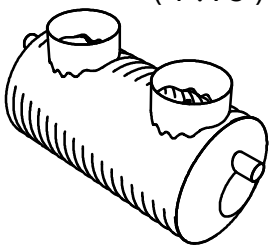
A-A (1 : 25)



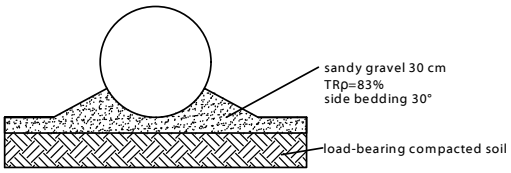
Top View (1 : 25)



TNS 20-5-A
(1 : 75)



RECOMMENDED BEDDING:



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1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

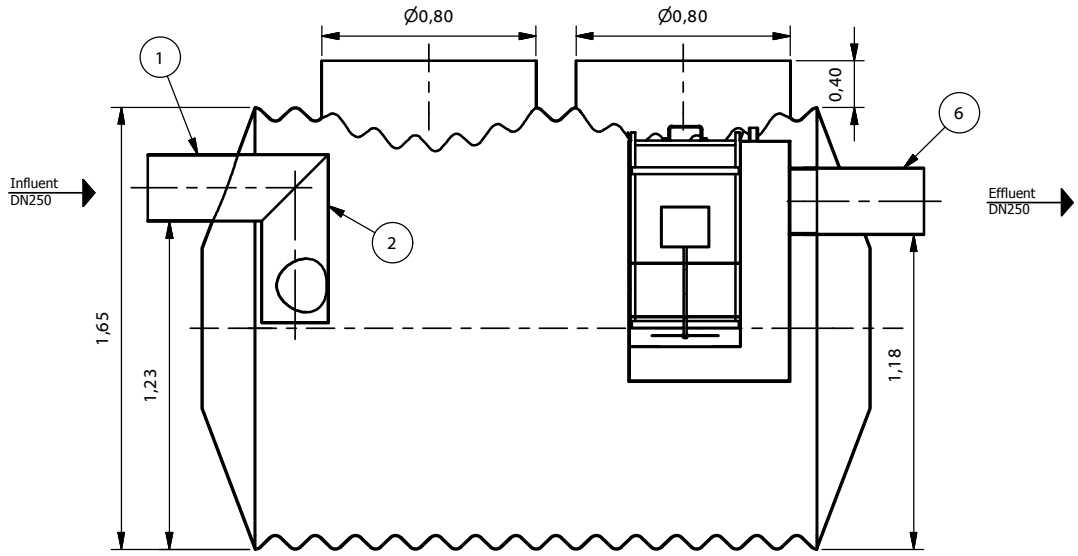
TNS 20-5-A

Informational drawing

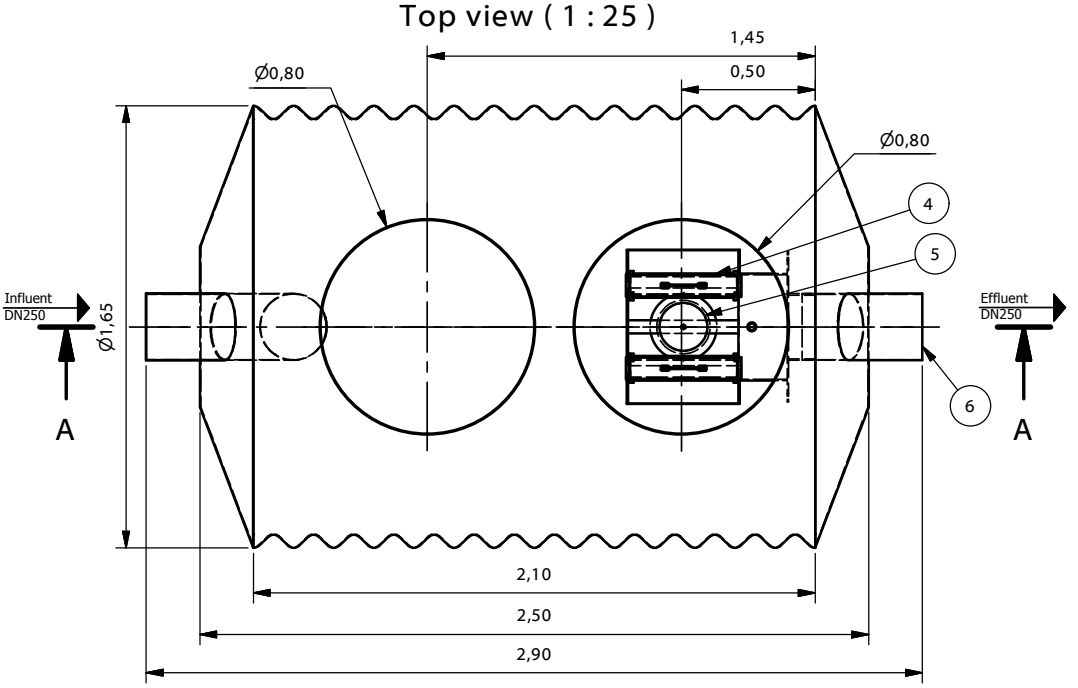
M= 1:25

Cleaning capacity:	20	l/s
Total flow:	20	l/s
Efficiency:	5	mg/l FOG
Total weight:	495	kg

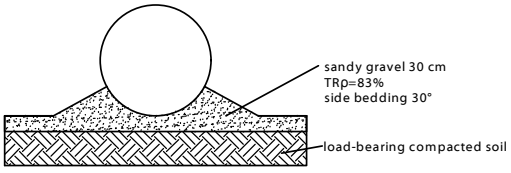
A-A (1 : 25)



Top view (1 : 25)



RECOMMENDED BEDDING:



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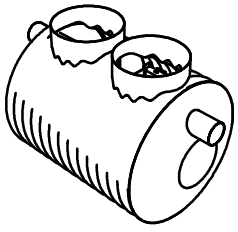
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 25-5-A (1 : 75)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

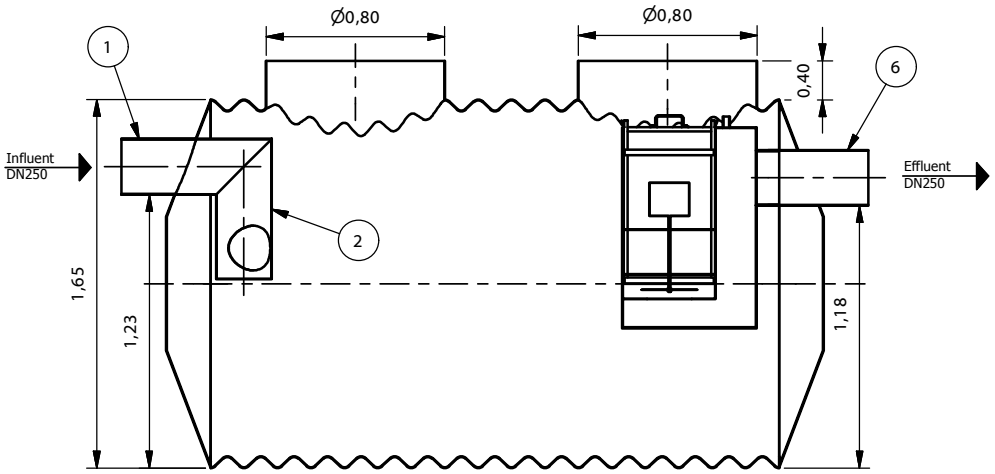
TNS 25-5-A

Informational drawing

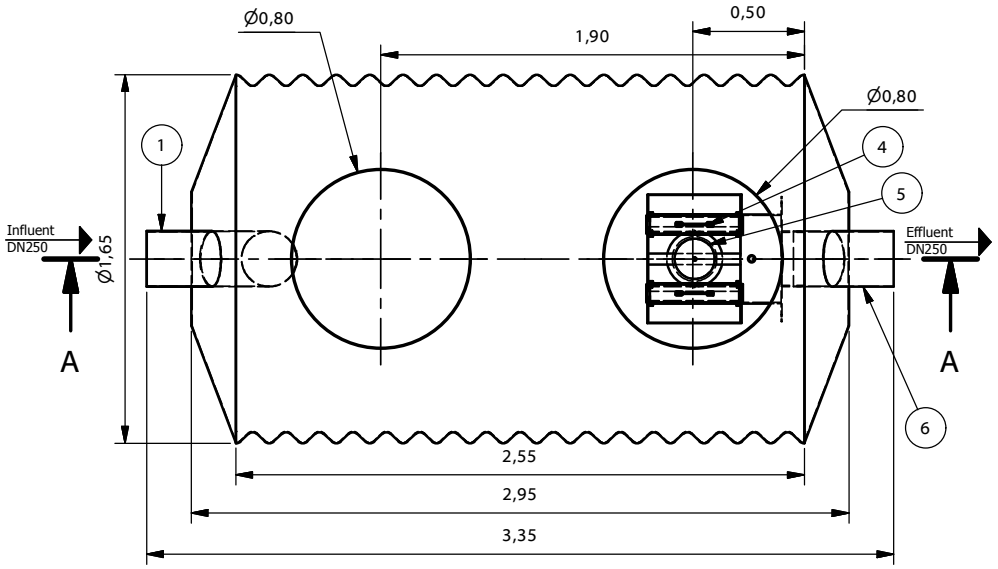
M= 1:25

Cleaning capacity:	25	l/s
Total flow:	25	l/s
Efficiency:	5	mg/l FOG
Total weight:	465	kg

A-A (1 : 30)

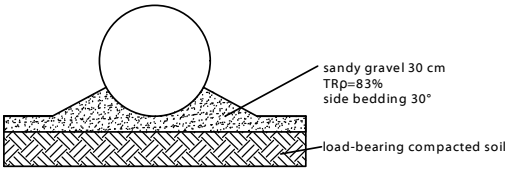


Top View (1 : 30)



TNS 30-5-A
(1 : 75)

RECOMMENDED BEDDING:



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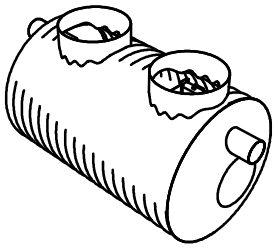
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

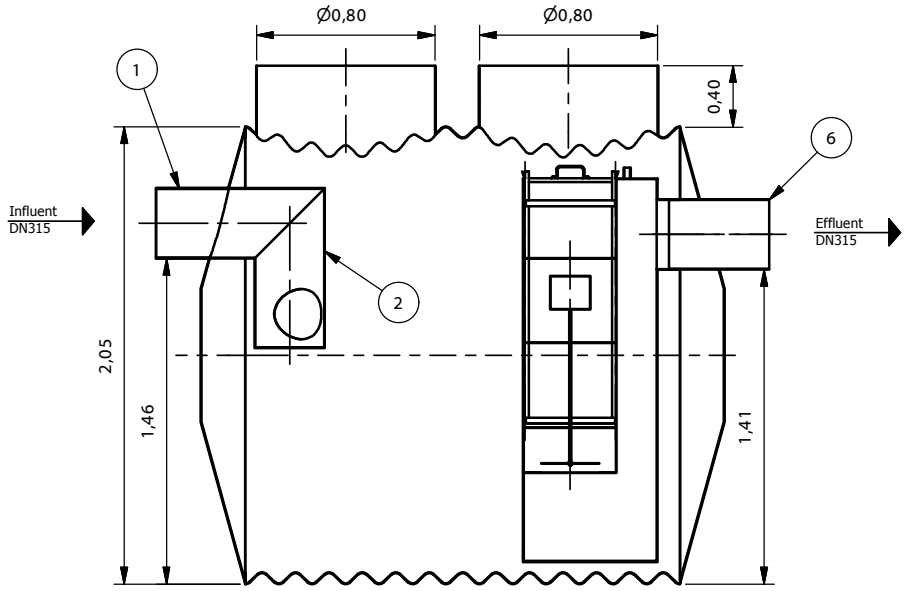
TNS 30-5-A

Informational drawing

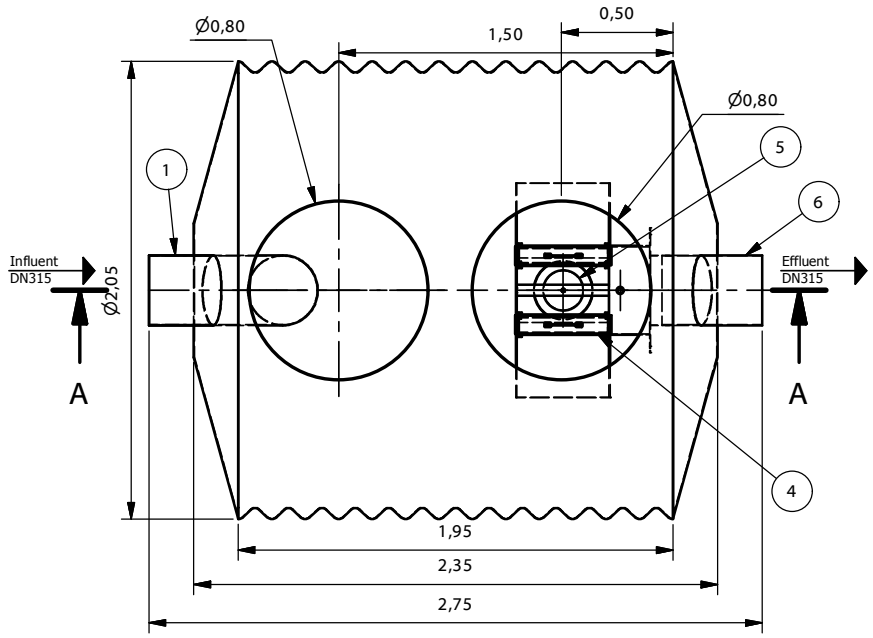
M= 1:30

Cleaning capacity:	30	l/s
Total flow:	30	l/s
Efficiency:	5	mg/l FOG
Total weight:	530	kg

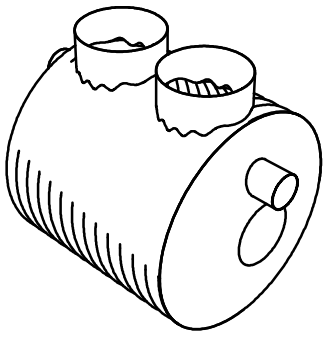
A-A (1 : 30)



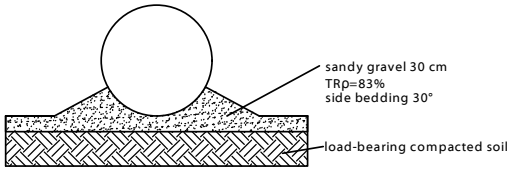
Top View (1 : 30)



TNS 40-5-A
(1 : 60)



RECOMMENDED BEDDING:



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1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

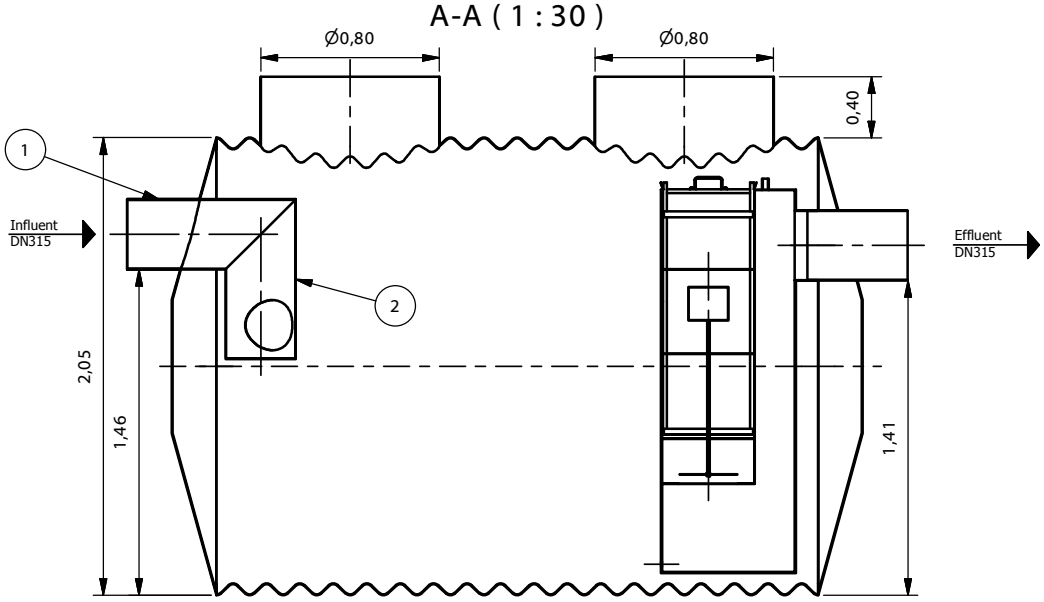
TNS 40-5-A

Informational drawing

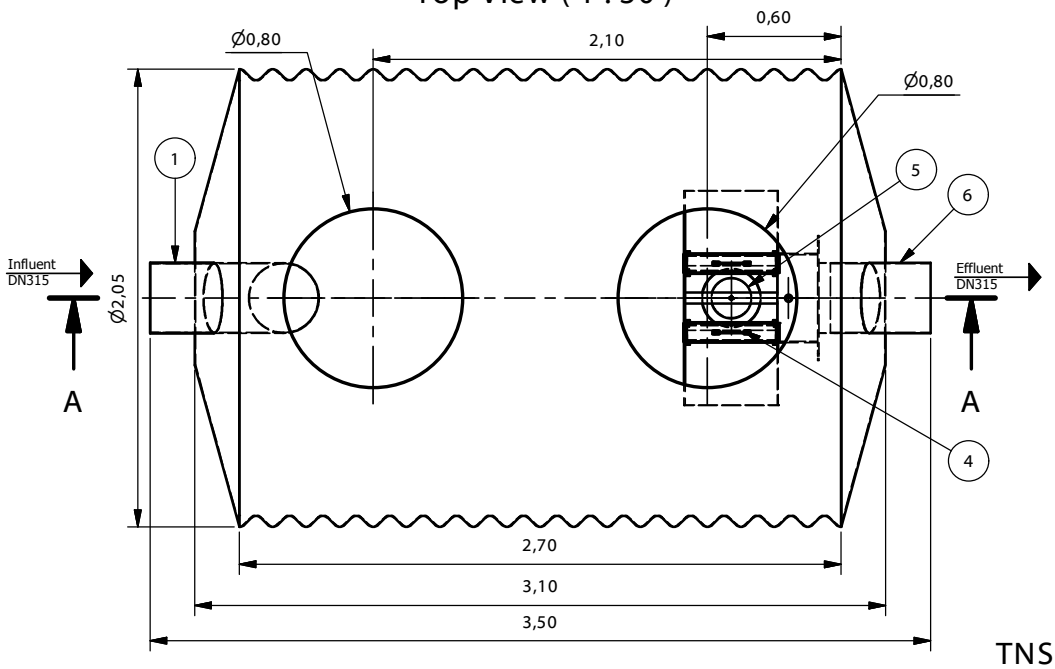
M= 1:30

Cleaning capacity:	40	l/s
Total flow:	40	l/s
Efficiency:	5	mg/l FOG
Total weight:	800	kg

A-A (1 : 30)

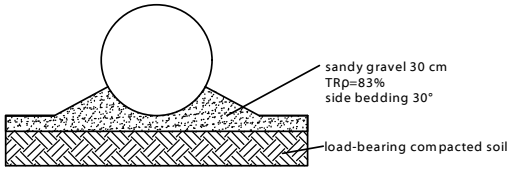


Top View (1 : 30)



TNS 50-5-A
(1 : 75)

RECOMMENDED BEDDING:



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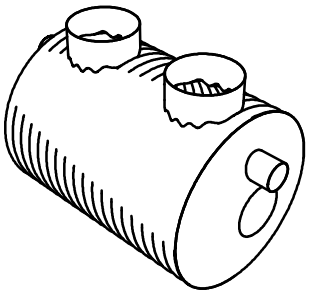
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

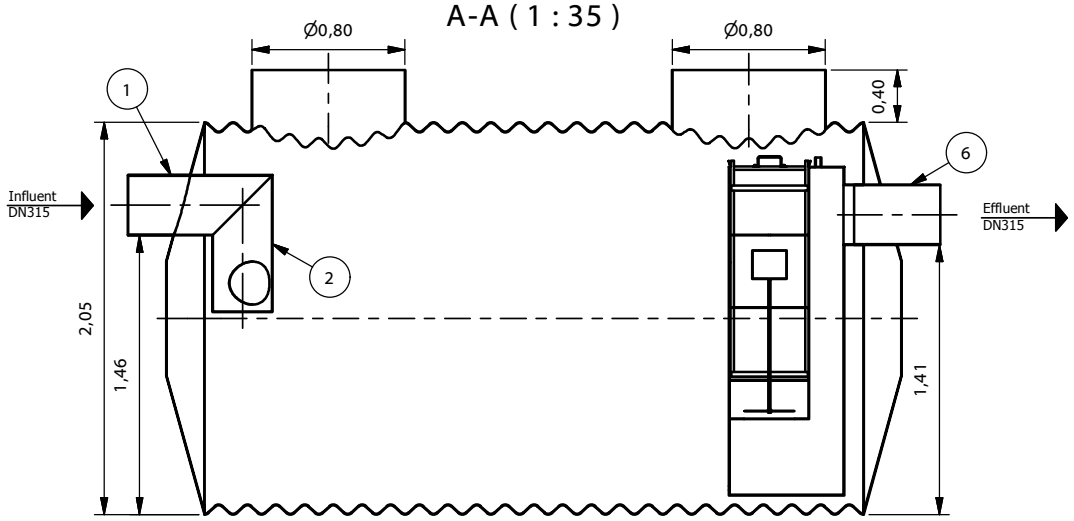
TNS 50-5-A

Informational drawing

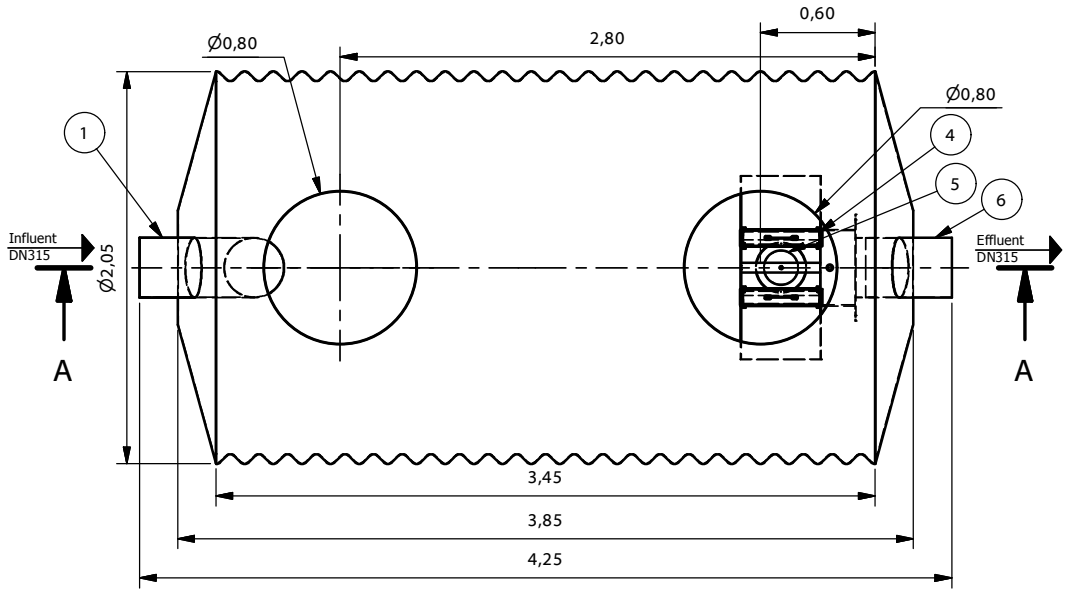
M= 1:30

Cleaning capacity:	50	l/s
Total flow:	50	l/s
Efficiency:	5	mg/l FOG
Total weight:	800	kg

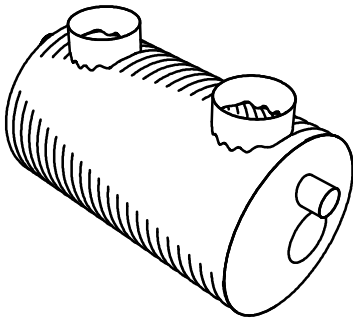
A-A (1 : 35)



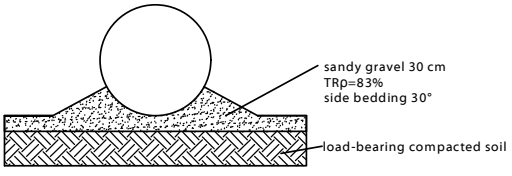
Top View (1 : 35)



TNS 65-5-A (1 : 75)



RECOMMENDED BEDDING:



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1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

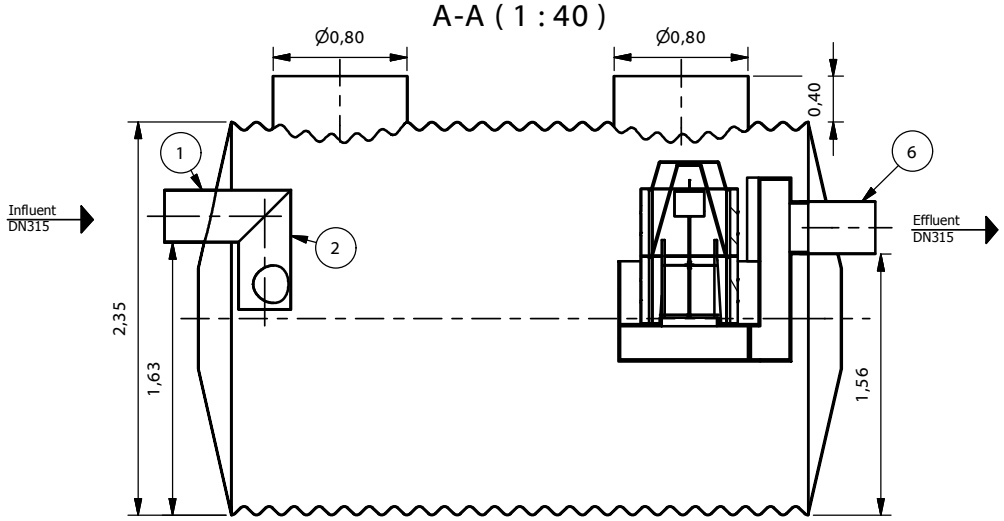
TNS 65-5-A

Informational drawing

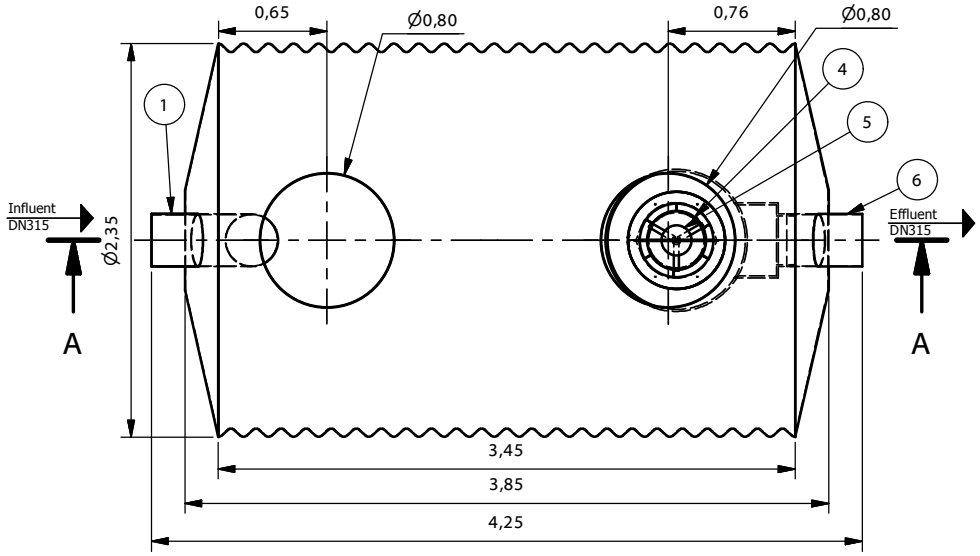
M= 1:35

Cleaning capacity:	65	l/s
Total flow:	65	l/s
Efficiency:	5	mg/l FOG
Total weight:	950	kg

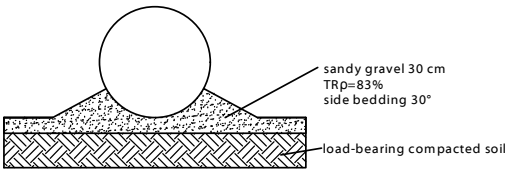
A-A (1 : 40)



Top View (1 : 40)



RECOMMENDED BEDDING:



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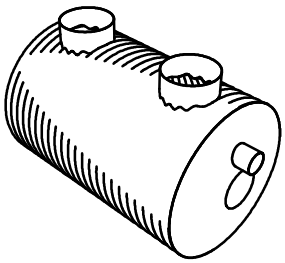
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 80-5-A (1 : 100)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

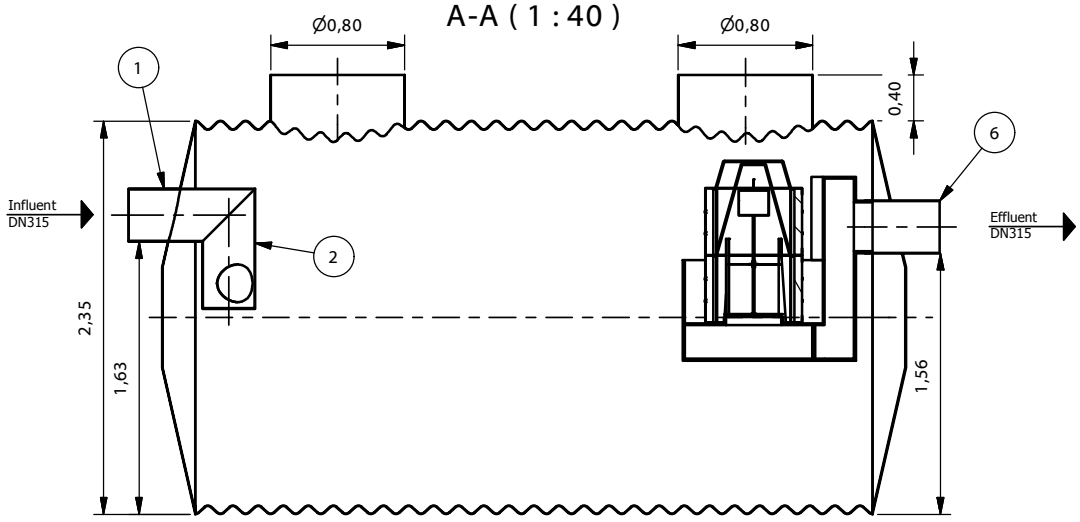
TNS 80-5-A

Informational drawing

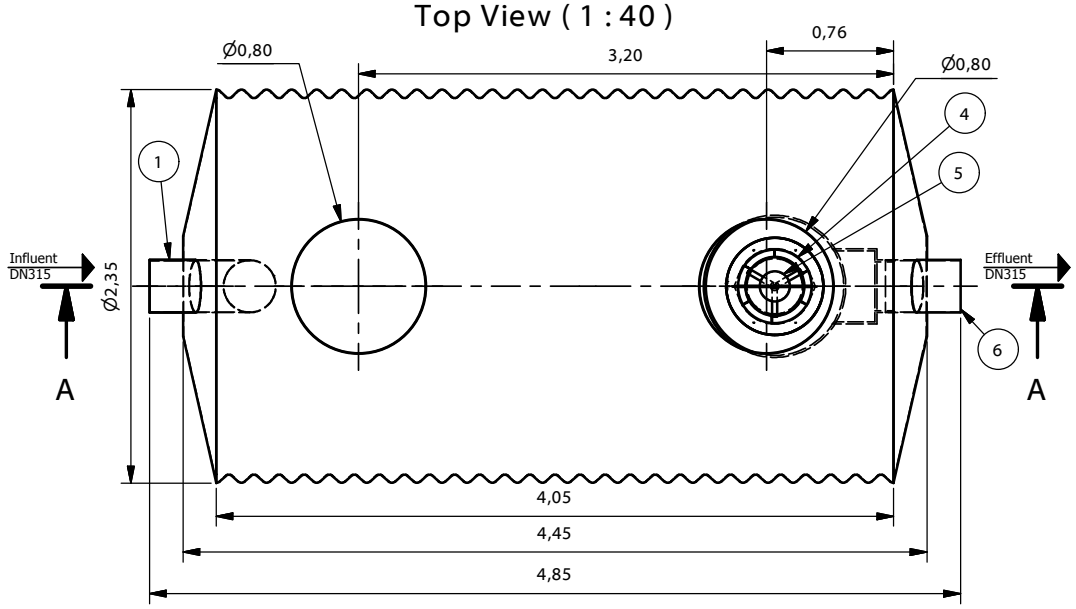
M= 1:40

Cleaning capacity:	80	l/s
Total flow:	80	l/s
Efficiency:	5	mg/l FOG
Total weight:	1184	kg

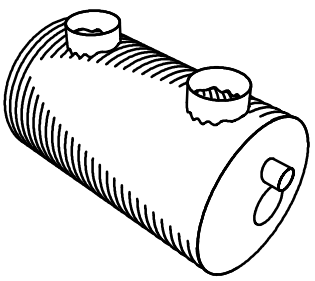
A-A (1 : 40)



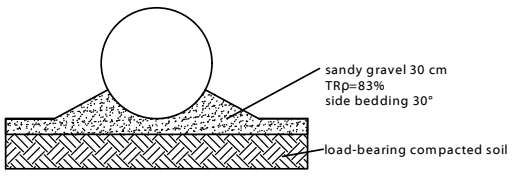
Top View (1 : 40)



TNS 100-5-A
(1 : 100)



RECOMMENDED BEDDING:



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2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

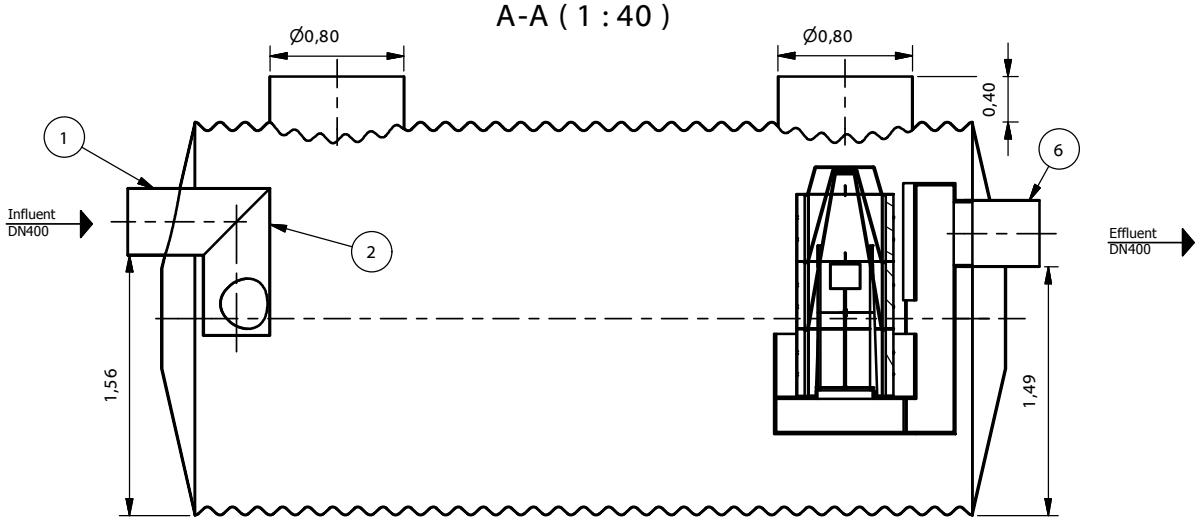
TYP: TNS 100-5-A

Informational drawing

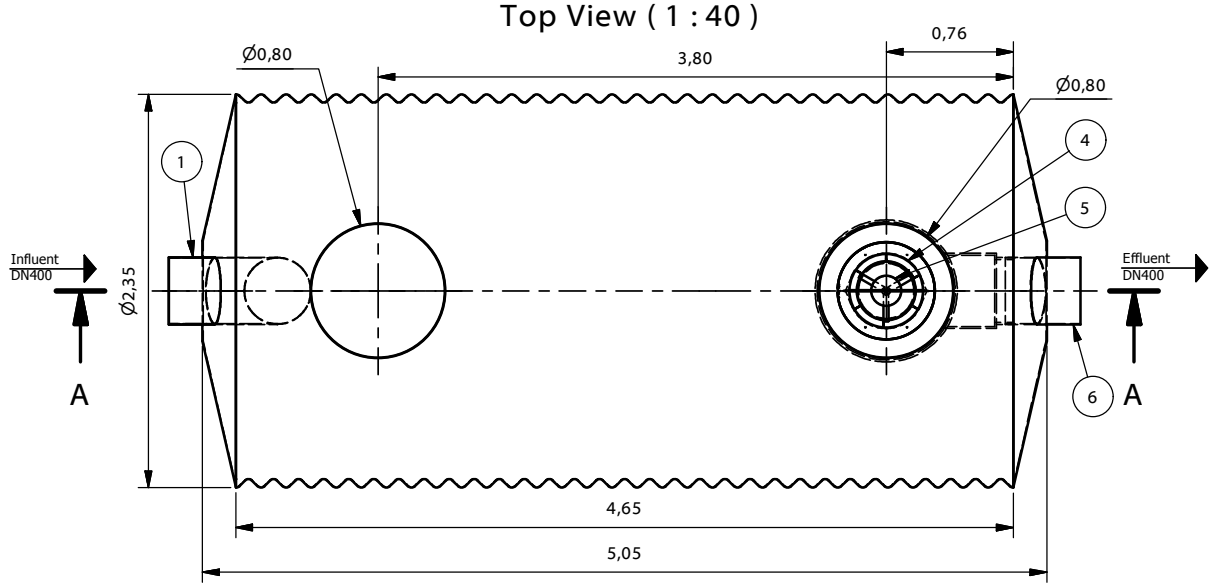
M= 1:40

Cleaning capacity:	100	l/s
Total flow:	100	l/s
Efficiency:	5	mg/l FOG
Total weight:	1300	kg

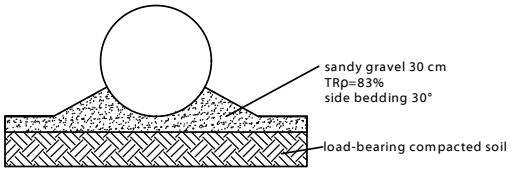
A-A (1 : 40)



Top View (1 : 40)



RECOMMENDED BEDDING:



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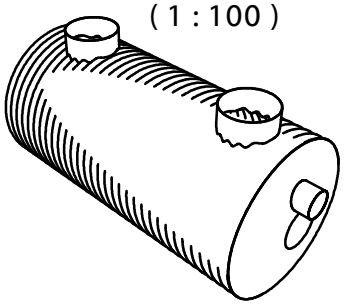
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 125-5-A
(1 : 100)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

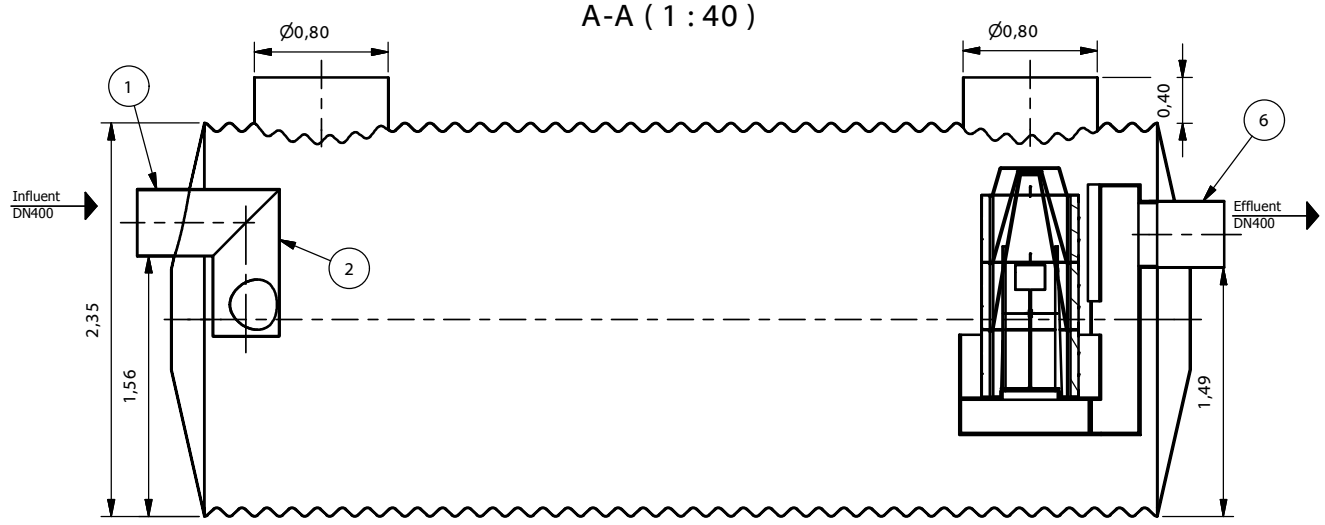
TNS 125-5-A

Informational drawing

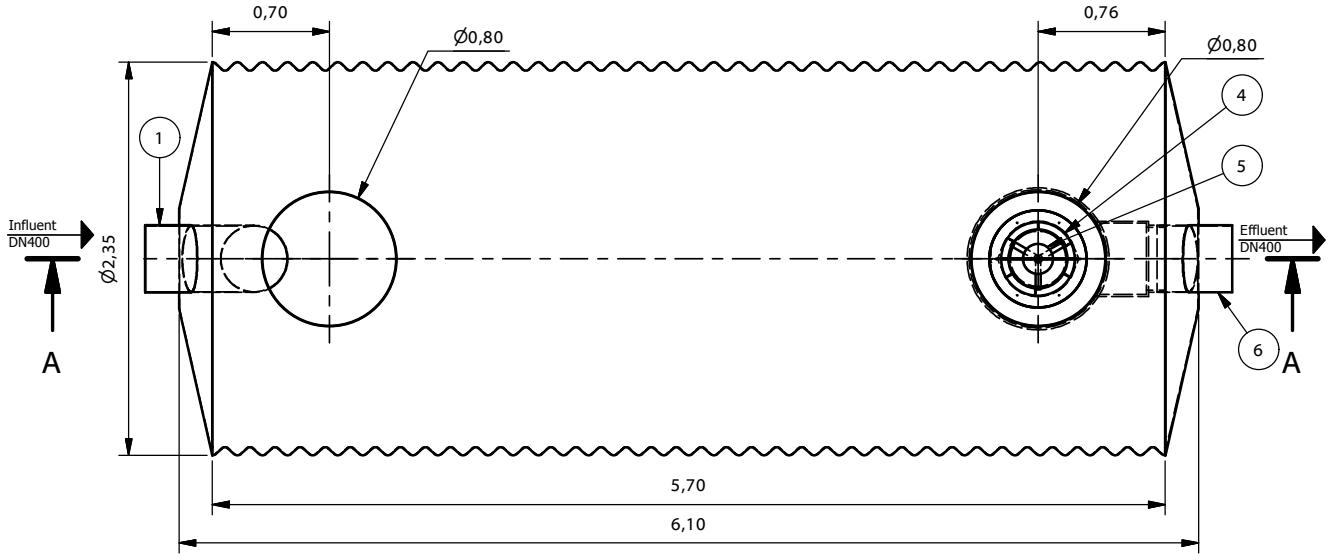
M= 1:40

Cleaning capacity:	125	l/s
Total flow:	125	l/s
Efficiency:	5	mg/l FOG
Total weight:	1480	kg

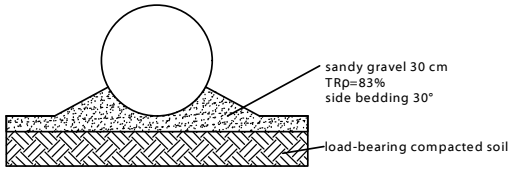
A-A (1 : 40)



Top View (1 : 40)



RECOMMENDED BEDDING:



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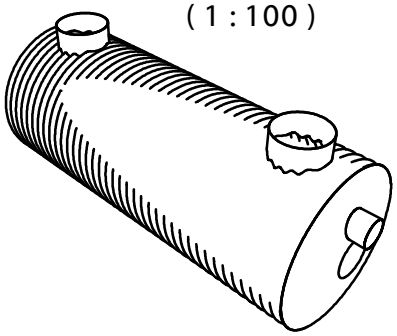
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 150-5-A
(1 : 100)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

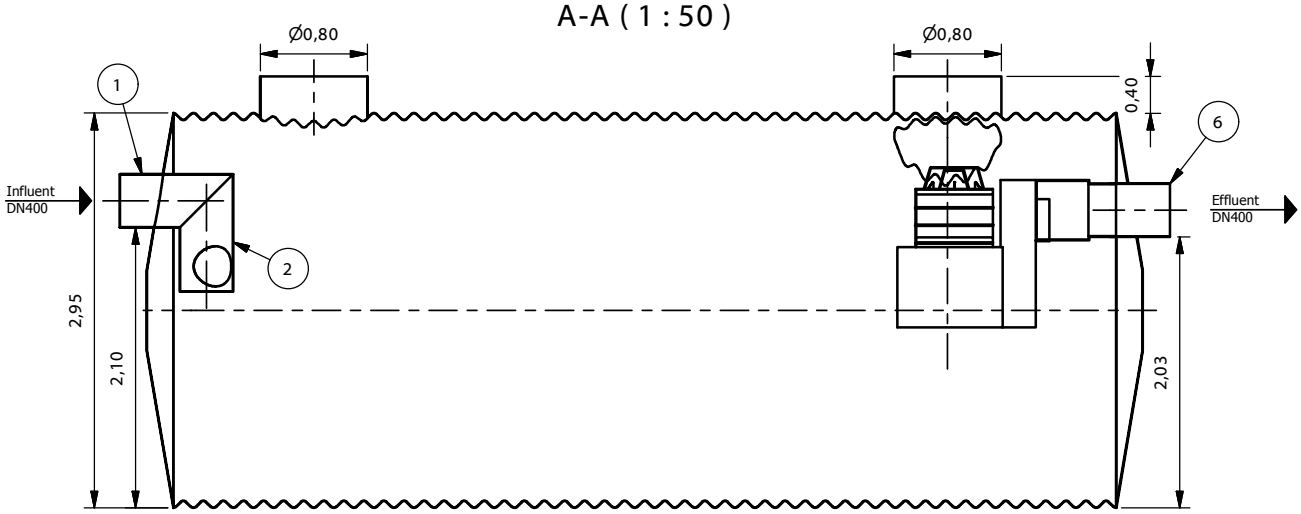
TYP: TNS 150-5-A

Informational drawing

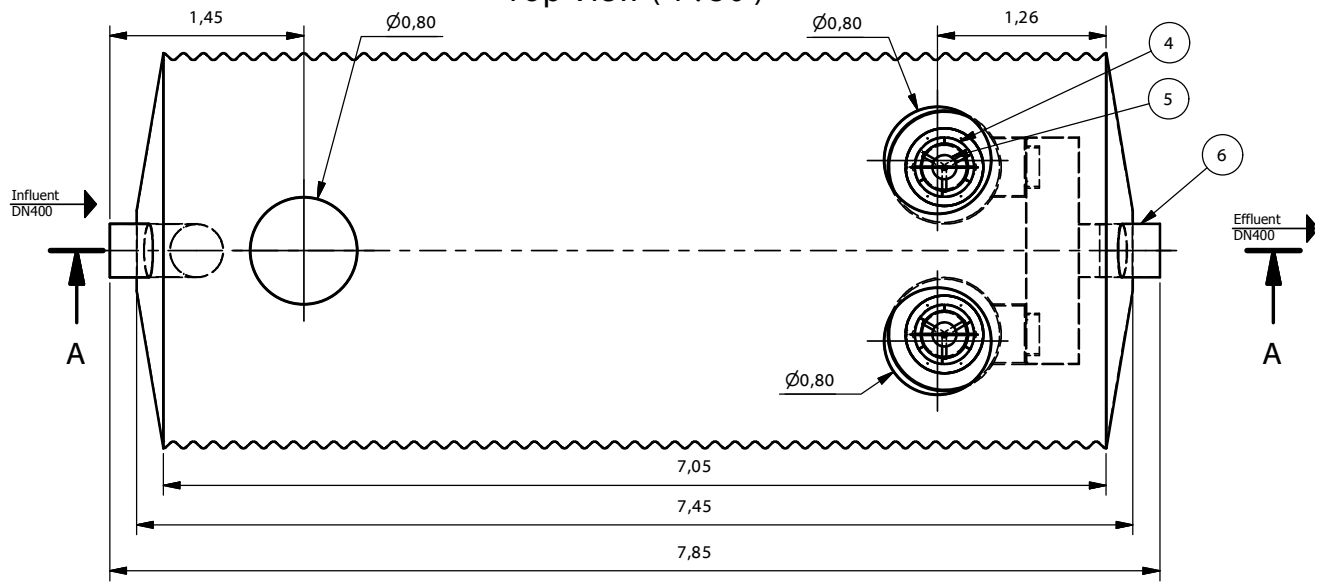
M= 1:40

Cleaning capacity:	150	l/s
Total flow:	150	l/s
Efficiency:	5	mg/l FOG
Total weight:	1695	kg

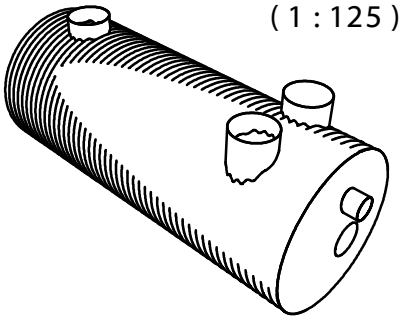
A-A (1 : 50)



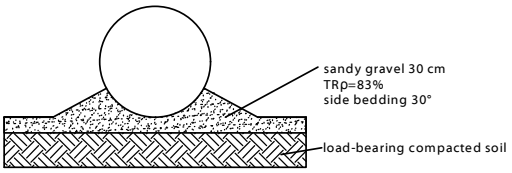
Top View (1 : 50)



TNS 200-5-A
(1 : 125)



RECOMMENDED BEDDING:



Forbidden to install on a rock or concrete bedding!
Backfilling layers must be 20-30 cm thick, compaction by layer by layer!
For more information, see the installation manual!

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

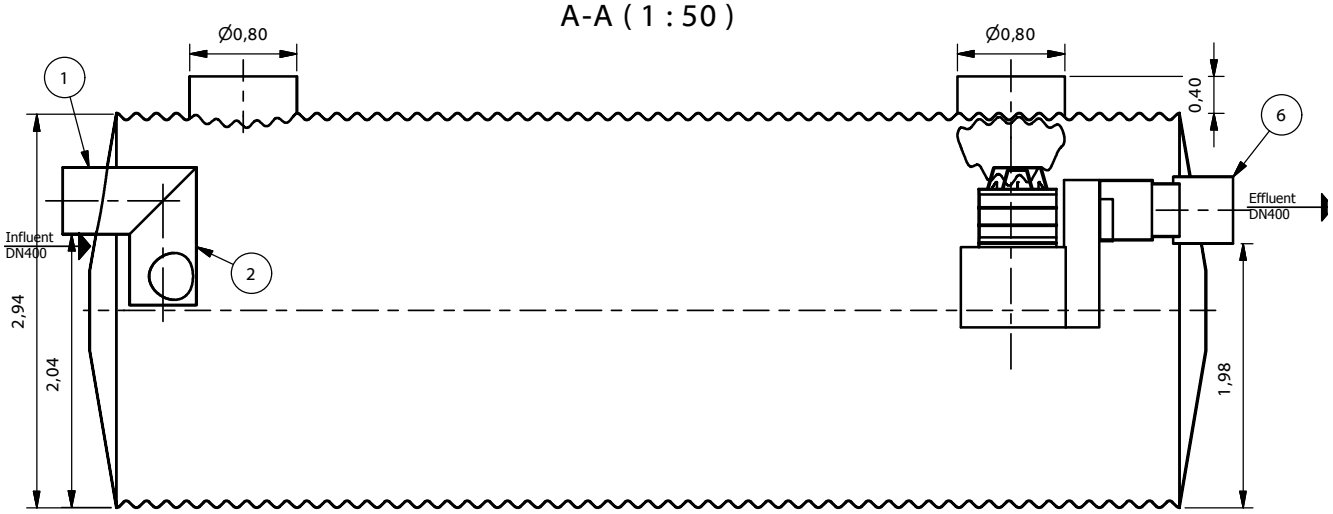
TNS 200-5-A

Informational drawing

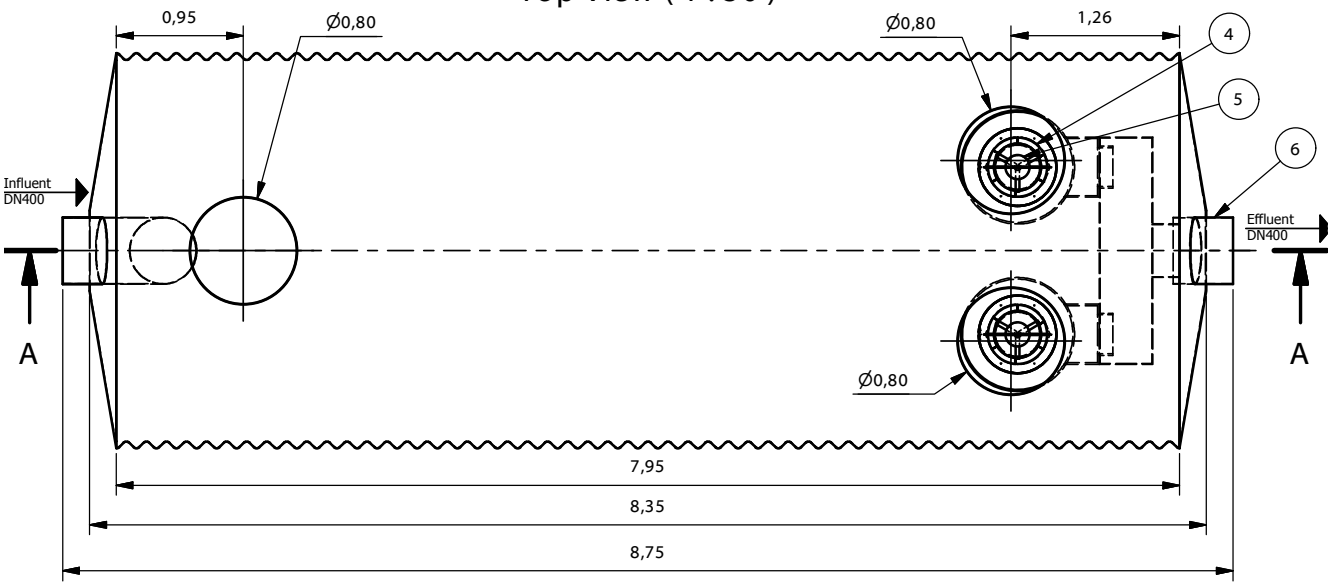
M= 1:50

Cleaning capacity:	200	l/s
Total flow:	200	l/s
Efficiency:	5	mg/l FOG
Total weight:	2985	kg

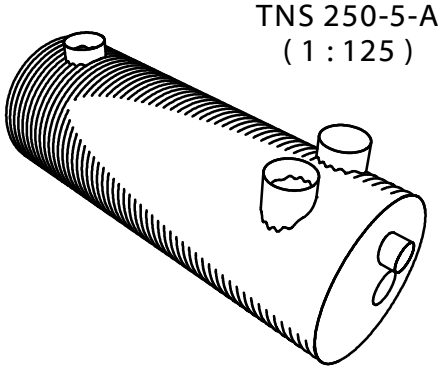
A-A (1 : 50)



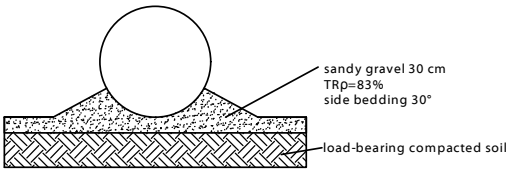
Top View (1 : 50)



TNS 250-5-A
(1 : 125)



RECOMMENDED BEDDING:



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2. Diffuser
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4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

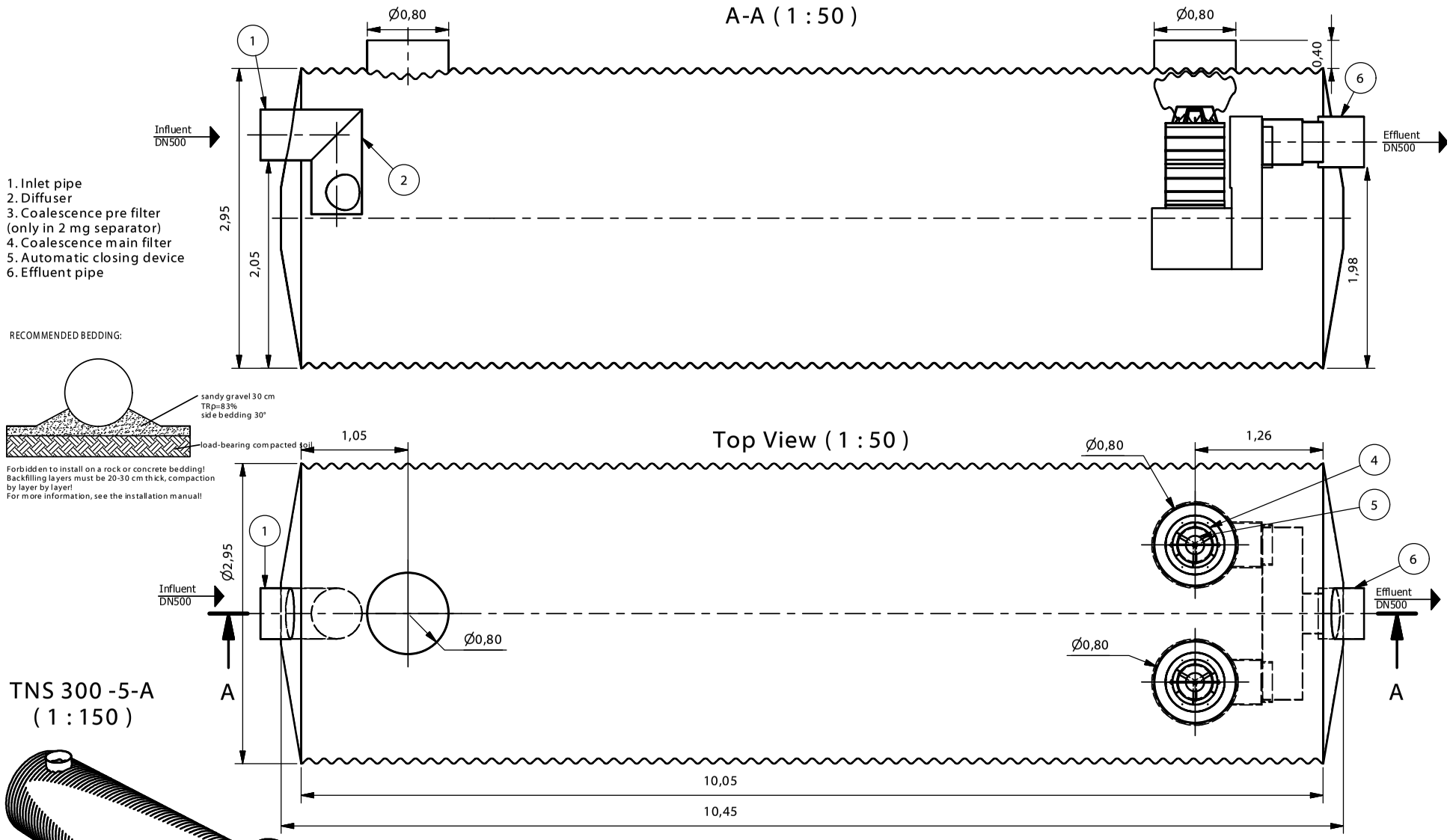
TYP:

TNS 250-5-A

Informational drawing

M= 1:50

Cleaning capacity:	250	l/s
Total flow:	250	l/s
Efficiency:	5	mg/l FOG
Total weight:	2985	kg



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TYP:

ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

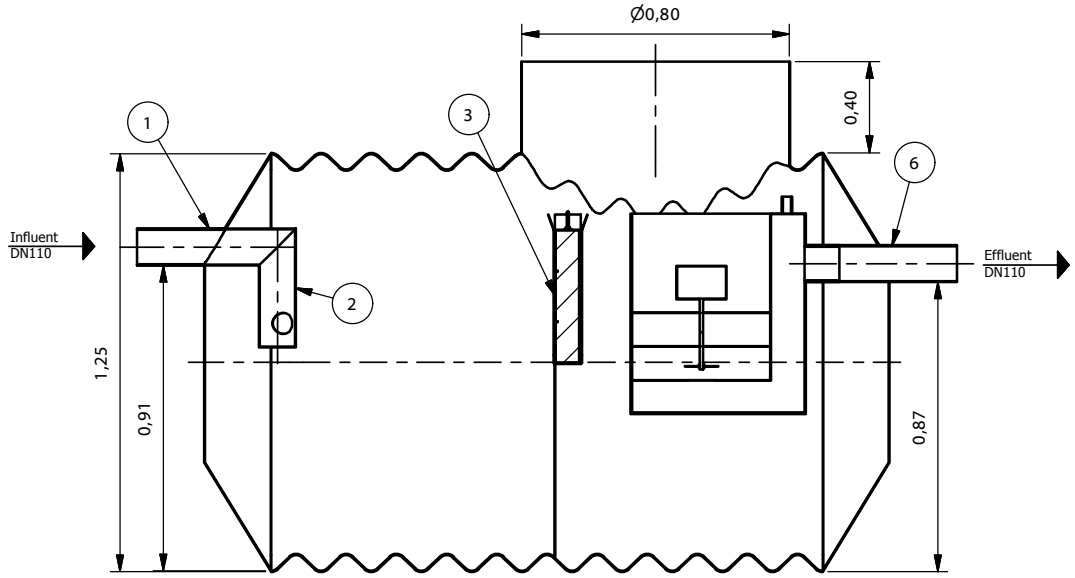
TNS 300-5-A

Informational drawing

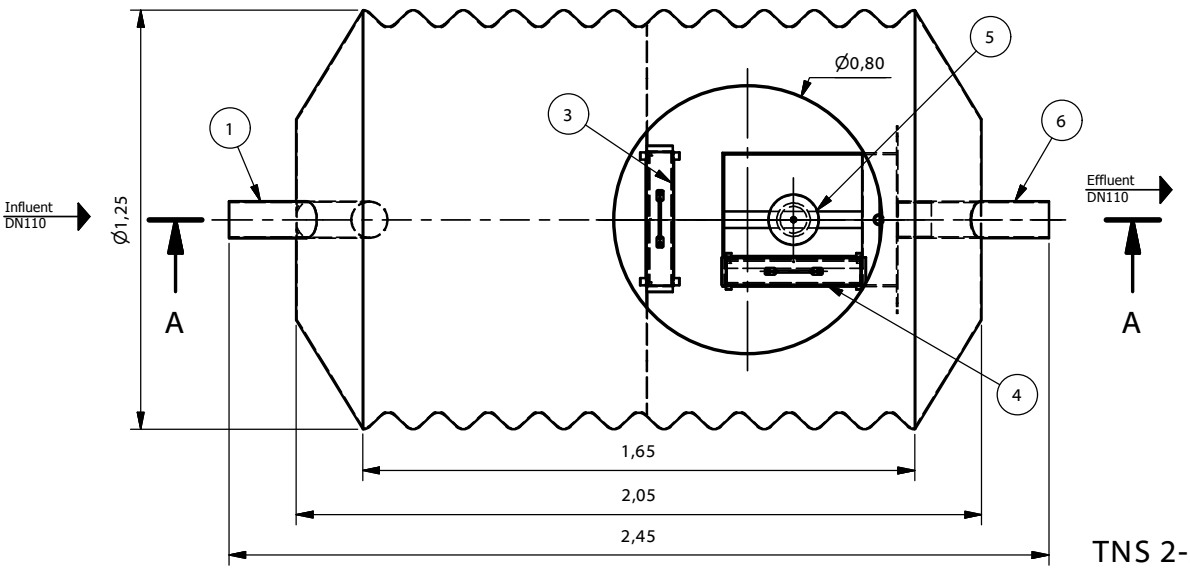
M= 1:50

Cleaning capacity:	300	l/s
Total flow:	300	l/s
Efficiency:	5	mg/l FOG
Total weight:	3520	kg

A-A (1 : 20)

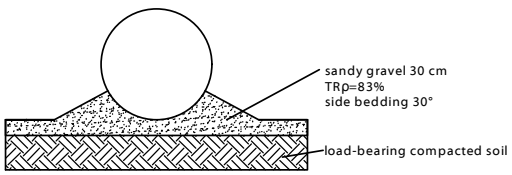


Top View (1 : 20)



TNS 2-2-A
(1 : 50)

RECOMMENDED BEDDING:



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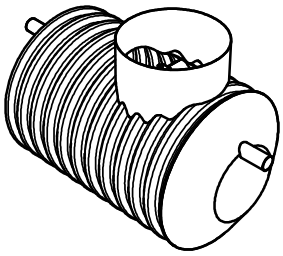
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

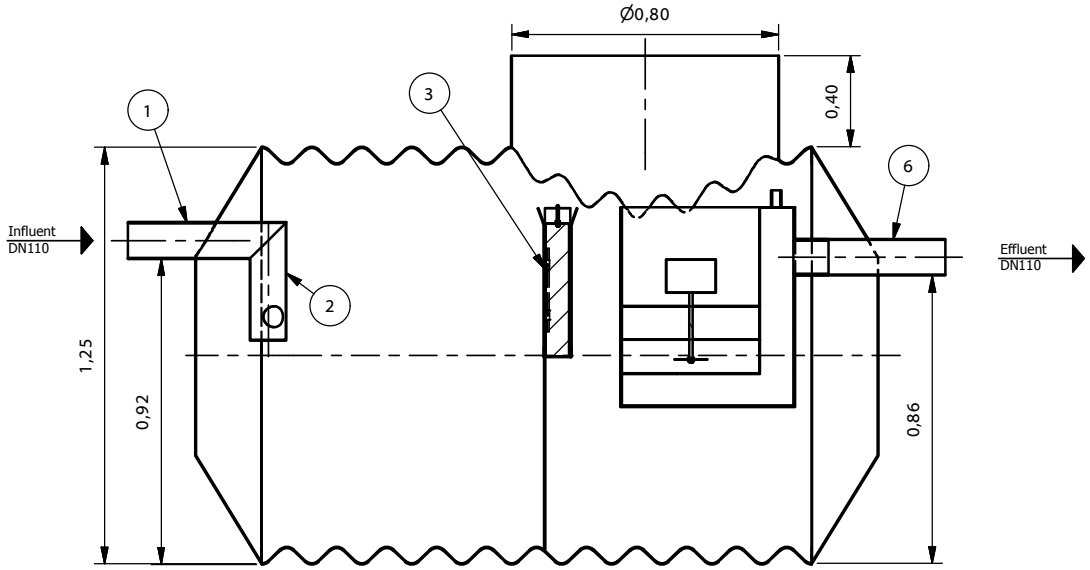
TNS 2-2-A

Informational drawing

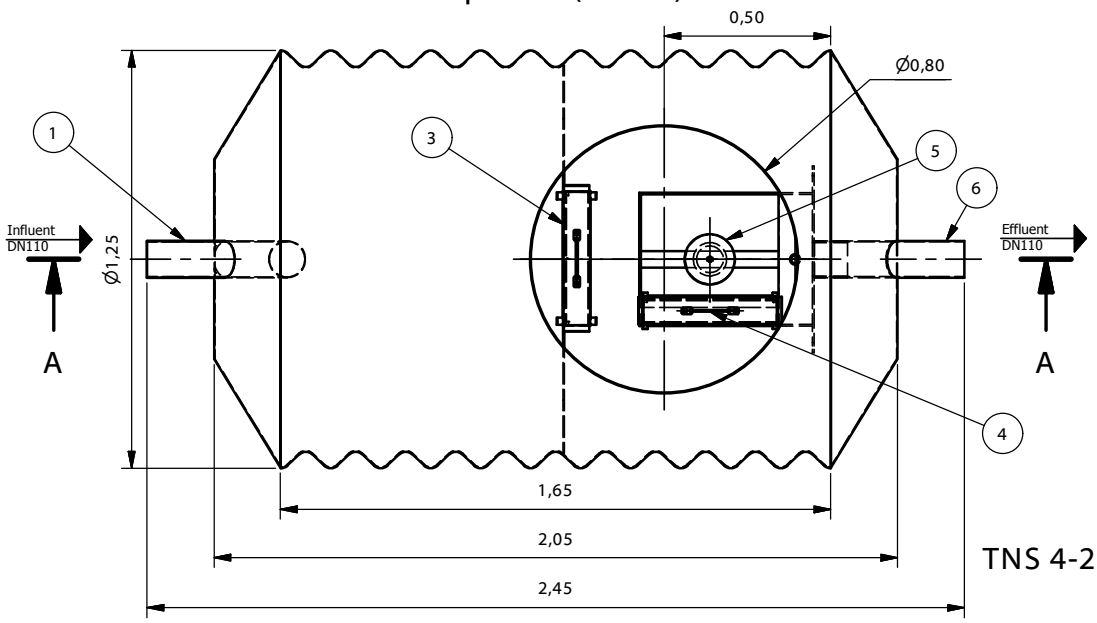
M= 1:20

Cleaning capacity:	2	l/s
Total flow:	2	l/s
Efficiency:	2	mg/l FOG
Total weight:	294	kg

A-A (1 : 20)

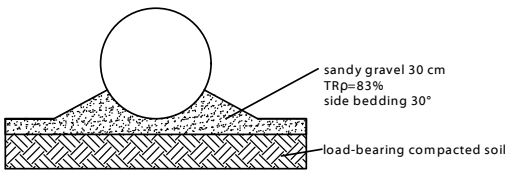


Top View (1 : 20)



TNS 4-2-A (1 : 50)

RECOMMENDED BEDDING:



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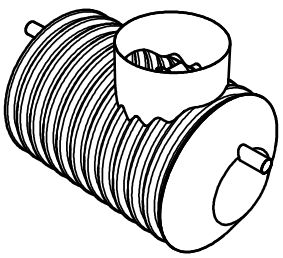
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



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TYP:

TNS 4-2-A

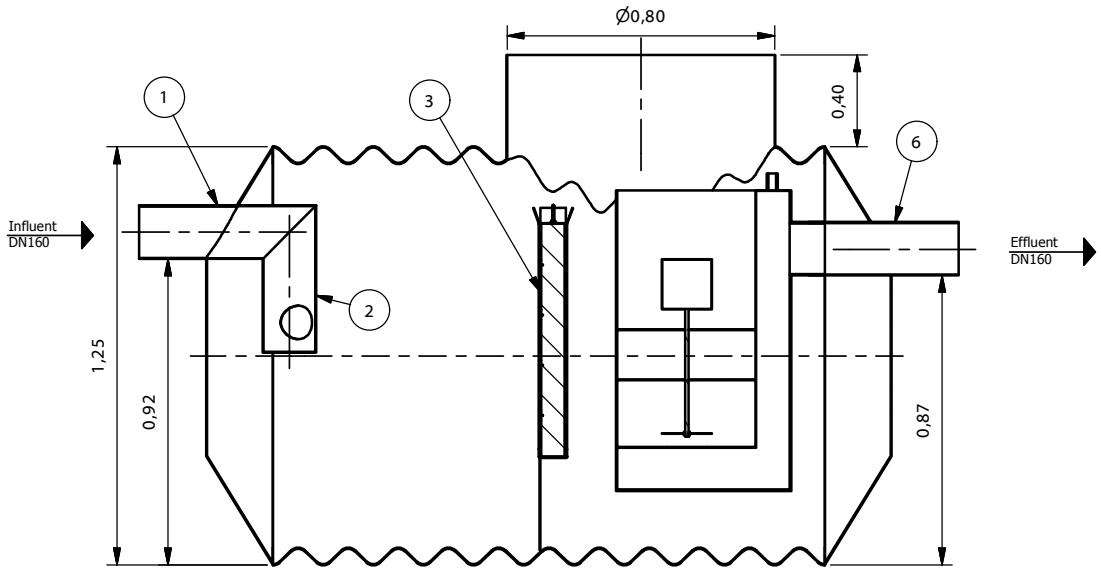
Informational drawing

M= 1:20

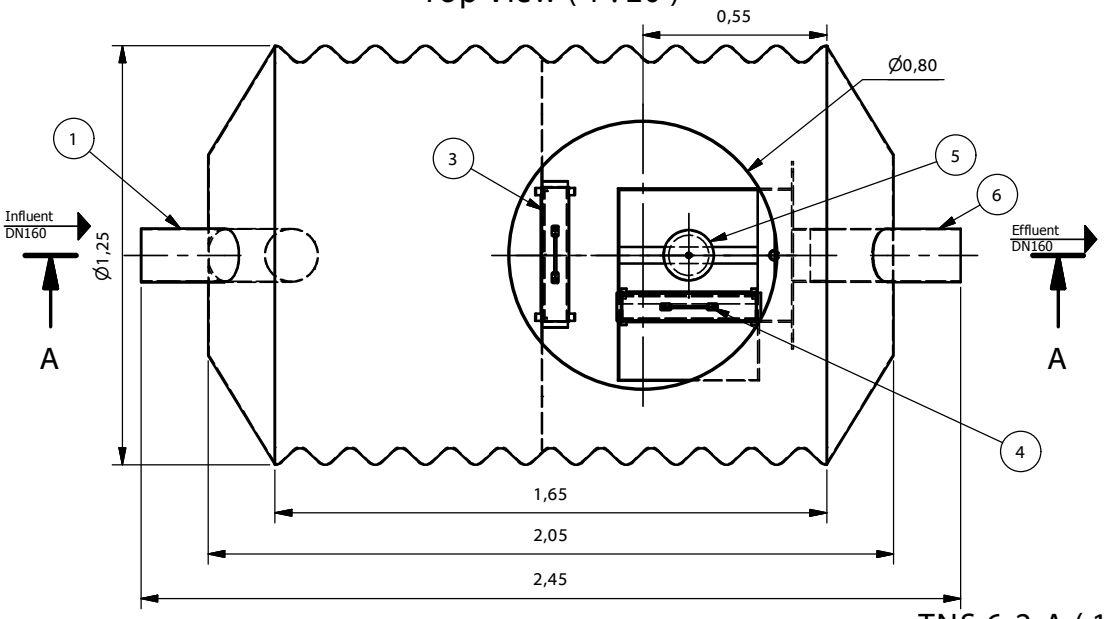
ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

Cleaning capacity:	4	l/s
Total flow:	4	l/s
Efficiency:	2	mg/l FOG
Total weight:	294	kg

A-A (1 : 20)

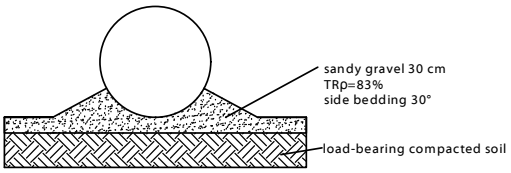


Top View (1 : 20)



TNS 6-2-A (1 : 50)

RECOMMENDED BEDDING:



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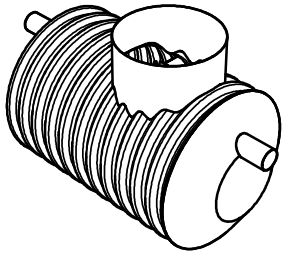
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

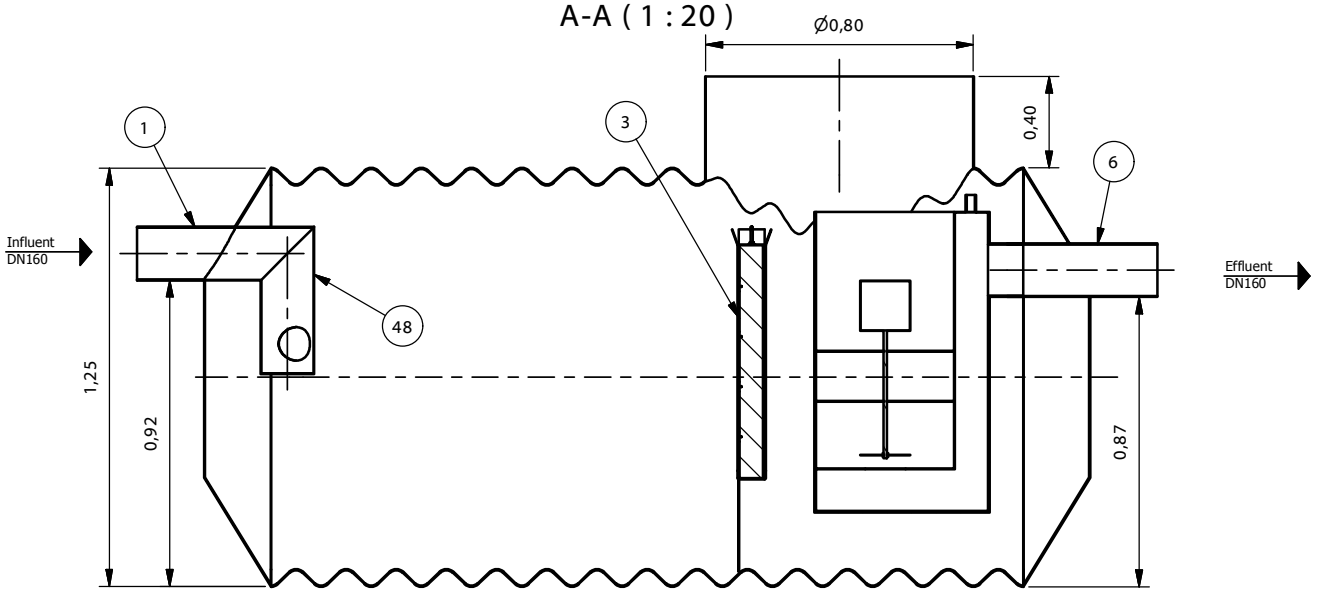
TNS 6-2-A

Informational drawing

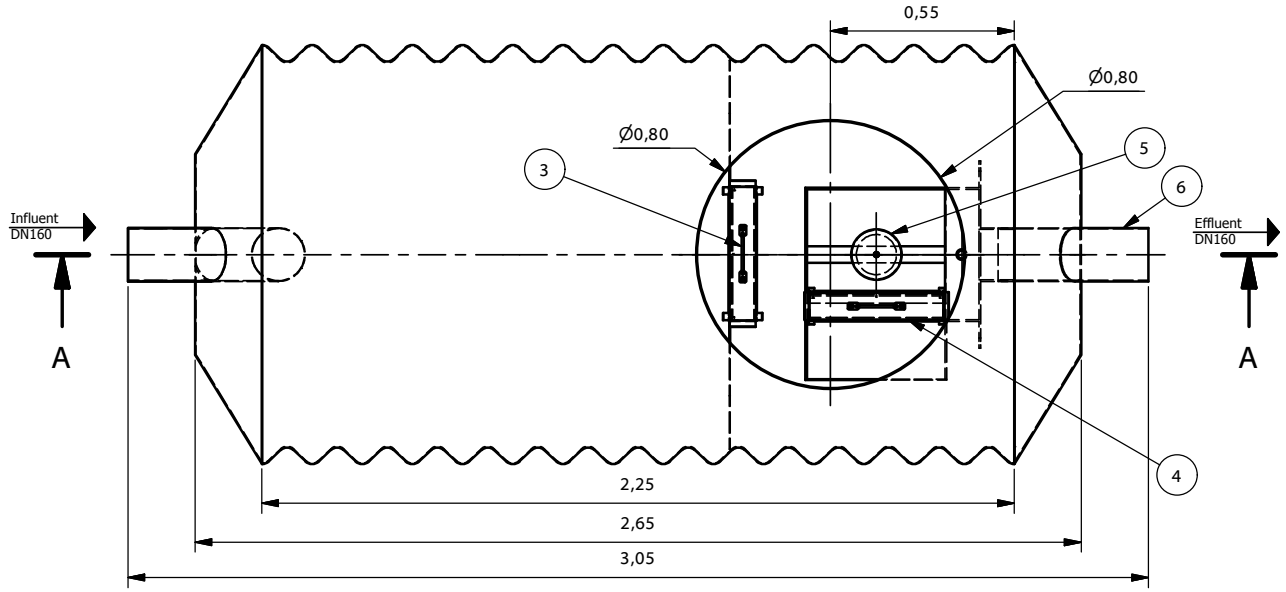
M= 1:20

Cleaning capacity:	6	l/s
Total flow:	6	l/s
Efficiency:	2	mg/l FOG
Total weight:	315	kg

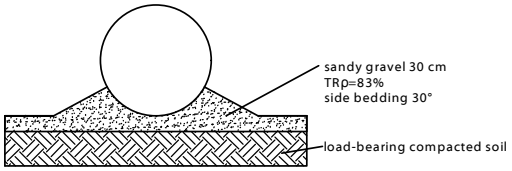
A-A (1 : 20)



Top View (1 : 20)



RECOMMENDED BEDDING:



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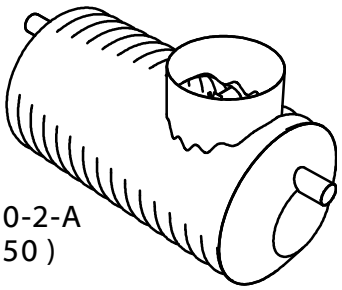
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



TNS 10-2-A
(1 : 50)

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

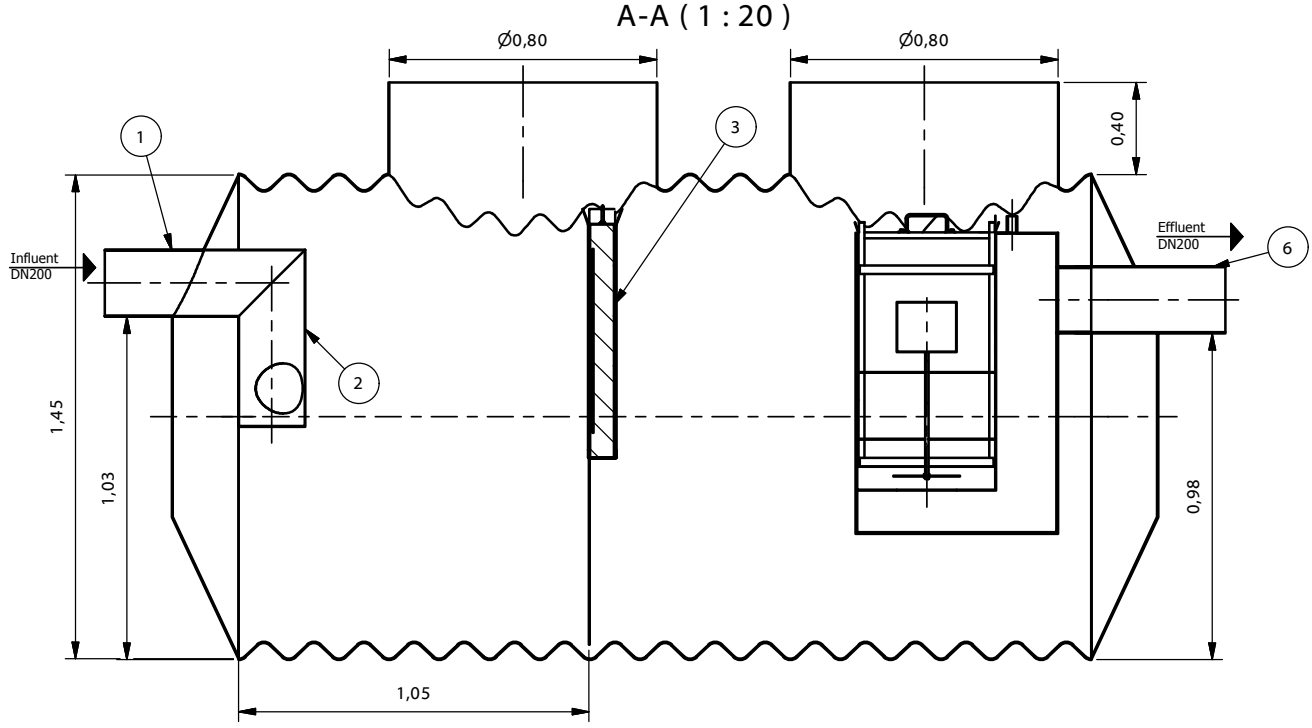
TNS 10-2-A

Informational drawing

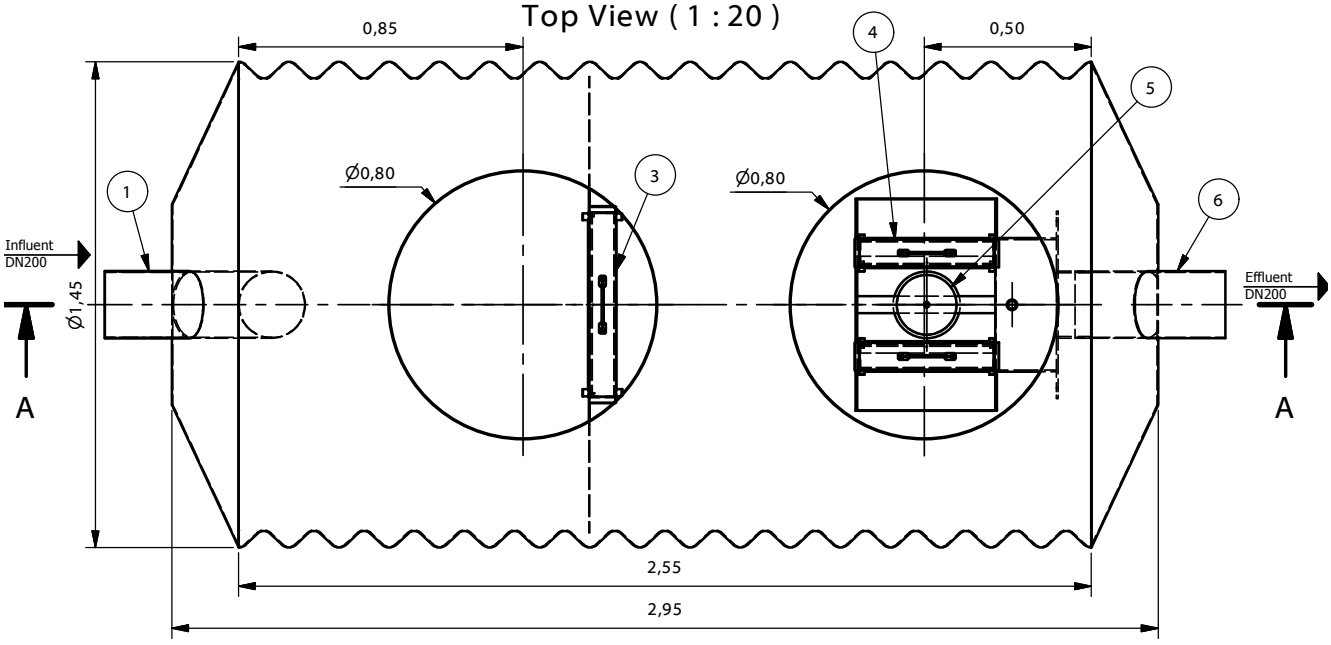
M= 1:20

Cleaning capacity:	10	l/s
Total flow:	10	l/s
Efficiency:	2	mg/l FOG
Total weight:	380	kg

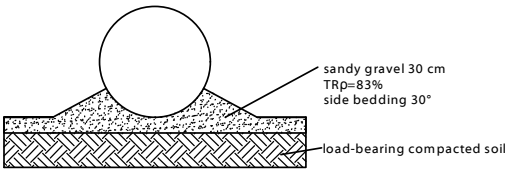
A-A (1 : 20)



Top View (1 : 20)



RECOMMENDED BEDDING:



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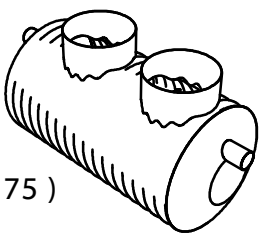
1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe



TNS 15-2-A (1 : 75)

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

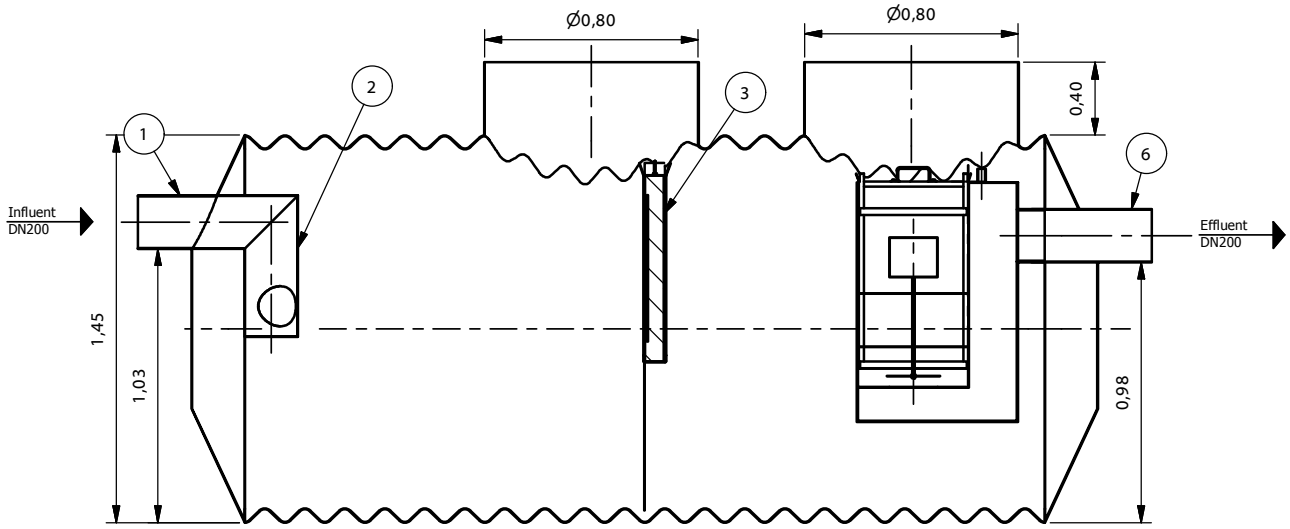
TNS 15-2-A

Informational drawing

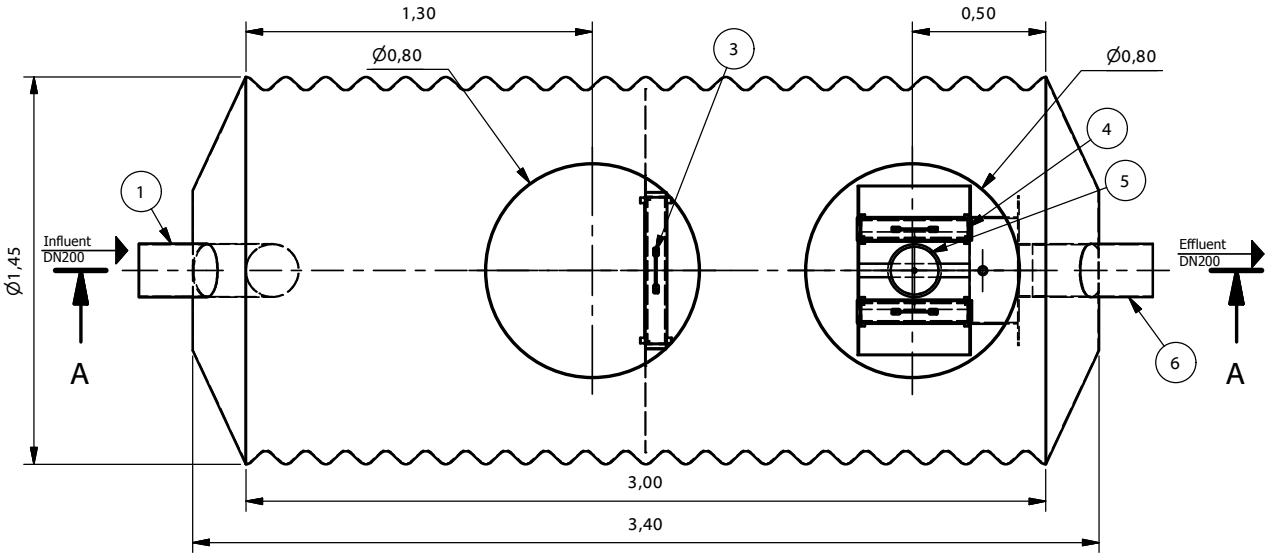
M= 1:20

Cleaning capacity:	15	l/s
Total flow:	15	l/s
Efficiency:	2	mg/l FOG
Total weight:	540	kg

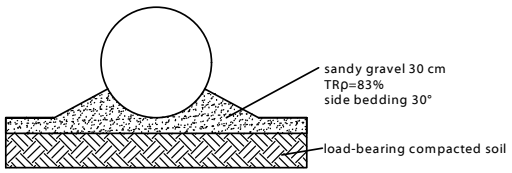
A-A (1 : 25)



Top View (1 : 25)



RECOMMENDED BEDDING:



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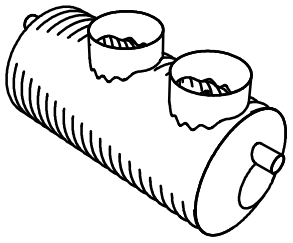
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 20-2-A (1 : 75)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

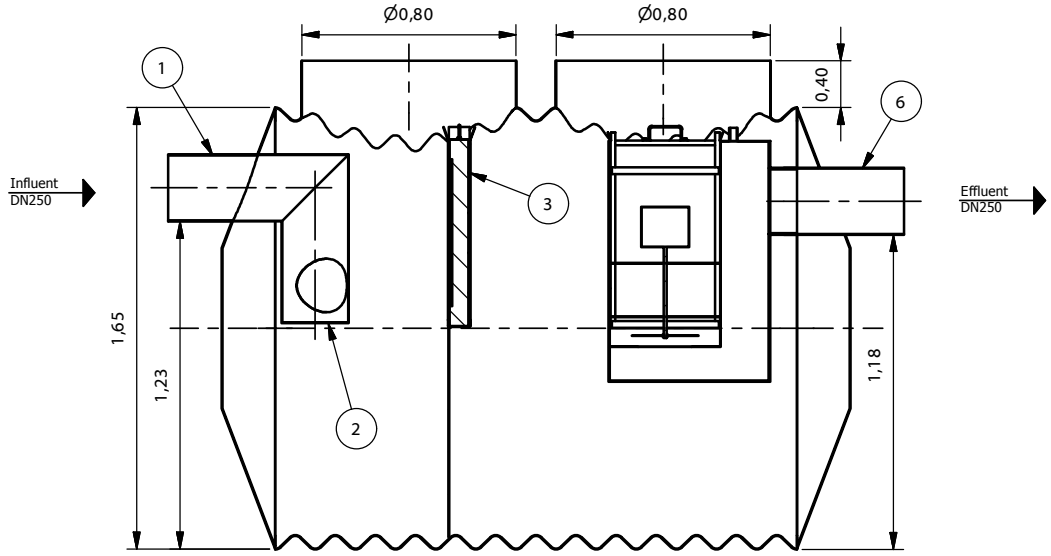
TNS 20-2-A

Informational drawing

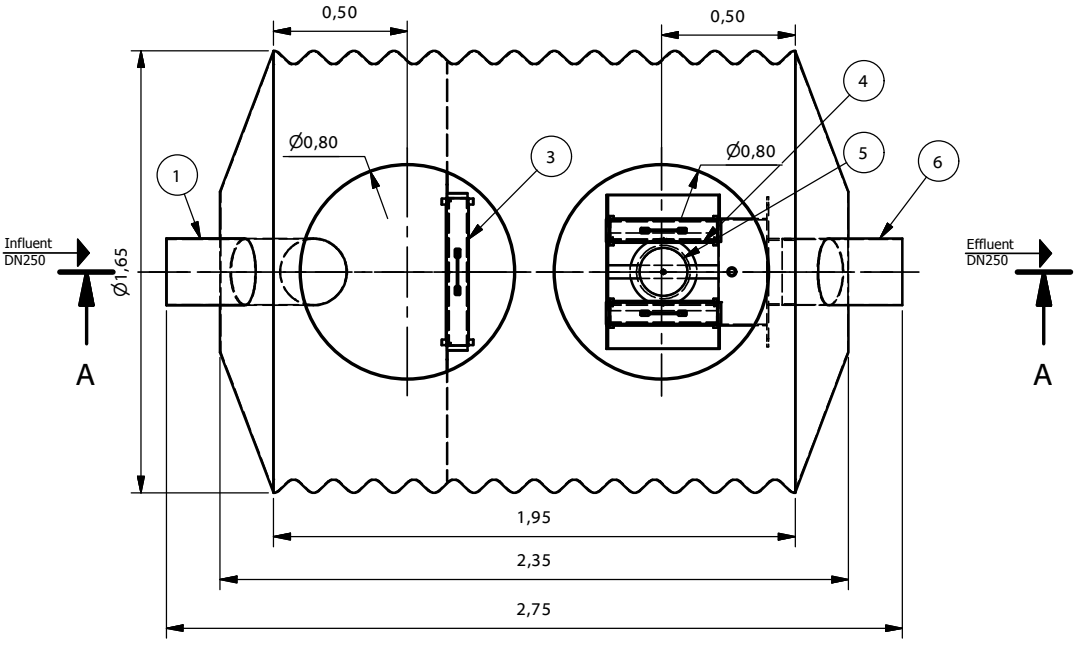
M= 1:25

Cleaning capacity:	20	l/s
Total flow:	20	l/s
Efficiency:	2	mg/l FOG
Total weight:	600	kg

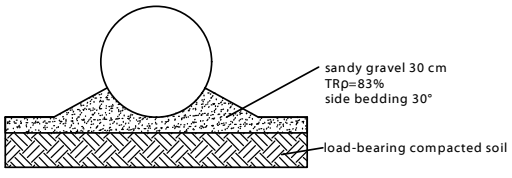
A-A (1 : 25)



Top View (1 : 25)



RECOMMENDED BEDDING:



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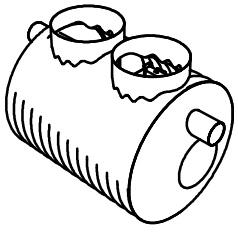
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

TNS 25-2-A (1 : 75)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

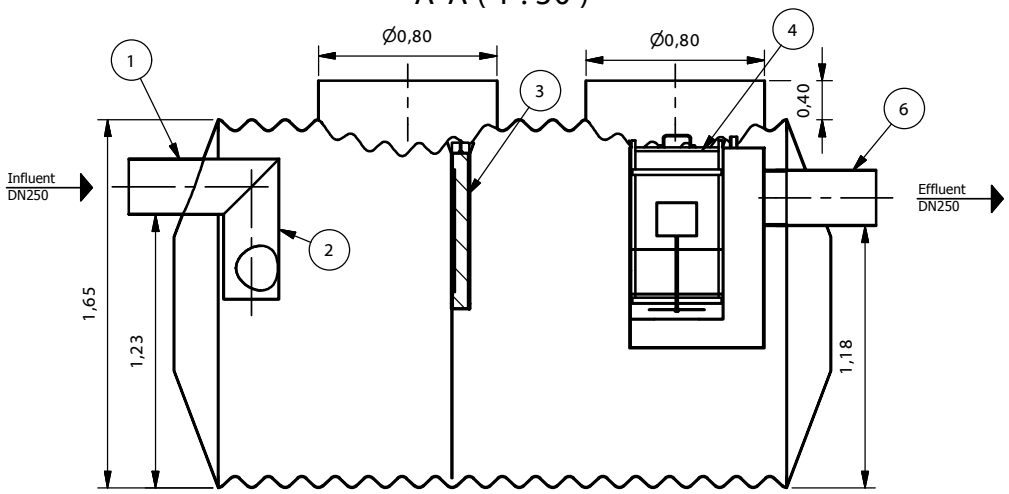
TNS 25-2-A

Informational drawing

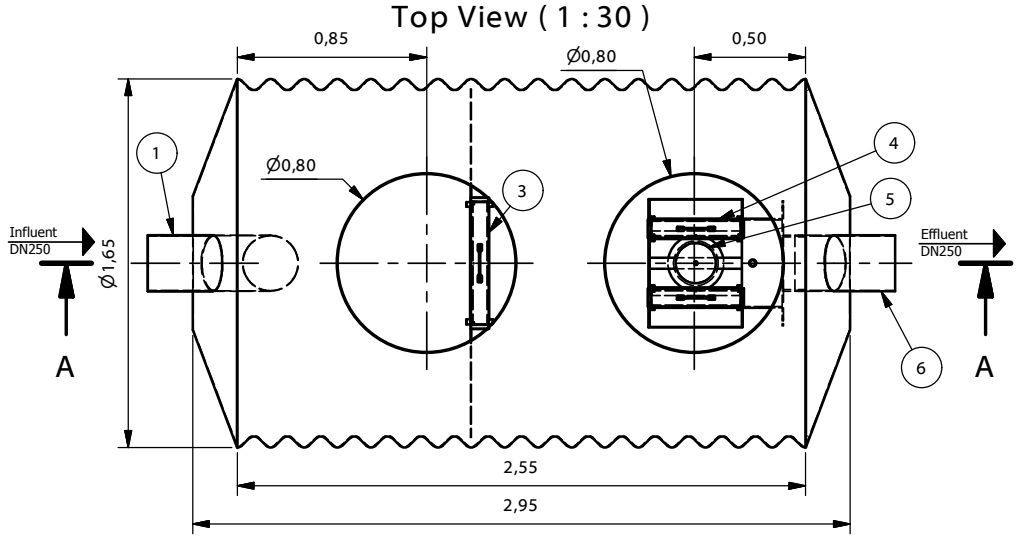
M= 1:25

Cleaning capacity:	25	l/s
Total flow:	25	l/s
Efficiency:	2	mg/l FOG
Total weight:	510	kg

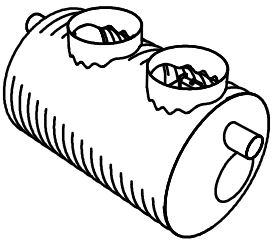
A-A (1 : 30)



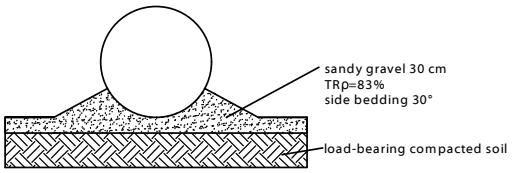
Top View (1 : 30)



TNS 30-2-A
(1 : 75)



RECOMMENDED BEDDING:



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2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

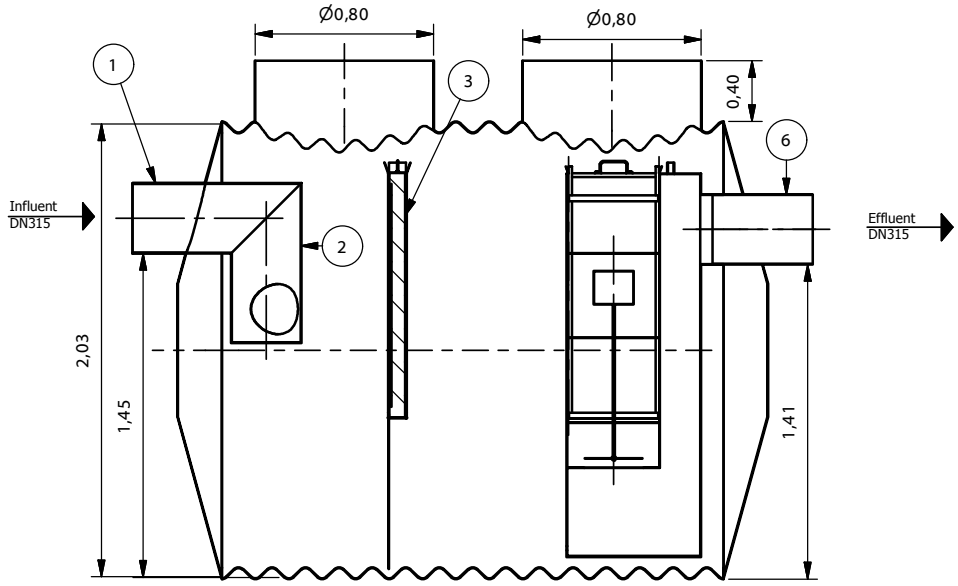
TNS 30-2-A

Informational drawing

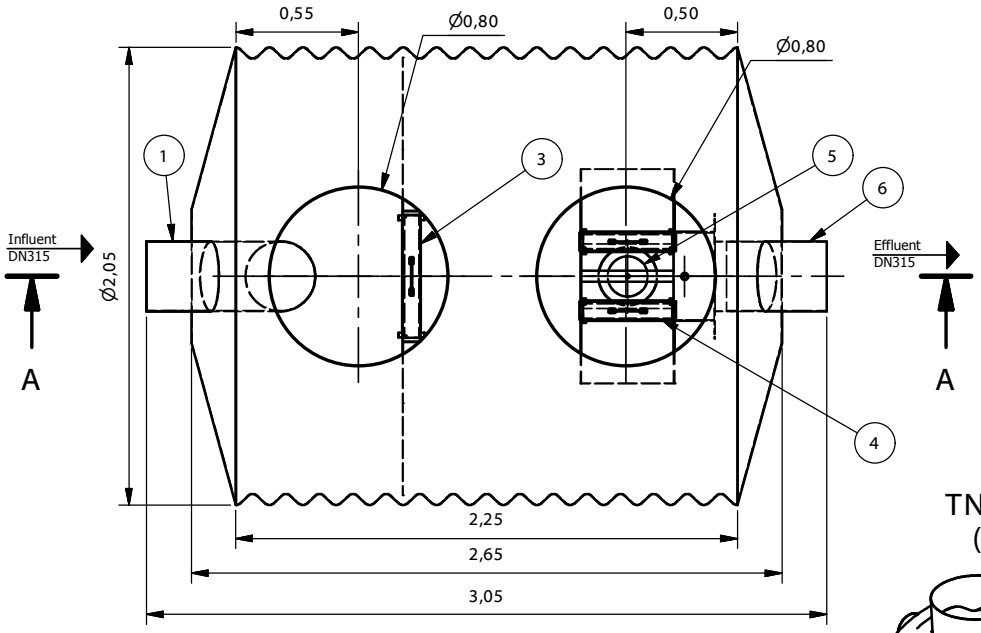
M= 1:30

Cleaning capacity:	30	l/s
Total flow:	30	l/s
Efficiency:	2	mg/l FOG
Total weight:	600	kg

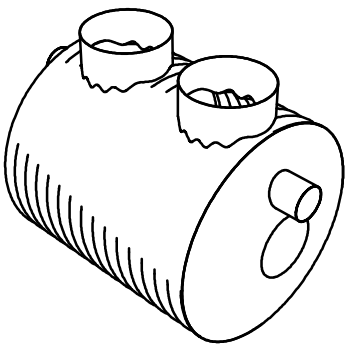
A-A (1 : 30)



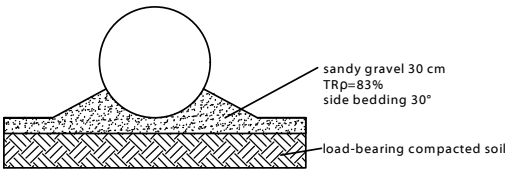
Top View (1 : 30)



TNS 40-2-A
(1 : 60)



RECOMMENDED BEDDING:



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1. Inlet pipe
2. Diffuser
3. Coalescence pre filter (only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

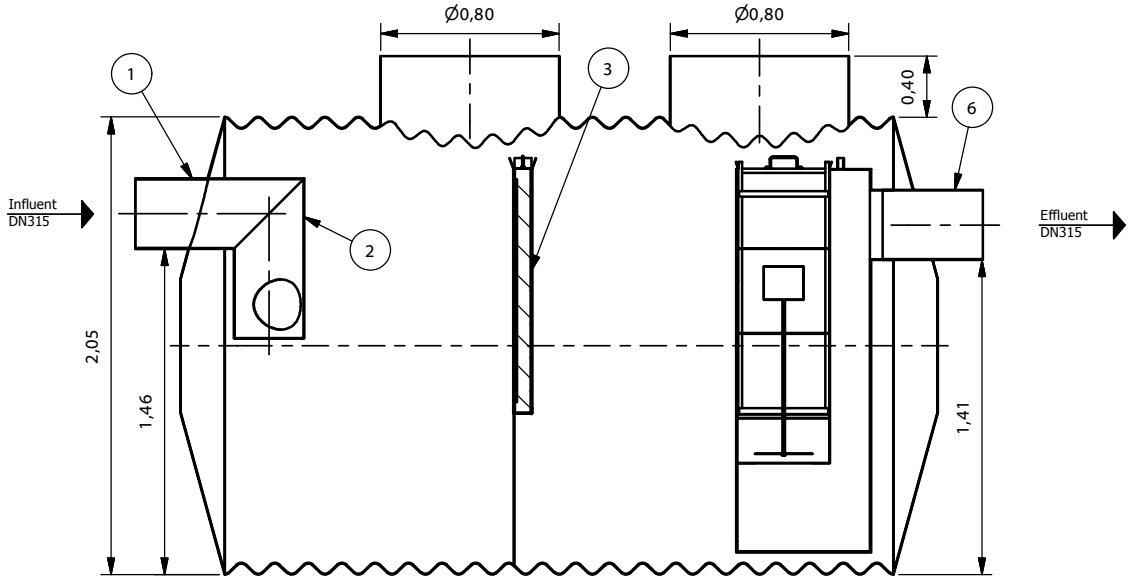
TNS 40-2-A

Informational drawing

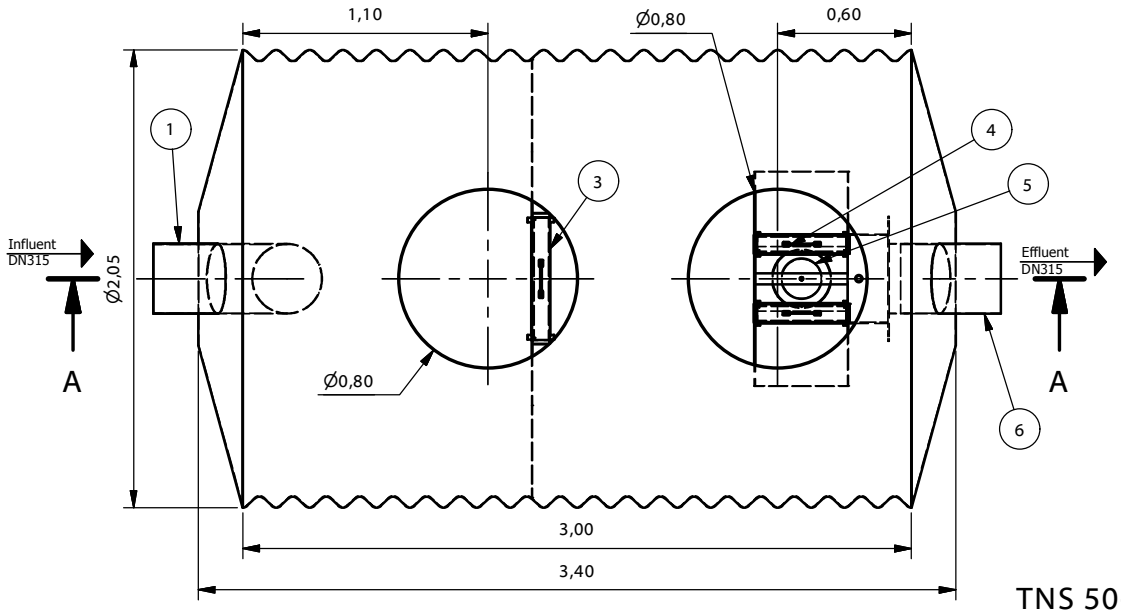
M= 1:30

Cleaning capacity:	40	l/s
Total flow:	40	l/s
Efficiency:	2	mg/l FOG
Total weight:	804	kg

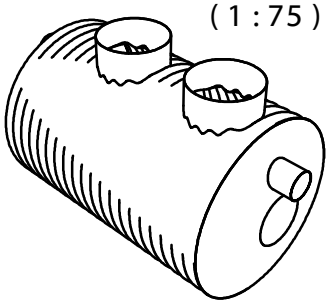
A-A (1 : 30)



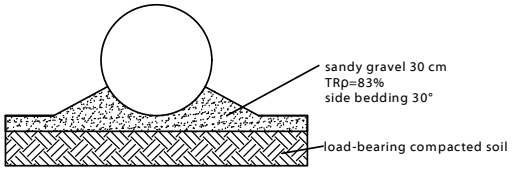
Top View (1 : 30)



TNS 50-2-A
(1 : 75)



RECOMMENDED BEDDING:



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

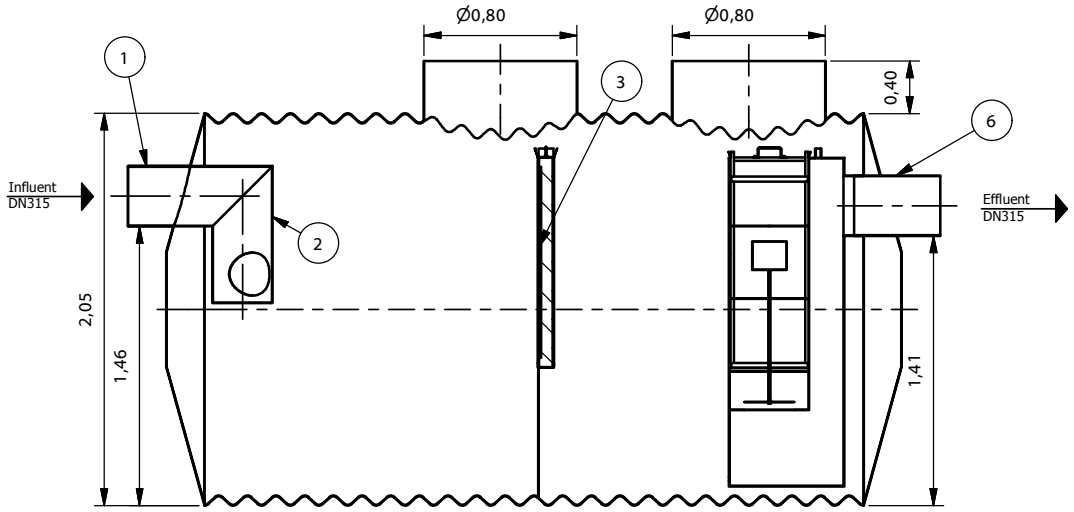
TNS 50-2-A

Informational drawing

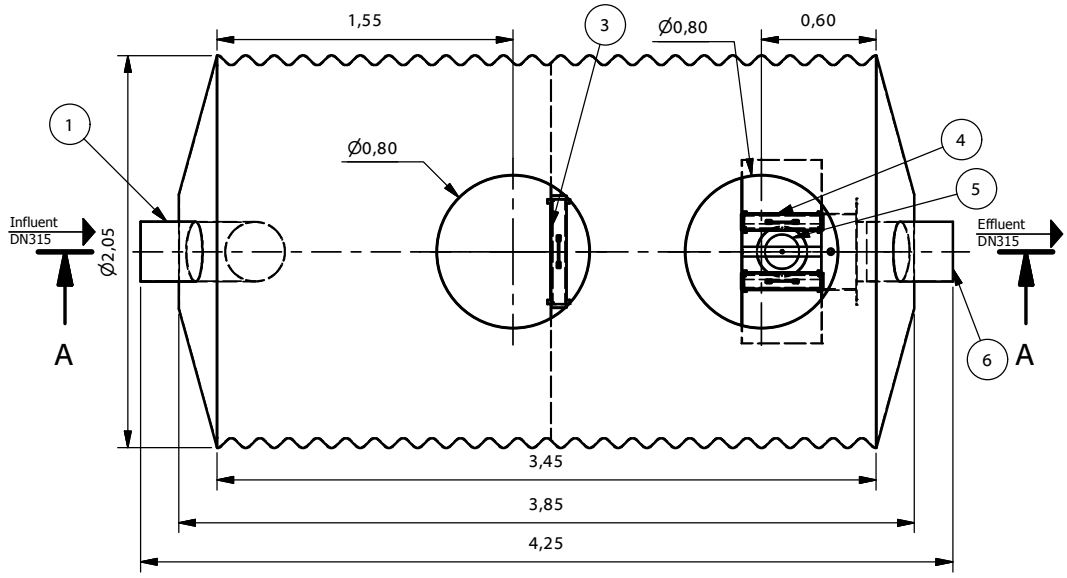
M= 1:30

Cleaning capacity:	50	l/s
Total flow:	50	l/s
Efficiency:	2	mg/l FOG
Total weight:	930	kg

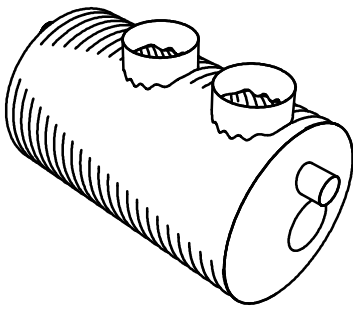
A-A (1 : 35)



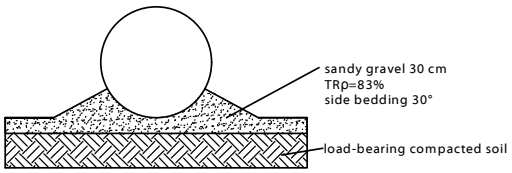
Top View (1 : 35)



TNS 65-2-A (1 : 75)



RECOMMENDED BEDDING:



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6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

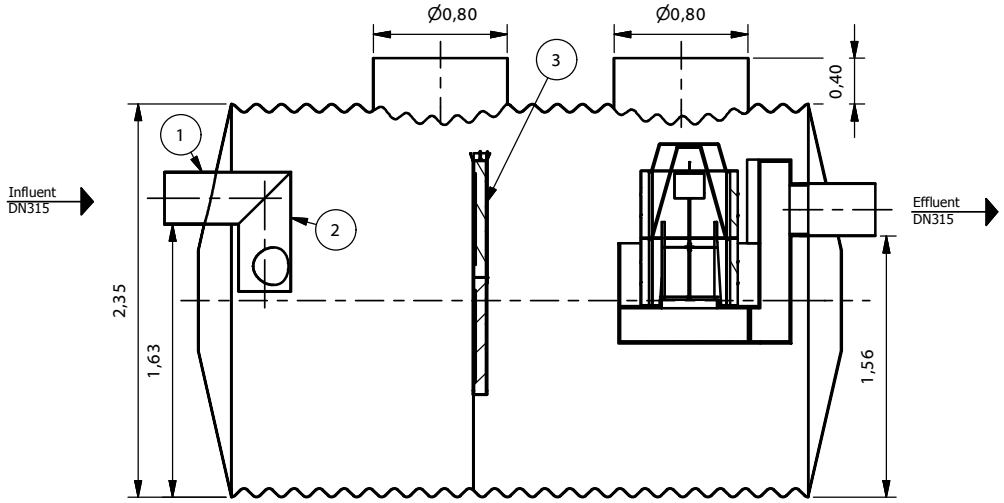
TNS 65-2-A

Informational drawing

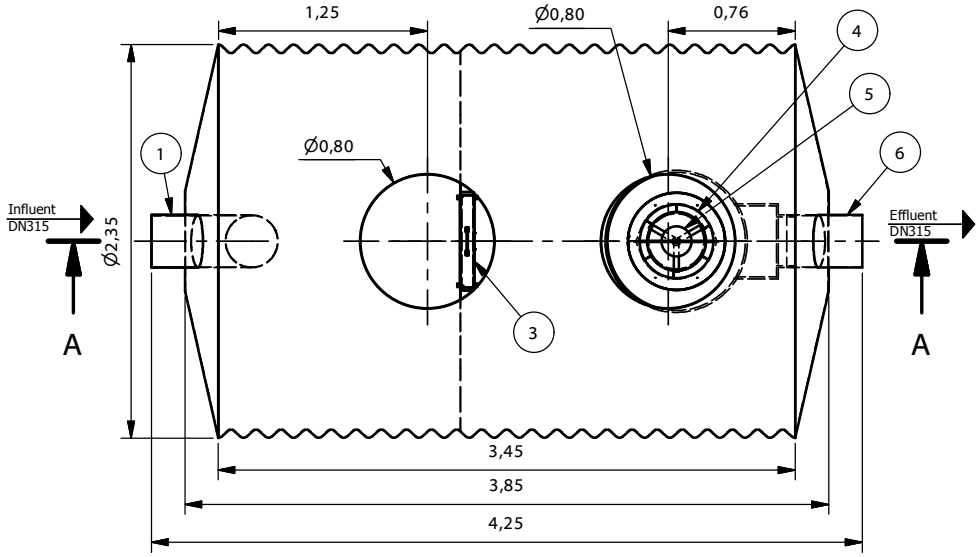
M= 1:35

Cleaning capacity:	65	l/s
Total flow:	65	l/s
Efficiency:	2	mg/l FOG
Total weight:	1010	kg

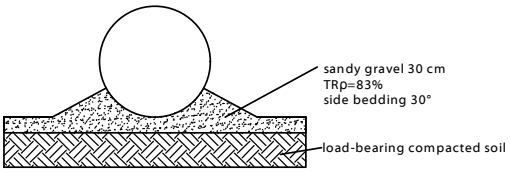
A-A (1 : 40)



Top View (1 : 40)



RECOMMENDED BEDDING:



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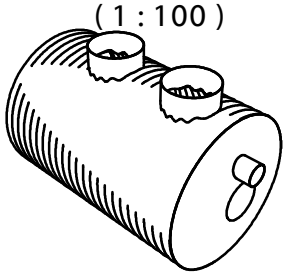
TNS 80-2-A
(1 : 100)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

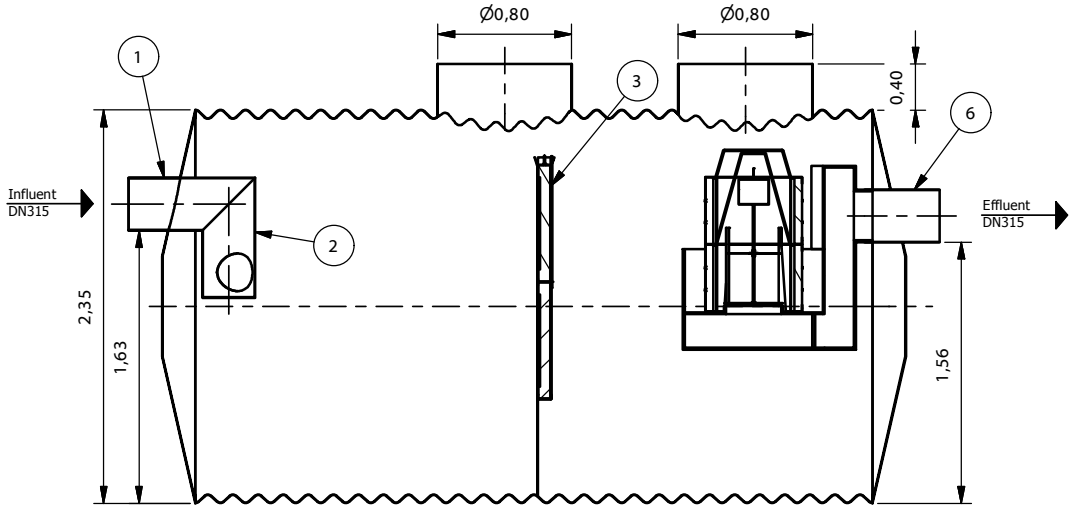
TNS 80-2-A

Informational drawing

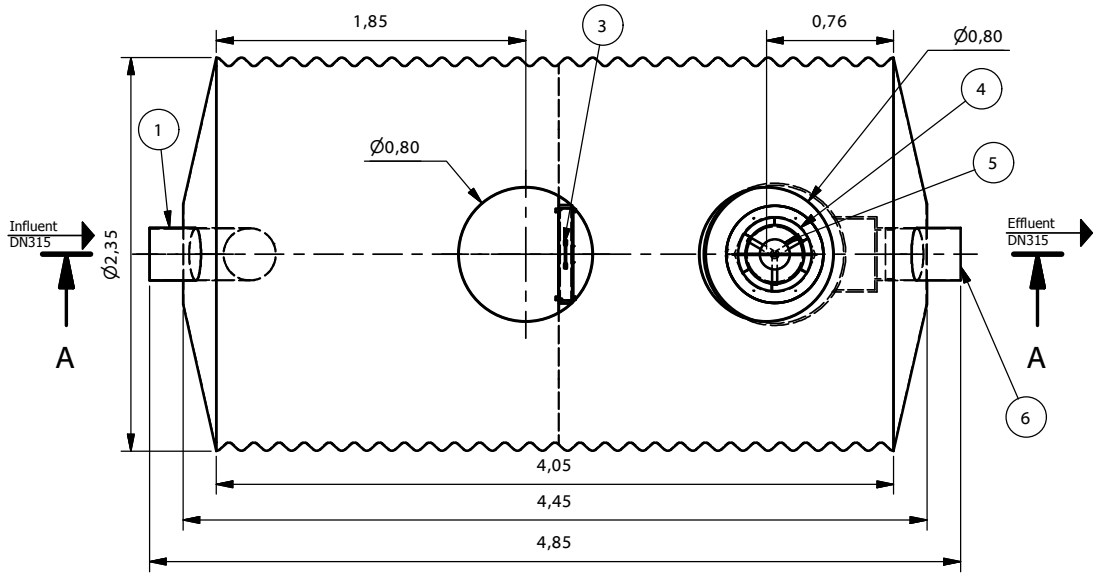
M= 1:40

Cleaning capacity:	80	l/s
Total flow:	80	l/s
Efficiency:	2	mg/l FOG
Total weight:	1300	kg

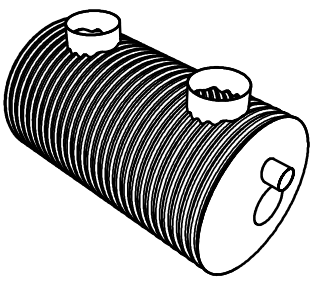
A-A (1 : 40)



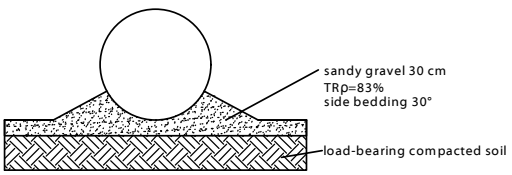
Top View (1 : 40)



TNS 100-2-A
(1 : 100)



RECOMMENDED BEDDING:



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6. Effluent pipe

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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

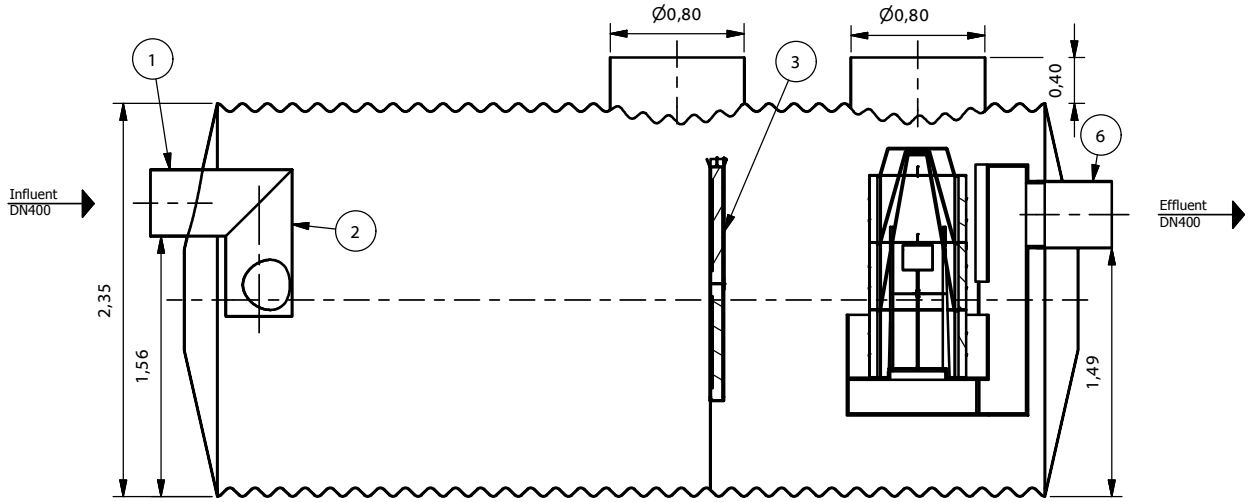
TYP: TNS 100-2-A

Informational drawing

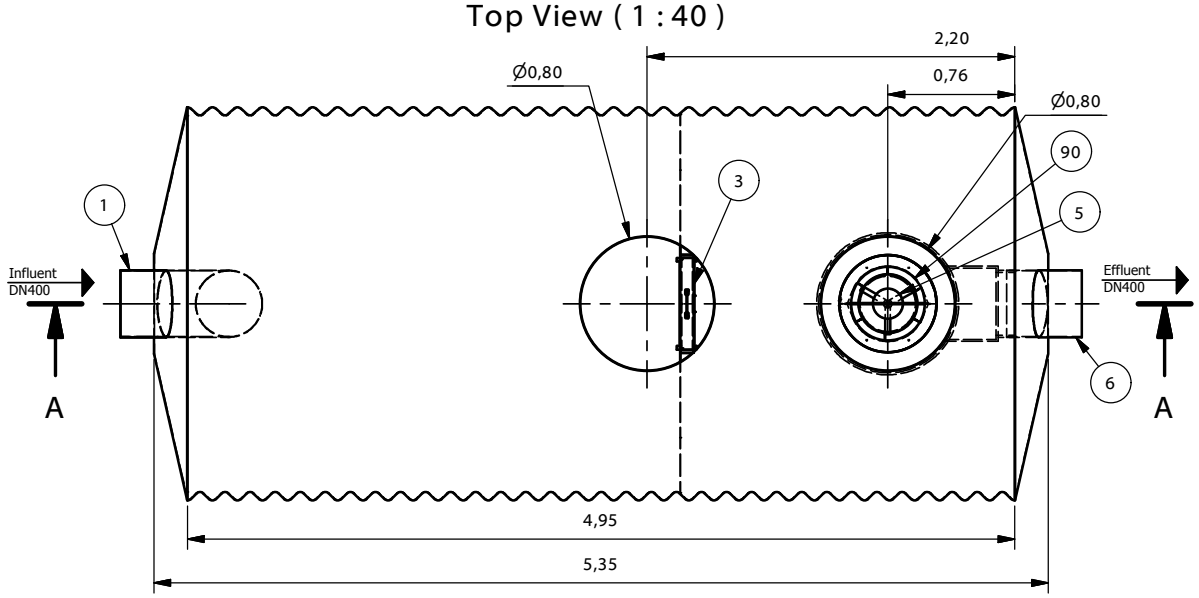
M= 1:40

Cleaning capacity:	100	l/s
Total flow:	100	l/s
Efficiency:	2	mg/l FOG
Total weight:	1400	kg

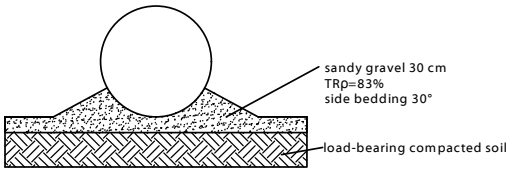
A-A (1 : 40)



Top View (1 : 40)



RECOMMENDED BEDDING:



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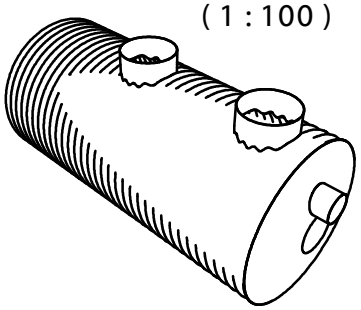
6. Effluent pipe

TNS 125-2-A
(1 : 100)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

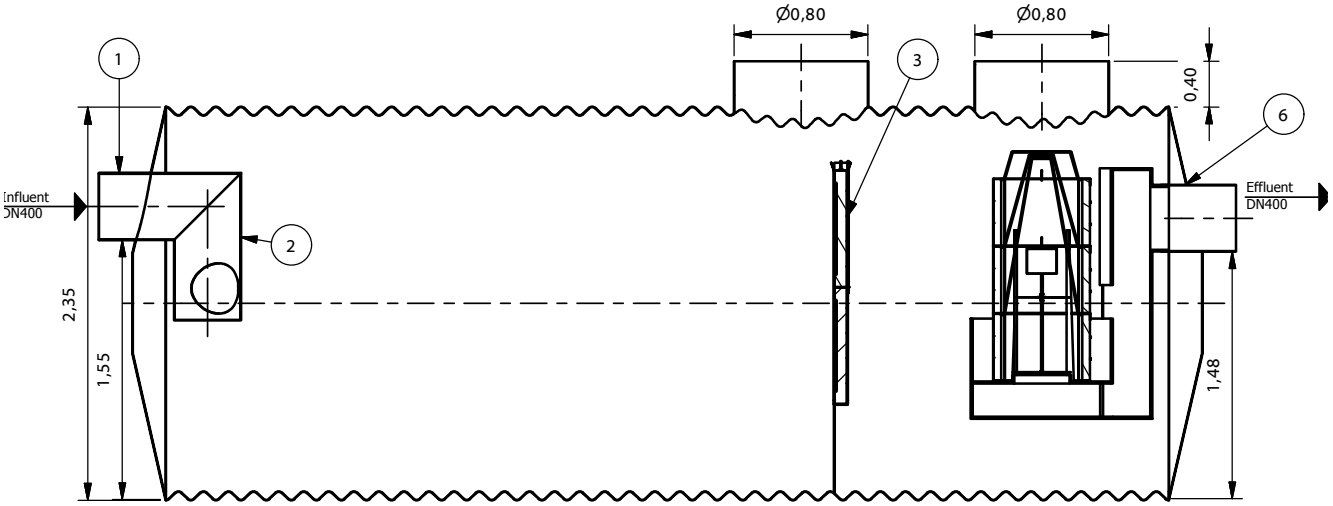
TNS 125-2-A

Informational drawing

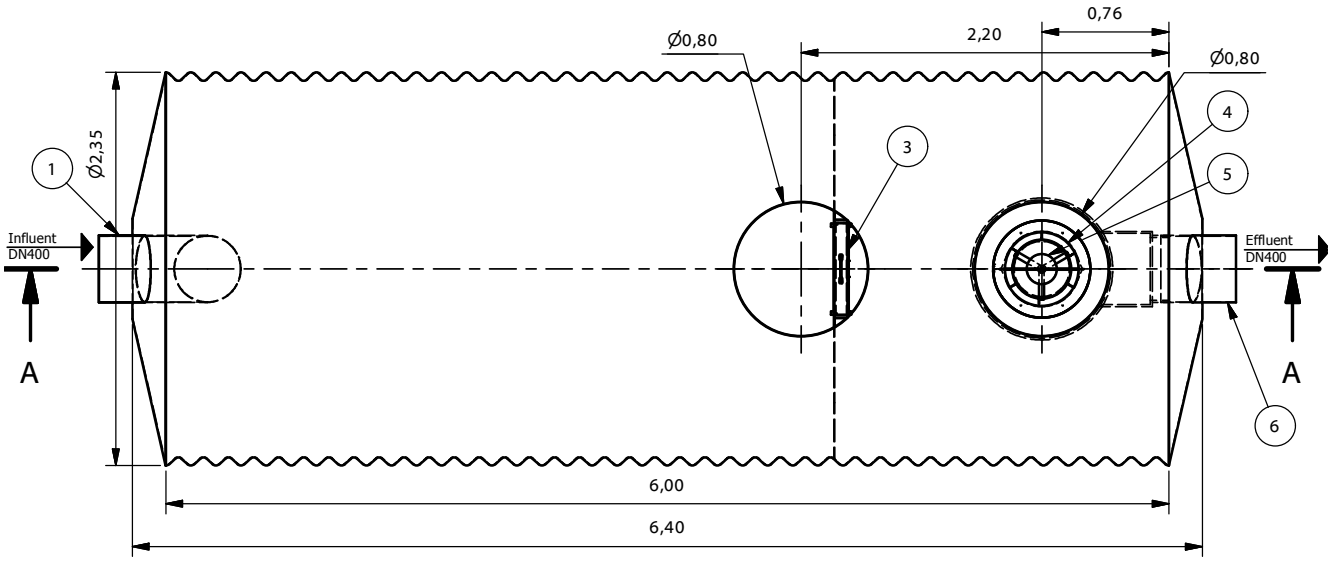
M= 1:40

Cleaning capacity:	125	l/s
Total flow:	125	l/s
Efficiency:	2	mg/l FOG
Total weight:	1610	kg

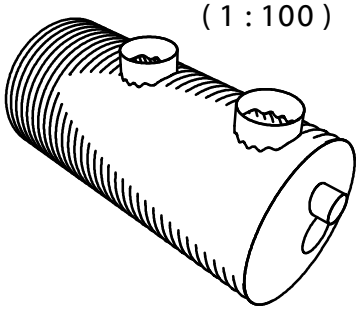
A-A (1 : 40)



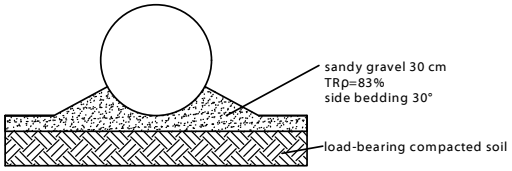
Top View (1 : 40)



TNS 150-2-A
(1 : 100)



RECOMMENDED BEDDING:



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

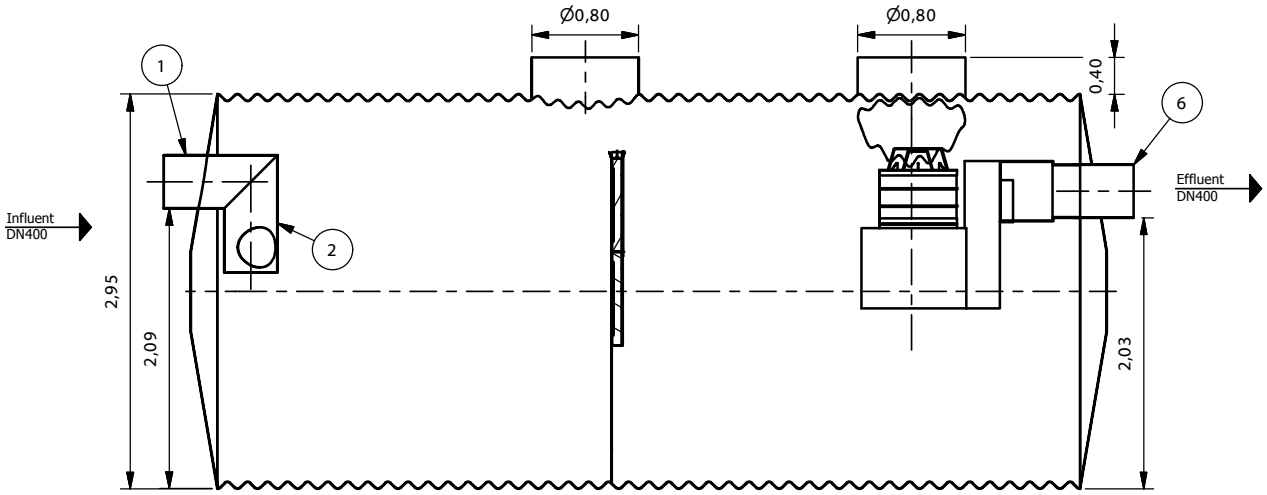
TYP: TNS 150-2-A

Informational drawing

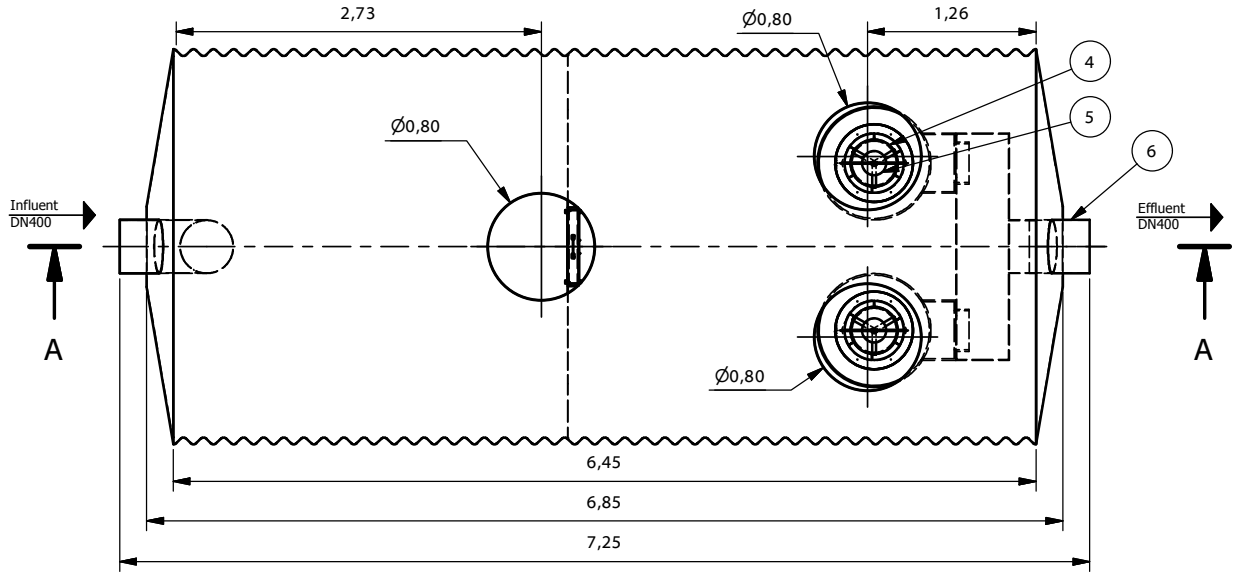
M= 1:40

Cleaning capacity:	150	l/s
Total flow:	150	l/s
Efficiency:	2	mg/l FOG
Total weight:	1830	kg

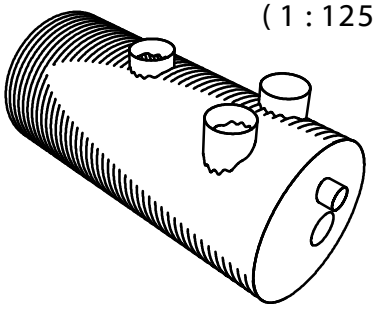
A-A (1 : 50)



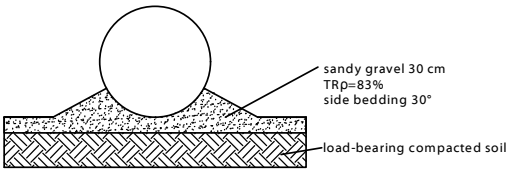
Top View (1 : 50)



TNS 200-2-A
(1 : 125)



RECOMMENDED BEDDING:



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TYP:

TNS 200-2-A

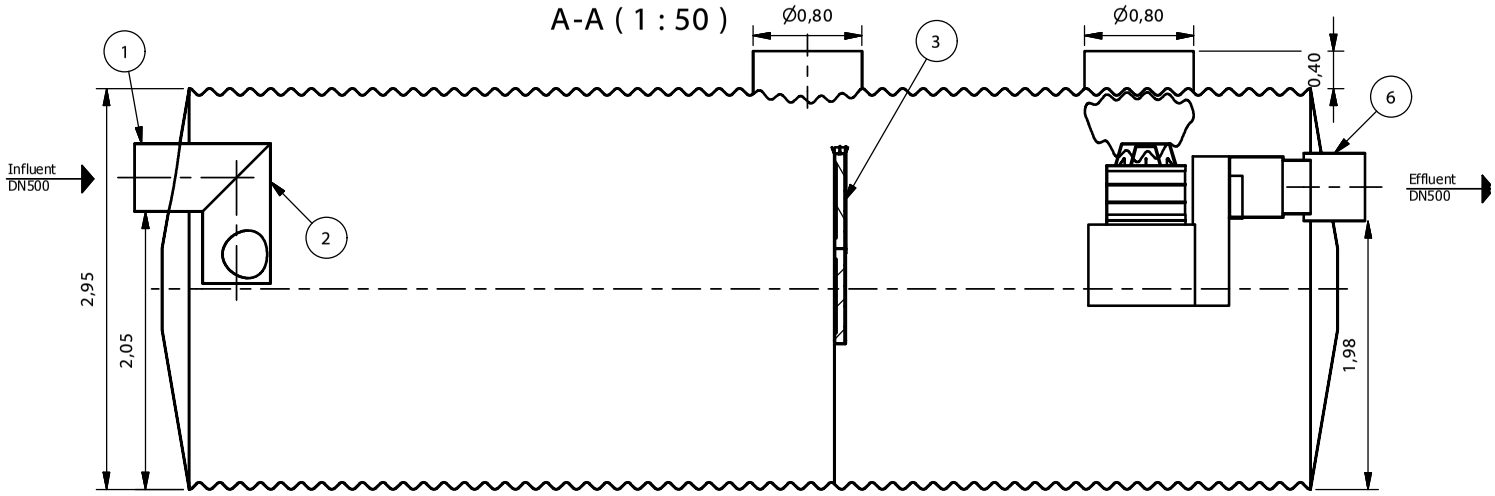
Informational drawing

M= 1:50

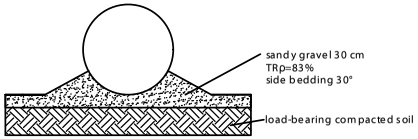
Cleaning capacity:	200	l/s
Total flow:	200	l/s
Efficiency:	2	mg/l FOG
Total weight:	2985	kg

1. Inlet pipe
2. Diffuser
3. Coalescence pre filter
(only in 2 mg separator)
4. Coalescence main filter
5. Automatic closing device
6. Effluent pipe

A-A (1 : 50)



RECOMMENDED BEDDING:



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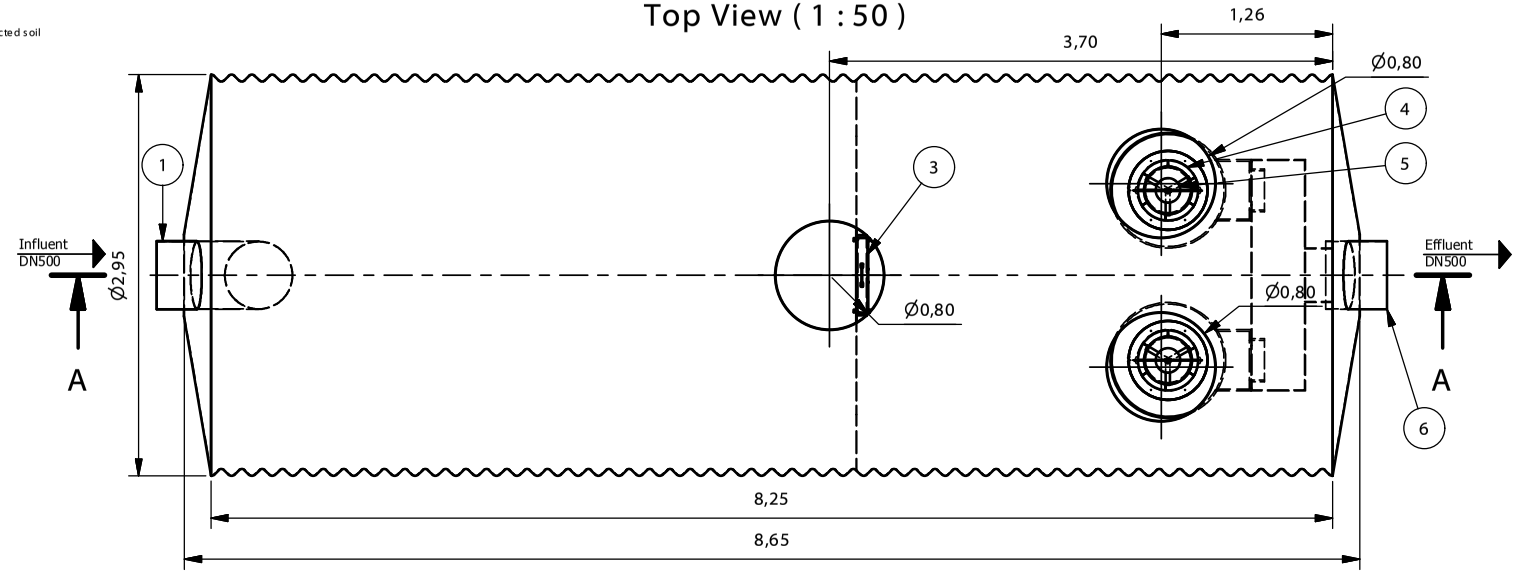
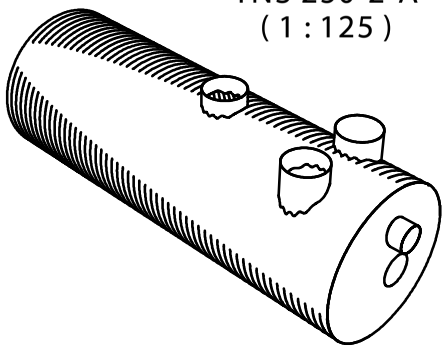
Top View (1 : 50)



TNS 250-2-A
(1 : 125)



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ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

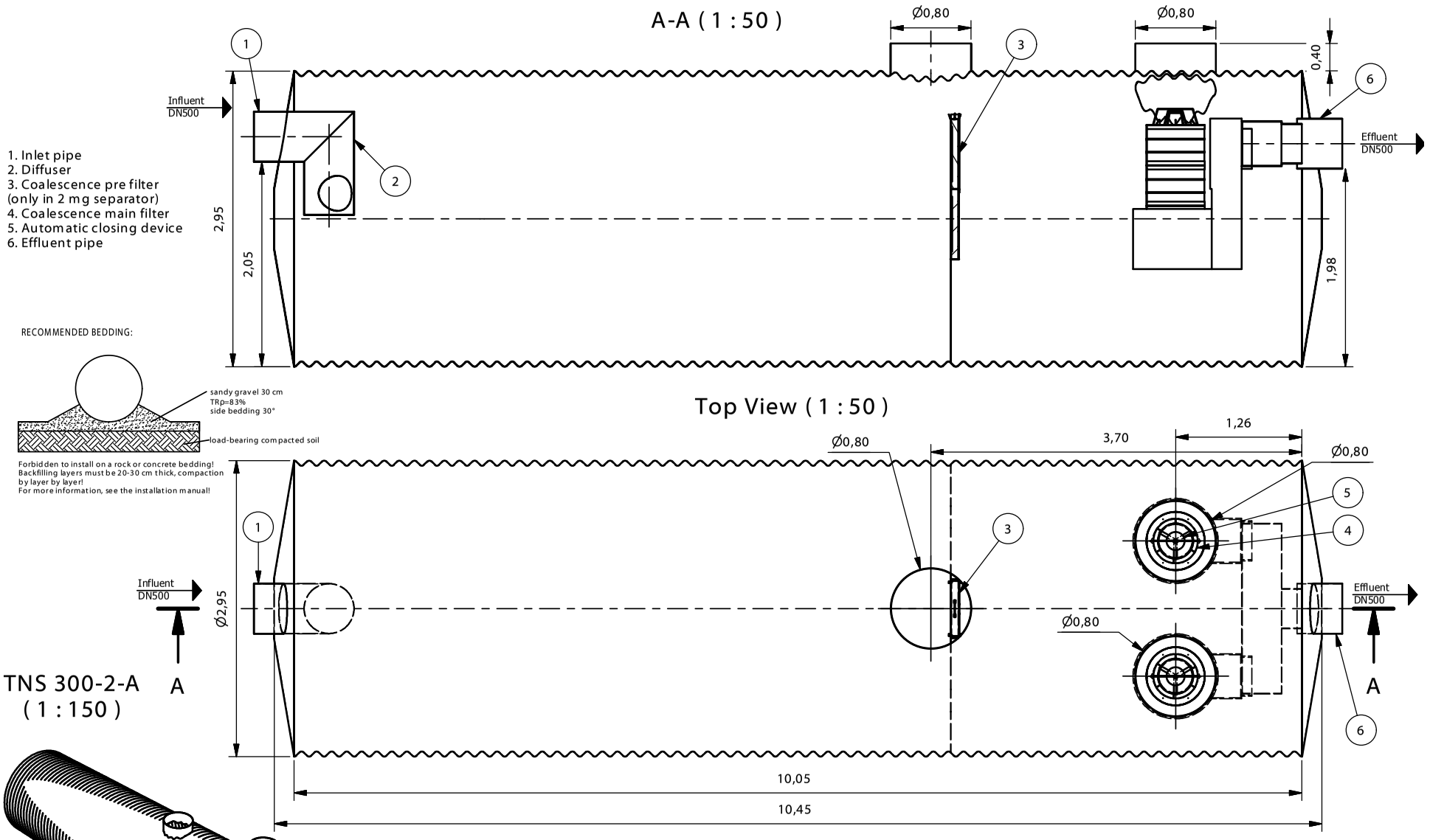
TYP:

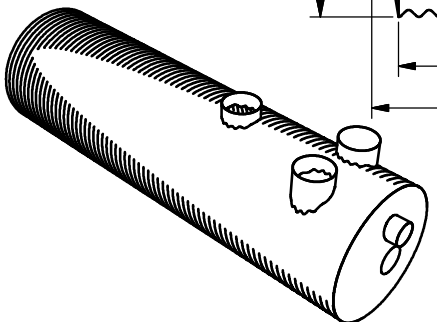
TNS 250-2-A

Informational drawing

M= 1:50

Cleaning capacity:	250	l/s
Total flow:	250	l/s
Efficiency:	2	mg/l FOG
Total weight:	3145	kg





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TYP:

ENVIA TNS Oil- and light liqiud separator in corrugated steel tank

TNS 300-2-A

Informational drawing

M= 1:50

Cleaning capacity:	300	l/s
Total flow:	30	l/s
Efficiency:	2	mg/l FOG
Total weight:	3625	kg

GENERAL INSTALLATION GUIDE – ENVIA TNS

1. Bed pipe on pre-shaped bed.
2. Where gaskets are being used, the gaskets should be placed around the pipe ends, equally over the joint. Overlap the gasket at the crown of the pipe and fix in place with double-sided tape. Lightly grease the inside face of the coupling band with the pipe grease provided.
3. Place bottom segment of the band with the band dimple seated into the second corrugation of the re-rolled section of the pipe.
4. Bed next pipe so that it's second re-roll corrugation seats into the band dimple.
5. Place the second part of the band over the pipe ensuring a good and even seating of the band dimple into the second re-roll corrugation of each pipe.
6. Locate the M12 studs provided through the lugs and loosely tighten the nuts ensuring that the curved face of the saddle washers sit into the radius of the lugs.
7. Tighten down the nuts on the studs, evenly on each lug at both sides of the pipe. If necessary „dress" the band with a small rubber mallet while tightening.
8. Inspect internally to ensure uniform contact with the GASKET, IF GASKETS ARE USED.

It is important that the pipes are laid at a constant grade and line relative to each other. Any significant deviation from line and level will create problems in locating and tightening the coupling band. The larger the pipe diameter, the more important true line and level will be.

Where bitumen paved inverts are installed, there might be a tendency for the pipes to assume a slightly egg-shaped profile during lifting and handling. This should be monitored when the pipes are placed end to end prior to positioning the second or third segments of the coupling band. If there is a poor match in terms of shape then the pipe ends should be jacked into shape by the use of Acrow props or similar and held in a true circular profile whilst the coupling bands are placed and tightened and if needed be left in position until backfill is placed. All pipes over 1.4m diameter have match marked ends and each pipe is marked with a pipe sequence number

NOTES:

1. When calculating access shaft heights Tubosider allows 500 mm between finished cover level (FCL) and top of shaft.
2. The 500 mm is typically made up of a concrete "biscuit" 'n' course of bricks and a steel manhole frame. Any discrepancy can be taken up within the brickwork.
3. Prior to placing the "biscuit" the top of the shaft should be wrapped with denzo or polystyrene and the concrete ring should be cast with the top approx. 50 mm above the top of the shaft. The "biscuit" should then be bedded onto the concrete ring.
4. Concrete ring, "biscuit", bricks and steel frame supplied by others

OPERATING MANUAL– ENVIA TNP

Maintenance

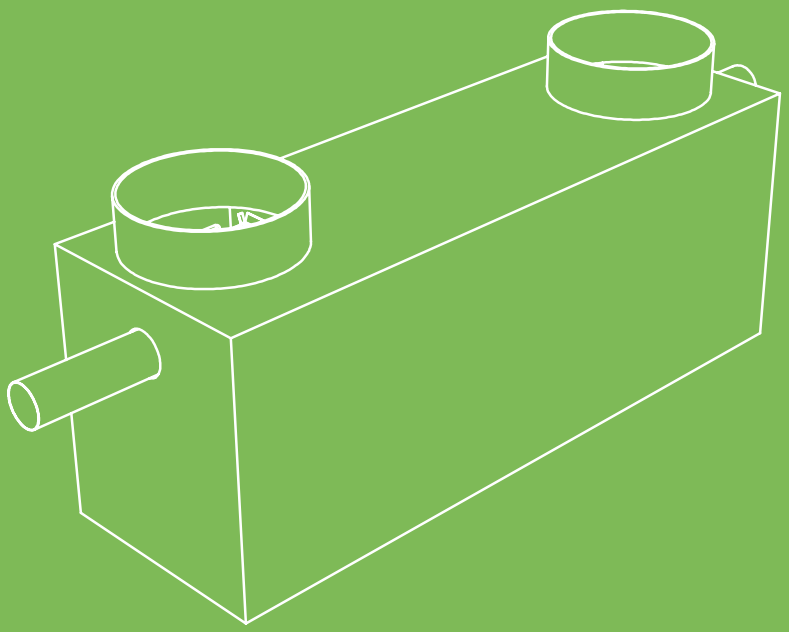
The Tubosider product itself requires no maintenance. Tubosider products have a minimum design life of 60 years, the design life can be extended to suit individual project requirements.

The Tubosider product has been specifically designed with manhole access points with ladders, to gain entry to the system as it is the system that will require inspection.

The frequency of inspection will vary from project to project. We would recommend that the first inspection is carried out 12 months after the product has been installed. Over a period of time all attenuation tanks will have a very gradual build up of silt, the level of build up needs to be monitored and from this information the frequency of inspection can be deicided.

A gully sucker can be used to remove any silt build up or it can be done manually.

The tank inspection needs to be carried out by someone who has successfully completed a confined space training course.



ENVIA TNB

OIL SEPARATOR – ENVIA TNB

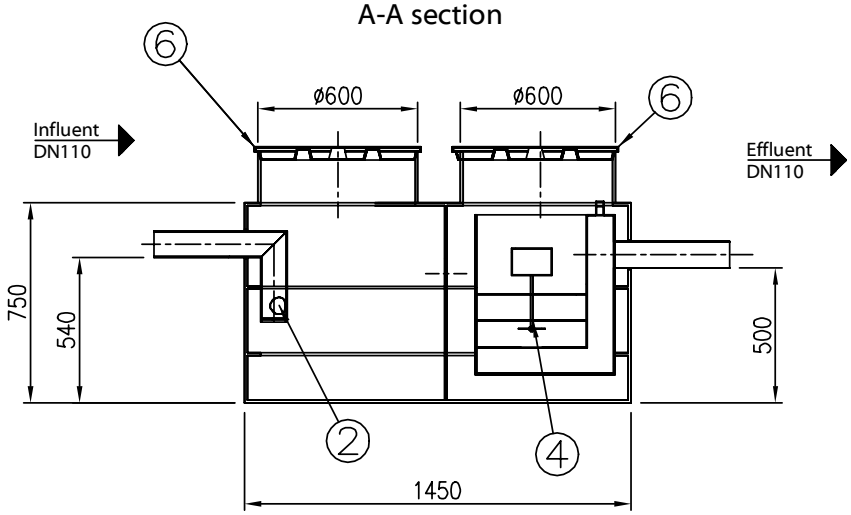
Often the utilization of the large and heavy oil separators is not allowed or feasible, due to the lack of space to install or the lack of accessibility of the installation area by the crane. The ENVIA TNB oil separators are developed for these circumstances. This product is especially suitable for underground garages and car washes.

Advantages:

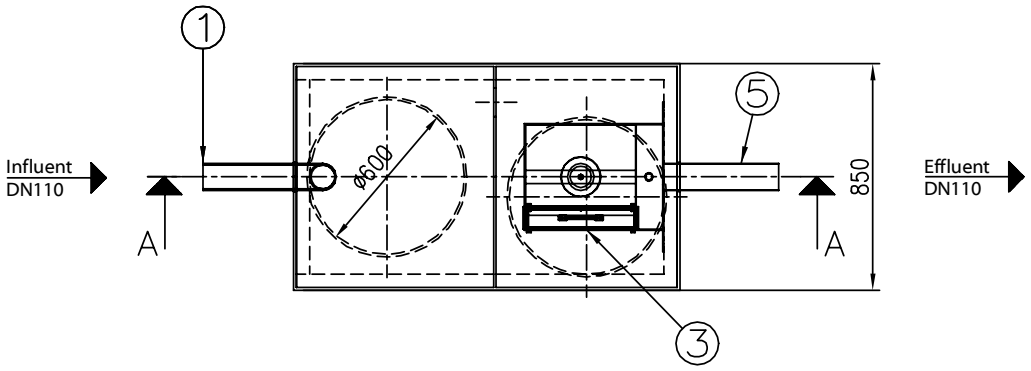
- Lightweight PE body
- Capacity 0,5-10 l/s
- 100x and 200x sludge trap, 300x for washers only for request
- Custom devices

Name	Capacity	Effeciency	Sludge trap	Length	Width	Height	Weight
ENVIA TNB 0,5-5-A	1 l/s	5 mg/l	100x	1450 mm	850 mm	750 mm	750 kg
ENVIA TNB 1-5-A	1 l/s	5 mg/l	100x	1450 mm	850 mm	750 mm	75 kg
ENVIA TNB 2-5-A	2 l/s	5 mg/l	100x	1450 mm	850 mm	750 mm	75 kg
ENVIA TNB 4-5-A	4 l/s	5 mg/l	100x	1800 mm	850 mm	750 mm	90 kg
ENVIA TNB 6-5-A	6 l/s	5 mg/l	100x	1900 mm	850 mm	1000 mm	110 kg
ENVIA TNB 8-5-A	8 l/s	5 mg/l	100x	2200 mm	850 mm	1000 mm	120 kg
ENVIA TNB 10-5-A	10 l/s	5 mg/l	100x	2600 mm	850 mm	1000 mm	135 kg
ENVIA TNB 0,5-5-P	1 l/s	5 mg/l	200x	1450 mm	850 mm	750 mm	75 kg
ENVIA TNB 1-5-P	1 l/s	5 mg/l	200x	1450 mm	850 mm	750 mm	75 kg
ENVIA TNB 2-5-P	2 l/s	5 mg/l	200x	1600 mm	850 mm	750 mm	85 kg
ENVIA TNB 4-5-P	4 l/s	5 mg/l	200x	2000 mm	850 mm	1000 mm	110 kg
ENVIA TNB 6-5-P	6 l/s	5 mg/l	200x	2300 mm	850 mm	1250 mm	135 kg
ENVIA TNB 8-5-P	8 l/s	5 mg/l	200x	2900 mm	850 mm	1250 mm	155 kg
ENVIA TNB 10-5-P	10 l/s	5 mg/l	200x	3400 mm	850 mm	1250 mm	190 kg
ENVIA TNB 0,5-2-A	1 l/s	2 mg/l	100x	2000 mm	850 mm	750 mm	110 kg
ENVIA TNB 1-2-A	1 l/s	2 mg/l	100x	2000 mm	850 mm	750 mm	110 kg
ENVIA TNB 2-2-A	2 l/s	2 mg/l	100x	2000 mm	850 mm	750 mm	110 kg
ENVIA TNB 4-2-A	4 l/s	2 mg/l	100x	2300 mm	850 mm	750 mm	135 kg
ENVIA TNB 6-2-A	6 l/s	2 mg/l	100x	2400 mm	850 mm	1000 mm	160 kg
ENVIA TNB 8-2-A	8 l/s	2 mg/l	100x	2800 mm	850 mm	1000 mm	170 kg
ENVIA TNB 10-2-A	10 l/s	2 mg/l	100x	2800 mm	850 mm	1250 mm	195 kg
ENVIA TNB 0,5-2-P	1 l/s	2 mg/l	200x	2000 mm	850 mm	750 mm	110 kg
ENVIA TNB 1-2-P	1 l/s	2 mg/l	200x	2000 mm	850 mm	750 mm	110 kg
ENVIA TNB 2-2-P	2 l/s	2 mg/l	200x	2300 mm	850 mm	750 mm	135 kg
ENVIA TNB 4-2-P	4 l/s	2 mg/l	200x	2600 mm	850 mm	1000 mm	165 kg
ENVIA TNB 6-2-P	6 l/s	2 mg/l	200x	2900 mm	850 mm	1250 mm	200 kg
ENVIA TNB 8-2-P	8 l/s	2 mg/l	200x	3500 mm	850 mm	1250 mm	215 kg
ENVIA TNB 10-2-P	10 l/s	2 mg/l	200x	4000 mm	850 mm	1250 mm	230 kg

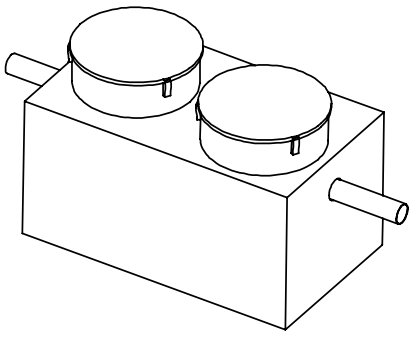
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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THE PURE ECO
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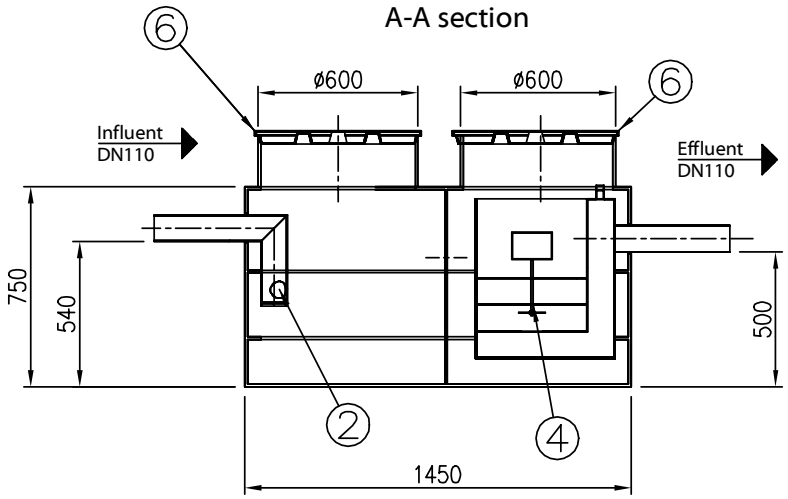
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

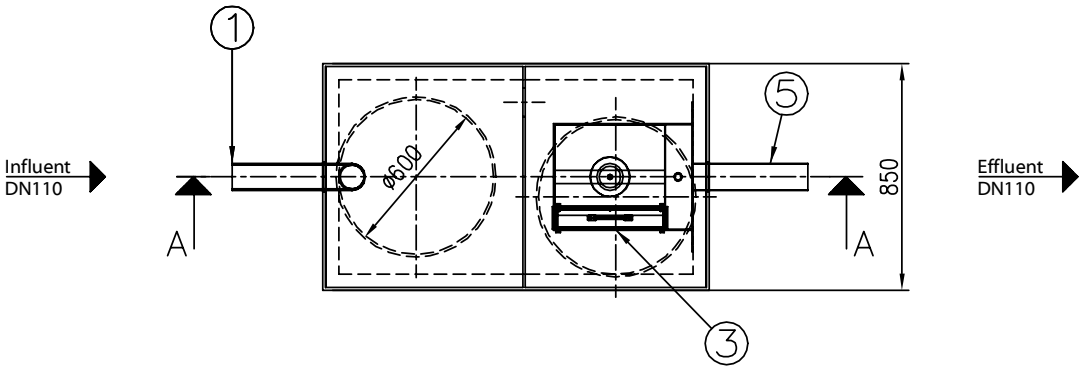
TNB 0,5-5-A
Informational drawing

Cleaning capacity:	0,5	l/s
Total flow:	0,5	l/s
Efficiency:	5	mg/l FOG
Total weight:	75,0	kg

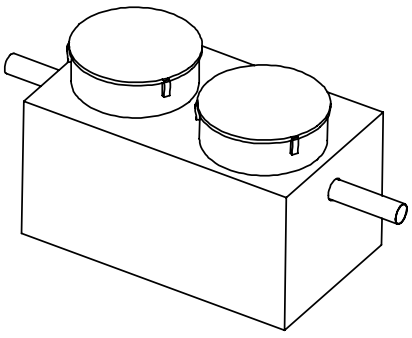
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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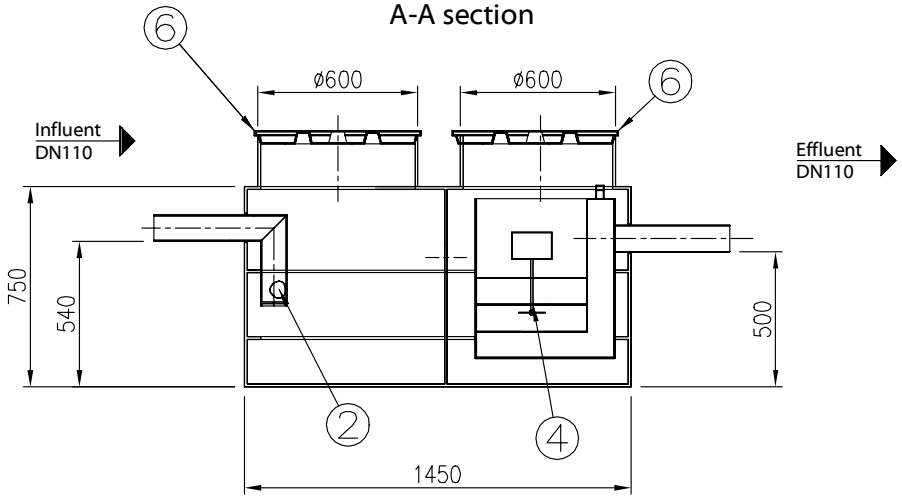
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

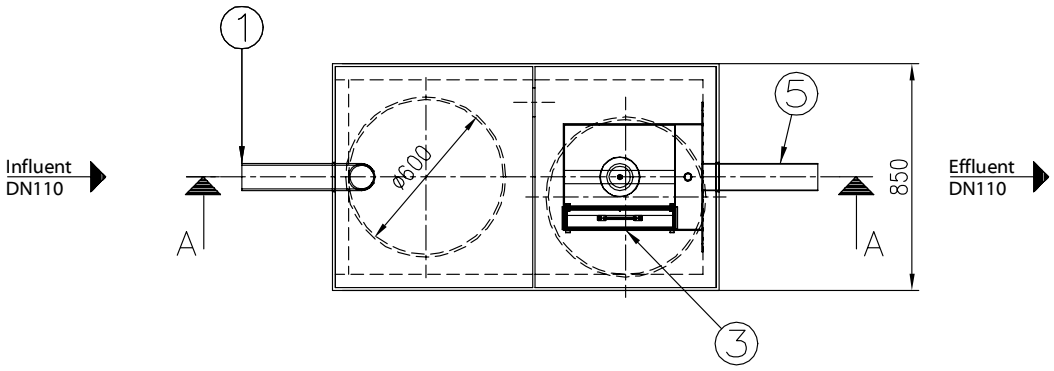
TNB 1-5-A
Informational drawing

Cleaning capacity:	1,0	l/s
Total flow:	1,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	75,0	kg

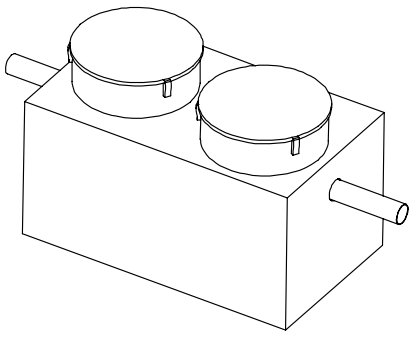
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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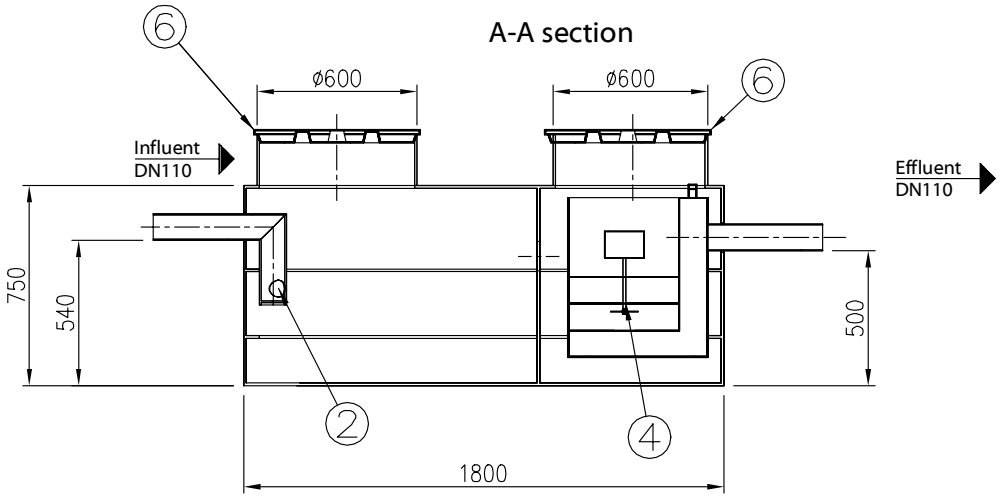
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

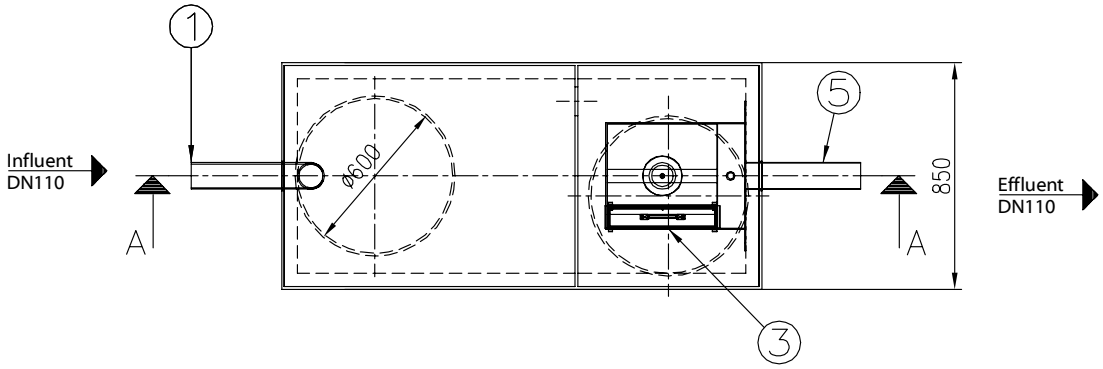
TNB 2-5-A
Informational drawing

Cleaning capacity:	2,0	l/s
Total flow:	2,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	75,0	kg

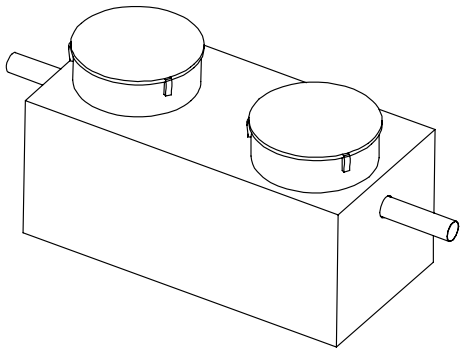
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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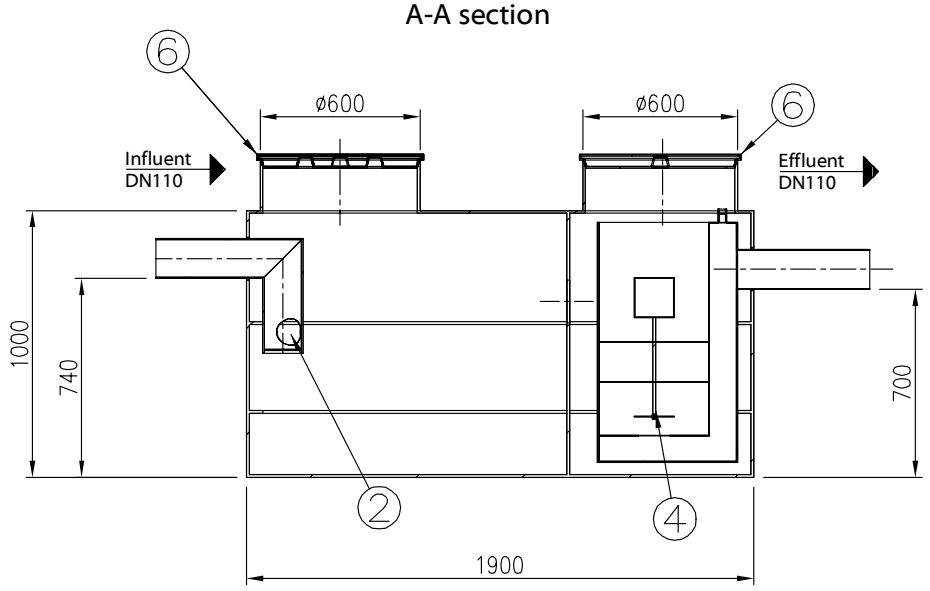
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

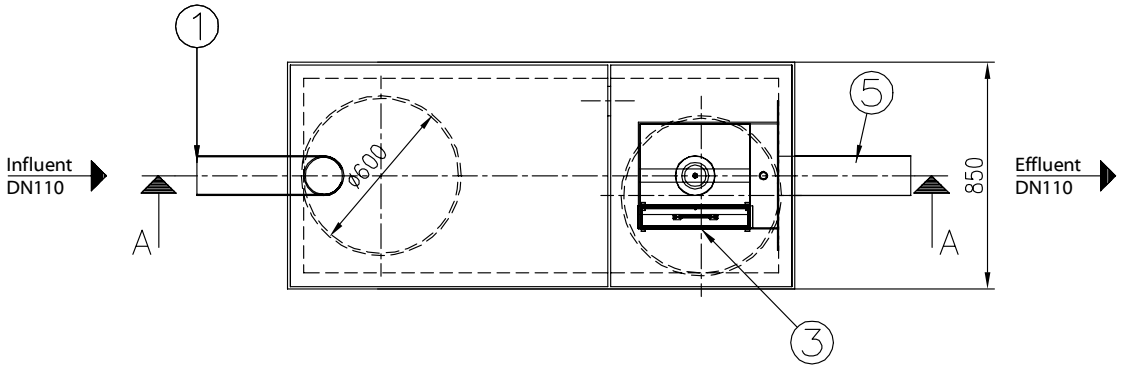
TNB 4-5-A
Informational drawing

Cleaning capacity:	4,0	l/s
Total flow:	4,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	90,0	kg

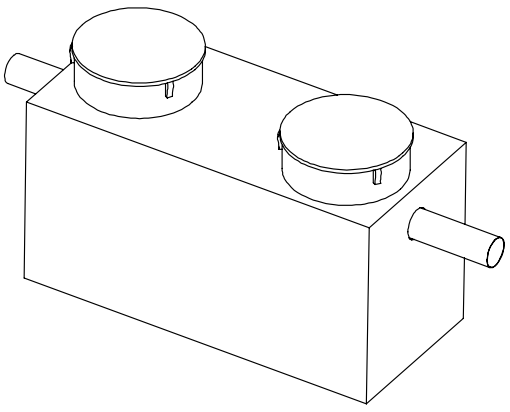
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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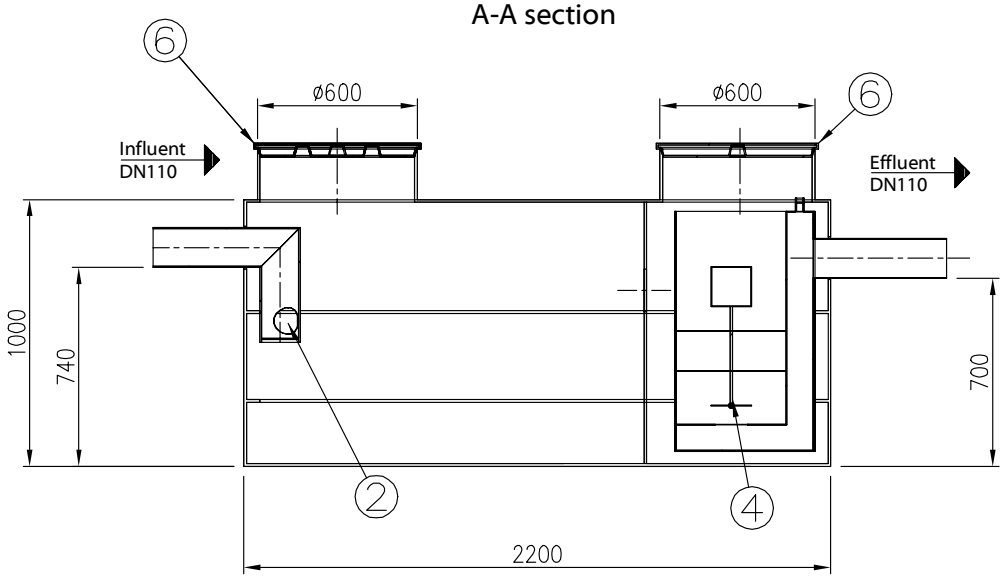
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

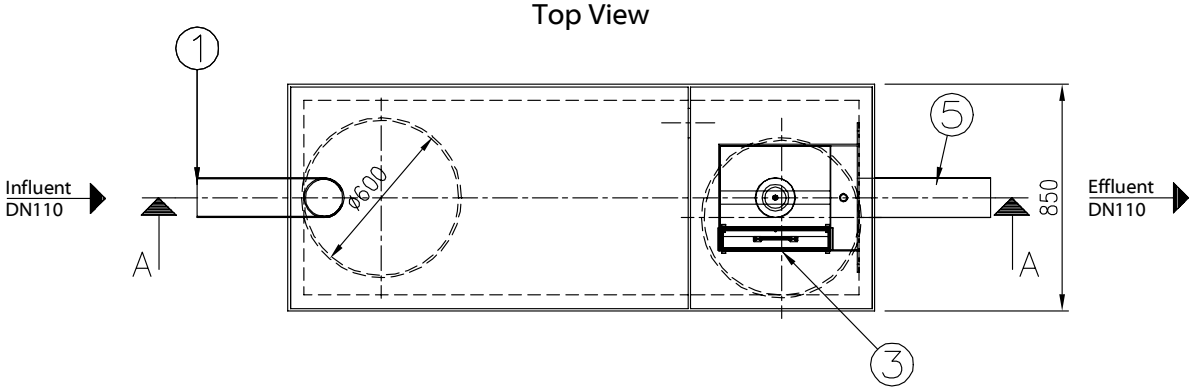
TNB 6-5-A
Informational drawing

Cleaning capacity:	6,0	l/s
Total flow:	6,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	110,0	kg

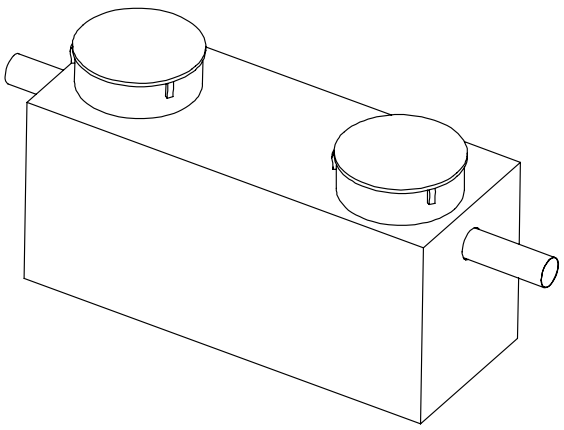
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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TYP:

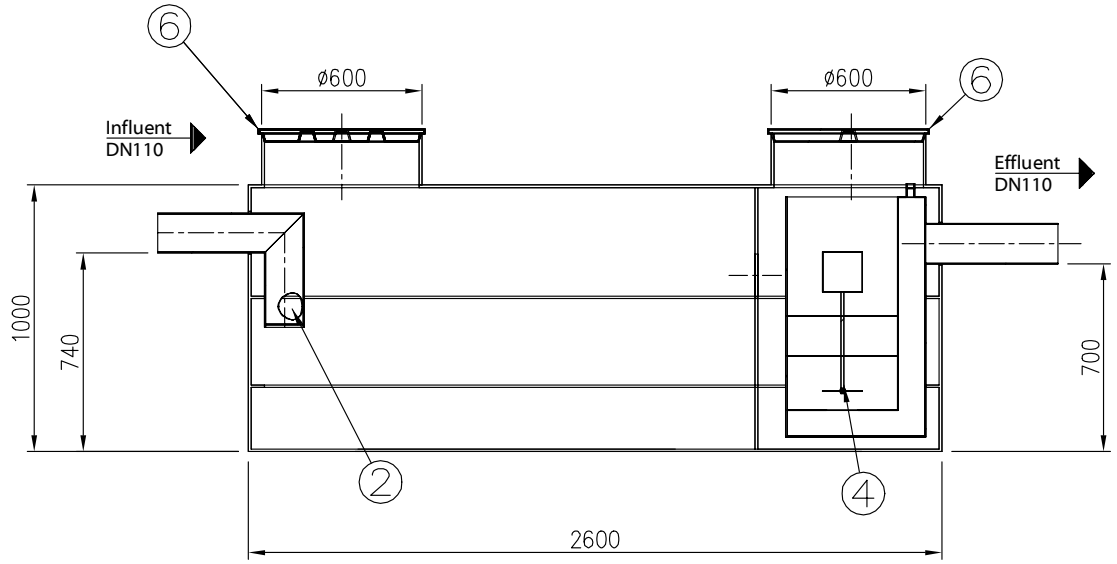
ENVIA TNB light liquid and drift separator in plastic tank

TNB 8-5-A

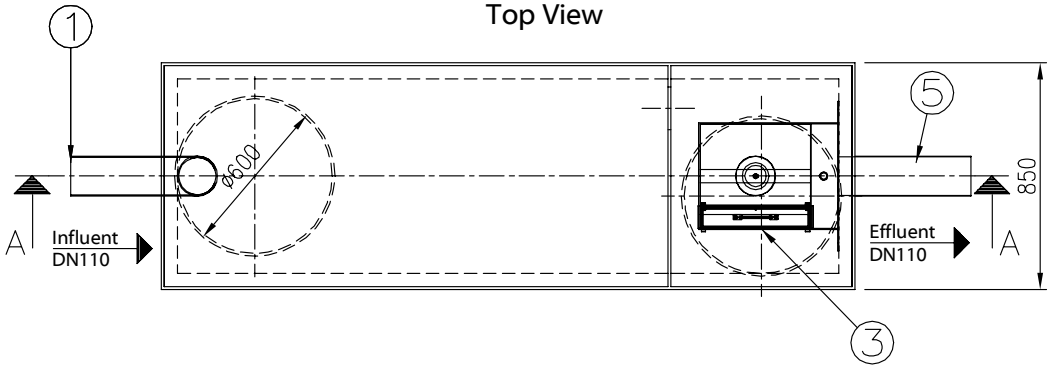
Informational drawing

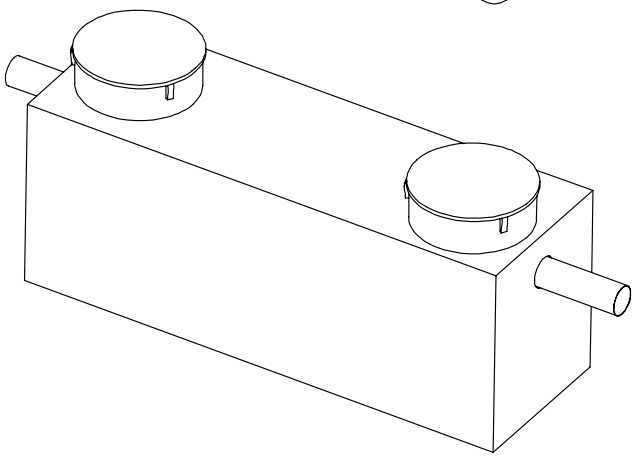
Cleaning capacity:	8,0	l/s
Total flow:	8,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	120,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock

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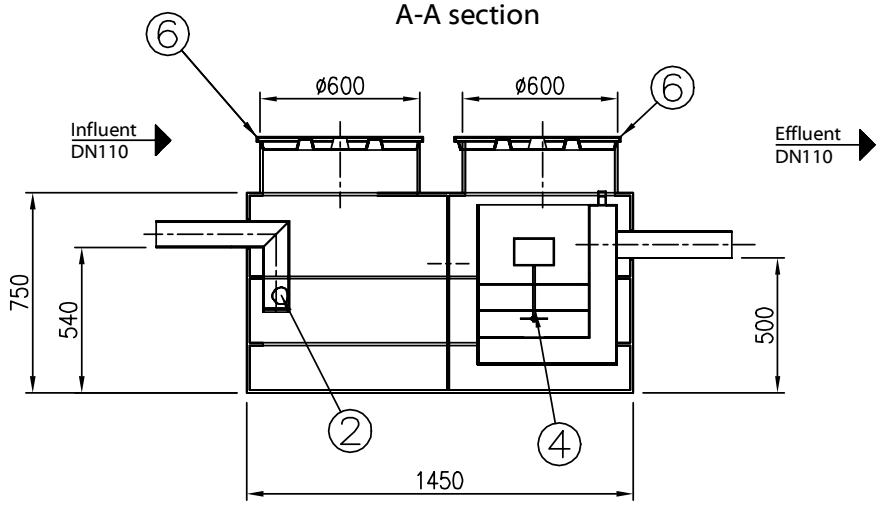
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

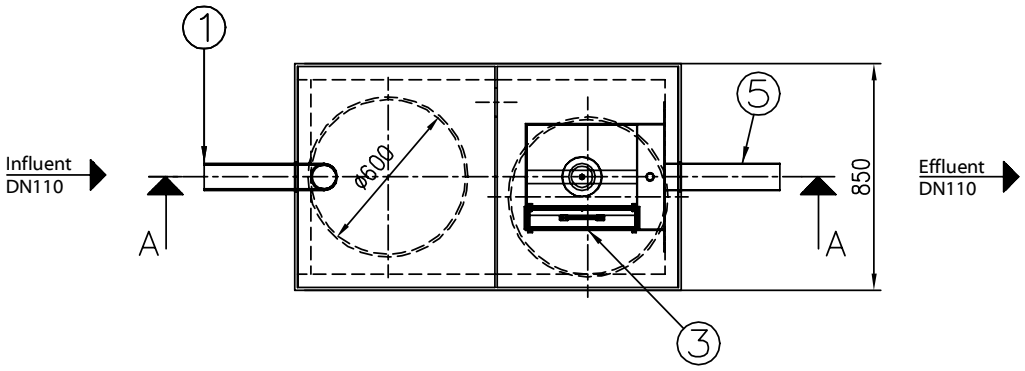
TNB 10-5-A
Informational drawing

Cleaning capacity:	10,0	l/s
Total flow:	10,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	135,0	kg

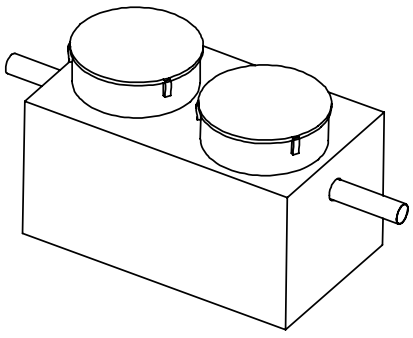
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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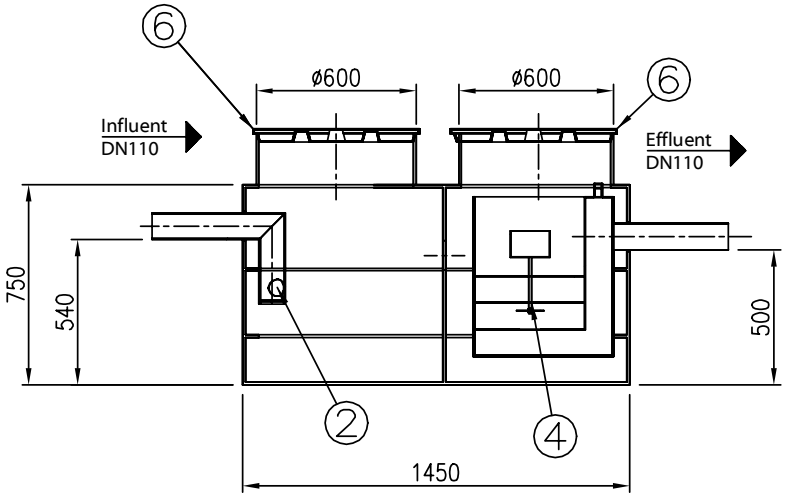
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

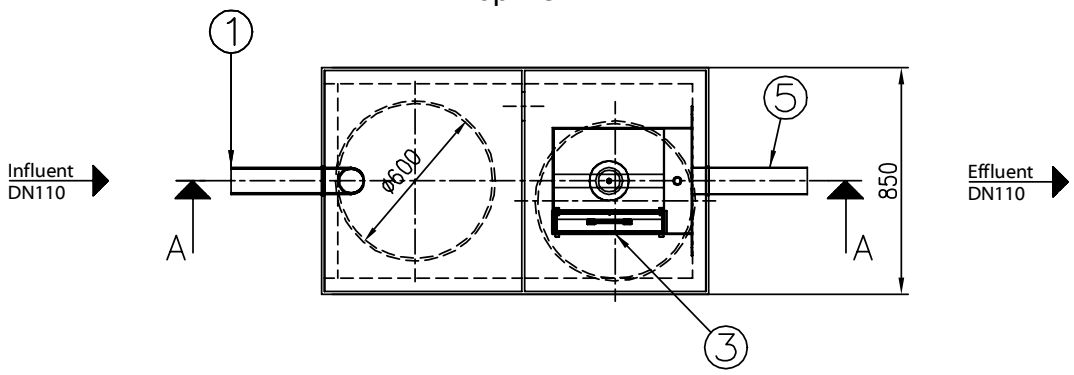
TNB 0,5-5-P
Informational drawing

Cleaning capacity:	0,5	l/s
Total flow:	0,5	l/s
Efficiency:	5	mg/l FOG
Total weight:	75,0	kg

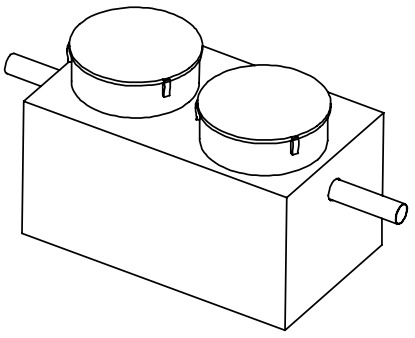
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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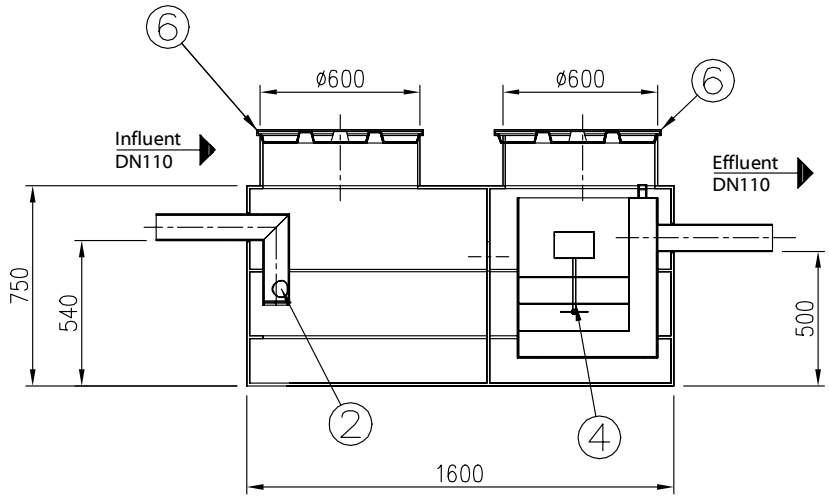
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

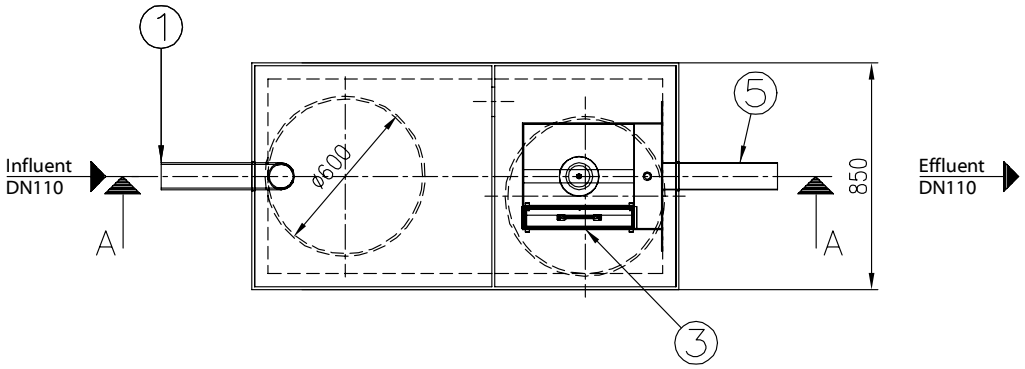
TNB 1-5-P
Informational drawing

Cleaning capacity:	1,0	l/s
Total flow:	1,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	75,0	kg

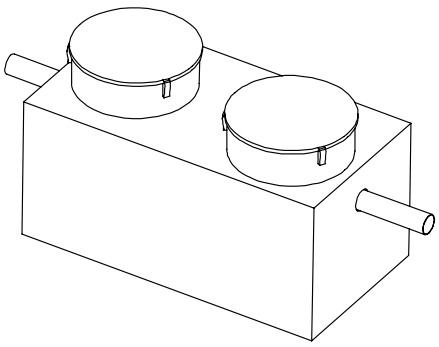
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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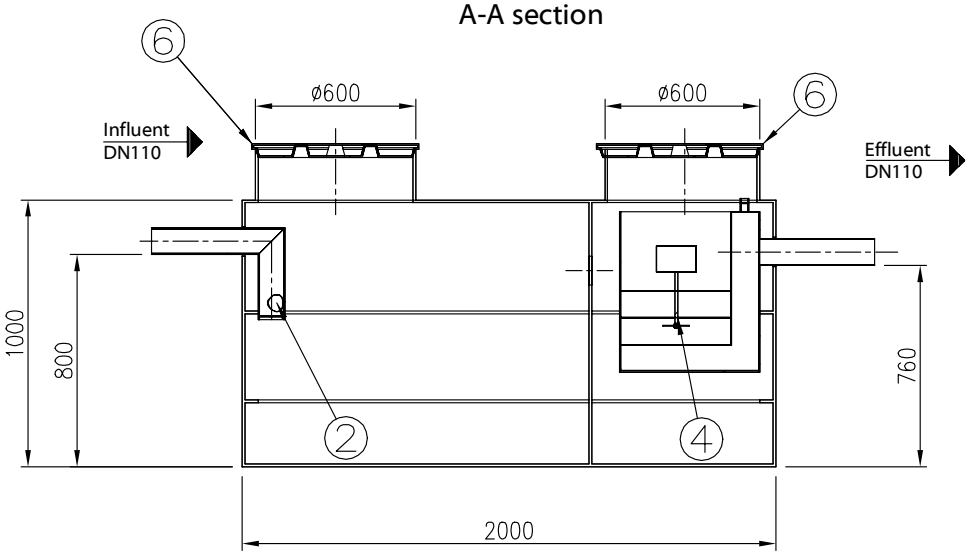
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

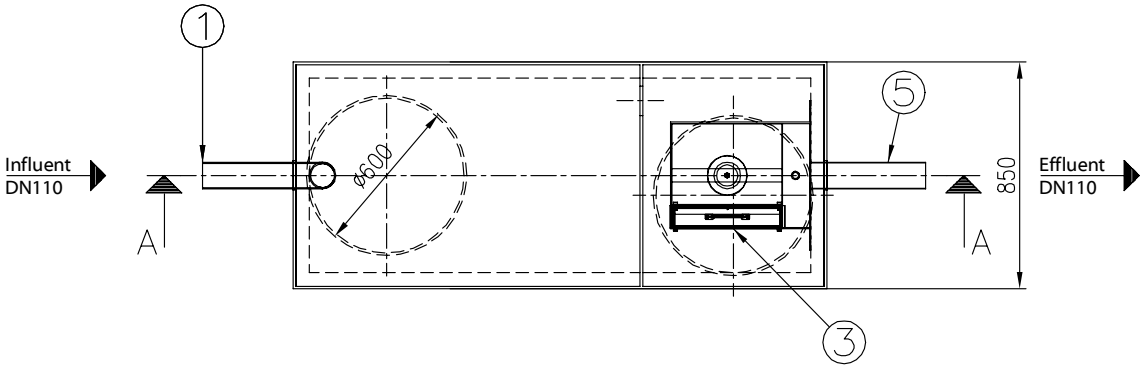
TNB 2-5-P
Informational drawing

Cleaning capacity:	2,0	l/s
Total flow:	2,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	85,0	kg

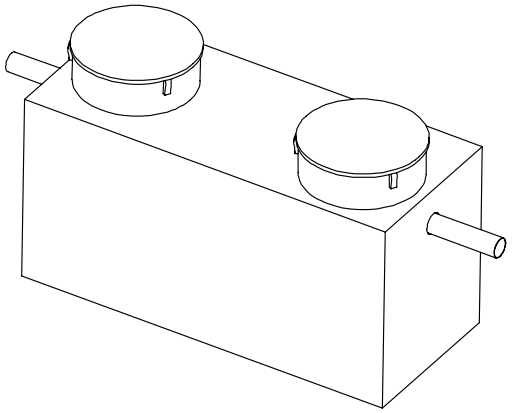
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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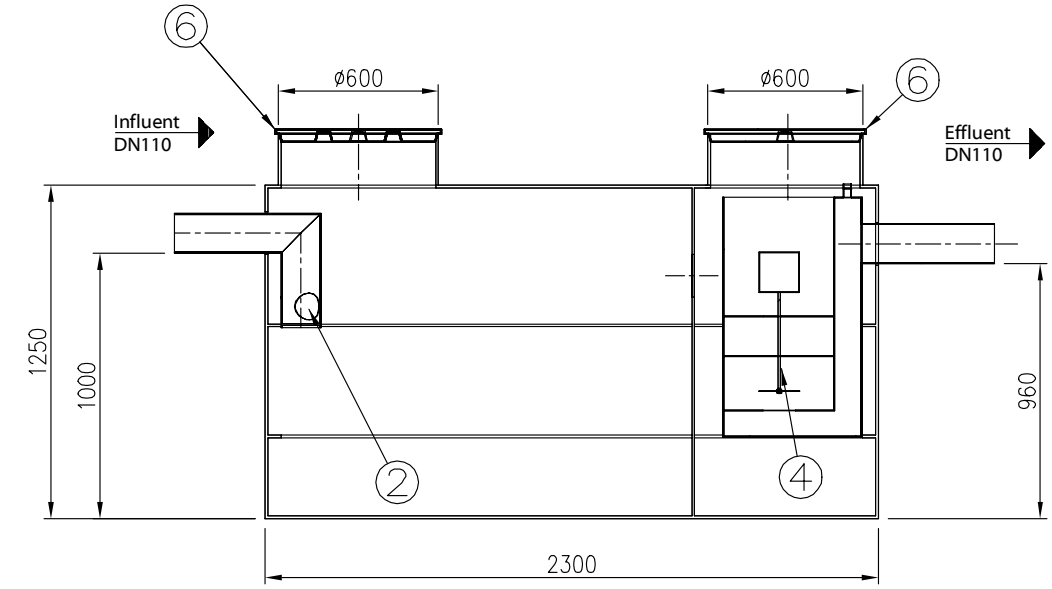
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

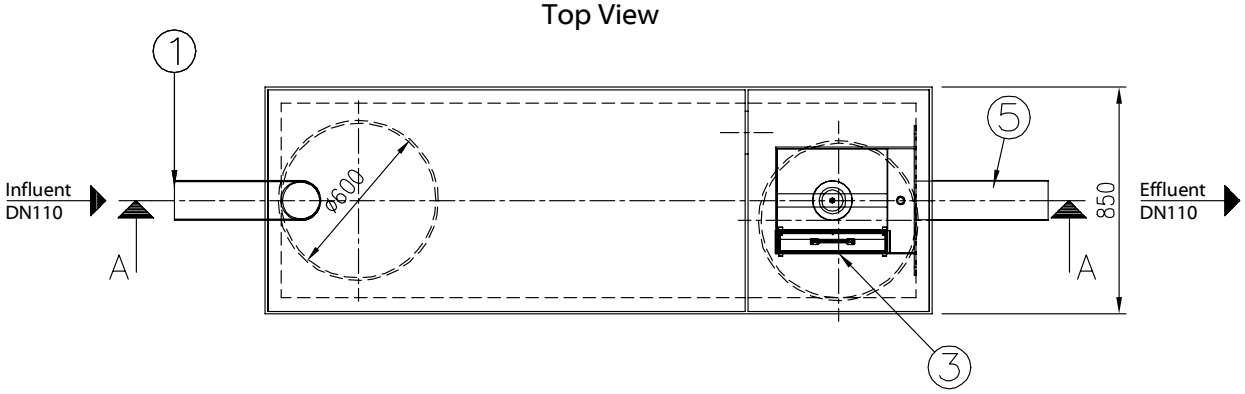
TNB 4-5-P
Informational drawing

Cleaning capacity:	4,0	l/s
Total flow:	4,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	110,0	kg

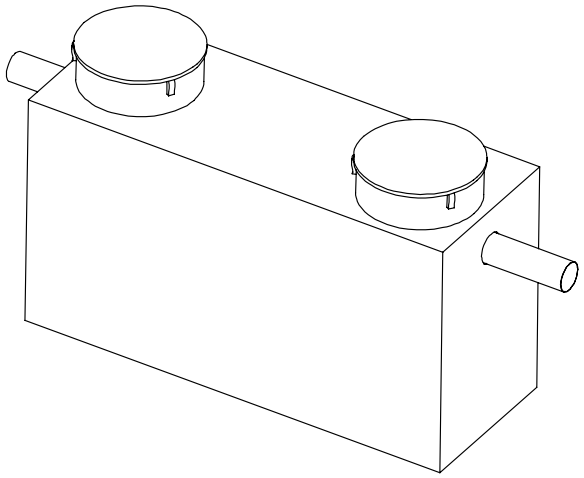
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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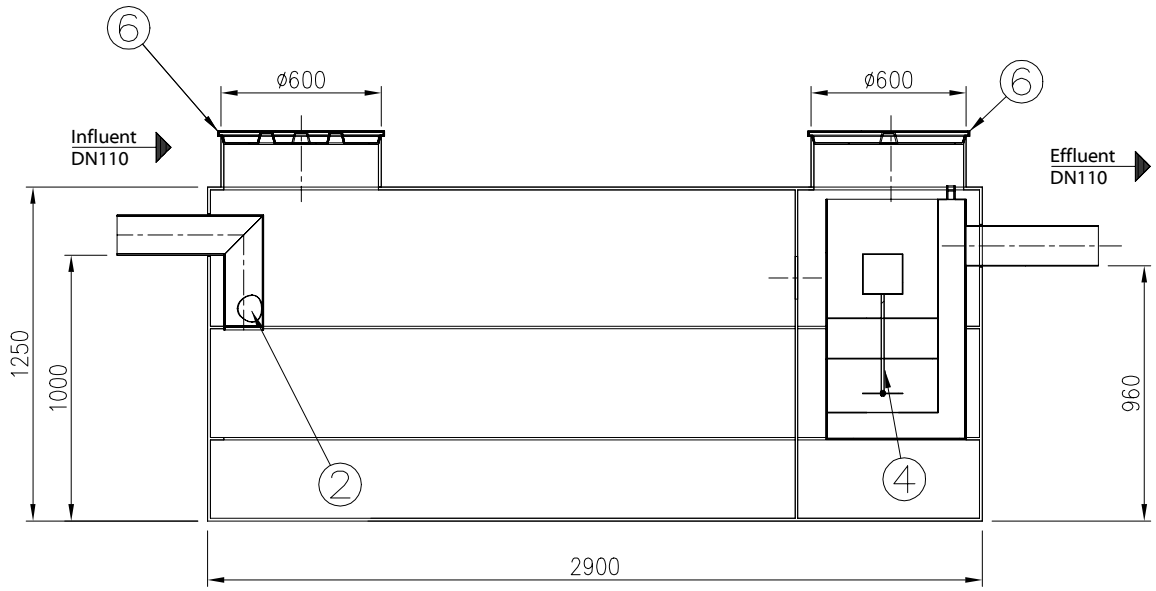
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

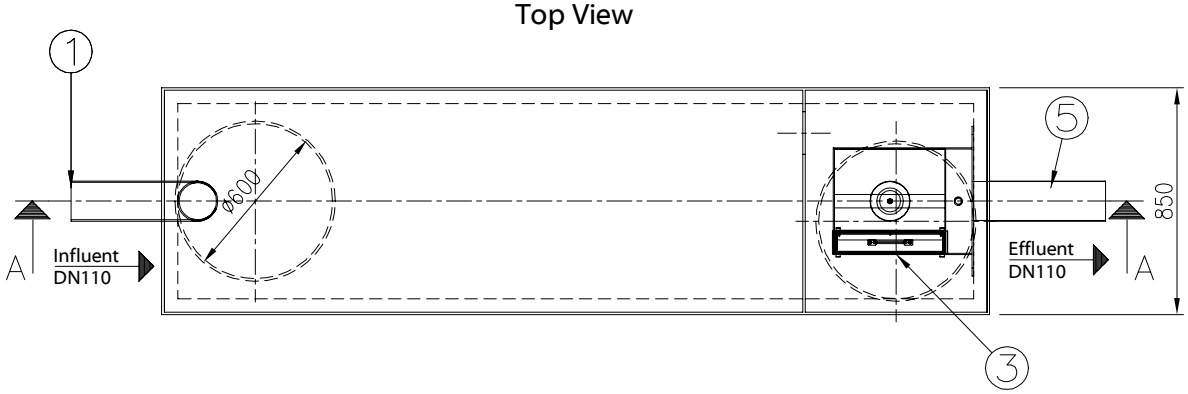
TNB 6-5-P
Informational drawing

Cleaning capacity:	6,0	l/s
Total flow:	6,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	135,0	kg

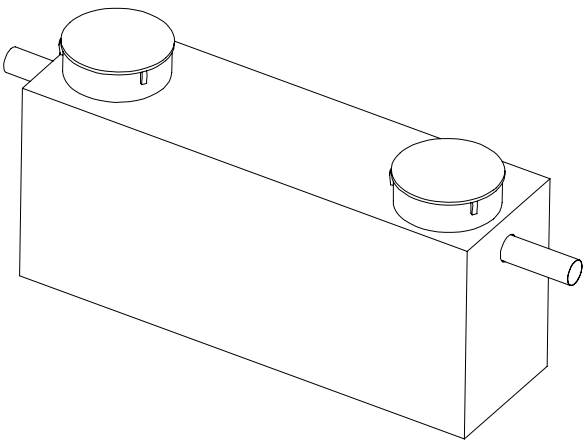
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock



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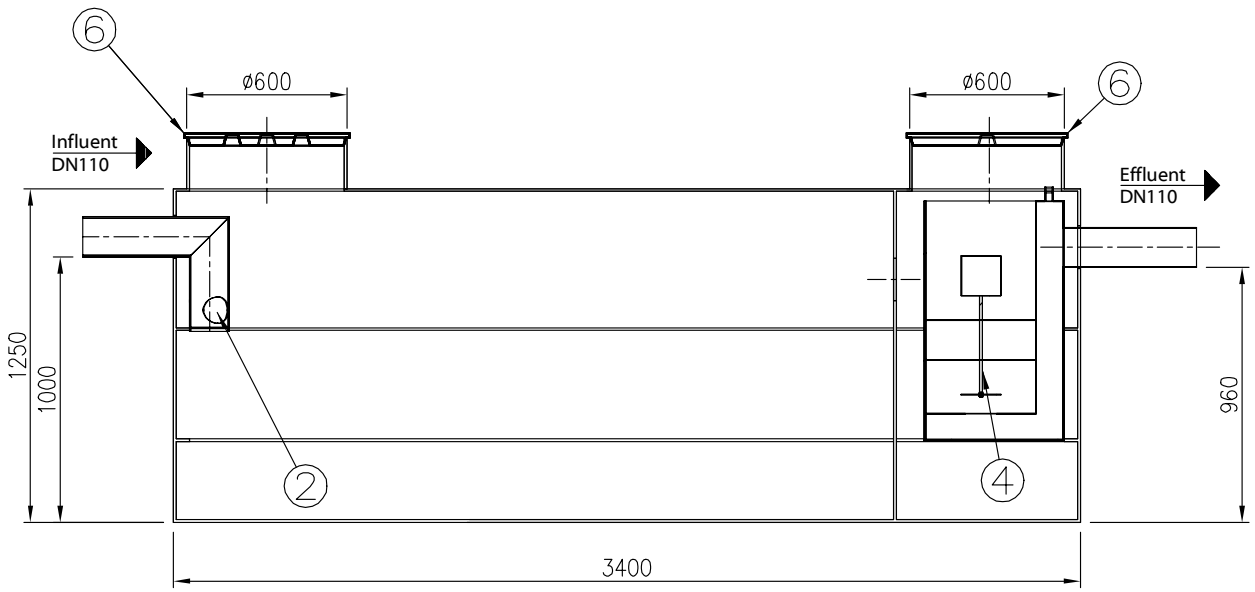
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

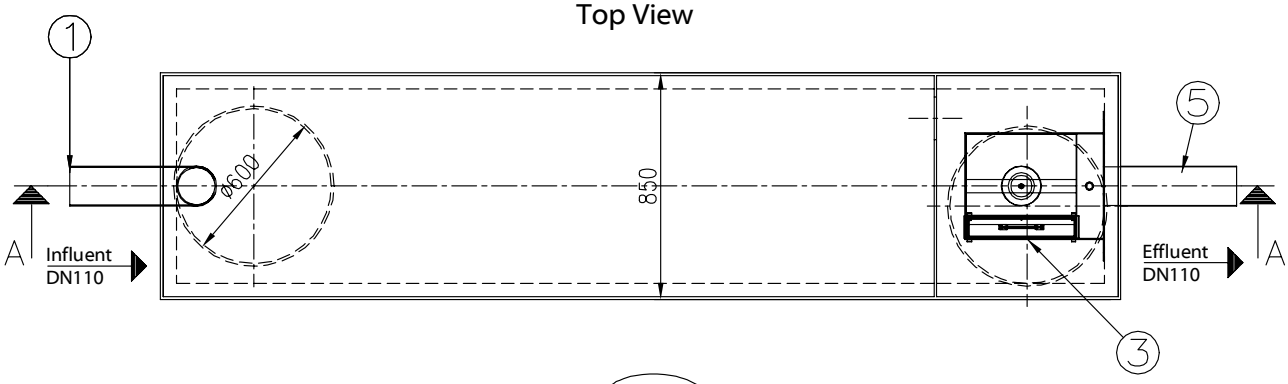
TNB 8-5-P
Informational drawing

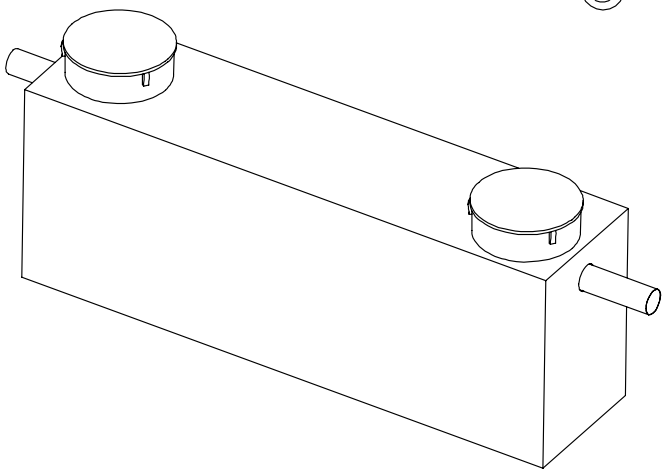
Cleaning capacity:	8,0	l/s
Total flow:	8,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	155,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock

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TYP:

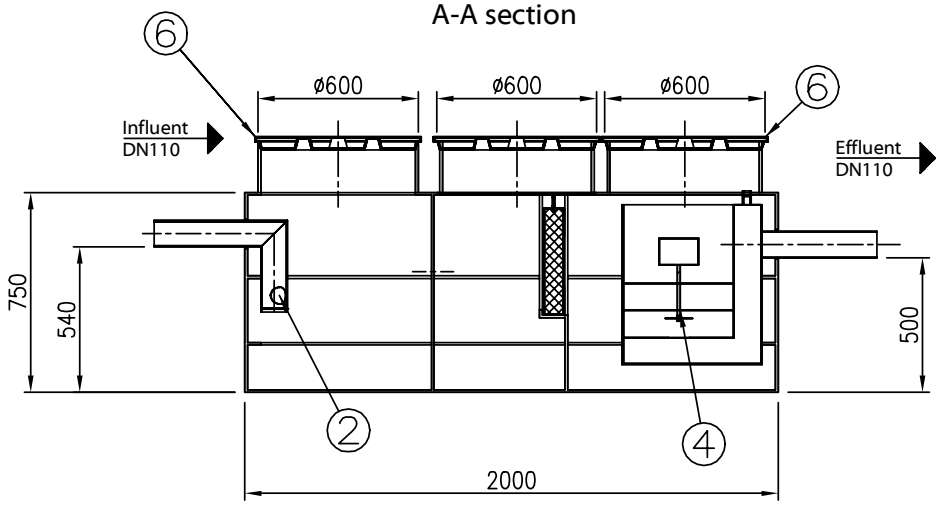
ENVIA TNB light liquid and drift separator in plastic tank

TNB 10-5-P

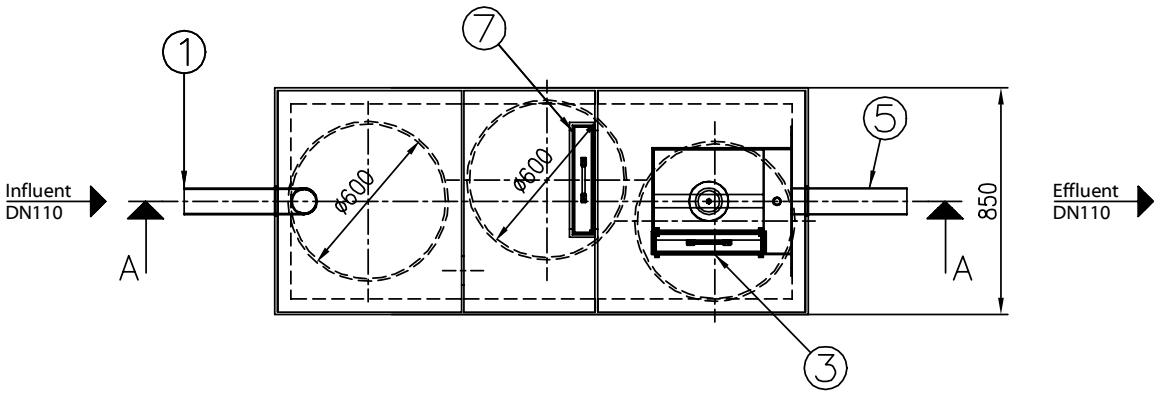
Informational drawing

Cleaning capacity:	10,0	l/s
Total flow:	10,0	l/s
Efficiency:	5	mg/l FOG
Total weight:	190,0	kg

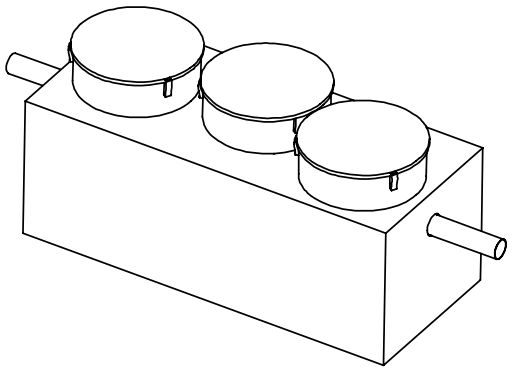
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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TYP:

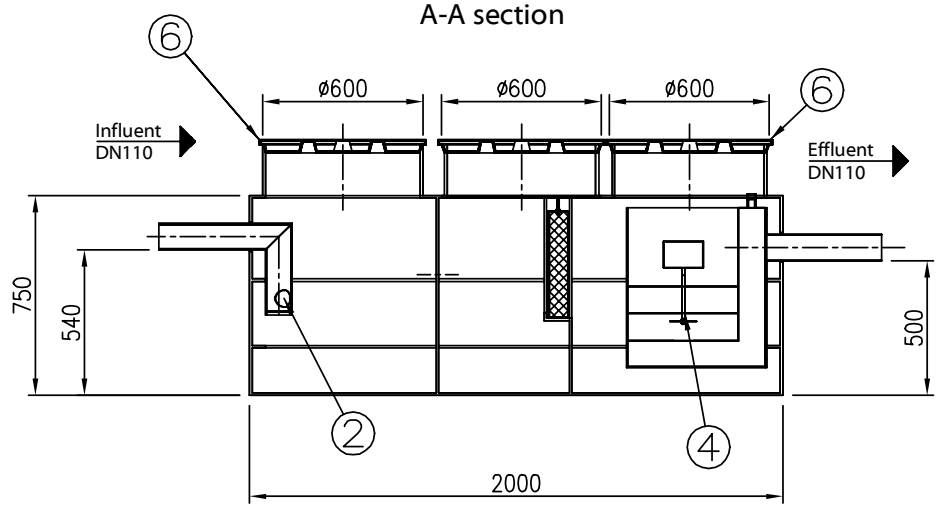
ENVIA TNB light liquid and drift separator in plastic tank

TNB 0,5-2-A

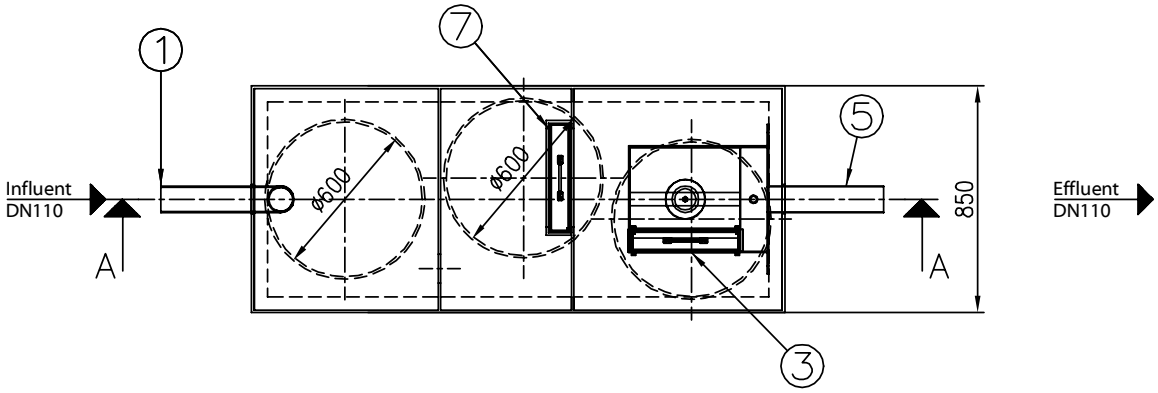
Informational drawing

Cleaning capacity:	0,5	l/s
Total flow:	0,5	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg

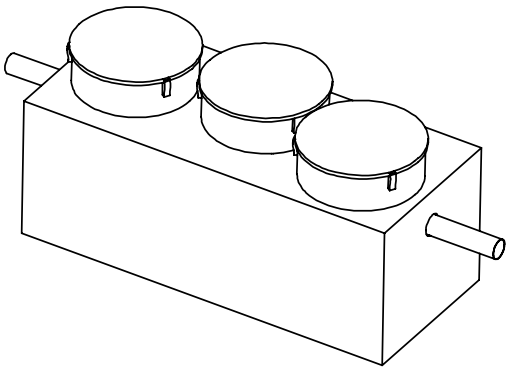
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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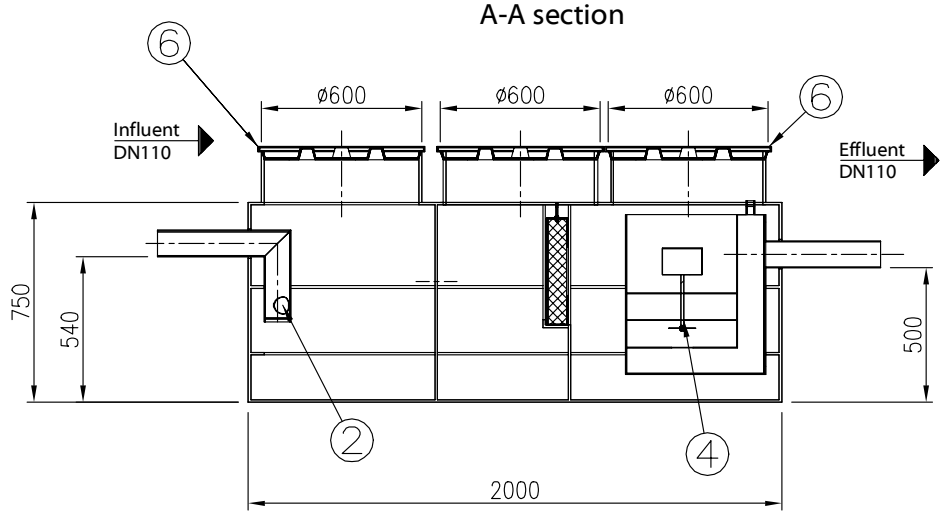
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

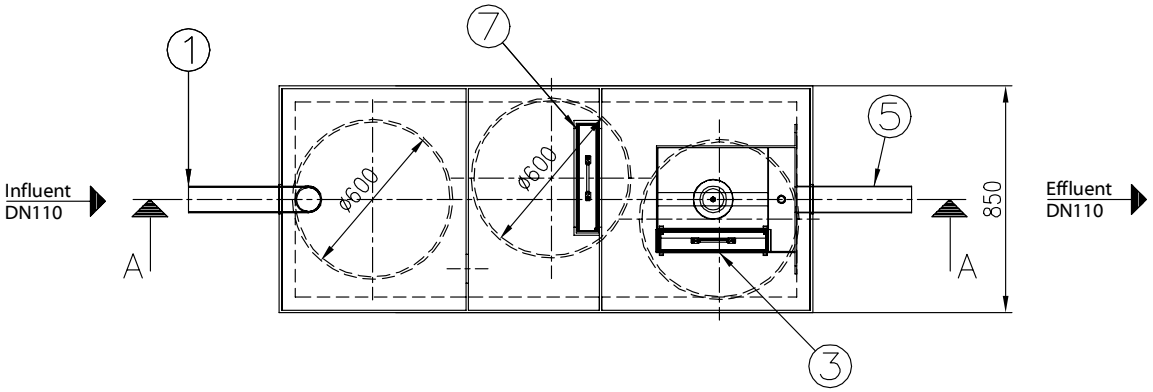
TNB 1-2-A
Informational drawing

Cleaning capacity:	1,0	l/s
Total flow:	1,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg

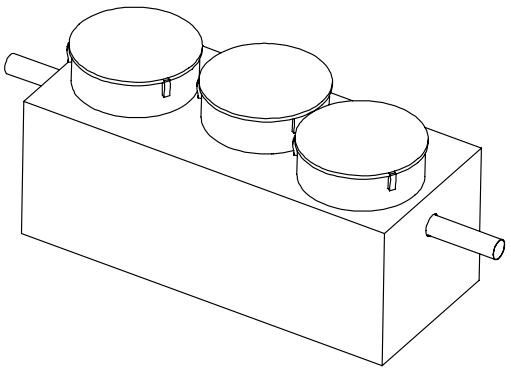
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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TYP:

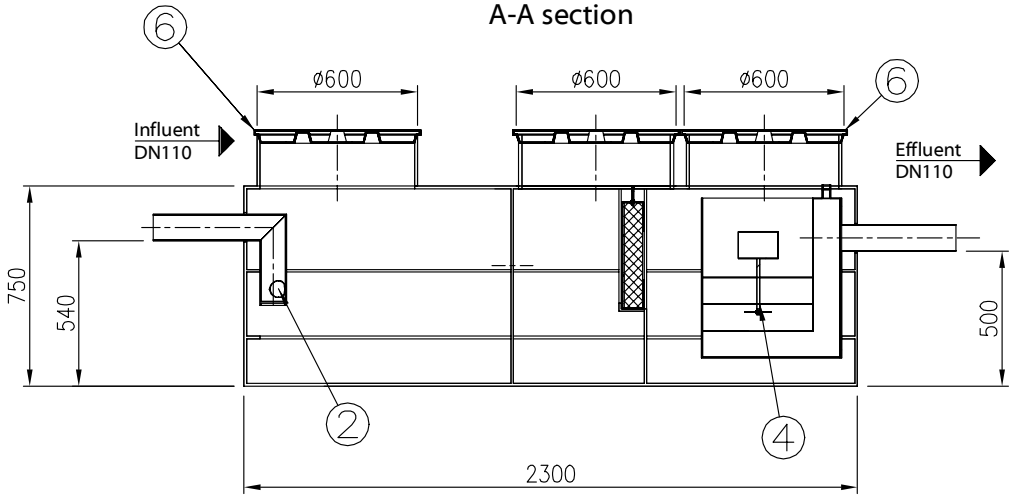
ENVIA TNB light liquid and drift separator in plastic tank

TNB 2-2-A

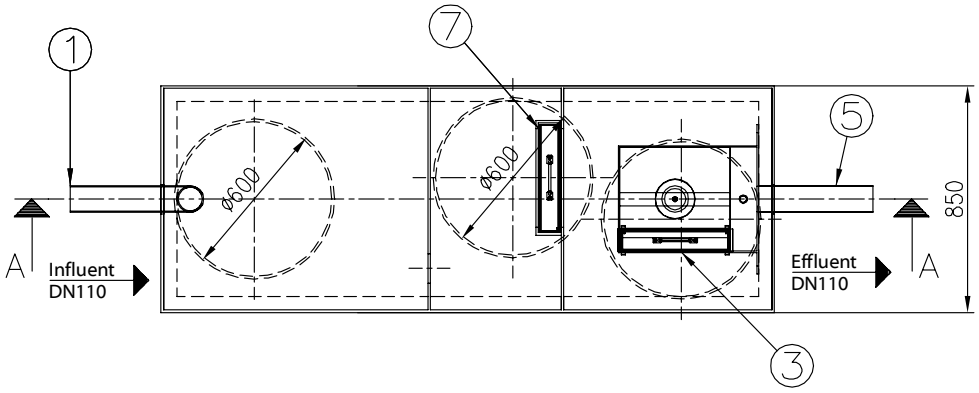
Informational drawing

Cleaning capacity:	2,0	l/s
Total flow:	2,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg

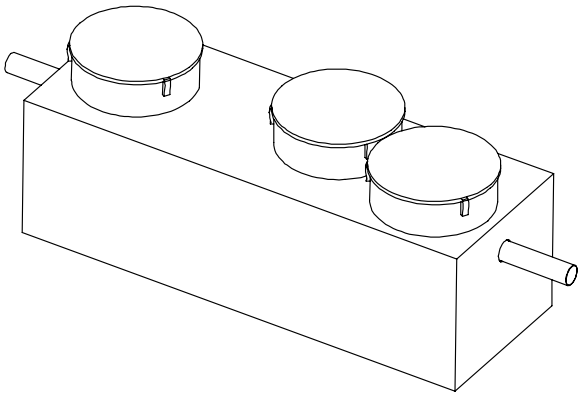
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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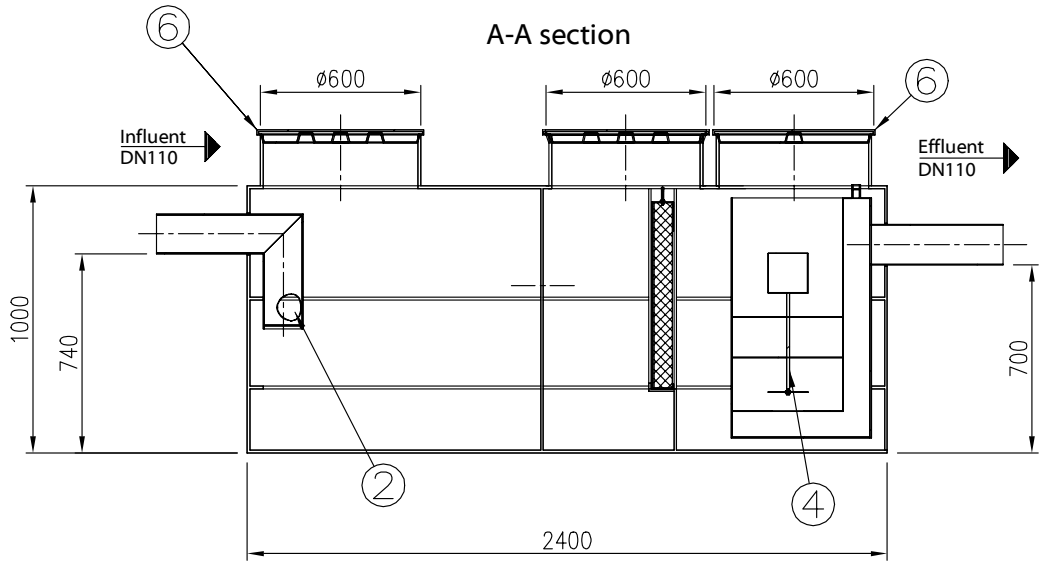
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

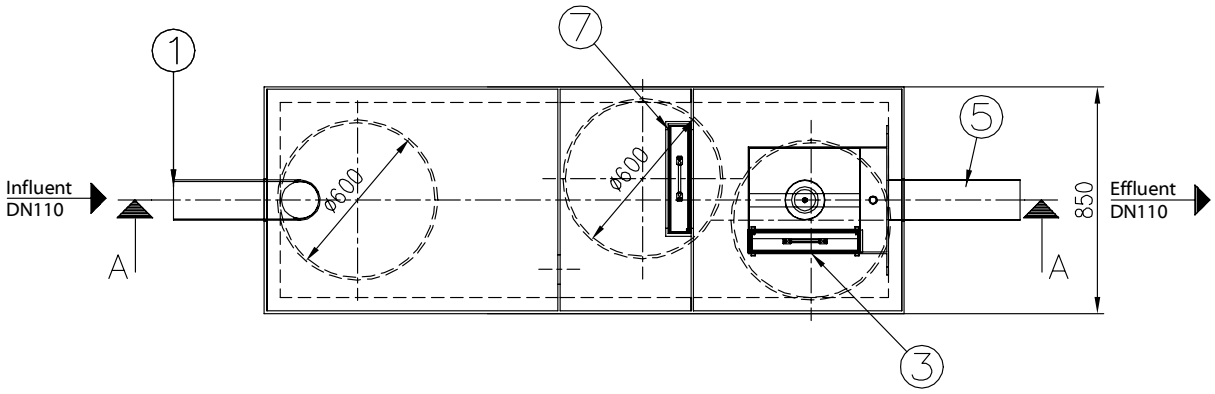
TNB 4-2-A
Informational drawing

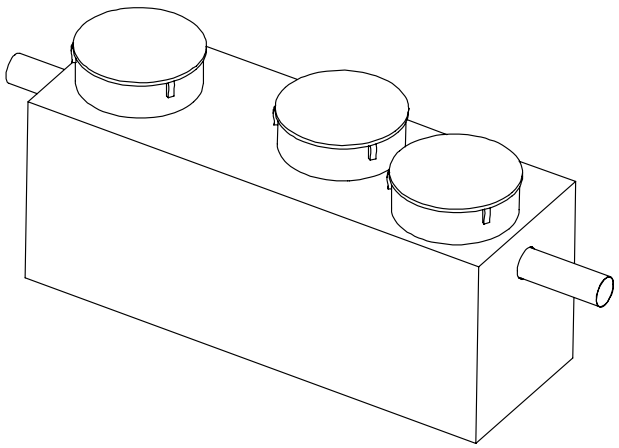
Cleaning capacity:	4,0	l/s
Total flow:	4,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	135,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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TYP:

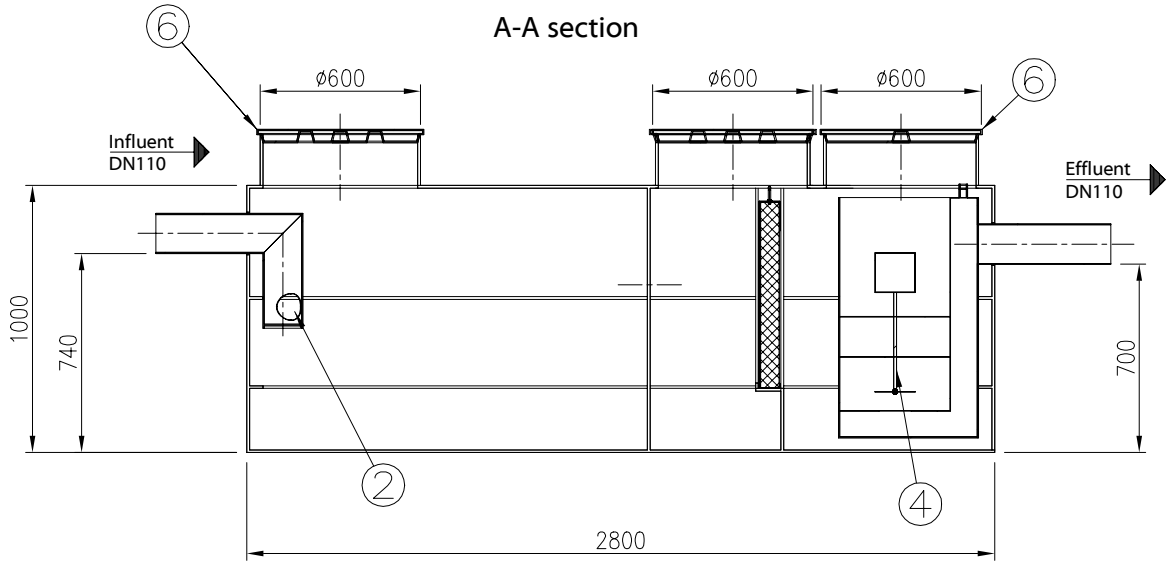
ENVIA TNB light liquid and drift separator in plastic tank

TNB 6-2-A

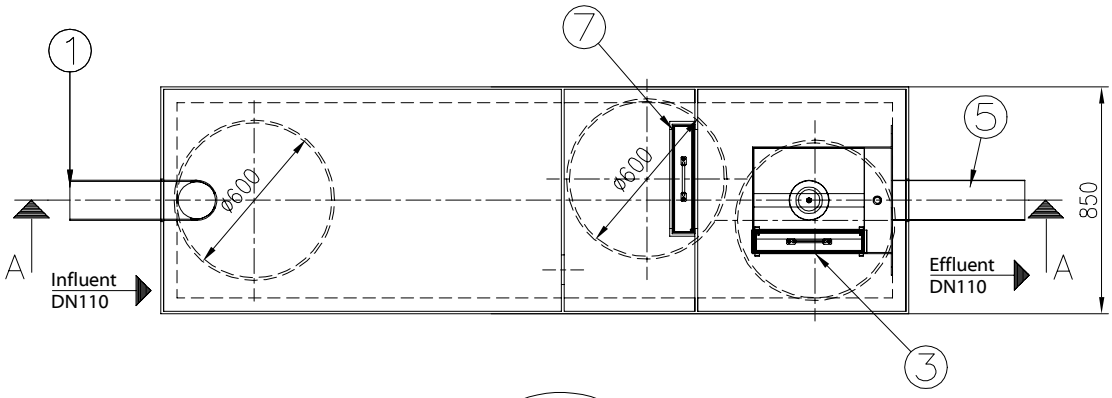
Informational drawing

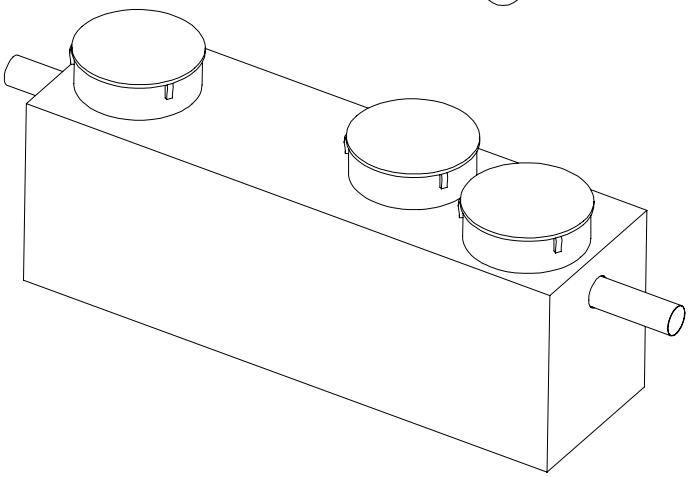
Cleaning capacity:	6,0	l/s
Total flow:	6,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	160,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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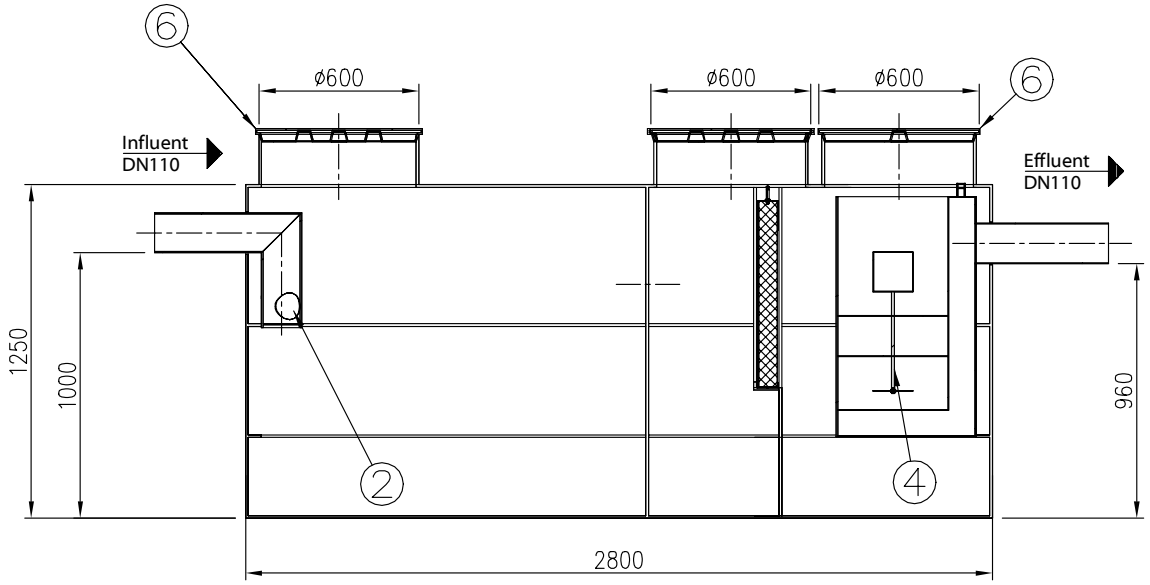
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

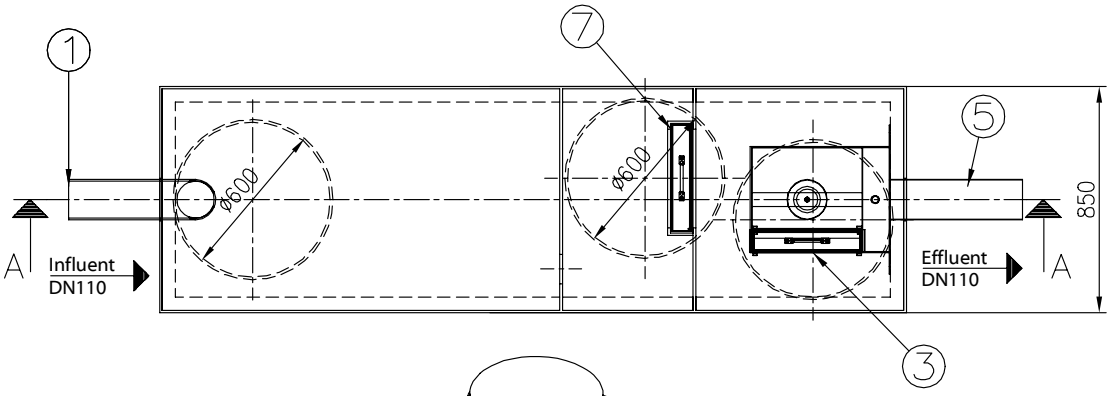
TNB 8-2-A
Informational drawing

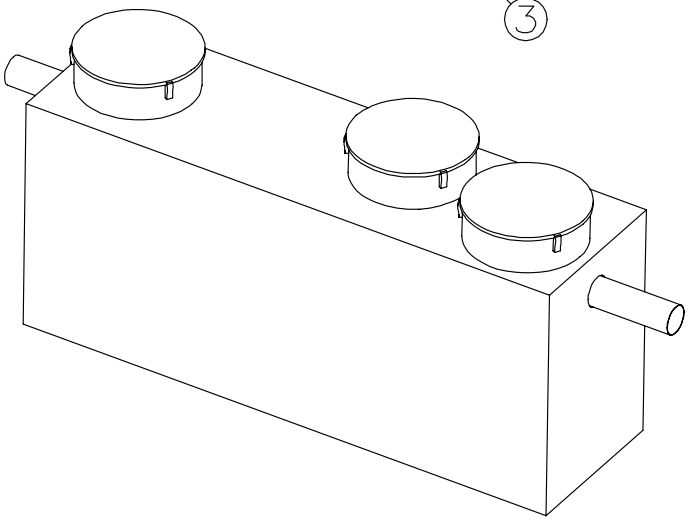
Cleaning capacity:	8,0	l/s
Total flow:	8,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	170,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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TYP:

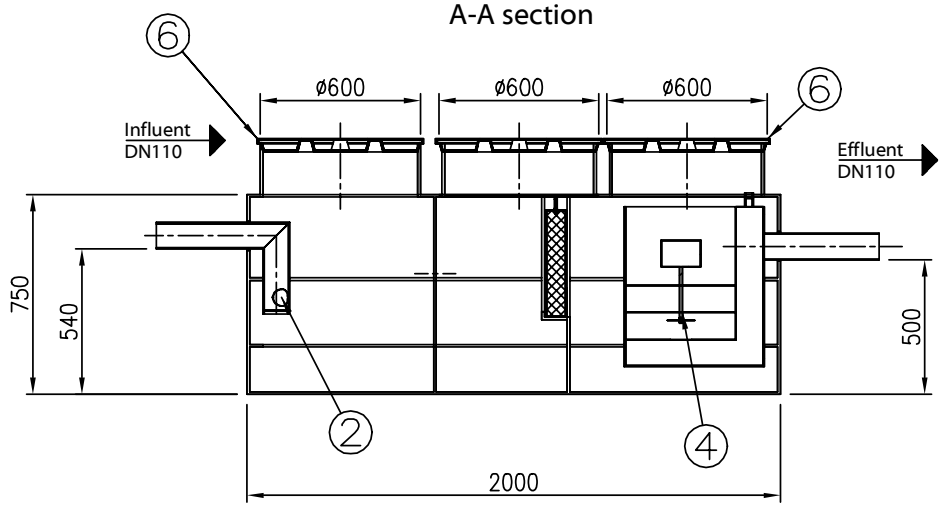
ENVIA TNB light liquid and drift separator in plastic tank

TNB 10 -2-A

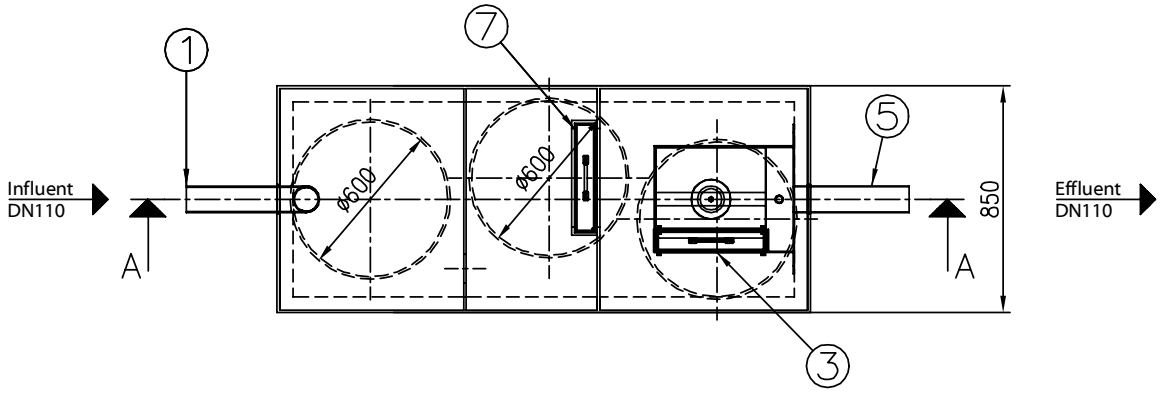
Informational drawing

Cleaning capacity:	10,0	l/s
Total flow:	10,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	195,0	kg

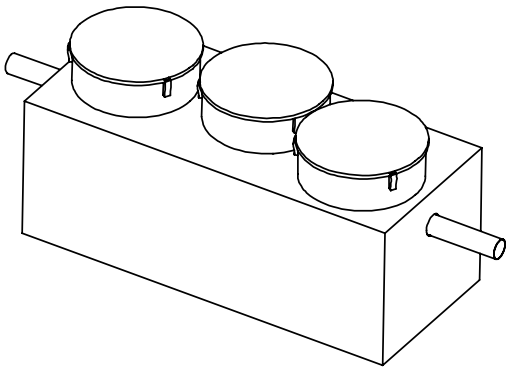
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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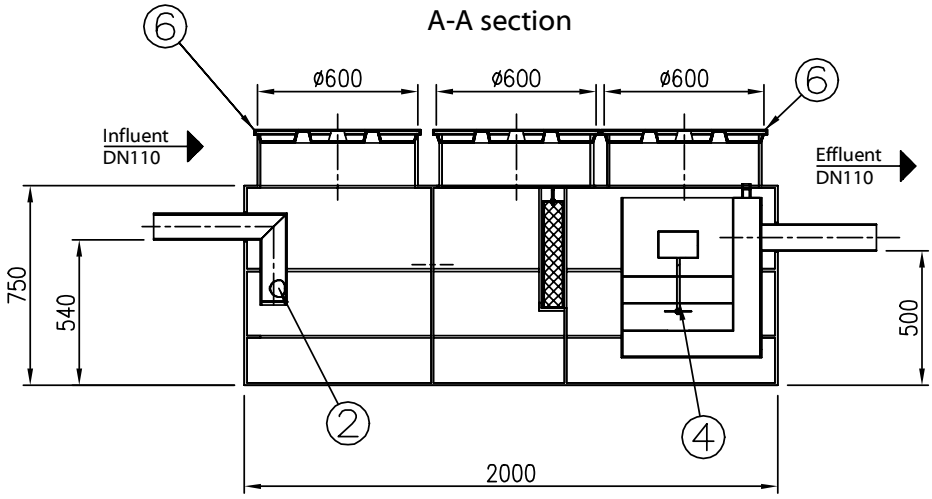
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

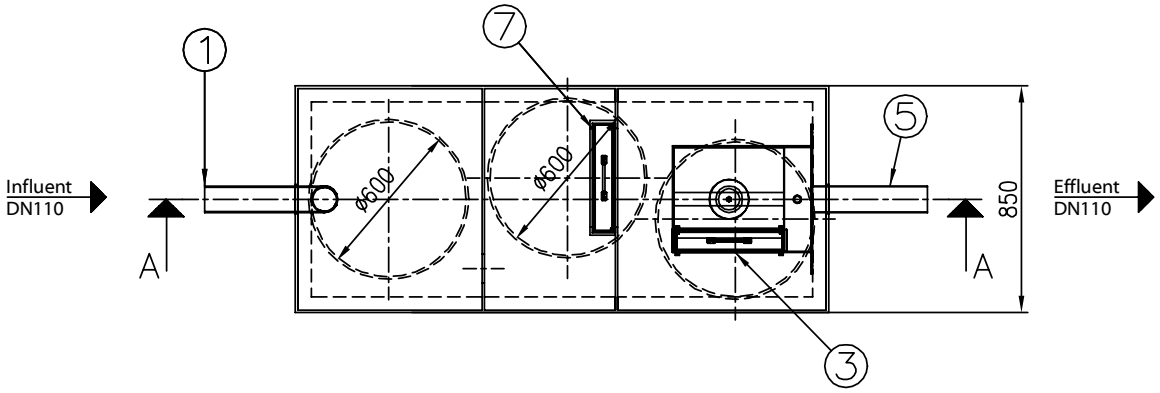
TNB 0,5-2-P
Informational drawing

Cleaning capacity:	0,5	l/s
Total flow:	0,5	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg

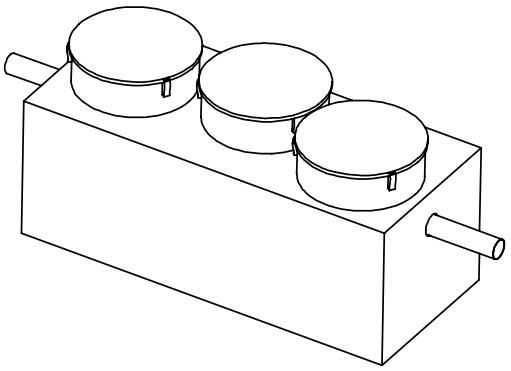
A-A section



Top View



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



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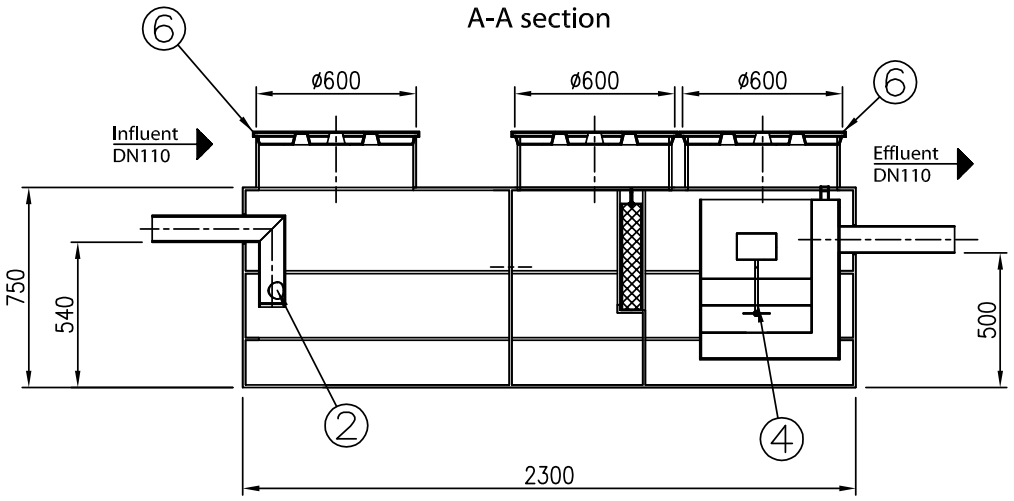
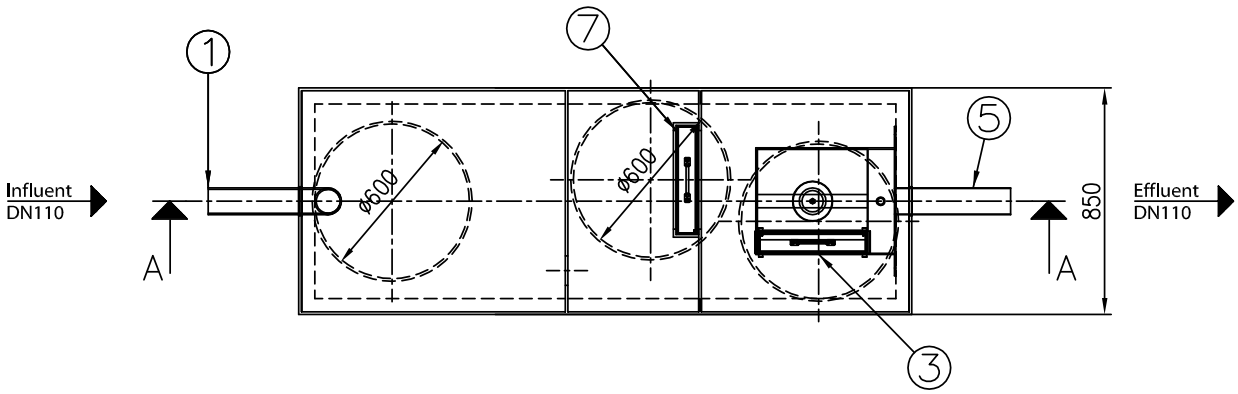
TYP:

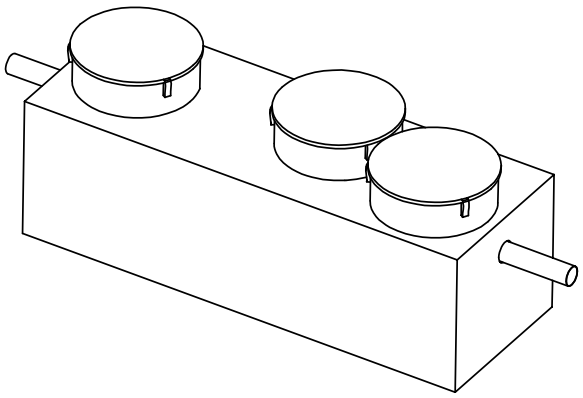
ENVIA TNB light liquid and drift separator in plastic tank

TNB 1-2-P
Informational drawing

Cleaning capacity:	1,0	l/s
Total flow:	1,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg







1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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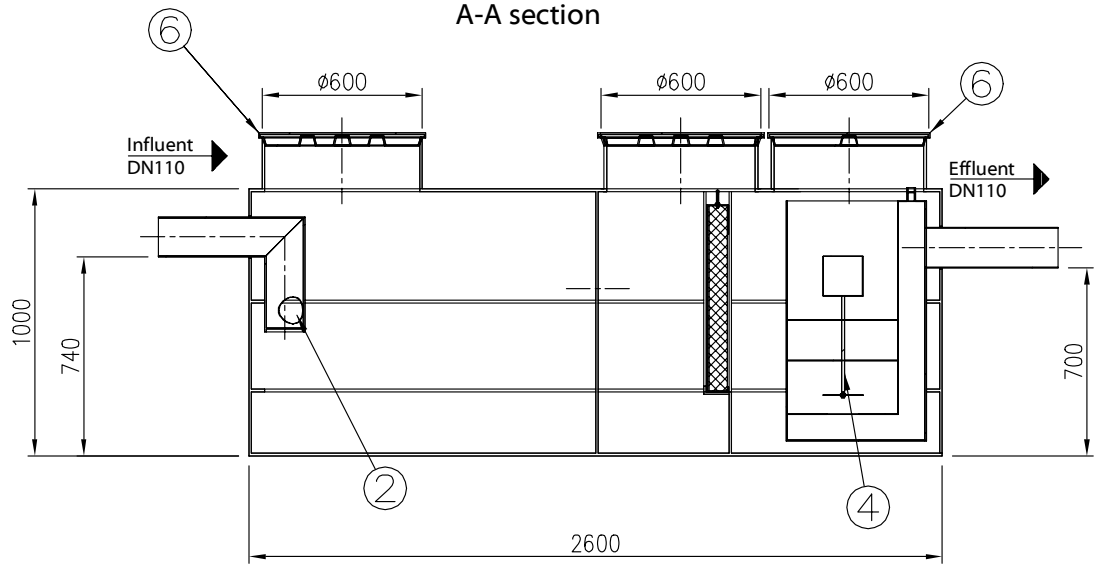
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

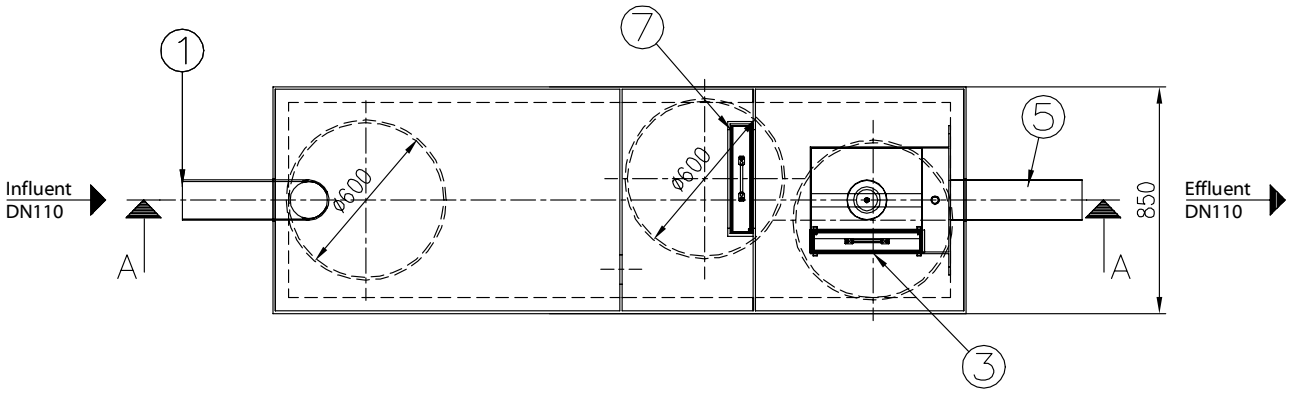
TNB 2-2-P
Informational drawing

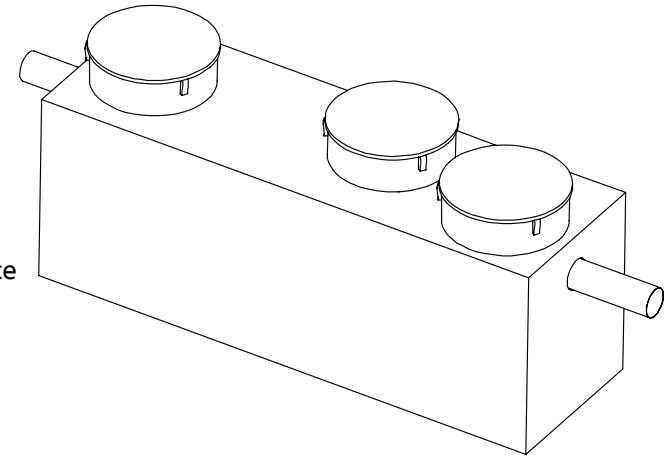
Cleaning capacity:	2,0	l/s
Total flow:	2,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	110,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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TYP:

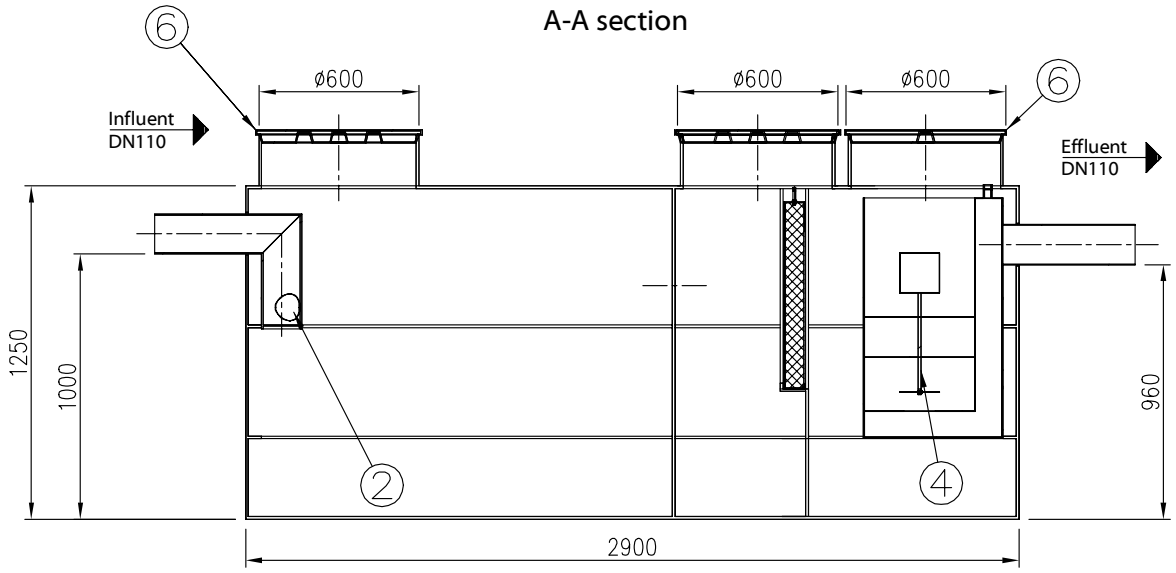
ENVIA TNB light liquid and drift separator in plastic tank

TNB 4-2-P

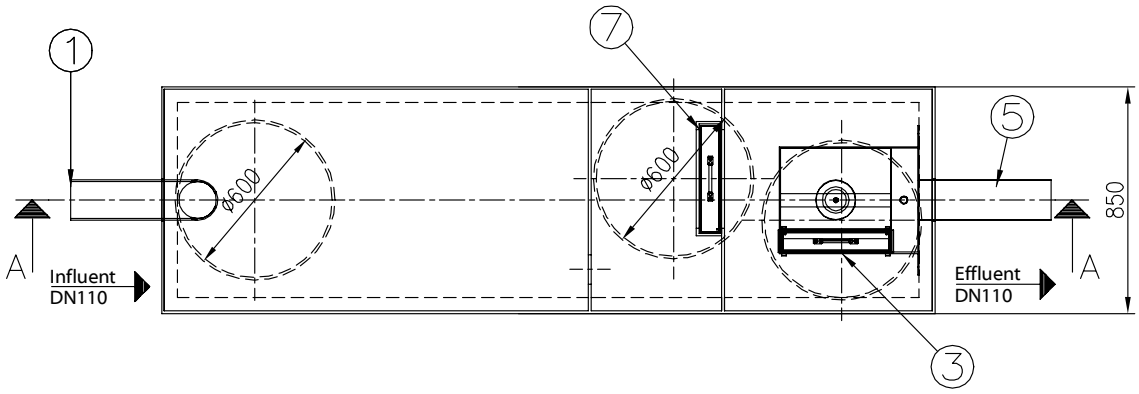
Informational drawing

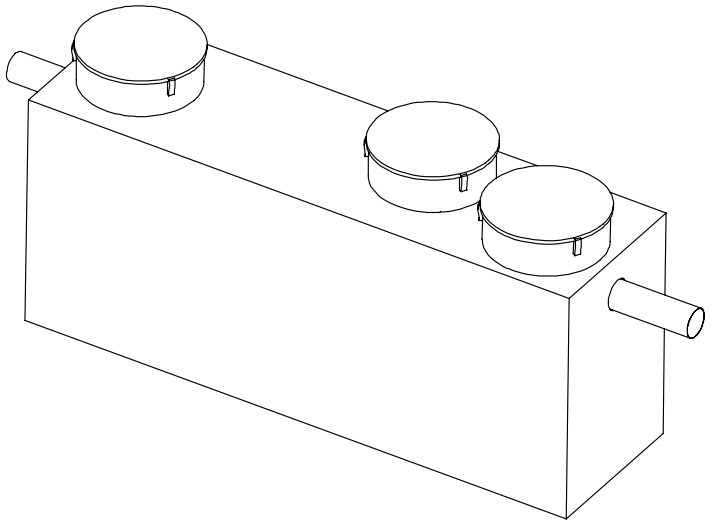
Cleaning capacity:	4,0	l/s
Total flow:	4,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	165,0	kg

A-A section



Top View





1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

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TYP:

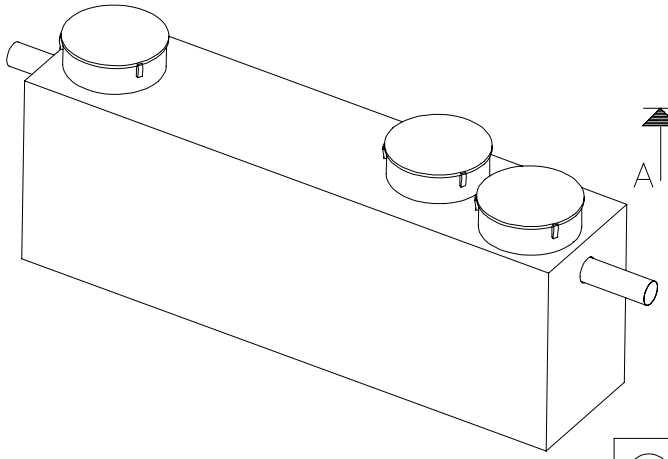
ENVIA TNB light liquid and drift separator in plastic tank

TNB 6-2-P

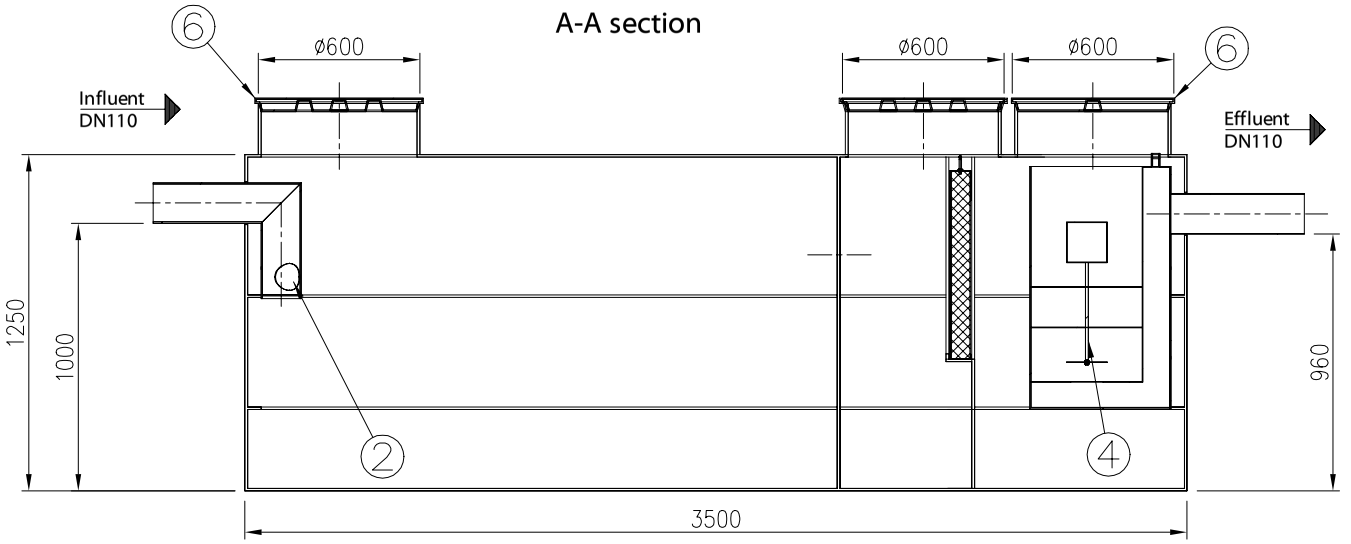
Informational drawing

Cleaning capacity:	6,0	l/s
Total flow:	6,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	200,0	kg

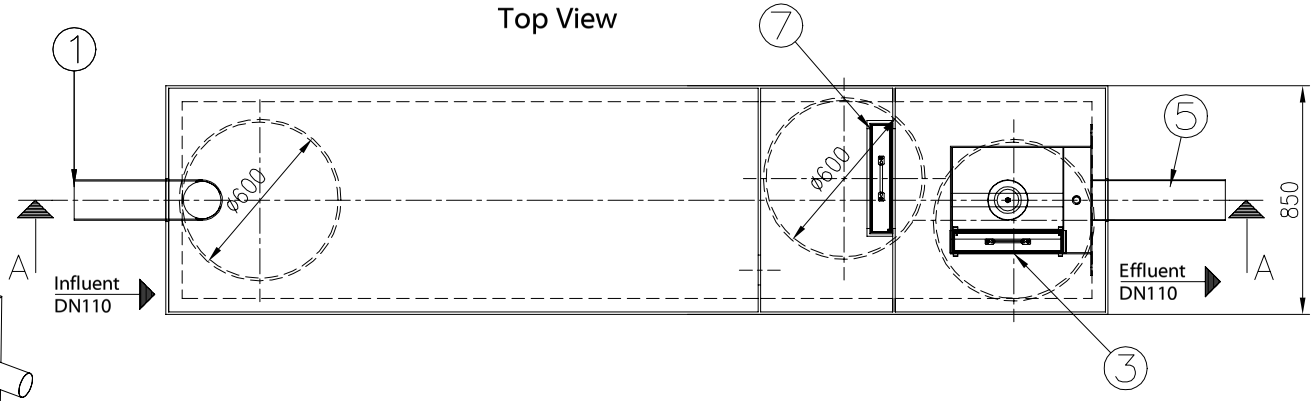
1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter



A-A section



Top View



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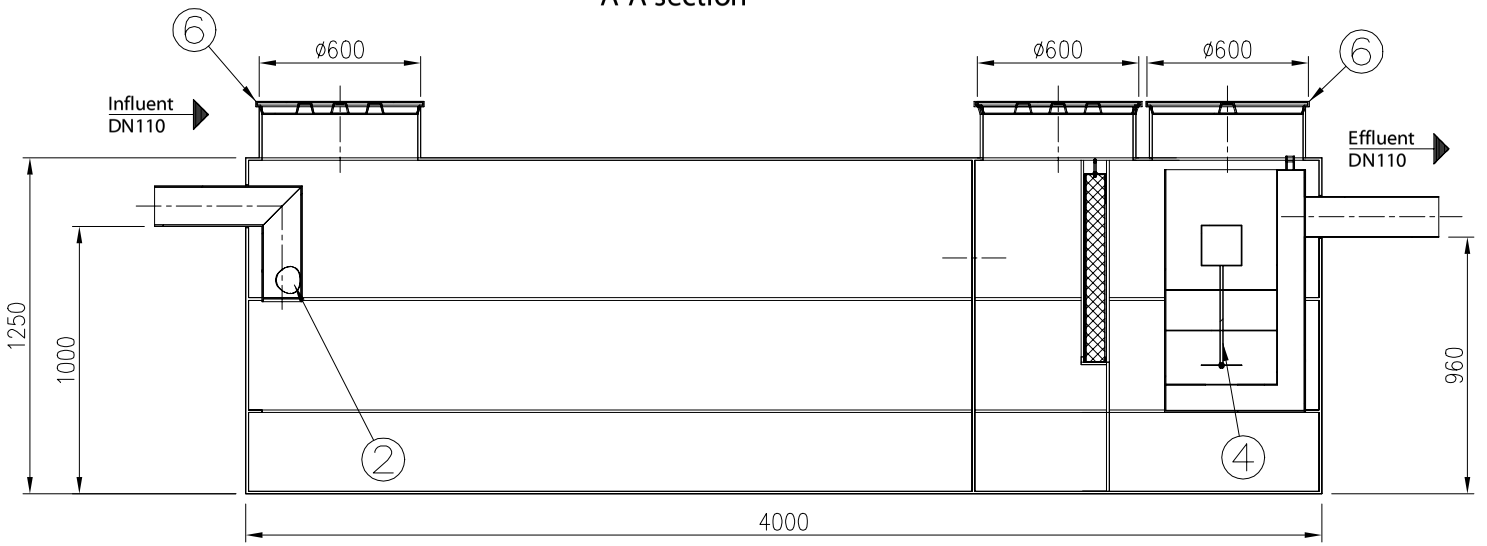
TYP:

ENVIA TNB light liquid and drift separator in plastic tank

TNB 8-2-P
Informational drawing

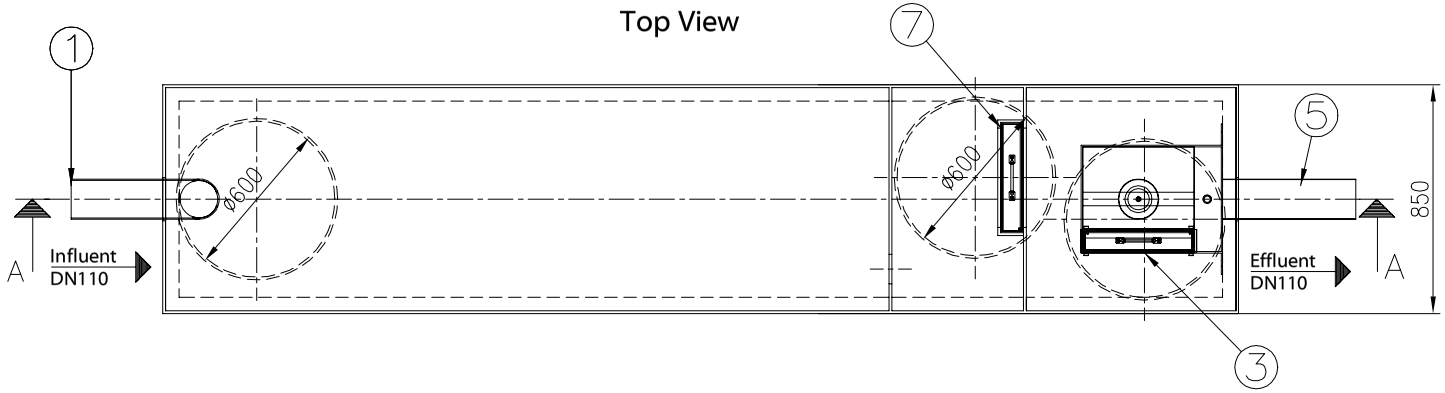
Cleaning capacity:	8,0	l/s
Total flow:	8,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	215,0	kg

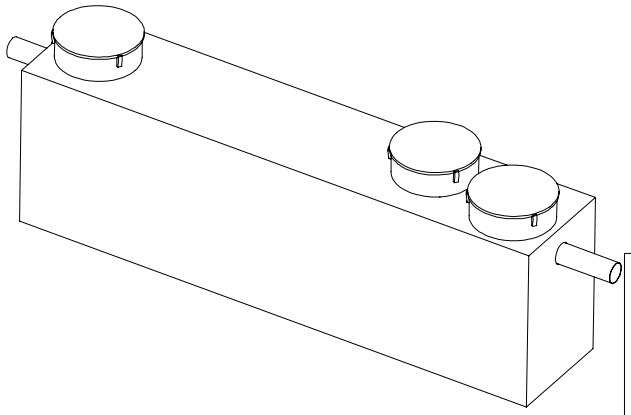
A-A section



1. Influent pipe
2. Flow regulator
3. Coalescence filter
4. Automatic closing device
5. Effluent pipe
6. PE cover with lock
7. Coalescence pre-filter

Top View





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TYP:

ENVIA TNB light liquid and drift separator in plastic tank

TNB 10-2-P

Informational drawing

Cleaning capacity:	10,0	l/s
Total flow:	10,0	l/s
Efficiency:	2	mg/l FOG
Total weight:	230,0	kg

GENERAL INSTALLATION GUIDE – ENVIA TNB

I. PREPARATIONS ON SITE

Excavation of working pit:

- Effective size, width/length: is the outline measurement of the equipment + roughly 30-40 cm, considering projecting pipes of the equipment, craning conditions respectively compacting conditions.
- Depth: thickness of receiving base and the overall height of equipment (storage tank, neckpiece, cover plate; crowning height at vehicle loads)

It is not allowed to place the equipment directly into the working pit; receiving base should be built in accordance with soil conditions: depending on local soil conditions roughly 8 cm thick concrete base (C6 quality) and 2-3 cm leveling sand ballast.

If prepared base would be contaminated it should be cleaned before installation.

Before lifting operations it is inevitable to check completeness and flawless condition of delivered tanks and their mechanical units; damages/deviations should also be reported to the manufacturer, and at the same time it should be indicated on the construction checklist.

Please note, that maximum 0,5 m earth covering can be filled back on top of equipment. If the tank is installed in deeper position, or it would be positioned under vehicle/traffic load, a load-distributing concrete slab is needed. Please, coordinate positioning/load conditions with manufacturer in all cases in advance, also it should be indicated if anchoring to prevent floating-up should be provided!

II. LOCATION OF THE EQUIPMENT, PUTTING INTO OPERATION

Tanks/separators can be put into the working pit by manpower, or by smaller lifting crane, also with adequate load-bearing capacity textile lash/strap! It is forbidden to move tanks with looped wire-cables without adequate protection of edges! Special care has to be taken to prevent equipment of sliding or swaying from lash/strap when hanging.

The ingoing and outgoing side is indicated on the tanks, respectively in case of multiple tanks the process/installation order. Lifting in place should be carried out in accordance with those indications.

Tanks may be connected to each other and to the sewage system by double-siding socket, respectively by special rubber collar.

It is recommended to close ends of pipes in some way, if the equipment would be connected later to sewage network, in order to avoid mud getting into the unit.

Before filling back the soil into work-pit water-tightness test should be carried out in order to check connections. After that filling back of soil may be done by engineer's recommendations. During works tank should be filled with clean water in multiple stages - according to backfill stratification and compacting.

If soil filling back have been completed cast iron manhole covers should be leveled, and frame of covers be fixed by concrete. Moving joint should be created between neckpiece and concrete.

Equipment should be constructed taking above information into consideration!

Before putting into operation tanks should be cleaned from casually infiltrated dirt/mud, in case of oil separators the lifting/pulling cable of float-valve should be fitted on the neckpiece, please check weather filter(s) may be removed! After that the equipment should be filled up with clear water up to the level of outgoing pipe bottom level.

III. SAFETY AT WORK AND HEALTH PROTECTION REGULATIONS

Before commencement of works responsible technical manager should inform employees on legal prescriptions, detailed safety at work and health precautions, pertaining to actual work-process. Works should be carried out in accordance with weather/climatic conditions and environmental circumstances, also taking into considerations technical specifications written in documents of related objects.

Before commencement of works condition of tools should be checked, work may only be carried out by adequately trained personnel, under continuous supervision and control.

During craning works general safety at work prescriptions pertaining to weight-lifting and weight-transportation, standing under crane effective radius or under suspended weight is STRICTLY FORBIDDEN!! Lifting should be directed by a responsible manager or crane-hook operator, the weight may be lifted and other operations carried out only after his signaling.

It is FORBIDDEN to stand on reinforced concrete units during lifting!

Protective gloves and helmet should be used during works.

Works should be carried out obeying relevant safety at work prescriptions!

Please return to us the Construction Checklist Form filled up by the Contractor/Client. For lack of that manufacturer may refuse demands for guarantee.

HANDLING MANUAL – ENVIA TNB

I. GENERAL DESCRIPTION OF SEPARATOR EQUIPMENTS

Function of the mud and oil separator equipment is to separate sump and grease from sewage/wastewater polluted by animal/vegetable oil/grease before submitting into public sewage system. It must be avoided to install sewage pump before the separator equipment, if installation of pumps can not be avoided, a pump operating on volumetric displacement principle should be used. Mud and mineral oil separator equipment retains material as by its function (mud, oily drift, buoyant mineral oil derivatives) , separating them from water. The equipment is not applicable to retain dissolved material and other dangerous contaminants, i.e. acids, base, mineral salts etc. The equipment is not applicable to clean Communal (Public) sewage! It does not neutralize, decompose or reduce the quantity of contaminants in separated material, it does not reduce the quantity of contamination in any way, it stores them only, and regularly must be removed from equipment.. Paved/clad surfaces cannot be cleaned by such detergents which cause fusion, emulsification of oil.

Precondition of effective operation is the systematic supervision and maintenance. Equipments shall be supervised at least once monthly; it is also advised to check it after extensive rainfall and showers! One of the most important components of the system is the filter-unit, it must be supervised regularly, cleaned if necessary. During regular checkups correct operation of float shall be supervised.
Damages resulting from lack of maintenance are the responsibility of the operator!

Equipments may be made of polyethylene, polypropylene, reinforced concrete and steel.

Operation of the equipment
Equipments operating on the principle of physical-components-separation can only operate if they are filled with water, it is the resting water in which sedimentation or floating-up of buoyant contaminants may happen. In separators mud-compartment serves to catch sediment material. Buoyant material is retained by deflector and/or by the position of the outlet pipe. Equipment is delivered by a filtering unit (units) operating in coalescence principle, measuremented according to the capacity of the equipment - velocity of flow (filtering velocity) is established under 5 cm/s , as by professional experience proved efficiency is the highest in this order of magnitude. Filtering unit in addition to the characteristic role played in buoyancy of oil, serves as physical filter, its task is to retain physical contaminants in suspension phase.

As security device a calibrated float operates in the equipment, set in such a way that if more than 15 cm oil layer be accumulated on the surface, or after the increased flow-velocity (hydraulic overload) closes the outgoing flow, in order to prevent washing-out of retained contaminants. Handling of equipment may be done across the manhole (adequately sized openings worked out on the top plane of the equipment).

Technical process
Sewage, contaminated by drifting mud and oil derivates, is led-in across a siphon inlet pipe into the sedimentation chamber of the equipment, or bypassing the deflector. Deflector breaks up the flow of water, turns its flow downwards, sideways. In the separating chamber, considerably wider than the sewage pipe itself, velocity of flow is decreased, consequently sedimentation of material becomes possible. Sediment mud in the separation compartment should be removed regularly (if 1/3 part of storage compartment be filled). The essential component of the equipment is the filtering unit, helps removing oil, operating on the principle of coalescence, installed in a special compartment designed to contain it, in such a way that filters may be removed without entering into the equipment for cleaning.

A safety float-valve is installed there, closing the opening for the outgoing water on the chamber, according to operational descriptions.

By the above workout manufacturer undertakes guarantee for 5 mg/l TPH limiting value.

In equipments reaching 2 mg/l TPH limiting value enlarged oil-separating chamber and/or a second layer of coalescent filter may be found, ensuring higher quality for outgoing water.

II. OPERATIONS MANUAL

Basic precondition of the correct operation for the equipment, of the adequate cleaning of outgoing water, is systematic supervision of the equipment, systematic removal of retained contaminants. Equipment shall be checked as by need, at least once a month. Emptying frequency shall be selected according to the quantity of retained material, in such a way it may not exceed the storage capacity of the separation compartments. At least once a year the equipment should be cleaned - according to legal prescriptions pertaining to hazardous material.

If thickness of sediment material in mud-trapping chamber reaches 1/3 of water depth -respectively buoyant oil reaches the thickness of 12-14 cm in oil separating compartment-equipment should be emptied, separated material should be removed. If the thickness becomes higher quality of outgoing water can not be guaranteed!

Filters installed in equipment may be flushed back, by their regular cleaning their life-cycle can be increased, their cleaning efficiency can be improved.

To clean the filtering unit with pressure-steam-cleaner, detergent or any other chemicals is FORBIDDEN!!

Emptying of equipment may happen by sewage transporter or sump-pump. After emptying it is recommended to flush the inner part and process units of the equipment by water jet, in order to remove accidentally resided contaminants. Flush water should be removed from the equipment. To put separator in operation again equipment shall be filled up with clean water.

At maintenance works relevant safety at work prescriptions should be obeyed!

Smoking and use of free flame during works is strictly FORBIDDEN!!!

Only personnel authorized to handle and control equipment allowed entering it.
Protective cordons should be employed to surround the equipment before beginning of works, to prevent accidents by falling into tank across opened manhole.

Works can not be commenced if shower or rain be forecasted, respectively work should be terminated in case of rainfall, and personnel should be evacuated from the tank.

Sediment and oil removed during cleaning should be considered as hazardous waste, storage should be done by legal prescriptions being in force, transport be done by authorized firm.

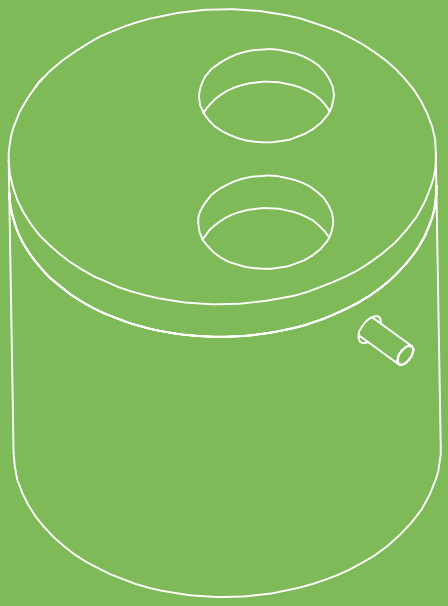
In addition record should be kept on operation and maintenance of equipment!

If you would have any questions please call our experts.

Grease Separators

PARCO–C in concrete shaft

PARCO–P in plastic tank



PARCO C

OIL SEPARATORS

GREASE SEPARATORS

PUMPING STATIONS

INFILTRATION

STORAGE TANKS

GREASE SEPARATOR – PARCO C

PARCO grease separator product line was developed to complement PURECO's separator family. PARCO was licensed by ÉME (based on EN 1825) and certified by Water Management.

Main field of application of PARCO:
- Restaurants,
- Kitchens,
- Meat processing works,
- Food industry

Regulations, standards:
Nominal Size of grease separators -be defined by type of liquid, quantity and, contaminants led trough according to DIN 4040 and EN 1825
Parameters necessary to select equipment size:
1. Establishing cleaned water capacity, cleaning output NG (l/s). (depending on kitchen types by the attached table – see page 84.).
2. Establishing outflow (cleaned) water allowed SZOE content: Cleaned water leaving separator organic extract (SZOE) content can not be higher limiting value given in 9/2002. (III. 22.) KöM - KöViM order, and given in 204/2001 (X.26.) Cabinet order - on sewage penalties.

Sump and grease separation in equipment happens without chemicals added, only by gravitations phase separation.
- heavy-duty
- capacity 2-15 l/s
- integrated sludge trap
- based on EN 1825

Name	Capacity	Diameter	Height	Influent height	Effluent height	Weight
PARCO 2-C	2 l/s	1420 mm	1800 mm	1000 mm	950 mm	3,400 kg
PARCO 4-C	4 l/s	1720 mm	2200 mm	1400 mm	1350 mm	5,600 kg
PARCO 7-C	7 l/s	2400 mm	2200 mm	1400 mm	1350 mm	10,800 kg
PARCO 10-C	10 l/s	2560 mm	2200 mm	1350 mm	1300 mm	10,000 kg
PARCO 12-C	12 l/s	2560 mm	2200 mm	1450 mm	1400 mm	10,200 kg
PARCO 15-C	15 l/s	2860 mm	2200 mm	1350 mm	1300 mm	11,900 kg

SIZING – PARCO C AND PARCO P

Application

Grease separators shall be used wherever it is necessary to separate greases and oils of vegetable and animal origin from wastewater, such as in trade or industrial plants/establishments, e.g.

- commercial kitchens and large catering establishments, e.g. in inns, hotels, motorways service stations, canteens;
- grilling, roasting and frying facilities;
- food distribution points (with returnable crockery);
- butcher's shops, with or without slaughtering facilities;
- meat and sausage factories, with or without slaughtering facilities;
- abattoirs;
- poultry slaughterers;
- tripe preparation plants;
- animal rendering plants;
- bone and glue boiling plants;
- soap and stearine factories;
- oil mills;
- vegetable oil refineries;
- margarine factories;
- pickling plants;
- fast-food preparation plants;
- chip and crisp producers;
- peanut roasting plants.

Wastewater containing a considerable proportion of grease in a non-separable form (i.e. emulsified) from applications such as dairy, cheese making and fish processing, or from distribution points having only dish washing facilities, or from „wet waste compactors", will only be effectively treated in grease separators under certain conditions. The wastewater may require further treatment.

Applications where the discharged wastewater contains solids that are quick to purify (e.g. the fish industry) do not require a sludge trap, but the grease separator shall be fitted with a strainer or screening device fitted on the inlet side to retain coarse solids. Any retained solids should be removed and the separator thoroughly flushed with clean water before operational intervals to prevent putrefaction.

Sizing a PARCO grease separator

BS EN 1825 describes 3 methods of calculating the nominal size (NS) of a grease separator:

- Per kitchen equipment and outlet valves
- Per quantity of meals
- Per meat processing unit

Select FOG density

Fat Oil Grease	Density	Fat Oil Grease	Density
Animal fat	0,85-0,94 g/cm³	Sunflower oil	0,92-0,93 g/cm³
Butter	0,91 g/cm³	Vegetable oil	0,95-0,97 g/cm³
Coconut oil	0,92-0,93 g/cm³	Corn oil	0,92 g/cm³
Sesame oil	0,92 g/cm³	Fish oil	0,89-0,94 g/cm³
		Olive oil	0,91 g/cm³

Select kitchen type

Type of kitchen	Volume of water used per meal; V_m	Note
Hotel	100 liter	Market fresh produce
Restaurant	50 liter	Market fresh, partly prepared produce
Hospital, clinics, care homes	20 liter	Prepared, partly fresh market produce
Large catering estabilishment	10 liter	Market fresh produce, large proportion of canned food Few menus per day (1-2) Prepared in few, large food containers
Factory and office, canteens, student refectory	5 liter	Kitchen ready, if applicable portioned out and pre.cooked/deep frozen food Few menus Prepared inlarge kitchens and/or microwave ovens Large proportion of disposable crockery

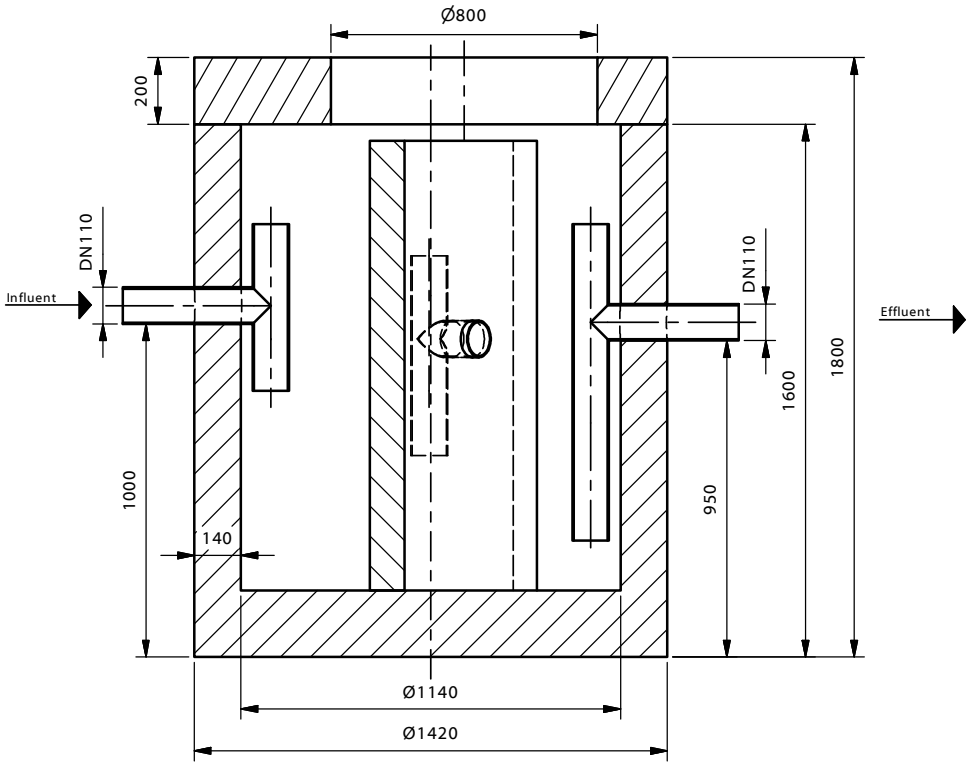
Peak flow determination

Situation	Peak flow coefficient F
Commercial kitchens	
Hotel	5,0
Restaurant	8,5
Hospital	13,0
Factory and office canteens	20,0
Large catering establishment (24 hour operation)	22,0
Meat processing plant and butchers	
Small, up to 5 GV1)/week	30,0
Medium,6 to 10 GV1)/week	35,0
Large, 11 to 40 GV1)/week	40,0
1) 1 GV = 1 cow or 2,5 pigs	

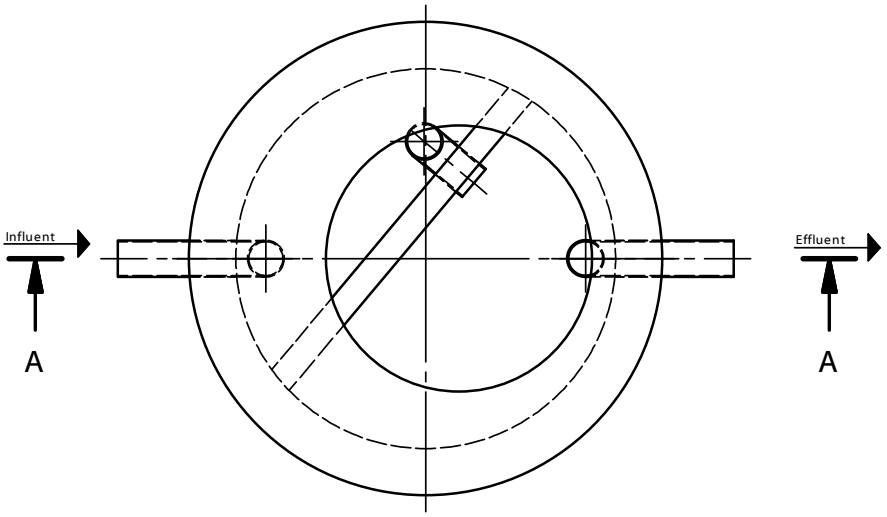
In the case of meat processing by hand the quantity of meat products per day may be assumed to be approximately Mp= ~100 kg/GV. Additional wastewater volume per day from, e.g. party services, food/snack distribution shall be added when calculating the average wastewater quantity V

Step 1.	Select kitchen type	Hotel	Restaurant	Hospital	Large catering	Factory and office canteens	Example
Step 2.	Meals per day where 1 meal = 1 restaurant cover						300
Step 3.	Multiply by: Water volume per meal in litres as stated in BS EN 1825	x100	x50	x20	x10	x5	300x20= 6 000
Step 4.	Multiply by: Peak flow coefficient as stated in BS EN 1825	x5	x8,5	x13	x22	x20	6 000x13=101 400
Step 5.	Multiply by: Temperature at inlet °C -	1,3 ONLY if temperature is >60°C					101 400x1,3= 130 820
Step 6.	Multiply by: Factor for detergents, dishwasher powders and rinsing agents	-Never used? Go to stage 7 -Occasionally used? x1,3, -Special circumstances? (e.g hospital) x1,5					130 820x1,5=296 595
Step 7.	Multiply by: Factor for fat/oil density in g/cm3	x 1.5 only if density > 0.94g/cm3, otherwise go to stage 8					Mainly sunflower oil step forward
Step 8.	Establish average daily kitchen operation in seconds (3600 seconds per hour)						8 hours= 28 800 s
Step 9.	Take answer from stage 5 (or if used, stage 6 and 7) and divide answer by answer from stage 8						296 595/28 800=10,29
Step 10.	Round up to available NS size PARCO sizes available PARCO P 0,5;1; 2; 3; 4; 5; 6; 7; 8; PARCO C 2; 4; 7; 10; 12; 15;						Selected grease separator is PARCO 12-C

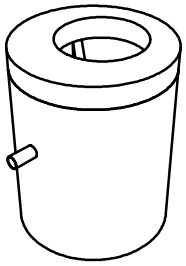
A-A (1 : 20)



Top View (1 : 20)



PARCO 2-C
(1 : 60)



PURECO THE PURE ECO

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PARCO-C Fat and Grease separator in circular concrete tank

TYP:

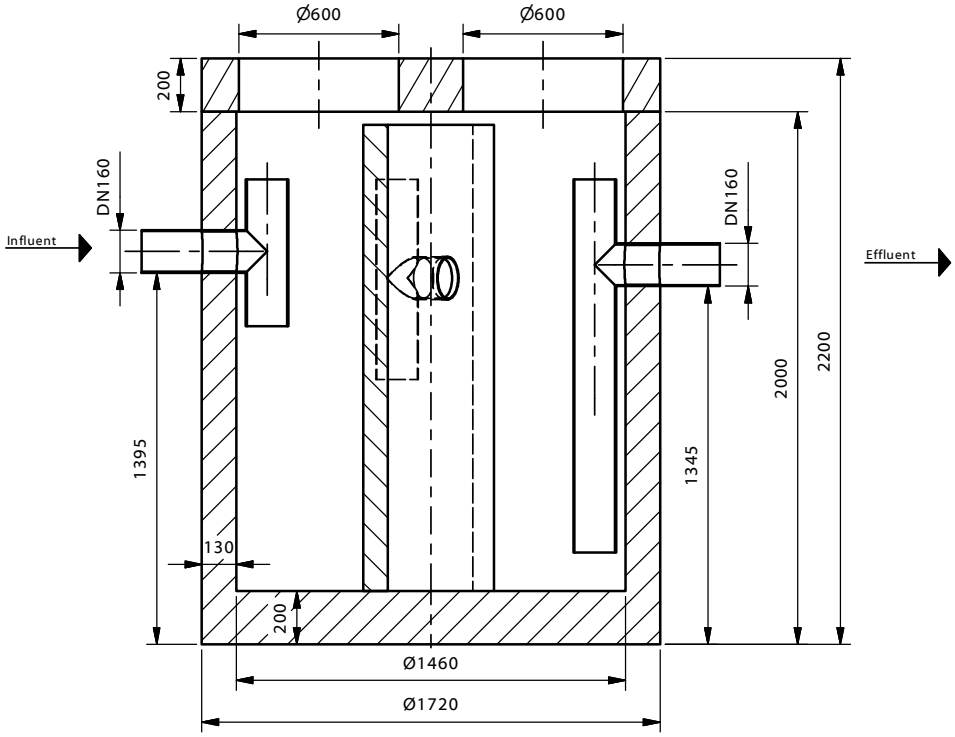
PARCO 2-C

Informational drawing

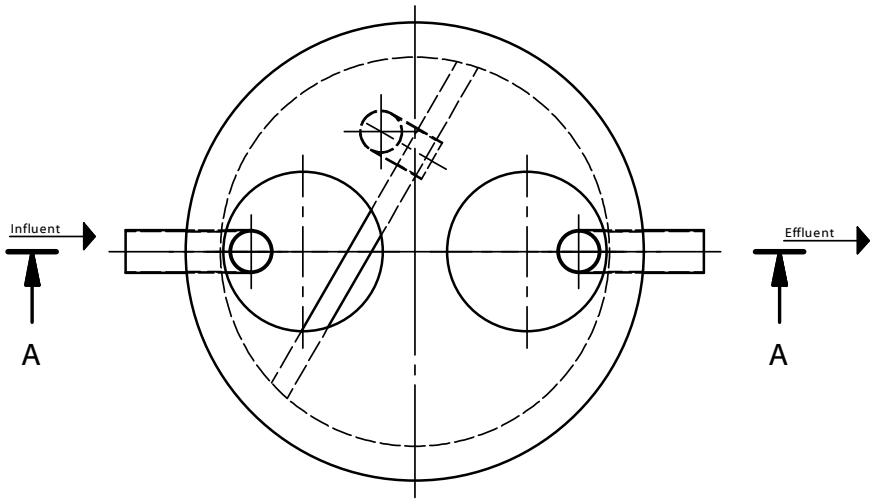
M= 1:20

Capacity:	2	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	2,8	t
Total weight:	3,4	t

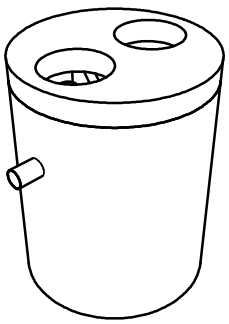
A-A (1 : 25)



Top View (1 : 25)



PARCO 4-C
(1 : 60)



PARCO-C Fat and Grease separator in circular concrete tank

PURECO
THE PURE ECO
www.pureco.hu

TYP:

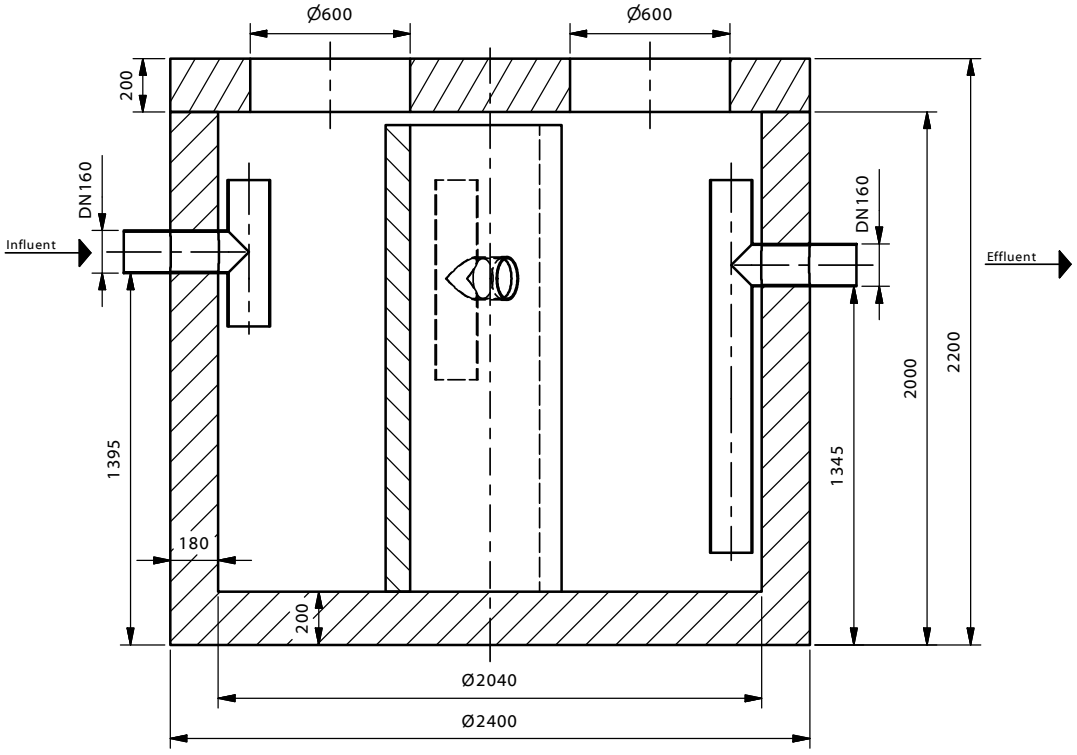
PARCO 4-C

Informational drawing

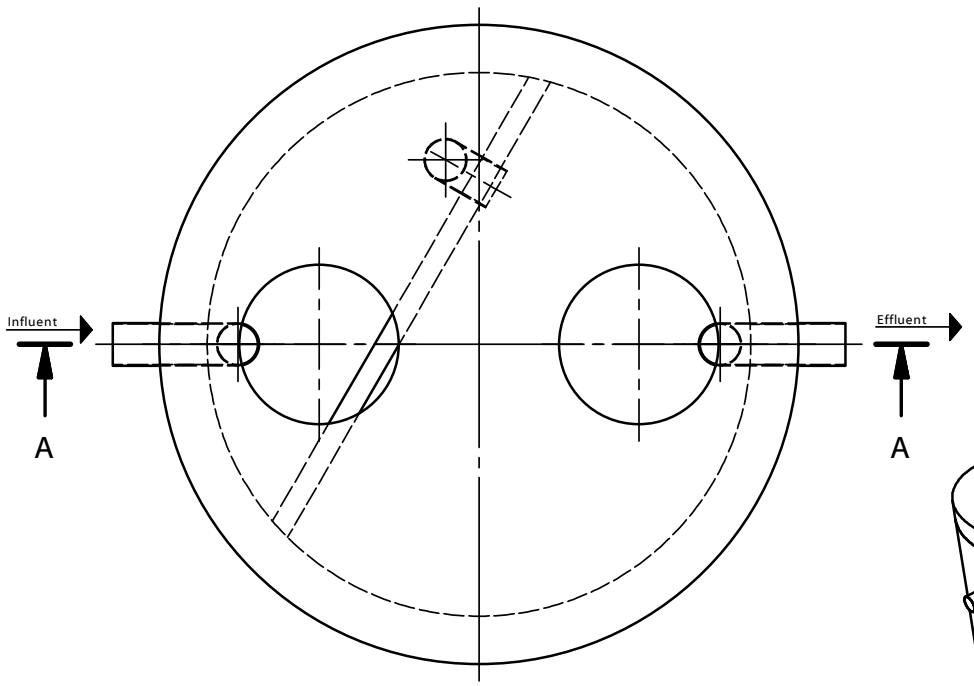
M= 1:25

Capacity:	4	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	4,4	t
Total weight:	5,6	t

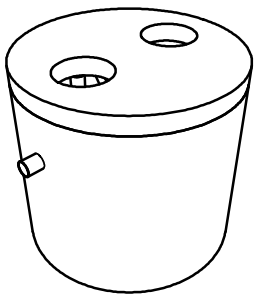
A-A (1 : 25)



Top View (1 : 25)



PARCO 7-C
(1 : 75)



PURECO THE PURE ECO

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PARCO-C Fat and Grease separator in circular concrete tank

TYP:

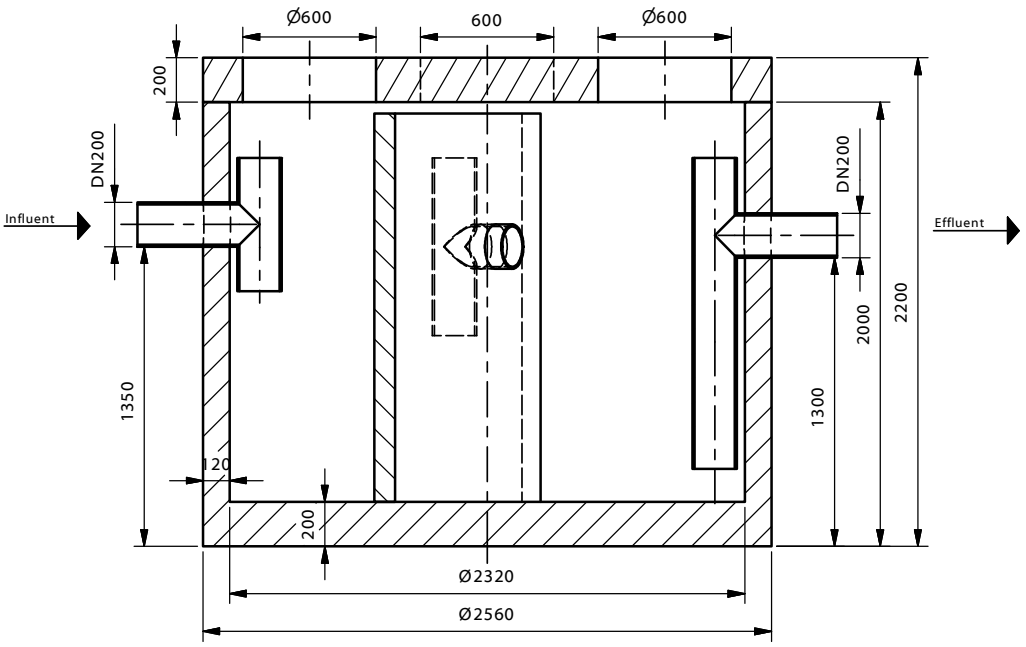
PARCO 7-C

Informational drawing

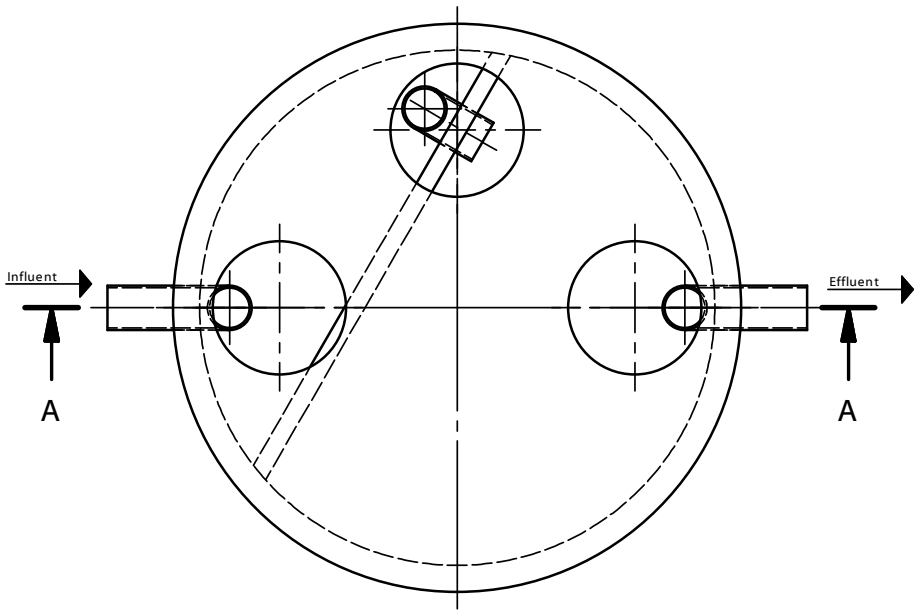
M= 1:25

Capacity:	7	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	8,6	t
Total weight:	10,8	t

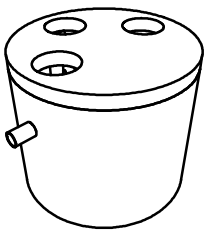
A-A (1 : 30)



Top View (1 : 30)



PARCO 10-C
(1 : 100)



PARCO-C Fat and Grease separator in circular concrete tank

PURECO
THE PURE ECO
www.pureco.hu

TYP:

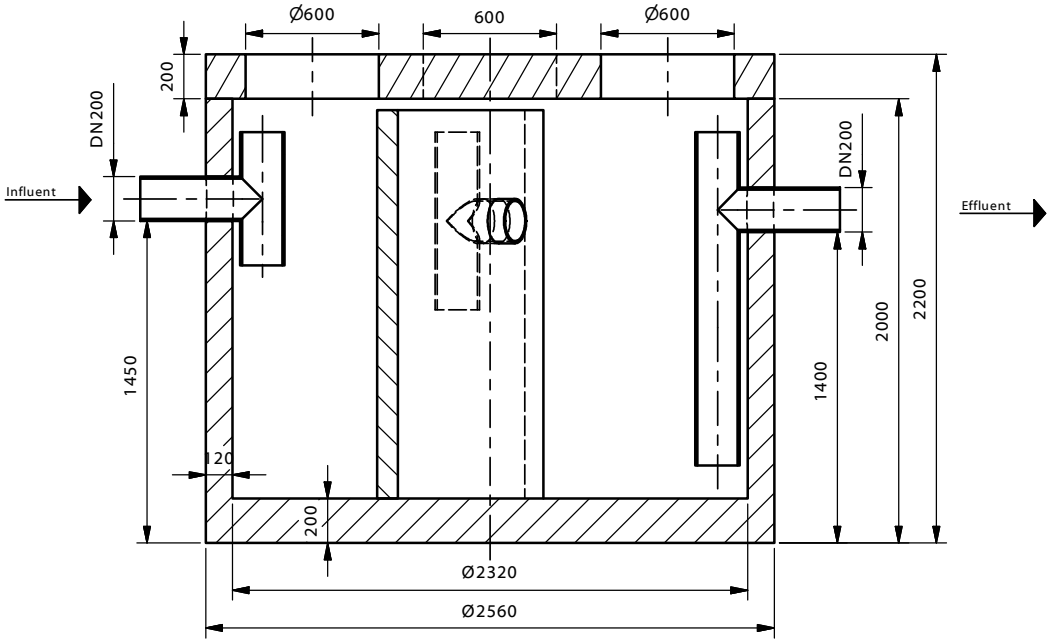
PARCO 10-C

Informational drawing

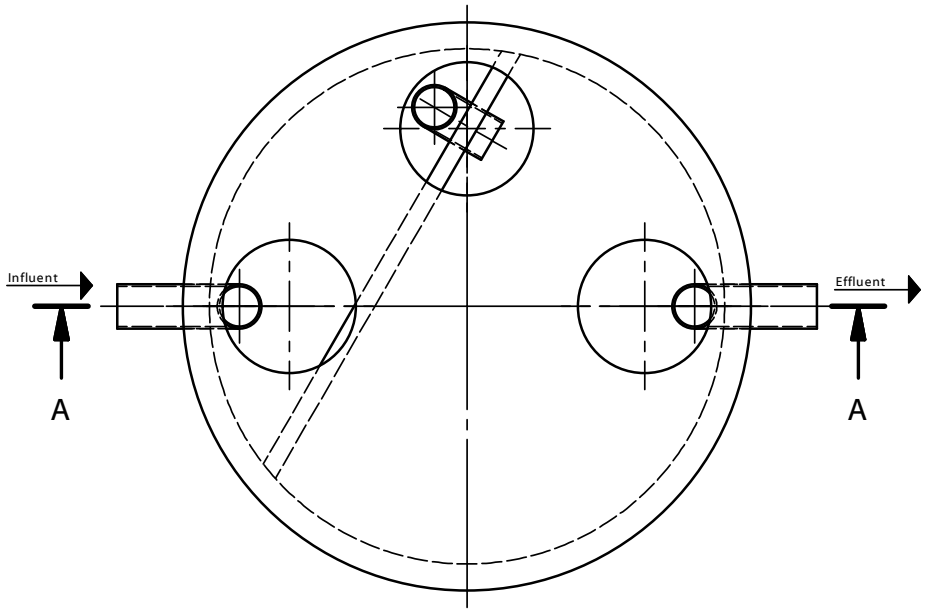
M= 1:30

Capacity:	10	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	7,5	t
Total weight:	10,0	t

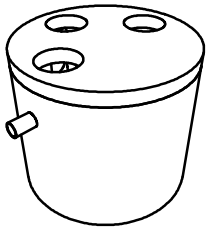
A-A (1 : 30)



Top View (1 : 30)



PARCO 12-C
(1 : 100)



PURECO
THE PURE ECO
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PARCO-C Fat and Grease separator in circular concrete tank

TYP:

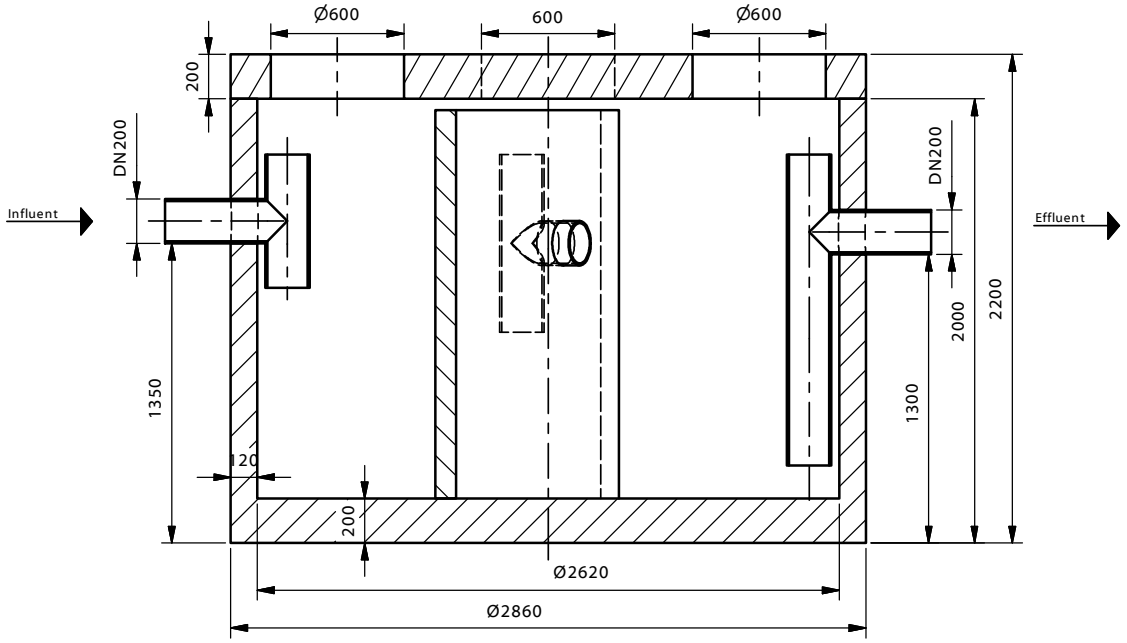
PARCO 12-C

Informational drawing

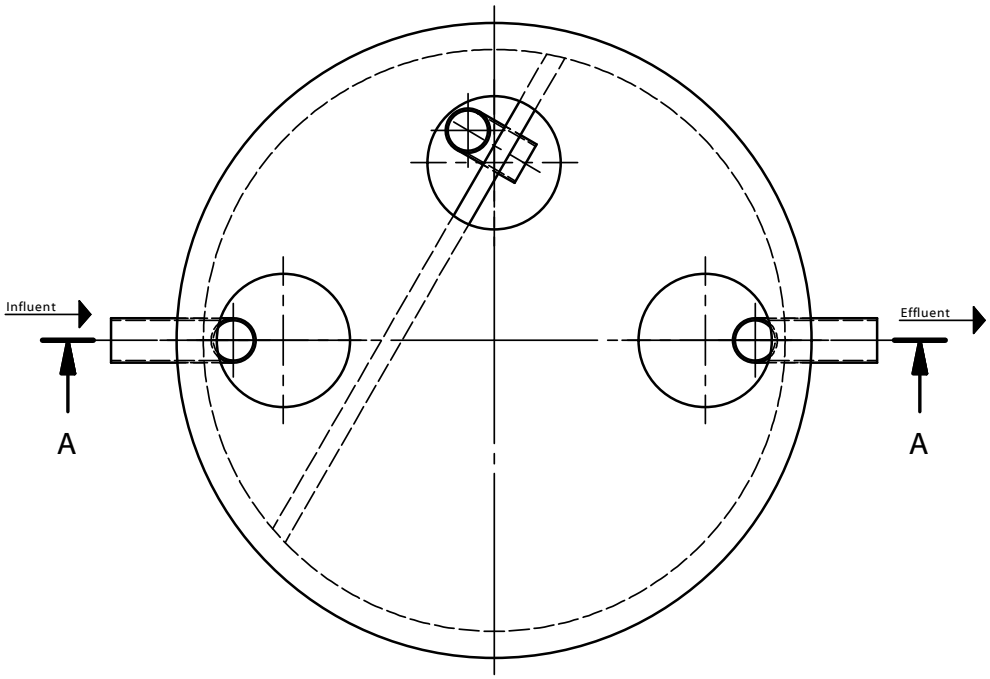
M= 1:30

Capacity:	12	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	7,7	t
Total weight:	10,2	t

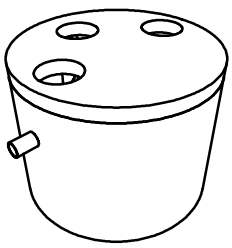
A-A (1 : 30)



Top View (1 : 30)



PARCO 15-C
(1 : 100)



PURECO
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PARCO-C Fat and Grease separator in circular concrete tank

TYP:

PARCO 15-C

Informational drawing

M= 1:30

Capacity:	15	l/s
Efficiency:	50	mg/l FOG
Max. element weight:	8,8	t
Total weight:	11,9	t

USER GUIDE – ENVIA PARCO C

I. GENERAL DESCRIPTION OF SEPARATOR EQUIPMENT

Function of the equipment is to separate mud/sediment and grease from sewage/wastewater polluted by animal/vegetable oil/grease before submitting into the public sewage system. It must be avoided to install sewage pump before the separator equipment, if installation of pumps can not be avoided, a pump operating on volumetric displacement principle should be used.

Sedimentator and grease-separator equipment retains material as by its function (drift, buoyant grease/oil derivatives) separating them from water. The equipment is not applicable to clean Communal (Public) sewage! It does not neutralize, decompose or reduce the quantity of contaminants in separated material, it does not reduce the quantity of contamination in any way, it stores them only, and regularly must be removed from equipment.

Precondition of effective operation is the systematic supervision and maintenance. Equipments shall be supervised at least once monthly. Please ensure that quantity of sediment and retained grease may not exceed the capacity of separating/retaining compartments. In case of longer operational standstill it is recommended to empty the equipment. Damages resulting from lack of maintenance are the responsibility of the operator!

Equipments may be made of poly-ethylene, poly-propylene, reinforced concrete and the process units may be made of stainless steel, poly-ethylene or poly-propylene.

Technical process
Equipments operating on the principle of physical-components-separation can only operate if they are filled with water, it is the resting water in which sedimentation or floating-up of buoyant contaminants may happen. In separators mud-compartment serves to catch sediment material. Buoyant material is retained by deflector and also by the position of the outlet pipe. In the separating chamber, considerably wider than the sewage pipe itself, velocity of flow is decreased, consequently sedimentation of material becomes possible. Outgoing water from equipment to sewage is led across a siphon pipe, which pipe takes out pre-cleaned water from the bottom of the tank. Outlet pipe is equipped with a cap on its top; by removing that cap the outgoing water may be sampled. Removal of accumulated grease can be done time to time across a manhole. To avoid give-off of unpleasant smell to surroundings the manufacturer is ready to produce the equipment with smell-proof manhole-cover (for special order).

II. OPERATIONS MANUAL

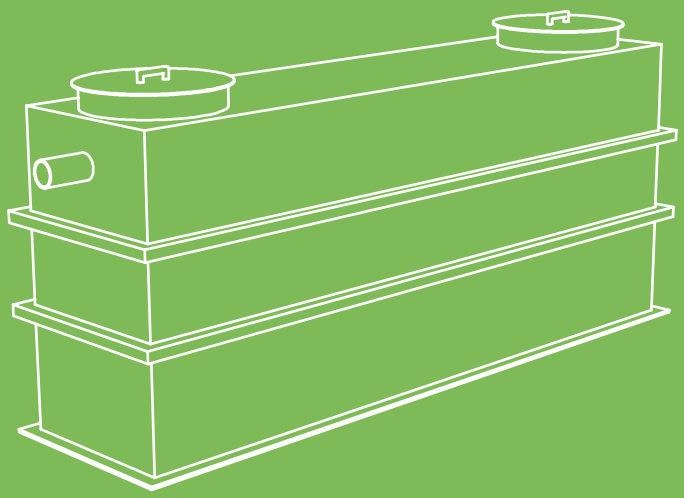
Basic precondition of the correct operation for the equipment, of the adequate cleaning of outgoing water, is systematic supervision for the equipment, systematic removal of retained contaminants. Equipment shall be checked as by need, at least once a month. Emptying frequency shall be selected according to the quantity of retained material, in such a way it may not exceed the storage capacity of the separation compartments. At least once a year the equipment should be cleaned.
It is necessary to clean the equipment if thickness of retained material reaches 160 mm in the grease-separation compartment, also the sediment should be removed. If the thickness of sediment becomes higher than 160 mm quality of outgoing water can not be guaranteed!

Emptying of equipment may happen by sewage transporter or sump-pump. After emptying it is recommended to flush the inner part and process units of the equipment by water jet, in order to remove accidentally resided contaminants. Flush water should be removed from the equipment. To put separator in operation again equipment shall be filled up with clean water.

At maintenance works relevant safety at work prescriptions should be obeyed!
Smoking and use of free flame during works is strictly FORBIDDEN!!!

Only personnel authorized to handle and control equipment allowed entering it.
In case of under-surface equipment protective cordons should be employed to surround it before beginning of works, to prevent accidents by falling into tank across opened manhole.

Sediment and grease removed during cleaning should be considered as hazardous waste, storage should be done by legal prescriptions being in force, transport be done by authorized firm.
In addition record should be kept on operation and maintenance of equipment!
If you would have any questions please call our experts.



PARCO P

GREASE SEPARATOR – PARCO P

PARCO grease separator product line was developed to complement PURECO's separator family. PARCO was licensed by ÉME (based on EN 1825) and certified by Water Management.

Main field of application of PARCO:
- Restaurants,
- Kitchens,
- Meat processing works,
- Food industry

Regulations, standards:
Nominal Size of grease separators -be defined by type of liquid, quantity and, contaminants led trough according to DIN 4040 and EN 1825

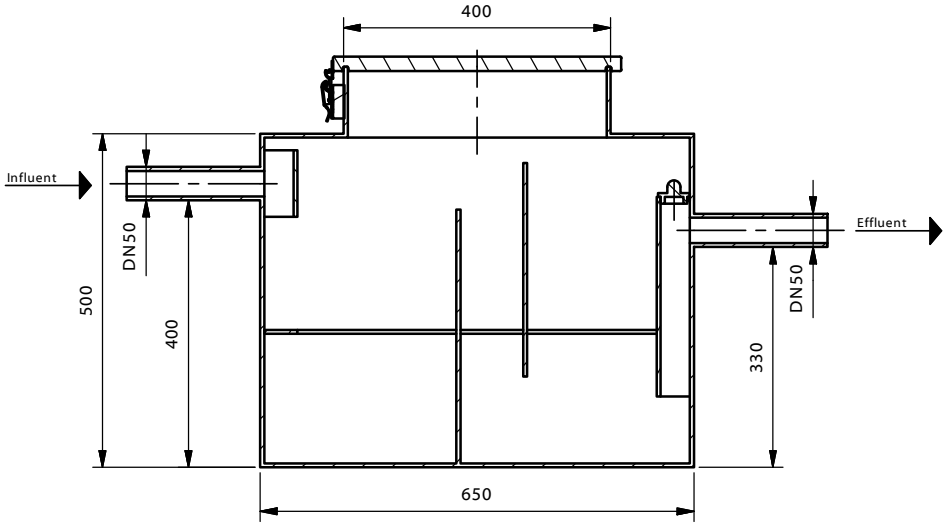
Parameters necessary to select equipment size:
1. Establishing cleaned water capacity, cleaning output NG (l/s). (depending on kitchen types by the attached table – see page 84.).
2. Establishing outflow (cleaned) water allowed SZOE content: Cleaned water leaving separator organic extract (SZOE) content can not be higher limiting value given in 9/2002. (III. 22.) KöM - KöViM order, and given in 204/2001 (X.26.) Cabinet order - on sewage penalties.

Sump and grease separation in equipment happens without chemicals added, only by gravitations phase separation.

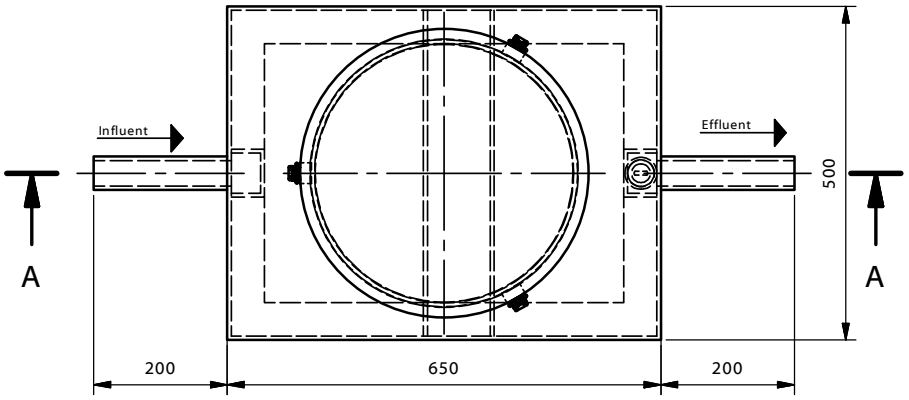
PARCO P
- capacity 0,5-8 l/s
- easy handling
- low heat loss
- high resistance against chemical reactions
- surface is easy to clean (wax-like)
- surface not require additional handling
- based on EN 1825

Name	Capacity	Length	Width	Height	Weight
PARCO 0,5-P	1 l/s	650 mm	500 mm	500 mm	15 kg
PARCO 1-P	1 l/s	1150 mm	500 mm	600 mm	25 kg
PARCO 2-P	2 l/s	1000 mm	750 mm	1150 mm	60 kg
PARCO 3-P	3 l/s	1650 mm	750 mm	1000 mm	79 kg
PARCO 4-P	4 l/s	2150 mm	750 mm	1000 mm	99 kg
PARCO 5-P	5 l/s	2500 mm	800 mm	1100 mm	150 kg
PARCO 6-P	6 l/s	2450 mm	1000 mm	1000 mm	160 kg
PARCO 7-P	7 l/s	2850 mm	1000 mm	1000 mm	183 kg
PARCO 8-P	8 l/s	3000 mm	1000 mm	1250 mm	220 kg

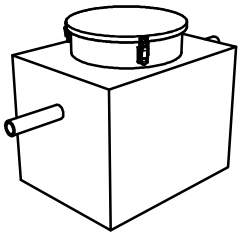
A-A (1 : 10)



Top View (1 : 10)



Parco 0,5-P
(1 : 25)



PURECO THE PURE ECO
www.pureco.hu

TYP:

PARCO-P Fat and Grease separator in rectangular plastic tank

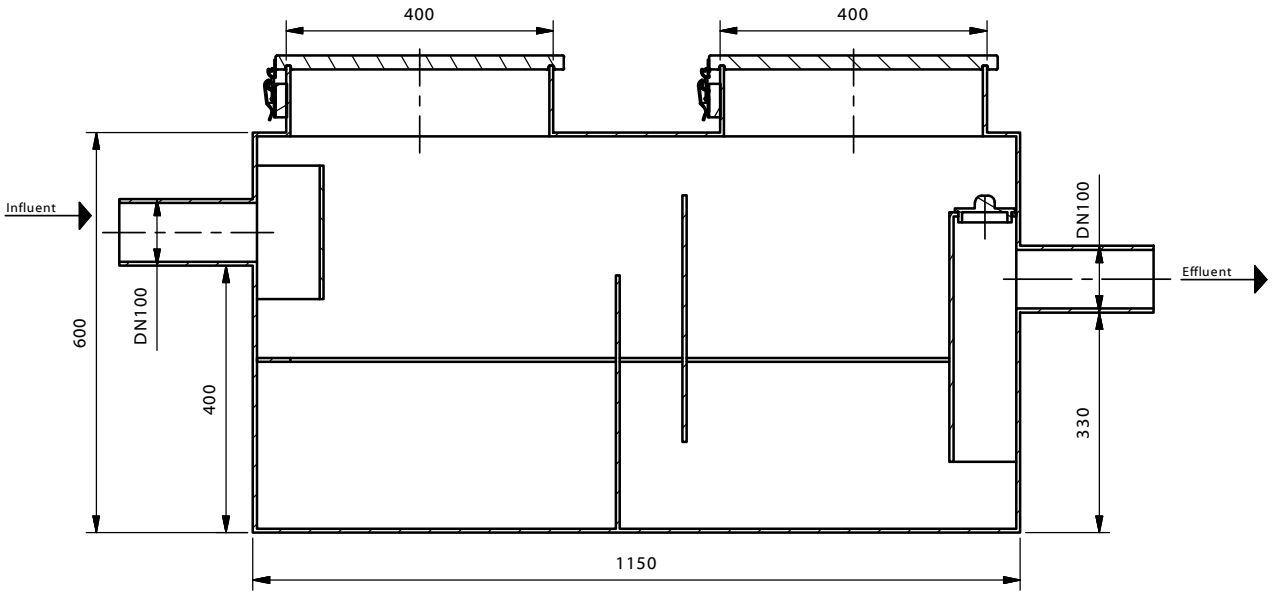
PARCO 0,5-P

Informational drawing

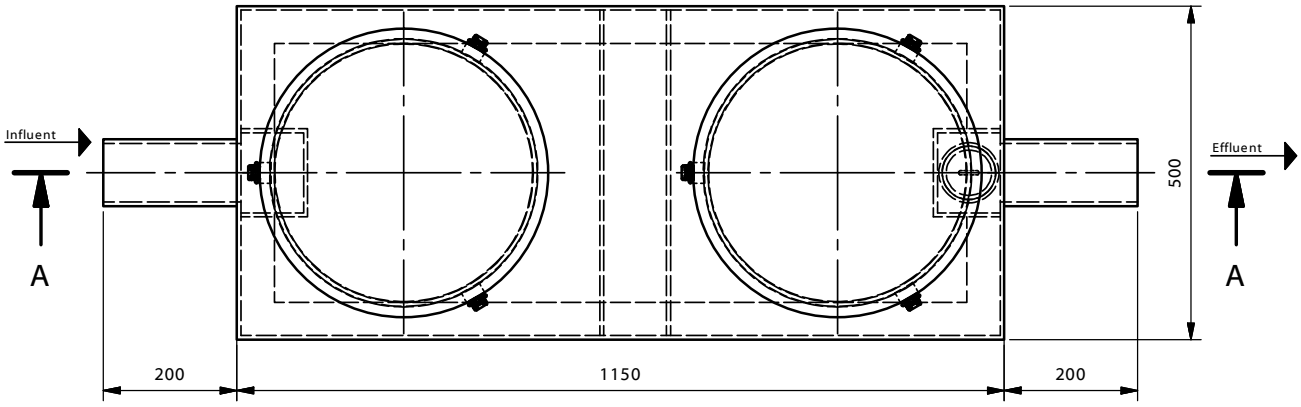
M=1:10

Capacity:	0,5	l/s
Efficiency:	50	mg/l FOG
Max element weight:	15	kg
Total weight:	15	kg

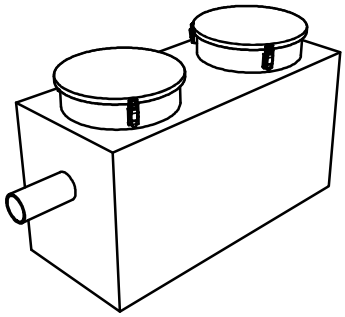
A-A (1 : 10)



Top View (1 : 10)



PARCO 1-P
(1 : 25)



PURECO
THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

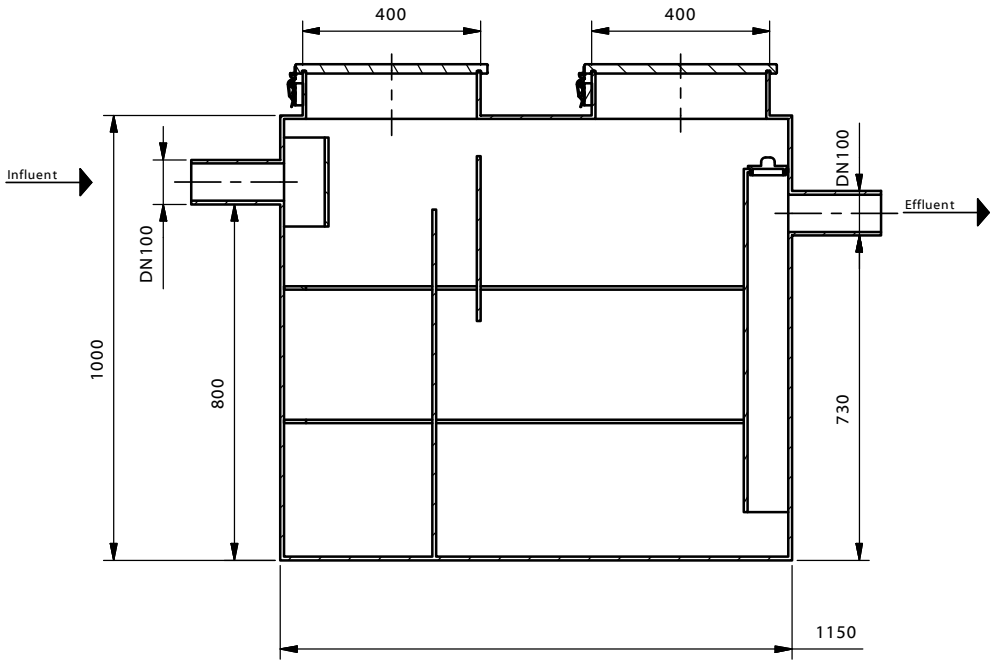
PARCO 1-P

Informational drawing

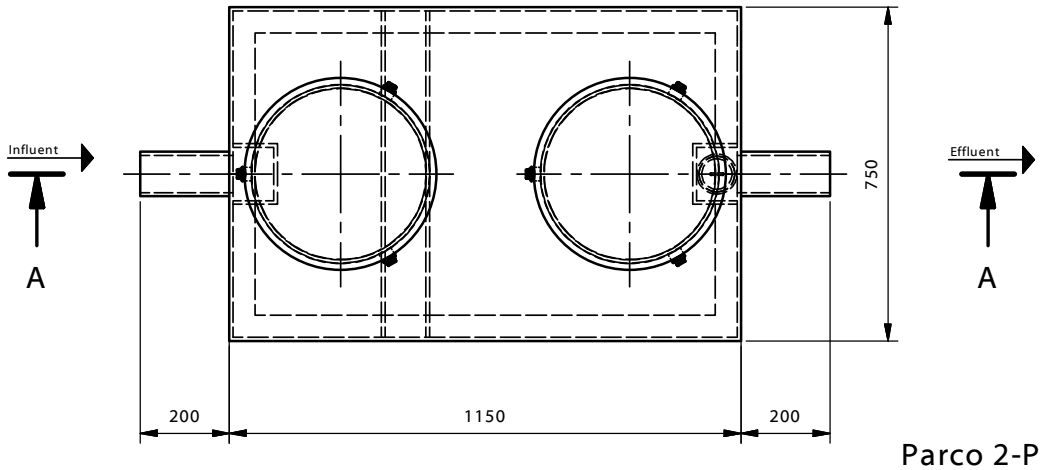
M= 1:10

Capacity:	1	l/s
Efficiency:	50	mg/l FOG
Max element weight:	25	kg
Total weight:	25	kg

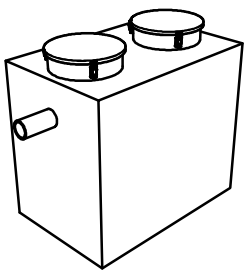
A-A (1 : 15)



Top View (1 : 15)



Parco 2-P
(1 : 40)



PURECO
THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

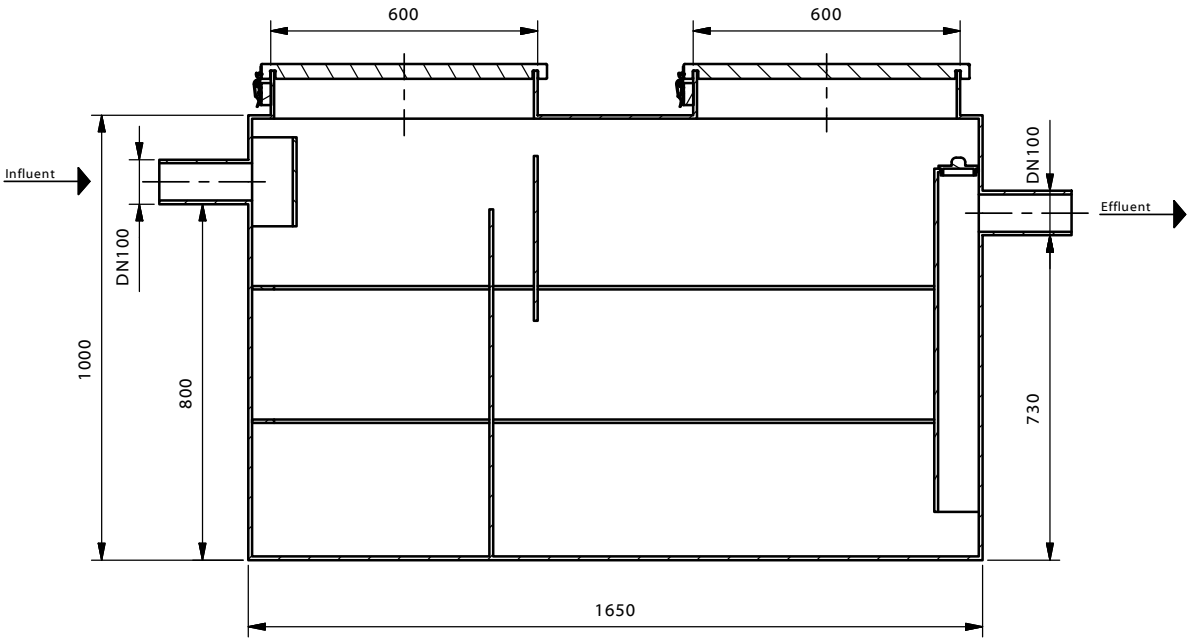
PARCO 2-P

Informational drawing

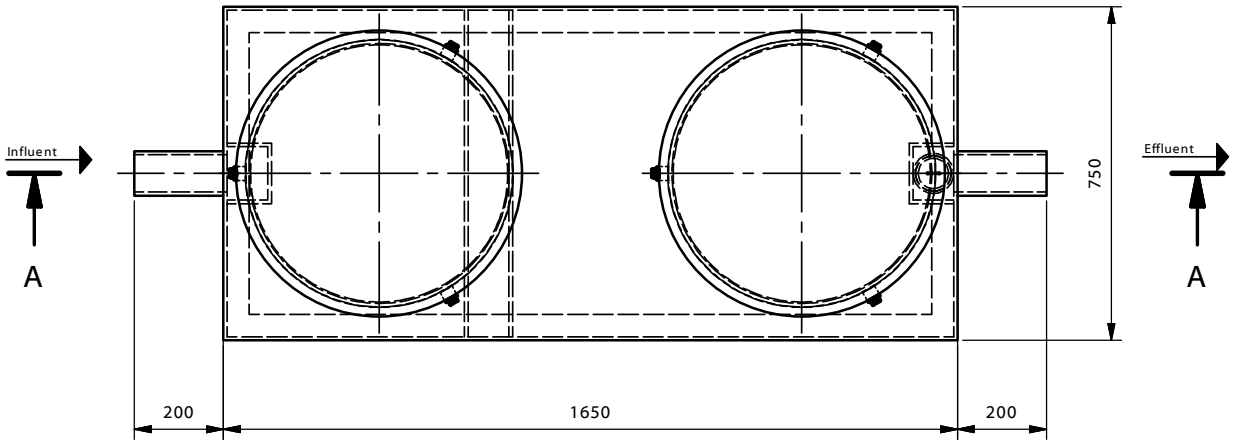
M= 1:15

Capacity:	2	l/s
Efficiency:	50	mg/l FOG
Max element weight:	60	kg
Total weight:	60	kg

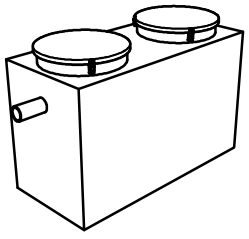
A-A (1 : 15)



Top View (1 : 15)



PARCO 3-P
(1 : 50)



PURECO
THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

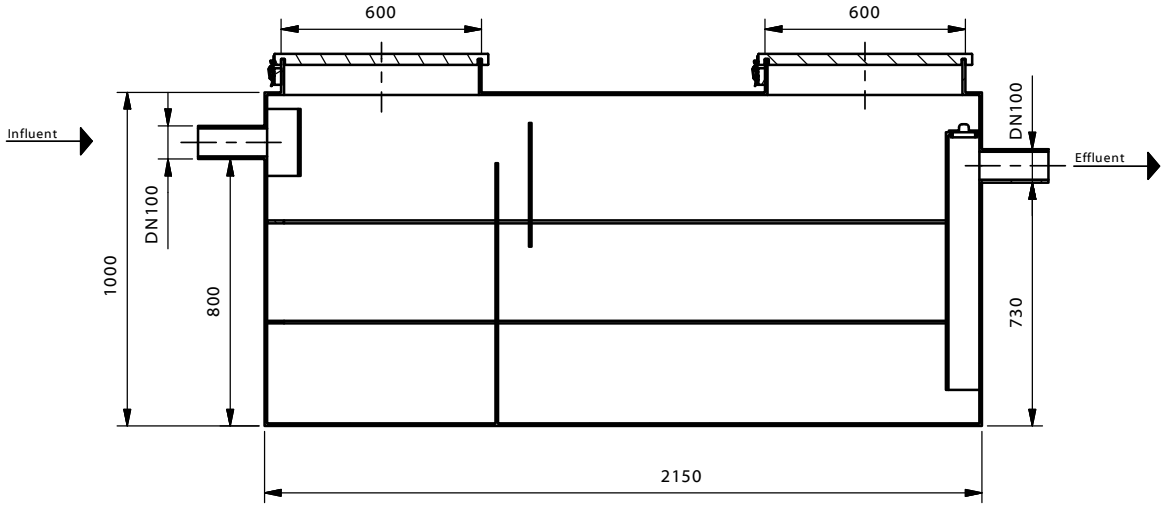
PARCO 3-P

Informational drawing

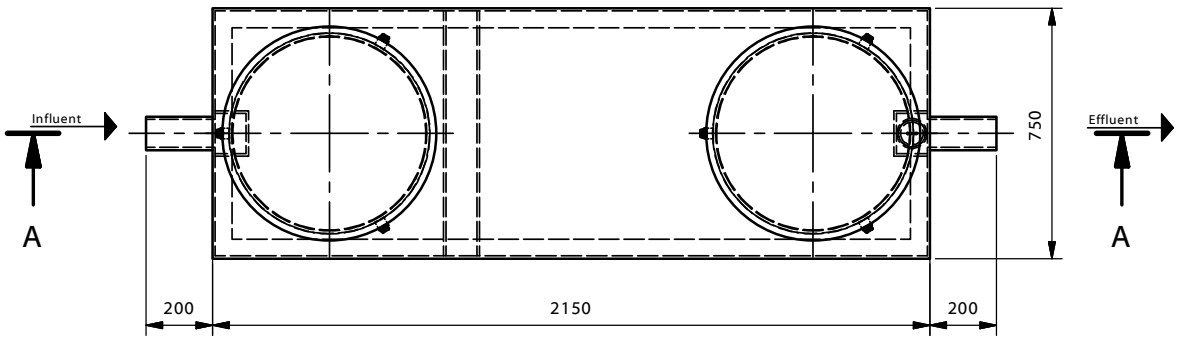
M= 1:15

Capacity:	3	l/s
Efficiency:	50	mg/l FOG
Max element weight:	79	kg
Total weight:	79	kg

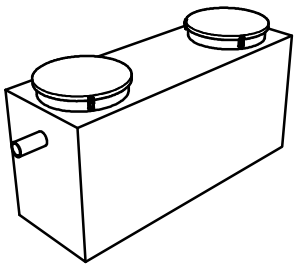
A-A (1 : 20)



Top View (1 : 20)



PARCO 4-P
(1 : 50)



PURECO
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PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

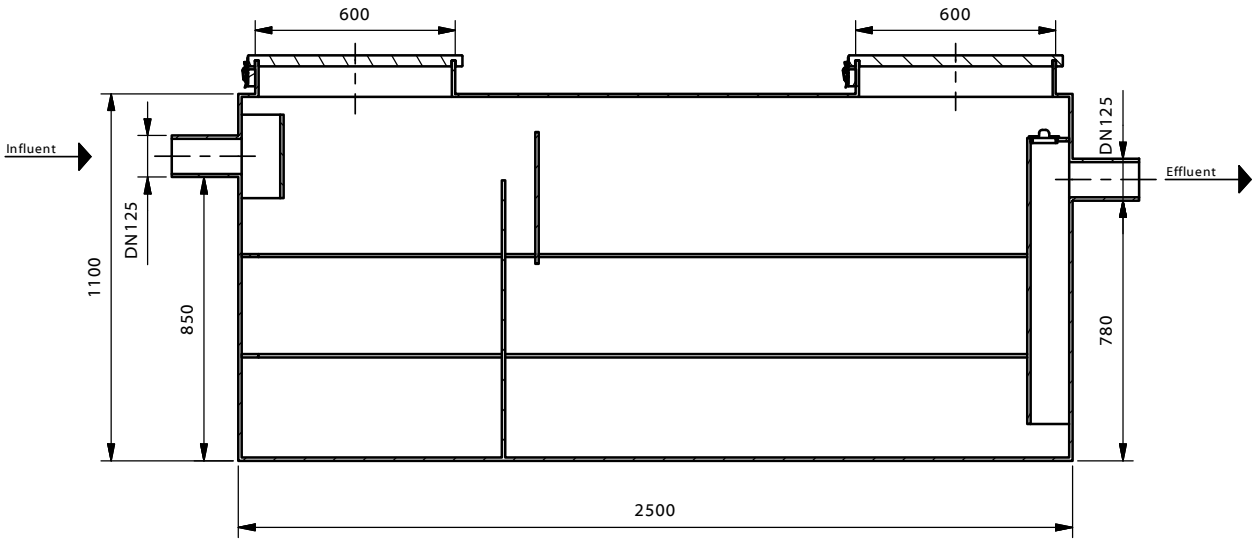
PARCO 4-P

Informational drawing

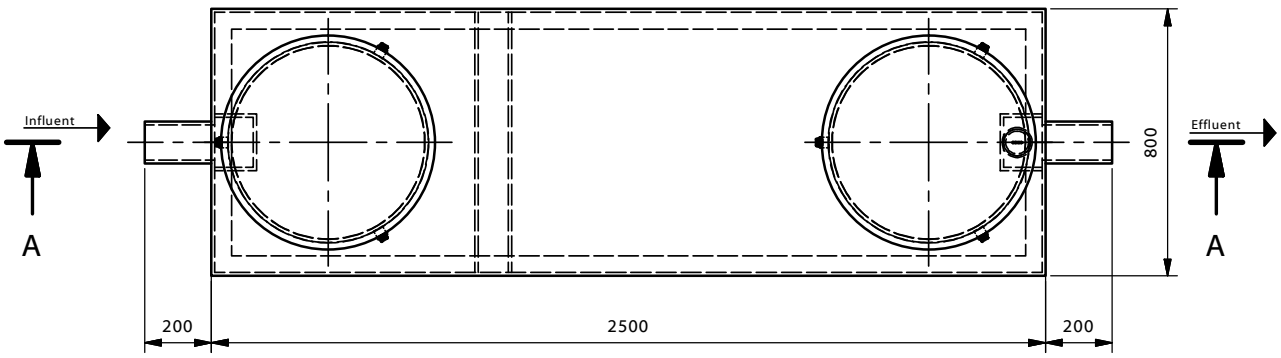
M= 1:20

Capacity:	4	l/s
Efficiency:	50	mg/l FOG
Max element weight:	99	kg
Total weight:	99	kg

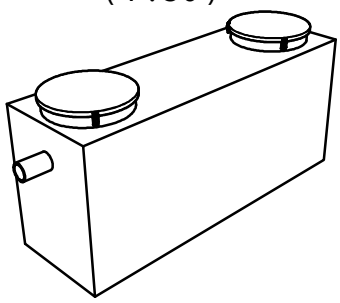
A-A (1 : 20)



Top View (1 : 20)



PARCO 5-P
(1 : 50)



PURECO THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

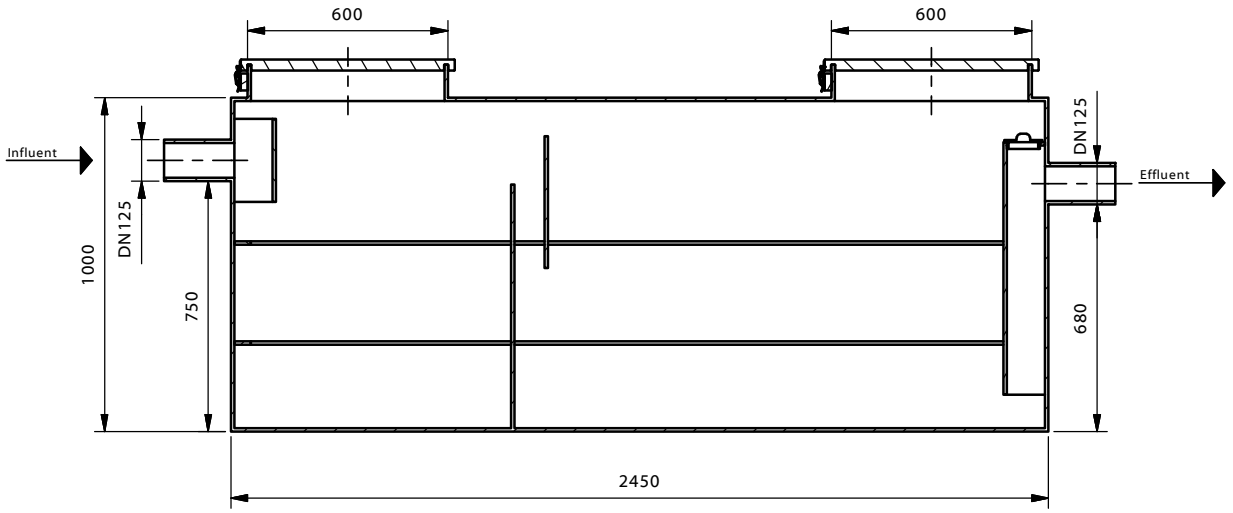
PARCO 5-P

Informational drawing

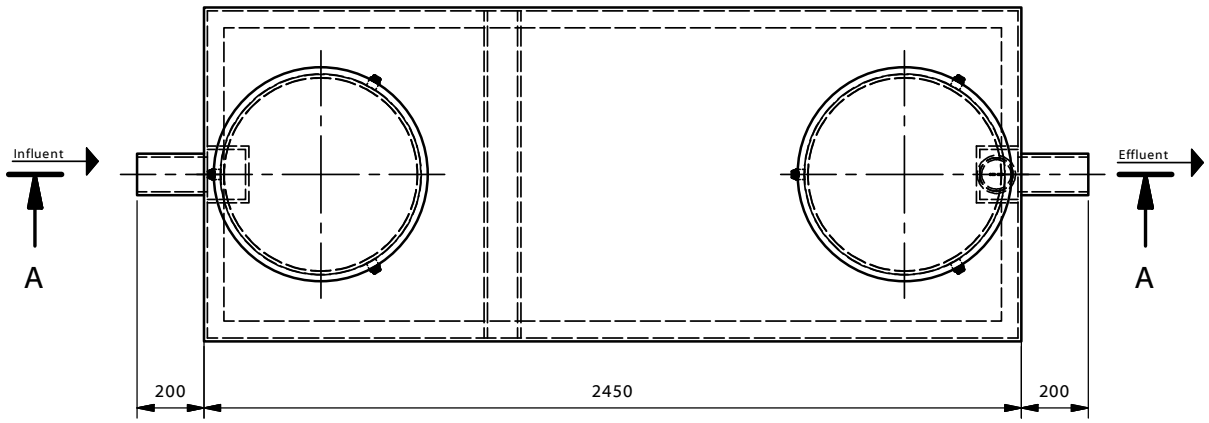
M= 1:20

Capacity:	5	l/s
Efficiency:	50	mg/l FOG
Max element weight:	150	kg
Total weight:	150	kg

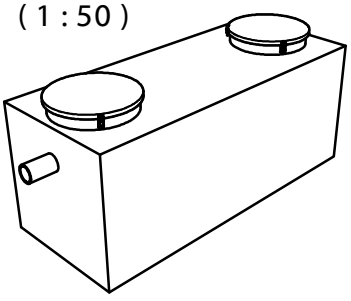
A-A (1 : 20)



Top View (1 : 20)



PARCO 6-P
(1 : 50)



PURECO
THE PURE ECO
www.pureco.hu

TYP:

PARCO-P Fat and Grease separator in rectangular plastic tank

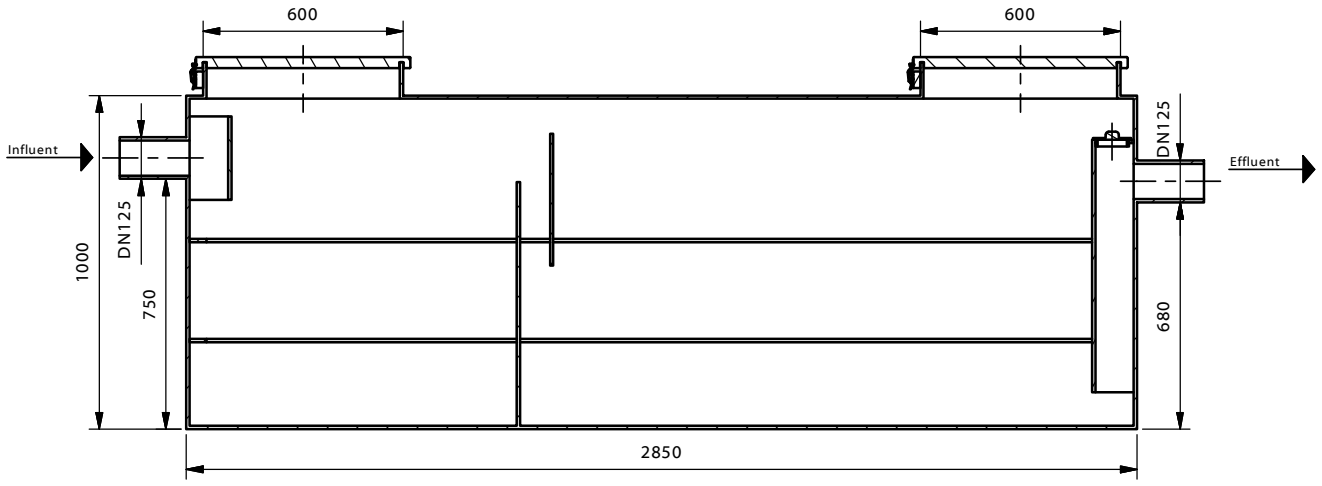
PARCO 6-P

Informational drawing

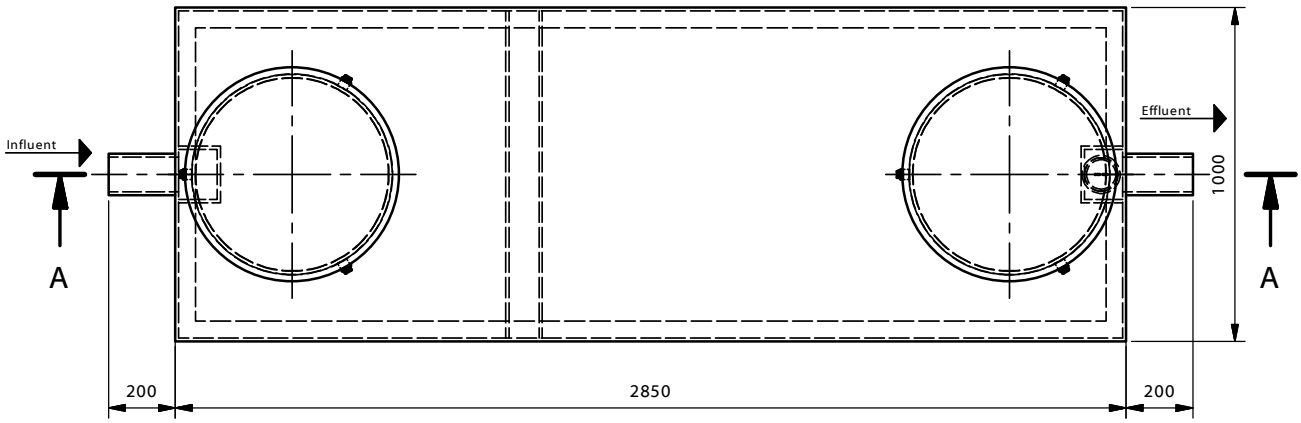
M= 1:20

Capacity:	6	l/s
Efficiency:	50	mg/l FOG
Max element weight:	160	kg
Total weight:	160	kg

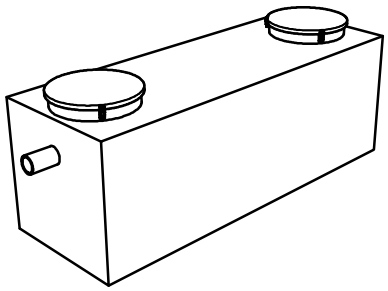
A-A (1 : 20)



Top View (1 : 20)



PARCO 7-P
(1 : 50)



PURECO
THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

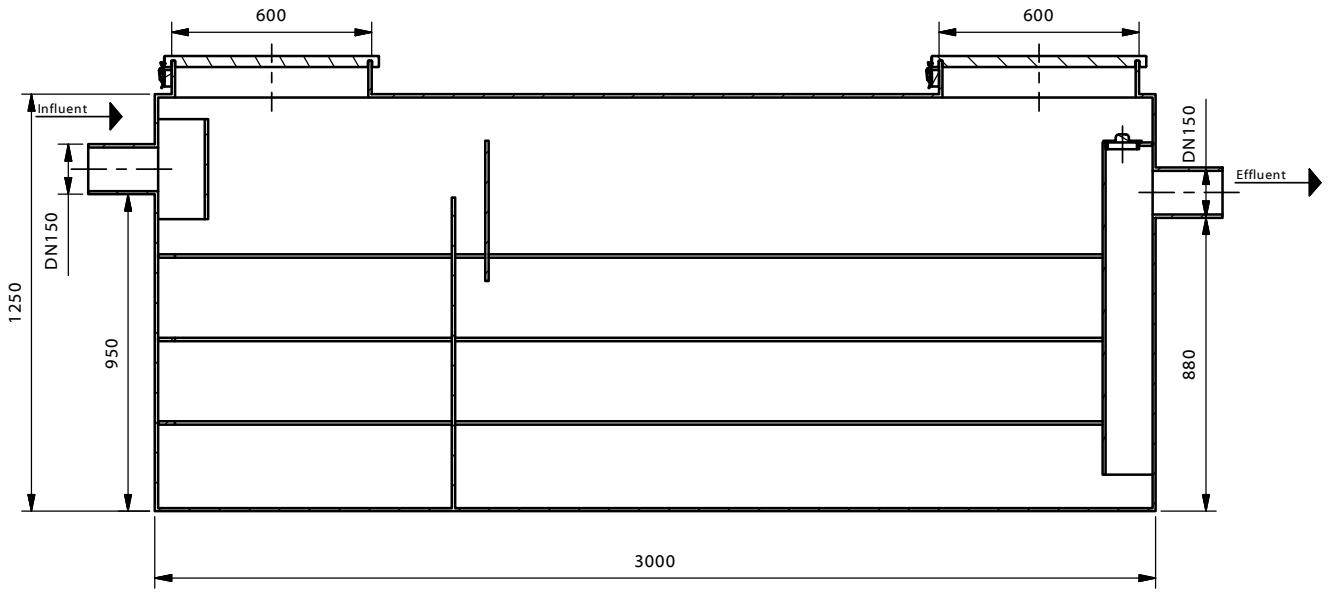
PARCO 7-P

Informational drawing

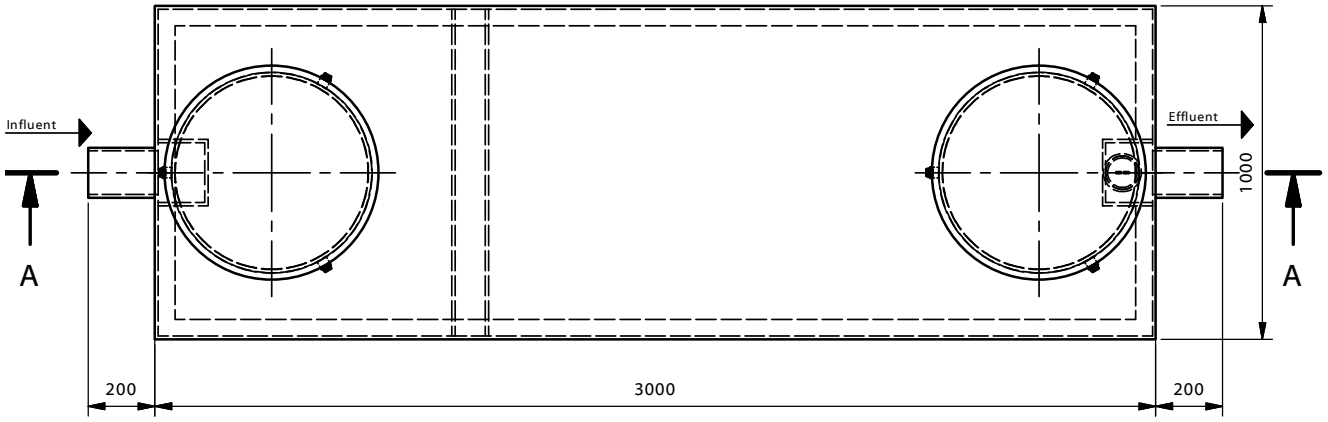
M=1:20

Capacity:	7	l/s
Efficiency:	50	mg/l FOG
Max element weight:	183	kg
Total weight:	183	kg

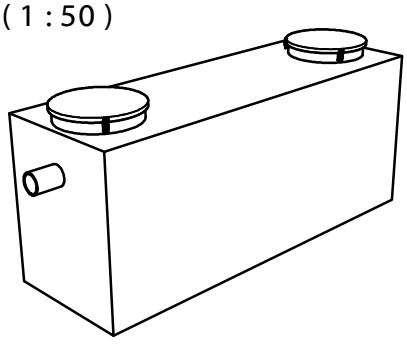
A-A (1 : 20)



Top View (1 : 20)



PARCO 8-P
(1 : 50)



PURECO
THE PURE ECO
www.pureco.hu

PARCO-P Fat and Grease separator in rectangular plastic tank

TYP:

PARCO 8-P

Informational drawing

M= 1:20

Capacity:	8	l/s
Efficiency:	50	mg/l FOG
Max element weight:	220	kg
Total weight:	220	kg

USER GUIDE – ENVIA PARCO P

I. PREPARATIONS ON SITE

Excavation of working pit:

- Effective size, width/length is the outline measurement of the equipment + roughly 30-40 cm, considering projecting pipes of the equipment, craning conditions respectively compacting conditions.
- Depth: thickness of receiving base and the overall height of equipment (storage tank, neckpiece, cover plate; crowning height at vehicle loads)

It is not allowed to place the equipment directly into the working pit; receiving base should be built in accordance with soil conditions: depending on local soil conditions roughly 8 cm thick concrete base (C6 quality) and 2-3 cm leveling sand ballast.

If prepared base would be contaminated it should be cleaned before installation.

Before lifting operations it is inevitable to check completeness and flawless condition of delivered tanks and their mechanical units; damages/deviations should also be reported to the manufacturer, and the same time it should be indicated on the construction checklist.

Please note, that maximum 0,5 m earth covering can be filled back on top of equipment. If the tank be installed in deeper position, or it would be positioned under vehicle/traffic load, a load-distributing concrete slab is needed. Please, coordinate positioning/load conditions with manufacturer in all cases in advance, also it should be indicated if anchoring to prevent floating-up should be provided!

II. LOCATION OF THE EQUIPMENT, PUTTING INTO OPERATION

Tanks/separators can be put into the working pit by manpower, or by smaller lifting crane, also with adequate load-bearing capacity textile lash/strap! It is forbidden to move tanks with looped wire-cables without adequate protection of edges! Special care has to be taken to prevent equipment of sliding or swaying from lash/strap when hanging.

It is indicated on tanks which is the ingoing and outgoing side, respectively in case of multiple tanks the process/installation order. Lifting in place should be carried out in accordance with those indications.

Tanks may be connected to each other and to the sewage system by double-siding socket, respectively by special rubber collar.

It is recommended to close ends of pipes in some way, if the equipment would be connected later to sewage network, in order to avoid mud getting into the unit.

Before filling back the soil into work-pit water-tightness test should be carried out in order to check connections. After that filling back of soil may be done by engineer's recommendations. During works tank should be filled with clean water in multiple stages - according to backfill stratification and compacting.

If soil filling back have been completed cast iron manhole covers should be leveled, and frame of covers be fixed by concrete. Moving joint should be created between neckpiece and concrete.

Equipment should be constructed taking above information into consideration!

Before putting into operation tanks should be cleaned from casually infiltrated dirt/mud, in case of oil separators the lifting/pulling cable of float-valve should be fitted on the neckpiece, please check weather filter(s) may be removed! After that the equipment should be filled up with clear water up to the level of outgoing pipe bottom level.

III. SAFETY AT WORK AND HEALTH PROTECTION REGULATIONS

Before commencement of works responsible technical manager should inform employees on legal prescriptions, detailed safety at work and health precautions, pertaining to actual work-process. Works should be carried out in accordance with weather/climatic conditions and environmental circumstances, also taking into considerations technical specifications written in documents of related objects.

Before commencement of works condition of tools should be checked, work may only be carried out by adequately trained personnel, under continuous supervision and control.

During craning works general safety at work prescriptions pertaining to weight-lifting and weight-transportation, standing under crane effective radius or under suspended weight is STRICTLY FORBIDDEN!! Lifting should be directed by a responsible manager or crane-hook operator, the weight may be lifted and other operations carried out only after his signaling.

It is FORBIDDEN to stand on reinforced concrete units during lifting!

Protective gloves and helmet should be used during works.

Works should be carried out obeying relevant safety at work prescriptions!

Please return to us the Construction Checklist Form filled up by the Contractor/Client. For lack of that manufacturer may refuse demands for guarantee.

If you would have any questions please call our experts.

Pumping Stations

Standard (domestic from plastic)

Custom (municipal from concrete)

PUMPING STATION:

The PURECO pumping stations are professional custom equipments for storm- and wastewater forwarding. Our pumping pits are not standardized, they are customized for the specific application, the on-site conditions and needs of the customer.

What we offer:
- Pump selection, sizing,
- Shaft-selecting, sizing,
- All around designing,
- Construction, commissioning based on existing plans
- Maintenance

Pit materials:
- Reinforced concrete (prefabricated or in situ monolithic structure)
- Plastic (polypropylene, polyethylene)

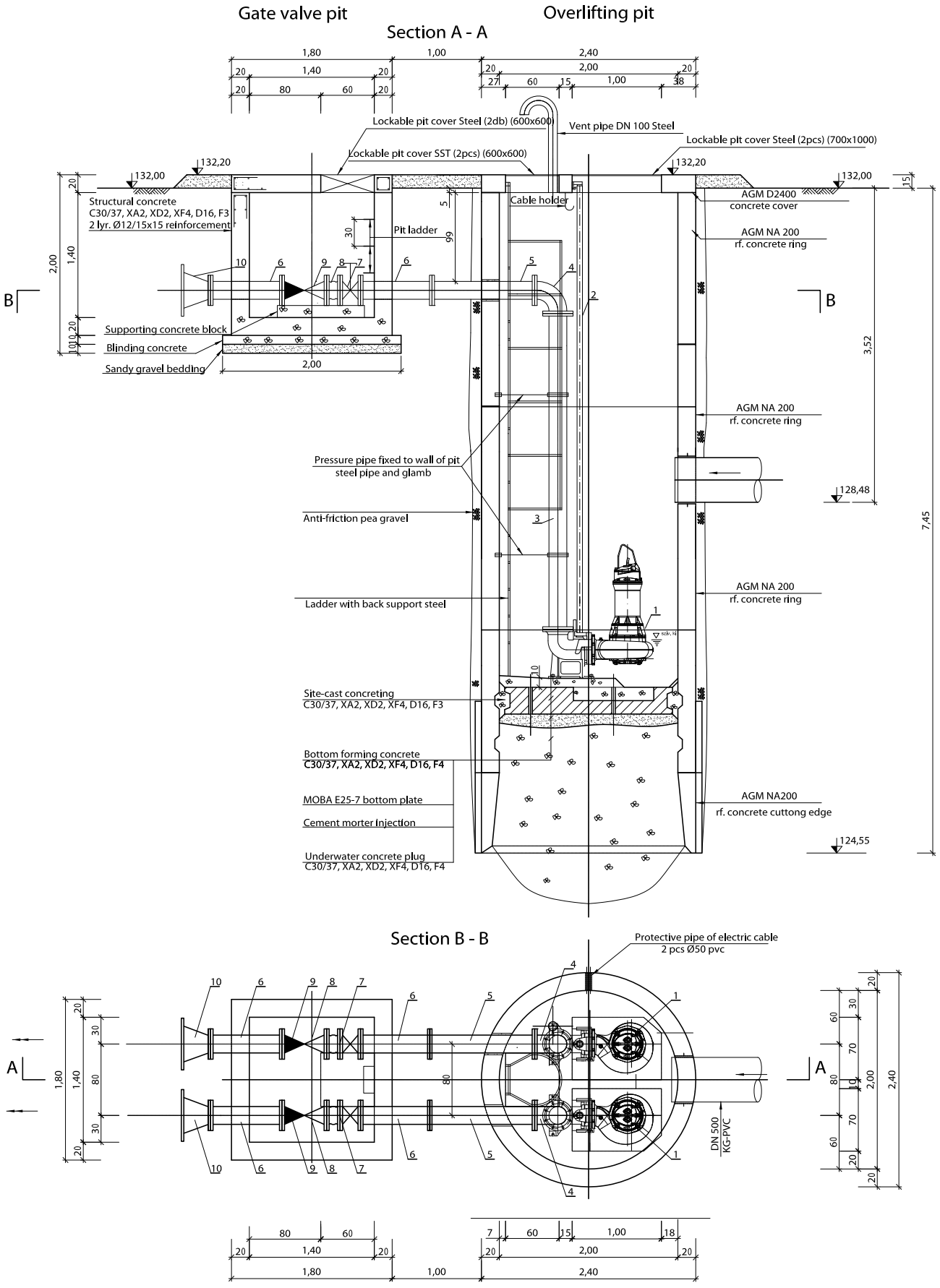
Pumps:
- ABS, Flygt, Grundfos, Jung, Wilo, or suitable types of other manufacturers on request.

PARTS LIST

No	Pc	Name	Diameter	Length	Material	Remark
1	2	Pump			Cast iron	ABS XFP201G-CB2.3PE110/6
2	2	Pump suction pipe	2"	~5000	KO	
3	2	Connecting piece	DN 200	~ 3640	KO	local size
4	2	Q piece	DN 200		KO	
5	2	FF piece	DN 200	1200	KO	
6	4	FF piece	DN 200	600	KO	
7	6	Gate valve	DN 200		Cast iron	
8	2	Check valve	DN 200		Cast iron	
9	2	Rubber compensator	DN 200		NBR	
10	2	FFR piece	DN 200 / DN 400		Cast iron	

Remark

-Breakthroughs for pressure pipe on pitwall shall be sealed with SIKAFLEX-15 LM flexible sealing material


Gate valve pit
Overlifting pit
Section A - A
Lockable pit cover Steel (2db) (600x600)
Vent pipe DN 100 Steel
Lockable pit cover Steel (2pcs) (700x1000)
Lockable pit cover SST (2pcs) (600x600)
132,20
132,00
Structural concrete
C30/37, XA2, XD2, XF4, D16, F3
2 lyr. Ø12/15x15 reinforcement
Cable holder
AGM D2400
concrete cover
Pit ladder
AGM NA 200
rf. concrete ring
Supporting concrete block
Blinding concrete
Sandy gravel bedding
Pressure pipe fixed to wall of pit
steel pipe and glamb
Anti-friction pea gravel
Ladder with back support steel
Site-cast concreting
C30/37, XA2, XD2, XF4, D16, F3
Bottom forming concrete
C30/37, XA2, XD2, XF4, D16, F4
MOBA E25-7 bottom plate
Cement morter injection
Underwater concrete plug
C30/37, XA2, XD2, XF4, D16, F4
AGM NA200
rf. concrete cuttong edge
128,48
124,55
3,52
7,45
Section B - B
Protective pipe of electric cable
2 pcs Ø50 pvc
DN 500
KG-PVC

GENERAL INSTRUCTION MANUAL – PUMPING STATION

1. Technical specifications, technical data

Prefabricated reinforced concrete pit, and service pit prepared on site
in adequate size and capacity in accordance with built in pump switch volume and also for local circumstances – inflow and outflow level – with stainless steel manhole cover and cover slab in accordance with traffic load on site - 15kN load bearing capacity.

Outdoor sewage-pump machinery
Installed into the prefabricated reinforced concrete pump-pit, respectively – into pit built on site. Machinery consist of 2 pieces of under-water pump, with connecting sole-plate, pressure pipe, lifting chain, lead pipe, and a pipe network consisting of a DN 100 gate valve, ball flap valve and a connector pipe connecting pumps to installation set and pressure pipe by each pump. It also contains a discharge branch equipped with a DN100 gate valve.

Outdoor sewage-pump controlling
Controller unit of sewage pump is installed in a lockable, outdoor workout metal switchboard chest. Switching and controlling unit (pumps with direct start, motor-protecting switch, motor-current meter, work-hour counter, float switch controlled automatics and hazard-level signal), it is completed with 3 pieces of float-valve. Protections built into the pumps can be connected to controlling (inner thermal protection, leakage supervision).

Operation of controls
During normal operations the 2 pumps operate alternately, in case of dropout only one of them is capable to handle maximum load. Automatic selection of operating pump is applied. If higher current-volume workload would occur than a single pump maximum output capacity then both pump are able to work simultaneously, ensuring avoidance of emergency.

Technical data

Sewage pump pit		
Inner diameter:	1,59	m
Effective depth:	4,78	m
Load bearing capacity of cover-slab:	125	kN
Load bearing capacity of manhole cover:	15	kN
Pump		
Type:	XFP 100C-CB1.3 PE22/4	
Discharge connector:	DN 100	
Motor		
Feed:	400/50	V/Hz
Terminal block input:	2,53	KW
Shaft power:	2,2	KW
Current draw:	4,56	A

2. Handling Instructions

General prescriptions
Product guarantee law requires us to call your attention to the following risks resulting of non-normal operation conditions, in order to protect your interest:

- Operating personnel should read present instruction manual fully before installation and putting into operation of the unit.
- Operating personnel be responsible for obeying operational and safety instructions given in present manual.
- Present manual does not detail general safety at work and operational safety regulations, that is also the responsibility of operating personnel.
- Trouble free operation may only be ensured if operation and maintenance is done by mechanical and electricians prescriptions.
- Given unit can only be operated among parameters given on the tag fitted to the equipment and also in the letter, confirming the order.

- If you would have any questions not answered in present manual, please turn to us.
- Depending on operational conditions (wear, corrosion, aging) life cycle and parameters of units are limited. It is the duty of the operator to carry out regular check-up and maintenance, to replace actual parts in adequate time or renew, resulting longer life-cycle by safe operating conditions for the whole equipment. In case of operation other than usual workload or recognised malfunction use of equipment should be terminated at once.
- Those machinery units, which dropout or malfunction may cause personal injury or damage in property are equipped by alarm signal and/or spare unit, their working potential and availability should be checked regularly.
- Hydraulics compartment of pumps is filled with oil, consequently the equipment can not be used where direct contact is given with potable water.
- If prescriptions given in present manual are ignored can cause malfunctioning of overload, consequently actual personal injuries and damages in property.
- Supplier undertakes guarantee only if prescriptions are obeyed completely.
- If equipment is handed over to third party it is necessary to transfer operating conditions given in present manual and in confirmation of order, also to specify working parameters.

Application prescriptions

- Pumps are basically capable to convey max. 40 °C temperature rainwater, with the condition of being non-aggressive to steel, (except for cast iron workout).
- Pumps are not self-sucking types, by switch-in the impeller should be in submerged position, that means that the pump should be dipped into the fluid, or inlet should be ensured across a suck-pipe.
- Water level above pump should be adequate high in order to avoid cavitation.
- Air intake and turbulence should be avoided.
- Pumps are not applicable for transport of explosion-hazardous liquids or mixtures.
- If pumps are utilised in explosion-hazardous environment, then a type equipped with explosion-proof motor should be installed.
- Maximum 15 switch-in and off cycle is allowed per hour.
- Minimum 0,6 m/s current/flow should be ensured in pipe network.
- Special working conditions, that are met with special types of pumps are given in catalogue separately.

Electrician handling instructions

Electric protection of switchboard is IP 55, material is painted metal, it can withstand weather conditions. Door should be closed after each work-phase in order to avoid unfavourable consequences. All controller gauge and operating switch is located under closed door.

Equipment may be put under voltage across a circuit separating switch.
Working mode selector switches can be set to manual or automatic operation. Manual operation the float switches are not used, therefore that can be used only for controlling or service purposes. Working mode selector switch set to 0 setting means off position.

Under automatic operation pump(s) are switched on- or off by float-switches. 3 pieces of float-switches built into pump-pits fulfil the following functions:

- switch off of pump(s) under lower level,
- switch on of first pump reaching level,
- switch on of second pump reaching top level,
- repeated switch on and failure signal reaching upper danger level.

Operational control happens across low-voltage system (24 V AC). Since required quantity can be pumped by a single pump, only one works under normal workload. In case of malfunctions, when the actual pump drops out, or the float-switch or low voltage transformer malfunctions, then safety control steeps in. During that kind of operation hysteresis (switching difference) between lower and upper levels are ensured by the own hysteresis of float switch. That is much smaller, than the difference between operational on- and off switching levels, causing more frequent switching.

Reaching upper level potential-independent contactor serves to be used for actual remote signalling or alarm. Contactor closes in case of motor-protection of one of the pumps has been released due to overload or short-circuit.
Selection of operating pump is automatic, ensuring even work-load to both pumps. Total operational time of pumps are indicated by built-in working hour counters.

Motor current measuring devices give adequate information on operation of pumps. By their help certain malfunctions (e.g. clogging) can be avoided with high probability.

3. Troubleshooting/failure search

1) Motor does not start

Fuse burns out or motor-protecting switch is released at once. Starting can not be repeated!

- Cut-off of feed cable, short-circuit, earth-lock in conduit or in coil
- Cables and motor should be checked by a electrician professional, error corrected.

- Bad fuse burnt out
- Replacement according to tag fixed to equipment.

- Impeller blocked by a foreign body.
- Impeller should be made free.

- Automatic float-switch should be checked.

2) Unit runs, but after a short while motor-protecting switch off.

- Thermal protection is set too low.
- Setting should be checked by a professional and set according to tag fixed to equipment.

- In case of higher current consumption by voltage drop (longer cable)
- Voltage be measured between phases of motor. Allowed difference + 5 %.

- Higher current consumption in case of two-phase run
- Voltage of all 3 phases to be measured. If they are not equal, fuses and connections be checked, replaced if needed.

- Impeller held back by foreign body.
- Excess current consumption in all 3 phases.
- Pump must be cleaned.

3) Unit runs, but pumping gain and electric consumption is low

- Impeller and direction of rotation should be checked.

4) Unit runs, but pump does not transfer

- Pump should be de-aerated.

If malfunctioning can not be corrected, it is advised to ask for help from the manufacturer, respectively to send pump into manufacturer workshop. Repair or servicing of pumps outside of manufacturer workshop may be done only for own responsibility, that makes manufacturer guarantee claims void.

4. Maintenance instructions

The following controls and maintenance process should be carried out to sewage:

In case of any maintenance works main switch should be in off position. If operation of any pump can not be avoided, then switch of pump being under maintenance should set to 0 setting and motor-protecting switch in off position.

Weekly

Current consumption may be checked by short hand-operation start of pumps

In case of pumps equipped by fittings it is important to avoid that pump should suck-in air, because in that case transportation of liquid stops. If this could, pump should be lifted a bit during operation, to let air our from impeller.

Monthly

- Terminal blocks bolts should be checked in control panel, in case bolts should be fastened. Control panel needs no further maintenance.
- In case of float-switch control cleaning of float-switches from sediment contamination (grease, fibrous material, etc.)
- In case of pneumo-static level control check formation of even bubbles.

Semi-annually

- a) gate valve checked, opened and closed
- b) flap valve checked (valve should give a clicking noise after stop). After stopping of pump no flow-back can happen.
- Checkups of pump (impeller, hydraulic chamber, oil, sealing).
- Checkups of corrosion

Yearly

In case of normal operations once a year general maintenance should be carried out on pumps. In case of sewage/water hard polluted or containing sand general maintenance should be carried out more frequently.
Maintenance of pumps should be done as by attached pump operations manual.

Proposed to keep up an operational record, in which working hours, electric consumption and regular checkups and maintenance works are recorded.
Take note that our service is available, ensuring maintenance works for favourable prices.

5. Safety and environment-protection prescriptions

General safety at works and fire-protection prescriptions should be obeyed in sewage-pumping works area. Present manual does not contain local prescriptions. It is the responsibility of operator and maintenance staff.

Electric connection, maintenance can only be done by professional, according to prescriptions being in force.

Pump may be switched on only in built in state.

It is forbidden to stay within the effective radius of moving parts! In some given cases pump is delivered by free impeller.

It is forbidden to stay within the effective radius of parts being under electric current or pressure! Before operation all fill-in, outflow and de-aerating opening should be checked whether they are closed as prescriptions require.

Work on pumps may be done only after complete de-powering and after the rotating parts have been stopped. Chance of accidental switch-in should be excluded in advance.

Oil being in sealant compartment and motor chamber can be under pressure. Infill and outflow openings can only be opened with special care and very slowly. Removal of closing bolts can be done only after complete de-pressurization.

In case of actual oil replacement used oil should be neutralized according to environment-protection prescriptions being in force.

In case of malfunction (e.g.: motor does not start, fuse burnt out, motor-protection released, etc.) re-starting of pump is not allowed, because it can cause overheating/overload of the motor. Cause of malfunction should be corrected before.

Sewage pump can handle only water or communal sewage with parameters in accordance with measurement data. If water would contain other contaminants (e.g. oil, chemicals, solvents), it can be led to pump after preliminary cleaning.

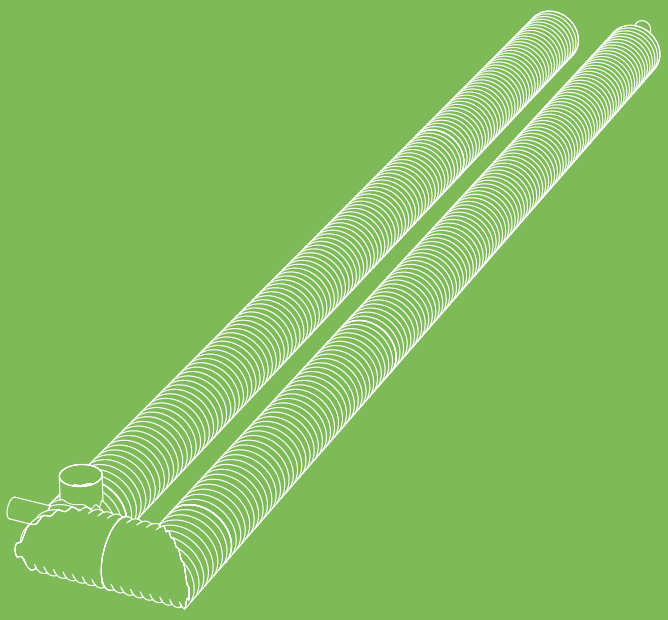
5. Guarantee

- Guarantee is undertaken in accordance with our general supply conditions.
- Maintenance works during guarantee period can be done by the supplier, or the service nominated by the supplier in writing, in other cases guarantee is void.
- Long term guarantee be valid only for the utilized material. Guarantee is not valid for parts under natural wear, such as impeller, seal of shaft, shaft, bearing, distancer- and wear-ring, etc.
- Guarantee claims can only be validated if operated among given working parameters.

Infiltration

TWINSTORE

Infiltration Boxes



PURECO / TWINSTORE

INFILTRATION – TWINSTORE

What is Twinstore?

Twinstore is a patented system of stormwater attenuation which offers even further benefits over conventional systems such as thermoplastic chambers. Developed in 2008, it is completely versatile and widely specified in the UK and Ireland as a means of reducing the tank footprint and cost.

How does Twinstore work?

Twinstore uses a manifold of lightweight, helically wound galvanised steel pipes in any diameter from 0.3 to 3.6 metres installed below the surface in a lined bed of granular material.

Instead of being sealed by PURECO's watertight gaskets to create a controlled discharge tank, the pipe ends allow water to pass out into the granular fill. It balances water freely between the pipes and the backfill contained within an impermeable membrane.

By balancing the ratio of 100% void tanks to granular fill (typically 40% void), Twinstore reduces the volume and cost of the pipe system – the critical factor in any specification.

The bed of granular fill is lined with either an impermeable membrane or a geotextile liner, according to local conditions and requirements. Bentonite is particularly suitable with Twinstore, as it seals on wetting. Furthermore, the water is cleaned as it passes through the granular fill. Like any PURECO stormwater attenuation tank, Twinstore can be fabricated to an infinite variety of layouts, unlike concrete chambers or cellular systems which are limited by size and shape.

Reduced footprint – reduced cost

Twinstore's patented system increases the gross volume of storage with a footprint that is comparable to cellular systems.

Easy to handle and quick to install

PURECO lightweight steel tanks are delivered fully prefabricated and make handling and installation quick and simple for a small unskilled team, with no need for heavy lifting gear.

Loadbearing capability

Manufacture to HA Standard BD 12 makes PURECO's steel pipe systems supremely fit for purpose, capable of carrying temporary construction loads during construction and full motorway live loads if required.

Maintainability

Twinstore can be fitted with access shafts, ladders and inlet and outlet connections for ready inspection and maintenance, and as silt cannot escape from the pipes, it is a simple job for a gully cleaner if needed

Recyclability

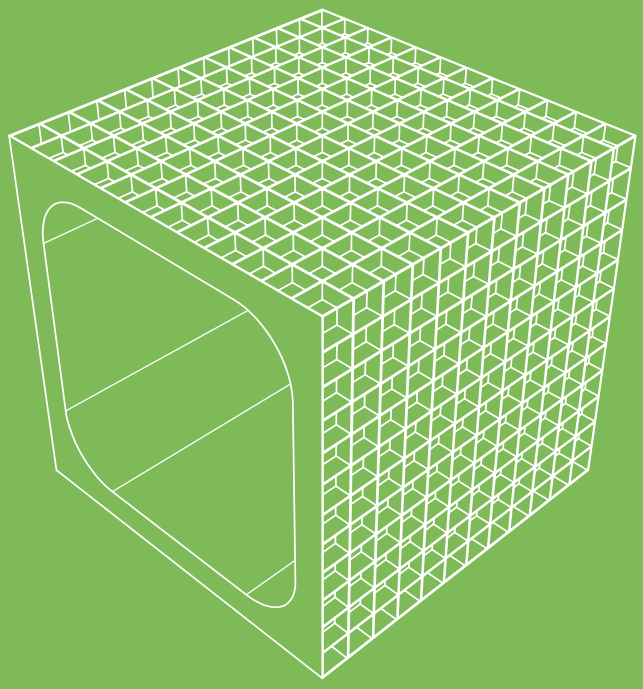
Our helibore steel pipe is manufactured from a high percentage of recycled steel and is fully recyclable, unlike cells or concrete.

Design

PURECO can provide assistance throughout the project, designing a tank layout to suit any layout and capacity according to the return period and the permissible discharge rate.

The services we provide free for any project include an outline design and drawing, cost estimate and installation instructions.

	Twinstore	Standard tank	Cells/Crates	Permeable paving
Voids	100%	100%	max 95%	max 30%
Footprint	Small	Medium	Small	Large
Versatility	Good	Good	Limited by strength	Limited by strength
Installation	Easy	Easy	Easy	Complex
Strength	High – full highway live-loads	High – full highway live-loads	Limited – live loads and dead loads	Limited - unsuitable for heavy loads
Accessibility / Maintenance	Fully accessible	Fully accessible	Not accessible	Not accessible
Cost	Low	Medium	Medium	High



PURECO / INFILTRATION BOXES

INFILTRATION BOXES

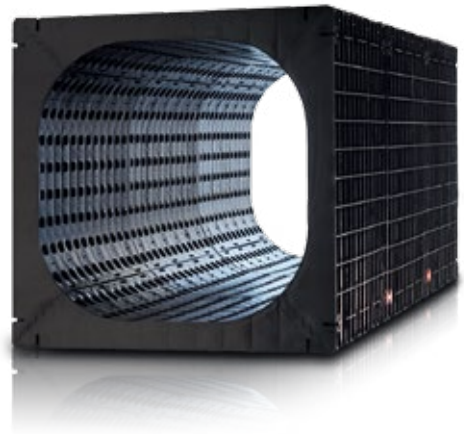
Infiltration systems

	Volume / Capacity	Dimensions mm	Material	Weight
Controlbox	216 liter	600 x 600 x 600	Polymer Concrete	55 kg/m³
X-box	216 liter	200-600 x 600 x 600	Polymer Concrete	50 kg/m³
X-box Green	216 liter	200-600 x 600 x 600	Polymer Concrete	50 kg/m³
Permafilter Biomat	38 liter	354 x 150 x 708	Polymer Concrete	80 kg/m³
Permachannel	DN150	150 x 210 x 1000	Polymer Concrete	29 kg/m
VIVO channel	DN250	336 x 397 x 500/1000	material, mineral filler, additives, reinforced by Glass fibres Grating cast iron/A 15 to E 600	Channel body 27 Substrate 79 Iron grating 41,2
VIVO Stone Flex	-	600 x 300 x 100	Polymer Concrete	34 kg/m²
VIVO Stone Heavy Traffic	-	1000 x 1000 x 300	Steel construction	79 kg/m²
Protect	The Protect system constantly determines the infiltration capability of the infiltration ditches and transmits the data to a central server.			
PowerRain	The rain water manager PowerRain E is the heart of every rain water utilization system.			

Substrate technologies

	Usage	Material	K_f
Biocalith MR	Biotic and abiotic sorption, groundwater protection	Quartz-pebble-mineral mix Adapted calcium and magnesium carbonates Nitrogen - coupled enabled minerals Porous minerals Phosphate-binding minerals	7,0 x 10-5 m/sec 3,4 x 10-3 m/sec
Heavy Metal Adsorption Filter Shaft EASF	Heavy metal adsorption filter	High-performance heavy metal adsorption substrate ENREGIS/ Biocalith K	2,8 x 10-3 m/sec

ENREGIS / SYSTEM-CONTROLBOX®



An infiltration system sets new standards

– safe and flexible!

A great progress has been made in recent years with regards to rainwater retention and infiltration systems.

The team of ENREGIS works incessantly on the transfer of the gained knowledge. The ENREGIS/System-Controlbox has been developed especially for the use in large-scale dimensioned applications. In order to make a thorough inspection possible, the system provides a 500 mm inspection and cleaning channel. This feature and the nearly cubic construction form predestine it for applications as line-drainage. Furthermore, installation efforts are minimized by the huge storage capacity and easy handling. The assembling of the ENREGIS/Controlbox M/L can easily be done by one person, also in bigger quantities.

Additionally, the ENREGIS/System-Controlbox features as program of well structured accessories which are adapted to respective purposes of the particular application leads to a further reduction of costs in material and enables the planner to design up date infiltration and retention systems.

This leads to a very high quality standard. In combination with an excellent designed static, it ensures meeting highest demands. This is certified by the German TÜV-Nord that examined the ENREGIS/Controlbox in complex test procedures.

ENREGIS / SYSTEM-CONTROLBOX®

Dimensions

ENREGIS/System-Controlbox – Dimensions and volumes

	M-type	L-Duo-type	L-Line type	XL-type	XXL-Line type
					
Width	600 mm	1200 mm	600 mm	1800 mm	600 mm
Height	600 mm	600 mm	600 mm	600 mm	600 mm
Depth	600 mm	600 mm	1200 mm	600 mm	2400 mm
Weight	12 kg	24 kg	24 kg	36 kg	48 kg
Capacity	216 liter	432 liter	432 liter	648 liter	864 liter

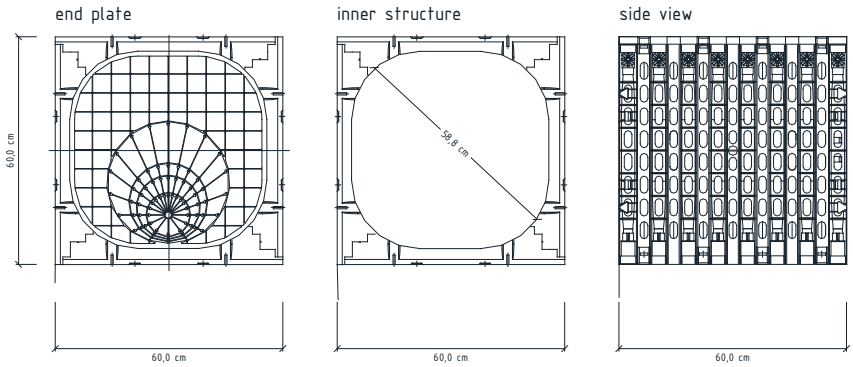
Data and Facts

Product name	ENREGIS/System-Controlbox®
Technical data	
Dimension (W x H x D mm)	see table
Storage capacity gross (l)	see table
Storage capacity	(%) > 95
Material	Polypropylene (PP)
Weight per unit (Kg)	see table
Weight per m^3 (kg)	see table
Load capacity/minimal installation depth (earth coverage) * (m)	
Walkable min.	0,50 m
Car min.	0,80 m
Truck acc. SLW 30	min. 0,80 m
Truck acc. SLW 60	min. 1,00 m
Max earth coverage *(m)	2,40 m
Max. layers * (pieces)	max. 4
Max. installation depth* (m)	up to 3,50, deeper levels on request
Connection pipes (DN)	110, 160, 200, 315,400, 500

Certificate/Testing

GermanTüV-Nord certified, optionally with verifiable project statics

*Calculations lead to this data are based on various kinds of soil, please contact us for an individual calculation of your project.



ENREGIS / X-BOX

Heavy-duty rainwater infiltration system

The new ENREGIS/X-Box system is a direct and consistent further development in the field of heavy-duty, technically matured underground rainwater storage and infiltration systems. With a practically unbeatable price performance ratio, the ENREGIS/X-Box system sets new standards. Alone or in combination with the very successful ENREGIS/Controlbox program, it offers innumerable variations in size, geometry and functionality to cater for all customer requirements.

Unique in the market for rainwater management products, its hollow elements can be manufactured in standard heights of 10, 20, 30, 40, 50 and 60 cm! This and the possibility to produce elements to customer specifications in height increments of 5 cm allow users and planners ultimate flexibility in design. Due to Its extreme durability and innovative production processes, it is suitable for use as a volume store both at greater depths and near the surface in large-area infiltration.

Load-optimised cover thickness and cost savings through less excavation make the system even more economical. Whether you use it as a rainwater infiltration system, a film-coated rainwater retention plant or as a storage container, the ENREGIS/X-Box system offers high functionality and extremely high load capacity at comparatively low investment cost. This is particularly true when you compare it with other, classic systems (pipe/gravel). Further features of the ENREGIS/system: System-optimised connection accessories (horizontal/vertical), extremely durable trenching packing material made from polypropylene (PP), free storage capacity (void > 95%), three-dimensional flow, pipe connections from DN 100 to DN 500 available on every side for all standard pipe materials ENREGIS/X-Box, 100% compatible with the ENREGIS/System-Controlbox program, can be connected, extended or combined on all sides. In combination with the ENREGIS/ System-Controlbox, you get a continuous >DN 500 inspection tunnel designed for the use of camera/flushing dollies for pipes from DN 100 upward. All inflows, outflows and transition points have been optimised for use with such systems. The inspection tunnel provides unhindered access to the most important lateral/contact surfaces and/or the geotextile areas.

Data and Facts

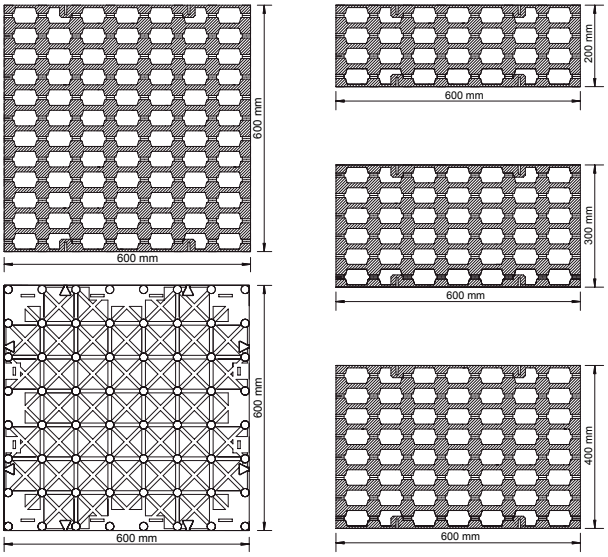
Product name	ENREGIS/X-Box
Technical data	
Dimensions (W x H x D mm)	see table
Gross volume (litres)	see table
Weight per piece (kg)	see table
Weight per m3 (kg)	approx. 50
Storage coefficient (%)	>95 (corresponds to 950 l storage volume in 1 m^3 excavation/space)
Material	polypropylene (PP)
Load/minimum cover thickness* (m)	
Walkable	min. 0,2
Car	min. 0,6
SLW (heavy goods vehicle) 30	min. 0,8
SLW (heavy goods vehicle) 60	min. 0,8
Max. cover thickness* (m)	3,00, greater cover possible after technical clarification
Number of layers* (pieces)	dep. on configuration, max. overall height of the installed system 4.00 m*
Max. installation depth*	up to 5.00 m*, greater depths on request
Connections (DN)	optionally 110, 160, 200, 315, 400, 500

* calculations with different ground values/assumed loads, depending on the selected product/installation variant. Contact us for an individual project plan or statistical analysis!

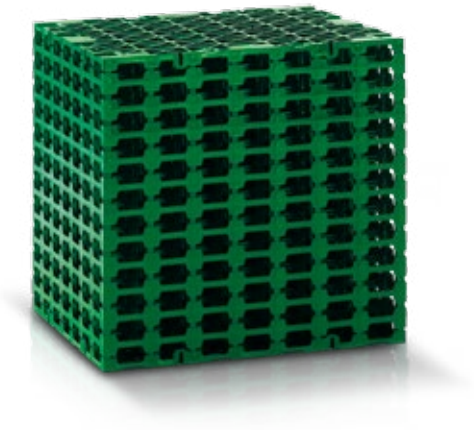
Dimensions

ENREGIS/X-Box – Dimensions and volumes

	type 20	type 30	type 40	type 60
				
Width	600 mm	600 mm	600 mm	600 mm
Height	200 mm	300 mm	400 mm	600 mm
Depth	600 mm	600 mm	600 mm	600 mm
Weight	3,6 kg	5,4 kg	7,2 kg	10,8 kg
Volume	72 liter	108 liter	144 liter	216 liter



ENREGIS/X-BOX® GREEN



Storm water management – now more efficient

With the distinctive design of the proven and extremely strong ENREGIS/X-Box® series develops the company the new system ENREGIS/X-Box® green for the middle and lower performance segment on the market of modern and economical infiltration systems. The classic ENREGIS/X-Box® structure gives also these systems a very high stability and optimised costs.

The system provides a three dimensional flow, inspection and cleaning possibility. The water can spread multidirectional, a distribution by a drainage pipe or a gravel embedding will be needless. With an excellent price/performance ratio and load capacity (SLW 30) sets the ENREGIS/X-Box® green new standards in this market segment and presents new applicability in a modern storm water management.

The product is adapted for the installation in green and accessible areas (SLW 30). For extreme loads and heavy duty traffics are the product range ENREGIS/X-Box® standard and the ENREGIS/Controlbox® available.

With the clear and defined determining of the application in burdened green sector and the product differentiation related to this we contribute to a planning security. ENREGIS stands also here for functionality, security and lasting confidence. Often are products offered and released for use for the installation in heavy duty traffic areas SLW 60) and the long term loads related to this, although that these products are not suitable for such applications due to their construction and material constellation. At long term this will lead to problems for example setting damages in traffic areas.
Here is the ERNEGIS strategy clearly different. So reach or even overlie the ENREGIS green sector products in terms of stability and functionality already the quality of many national and international producers in their standards. With the unique and coordinated ENREGIS product range in the sector of modern infiltration systems it is possible to choose the suitable system solution adapted to the requirement, project and costs optimised.

Further features for the ENREGIS systems:
- System optimised accessories (ENREGIS/X-Box®, ENREGIS/Controlbox® compatible)
- Free storage capacity ca. 95 %, three dimensional flow
- Allsides pipe connection DN 110 up to DN 500 for all common pipe materials available.

ENERGIS/system X-Box® green 100% compatible with the ENREGIS/X-Box® and ENREGIS/Controlbox® program.

By the connection of the systems arises an inspection channel > DN 500, suitable for the application of camera/flusher vehicle and pipes from DN 110. All in/outlets and overflows are optimised for accessible of such systems. The inspection channel enables an excellent access to the important sides/contact surfaces or rather the geotextile.

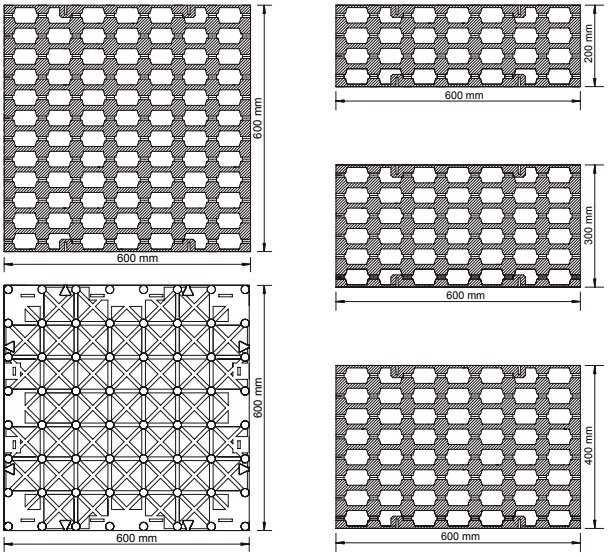
ENREGIS/X-Box® green - Dimensions/volumes

Examples*	Typ 20	Typ 40	Typ 60
Width	600 mm	600 mm	600 mm
Height	200 mm	400 mm	600 mm
Depth	600 mm	600 mm	600 mm
Weight	3,6 kg	7,2 kg	10,8 kg
Volume	72 L gross	144 L gross	216 L gross

Data and Facts

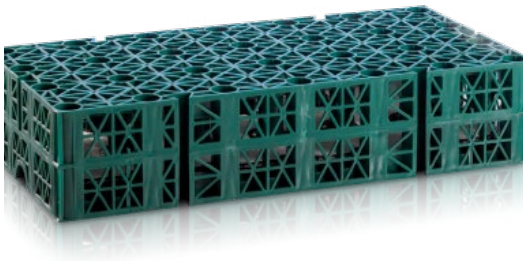
Product name:	ENREGIS/X-Box® green
Technical data:	
Dimension (W x H x L)	see table
Volume gross (liter)	see table
Weight per unit (Kg)	see table
Weight per m^3	ca. 50
Storage coefficient (%)	ca. 95 (corresponds 950 l, Capacity storage in 1 m^3 excavations / volume)
Material	polypropylene (PP)
Load/minimal	Earth coverage *(m)
Accessible	min. 0,5
Car	min. 0,8
SLW 30	min. 1,0
Maximum earth coverage *	2,40 m higher coverage by demand.
Number of layers	Depend on the execution. max. Constructions height 1,20 m*
Max. installation depth	up to 3,00 m* higher depths by demand
Connections (DN)	optional 110, 160, 200, 315, 400, 500

Certifications/tests
Pressure/stability testing, optional with verifiable product static.



ENREGIS/PERMAFILTER® BIOMAT 38

Environment protection integrated

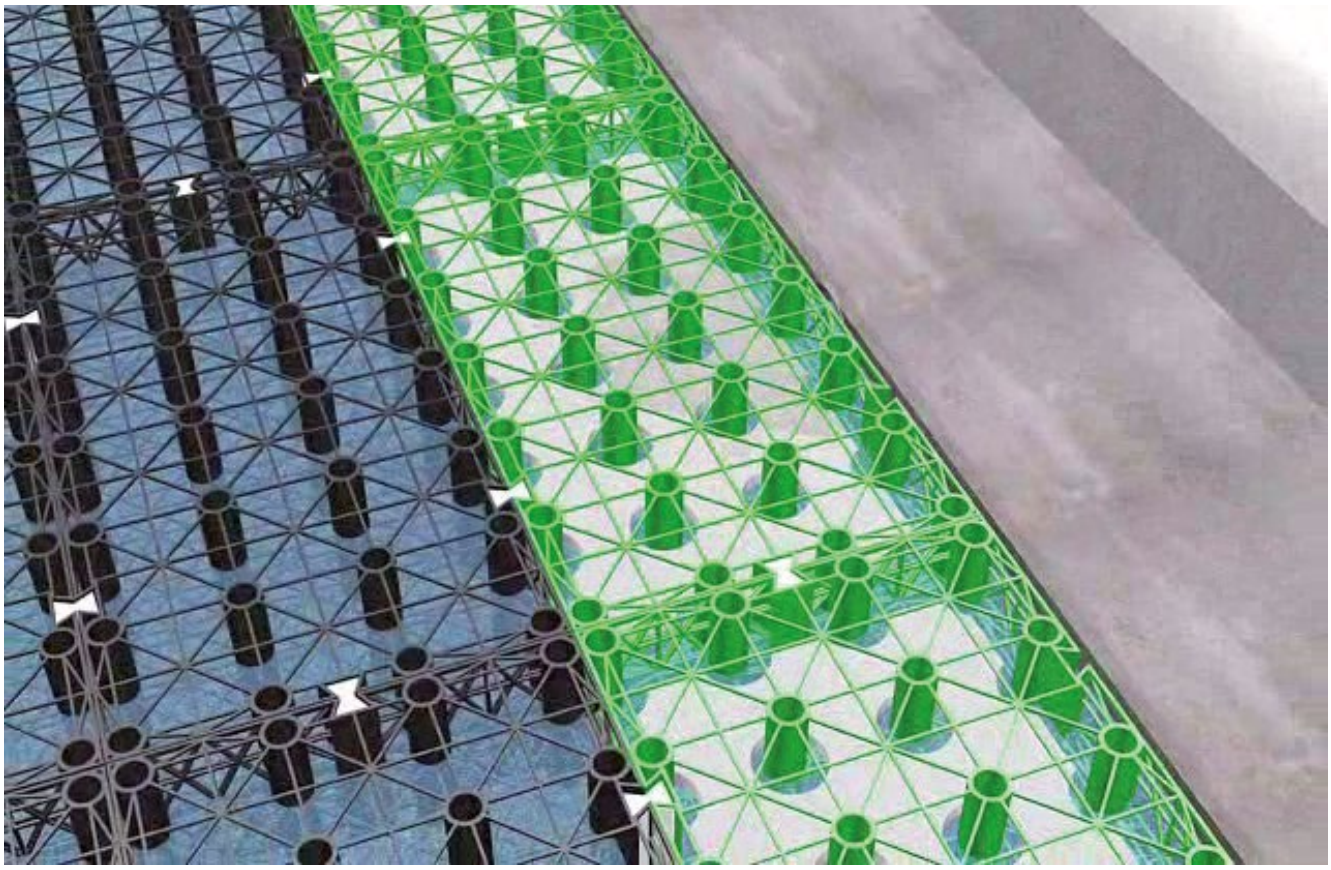


Like the ENREGIS/Permavoid the ENREGIS/Permafilter is developed to meet highest demands in all kind of applications. Both Systems are equal in form and stability.

In addition to this the ENREGIS/Permafilter is equipped with a special extra component: The ENREGIS/Biomat-Geo-Fleece In applications, where the retention or degrading of oil and its residues is necessary, the rainwater can be introduced directly into the soakaway boxes over an ENREGIS/ Permachannel system. These components are linked with special developed connectors for an optimal fl ow of water within the system. Rough soiling is already retained by the ENREGIS/Permachannel and oil residues are retained by the Biomat-Geo-Fleece where they are degraded in a natural way. For this it is not necessary to equip the hole system with ENREGIS/Permafilter modules but only the first layers where the water enters the system.
Depending on the aspected pollution of the water you can either built the whole system with the ENREGIS/Permafilter for strongly contained water or only use it in the first layers, if the estimated soiling is less worse. This gives the system the necessary flexibility in any kind of applications.

Oil-Stop-System

The especially developed ENREGIS/Biomat Geo Fleece is free to move within the soakaway box. This ensures an ascent with the liquid level in the retention system and leads to a permanent position on the surface of the water. In this way the oxygen, which is necessary for the intended degradation of oil residues, is always available. This is essential for the process of degradation that proceeds continuously within the Geotextile. The patent registered honeycomb-structure of the ENREGIS/Biomat Geo Fleece supports the degradation of oil residues by offering an optimised habitat for bacterial life forms that are responsible for this aerobic process.



ENREGIS/PERMAFI LTER® BIOMAT 38

Additional to the usage of ENREGIS/ Permafilter elements the whole retention system can be surrounded with ENREGIS/ Biomat Geo Fleece that helps to degrade pollution within the system and avoids an infiltration of oil or oil residues into the ground and the groundwater. This is a natural process that goes without any chemical additives or necessary maintenance jobs.

The ENREGIS/Biomat Geo Fleece compromises a proprietary blend of polyester fibres that incorporate hydrophilic and hydrophobic properties to achieve superior oil retention. It is capable of retaining oil contamination ranging from daily car drip losses up to catastrophic spillages, i.e. originating from car oil-sump failures.

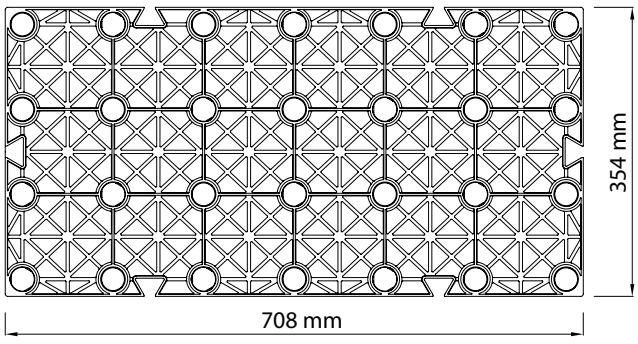
For more Informations see our detailed documentation of groundwater protection.

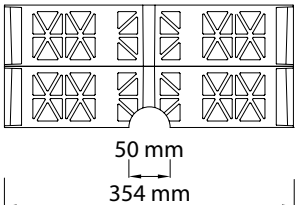
Data and Facts

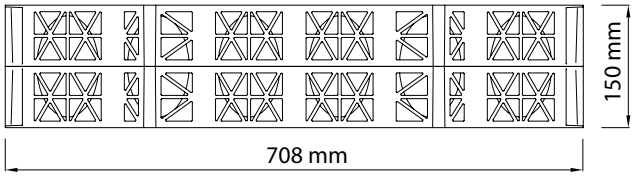
Product name	ENREGIS/Permafilter® Biomat 38
Technical data	
Dimensions (B x H x D mm)	354 x 150 x 708
Storage capacity gross (L)	38
Storage capacity (%)	>92
Material	polypropylene
Weight per unit (kg)	approx. 3
Weight per m3 (kg)	approx. 80
Load capacity/minimal installation depth	(earth coverage)* (m) up to 715 kN/m2 heavy duty
Walkable	min. 0,15
Car-accessible	min. 0,15
Truck acc. SLW 30	min. 0,15
Truck acc. SLW 60	min. 0,15
Max. earth coverage* (m)	4,85
Max layers (piece)	1
Max. depth* (m)	up to 5,00, deeper levels on request
connection pipes (DN)	50

*Calculations lead to this data are based on various kinds of soil, please contact us for an individual calculation of your project.

Dimensions







ENREGIS/PERMACHANNEL®

Heavy-duty channel with integrated oil seperator

Developed as a system the ENREGIS/ Permachannel is the ideal introduction channel for an infiltration system. Special inter coordinated heights of the single system components and matching connectors for introduction make the ENREGIS/ Permachannel compatible for the usage with the ENREGIS/Permavoid and the ENREGIS/ Permafilter as a System.

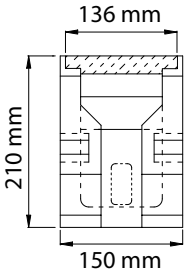
Designed as a string de-watering system in public road construction it advantages can although be used for the construction of de-watering systems of large squares and parking areas. The system has an integrated oil separator that protects the infiltration system from intrusion of oil and its residues. The uncomplicated installation complemented by a well structured program of accessories ensure a good workflow in design and accomplishment of complex projects.
The system can be enhanced by the use of ENREGIS/Biomat and ENREGIS/Permafilter. Thus guarantees safety in applications with more expected pollution of the rainwater by hydrocarbons or oil and its residues.

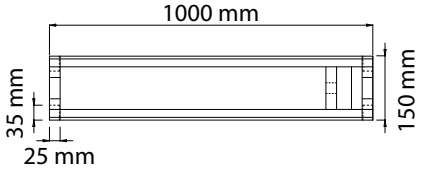
Oil-Stop System

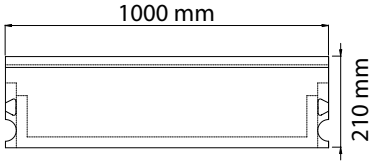
A big problem in applications of dewatering roads, public places and parking areas is the contamination caused by cars. With the patent-registered ENREGIS/Oil-Stop-System we provide an adequate solution.
The first treatment state is the integrated oil separator of the ENREGIS/Permachannel that contains rough pollution before they can reach the infiltration system. In a second step oil residues that reached the system during a stormwater event are absorbed. The infiltration elements used for this are equipped with a geotextile that absorbs oil and its residues within the system and remove them by biodegradation. The patent registered honeycomb-structure of the ENREGIS/Biomat Geo Fleece supports the degradation of oil residues by offering an optimised habitat for bacterial life forms that are responsible for this aerobic process. In this way a sustainable protection of the groundwater against pollution is guaranteed.

Data and Facts

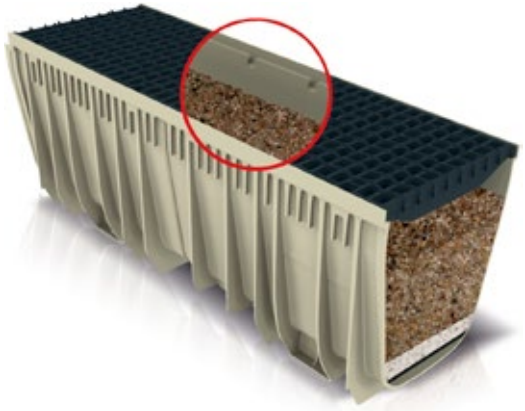
Product Name	ENREGIS/Permachannel®
Technical data	
Dimensions (B x H x D mm)	150 x 210 x 1000
Material	polymer concrete
Weight per unit (kg)	ca. 29
Load capacity	Truck accessible
Polymer concrete abilities	
Compressive Resistance	96 - 104 (N/mm2)
Bending Strength	15 - 22 (N/mm2)
Water absorption (%)	<= 5
Chemical resistance	The polymer concrete has a capillary-free, non-porous sealed structure, which makes it naturally resistant to most chemicals (i.e. petrol, oils, and acids).







ENREGIS/VIVO CHANNEL



Safety alternative to the vegetated ditch. Certified substrate technology, inspectable and cleanable – directly accessible by trucks

The reduction of organic and inorganic harmful substances in rainwater represent a major challenge especially in heavily used traffic areas. Large areas are connected together and the resulting tray or infiltration ditch sizes make it oftentimes difficult to implement an infiltration because of the required space. The ENREGIS/Vivo Channel System offers a solution to these problems. A linear drainage system, filled with ENREGIS®/Biocalith substrate and inspectable and cleanable. The alternative to the vegetated ditch. The rainwater of heavily used traffic areas side roads, highways and airports) could be directly drained via the system, cleaned and introduced into a downstream infiltration system.

As in the case of the successful system of the subterrean ENREGIS/Biofiltration, the certified ENREGIS/Biocalith substrate technology is use also in this system. ENREGIS/Biocalith K as well as the developed RCS material are the guarantor that the organic and inorganic substances will be dismantled or hold back unsolvable in the substrate. Also in terms of stability and handling the system ENREGIS/Vivo Channel sets new standards in the rain water treatment technology. The rain water treatment system is based on a proven Channel body of glass fibre reinforced plastic (GFK), which withstand sustainably and safely even higher loading capacity. Not only extremely robust, resistant, capillary free, resist to chemicals and very light, easy to carry and to install, but also guarantee a long lasting durability. The practical and easy to use channel locking system, an affixed 4 mm thick edge protection, as well as the sturdy 4 point self-locking system qualifies the system to take the substrate process engineering.

The system ENREGIS®/Vivo Channel is absolutely suitable for the installation in road constructions. Due to his high traffic loading charging class E 600 in accordance to DIN EN 1433, this rain water treatment system could be installed also in heavily used traffic areas.

Data and Facts

Product name	ENREGIS®/Vivo Channel
Technical data	
Dimension (w x h x l mm)	336 x 397 x 500/1000
Channel material	SMC (Sheet Molding Compound) Composite material, mineral filler, additives, reinforced by Glass fibres (UP-GF material)
Material grate	grating cast iron/A 15 to E 600
Substrate zone material	proven and certified high performance substrate ENREGIS/Biocalith RCS/K
Connected surface (m2)*	> 25 (in case of 100 l/s ha in accordance to DIBt testing specification)
Seepage performance*	1 to 3 x 10E-3 m/s
Mode of action*	mechanical seepage/Filtration, adsorption, sorption, Precipitation and complexation
Lifetime*	> 25 years
Weight (in Kg)	Channel body 27,Substrate 79, iron grating 41,2
Traffic load	A 15 to E 600
Certification/Tests	DIBt certification applied for, NaCl/de-icing shock tested, certification according ATV-DVWK-A 138/DWA M 153, DIN EN 1433

*Projects must be planned individually and designed according to the particular load case.

Technical changes, omissions and mistakes excepted. Images are exemplary.

*Average values, we will be pleased to advise you!

ENREGIS/VIVO STONE FLEX

Simple ditch, simple natural, simple flexible

The trend to a decentralized rain water management continues unbroken. Not only by reconstruction but also in new constructions we have to distinguish which kind of surface usage exists in the individual cases. From this, results then the different requirements concerning the necessary drainage and treatment measures. The drainage or infiltration by vegetated ditches represents the most natural way. These are the application the ENREGIS/Vivo Stone flex system was developed for.
The system presents a multifunctional, accessible and in 10 -30 cm height available, unsealing, drainage and treatment system, just as required! Parking on private properties, cycle and walk ways in residual areas, traffic reduced zones and few traffic surfaces could be drained without any further measures via the surface. The one layer, 10 cm high ENREGIS/Vivo Stone flex system provides here the possibility to create an optimal fastened green area.

The system is optimised to be backfilled with either normal soil materials or special ENREGIS/Substrat. In this way it represents an optimal solution to construct and dewater a traffic accessible area at the same time.

However the precipitations from high frequented car/truck parking, main ways, high ways as well as runways at airports have to be treated in accordance to the ATV-DVWK – A 138/M 153, at least by a 30 cm high trough, before the infiltration in the ground. So it is easy to comprehend that nearly all norms, rules and regulations not only propagate but also in the most cases prescribe this kind if surface rain water treatment/infiltration. The ENREGIS/Vivo Stone flex in the application 30 cm height, corresponds to the ATV-DVWK-A 138/M 153 for trough constructions and can take in the precipitations and infiltrate it in the ground.
The advantages, of the ENREGIS/Vivo Stone flex vegetated swale in comparison with the classic vegetated ditch, is that there is no quality lost in terms of clean ability, is directly accessible and no necessity of more surface.
The ENREGIS/Vivo Stone heavy traffic transfers the forces, caused by the traffic loads, directly into the base layer into the ground without compacting the swale. In the application of 20 cm height and filled with the high performance substrate technology ENREGIS/Biocalith MR-F1, is the system ENREGIS/Vivo Stone flex from his function and mode of action, not only identical with the natural trough but also surpass it in terms of cleaning performance even in the requirements (university prove vomited). So in this combination it is already possible to realize dewatering with just 20 cm height. The ENREGIS/Vivo Stone flex disposes of statically and hydraulic properties. The system drains surly by heavy precipitations the surfaces and irrigates at the same time the plant roots. Furthermore provides the system due his large openings an excellent living space for microorganisms.

Data and Facts

Product name	ENREGIS/ Vivo Stone flex
Technical data	
Dimensions (L x W x H)	60 x 30 x 10 (20/30) cm
Weight (Kg/m^2)	ca. 34 (30 height)
Color	black
Filling (m^3/m^2)	0,29
Installation	manual
Capacity*	Car/truck accessible SLW 30 depending on the application (Stationary traffic)
Specific System Properties	
Green area proportion (%)	95
Elements height (cm)	10 (combinable to 20 and 30)
Wall proportion (%)	6,5
Material	Polypropylene PP
Certification/ tests	Vegetated swale in accordance to the ATV-DVWK-A 138/M 153

Projects must be planned individually and designed according to the particular load case.

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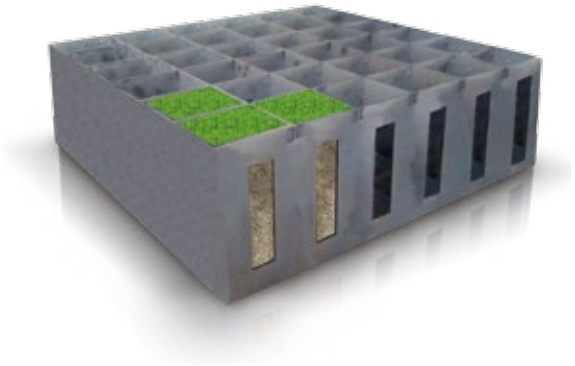
*Average values, we will be pleased to advise you!

ENREGIS/VIVO STONE HEAVY TRAFFIC

Vegetated ditch – directly accessible by trucks



The increased number of sealed surfaces and the more frequent heavy rain events can be a burden on existing sewage systems due to higher peaks when water runs off. This makes it difficult to build up new industrial parks and residential areas.
The most natural way represents a drainage or infiltration by vegetated ditch. So it is easy to comprehend that nearly all norms, rules and regulations not only propagate but also prescribe this kind of surface rain water treatment infiltration. Especially in the urban centres his presents more and more a conflict situation. At many places the necessary surface for an subterranean infiltration system is missing. These are the applications the ENREGIS/Vivo Stone heavy traffic system was developed for. The system presents a 30 cm thick, accessible, overgrown and vegetated ditch and is identically in its function.
The concept is based on the patented idea to stabilize the vegetated ditch and make it accessible by cars or trucks. The ENREGIS/Vivo Stone heavy traffic transfers the forces, caused by the traffic loads, directly into the base layer into the ground without compacting the swale. The biological activity of the soil/substrate can work unrestricted. The ENREGIS/Vivo Stone heavy traffic modules will be filled with a material, which is suitable for vegetation (topsoil) and a sand/soil mixture. By demand or project related a special for the application/installation created ENREGIS/plants cleaning substrate can be delivered. The ENREGIS/Vivo Stone heavy traffic vegetated ditch module system will be used for stationary traffic load: like park & Ride areas, parking at shopping centres, driveways of commercial and industrial areas, residential streets and other parking spaces, where an infiltration on the own land via a vegetated ditch is required.

Advantages which convince:
Using this systems requires no loss of areas and no additional space, protection of groundwater and climate as well as the reducing of the CO^2 content. No connection to the public sewer system is necessary and save cost by construction and preservation. The infiltration will be 100 % decentralized, by demand an additional infiltration can be connected.
The ENREGIS/Vivo Stone heavy traffic ditch systems contributes decisively to the decentralized evaporation of the precipitations and is therefore perfectly suitable for the enhancement of climatic conditions in the cities. The system closes the natural water circulations and gives place for the realization of creative ideas. So the system can be distributed on the surface, which has to be drained, and due to his optics it could also be used for the surface design.

Data and Facts

Product name	ENREGIS/ Vivo Stone heavy traffic
Technical data	
Dimensions: (L x W x H)	100 x 100 x 30 cm
Weight (Kg)	ca. 79
Quantity (peaces/m^2)	1
Color metallic	(execution SLW 60)
Filling (m^3/m^2)	0,29
Installation	by machine and manual
Capacity	truck accessible SLW 60 (Stationary traffic)
System specific properties	
Green area share (%)	95
Elements height (cm)	30
Jetties share (%)	5
Material	Steel, element construction
Comprehensive strength (KN/m^2)	> 1000 (burst pressure)
Certification/ tests	Vegetated swale in accordance to the ATV-DVWK-A 138/M 153

Projects must be planned individually and designed according to the particular load case.

Technical changes, omissions and mistakes excepted. Images are exemplary.

*Average values, we will be pleased to advise you!

ENREGIS/PROTECT

Definitely good

Ever since conduits existed, there were subterranean rain water infiltration systems as well. A few years ago, they still consisted of large-volume gravel packs, draining pipes and the relative supply pipes, today they are predominantly made of modern plastic hollow items.

Then or today, no one is capable of providing information concerning the functionality of these systems. Planned precisely, they have been filled with more or less polluted water over the years. Often, this leads to problems because the originally assumed local conditions (rainfall, soil permeability, associated areas etc.) for the installation site are no longer accurate.

In the beginning, it was quite impossible to maintain or clean the draining pies. However, the plastic systems of modern infiltration systems allow the draining pipes to be entered by special camera systems and cleaning devices.

Until now, no one was able of telling when the maintenance or cleaning of the system would be reasonable or necessary. The unique monitoring system ENREGIS/Protect makes it possible to check the functionality of the subterranean systems, prompt cleaning intervals or set alarm signals.

The ENREGIS/Protect system constantly determines the infiltration capability of the infiltration ditches and transmits the data to a central server. From here, the system's operators (e.g. town councils) can securely access the data for further use via the Enregis internet portal.

Furthermore, the monitoring system includes data preparation and fi ling of the data. Thus, it is now possible to evaluate and conduct modifications of the technical specifications, which can occur over time, on the system. The infiltration capability is determined by the local rainfall in relation to the infiltration ditches' current fi ll level. Hereunto, a rainfall measurement is conducted at the installation site and the water gauge is recorded by a pressure sensor. The data are then recorded and evaluated by a Data Transmission Unit (DTU) and subsequently transmitted via a GPRS-telecommunications module to the central server, which is connected to the internet at all times.

The Enregis monitoring systems are adequate for the new building of an infiltration system as well as for a supplementary assembly. They are flexible and applicable nearly everywhere due to their solar panel and the possibility of operating them with a 240 V, AC accumulator. In summary: the use of the automated ENREGIS/Protect monitoring system provides operators of infiltration systems with a maximum of security as well as considerable savings due to the possibility of inspecting and cleaning the system when needed.

Data and Facts

Product name:	ENREGIS/Protect
Technical data	
Power supply	230 V AC of 9 up to 15 V DC via Akkumulator or Solarpanel, Accumulator capacity 3,6 Amh at 3 watt
Mast length (m)	2, other lengths or special assembly fi xtures on request
Casing	IP 65
Operating Temp.	-35° bis + 70° C
Communication	GPRS, GSM – CSD, GSM - SMS
Sensors	pressure sensor incl. 10 m cable, rainfall gauger, optional: temperature sensor, humidity sensor

Certificates/Tests

Meets the requirements of the World Meteorological Organization (WMO) ISO EN 9001 – 2001 accredited

ENREGIS/POWERRAIN

Silent and reliably good

Up to 50% of drinking water needs in a one family house can be substituted by using rain water in cases where the water quality is of no great importance. These savings can rise above 90% in industrial and public uses.

Intelligent rain water collection leads to a good water quality being used e.g. for the flush, washing machine, garden watering or cleaning purposes. Besides the reduction of costs, rain water usage has some more advantages. 50% of the washing agent can be saved which prevents a calcination of the washing machine. Also, rain water is very apt when it comes to plant watering because it improves the plants' growth.

The rain water manager ENREGIS/PowerRain E is the heart of every rain water utilization system. Here, the pump, the regulation and the drinking water replenishment are combined into one element. Therefore, one's attention should be turned to the quality and capacity.

ENREGIS/PowerRain can be delivered as type E with fill level indicator and as type C without indicator. Several more types of pumps complete the product range.

The pump leads the water from the reservoir to the sampling point. The pump's intelligent regulation system makes sure that there is always water for the flush, the washing machine and the garden watering. The powerful ENREGIS pumps excel at a high performance and low energy consumption.

The micro-processor regulation constantly monitors the system and ensures its operating state. Should rain water be rare, ENREGIS/ PowerRain automatically switches to drinking water supply until enough rain water is available again. The regulation activates when needed and it is equipped with protection against dry running and a small extension container.

The water within the induction container is replaced automatically when it is not needed over a longer period of time. The function of the fl oat valve is monitored continuously. An acoustic alarming signal will arise when it is leaky. A feeding pump can be installed at longer distances between the rain storage and ENREGIS/PowerRain. We would be pleased to provide you with additional information concerning our extensive rain water utilization program (private and commercial) and to assist you with your planning.

Data and Facts

Product name	ENREGIS/PowerRain E
Technical data	
Dimensions (B x H x D mm)	750 x 850 x 290
Weight (kg)	29
Intake sockets	1″
Pressure sockets	1″
Drinking water connection	3 / 4″
Overfl ow (DN)	50
Delivery height Hmax (m)	48
Delivery rate Qmax (m3/h)	6.0
Power supply	230 V AC / 50 Hz
Sensor	differential pressure sensor

Certifi cates/Tests

Meets the requirements of DIN 1989, part 4/EN 1717

ENREGIS/BIOCALITH MR

Compact and good

In many places, the infiltration of more or less polluted water into the soil and thus into the ground water has to be done through an animated tray. Normally, the tray is defined as an above ground, ca. 30 cm thick, overgrown filtering body. When water flows through it long enough, is gets filtered and cleaned. Harmful substances remain in it where they are degraded biologically. Unfortunately, this means water treatment needs a tray large enough for the respective amount of water.

Large areas connected together and the resulting tray or infiltration ditch sizes make it oftentimes difficult to implement an infiltration because of the required space. Furthermore, insufficiently secured tray systems bear a significant risk for playing children.

The certified ENREGIS/Biocalith MR system offers a solution to these problems.
The ENREGIS/Biocalith MR material has been used for almost two decades in the treatment and cleaning of water in different fields such as swimming ponds and sewage treatment. The high permeability ensures an optimal streaming hydraulics. The large inner surface of ENREGIS/Biocalith MR leads to an optimal exchange of chemical substances such as iron in the process of phosphate bonding; regulation of the ph-value and enables the settling of different micro-organisms for the degradation of water and sewage ingredients such as ammonium, nitrite and nitrate.

The contained micro and middle pores play a considerable role. The reduction of inorganic and organic harmful substances is conducted in separate steps. The degradation of inorganic substances takes place in special upstream funnel filters. Since the absorption of heavy irons is an irreversible depository process, the utilized substrate has specific durabilities depending on the size of the connected areas, the amount and state of pollution of the water to treat. After that, the material can easily be replaced with a new filling.

The organic treatment takes place in a hollow infiltration ditch. The substrate is inserted 20 cm thick free of compression into the ditch. The following process of treatment is a biotic and abiotic sorption, precipitation and complexation with contribution of dissolved oxygen, certain ingredients within the substrate and bacteria. Constant conditions create the processes and micro-biological helpers create the environment. Normally, the reduction is a regenerative degradation process: the substrate can degrade harmful organic substances. A replacement of ENREGIS/Biocalith MR is unnecessary as long as the conditions (e.g. administration of oxygen) are kept. It is an outstanding and secure alternative when inserted into a subterranean infiltration ditch.

Data and Facts

Product name	ENREGIS/Biocalith MR
Technical data	
Graining (mm)	0 up to 3
	0.5 up to 8
Water permeability k (m/s)	7.0 x 10-5
	3.4 x 10-3
Total volume of pores (%)	approx. 40
Max. water capacity (%)	approx. 35
Adsorption capacity (mmol/Z/l)	>50
Ph-value	6 up to 7.5
Filter volume approx.	10 m^3 per 1000 m^2 connected and sealed area
Durability	regenerative/unlimited

ENREGIS/HEAVY METAL ADSORPTION FILTER SHAFT ESAF

Compact and good

The treatment or cleaning of stormwater with a heavy metal presents a challenge in a special requirement of filtration technology. Rainwater falls in different volumes, at different times and with differing intensity. In addition the degree of contamination and, as a result, the heavy metal concentration has to be considered individually.

Furthermore, in many areas differing requirements are made of the quality of the discharged stormwater. Thus the allowed discharge concentrations of heavy metal incidence are directly dependent on the ordinance that is used by the authorities as the standard for definition of the limit values (BBodSchV - federal soil conservation ordinance - drinking water ordinance and LAWA waterways - German working group on water issues).

For this reason ENREGIS has developed a unique software program and filter range, by means of which it is now possible to make the perform the maximum possible optimization in terms of filter adaptation in consideration of all the general project-specific conditions.

The heart of this new type of ENREGIS/ heavy metal filter system is the heavy metal adsorption stage specially developed for this application, which functions as an ion exchanger and as a complexer on the up-current principle. The high-performance substrate used in this case, ENREGIS/Biocalith K, which has been awarded an innovation prize, is in a position to be able to dependably and sustainingly remove heavy metals from stormwater. The process itself is based on physicochemical procedures, in which the substrate bonds almost undetachably with the dissolved heavy metals. Even de-icing salt entrainment from winter roads causes no detachment of the previously bound heavy metals. ENREGIS/ Heavy metal adsorption stages function constantly, reliably, with low maintenance costs and independently of the outdoor temperatures that prevail, for example, in drainage channels or basin systems.

For the first time it is therefore now possible to make an exact project-specific calculation of the cleansing power and service life of a heavy metal treatment stage. A substrate change takes place without any additional costs, e.g. the replacement of the container or storage carrier elements, simply by suction extraction of the material from the substrate container after expiry of the previously defined service life. The hydraulics of the overall system are optimised especially with regard to the contact area and contact time. The adsorption material ENREGIS/ Biocalith K has a proven detected cleansing power, which conforms with the requirements and limit values of the federal soil conservation ordinance BBodSchV), TrinkWV and LAWA water (German working group on water issues) in consideration of the general project-specific conditions.

Data and Facts

Product name	ENREGIS/Heavy metal adsorption filter shaft ESAF 1000

Technical data

PE heavy metal adsorption shaft, insertable, variable for surface areas of between 200 m2 and > 3000 m^2

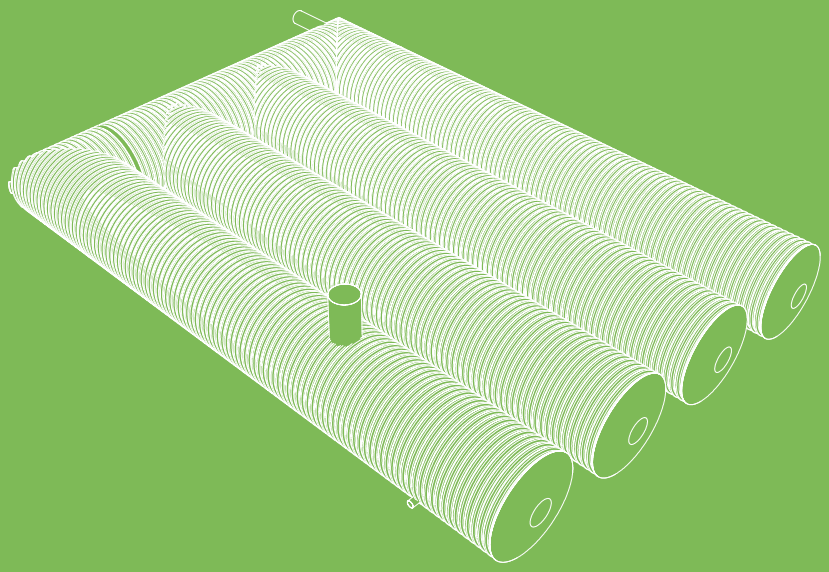
Inner/outer diameter of the filter shaft:	1,000/1,200 mm
Diameter of the access:	680 mm
Height of the filter shaft:	2,000, 2,500 or 3,000 mm
Substrate used:	High-performance heavy metal adsorption substrate ENREGIS/Biocalith K
Connection dimensions for supply/discharge:	DN 200/DN 200
Ventilation:	(Optional), DN 150to DN 250 laterally
Traffic load:	Heavy road vehicles (SLW60), cl. A 15, B 125, D 400 (as per EN 124)

Storage Tanks

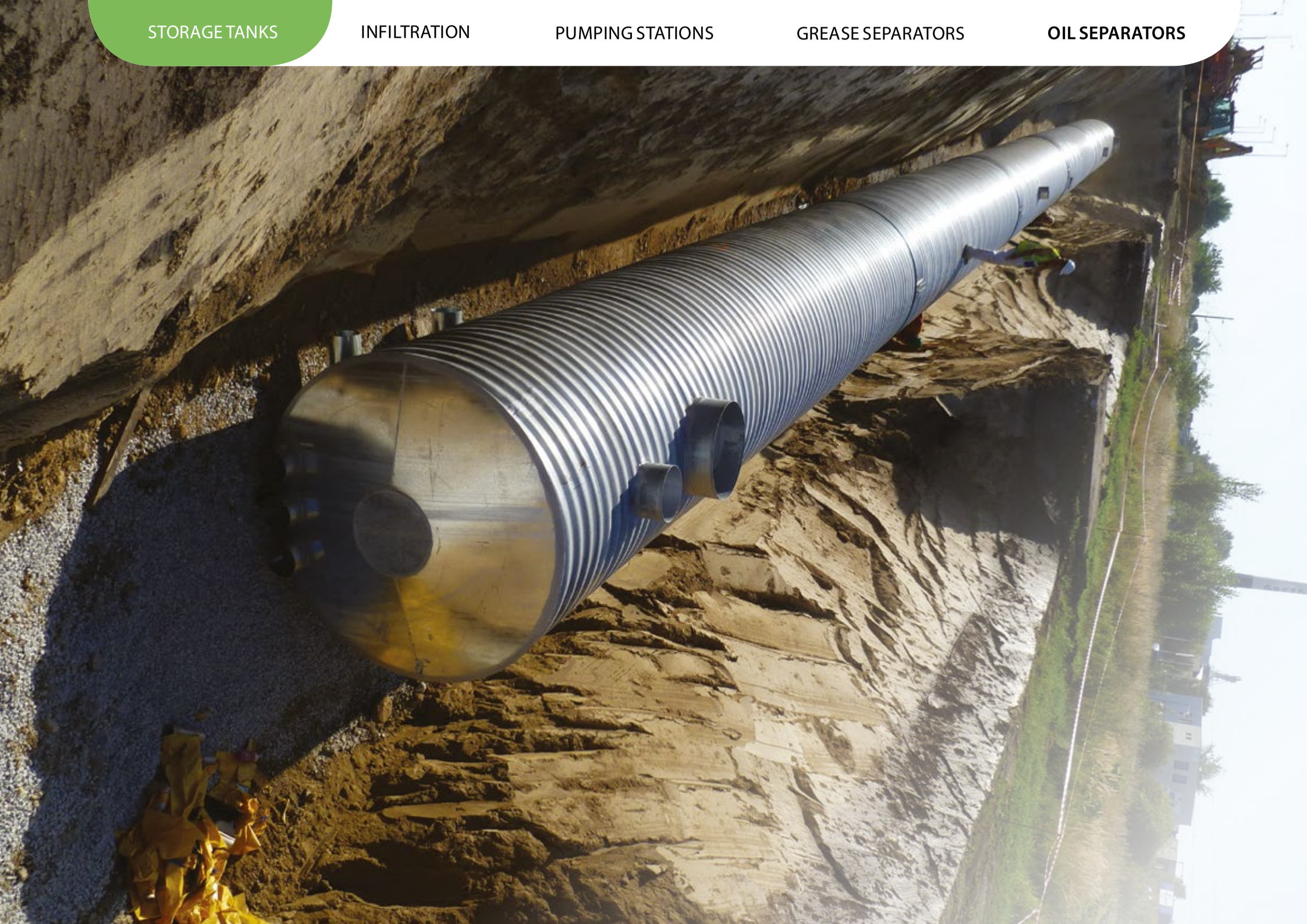
TUBUS Steel Tanks

TNK Concrete Tanks

HD Plastic Tanks



TUBOSIDER



ENREGIS / TUBUS

Features and benefits

Concrete chambers or cellular type systems are limited by size and shape whereas TUBOSIDER fabricated tanks can be fabricated to an infinite variety of layouts using pipes from 0,3 m diameter to 3,6m. TUBOSIDER tanks are accessible for routine inspection. This is now a fundamental requirement with many authorities and is impossible using "cellular" or "crate" systems.
Load bearing strength.
Designed structurally to Highways Agency Standard BD12, TUBOSIDER tanks will carry full motorway live loads if required.
Fully prefabricated. Tanks include access shafts, ladders, inlet and outlet connections, all factory fabricated.
There is no concrete work or fabrication work on-site. Tanks are assembled from components using standard gasketed joints. The fastest system there is to install. TUBOSIDER can supply and factory fit Flow Regulators to restrict discharge to the specified rate. This eliminates the need for expensive regulator chambers, which are required with "crate" type systems. TUBOSIDER gasketed joints are fully tested and WRc approved to "Sewers for Adoption" standards of watertightness.

Durability

All pipe is manufactured from high quality pre-galvanised coil to BS EN 10143 with 305 gms/m2 zinc coating on each surface. This is normally adequate to provide a design life of 50 - 60 years in non-aggressive environments.

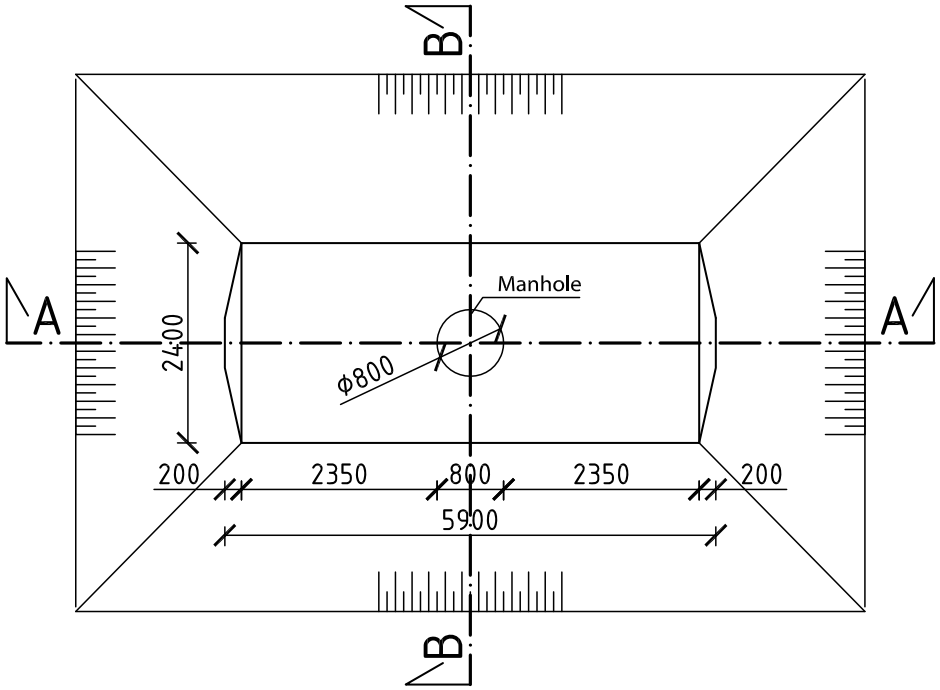
Pumped systems

For aggressive environments or combined sewer applications, Trenchcoat Polymer secondary coating is utilised giving a BBA Certified add on life of 50 years in an aggressive environment. Increasingly, storage volumes cannot be achieved with conventional gravity systems. In these cases, TUBOSIDER can incorporate pump chambers and supply and fit submersible electric pumps complete with switchgear and control panels.

Name:	Volume	Diemeter	Length	Weight
TUBUS 25	25 m^3	2400 mm	5 900 mm	-
TUBUS 50	50 m^3	2400 mm	11 400 mm	-
TUBUS 75 linear	75 m^3	2400 mm	17 400 mm	-
TUBUS 75 parallel	75 m^3	2400 mm	2 x 8 900 mm	-
TUBUS 100 linear	100 m^3	2400 mm	22 400 mm	-
TUBUS 100 parallel	100 m^3	2400 mm	2 x 11 400 mm	-

TUBUS STEEL TANK - 25 M³ LINEAR DESIGN

TOP VIEW



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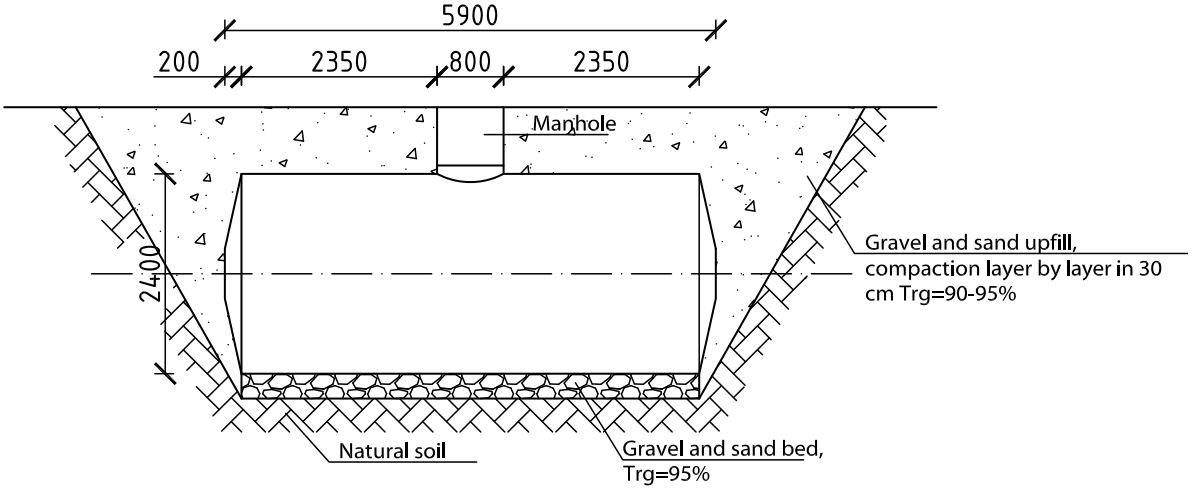
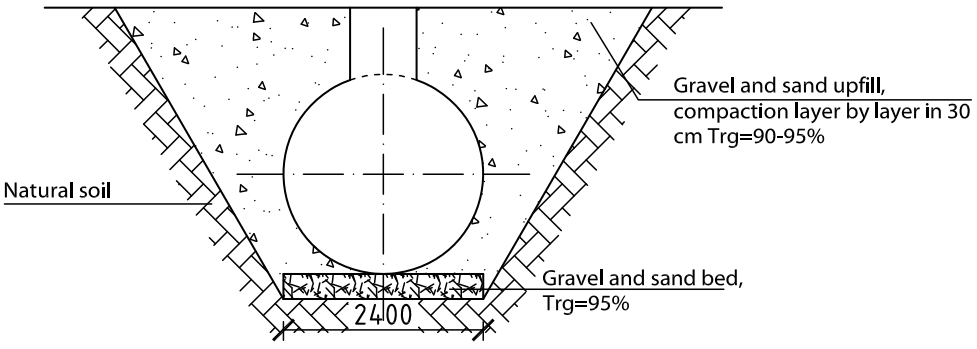
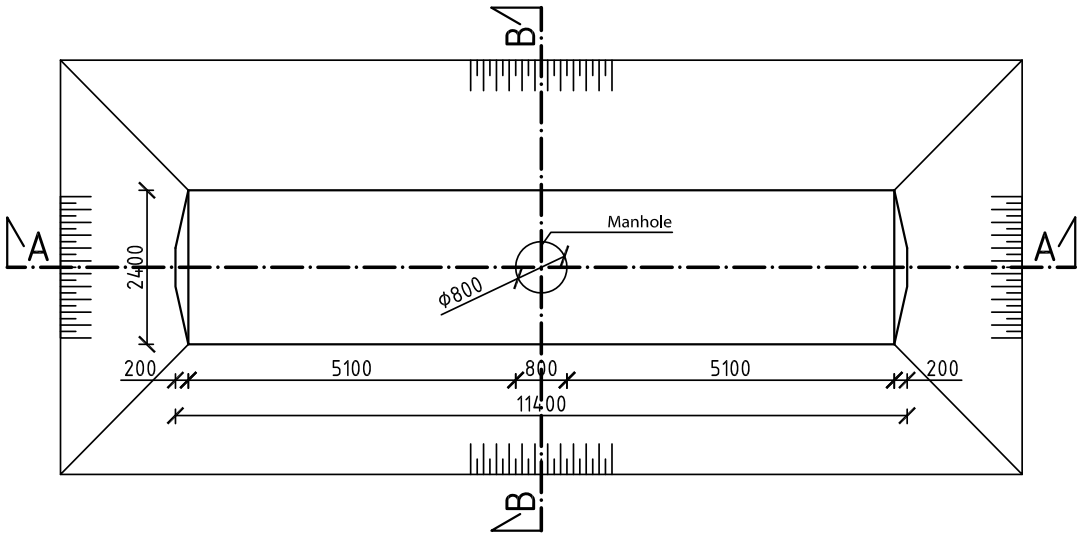


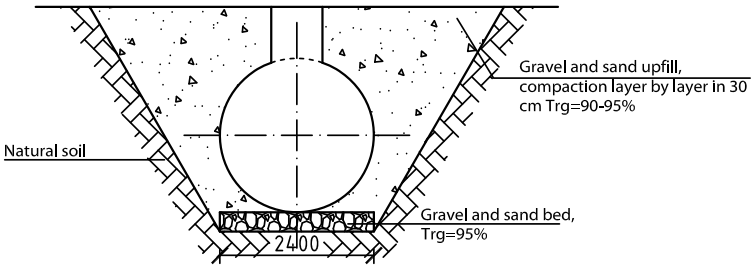
B-B SECTION



TOP VIEW

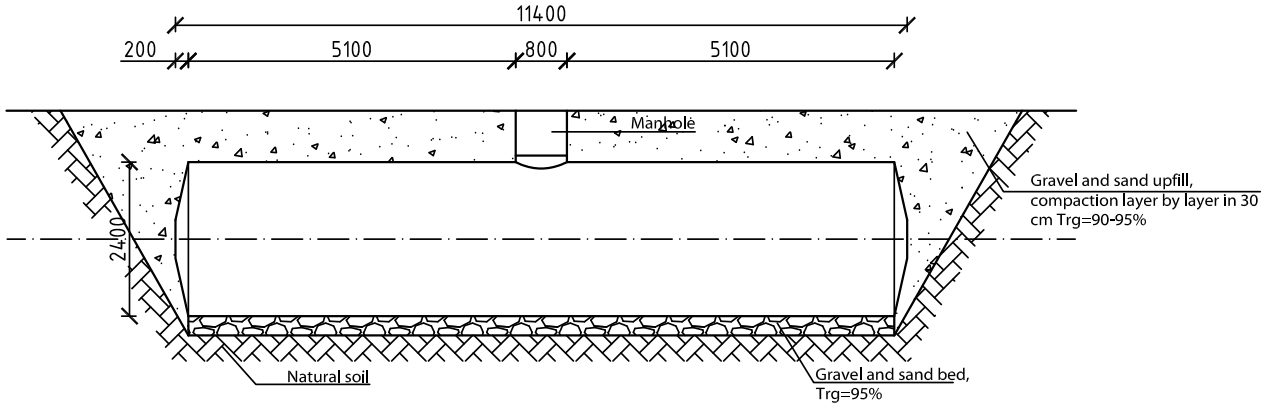


B-B SECTION



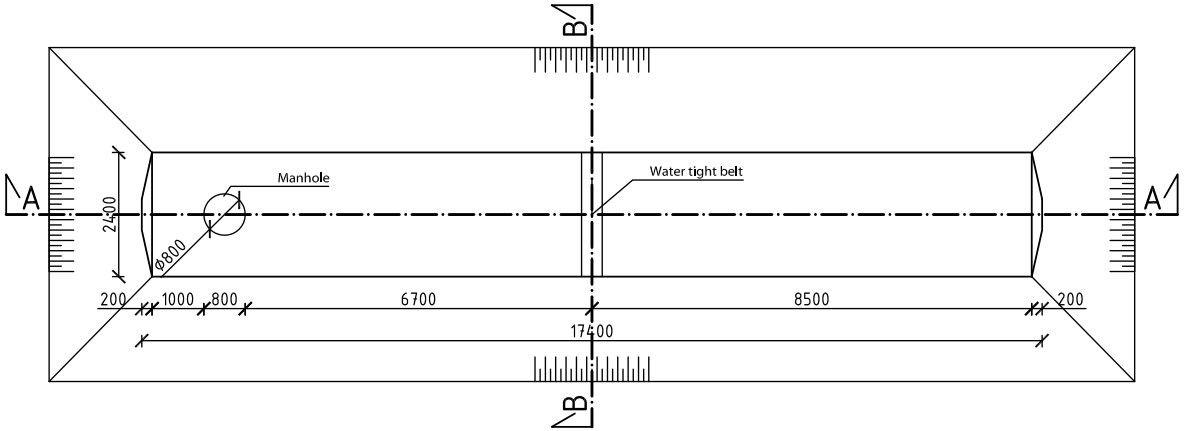
Comment:
- Wall thickness 2,0 mm
- The manhole on top of the tank can be placed anywhere, the dimensions can be changed
- in- and outlet pipe can be placed anywhere for request
- Tank can be placed different depth on demand

A-A SECTION



TUBUS STEEL TANK - 75 M³ LINEAR DESIGN

TOP VIEW



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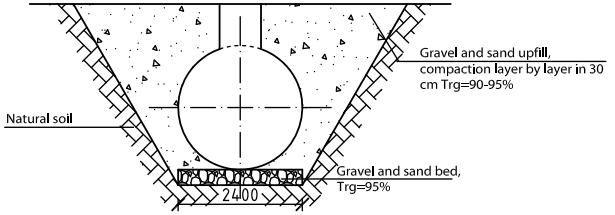
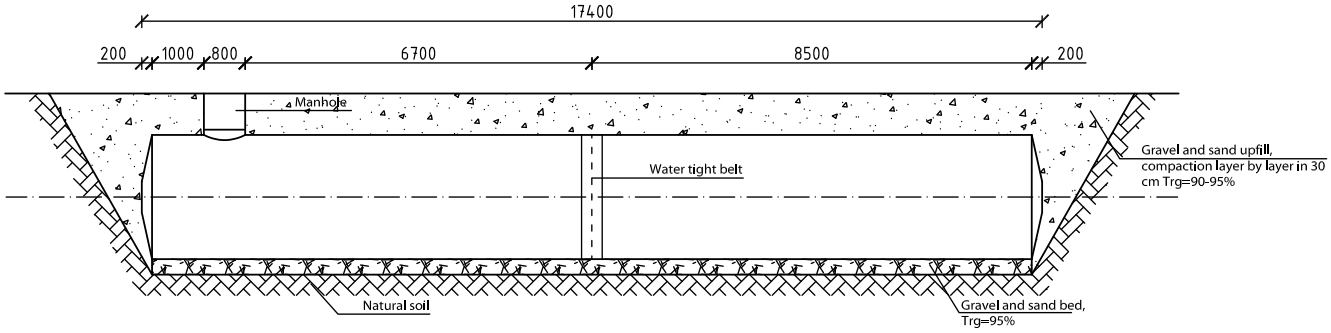


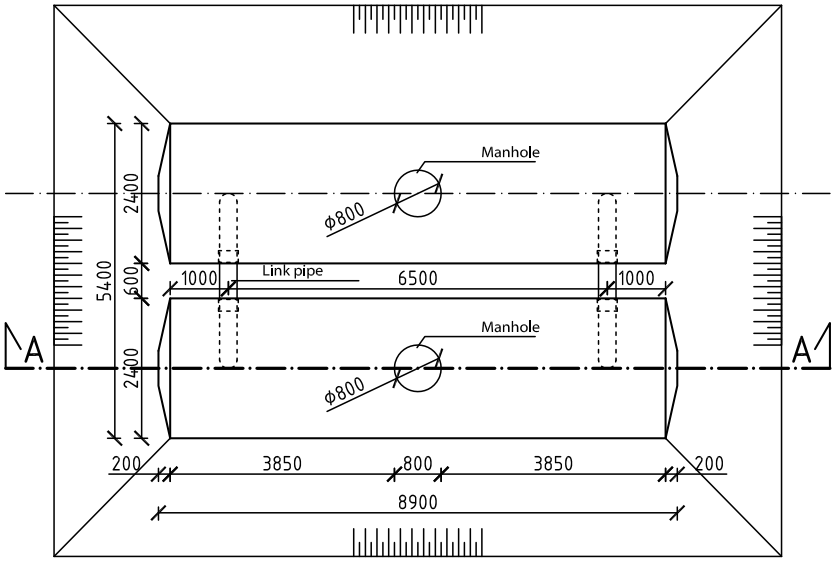
Comment:
- Wall thickness 2,0 mm
- The manhole on top of the tank can be placed anywhere, the dimensions can be changed
- in- and outlet pipe can be placed anywhere for request
- Tank can be placed different depth on demand

A-A SECTION

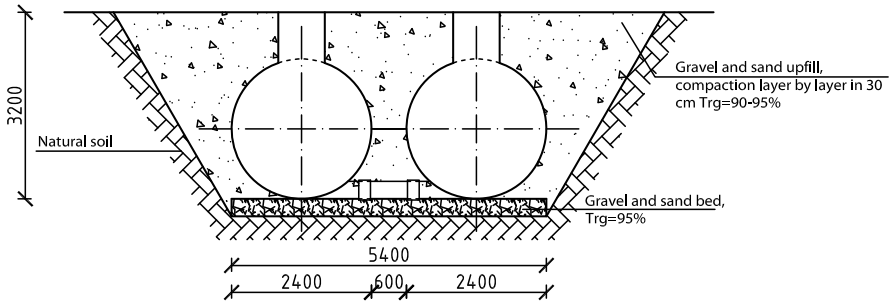


TUBUS STEEL TANK - 75 M³ PARALLEL DESIGN

TOP VIEW

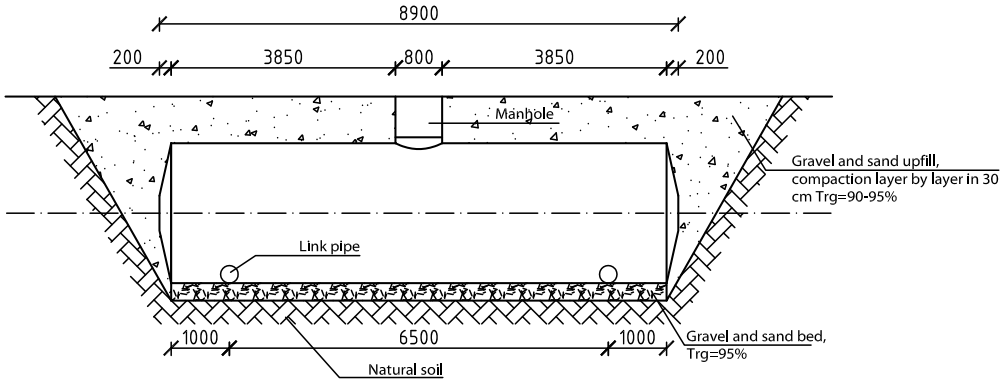


B-B SECTION



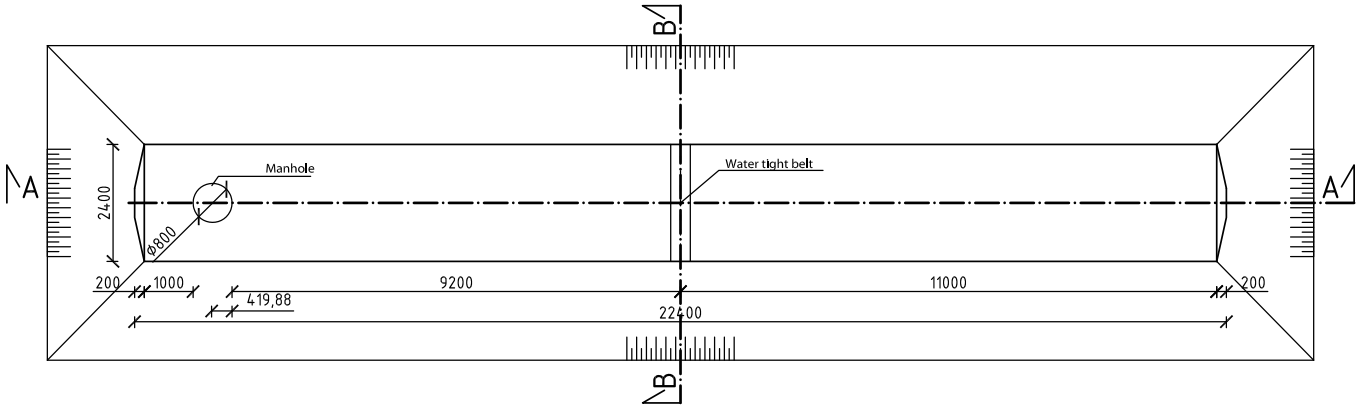
Comment:
- Wall thickness 2,0 mm
- The manhole on top of the tank can be placed anywhere, the dimensions can be changed
- in- and outlet pipe can be placed anywhere for request
- Tank can be placed different depth on demand

A-A SECTION

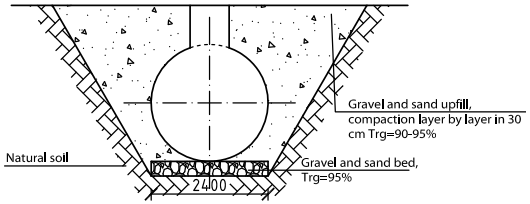


TUBUS STEEL TANK - 100 M³ LINEAR DESIGN

TOP VIEW

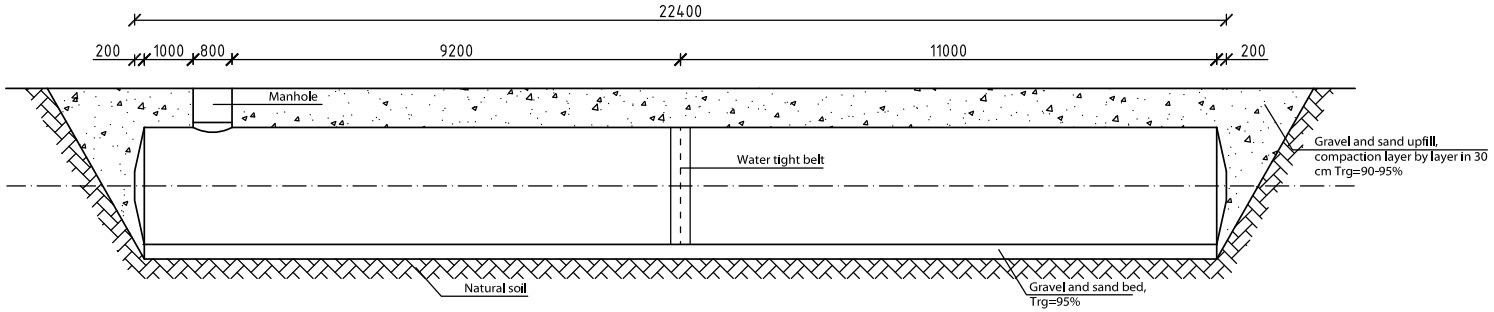


B-B SECTION

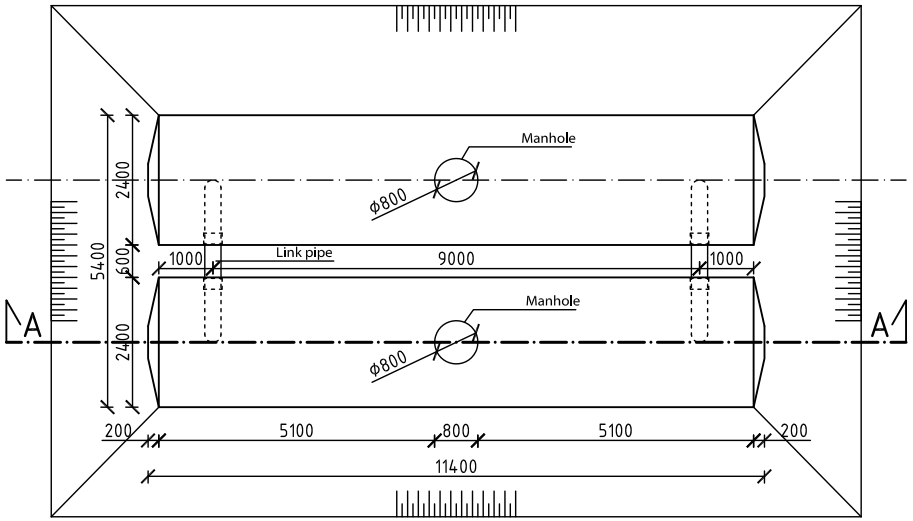


Comment:
- Wall thickness 2,0 mm
- The manhole on top of the tank can be placed anywhere, the dimensions can be changed
- in- and outlet pipe can be placed anywhere for request
- Tank can be placed different depth on demand

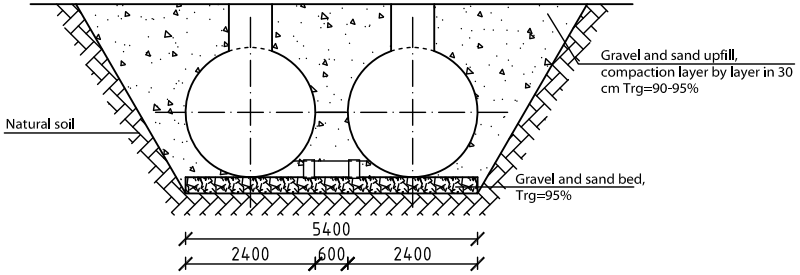
A-A SECTION



TOP VIEW

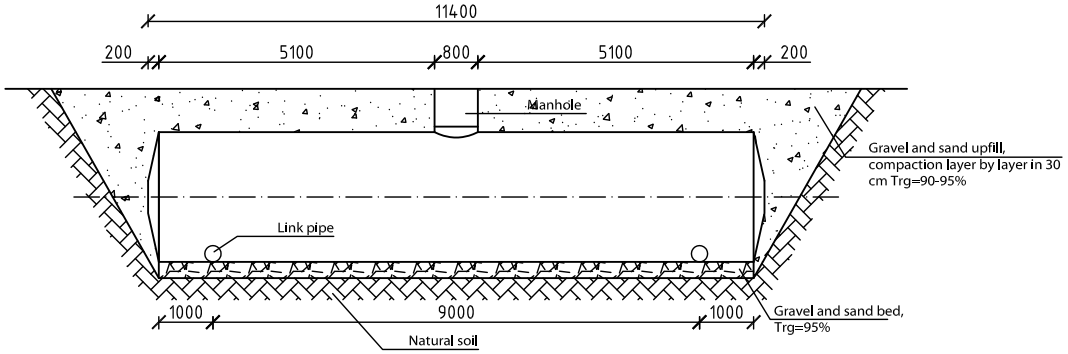


B-B SECTION



Comment:
- Wall thickness 2,0 mm
- The manhole on top of the tank can be placed anywhere, the dimensions can be changed
- in- and outlet pipe can be placed anywhere for request
- Tank can be placed different depth on demand

A-A SECTION



HELIBORE INSTALLATION GUIDE – TUBUS

1. Bed pipe on pre-shaped bed.
2. Where gaskets are being used, the gaskets should be placed around the pipe ends, equally over the joint. Overlap the gasket at the crown of the pipe and fix in place with double-sided tape. Lightly grease the inside face of the coupling band with the pipe grease provided.
3. Place bottom segment of the band with the band dimple seated into the second corrugation of the re-rolled section of the pipe.
4. Bed next pipe so that it's second re-roll corrugation seats into the band dimple.
5. Place the second part of the band over the pipe ensuring a good and even seating of the band dimple into the second re-roll corrugation of each pipe.
6. Locate the M12 studs provided through the lugs and loosely tighten the nuts ensuring that the curved face of the saddle washers sit into the radius of the lugs.
7. Tighten down the nuts on the studs, evenly on each lug at both sides of the pipe. If necessary „dress" the band with a small rubber mallet while tightening.
8. Inspect internally to ensure uniform contact with the GASKET, IF GASKETS ARE USED.

It is important that the pipes are laid at a constant grade and line relative to each other. Any significant deviation from line and level will create problems in locating and tightening the coupling band. The larger the pipe diameter, the more important true line and level will be.
Where bitumen paved inverts are installed, there might be a tendency for the pipes to assume a slightly egg-shaped profile during lifting and handling. This should be monitored when the pipes are placed end to end prior to positioning the second or third segments of the coupling band. If there is a poor match in terms of shape then the pipe ends should be jacked into shape by the use of Acrow props or similar and held in a true circular profile whilst the coupling bands are placed and tightened and if needed be left in position until backfill is placed. All pipes over 1.4m diameter have match marked ends and each pipe is marked with a pipe sequence number

NOTES:

1. When calculating access shaft heights Tubosider allow 500 mm between finished cover level (FCL) and top of shaft.
2. The 500 mm is typically made up of a concrete "biscuit" 'n' course of bricks and a steel manhole frame. Any discrepancy can be taken up within the brickwork.
3. Prior to placing the "biscuit" the top of the shaft should be wrapped with denzo or polystyrene and the concrete ring should be cast with the top approx. 50 mm above the top of the shaft. The "biscuit" should then be bedded onto the concrete ring.
4. Concrete ring, "biscuit", bricks and steel frame supplied by others

Maintenance

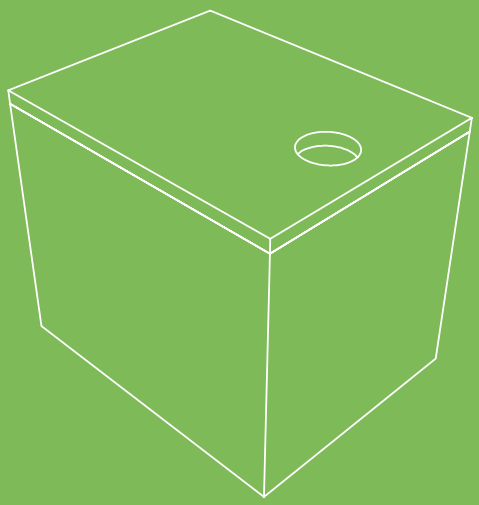
The Tubosider product itself requires no maintenance. Tubosider products have a minimum design life of 60 years, the design life can be extended to suit individual project requirements.

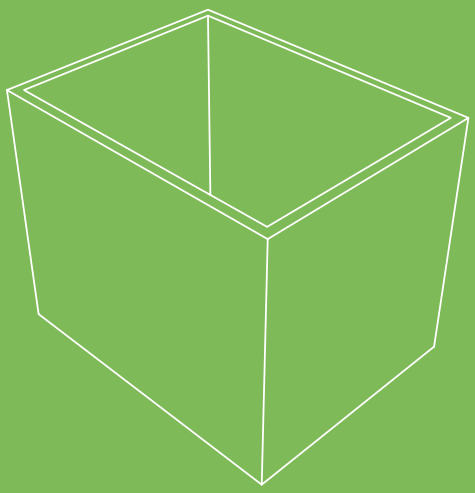
The Tubosider product has been specifically designed with manhole access points with ladders, to gain entry to the system and it is the system that will require inspection.

The frequency of inspection will vary from project to project. We would recommend that the first inspection is carried out 12 months after the product has been installed. Over a period of time all attenuation tanks will have a very gradual build up of silt, the level of build up needs to be monitored and from this information the frequency of inspection can be deicide.

A gully sucker can be used to remove any silt build up or this can be done manually.

The tank inspection needs to be carried out by someone who has successfully completed a confined space training course.





TNK CONCRETE TANKS

GEODIS
LEAR

TNK CONCRETE TANKS

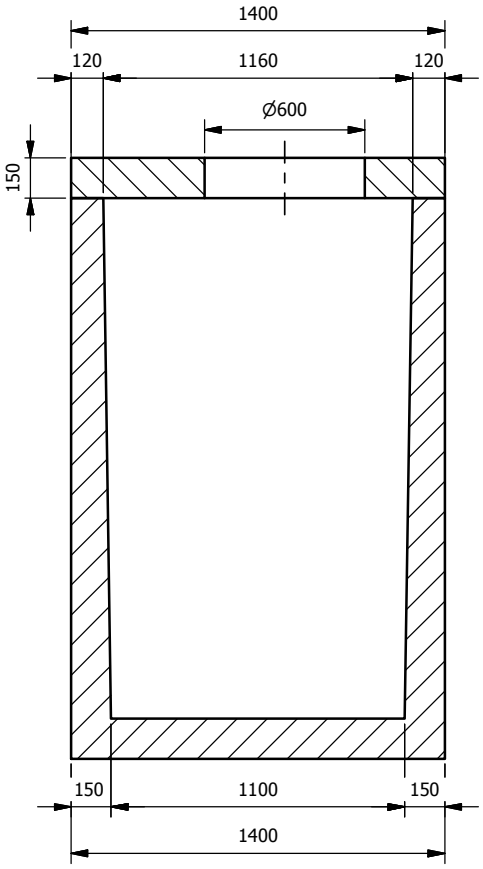
Features and benefits

Concrete tanks are the most classical storage tanks to collect the waste- or stormwater. PURECO TNK-s provide reliable storage of stormwater, wastewater and gray water. Our tanks are strong enough, durable and will never burn or rust! Concrete quality is high enough to use it for sand traps and for emergency reservoirs.

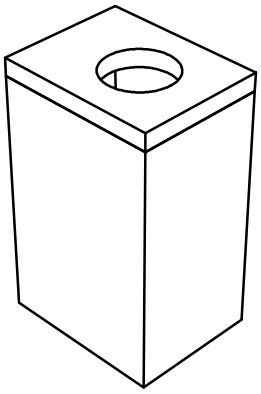
Name	Volume	Concrete quality	Load	Length	Width	Height	Weight
TNK 2-Z	2 m^3	C35/45*	D400	1400 mm	1100 mm	2100 mm	3 380 kg
TNK 4-Z	4 m^3	C35/45*	D400	3240 mm	1740 mm	1450 mm	6 014 kg
TNK 7-Z	7 m^3	C35/45*	D400	3000 mm	2300 mm	1650 mm	7 394 kg
TNK 11-Z	11 m^3	C35/45*	D400	3000 mm	2300 mm	2250 mm	9 355 kg
TNK 16-Z	16 m^3	C35/45*	D400	3600 mm	2800 mm	2050 mm	11 208 kg
TNK 23-Z	23 m^3	C35/45*	D400	3600 mm	2800 mm	29030 mm	14 714 kg
TNK 3,5-E	3,5 m^3	C35/45*	D400	1730 mm	1510 mm	1900 mm	3 531 kg
TNK 11,5-E	11,5 m^3	C35/45*	D400	4000 mm	2430 mm	1630 mm	8 420 kg
TNK 20-E	20 m^3	C35/45*	D400	4840 mm	2740 mm	2080 mm	13 142 kg

*Or higher for request

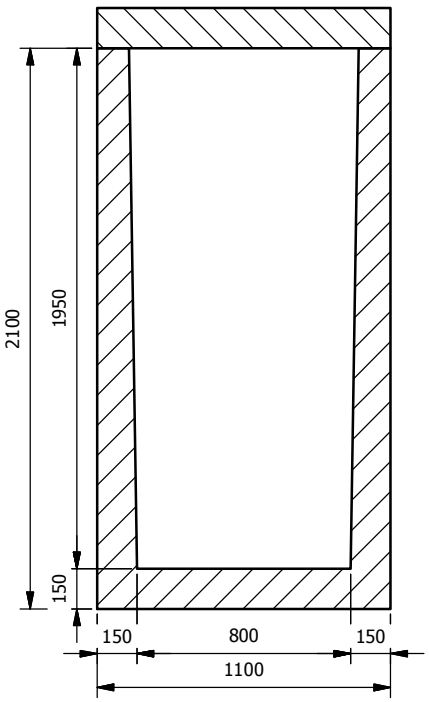
A-A (1 : 25)



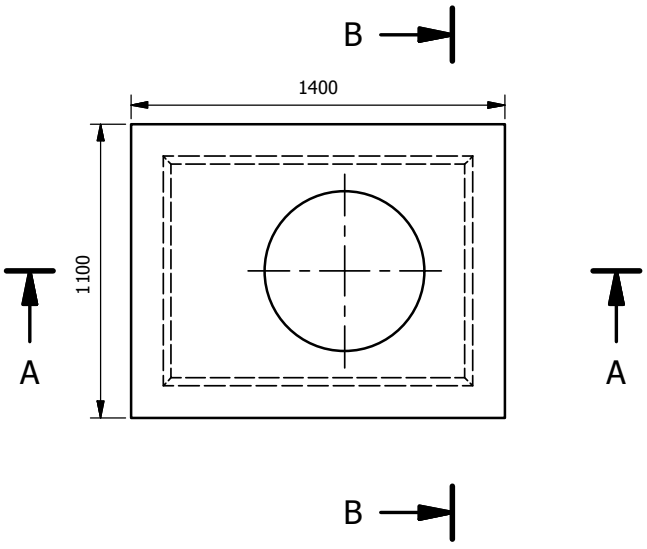
2 m³ concrete tank
(1 : 50)



B-B (1 : 25)



Top View (1 : 25)



PURECO
THE PURE ECO
www.pureco.hu

ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TYP:

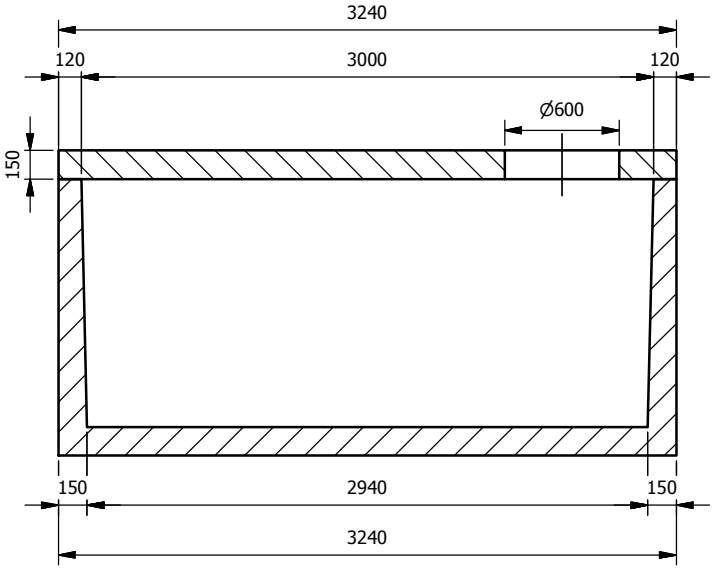
TNK 2-Z

Informational drawing

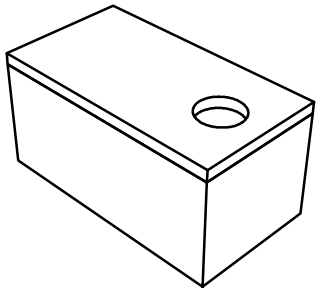
M= 1:25

Net Volume:	1,8	m3
Volume:	3,2	m3
Weight:	3 381	kg
Weight with cover:	3 834	kg

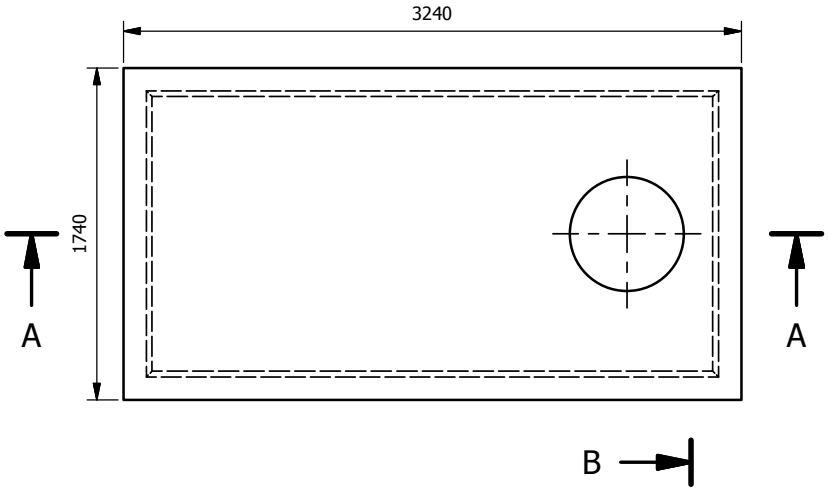
A-A (1 : 35)



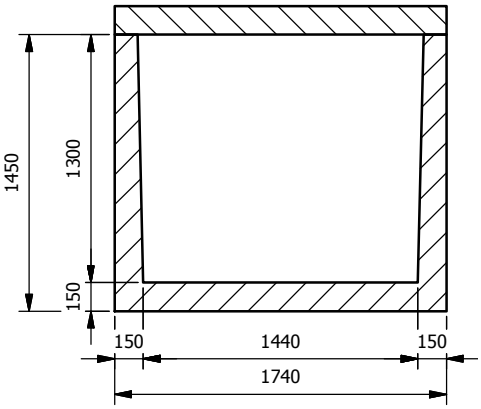
4 m³ concrete tank
(1 : 80)



Top View (1 : 35) B



B-B (1 : 35)



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ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TYP:

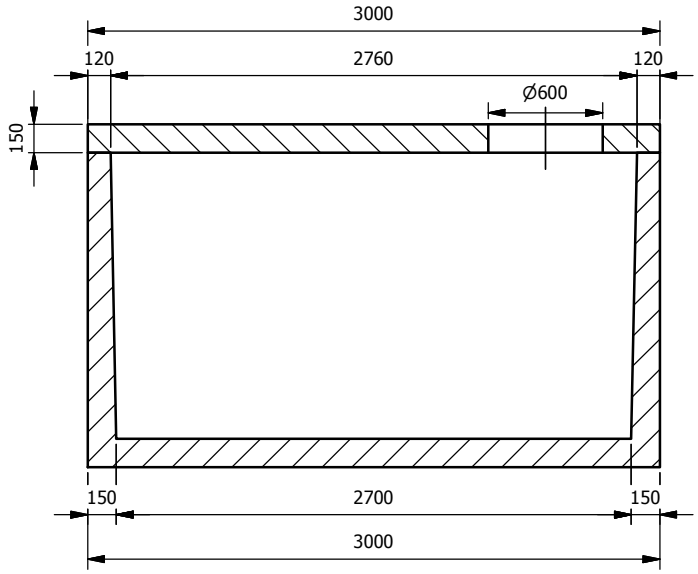
TNK 4-Z

Informational drawing

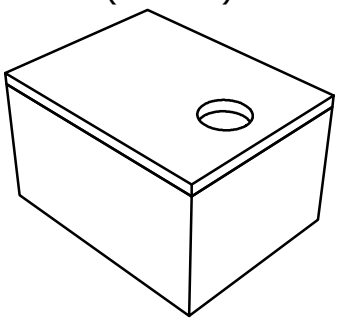
M= 1:35

Net Volume:	5,5	m3
Volume:	8,2	m3
Weight:	6 014	kg
Weight with cover:	7 947	kg

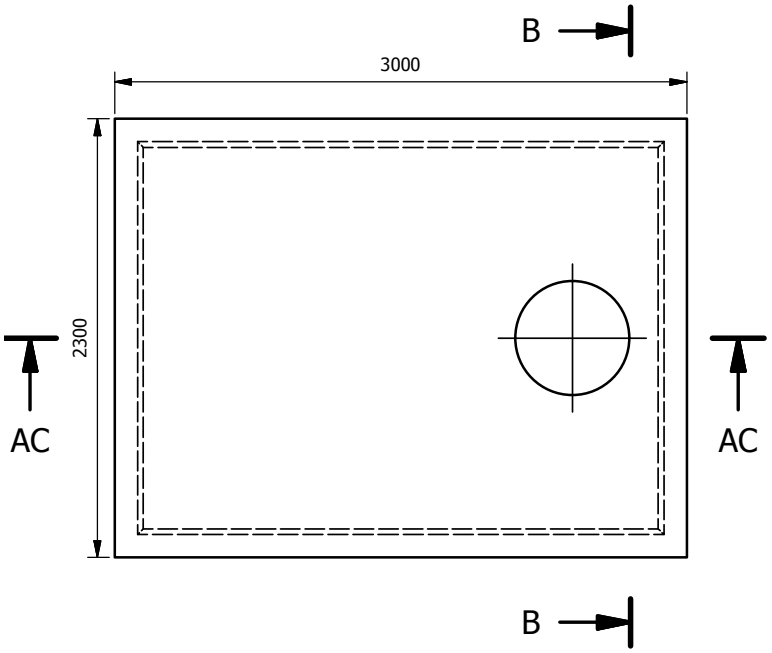
AC-AC (1 : 35)



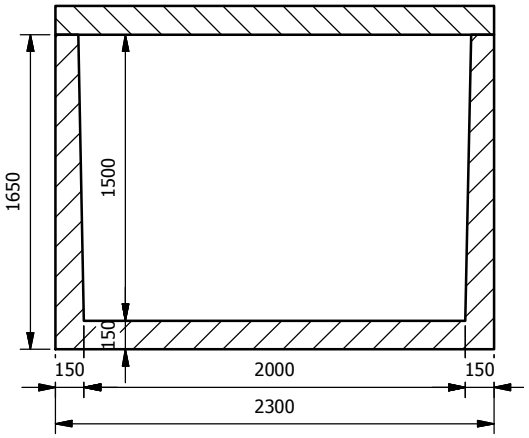
7 m³ concrete tank
(1 : 80)



Top View (1 : 35)



B-B (1 : 35)



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TYP:

ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

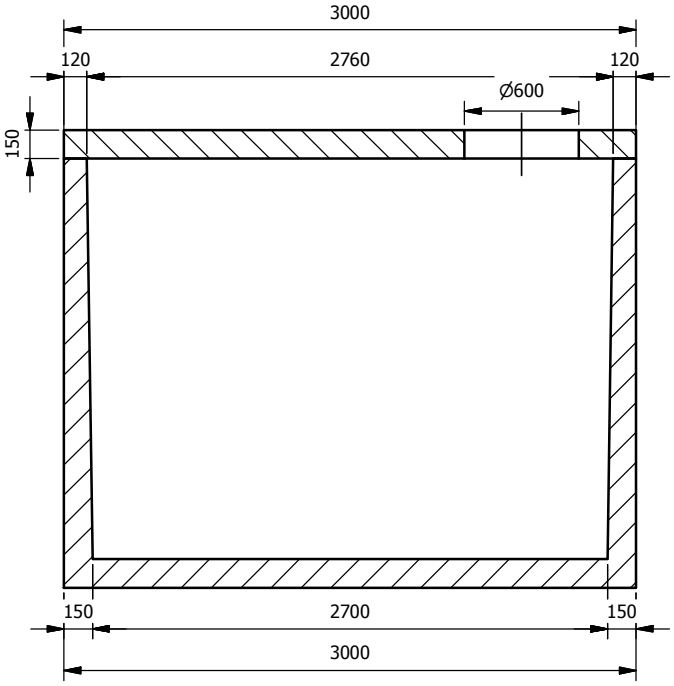
TNK 7-Z

Informational drawing

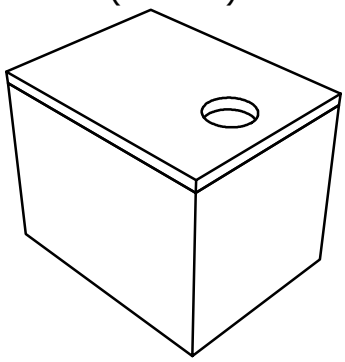
M= 1:35

Net Volume:	8,1	m3
Volume:	11,3	m3
Weight:	7 394	kg
Weight with cover:	9 783	kg

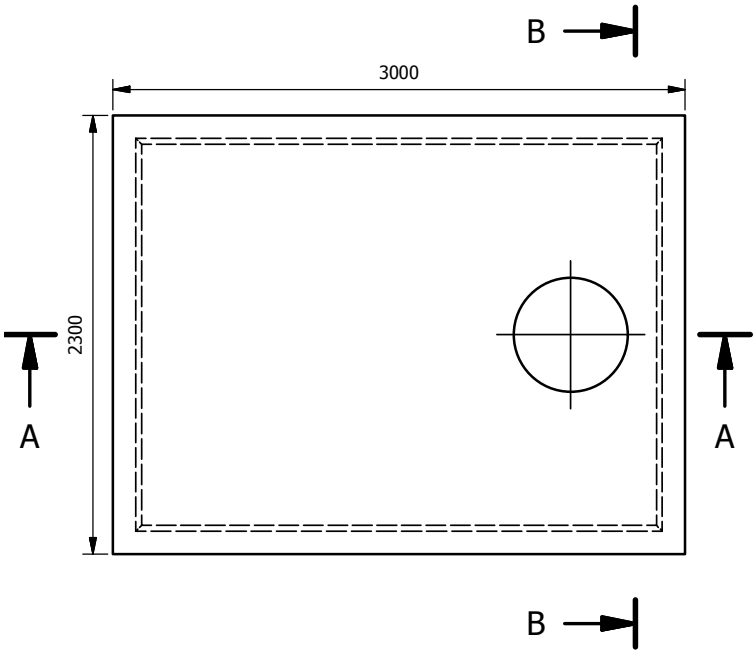
A-A (1 : 35)



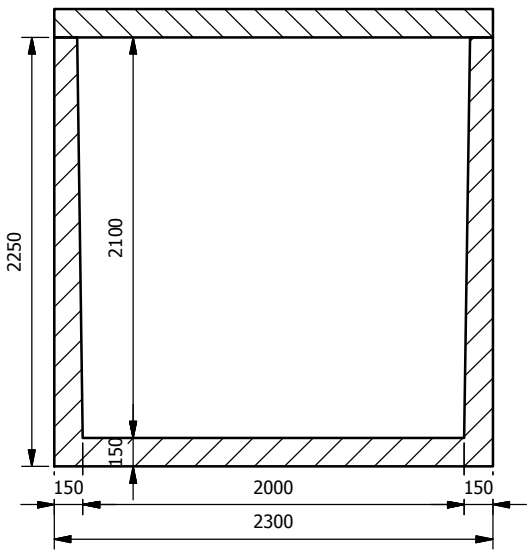
11 m³ concrete tank
(1 : 80)



Top View (1 : 35)



B-B (1 : 35)



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ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TYP:

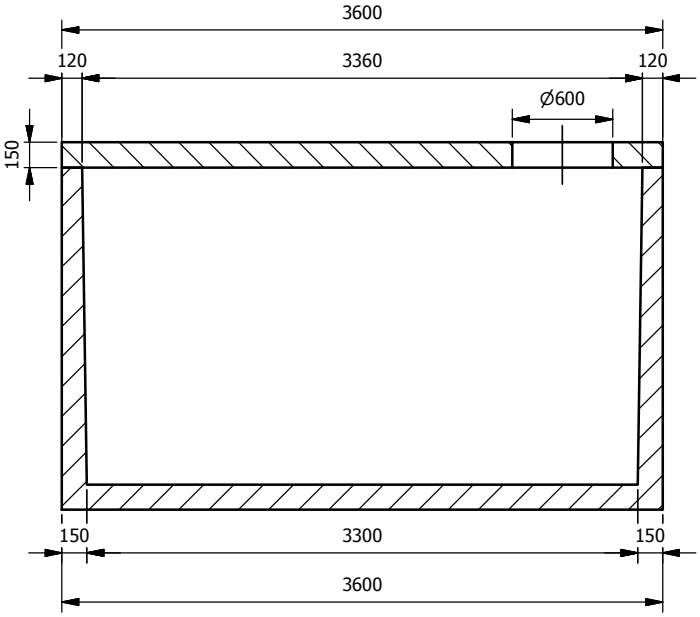
TNK 11-Z

Informational drawing

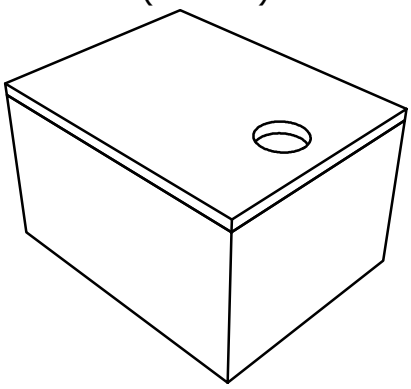
M= 1:35

Net Volume:	11,3	m3
Volume:	15,5	m3
Weight:	9 355	kg
Weight with cover:	11 744	kg

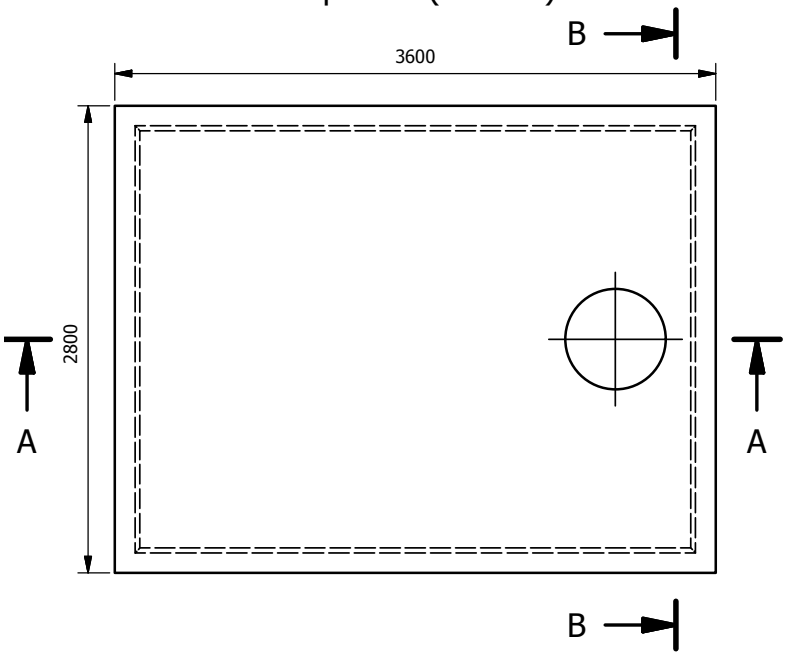
A-A (1 : 40)



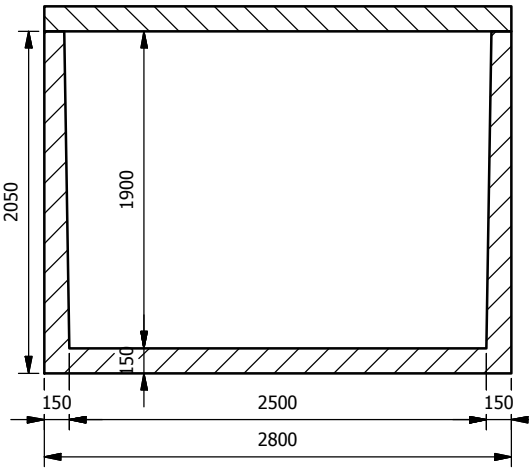
16 m³ concrete tank
(1 : 80)



Top View (1 : 40)



B-B (1 : 40)



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TYP:

ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

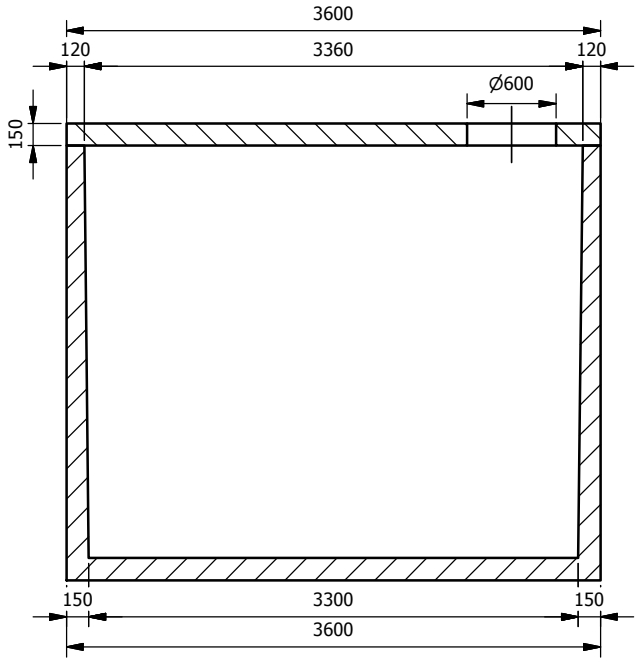
TNK 16-Z

Informational drawing

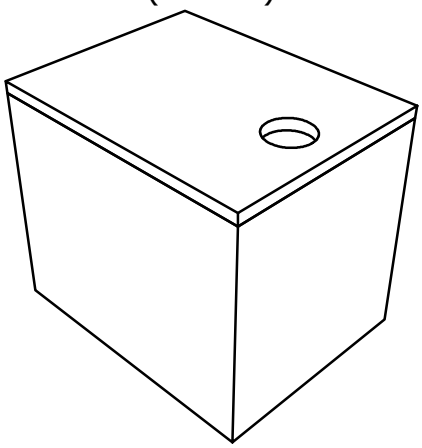
M= 1:40

Net Volume:	15,6	m3
Volume:	20,6	m3
Weight:	11 208	kg
Weight with cover:	14 745	kg

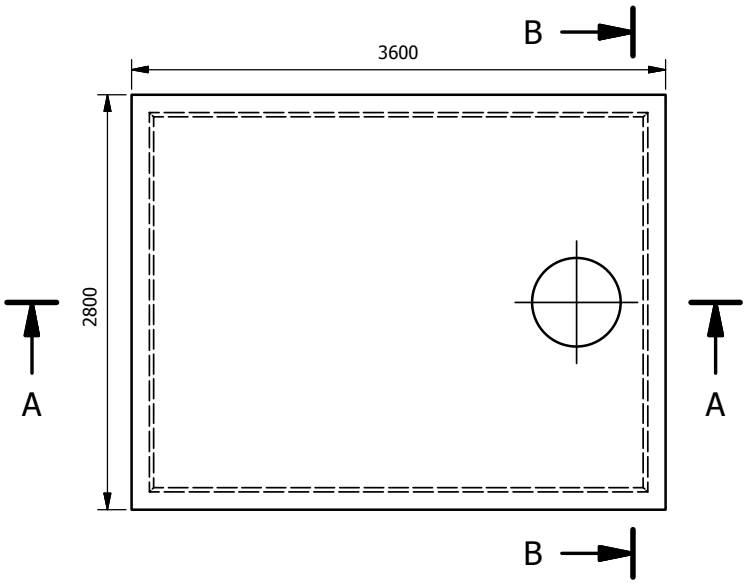
A-A (1 : 45)



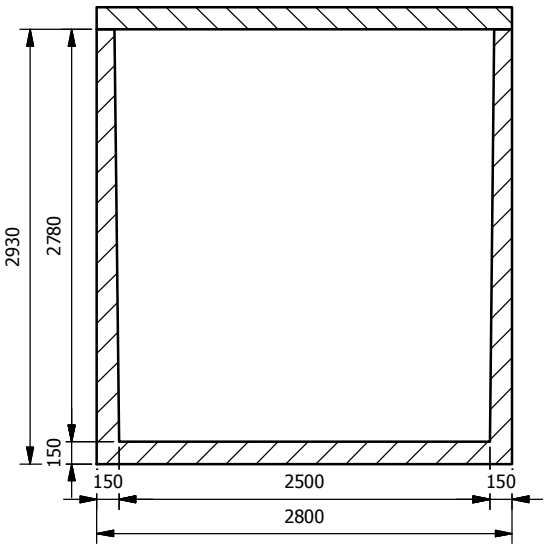
23 m³ concrete tank
(1 : 80)



Top View (1 : 45)



B-B (1 : 45)



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ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TYP:

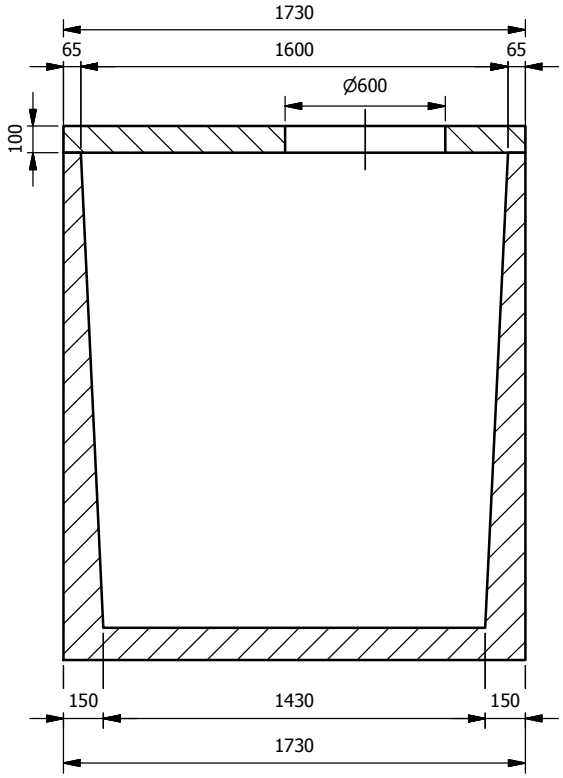
TNK 23-Z

Informational drawing

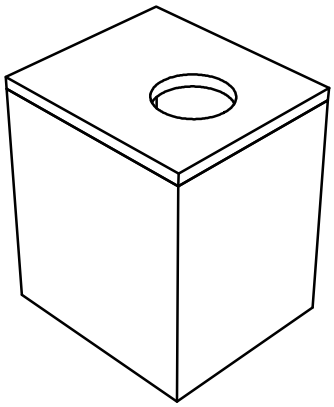
M=1:45

Net Volume:	22,9	m3
Volume:	29,5	m3
Weight:	14 714	kg
Weight with cover:	18 249	kg

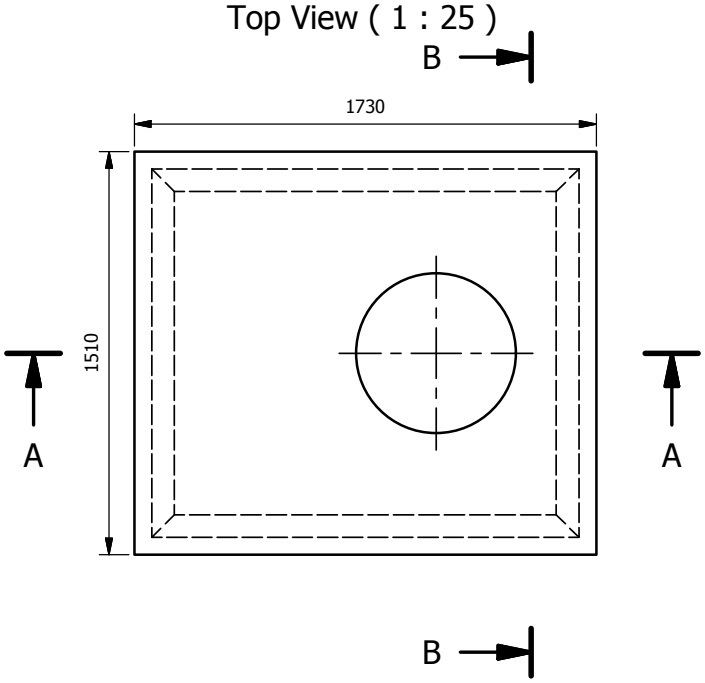
A-A (1 : 25)



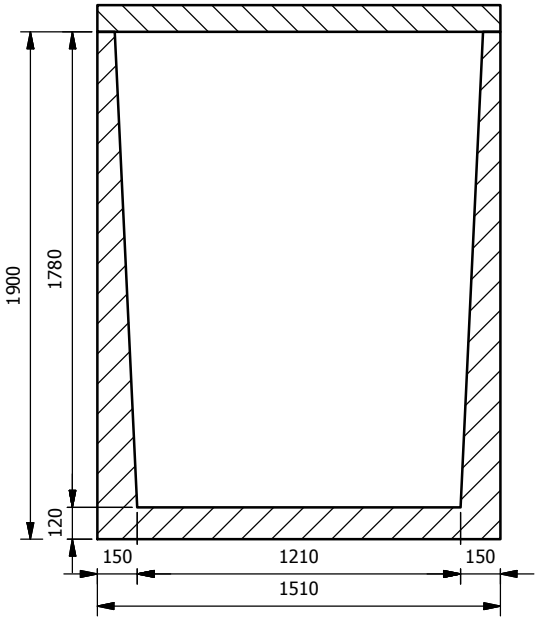
3,5 m³ concrete tank
(1 : 50)



Top View (1 : 25)



B-B (1 : 25)



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TYP:

ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

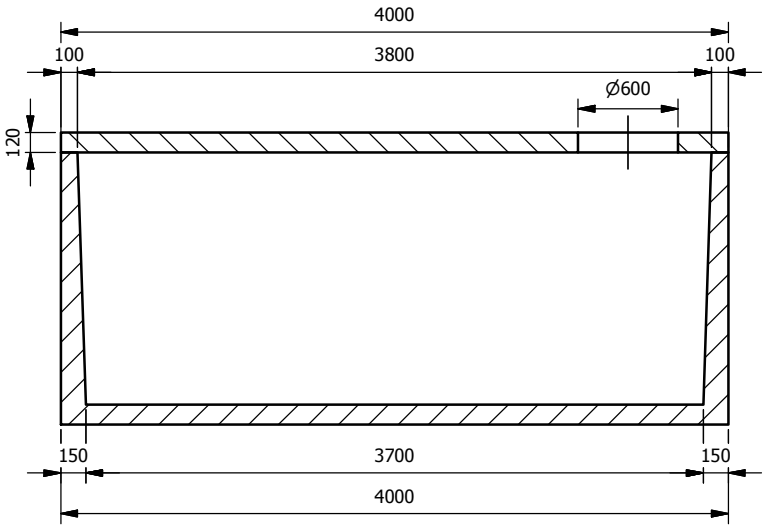
TNK 3,5-E

Informational drawing

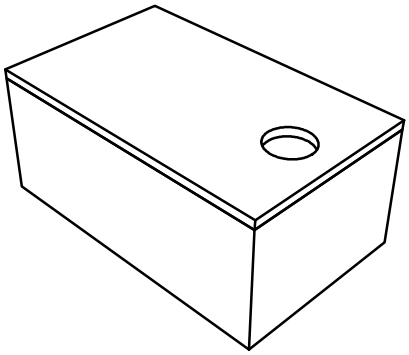
M= 1:25

Net Volume:	3,1	m3
Volume:	4,8	m3
Weight:	3 531	kg
Weight with cover:	4, 091	kg

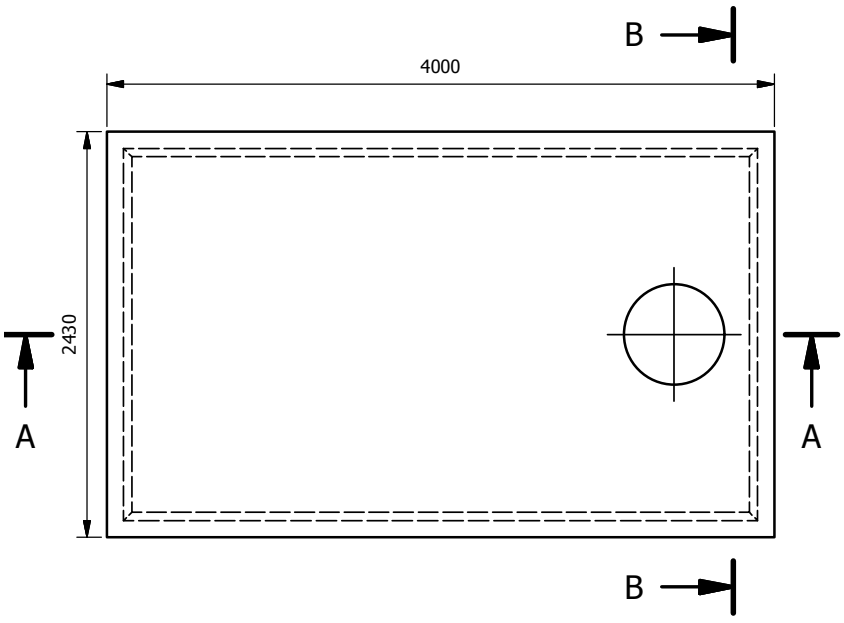
A-A (1 : 40)



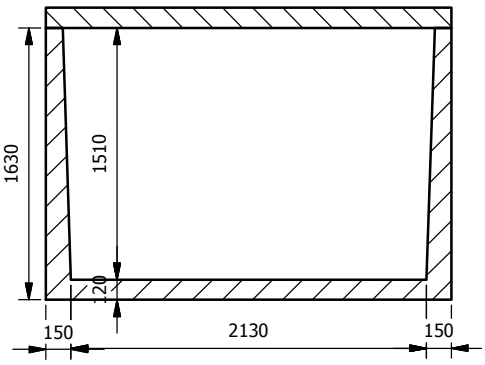
11,5 m³ concrete tank
(1 : 80)



Top View (1 : 40)



B-B (1 : 40)



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ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TYP:

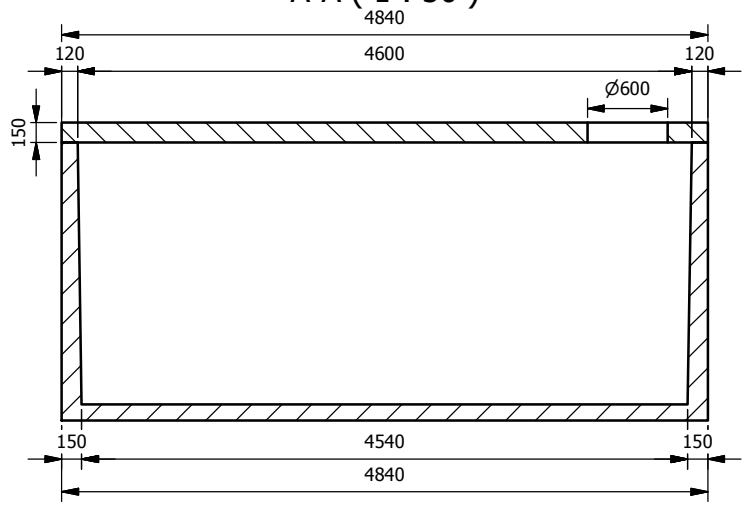
TNK 11,5-E

Informational drawing

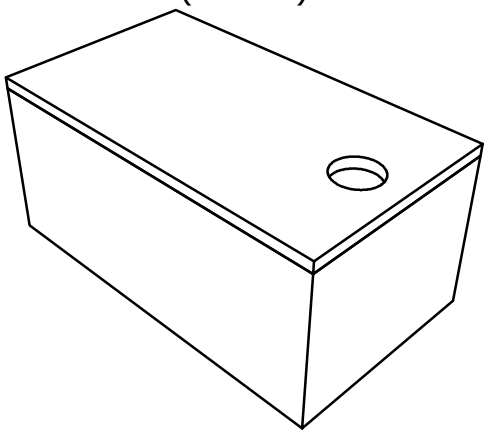
M= 1:40

Net Volume:	11,6	m3
Volume:	15,6	m3
Weight:	8 420	kg
Weight with cover:	11 146	kg

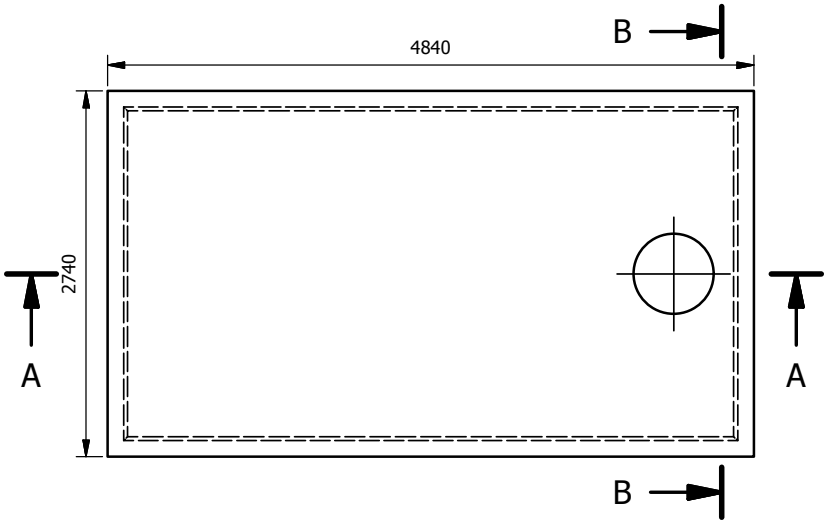
A-A (1 : 50)



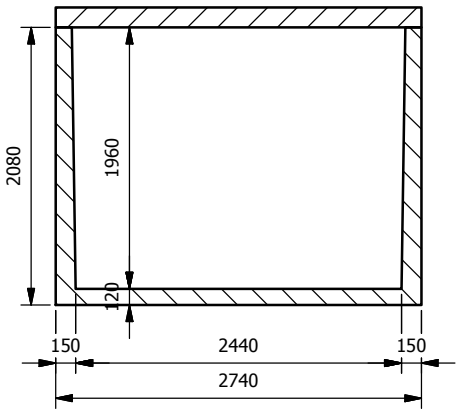
20 m³ concrete tank
(1 : 80)



Top View (1 : 50)



B-B (1 : 50)



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TYP:

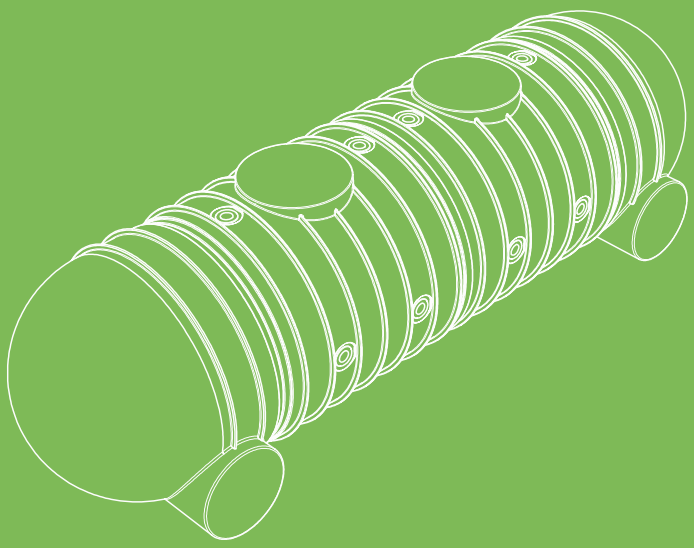
ENVIA TNK drift, sand trap and storage tank for stormwater and sewage systems

TNK 20-E

Informational drawing

M= 1:50

Net Volume:	21,1	m3
Volume:	27,6	m3
Weight:	13 142	kg
Weight with cover:	17 828	kg



HD PLASTIC TANKS

PLASTIC STORAGE TANKS

MAIN FEATURES

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black and white color
- UV-stabilized base and colorant
- High depth can be installed, the computer analysed deformation under load, supported by tests in practice
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

OPTIONAL PARTS

- Non-skidding steps
- Lockable cover
- Pipe connection on request DN25-DN315
- Height adjustment possibility

Name	Volume	Width	Length	Height	Wall thicknes	Weight
TANK 25 modular	2,5 m^3	ø 1500 mm	1600 mm	-	12 mm	130 kg
TANK END modular	1,25 m^3	1660 mm	1211 mm	1500 mm	12 mm	60 kg
3 m^3 TANK	3 m^3	ø 1750 mm	-	1950 mm	10 mm	130 kg
1 m^3 TANK	1 m^3	ø 1250 mm	-	1250 mm	10 mm	45 kg
DN1000 pit	0,8 m^3	ø 1080 mm	-	1300 mm	6 mm	30 kg
DN1250 pit	1 m^3	ø 1000 mm	-	1200 mm	6 mm	30 kg
DN 400 gully pit	0,15 m^3	ø 400 mm	-	1250 mm	5 mm	13 kg
DN 500 watermeter pit	0,2 m^3	ø 500 mm	-	1200 mm	6 mm	13 kg
DN600 pumping pit	0,5 m^3	ø 600 mm	-	1750 mm	10 mm	30 kg

PLASTIC STORAGE TANKS – MODULAR TANK

Main features

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black and white color
- UV-stabilized base and colorant
- High depth can be installed, the computer analysed deformation under load, supported by tests in practice
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

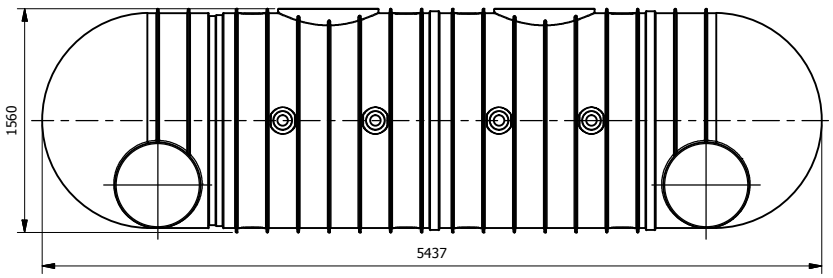
Optional parts

- Non-skidding steps
- Lockable cover
- Pipe connection on request DN25-DN315
- Height adjustment possibility

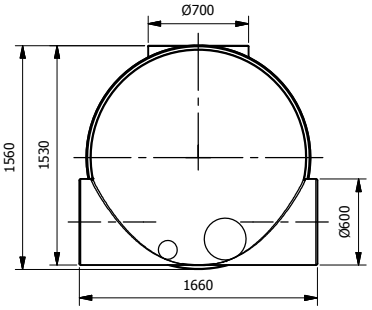
The application fields of the equipment

- Sewage collection tank
- Stormwater storage tank
- Shaft for fittings (distribution system, valves)
- Sediment pit
- Primary tank for treatment plans for family houses
- Firewater storage tank

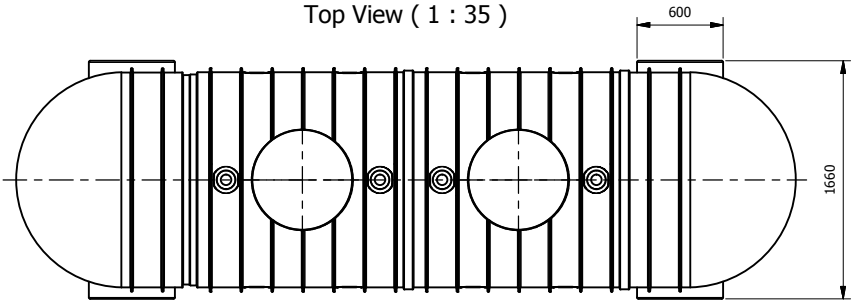
Front View (1 : 35)



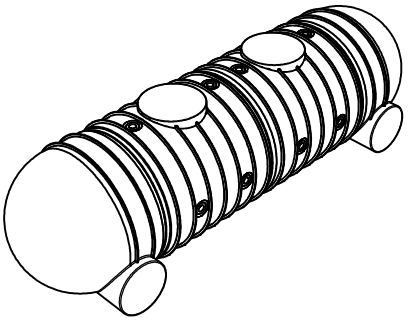
Side View (1 : 35)



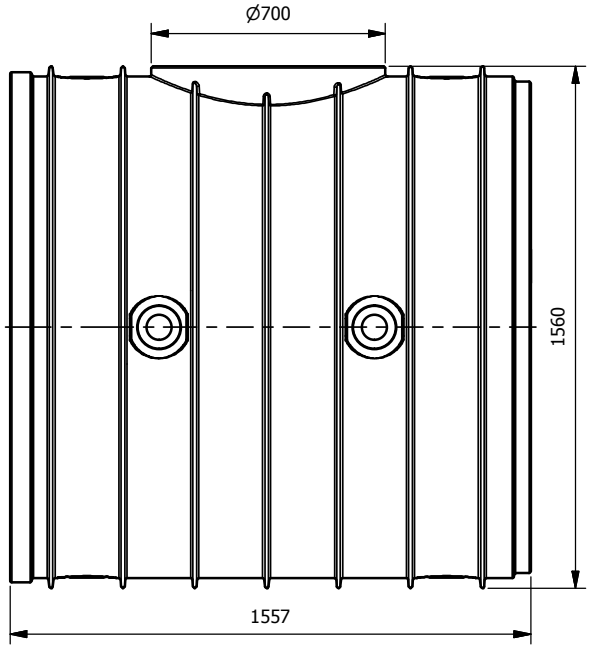
Top View (1 : 35)



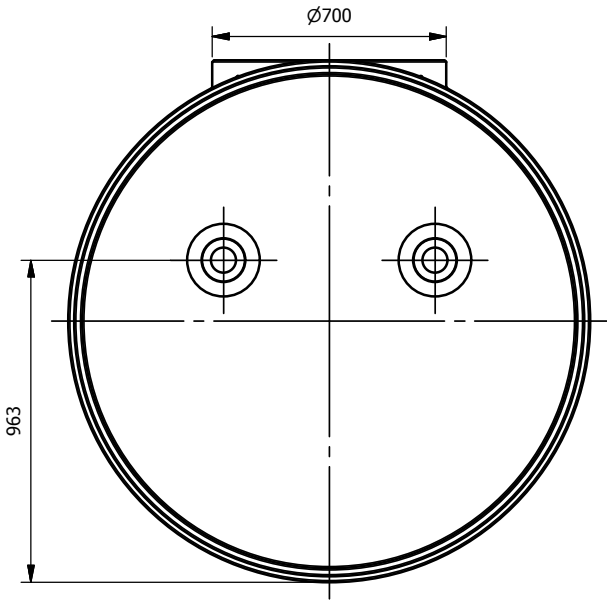
2x2,5 m3 modular with bulkheads
(1 : 55)



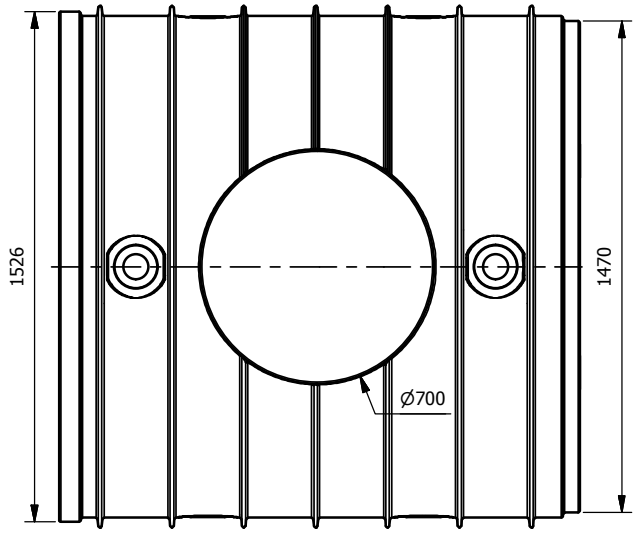
Front View (1 : 20)



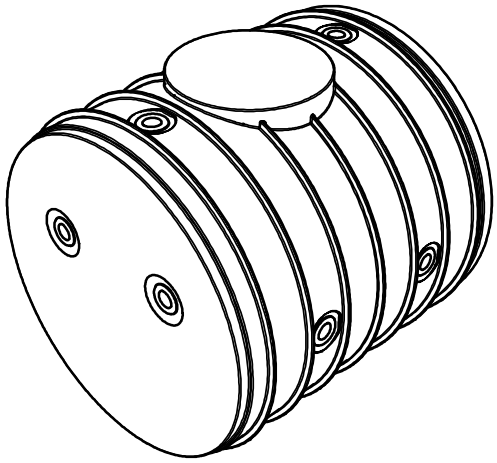
Side View (1 : 20)



Top View (1 : 20)



2,5 m3 modular tank
(1 :30)



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TNK gullys, pits and storage tanks from medium density polyethylene

TYP:

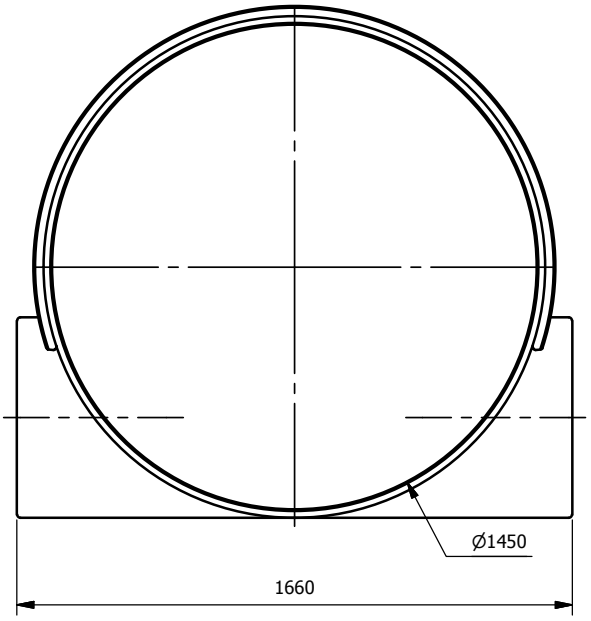
2,5 m3 modular tank

Infromational drawing

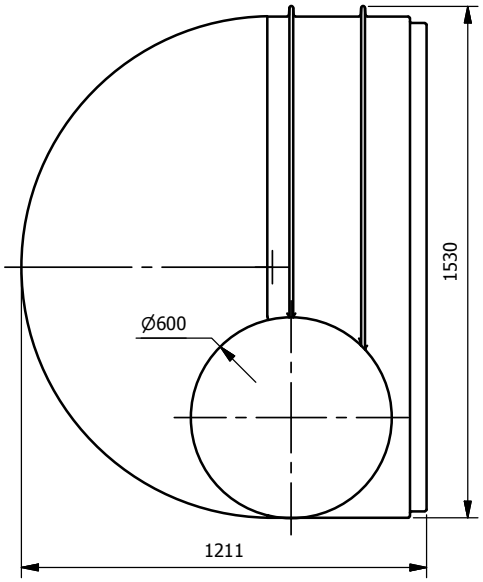
Volume:	2,5	m3
Wall thickness:	10	mm
Total weight:	130	kg

M= 1:20

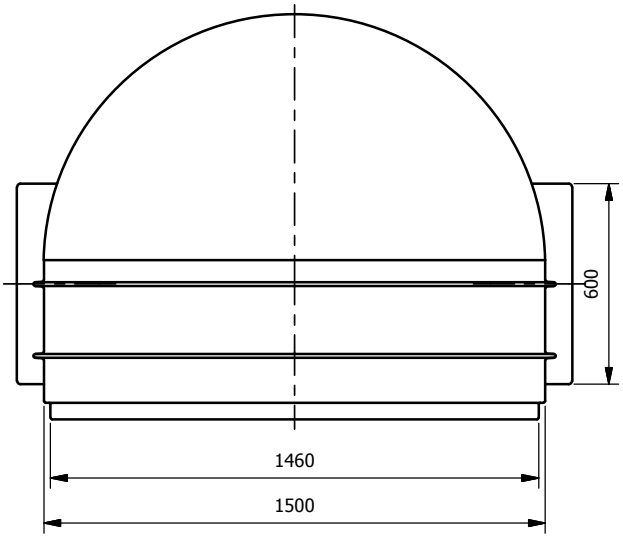
Front View (1 : 20)



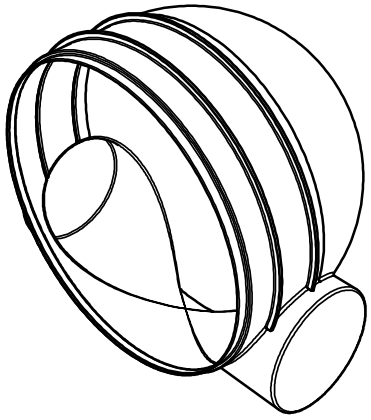
Side View (1 : 20)



Top View (1 : 20)



Bulkhead for 2,5 m3 element
(1 : 30)



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TNK gullys, pits and storage tanks from medium density polyethylene

TYP: Bulkhead for 2,5 m3 modular element
Infromational drawing

Volume:	1,25	m3
Wall thickness:	10	mm
Total weight:		kg

M=1:20

PLASTIC STORAGE TANKS – DN400 PIT

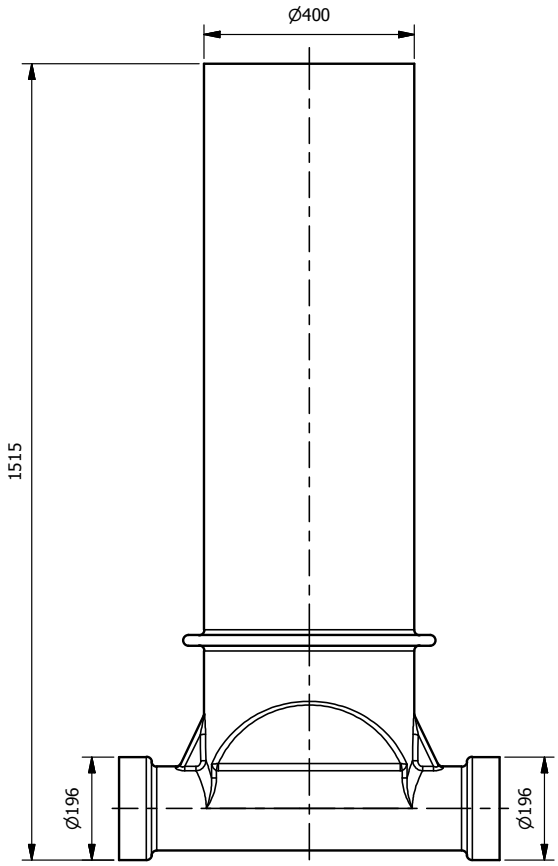
Main features

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black and white color
- UV-stabilized base and colorant
- Garanteed lifetime
- CE certification

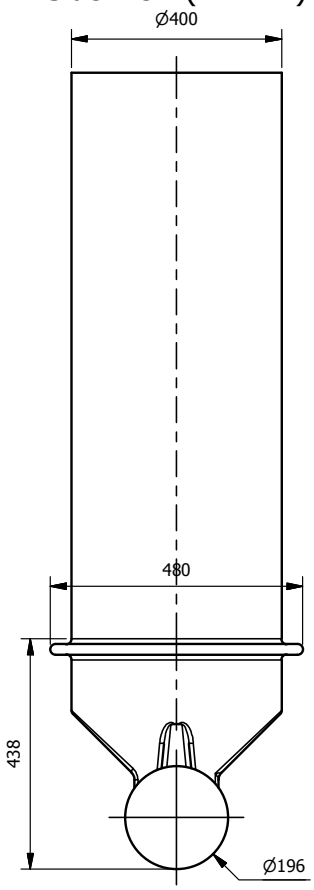
Optional parts

- Height adjustment possibility
- Lockable cover
- Possible thermal insulation

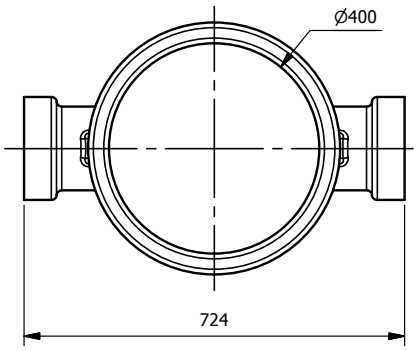
Front View (1 : 12)



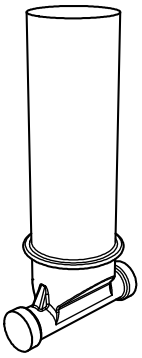
Side View (1 : 12)



Top View (1 : 12)



DN400 gully (1 : 25)



PLASTIC STORAGE TANKS – DN500 PIT

Main features

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black and white color
- UV-stabilized base and colorant
- High depth can be installed, the computer analysed deformation under load, supported by tests in practice
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

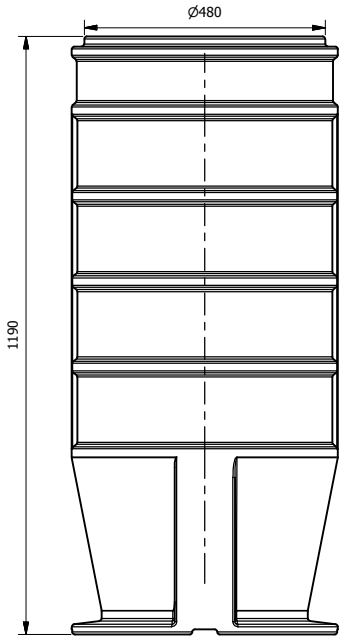
Optional parts

- Non-skidding steps
- Possible thermal insulation

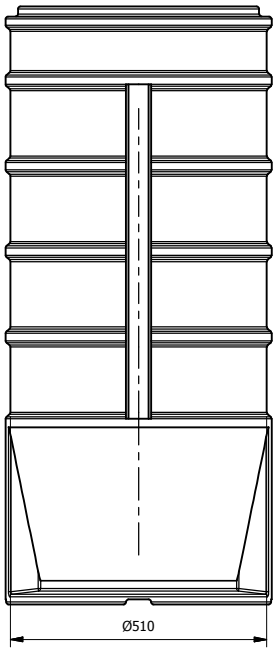
The application fields of the equipment

- Domestic water meter connections (fixed or flexible tube fitted)
- Other meters placement possibility
- Shaft is uniquely designed - fits with other systems

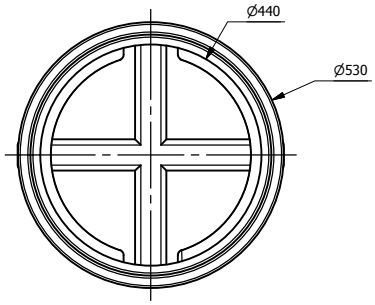
Front View (1 : 10)



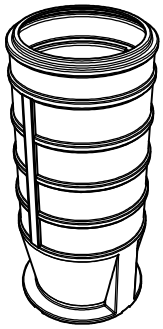
Side View (1 : 10)



Top View (1 : 10)



DN500 pit for watermeter
(1 : 20)



PLASTIC STORAGE TANKS – DN600 PUMP PIT

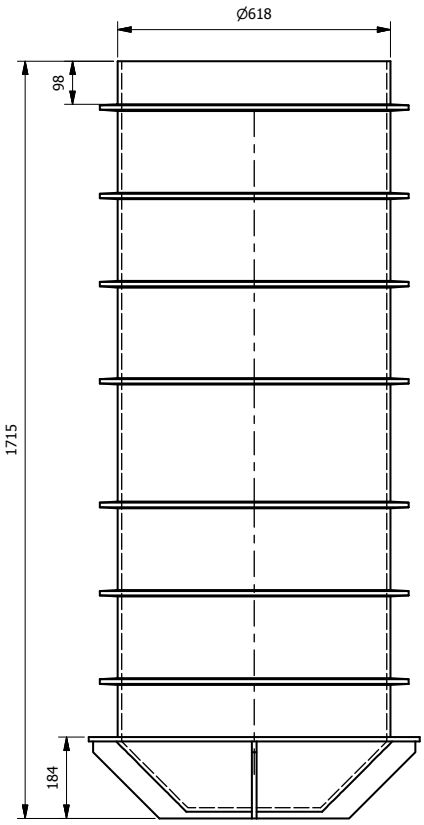
Main features

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black
- UV-stabilized base and colorant
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

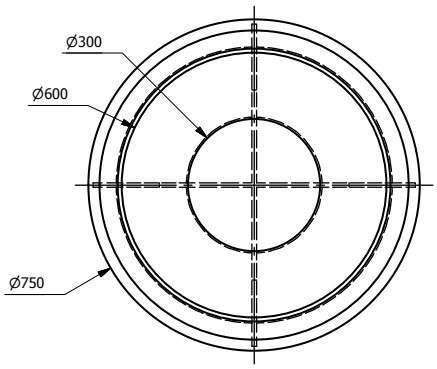
The application fields of the equipment

- Domestic pumping pits
- Other meters placement possibility
- Shaft is uniquely designed - fits with other systems

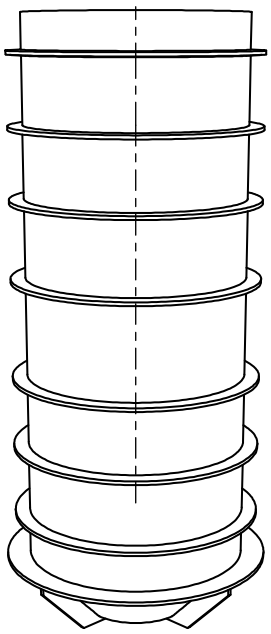
Front View (1 : 12)



Top View (1 : 12)



DN600 pump pit
(1 : 15)



PLASTIC STORAGE TANKS – DN800 PIT

Main features

- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black and white color
- UV-stabilized base and colorant
- High depth can be installed, the computer analysed deformation under load, supported by tests in practice
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

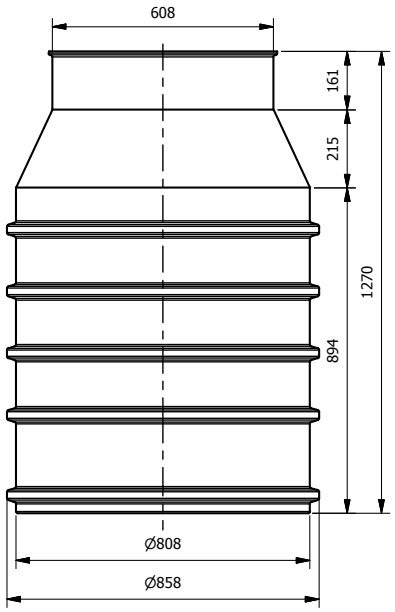
Optional parts

- Non-skidding steps
- Possible thermal insulation

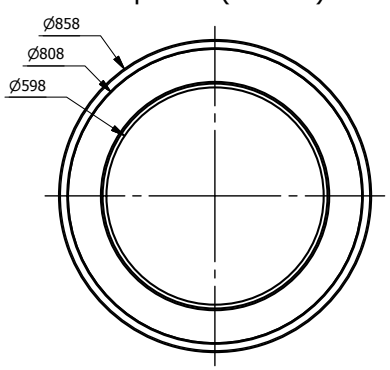
The application fields of the equipment

- Domestic water meter connections (fixed or flexible tube fitted)
- Other meters placement possibility
- Shaft is uniquely designed - fits with other systems

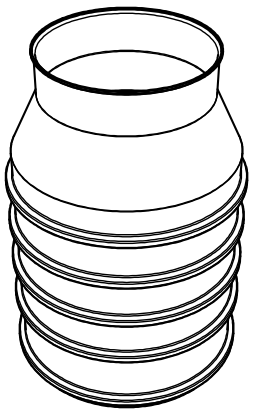
Front View (1 : 15)



Top View (1 : 15)



DN 800 pit (1 : 20)



PLASTIC STORAGE TANKS – DN 1000

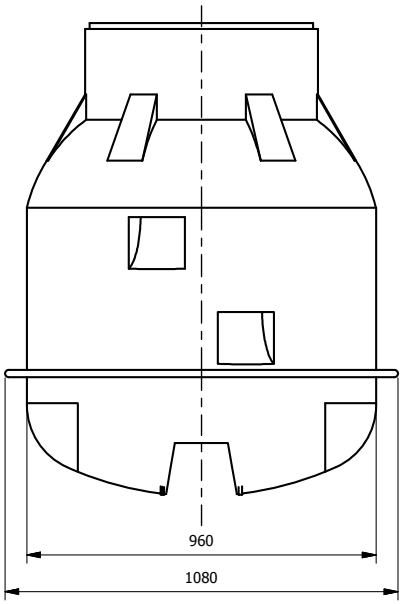
Main features

- Reinforced neck and body connection
- Built-in steps
- Guaranteed lifetime
- Optimal design and geometry
- High-grade, medium-density polyethylene material
- Basic: black
- UV-stabilized base and colorant
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

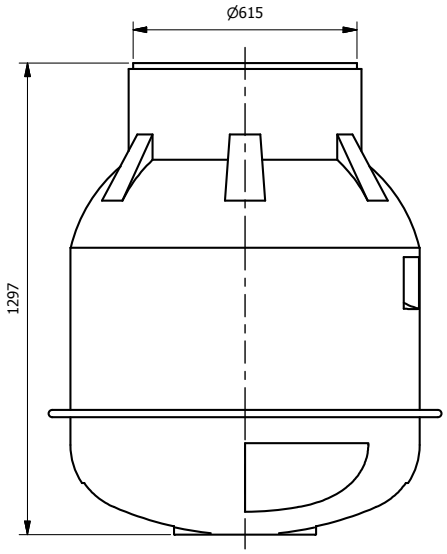
The application fields of the equipment

- For watermeters
- Other meters placement possibility-
- Pump pits
- Shaft is uniquely designed - fits with other systems

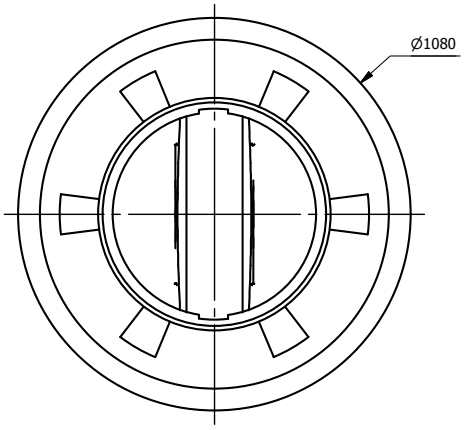
Front View (1 : 15)



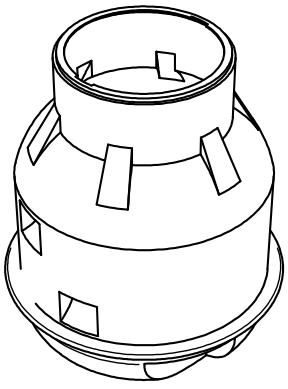
Side View (1 : 15)



Front View (1 : 15)



DN100 pit (1 :20)



PLASTIC STORAGE TANKS – DN1250 PIT - 1 M³

New HD-PE plastic tank for storm water, one of the most durable plastic tanks with step proof cover. Several pieces can be connected to each other.

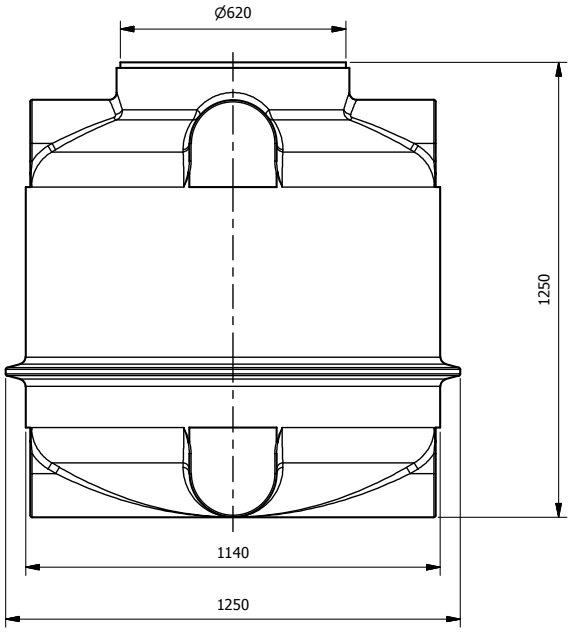
Main features

- Design optimised for bottom connection
- Max 8 pipe connections
- High-grade, medium-density polyethylene material
- Basic: white
- UV-stabilized base and colorant
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

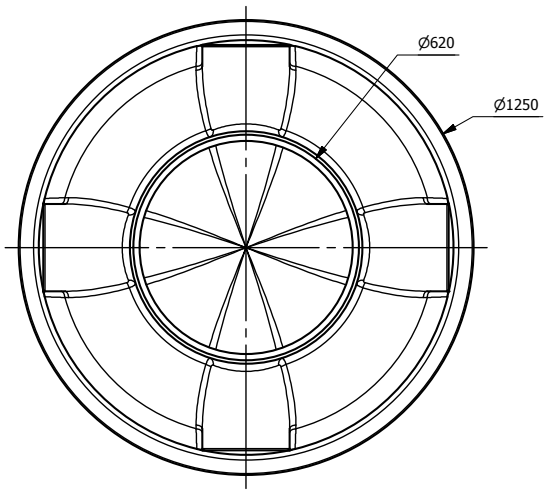
The application fields of the equipment

- For rainwater storage
- Underground and above ground usage

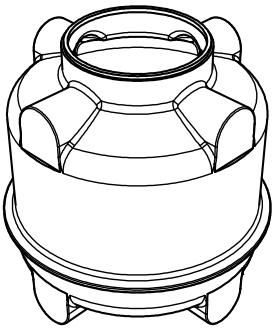
Front View (1 : 15)



Top View (1 : 15)



DN1250 tank (1 : 25)



PLASTIC STORAGE TANKS – DN1800 PIT - 3 M³

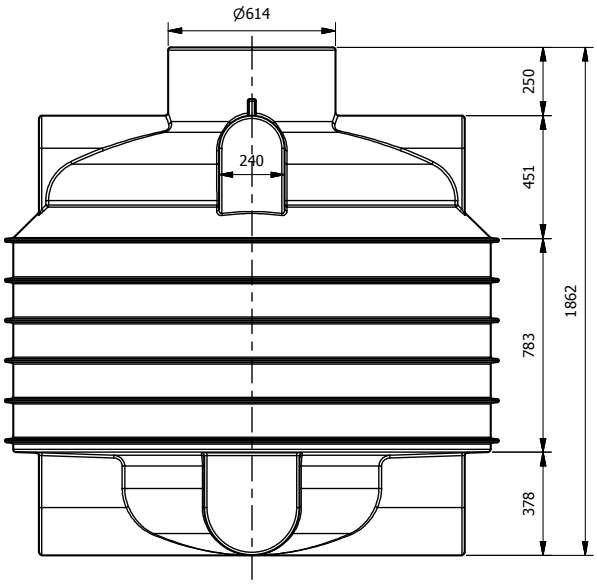
Main features

- Massive ribbed design
- Design optimised for bottom connection
- Max 8 pipe connections
- High-grade, medium-density polyethylene material
- Basic: black
- UV-stabilized base and colorant
- Walk-on cover, cover edge design is protection against the water infiltration
- Anti-slip pattern cover
- CE certification

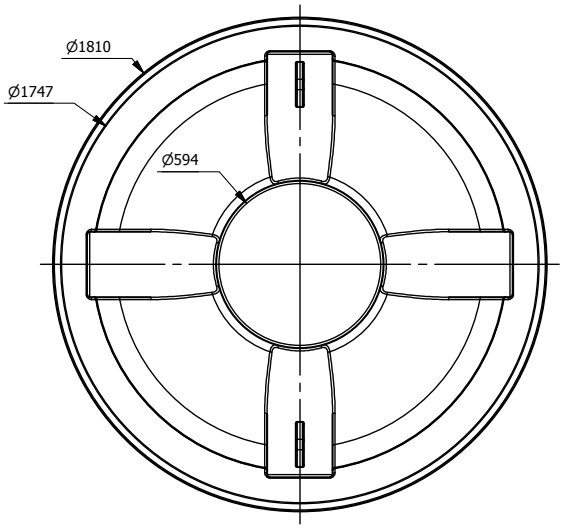
The application fields of the equipment

- For rainwater storage
- Underground and above ground usage

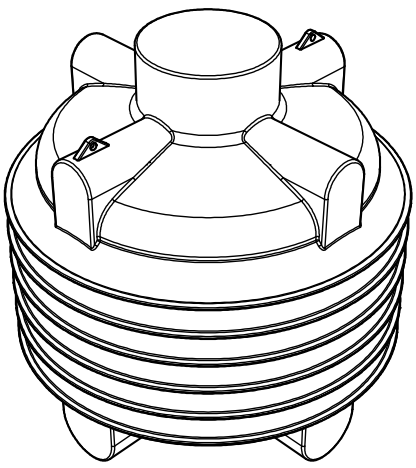
Front View (1 : 20)



Top View (1 : 20)



Storage tank 3 m3
(1 : 25)



GENERAL INSTALLATION GUIDE – HD TANKS

Important:

- In order to avoid mistakes present installations guide should be studied prior to commencement of works and it should be at hand in thee progress of works!
- Recommendations given in the Guide and also relevant safety at work prescriptions should be obeyed!
- Storage tanks may not be installed in areas of high soil-water level!

Selection of location of installation and pre-requisites/conditions

- Adequate free space of required width and length should be available, in order to excavate pit without difficulties.
- At least 1m safety distance should be kept between the tank and the nearest building. If the pit is deeper than the lower level of building foundation distance safety should be enlarged to 3-6 meters.
- It is not allowed to build any structure on top of the tank!
- Installation of tank should be avoided in area of high soil-water.
- Tank is measuremented to hold soil layer given in the offer and for sporadic pedestrian load, it may not be installed under area of heavy pedestrian load pavements, under surfaces of vehicular traffic, those situations must be avoided (it becomes possible if tank is protected by reinforced concrete slab)!
- In vicinity of trees and other plants tank should be farther than 2,5 m-from the trunk of the tree. Only such plants may be planted to the direct vicinity of the tank (beside and above), that will not develop such roots that could block by the tank or which may damage the side of the tank.
- In case of sloping, ground expert should check wether erection of supporting wall is necessary in the 5 m surroundings of the tank.

Installation of the tank

Excavation of working pit

- Working pit should be completed with a flat base, exceeding the perimeter of the tank by 0,5 meter in all direction in order to provide adequate space for work and for compacting of backfill material.
- In order to avoid collapsing of the sidewalls of the pit it is recommended to use 35-80 degree slope.
- In defining the depth of working pit it should be taken into consideration that tank may be loaded to the recommended minimum 15 cm lower gravel bottoming, and the top may be loaded with 25 cm soil coverage. If thicker soil coverage is needed, then the top of the tank should be strengthened by concrete, thickness of which should be in proportion with thickness of extra soil covering and concrete should overhang from edge of tank by 0,5 – 0,7 m at the sides! Concreting should be done in such way, that no extra load is transmitted to the tank!
- After excavating soil from pit, it is recommended to work out lower bottoming on the base – gravel should be used practically – that should be compacted adequately (3–times compacting by machine or equivalent by hand-operated compacting), then horizontality checked. No sharp/pointed stones or any protuberances are allowed in the bottoming.

Placement of tank, workout of pipe connections

- Tank should be lowered/lifted carefully (by the help of lifting cables) down to pit and its horizontal position should be checked. If there are lifting lugs on the tank, they may be used for lifting of empty tanks only.
- Workout/arrangement of pipe-connections may have wide variety, please ask our recommendation to find the cheapest and most suitable solution!

Fill back of soil, compacting

- The tank should be filled up with water up to 1/3 of its volume.
- Place/install the tank-cover/lid, in order to avoid gravel, sand getting into the tank during earth fill back.
- Backfill material around the tank– earth, sand, gravel/sand mix (in granule size between 0,8 – 0,32 mm) should be spread in layers of 0,1 meters evenly around the tank. Each layer should be compacted loosely by hand-operated compacting device in circles, evenly. Compacting with machinery is forbidden! It is forbidden to fill back the excavated soil directly to the sides of tank. The lower 1/5 of tank backfill material may become sludge/slurry, - in case of cylindrical tanks of horizontal axis – in other cases it is forbidden!
- If height of sideways backfill reaches the height of water in the tank, all in-and outlet pipes of tanks should be connected, and by closing it the tank should be continuously filled fully with water in such a way, that it be filled proportionately with the soil backfill, respectively water level in tank should always be higher by 0,1m - 0,2 m then the fillback soil level!
- Then works may be continued – the same way as detailed above – by the workout of sideways bottoming.
- In progress of works pipe-connections should be checked. Those should be fixed solidly and without mechanical stress.

GENERAL INSTALLATION GUIDE – HD TANKS

- For the top 25 cm thick layer may be the soil excavated from working pit, but it may not contain sharp/pointed stones!
- If load becomes higher at the top of the tank than the calculated/allowed load, then strengthening may be needed concrete, the concrete protection should overhang/protrude from the vertical plane of edge of the tank by 0,5 – 1 m.
- Concrete should be reinforced with steel-mesh reinforcement!

BIBLIOGRAPHY, STANDARDS

Oil Separators:
ENVIA TRP
ÉME: É-37/2012
ENVIA CRC
ÉME: É-38/2012
ENVIA TNC, ENVIA TNS, ENVIA TNB
EN8585-1:2003
EN 858 -2:2003
ÉME: É-24/2009

Grease Separators:
PARCO - C, PARCO - P
EN1825-1:2004
EN1825-2:2002
ÉME: É-22/2009

Infiltration:
DWA-A 138

Storage tanks:
TUBUS:
EN 10143:2009
EN 10346:2009
EN ISO 1461:2009
EN 10027-1:2005

HD plastic tanks
ÉME: A-99/2012

RUNOFF FACTORS

Density g/cm³	Flat	Rolling	Hilly
Pavement and roofs	**0,90**	**0,90**	**0,90**
Earth shoulders	0,50	0,50	0,50
Drives and walks	0,75	0,80	**0,85**
Gravel pavement	**0,85**	**0,85**	**0,85**
City business areas	0,80	**0,85**	**0,85**
Apartment dwelling areas	0,50	0,60	0,70
Light residential: 1 to 3 units/acre	0,35	0,40	0,45
Light residential: 3 to 6 units/acre	0,50	0,55	0,60
Light residential: 6 to 15 units/acre	0,70	0,75	0,80
Lawns	0,17	0,22	0,35
Grass shoulders	0,25	0,25	0,25
Slide slopes, Earth	0,60	0,60	0,60
Slide slopes, Turf	0,30	0,30	0,30
Median areas, Turf	0,25	0,30	0,30
Cultivated land, clay and loam	0,50	0,55	0,60
Cultivated land, sand and gravel	0,25	0,30	0,35
Industrial areas, light	0,50	0,70	0,80
Industrial areas, heavy	0,60	0,80	**0,90**
Parks and cemeteries	0,10	0,15	0,25
Playgrounds	0,20	0,25	0,30
Woodland and forests	0,10	0,15	0,20
Meadows and pasture land	0,25	0,30	0,35
Unimproved areas	0,10	0,20	0,30

Note:
Impervious surfaces in bold
Rolling, ground slope between 2 percent to 10 percent
Hilly, ground slope greater than 10 percent

DENSITY FACTOR f_d FOR PARTICULAR LIGHT LIQUIDS AND COMBINATION OF COMPONENTS

Light liquid	Density at 15°C to 20 °C (g/cm3)	Separability	Fd S-II-P	Fd S-I-P	Fd S-II-I-P	Max. solubility in water under certain conditions	Others
Acetic-acid-amylacetate	0,876	Yes	2	1,5	1	2,5 g/l	a
Acetic-acid-ethylester (Ethylacetate)	0,9	Limited	3	2	1	86,0 g/l	After a while decomposition in acetic acid and water
Acetic-acid-methylacetate	0,930 to 0,934	Limited	3	2	1	292 g/l	a particulary in closed compartments
Acetic-acid-n-buthylester	0,876	Limited	2	1,5	1	7 g/l	After a while decomposition in acetic acid and ethylalcohol
Acetone	0,791	No	-	-	-	Unlimited	-
Amber oil	0,8	Yes	1	1	1	-	-
Amylalcohol	0,815	Limited	1	1	1	27 g/l	Mixtures with water harmful
Benzene	0,87	Yes	2	1,5	1	1,8 g/l	a
Butylalcohol	0,81	Limited	1	1	1	90 g/l	a
Coal tar oil	0,86 to 0,89	Yes	2	1,5	1	0,2 g/l	-
Cresol oil	1,03	No	-	-	-	20 g/l	-
Cyclohexanol	0,968	No	-	-	-	56,7 g/l	-
Cyclohexane	0,778 to 0,779	Yes	1	1	1	Nearly insoluble	a
Dekaline (dekahydro-naphtalente)	0,870 to 0,896	Yes	2	1,5	1	Nearly insoluble	-
Diesel fuel, diesel oil	0,85	Yes	1	1	1	Nearly insoluble	-
Diethyleter	0,714	Limited	1	1	1	75 g/l	Emission of diethylether gases
Dioxane	0,10306	No	-	-	-	Unlimited	a In case of high concentration
Ethylalhocol	0,789	No	-	-	-	Unlimited	a In case of high concentration
Ethylbutyrate(butyric-acid-n-ethylether)	0,879	Limited	2	1,5	1	6,2 g/l	a
Ethylmethylketon	0,805	No	-	-	-	Well soluble	-
Formic acid ethylester	0,919 to 0,921	Limited	3	2	1	110 g/l	a
Formic acid methylester	0,969 to 0,971	Limited	3	2	1	3000 g/l	a
Fuel oil, extra light	<0,86	Yes	1	1	1	Nearly insoluble	-
Fuel oil, light	0,87	Yes	2	1,5	1	-	-
Fuel oil, medium	0,92	Yes	3	2	1	-	-
Fuel oil, heavy	094 to 0,99	Limited	3	2	1	Nearly insoluble	-
Heavy petrol	0,70 to 0,75	Yes	1	1	1	Nearly insoluble	-
Heptane	0,684	Yes	1	1	1	Nearly insoluble	a
Hexane	0,659	Yes	1	1	1	Nearly insoluble	a
Iso-amylalcohol	0,813	Limited	1	1	1	30 g/l	
Iso-butylalcohol	0,806	Limited	1	1	1	95 g/l	a on warm days
Iso-propylalcohol	0,785	No	-	-	-	Unlimited	a
Kerosine (jet petrol)	0,8	Yes	1	1	1	-	a When exposed to sunlight"

DENSITY FACTOR f_d FOR PARTICULAR LIGHT LIQUIDS AND COMBINATION OF COMPONENTS

Light liquid	Density at 15°C to 20 °C (g/cm3)	Separability	Fd S-II-P	Fd S-I-P	Fd S-II-I-P	Max. solubility in water under certain conditions	Others
Light oil -> fuel oil, light							
Light oil -> petrol, gasoline							
Lignite tar oil -> coal tar oil							
Lubricating oil	0,89 to 0,9	Yes	2	1,5	1	Nearly insoluble	-
Methyl alcohol	0,790 to 0,791	No	-	-	-	Unlimited	a
Methylcyclohexanol	0,91 to 0,94	Yes	3	2	1	-	-
Oil of turpentine	0,86 to 0,87	Yes	2	1,5	1	-	a in case of higher temperatures
Paraffin oil	0,88 to 0,94	Yes	3	2	1	Nearly insoluble	-
Pentane	0,625 to 0,626	Yes	1	1	1	0,36 g/l	a
Petrol, gasoline, mixture of brands	0,68 to 0,75	Yes	1	1	1	-	a
Petrol, gasoline, branded	0,68 to 0,75	Yes	1	1	1	-	a
Petrol, racing cars	0,78	Yes	1	1	1	-	a
Petroleum	0,8	Yes	1	1	1	Nearly insoluble	-
Pine oil -> oil of turpentine							
Propionacidethylester	0,889 to 0,891	Yes	2	1,5	1	22 g/l	a
Propylalcohol	0,804	No	-	-	-	Unlimited	-
Propylbutyrate	0,88	Yes	2	1,5	1	≈ 0,3 g/l	-
Tetraline (tetrahydronaphtalene)	0,967 to 0,969	Limited	3	2	1	-	-
Test petrol	0,764 to 0,794	Yes	1	1	1	Nearly insoluble	-
Toluene	0,866 to 0,867	Yes	2	1,5	1	Nearly insoluble	a
Tractor fuel -> diesel fuel and petroleum							
Transformer oil (isolating oils) - not containing PCB - containing PCB PCB= polychlorinated biphenyls	≈ 0,82	"Yes No"	"1 - "	"1 - "	"1 - "	-	-
Xylene a Possible formation of explosive atmosphere above water level.	0,862 to 0,875	Yes	2	1,5	1	0,2 g/l	a