



ENVIRONMENTALLY FRIENDLY SOLUTIONS



Dear Readers

We provide you with another catalogue, being the culmination of our long-standing work related to waste management.

The contents of this catalogue sum up our previous operation. We strive to make efforts to meet our clients' expectations and have been continuously working on the development of old and implementation of new products into the production process.

We have provided all our clients with top quality products, both on the Polish and global market. When it comes to matching our products to your needs, we offer our help.

Currently, we all possess an amazing tool facilitating our work and guaranteeing manufacturing correctness: European Standard.

Every CWD product complies with European Standards, as it is shown through declarations of conformity. Compliance provides us with the right to use CE marking on our goods.

Considering the need to create optimum conditions of cooperation with our clients and improve quality, guarantee, and other control procedures, we were submitted to an audit, as a result of which CWD has been granted ISO 9001 and ISO 14001:2005 certificates.

We do everything to become the market leader.

CWD personnel



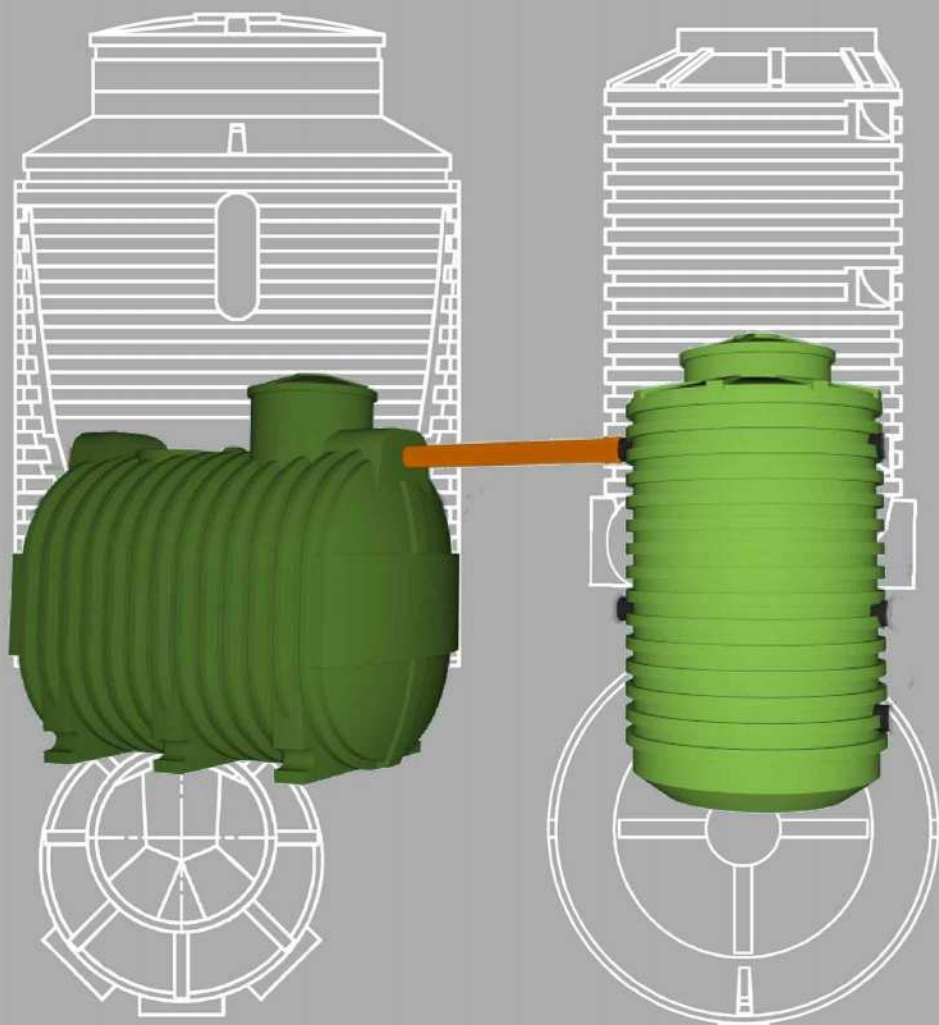


WE ARE PRESENT IN:

1. Chile 2. Kazakhstan 3. Mongolia 4. United Kingdom 5. United States 6. Mexico 7. Monaco
8. Canada 9. United Arab Emirates 10. Slovenia 11. Ireland 12. Thailand 13. Lebanon 14. Italy
15. Romania 16. Iceland 17. New Guinea 18. Morocco

ARGO domestic wastewater plant	03
BIOTIC domestic wastewater plant	10
VORTEX domestic wastewater plant	17
VASA SBR domestic wastewater plant	26
Prefabricated treatment plant	36
ZEUS septic tank	39
Intermediate pumping stations	49
Soakaway	54
NERO sewage chamber	57

ARGO DOMESTIC WASTEWATER TREATMENT PLANT





ARGO treatment plant

ARGO domestic wastewater treatment plants operate on biofilter bed basis. Electric energy consumption amounts to 0.00 kwh/d. They do not use any electric devices and achieve the best treatment results. ARGO domestic wastewater treatment plant complies with the European Construction Products Directive 305/2013/EEC and PN-EN 12566-3+A2:2013 (Small wastewater treatment systems for up to 50 PT — Part 3: Packaged and/or Site Assembled Domestic Wastewater Treatment Plants).

Intended use

ARGO treatment plant is intended to treat residential wastewater generated by one-family and multi-family buildings occupied by 4 to 50 PE (Population

Operation

Raw wastewater reaches the primary settling tank, in which they are clarified, i.e. settleable solid, sedimenting to the tank's bottom, and floating solid, creating a blanket, are separated. Wastewater without solids flows gravitationally from central area through an additional fixed mechanical filter preventing the solid from flowing into the reactor.

The clarified wastewater is evenly distributed inside the reactor using plastic perforated pipes on ARGO biofilter bed surface. It is comprised of two layers of filtration material. Biofilter layers are divided by a ventilation zone, in which the treated wastewater is aerated.

Thanks to a unique structure, ARGO bed has great specific surface, becoming a perfect base for biofilter growth. At the same time, ARGO biofilter properties do not allow the permeating liquid to create wastewater migration down passages, being characteristic defects of beds founded on plastic parts.

These properties completely prevent microflora from drying, which allows leaving the plant without fresh wastewater supply for 6 months or even more.

Tests carried out in a notified laboratory have shown that the treatment plant start-up lasts only for 24 hours.



**ELECTRIC ENERGY
CONSUMPTION
AMOUNTS
TO 0.00 kwh/d**





Technical information

- No energy demand.
- Comprised of two monolithic tanks: primary settling tank and biofilter reactor.
- Depending on the required flow capacity, primary settling tank's functions are executed by ZEUS 2000 or ZEUS 3000 tank.
- Tanks made of polyethylene high-density (PEHD). Inlet diameter: 110, outlet diameter: 160.
- A previously mounted settling tank or septic tanks may operate as a primary settling tank.
- Resistant to irregular wastewater supply. Complete start-up within 24 hours. Selection necessity once per 2-3 years.

Assembly conditions

- Distance from lot boundary: 2 m
- Distance from building: at least 5 m
- Distance between the treatment plant and drinking water well: 15 m
- Distance between absorbing well and drinking water well: 30 m
- Distance from the nearest trees: 3 m.

Treatment plant structure

ARGO domestic treatment plant is comprised of two basic elements connected with hydraulic lines and ventilation ducts of the primary settling tank and ARGO biofilter reactor. The reactor's module is available in three sizes for nominal number of PE (6, 10, and 15), with the possibility of connecting the modules into larger sets (even up to

**COMPLETE START-UP
WITHIN 24 HOURS**

24h





FEATURES	Power supply biological treatment plant	ARGO biological treatment plant
Energy requirement	Yes	None
Selection frequency	Once per 6-12 months	Once per 2-3 years
Movable parts	None	None
Control frequency	Once a week/month	Once a year
Resistance to excessive loads	Medium	High
Resistance to irregular wastewater supply	Medium	Very high
Warranty for treatment plant and equipment	2 years	10 years
Treatment efficiency	Very good	Very good
Service costs	Average	Low
Occurrence of unpleasant smell	None	None
Time required for complete start-up	Up to 28 days	Up to 24 hours
Possibility of using in agritourism farms and holiday houses	No	Yes

NO MOVABLE PARTS



Advantages:

- No energy demand
- Sludge disposal once per two years
- No movable parts
- Control frequency: once a year
- High resistance to excessive loads
- Very good treatment efficiency
- Low service costs
- Lack of unpleasant smell
- Time required for complete start-up: 24 hours
- Possibility of using in agritourism farms and holiday houses
- Possibility of using an airtight tank (septic tank)
- High resistance to irregular wastewater supply
- 10-year warranty for treatment plant and equipment

Technical data

Biofilter reactor dimensions

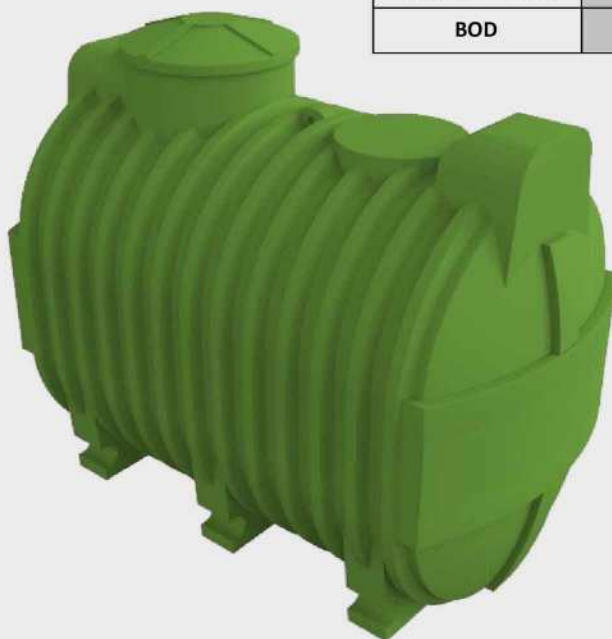
Parameter	ARGO-4	ARGO-6	ARGO-10	ARGO-15
Diameter	1000mm	1000mm	1570mm	1570mm
Height	2010mm	2010mm	2305mm	2305mm
Manhole diameter	640mm	640mm	1000mm	1000mm
Inlet height	1370mm	1370mm	1370mm	1370mm
Outlet height	280mm	280mm	280mm	280mm
Tank weight (empty)	70kg	70kg	150kg	150kg

Primary settling tanks should be chosen in accordance with the table below.

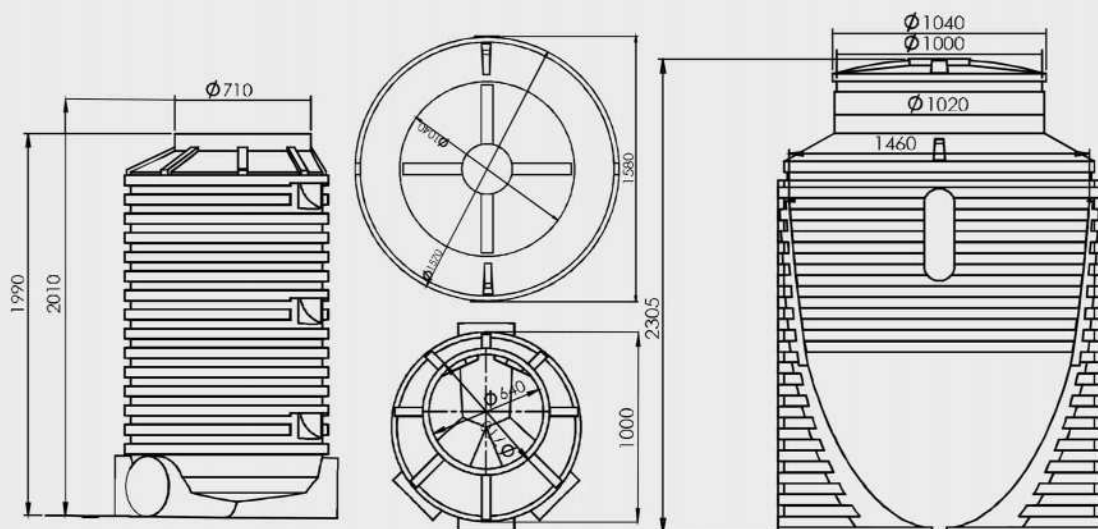
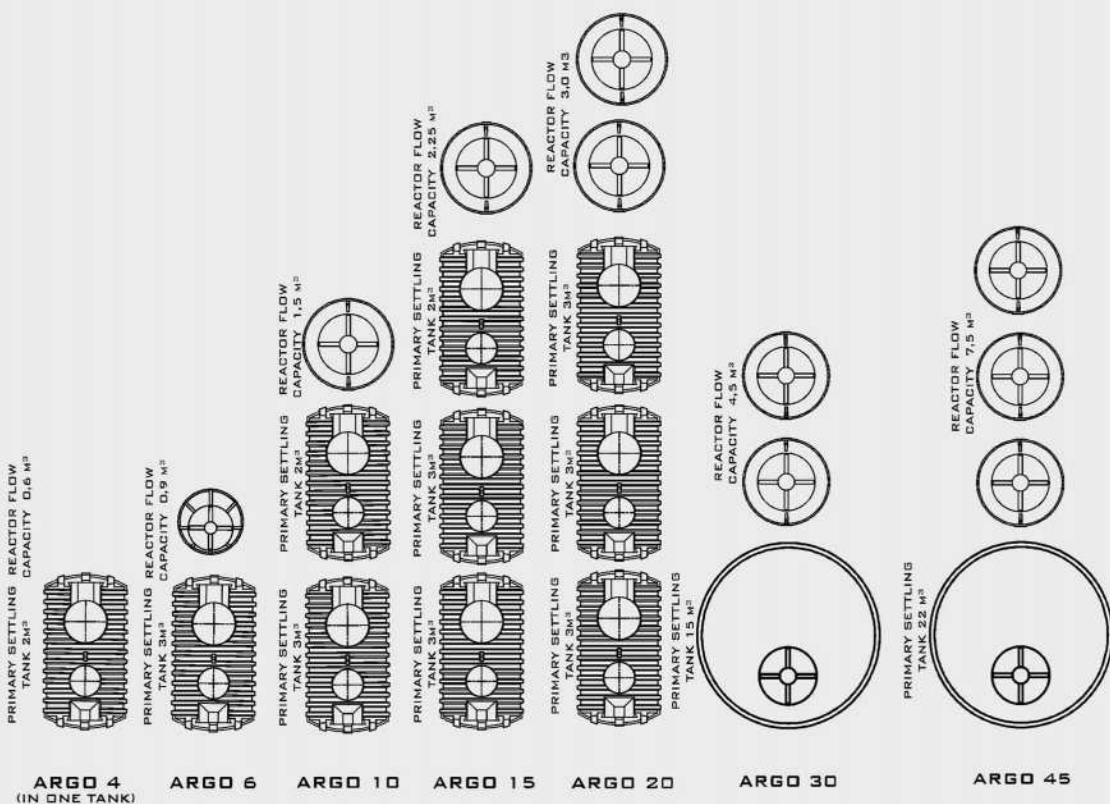
Treatment plant	Flow capacity (m ³)	PE	Primary settling tank (m ³)
ARGO-4	0,60	4	2,00
ARGO-6	0,90	6	3,00
ARGO-10	1,50	10	5,00
ARGO-15	2,25	15	7,50
ARGO-20	3,00	20	10,00
ARGO-30	4,50	30	15,00
ARGO-45	7,50	45	22,50

Reduction rate

Characteristics	Reduction rate (%)	Reduction rate (mg/l)
COD	86,5	96,2
Suspended solid	94,4	17,4
BOD	88,8	35,9











BIOTIC treatment plant

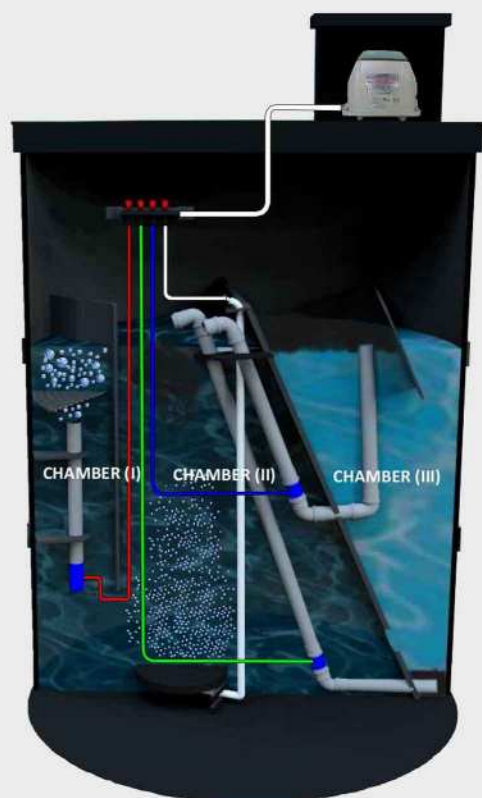
BIOTIC domestic wastewater treatment plant complies with the European Construction Products Directive 305/2013/EEC and PN-EN 12566-3+A2:2013 (Small wastewater treatment systems for up to 50 PT — Part 3: Packaged and/or Site Assembled Domestic Wastewater Treatment Plants).

Operation

BIOTIC treatment plant operates on the basis of low-impact activated sludge technology consisting in treating wastewater by aerobic bacteria and microorganisms with simultaneous intensive wastewater aeration. In the aeration chamber, air pockets hovering upwards over mid-mounted disc diffuser force analogous liquid downward flow (central, from the bottom upwards, then along chamber walls). It allows producing a proper group of microorganisms necessary to carry out the treatment process in aerobic conditions. Gravitational forces make particulates drop to the bottom, from where they are sucked in upwards using the diffuser, etc. Upon supply of new wastewater into the aeration chamber, liquid mass is moved from the aforementioned chamber to primary settling tank chamber, and then towards the outlet. Treated wastewater is disposed on a gravitational basis through PVC pipe. Activated sludge, being produced in the course of the treatment process, is continuously mixed with fresh wastewater supplied to the aeration chamber. The wastewater treatment process is accompanied by aerobic stabilization of sludge remaining in BIOTIC reactor. Sludge insufficient impurity load resulting from daily flow irregularity in the course of the aforementioned process has no negative impact on final treatment result.



The air is supplied to the plant by a compressor mounted directly on the plant's lid, inside a protective box. The aeration chamber shape ensures mixing air with treated wastewater. The treatment plant assembly should be carried out in accordance with assembly and operation manual. It may be performed by an authorized service technician, assembler, or on one's own by the

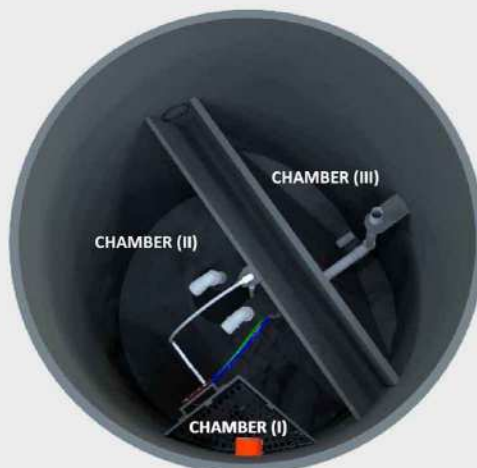




Treatment plants belonging to BIOTIC series of types are intended to treat residential wastewater from facilities not connected to sanitary sewage networks.

- residential buildings,
- rural schools,
- health centres,
- clinics,
- catering stands,
- camping centers,

- PE-HD three-chamber tank,
- easily accessible blowing engine and control mounted in the lid,
- inlet diameter: 110 or 160, outlet diameter: 110,
- operated lid half (150 cm) allowing for direct access into all chambers.



Characteristics	Reduction rate (%)	Av. value of outlet treated wastewater (mg/l)
BOD ₅	96,5	8,5
COD	90,4	47,1
Suspended solid	94,4	15,2
Nitrogen	93,9	3,7
Phosphorus	52,3	3,1
NH ₄ N	98,9	0,4

LOW ELECTRIC ENERGY COSTS

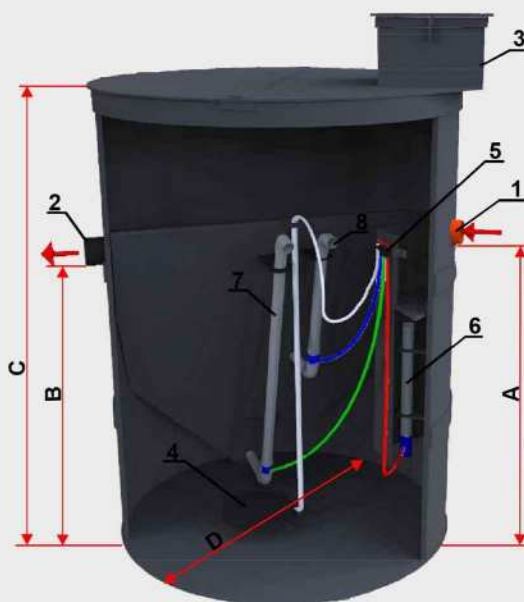


Treatment plant structure

Legend:

- 1 - inlet,
- 2 - outlet,
- 3 - technical container,
- 4 - disc diffusor,
- 5 - air separator,
- 6 - air ejector for breaking rough impurities,
- 7 - mammoth pump for recirculation of activated sludge,
- 8 - mammoth pump for recirculation of dead sludge

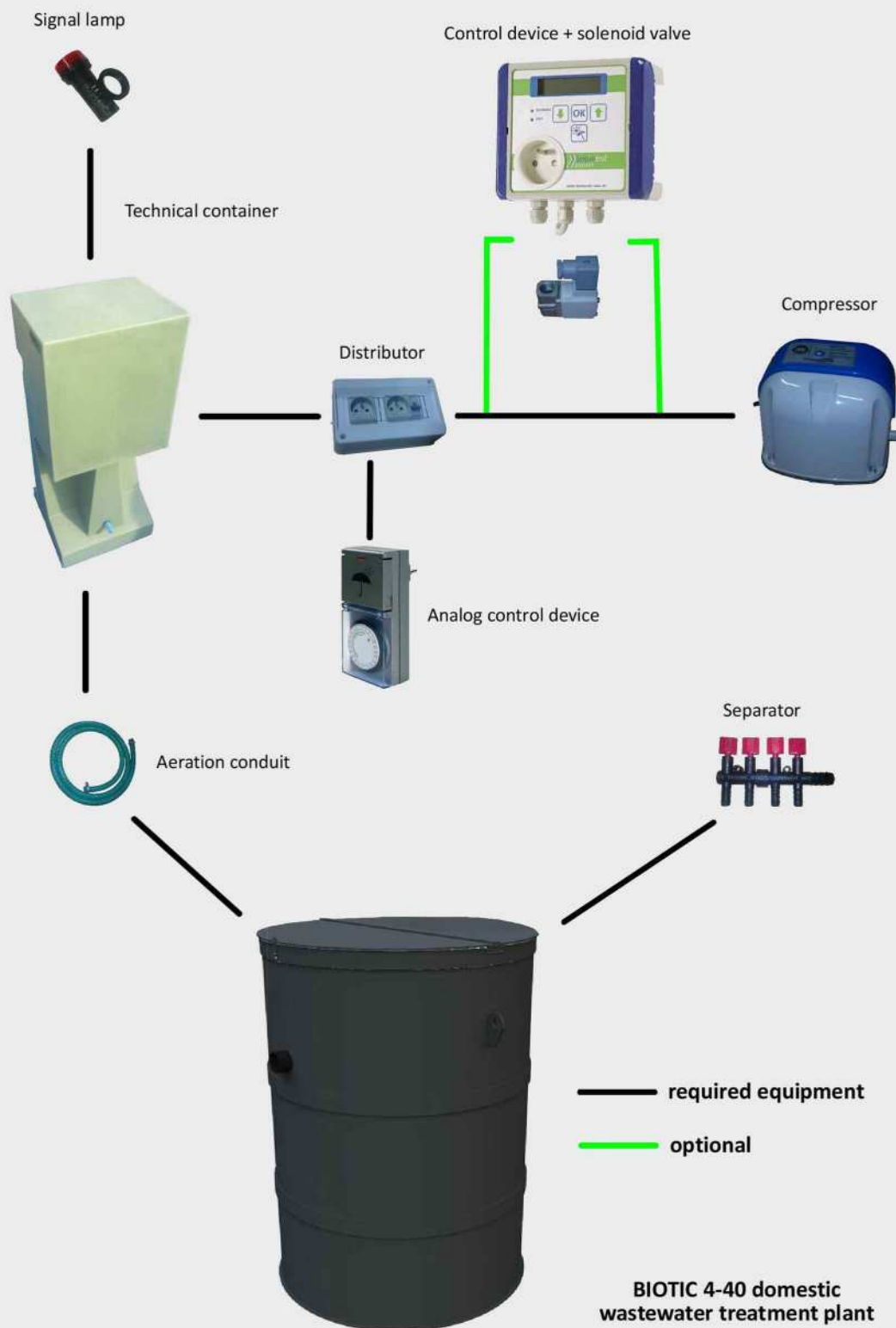
- BIOTIC treatment plant advantages:**
- very quiet operation,
 - sludge disposal once per year,
 - gives off no smell,
 - low electric energy costs,
 - easy assembly,
 - factory mounted,
 - does not require additional bacteria,
 - energy-efficient and easy to maintain air-lifting installation; mammoth pumps instead of impeller pumps,
 - very high treatment efficiency,
 - thanks to the use of polyethylene, the unit is light and resistant to corrosion and mechanical damages.



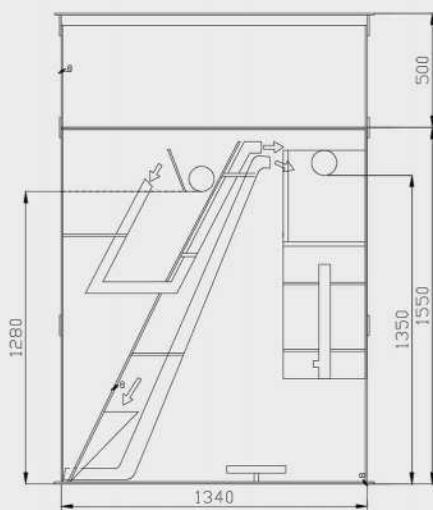
BIOTIC treatment plant dimensions						
	A	B	C	D	Daily flow capacity	Number of diffusors
	(mm)				m ³	pcs.
BIOTIC 4	1340	1280	2070	1360	0,6	1
BIOTIC 6	1340	1280	2070	1440	0,9	1
BIOTIC 10	1340	1280	2070	1790	1,5	2
BIOTIC 15	2080	2010	2320	1790	2,25	2
BIOTIC 20	2080	2010	2320	2030	3,0	3
BIOTIC 30	2080	2010	2320	2280	4,5	4
BIOTIC 40	2080	2010	2320	2580	6,0	6



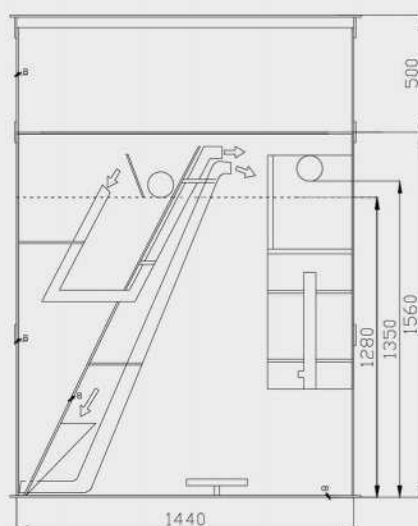
List of equipment of BIOTIC domestic treatment plant



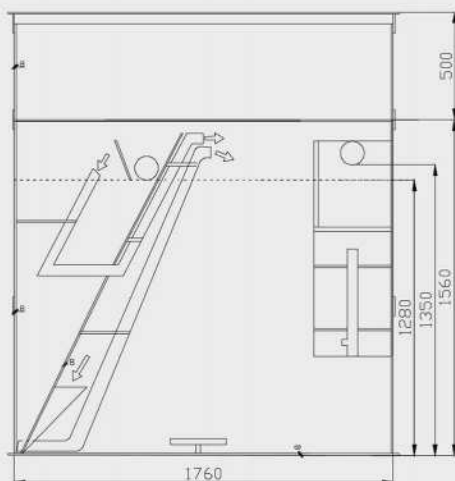
BIOTIC 4



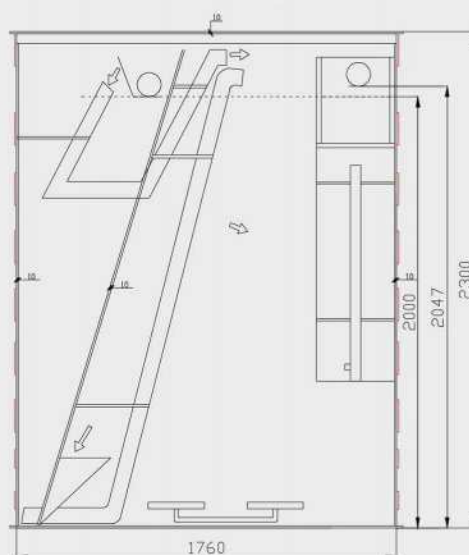
BIOTIC 6



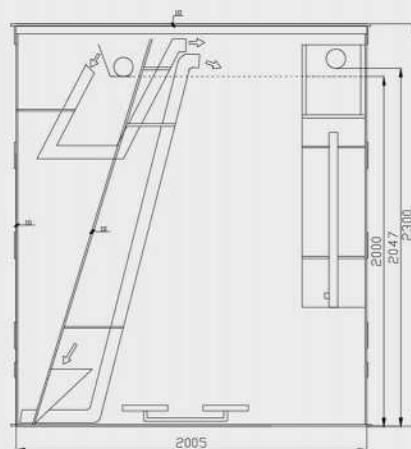
BIOTIC 10



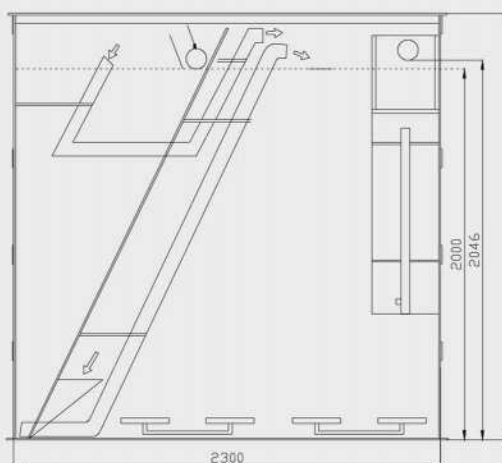
BIOTIC 15



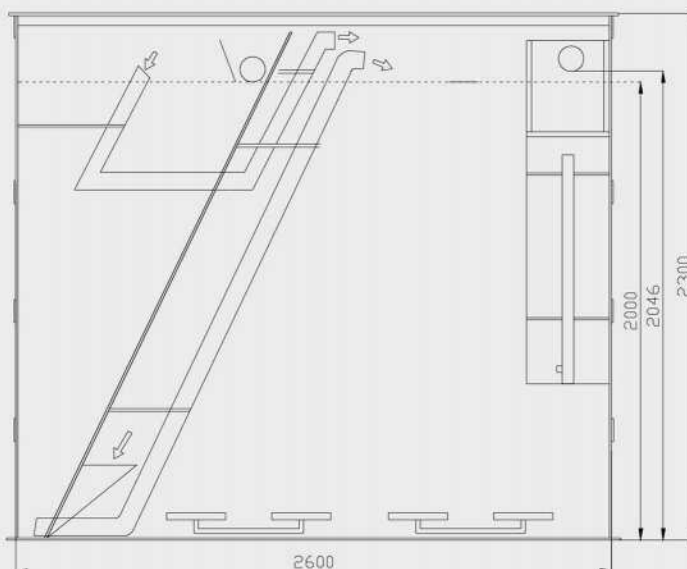
BIOTIC 20



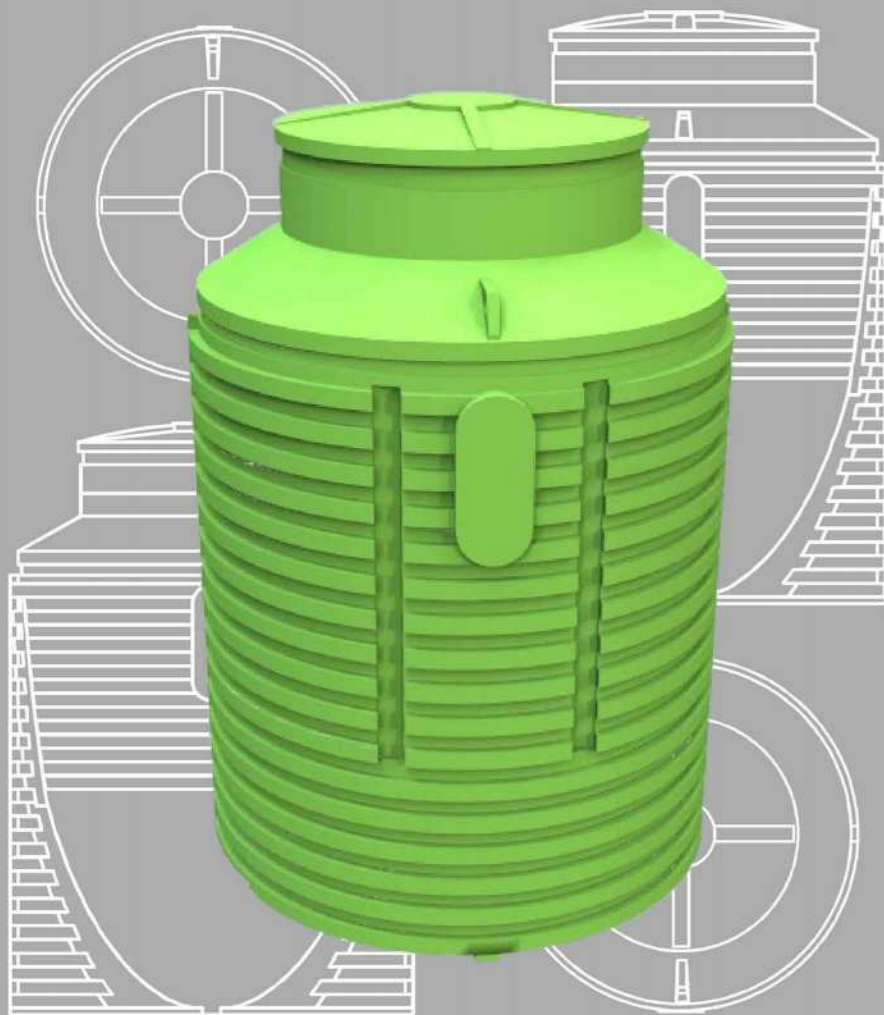
BIOTIC 30



BIOTIC 40



VORTEX DOMESTIC WASTEWATER TREATMENT PLANT





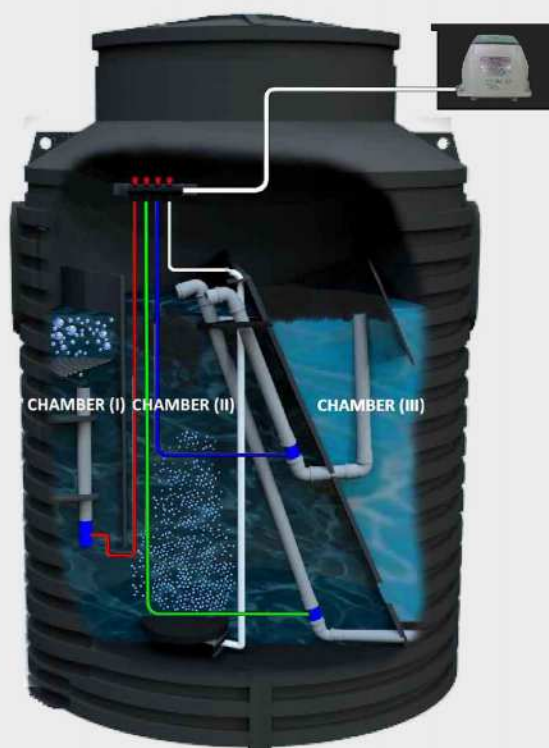
VORTEX treatment plant

VORTEX domestic wastewater treatment plant complies with the European Construction Products Directive 305/2013/EEC and PN-EN 12566-3+A2:2013 (Small wastewater treatment systems for up to 50 PT — Part 3: Packaged and/or Site Assembled Domestic Wastewater Treatment Plants).

Operation

Residential wastewater flows into the first chamber of primary treatment plant from building sewerage system. The plant's tank has been designed, so that the first chamber may take one-time discharge of greater amount of wastewater. It constitutes a protection against washing out of activated sludge and ensures continuous treatment plant operation. The first treatment stage proceeds in the primary chamber (I). In the same chamber the heaviest sludge sediments (settles) to the bottom and fats float to the surface. As a result, average wastewater from the middle chamber section is provided for further treatment. Wastewater gets into the active treatment chamber (II), in which it is aerated and treated using activated sludge. Aeration additionally allows mixing the contents, thanks to which the entire wastewater volume is thoroughly treated. Then, the wastewater gets into the secondary treatment chamber (III), in which it is additionally treated.

Finally, impurities settle to the bottom, from where they are turned back to chamber (II). In the upper part, completely treated wastewater are gravitationally flown over to treated wastewater pumping station. Depending on terrain conditions, treated wastewater may be disposed to the ground or water-courses.





Treated wastewater is disposed on a gravitational basis through PVC pipe. Activated sludge, being produced in the course of the treatment process, is continuously mixed with fresh wastewater supplied to the aeration chamber. The wastewater treatment process is accompanied by aerobic stabilization of sludge remaining in VORTEX reactor. Sludge insufficient impurity load resulting from daily flow irregularity in the course of the aforementioned process had no negative impact on final treatment result. The air is supplied to the plant by a compressor mounted directly next to the plant's lid, inside a protective box. The aeration chamber shape ensures mixing air with treated wastewater. The treatment plant assembly should be carried out in accordance with assembly and operation manual. It may be performed by an authorized service technician, assembler, or on one's own by the investor under supervision of the manufacturer's representatives.

Intended use

Treatment plants belonging to VORTEX series of types are intended to treat residential wastewater from facilities not connected to sanitary sewage networks.

VORTEX treatment plant is a perfect solution for:

- residential buildings,
- rural schools,
- health centres,
- clinics,
- catering stands,
- camping centers,

and many other facilities, for which the use of an individual treatment plant is the only solution in respect of waste management.

Technical information

- PE-HD three-chamber tank made using rotomoulding method,
- easily accessible blowing engine and control mounted in the plant's vicinity,
- inlet diameter: 110 or 160, outlet diameter: 110,
- opening lid (1000 mm diameter), allowing for direct access to all treatment plant elements.



PE-HD TANK





Characteristics	Reduction rate (%)	Av. value of outlet treated wastewater (mg/l)
BOD ₅	96,5	8,5
COD	90,4	47,1
Suspended solid	94,4	15,2
Nitrogen	93,9	3,7
Phosphorus	52,3	3,1
NH ₄ N	98,9	0,4

BIOTIC treatment plant advantages:

- very quiet operation,
- sludge disposal once per year,
- gives off no smell,
- low electric energy costs,
- easy assembly,
- factory mounted,
- does not require additional bacteria,
- energy-efficient and easy to maintain air-lifting installation; mammoth pumps instead of impeller pumps,
- very high treatment efficiency,
- thanks to the use of polyethylene, the unit is light and resistant to corrosion and mechanical damages.

LOW ELECTRIC ENERGY COSTS



Treatment plant structure

Legend:

- 1 - inlet,
- 2 - outlet,
- 3 - technical container,
- 4 - disc diffuser,
- 5 - air separator,
- 6 - air ejector for breaking rough impurities,
- 7 - mammoth pump for recirculation of activated sludge,
- 8 - mammoth pump for recirculation of dead sludge



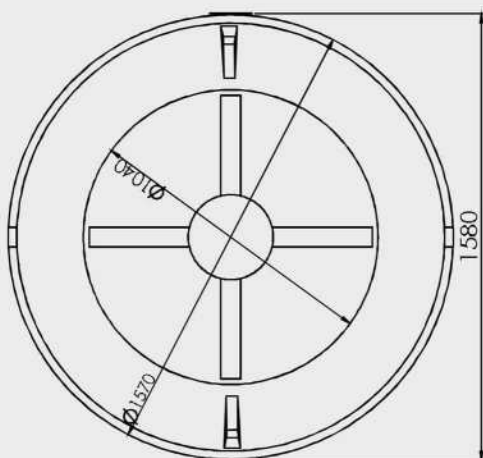
VORTEX treatment plant dimensions

	A	B	C	D	Daily flow capacity	Number of diffusers
	(mm)				m ³	pcs.
VORTEX 6	1270	1350	2305	1570	0,9	1
VORTEX 8	1400	1470	2305	1570	1,2	1
VORTEX 10	1400	1470	2305	1700	1,5	2

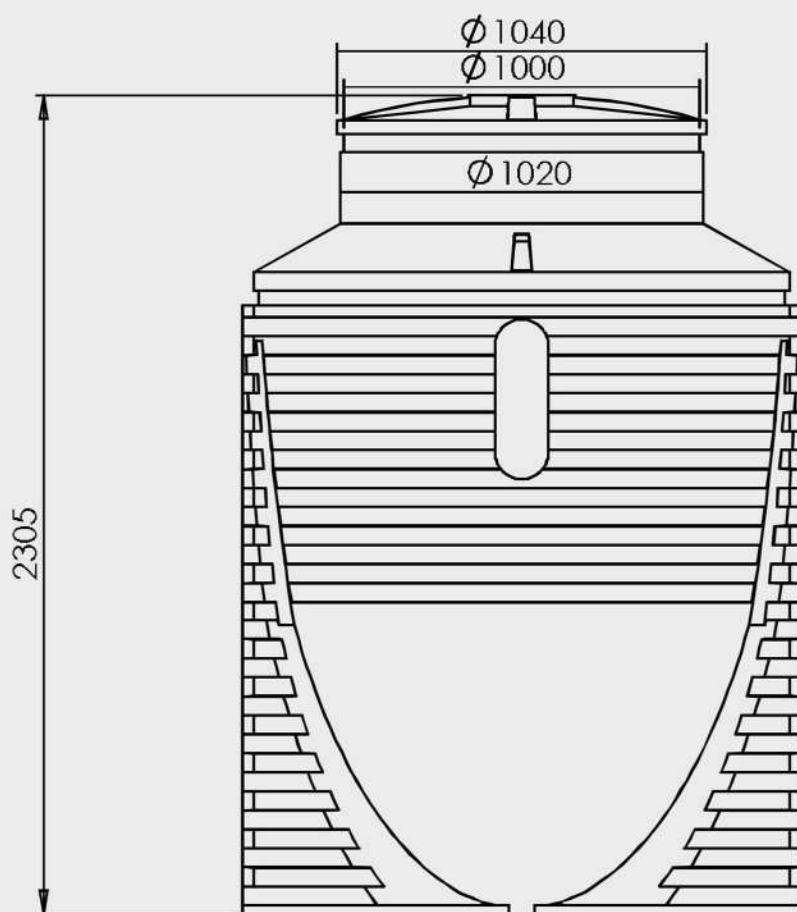
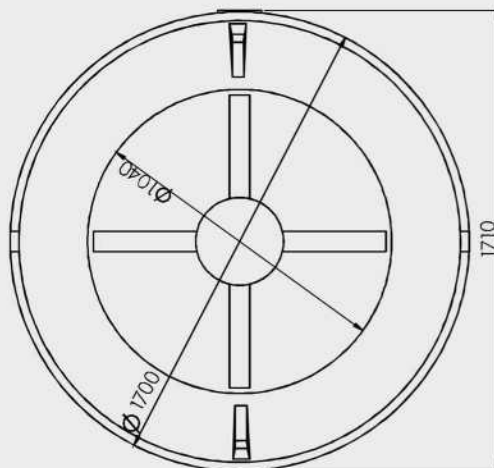
List of equipment of VORTEX domestic treatment plant



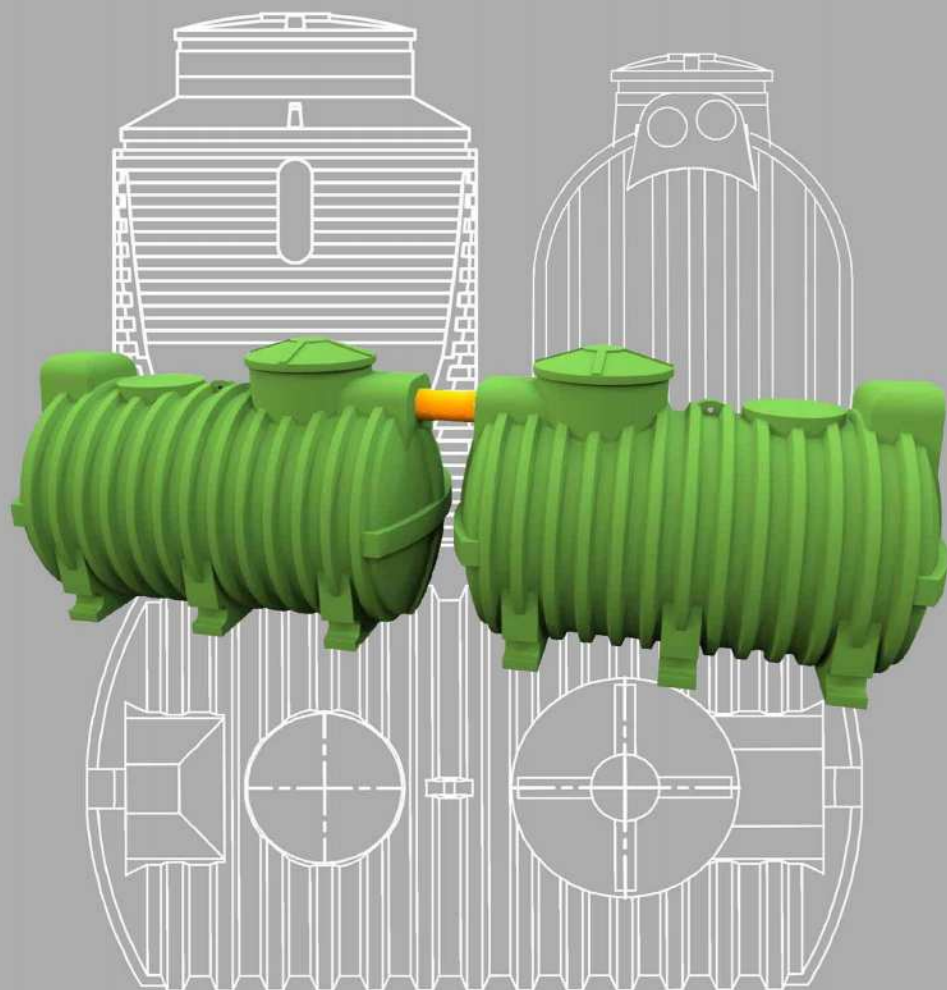
VORTEX 6/8



VORTEX 10



VASA SBR WASTEWATER TREATMENT PLANT





VASA SBR is a perfect solution for:

- single-family houses,
- small companies,
- hotels,
- camping sites,
- buildings situated on small surface area lots.

Operation

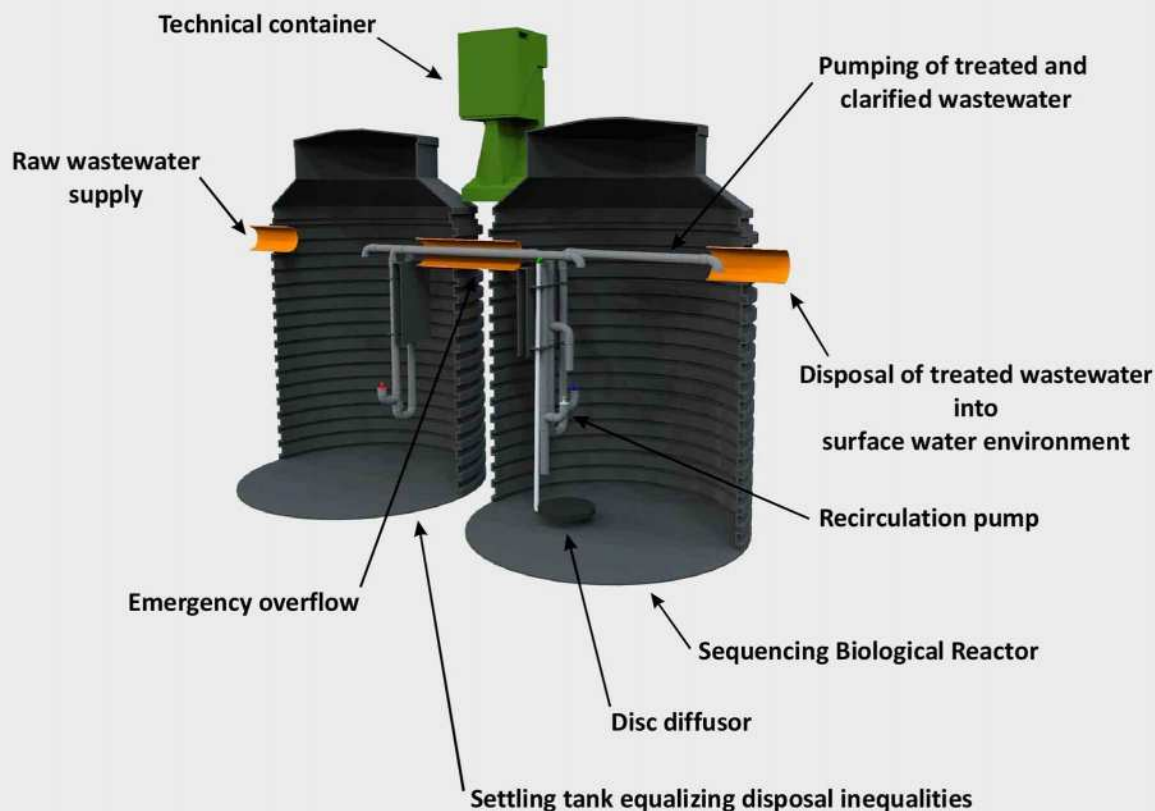
VASA SBR treatment plants are intended to treat residential wastewater. They are meant for biological wastewater treatment and comply with all environmental protection standards, provided that during assembly and use all manufacturer conditions are observed. SBR technology is based on sequencing reactors, in which the treatment process is carried out in cycles. An asset of such treatment plant is lower sensitivity to variable amounts of supplied wastewater in comparison to a classical activated sludge treatment plant configuration. The first chamber functions as a primary settling tank and buffer tank, in which initial mechanical wastewater treatment by way of sedimentation of easily settleable solid is carried out, and loads caused by unequal wastewater supply are balanced. Initially treated wastewater get into the SBR chamber, being at the same time a reactor and a primary settling tank, where organic impurities are biodegraded, and solid is settled.

By way of aeration, activated sludge microorganisms, which efficiently decompose the impurities, are supplied with oxygen. Final treatment stage includes disposal of treated wastewater and recirculation of activated sludge into the primary settling tank.

Technical information

- Comprised of one or two monolithic tanks.
- Tanks made of polyethylene high-density (PEHD).
- Inlet diameter: 110 mm, outlet diameter: 160 mm.
- Possibility of adapting the existing tank through the assembly of fittings kit.
- Sequencing wastewater dosing: smooth treatment plant operation, uninterrupted biological processes, stable treatment results.
- Own buffer retention allows withstanding huge wastewater disposal.





Reactor type	Number of users	Daily wastewater flow m^3/d	Blowing engine power W	Ilość zbiorników
	PE			pce.
A4	2 - 4	0,6	60	1
A5	4 - 5	0,75	60	1
A6	5 - 6	0,9	60	1
A8	6 - 8	1,2	80	2
A10	8 - 10	1,5	80	2
A12	10 - 12	1,8	80	2
A15	12 - 15	2,25	80	2
A20	15 - 20	3,0	100	3
A25	20 - 25	3,75	100	3
A30	26 - 30	4,5	100	3
A40	30 - 40	6,0	100	4
A50	40 - 50	7,5	100	4



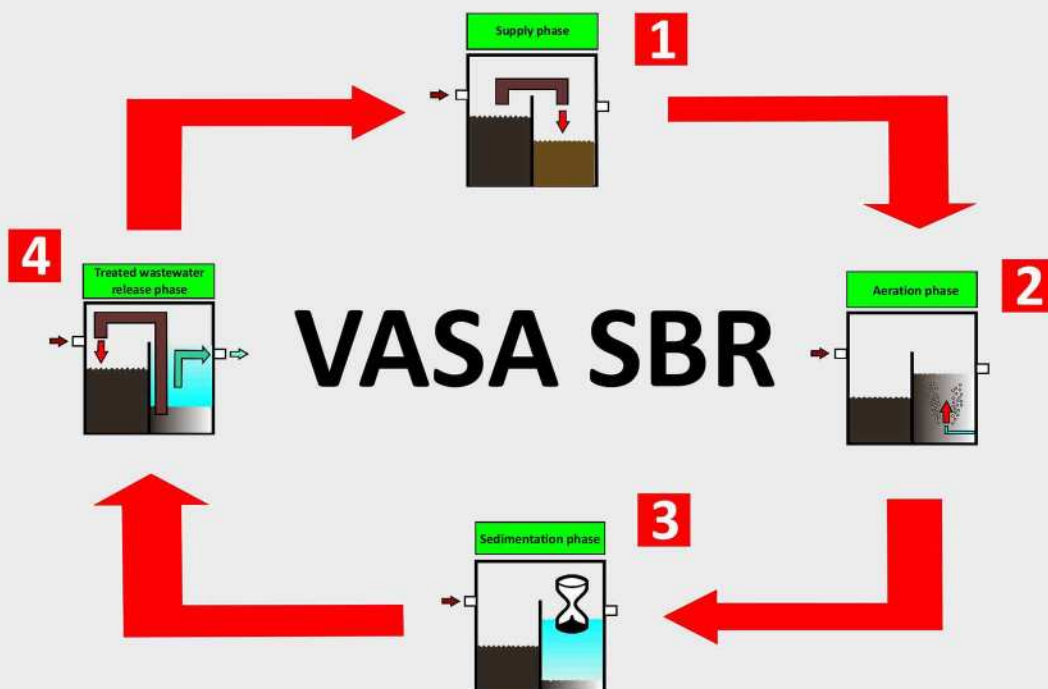
VASA treatment plant advantages:

- Resistant to hydraulic impacts.
- Possibility of using an airtight tank (septic tank) and assembling SBR fittings kit
- Resistance to raw wastewater supply interruptions (holiday)
- Low operating costs
- Handling and maintenance limited to the minimum (no movable parts)
- Only 5 hours are required to treat 98% of wastewater

Making an effort to meet your expectations, we have designed VASA treatment plant. Its operation has been reduced to the minimum due to full automation of the treatment process and lack of movable parts. The plant's flow capacities have been matched to handle from 4 to 50 users. Its modular design and possibility of expanding by another systems allows creating an installation able to deal with even up to 1500 inhabitants. Moreover, it is an all-purpose and universal unit maintaining high treatment quality and efficiency.



SBR REACTOR OPERATING PHASES



1 SUPPLY PHASE

At first, wastewater is supplied to the buffer tank in slit storage area (chamber I), in which solid components are kept. Then, the wastewater is guided in portions to the SBR tank (chamber II).

3 REST PHASE

During rest phase, the activated sludge settles to the unit's bottom. That is why a clarified zone is created in the SBR tank's upper part.

2 AERATION PHASE

In the SBR tank proper biological treatment is being carried out, whereas during the controlled treatment process both short aeration phases and rest phases are completed interchangeably. As a result, the so-called activated sludge is produced. It contains millions of microorganisms which now can proceed to thorough water treatment.

4 CLARIFIED ZONE RELEASE

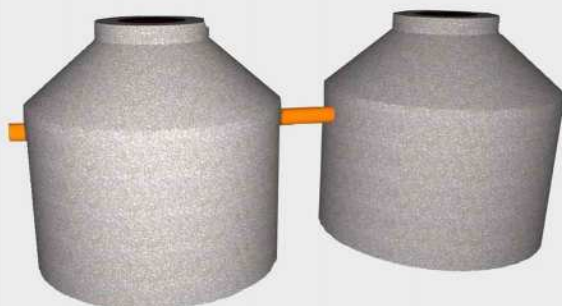
The treated wastewater is drained into a receiver (creek, river, or lake) or an infiltration tank. Then, the slit is turned back from the SBR tank to the first chamber. The process starts independently from the very beginning.

List of equipment of VASA SBR domestic



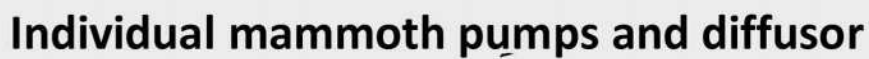
VASA SBR treatment plant

Possibility of using various types of tanks



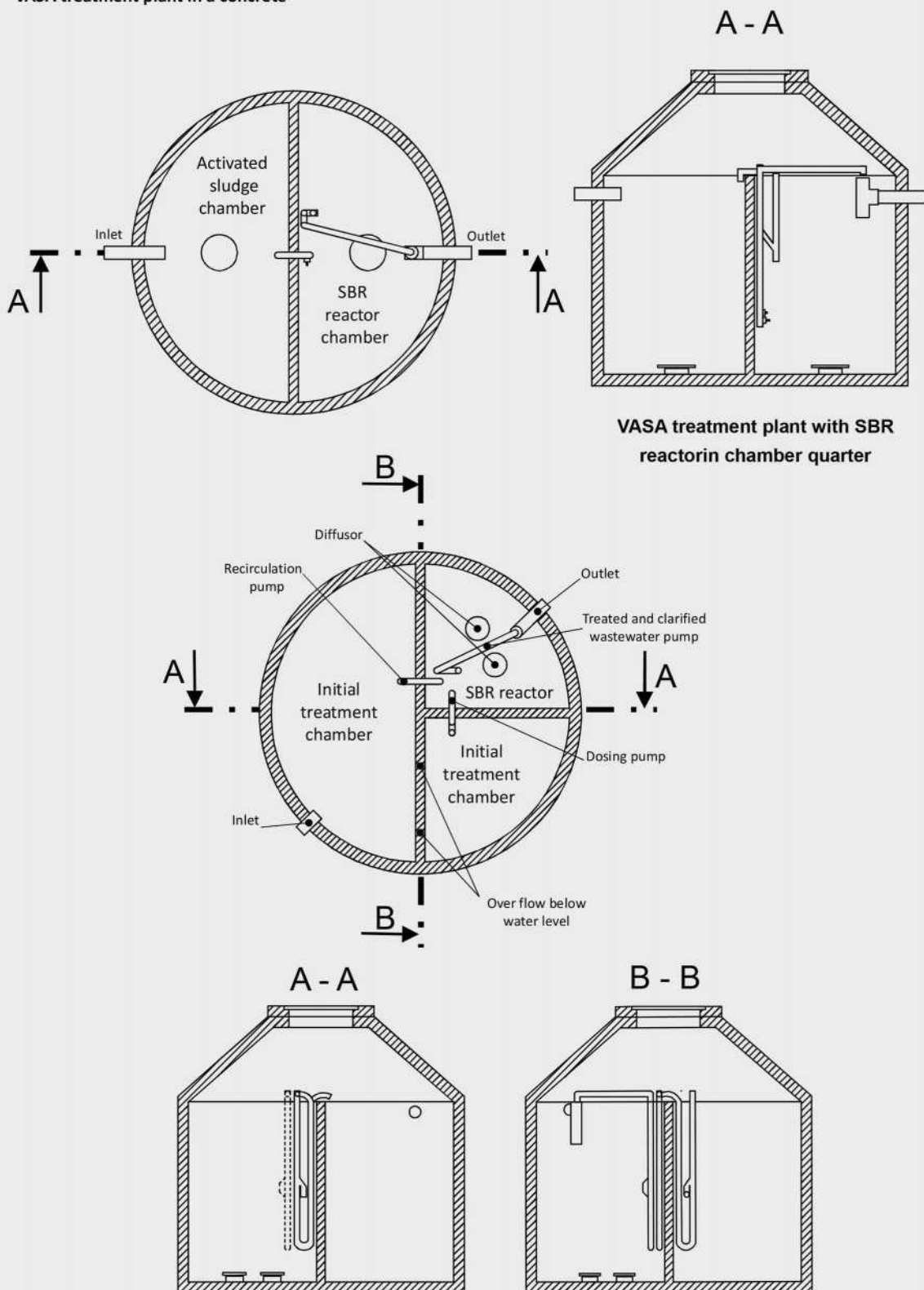


VASA SBR WASTEWATER TREATMENT PLANT

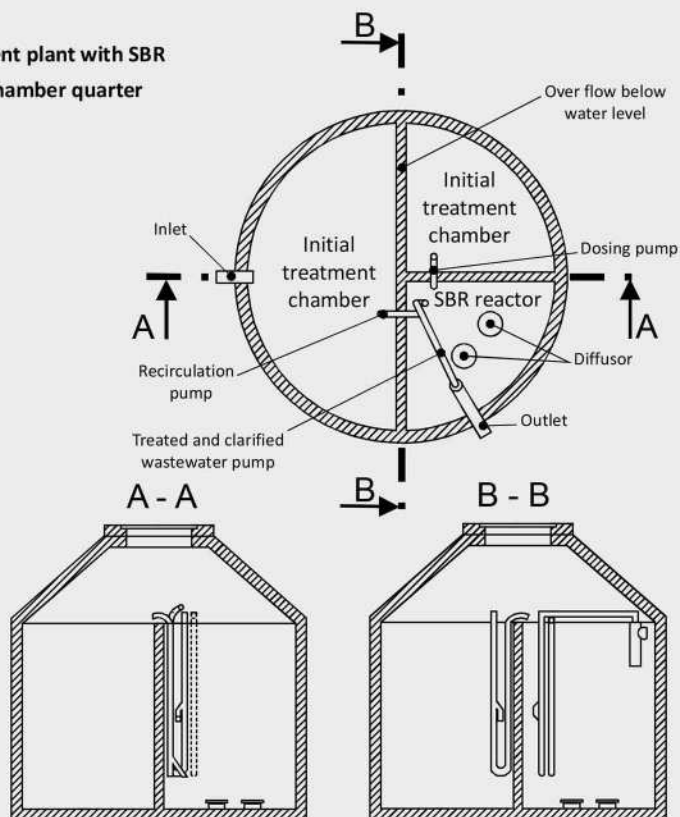




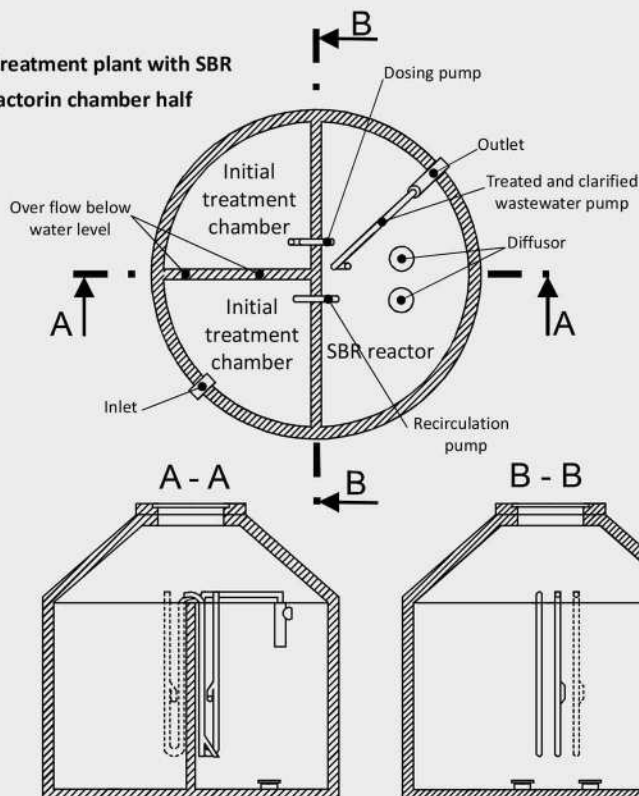
VASA treatment plant in a concrete



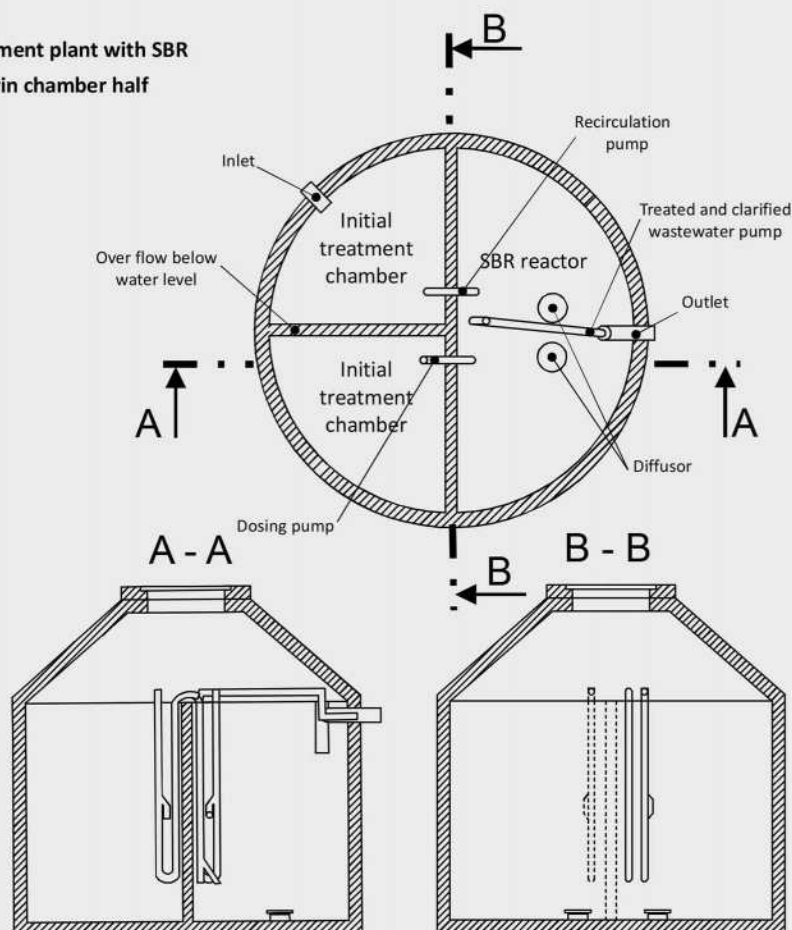
**VASA treatment plant with SBR
reactor in chamber quarter**



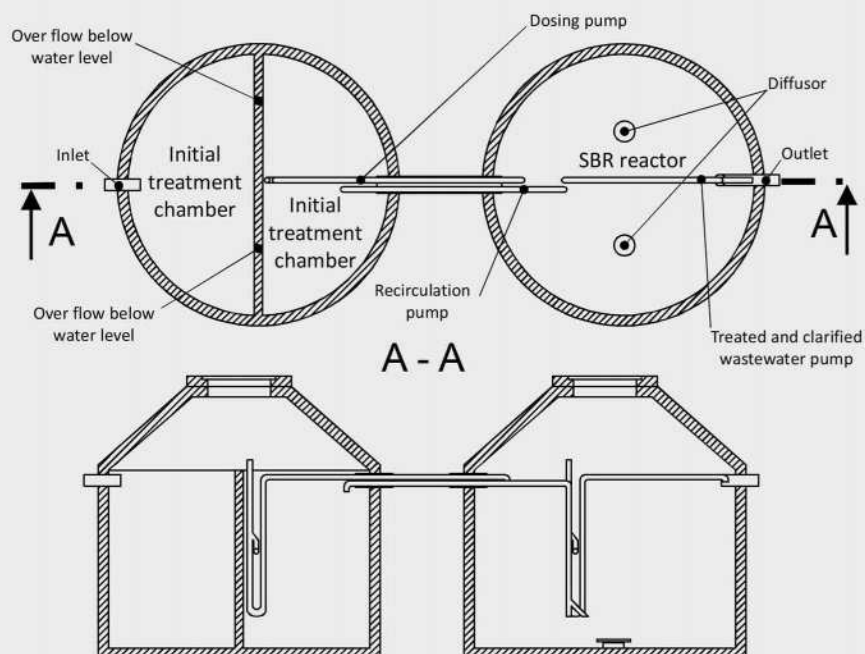
**VASA treatment plant with SBR
reactor in chamber half**



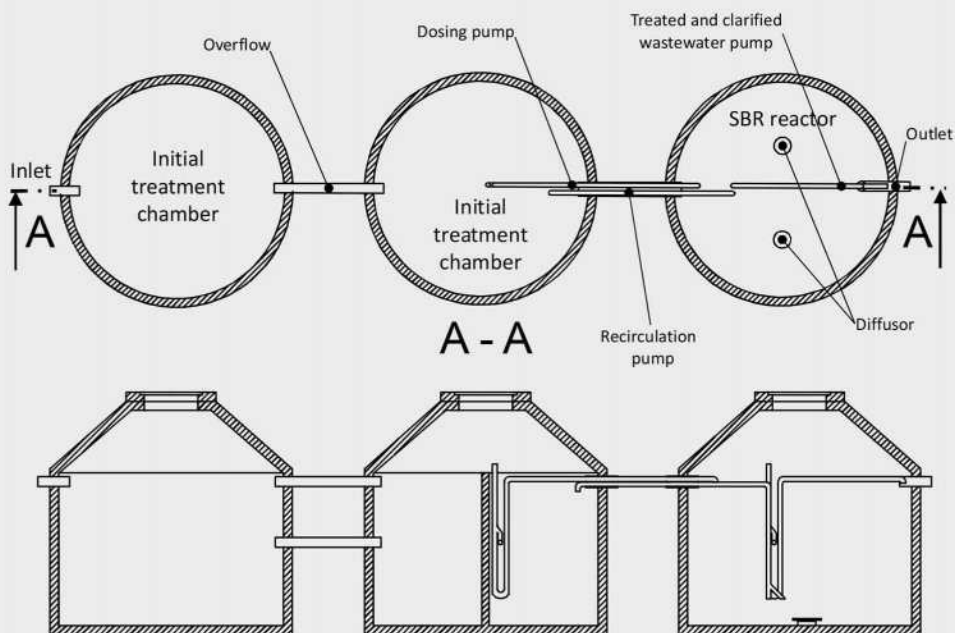
VASA treatment plant with SBR
reactor in chamber half



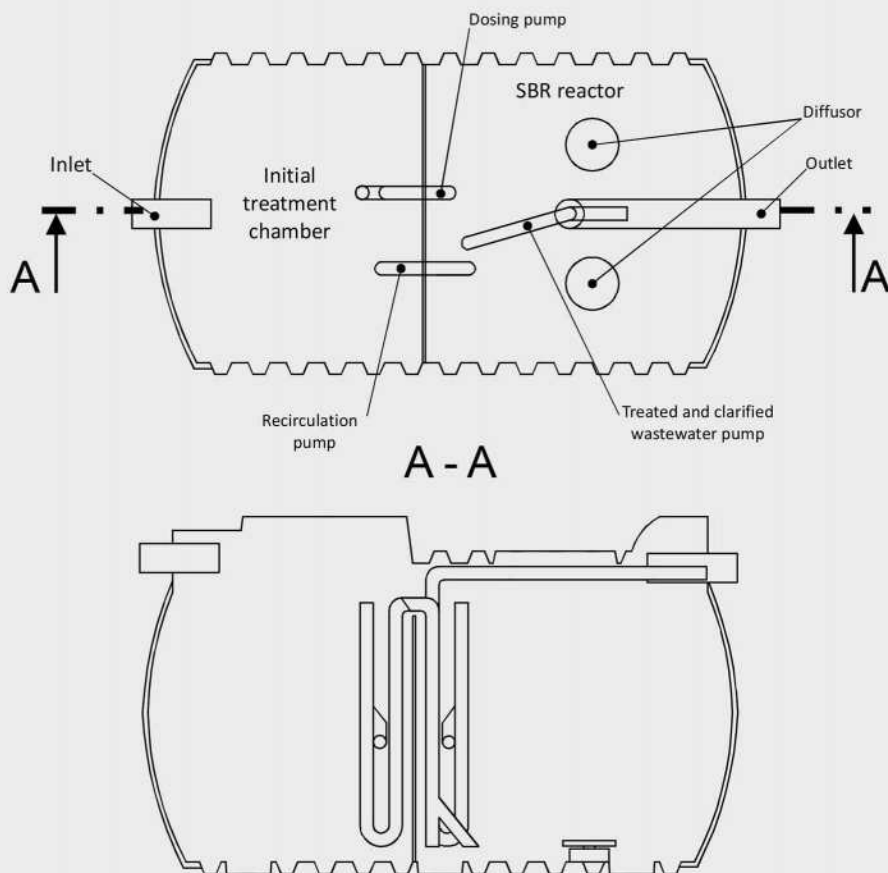
VASA treatment plant with SBR reactor in separated tank



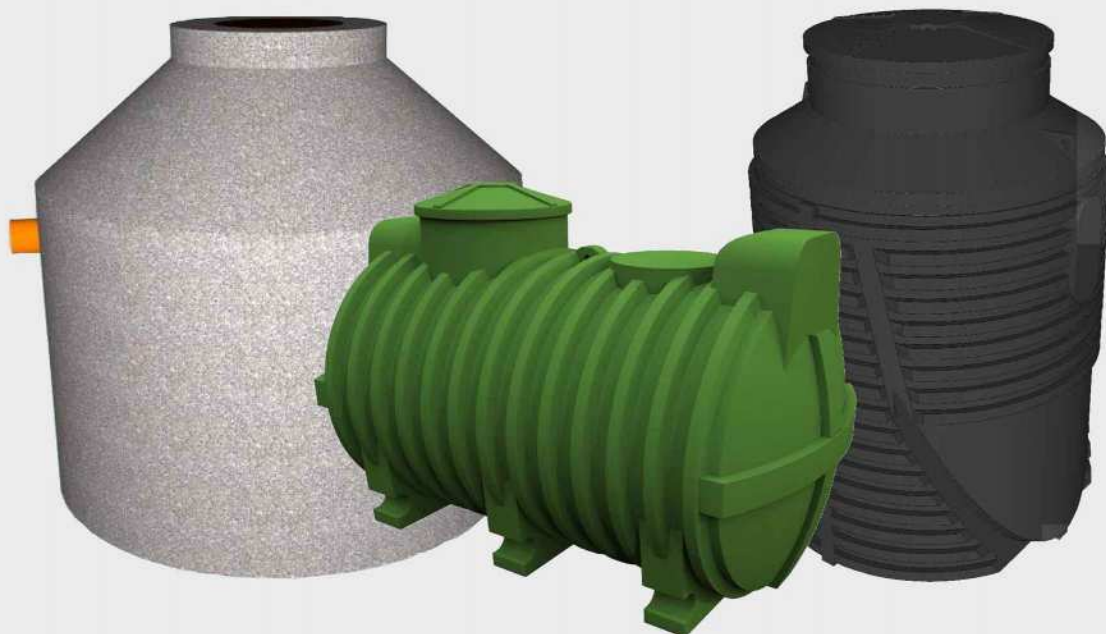
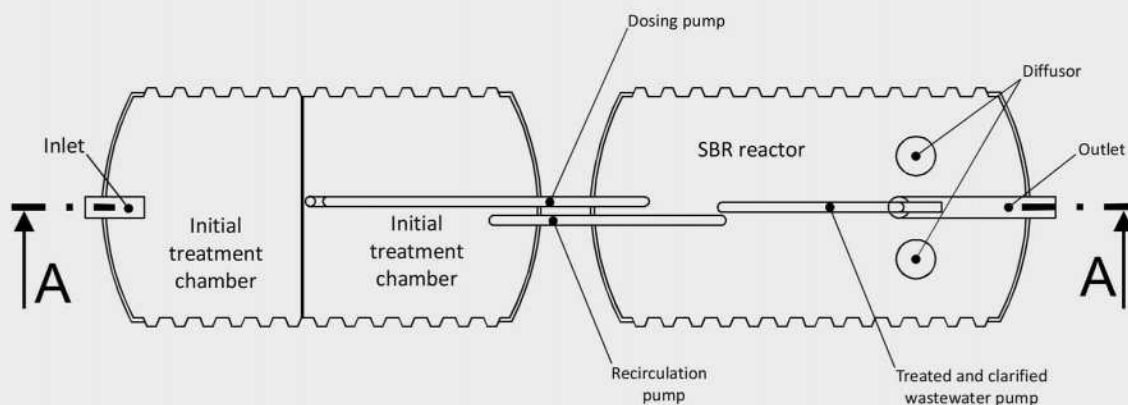
VASA treatment plant with SBR reactor in separated tank

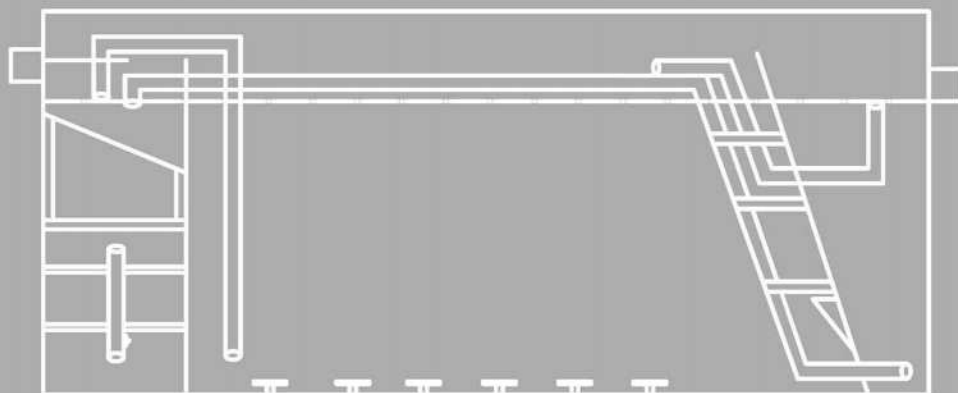


VASA treatment plant with SBR reactor in chamber half



VASA treatment plant with SBR reactor in separated tank





Intended use

BIOTIC prefabricated treatment plants are simple solutions for greater population centres. They are characterized by flow capacities in the range between 4.5 and 75 m³/day. Prefabricated treatment plants are used in service facilities, such as hotels, boarding houses, schools, housing estates, and other groups of building developments. They allow removing solid, organic load, and nitrogen and phosphorus compounds from the supplied wastewater in an efficient way.



Every treatment plant is comprised of several elements. Among others, they include:

- Grate (mostly automatic)
- Aerated grit chamber
- Bioreactor (with separated primary settling tank)
- Excessive sludge tank
- Control and measurement well

As required, every treatment plant may be expanded by subsequent elements.



Reaktory - dane techniczne

<i>BIOTIC 35</i>	4,5 – 6,0 m ³ /d	Φ 2,60 H 2,30	30 – 40*	Side-channel 380V SCL20 DH 0,75 kW
<i>BIOTIC 50</i>	6,0 – 9,0 m ³ /d	Φ 3,00 H 2,30	40 – 60*	Side-channel 380V SCL30 DH 1,1 kW
<i>BIOTIC 75</i>	up 11,0 m ³ /d	L 3,8 W 2,4 H 3,0	up to 75*	Side-channel 380V SCL30 DH 1,1 kW
<i>BIOTIC 100</i>	up 15,0 m ³ /d	L 4,6 W 2,4 H 3,0	up to 100*	Side-channel 380V SCL40 DH 1,5 kW
<i>BIOTIC 150</i>	up 25,0 m ³ /d	L 6,2 W 2,4 H 3,0	up to 150*	Side-channel 380V SCL50 DH 3,0 kW
<i>BIOTIC 200</i>	up 30,0 m ³ /d	L 7,7 W 2,4 H 3,0	up to 200*	Side-channel 380V SCL65 DH 3,0 kW
<i>BIOTIC 250</i>	up 38,0 m ³ /d	L 6,2 W 4,8 H 3,0	up to 260*	Side-channel 380V SCL65 DH 3,0 kW
<i>BIOTIC 300</i>	up 45,0 m ³ /d	L 6,2 W 4,8 H 3,0	up to 300*	Side-channel 380V SCL70 DH 4,0 kW
<i>BIOTIC 350</i>	up 60,0 m ³ /d	L 7,7 W 4,8 H 3,0	up to 400*	Side-channel 380V SCL80 DH 5,5kW
<i>BIOTIC 500</i>	up 75,0 m ³ /d	L 7,7 W 7,2 H 3,0	up to 500*	Side-channel 380V SCL80 DH 5,5kW



Supply and control system

Being the plant's equipment, the following electric devices require electric power supply: control cabinet (230 V) and side-channel blowing engine (400 V). BIOTIC prefabricated treatment plants are normally equipped with a control switchgear resistant to adverse weather conditions and UV radiation.

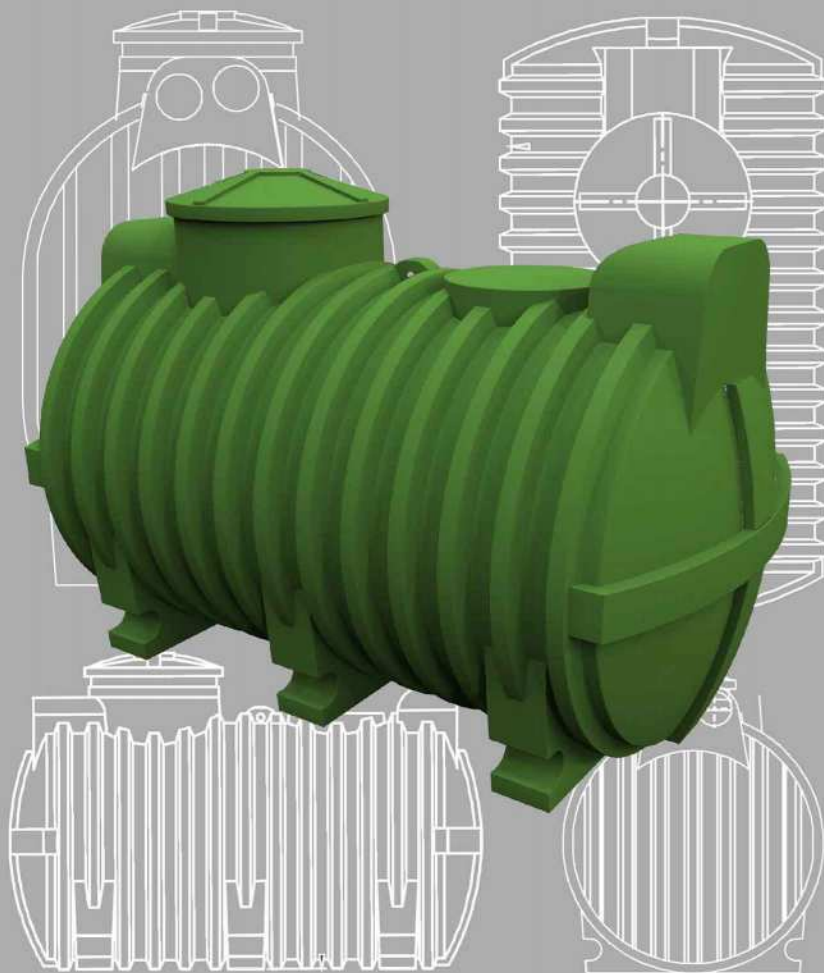
The switchgear controls wastewater aeration processes in cycle (time) mode using time controller and pump operation. It has also visible and audible alarm notifying the user when a defect occurs.

Every project is carried out individually upon the investor's needs. The unit is transported by flatbed cars. The treatment plant has no movable parts, which contributes to its increased durability and operating efficiency.





ZEUS SEPTIC TANK





Operation

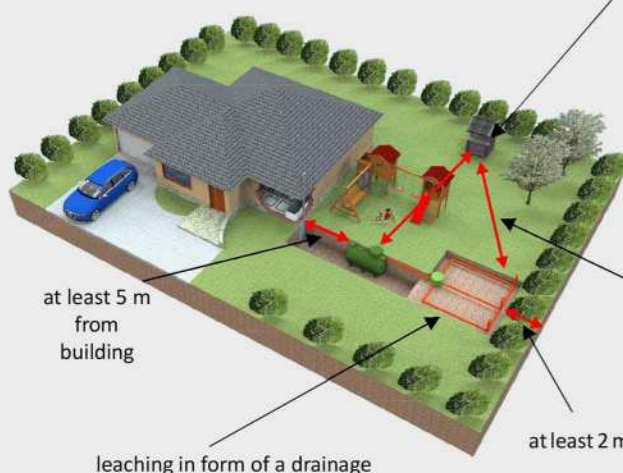
Two processes take place in the septic tank:

- **Mechanical treatment.** Wastewater is a solid, from which particles heavier than water settle onto the tank's bottom. In greater amounts they form a so-called blanket. Mechanical treatment proceeds when they have stayed in the septic tank for more than 3 days.
- **Biological treatment.** If time required to flow through the septic tanks amounts to at least 3-5 days, bacteria start to decompose organic matter. The bacteria are mainly aerobic, since only the wastewater surface is in contact with atmospheric air. Therefore, aeration scarcely occurs.

Intended use

The septic tank is intended for initial treatment of residential wastewater by way of sedimentation, flotation, and fermentation of sludge produced from intercepted solids. Gases generated during decomposition of impurities in the septic tank escape through a sewage lateral supplying the wastewater to the septic tank. This lateral is connected to the building's internal sewage. Vertical duct for sewage piping must be ended with a vent pipe leading out into the roof and connected directly with atmosphere. The septic tank cooperates with the leach drainage, creating a process line.

Assembly conditions



While choosing place for the septic tank, you should also consider its distance from:

- the well: at least 15 m,
- lot border and road: at least 2 m,
- electrical cables: at least 0.8 m.

Installation

Installation should be done in accordance with "Assembly manual". Bury the tank up to 80 cm BGL. Make at least 20 cm sand sidefill around the tank. Never leave buried tank empty.

In a well-designed septic tank wastewater impurity reduction amounts to:

- over 85% of solid,
- over 50% of nitrogen compound,
- over 50% of BOD.



Technical information:

- made of PE-HD,
- equipped with PVC suction manifold Ø 160 or Ø 110,
- ergonomic, durable filtration pad ensuring easy access while emptying sludge,
- additional manhole to be mounted,
- Ø 110 extruded PVC vent,
- resistant to 100 cm ground embankments,
- septic tank extension and lid mounted using any fitting system.



ZEUS septic tank advantages:

- simple design,
- do not require specialist knowledge or supervision,
- high resistance to irregular wastewater supply,
- low operating costs,
- long device life,
- low failure frequency, unless manufacturer recommendations regarding proper use and periodic inspections of essential elements are observed,
- sludge disposal once per two years, but not less than once per half a year,
- corrosion resistance,
- fully recyclable.

FULLY RECYCLABLE



Assembly stages should be carried out in proper sequence, so that the tank is properly founded.

During assembly, you should:

- verify whether the tank has been damaged during transport,
- make an excavation, the length and width of which are 1 m greater than the dimensions of the tank ready to be assembled; this will speed up and facilitate work,
- even up and level the excavation's bottom,
- prepare a sidefill; the best solution should be sand and cement without stones or other sharp objects that may damage the tank (recommended ratio: 50 kg of cement for 1 m³ of sand; should the risk of high level of groundwater occur, increase the amount of cement),
- fill the bottom with 30 cm sand and cement layer,
- place the septic tank inside the excavation and level,
- cover the tank with 30 cm layer of the previously prepared sidefill,
- while making the sidefill, evenly fill the tank with water,
- thicken the subsequent sidefill layers with water.

Septic tank assembly in harsh conditions

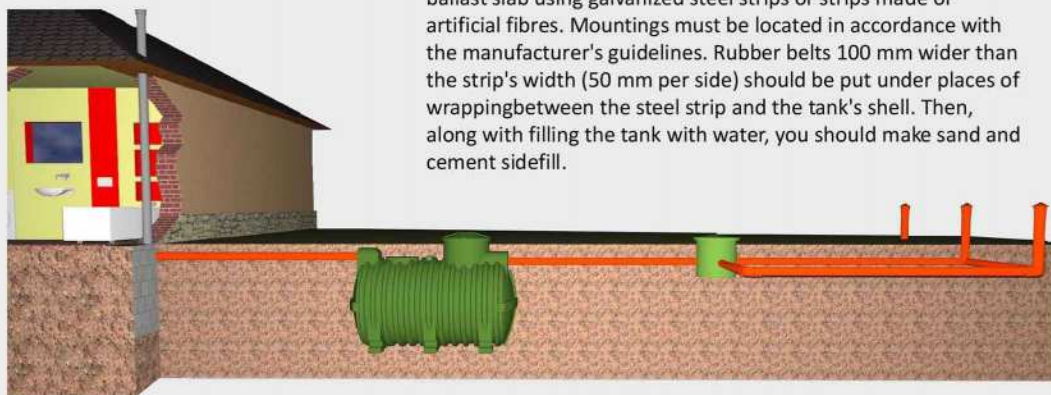
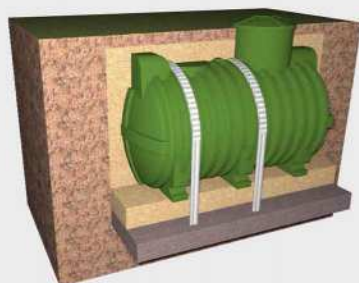
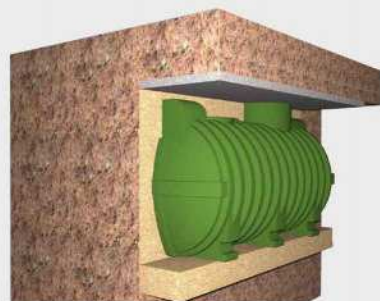
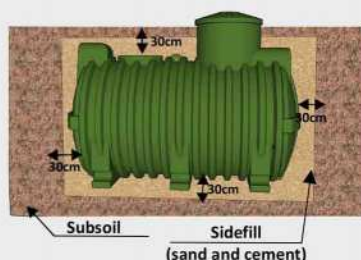
The tank's foundation method depends primarily on subsurface and groundwater conditions. The main purpose during the assembly is to provide the tank with full stability and resistance to ground movements and water impact. There are several methods of tank assembly in excavation in adverse conditions.

Greater depth

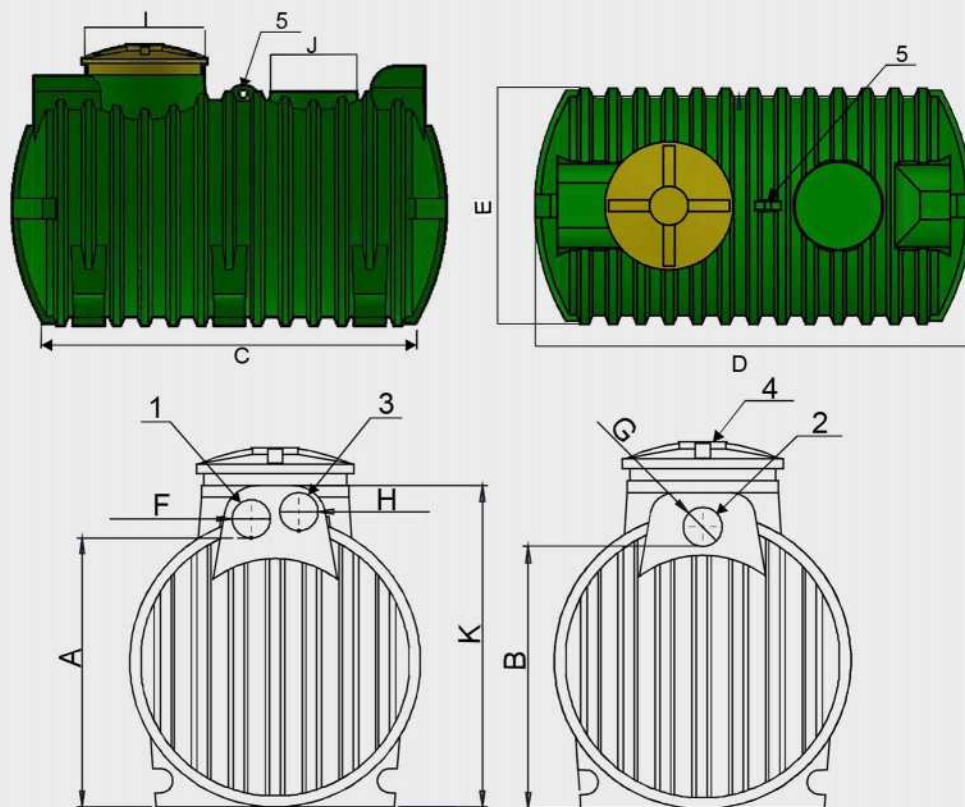
When the septic tank has to be assembled at a depth exceeding the recommended 50 cm, you should mount a reinforced concrete slab over the tank. Its task will be to take over ground load. The distance between the slab and the tank must be filled with sand. An extension will have to be fixed on the inspection manhole.

High level of groundwater

To carry out the works in a waterlogged area, groundwater should be pumped out for the assembly period. Then, it is recommended to found the tank on a reinforced concrete slab, the weight of which is equal or greater than the weight of water in the septic tank's tank. The tank should be mounted to a ballast slab using galvanized steel strips or strips made of artificial fibres. Mountings must be located in accordance with the manufacturer's guidelines. Rubber belts 100 mm wider than the strip's width (50 mm per side) should be put under places of wrapping between the steel strip and the tank's shell. Then, along with filling the tank with water, you should make sand and cement sidefill.



ZEUS 2000 septic tank



Legend:

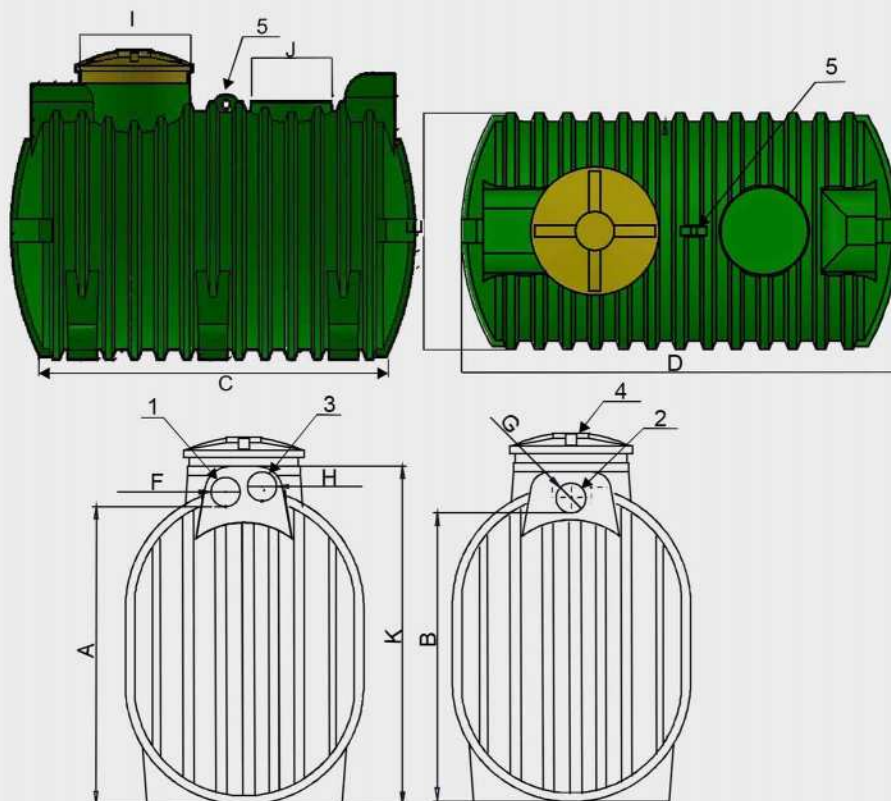
- 1. \varnothing 160 or \varnothing 110 inlet
- 2. \varnothing 110 outlet
- 3. \varnothing 110 ventilation (optional)
- 4. \varnothing 600 lid
- 5. Lifting handle

Septic tanks dimensions

	A	B	C	D	E	F	G	H	I	J	K	Volume
Dimensions in mm												[dm ³]
ZEUS 2000	1130	1080	1899	2250	1220	\varnothing 110/160	\varnothing 110	\varnothing 110	\varnothing 600	\varnothing 450	1350	2000
PE-HD extension 250 mm or 550 mm high												
\varnothing 600 PE-HD lid												



ZEUS 3000 septic tank



Legend:

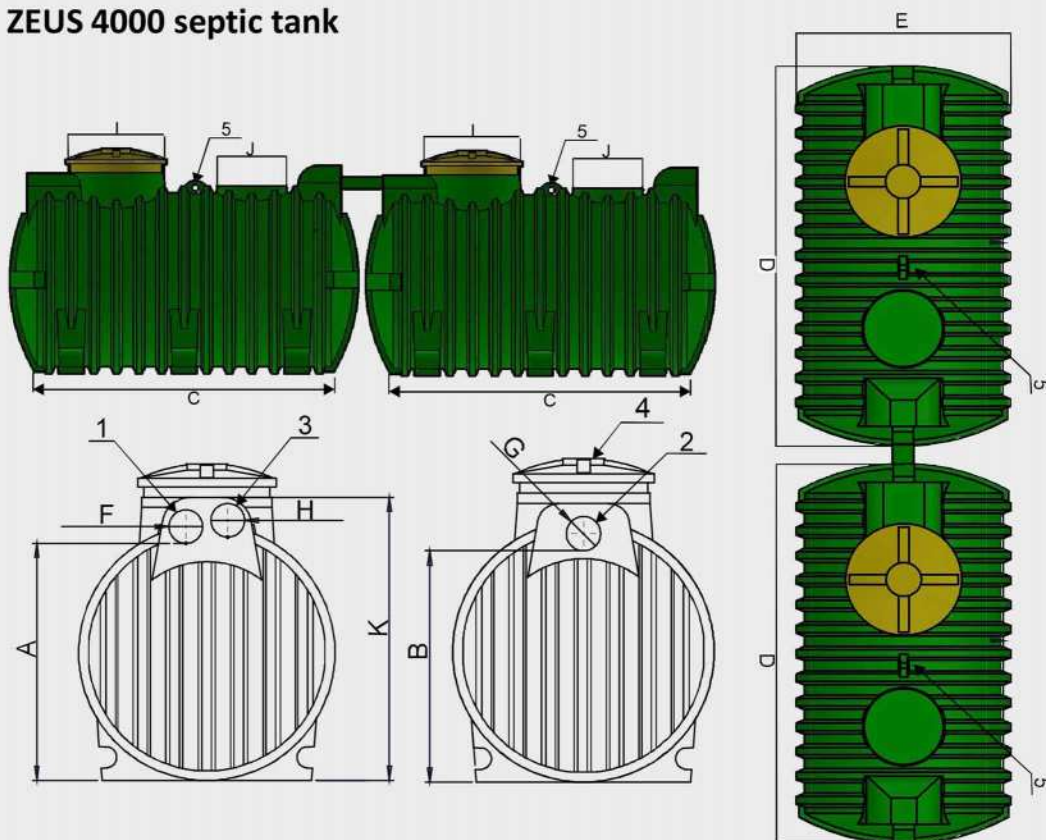
- 1. Ø 160 or Ø 110 inlet
- 2. Ø 110 outlet
- 3. Ø 110 ventilation (optional)
- 4. Ø 600 lid
- 5. Lifting handle

Septic tanks dimensions

	A	B	C	D	E	F	G	H	I	J	K	Volume
	Dimensions in mm											[dm ³]
ZEUS 3000	1530	1480	1899	2250	1220	Ø110/160	Ø110	Ø110	Ø600	Ø450	1750	2000
PE-HD extension 250 mm or 550 mm high												
Ø 600 PE-HD lid												



ZEUS 4000 septic tank



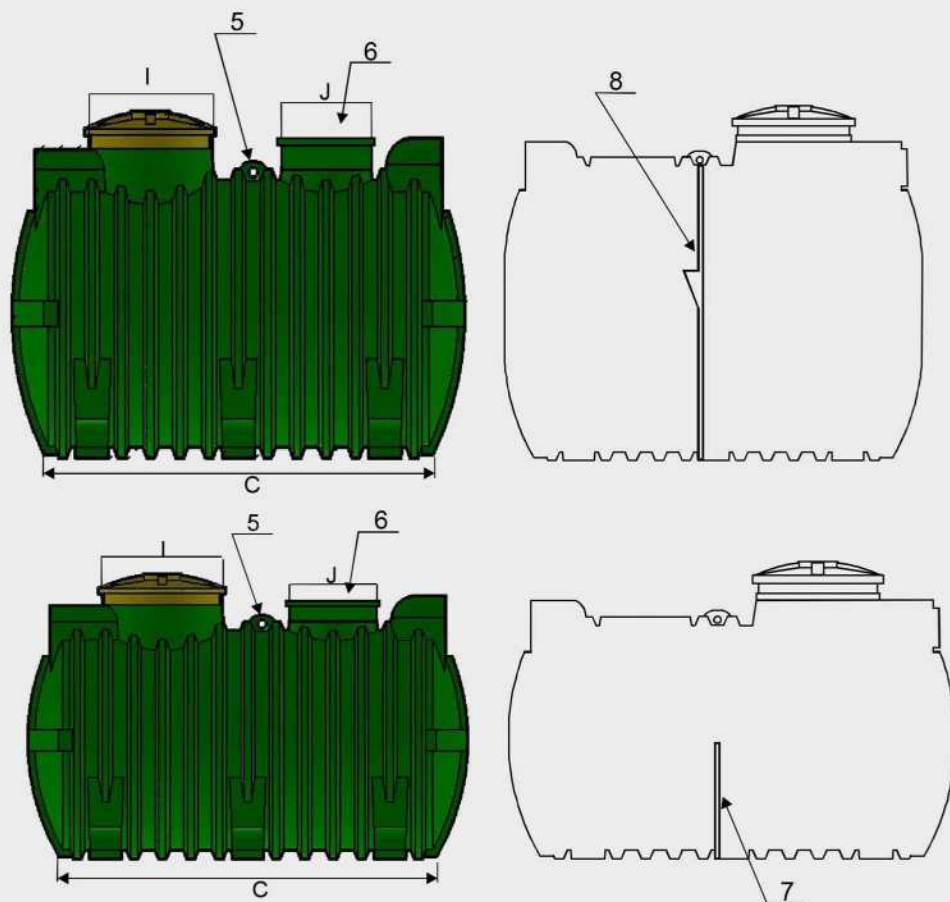
Legend:

- 1. \varnothing 160 or \varnothing 110 inlet
- 2. \varnothing 110 outlet
- 3. \varnothing 110 ventilation (optional)
- 4. \varnothing 600 lid
- 5. Lifting handle

Septic tanks dimensions													Objętość
	A	B	C	D	E	F	G	H	I	J	K		[dm ³]
Dimensions in mm													
ZEUS 4000	1130	1080	1899	2 X 2250	1220	\varnothing 110/160	\varnothing 110	\varnothing 110	\varnothing 600	\varnothing 450	1350		2000
PE-HD extension 250 mm or 550 mm high													
\varnothing 600 PE-HD lid													



ZEUS 2000/3000/4000 septic tank with barrier and additional manhole



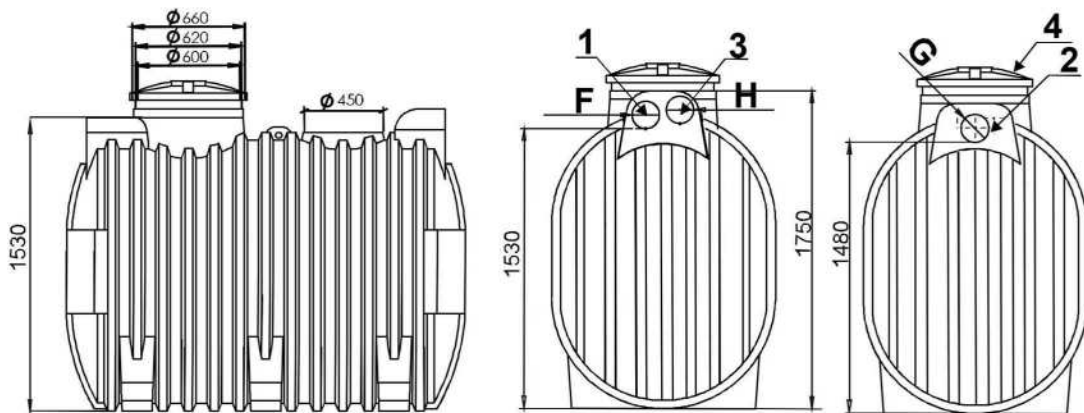
Legend:

- | | | |
|---------------------------------|--|-------------------------------------|
| 1. Ø 160 or Ø 110 inlet | 4. Ø 600 lid | 7. 30 cm partial barrier (optional) |
| 2. Ø 110 outlet | 5. Lifting handle | 8. Full barrier (optional) |
| 3. Ø 110 ventilation (optional) | 6. Ø 450 additional manhole (optional) | |



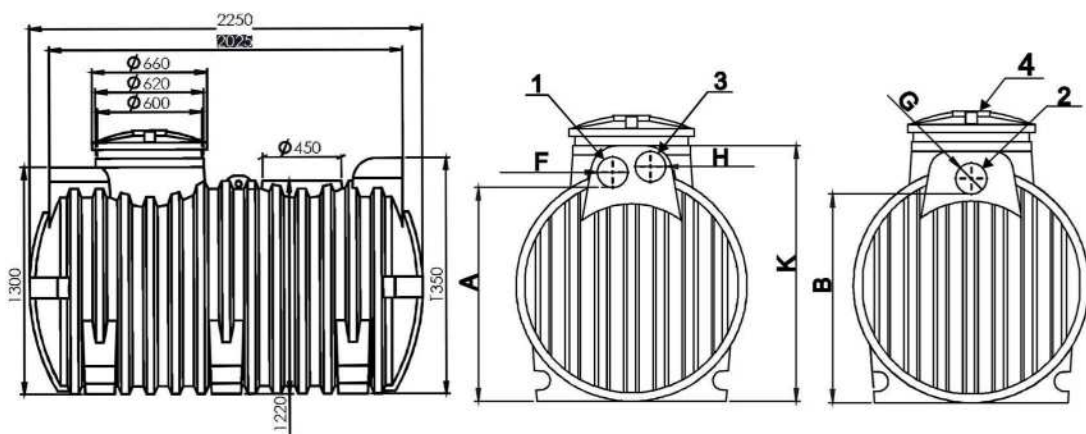
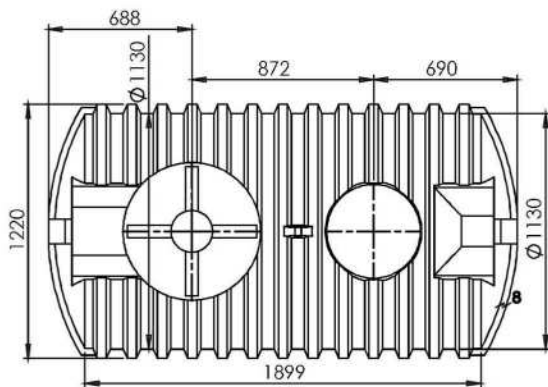
List of equipment of ZEUS septic tank:





Legend:

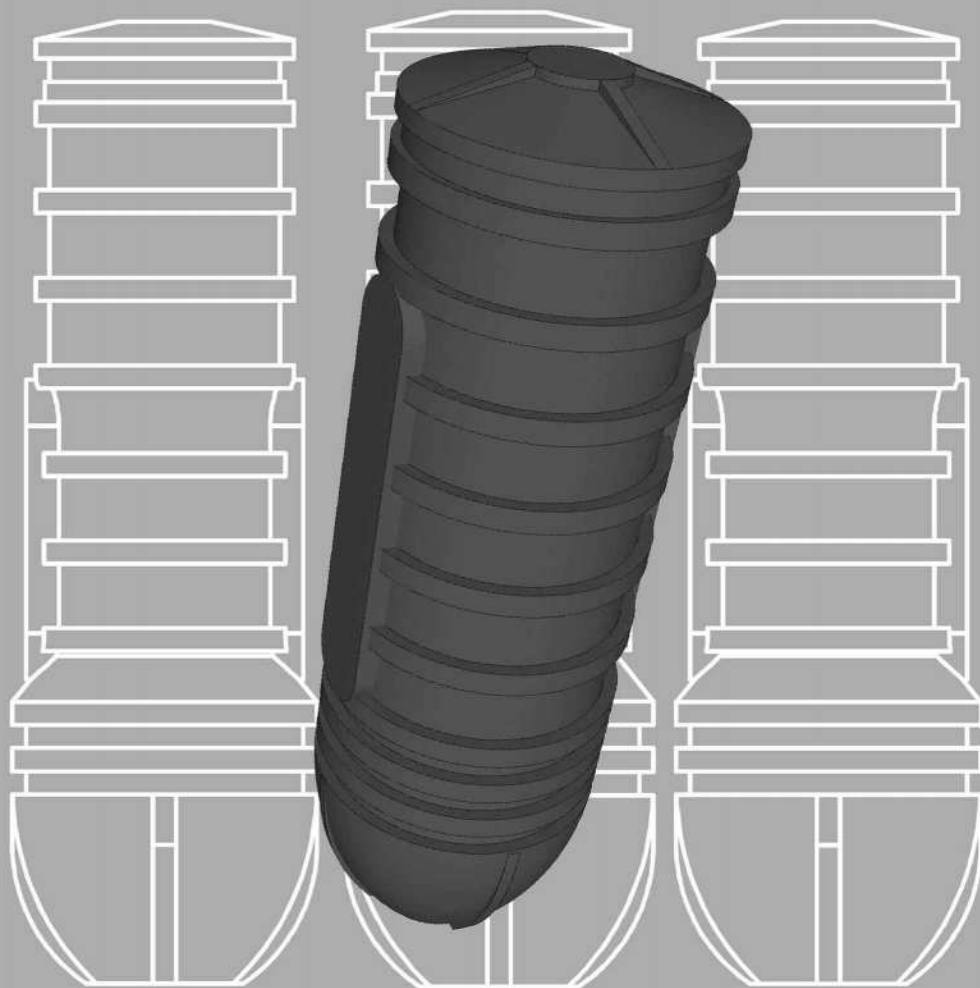
- 1. Ø 160 or Ø 110 inlet
- 2. Ø 110 outlet
- 3. Ø 110 ventilation (optional)
- 4. Ø 600 lid
- 5. Lifting handle
- 6. Ø 450 additional manhole (optional)



Legend:

- 1. Ø 160 or Ø 110 inlet
- 2. Ø 110 outlet
- 3. Ø 110 ventilation (optional)
- 4. Ø 600 lid
- 5. Lifting handle
- 6. Ø 450 additional manhole (optional)

INTERMEDIATE PUMPING STATIONS





Intermediate pumping stations have Declarations of performance and CE markings. The pumping station has passed tests in a notified laboratory.

INTERMEDIATE PUMPING STATIONS ARE CE MARKED



Intermediate pumping station

Intermediate pumping stations are intended for disposing municipal and sanitary wastewater, drainage and precipitation water, and similar utilities for greater distances. It is also possible to raise wastewater on higher level. Other assets of domestic intermediate wastewater pumping stations include small overall dimensions, simple design, easy assembly and use.

They are used in places, where landform features, high groundwater level, or considerable distance to the place of disposal do not allow using gravitational systems. They also function as combined gravity-pressure wastewater drainage basins. Wastewater flows from individual households, small neighborhood communities, and sports facilities into intermediate pumping station's tank. Then, thanks to the use of a submersible pump, it is pressed through a pipeline into sewage network collector pipes or directly to the treatment plant.



Technical information

- Intermediate pumping station is manufactured in three volume versions.
- Irrespective of the selected volume, in all cases monolithic intermediate pumping stations are the final products.
- Lid connected to the tank by pressing-in provided in the kit.
- Tank made of PE-HD fully resistant to UV radiation.
- The unit does not enter into chemical reactions with inert acids; is chemically inert.
- Well designed to increase the unit's strength in the ground.

Installation

Assembly in accordance with "Assembly manual". Make at least 20 cm sand sidefill around the pumping station.

Technical data:


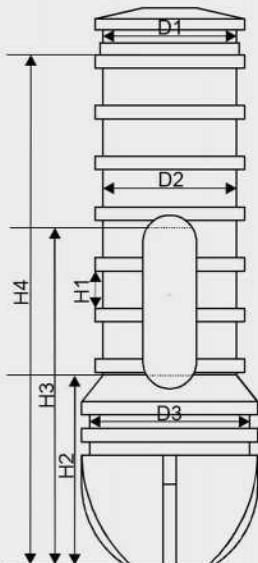
Volume* - 300l		Volume* - 175l		Volume* - 150l	
	D1=600 (mm)		D1=600 (mm)		D1=500 (mm)
	D2=600 (mm)		D2=600 (mm)		D2=500 (mm)
	D3=800 (mm)		D3=600 (mm)		D3=600 (mm)
	H1=145 (mm)		H1=146 (mm)		H1=155 (mm)
	H2=880 (mm)		H2=680 (mm)		H2=680 (mm)
	H3=1840 (mm)		H3=1640 (mm)		H3=1290 lub 1640 (mm)
	H4=2155 (mm)		H4=1955 (mm)		H4=1855 (mm)

Table: intermediate pumping stations dimensions
 *volume expressed as operating volume of lower part (H2)

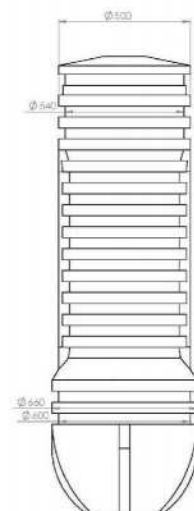
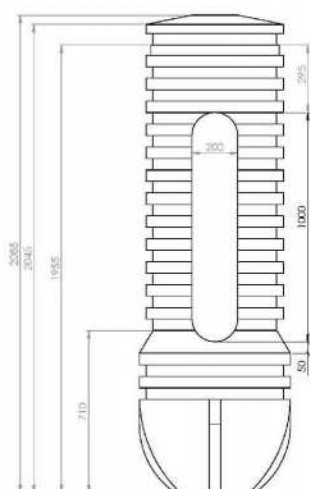




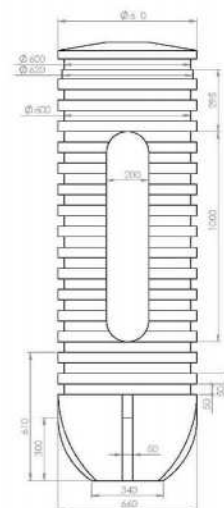
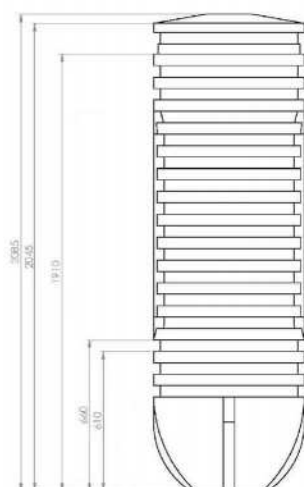
INTERMEDIATE PUMPING STATIONS



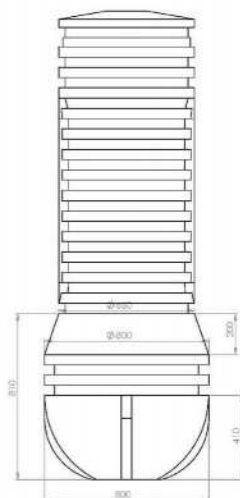
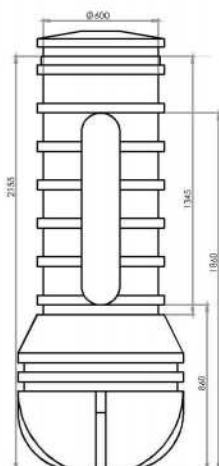
Intermediate pumping station 500/600



Intermediate pumping station 600/600



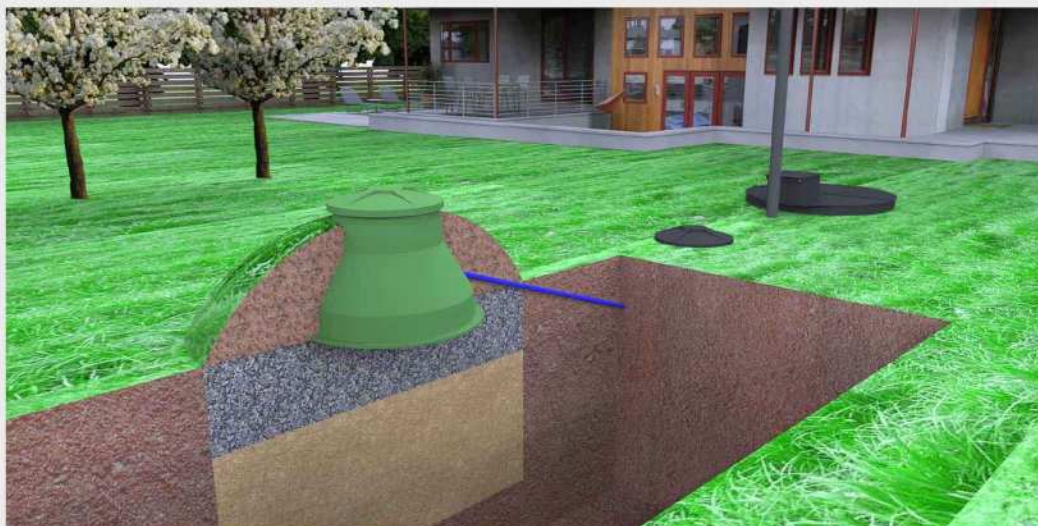
Intermediate pumping station 600/800





SOAKAWAY





Soakaway

Soakaway is the simplest unit for disposing initially treated wastewater from domestic treatment plants to the ground. It resembles a bell without a bottom. Wastewater infiltrate into the ground through the bottom and layers of gravel and proper granulation stones.

Soakaway location criteria are analogous to conventional drainage systems. It is a perfect solution for very small lots, since this leaching system takes up approx. 6 m².

Installation

Make a soakaway excavation (minimum dimensions: 2.5 x 2.5); depth is dependent on the supply pipe depth. The excavation bottom should be even and leveled.

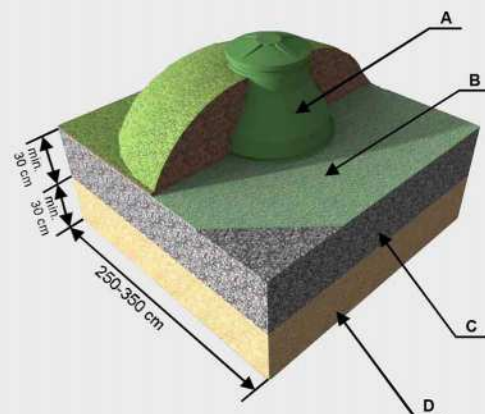
The bottom should be filled with 30-60 cm layer of 16-32 mm or 20-60 mm gravel. Geotextile strips should be placed directly on the gravel layer. Place the soakaway body in the excavation's centre.

Connect the supply pipe and a ventilation chimney. Fill the whole with subsoil, carefully thickening it with layers.



Technical information

- Made of PE-HD
- Volume: 350 l
- Weight: 23 kg
- Wall thickness: 5 mm
- Load-resistant
- Light lid, diameter: 600 mm
- Possibility of connecting pipes of any diameter
- Volume: 350 l
- Weight: 23 kg
- Wall thickness: 5 mm
- Load-resistant
- Light lid, diameter: 600 mm



Legend:

- A - soakaway
- B - geotextile
- C - stones with washed surface, 16-32 mm
- D - bleeding bed: non-graded gravel

Advantages:

- very low space demand
- can be used in relation to impermeable layers
- good control possibilities



