Installation and maintenance instructions for the AQUAstay FLAT tank

APLAST

EN

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Installation instructions for the AQUAstay FLAT tank

Thank you for the trust you have placed in us by choosing the AQUAstay FLAT tank. The AQUAstay FLAT tanks allow for an easy and cost-effective installation. Failure to follow the installation instructions may result in life-threatening situations, provoke significant material damage and invalidate the warranty.

Instructions in digital form are available at www.aplast.si.

1 GENERAL INSTRUCTIONS

- The installation and assembly instructions must be strictly followed, otherwise the warranty will be void;
- inspect the tank before installation and ensure that the components match your order;
- the tank must be installed by a company with properly qualified staff that are acquainted with the installation instructions. The instructions are attached to the bottom of the lid; remove them together with the bag and clips;
- when carrying out the work, adhere to the construction regulations and safety instructions that apply to this type of work;
- the cover of the tank should always be installed;
- the tank should only be installed in prepared construction pits and filled according to the manufacturer's instructions;
- the choice of the cover model depends on the customer's order;
- only additional elements prescribed and approved by the manufacturer of the tank may be added to the tank. If other elements are installed, the warranty will be void;
- the temperature of the water in the tank must not exceed 35°C (SIST EN 476: 2011);
- maintenance work should be carried out only when the tank is empty and the electrical components are disconnected;
- we recommend that you visually document all phases of the tank unloading and installation process, since you will need the photographs if you wish to assert warranty claims;
- **If the tank is installed under traffic surfaces, there is a risk of contamination of drinking water and measures must be taken to ensure that the system is completely watertight;**
- the tank is intended exclusively for underground installation. It is prohibited to fill an uninstalled tank with water. During installation the tank must be filled up to the top (only the top edge of the inspection opening can be seen);
- the images in the installation and maintenance instructions are of a purely illustrative nature.

2 AQUAstay FLAT TANK

AQUAstay FLAT tanks are produced using the rotational moulding process. Tank dimensions are shown in the table.

The tanks are:

- intended for the collection of drinking water, rainwater and waste water not containing substances which may affect the properties of polyethylene;
- intended exclusively for underground installation;
- equipped with surfaces for the installation of inlet gaskets up to a diameter of 200 mm on the body of the tank and up to 125 mm on the inspection opening;
- the PE protection cover is standard equipment.

2.1 TECHNICAL DATA

Volume	No. of inspection openings	Height (H)	Width (D)	Length (L)	Weight
5.000 L	1	1,51 m	2,33 m	2,70 m	240 kg
10.000 L	2	1,51 m	2,33 m	5,50 m	480 kg
15.000 L	2	1,51 m	2,33 m	8,00 m	700 kg
20.000 L	2	1,51 m	2,33 m	10,60 m	910 kg
25.000 L	2	1,51 m	2,33 m	13,10 m	1130 kg

The data in the table is for informational purposes only. The seller reserves the right to change the technical data of the product without prior notice. Any discrepancies between the specified technical data and the actual product data do not constitute a basis for claiming complaints.

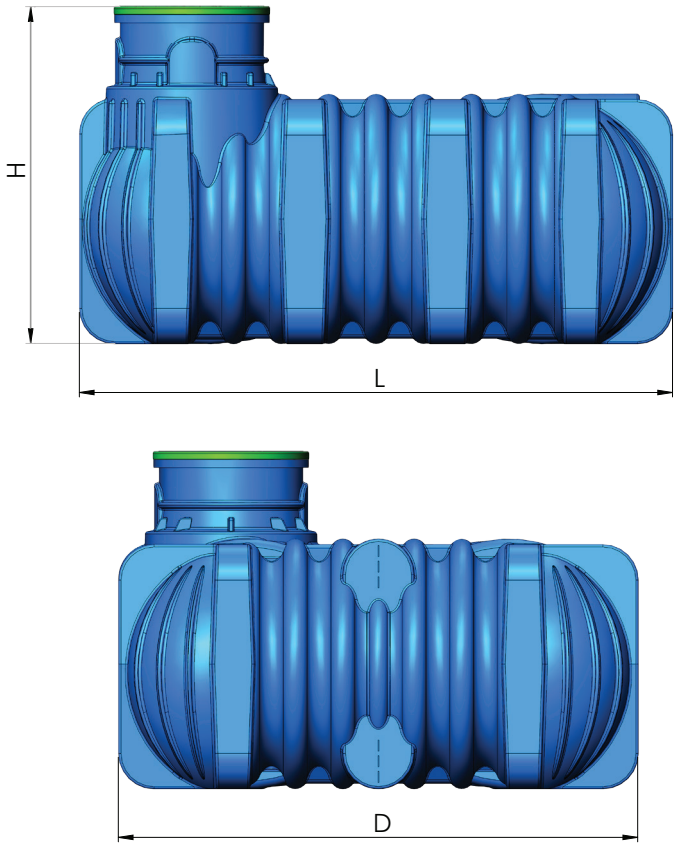


Figure 1: Tank dimensions (H, W and L)

2.2 ADDITIONAL EQUIPMENT OF THE TANK

The basic configuration of the tank can be upgraded with additional equipment:

- It is possible to install a calming inlet, siphon, filter etc.;
- Cover with a lock, cast iron cover, composite cover etc.;
- Extension ring or extension;
- Quick-assembly couplings;
- Inlet gaskets;
- Welded pipe connections.

3 UNLOADING OF THE TANK

Pay special attention to the unloading and handling of the tank. The tanks are equipped with lifting eyelets to be used for lifting (Figure 2). To ensure the stability of the tank during lifting, each load sling must be weighed down symmetrically, and the appropriate number of slings in proportion to the size of the tank must be provided. Do not push, pull or roll the tank on the ground. Store the tank on a flat and smooth surface.

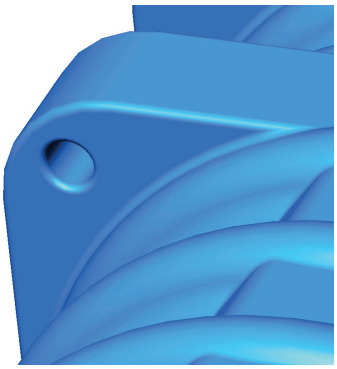


Figure 2: Prepared lifting eyelets for the tank

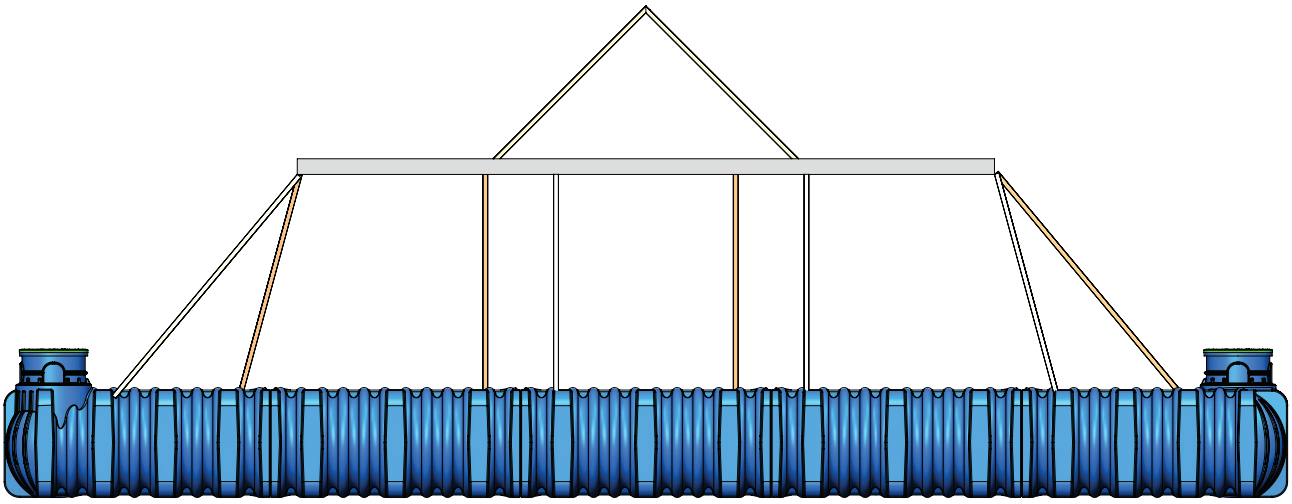


Figure 3: Lifting the tank with load slings

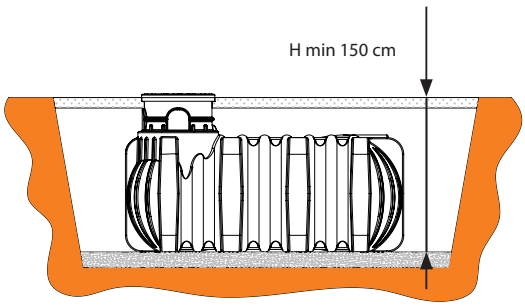
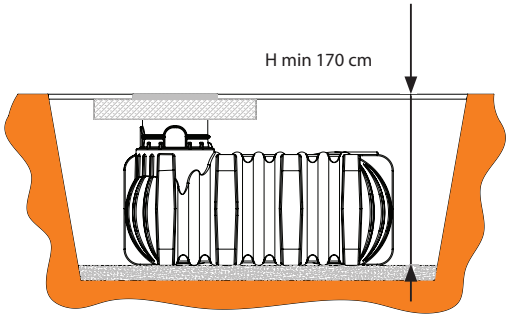
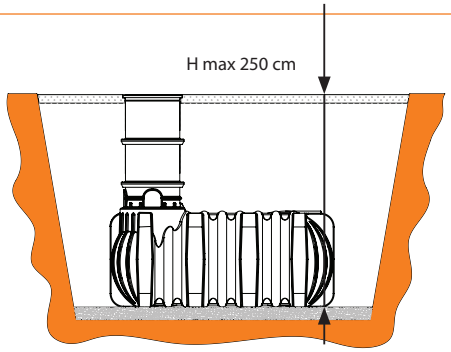
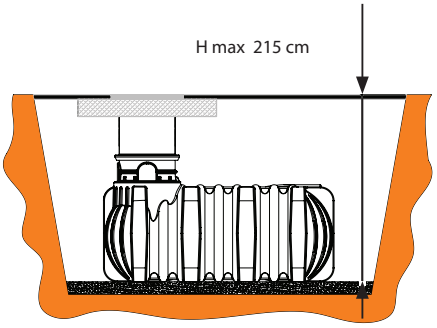
Video unloading of the tank:

Video installation of the tank:

4 INSTALLING THE TANK

AQUAstay FLAT tanks are designed for underground installation. The tank can be equipped with standard elements, which allow customization. The following instructions must be followed:

Installing the tank in walking and transport surfaces (total vehicle weight up to 7.5 t)

	Walking surfaces	Transport surfaces (total vehicle weight up to 7.5)
Minimum installation depth		
Maximum installation depth		

Installing tanks next to one another

When installing tanks next to one another, it is necessary to consider the distance between them, which should amount to at least 60 cm in all directions.

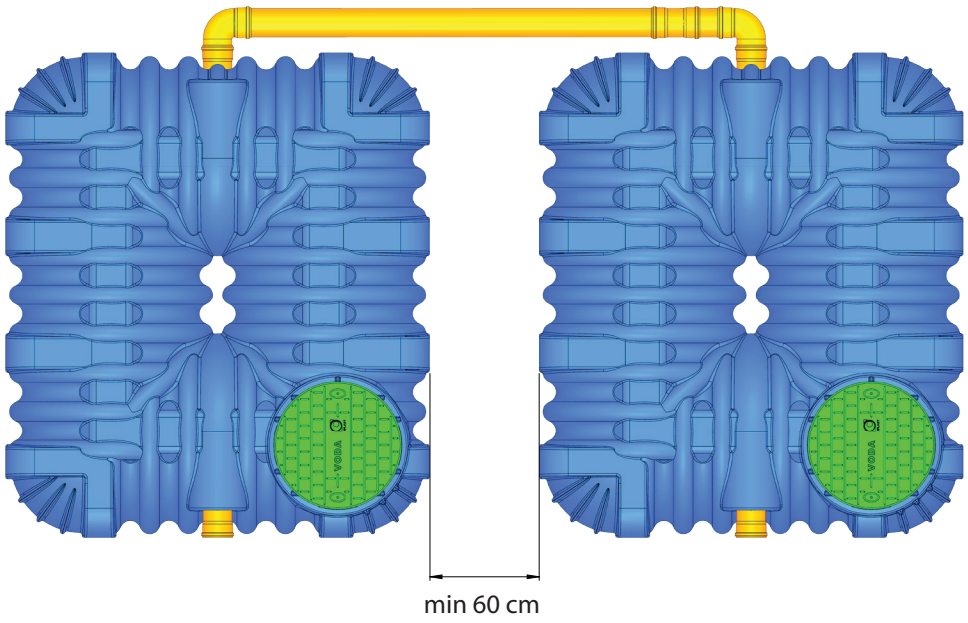


Figure 4: Installing tanks next to one another

4.1 EXCAVATION AND PREPARATION OF THE CONSTRUCTION PIT

Perform the excavation of the construction pit in accordance with Figure 5. The maximum depth of the installation must be sufficient according to the thickness of the sand or concrete base and the height of the tank. The construction pit must be at least 0.5 m larger than the floor plan of the tank. We recommend the use of geotextile, placed between the soil and the fraction of the backfill material.

The substrate must be solid, compact and flat, made of:

- crushed material containing a mixture of grains ranging in sizes from 0 to 16 mm, or
- round grain material (gravel) containing a mixture of grains ranging in sizes from 0 to 32 mm, or
- concrete slabs.

The appropriate thickness of the base ranges from 20 to 30 cm. The substrate must be compressed to a value of 45 MPa according to Evd.

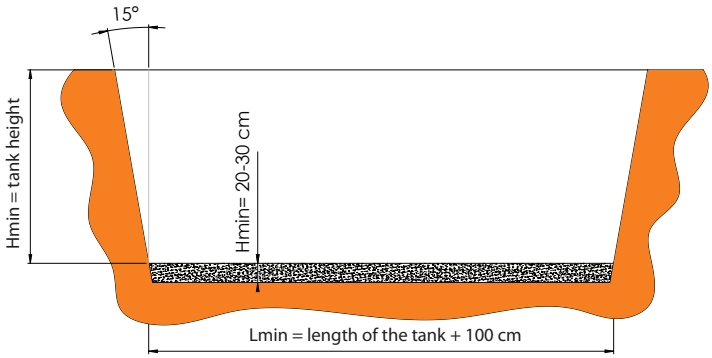


Figure 5: Excavation of the construction pit

CRUSHED MATERIAL:
CRUSHED STONE fraction mixture ranging from 0 to 16 mm

ROUND GRAIN MATERIAL:
RIVER GRAVEL fraction mixture ranging from 0 to 32 mm

4.2 INSTALLATION AND BACKFILLING OF THE TANK

To backfill the tank use crushed or round grain material containing a mixture of grain sizes from 0 to 16 mm and 0 to 32 mm respectively. When installing the tank, ensure that the weight or operation of the construction machinery does not cause deformation of the product. The use of a backfill material that does not comply with the required specification may damage the tank. The use of sand or frozen material is prohibited. Place the tank in the prepared construction pit. Start the installation by backfilling the intermediate space of the tank in the middle (Figure 6). The intermediate space of the tank must be carefully solidified and completely filled with the backfill material. Solidify the material in 30 cm layers with manual tools.

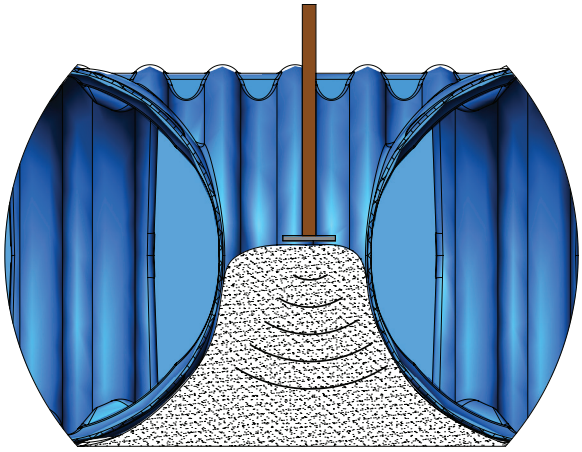


Figure 6: Solidifying the empty space in the middle of the tank

When the intermediate space is completely filled, proceed to add material to the tank (Figure 7). In this way, you will ensure the proper load of the tank for the continuation of the procedure.

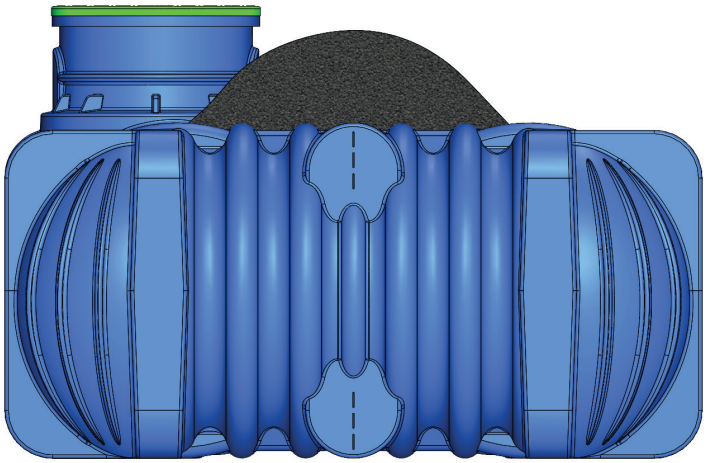


Figure 7: Weighting the tank with backfill material

Continue to backfill the tank on the sides (Figure 8) and carefully, in layers of 30 cm, harden and mechanically compact the material in a width of at least 50 cm from the wall of the tank (Figure 9). When backfilling and solidifying the backfill material, it is not necessary to pour water into the AQUAstay FLAT tank.

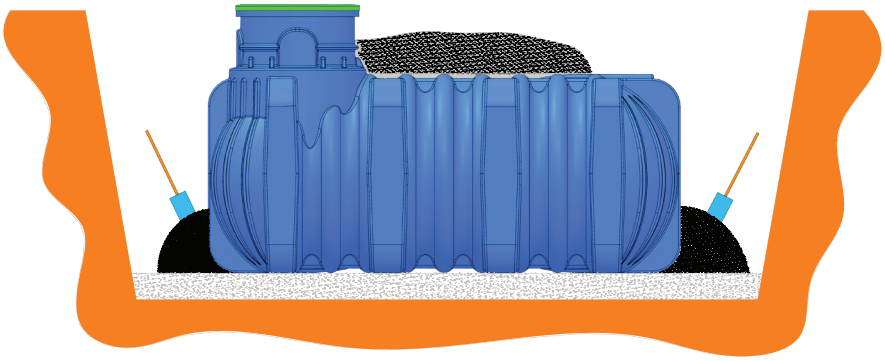


Figure 8: Backfilling the tank and filling the empty space

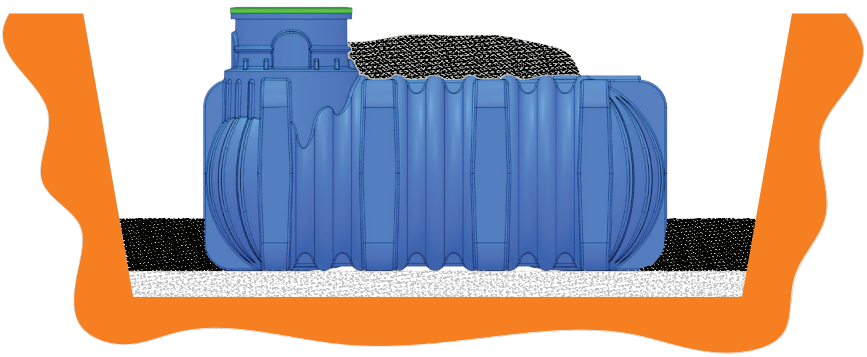


Figure 9: Solidifying by layers of 30 cm

4.3 INSTALLATION OF THE TANK FOR WALKING SURFACES

Follow the instructions under 4.1 and 4.2. Make the basic backfill with appropriate backfill material at least 20 cm above the top of the tank (Figure 10), and the final backfill with soil to the edge of the inlet.

We recommend the use of geotextiles between the sand layer and the soil layer.

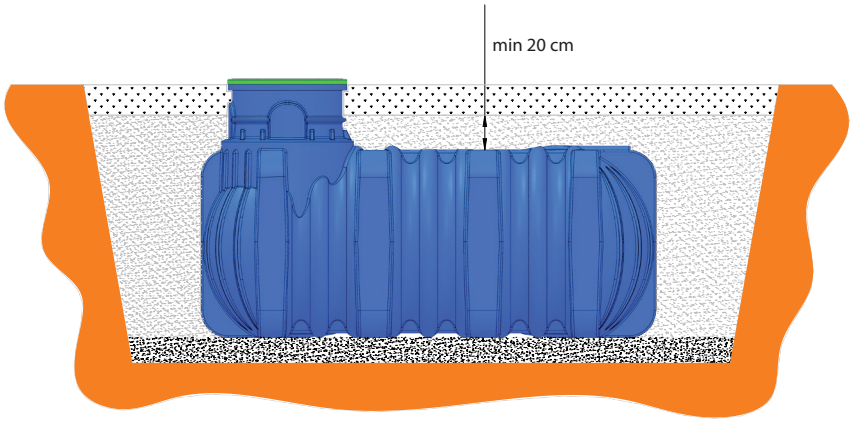


Figure 10: Minimal solidified height of the backfill material

4.4 INSTALLATION OF THE TANK UNDER TRANSPORT SURFACES

Under certain conditions, the AQUAstay FLAT tanks may be installed under traffic surfaces. In addition to following the instructions under 4.1 and 4.2, the following instructions must also be complied with.

A cast iron cover or any other cover with a suitable load bearing capacity for the used area pursuant to standard EN 124-1 must be used for the installation. The cover must be installed in a reinforced concrete ring. The RC ring must be installed on the tank as shown in Figure 11. The RC ring must not rest on the neck of the tank; the distance should amount to no less than 40 mm. The RC ring in combination with the cover represents an effective protection against overloading the tank. You must also install a protective PE cover on the tank.

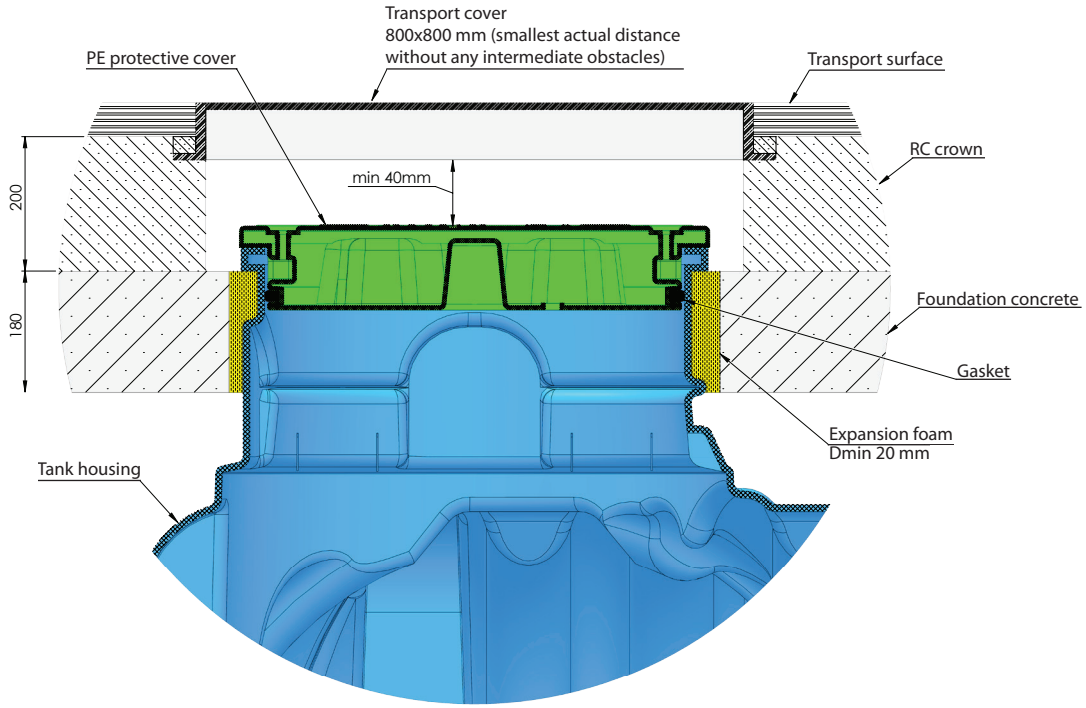


Figure 11: Detail of the installation of the RC ring

Total vehicle weight up to 7.5 t

For transport surfaces where the total vehicle weight does not exceed 7.5 t, the installation of the tank may be carried out without additional backfilling. In this example, the installation of the tank is represented by Figure 12.

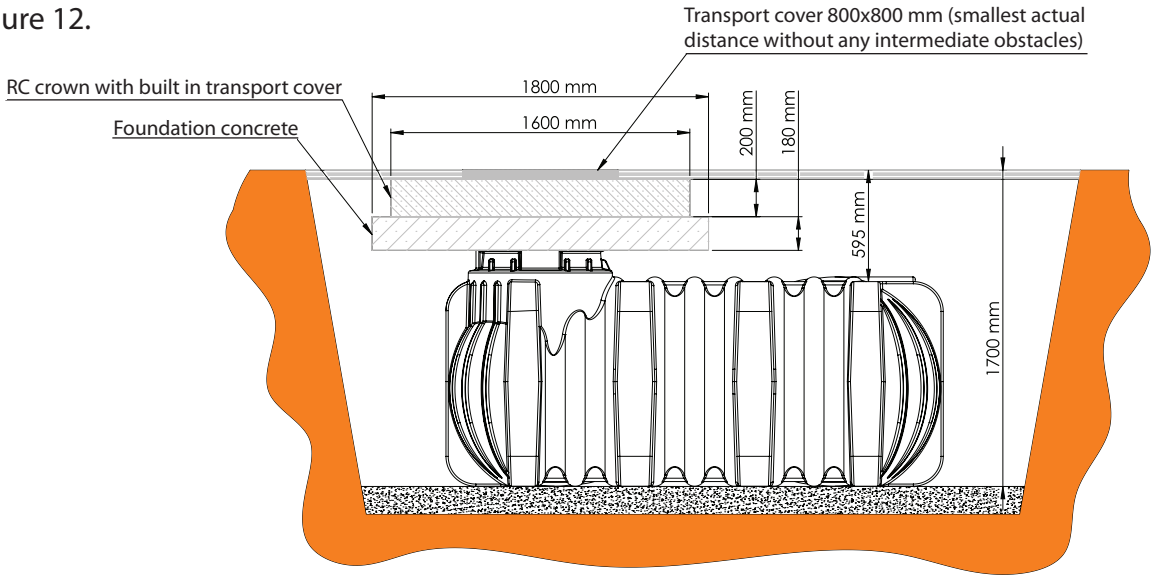


Figure 12: Installation of the tank under transport surfaces with the total vehicle weight of up to 7.5 t

The installation method allows the tank to be loaded with the maximum permissible masses of the vehicles presented in the table.

Table of permissible loads

Total vehicle weight up to 7.5 t	
Permissible axial load	4,5 t
Min. axial spacing	1,2 m

Total vehicle weight over 7.5 t

When installing the tank in transport surfaces where the total permissible vehicle weight exceeds 7.5 t, additional elements must be installed.

The tank installed under the traffic surfaces must be adequately protected, since the tank itself cannot take over the dynamic loads of the road. The static calculation determines the appropriate RC panel, as shown in Figure 13. The execution of the works, the dimension A and the brand of concrete are determined by the authorized structural designer.

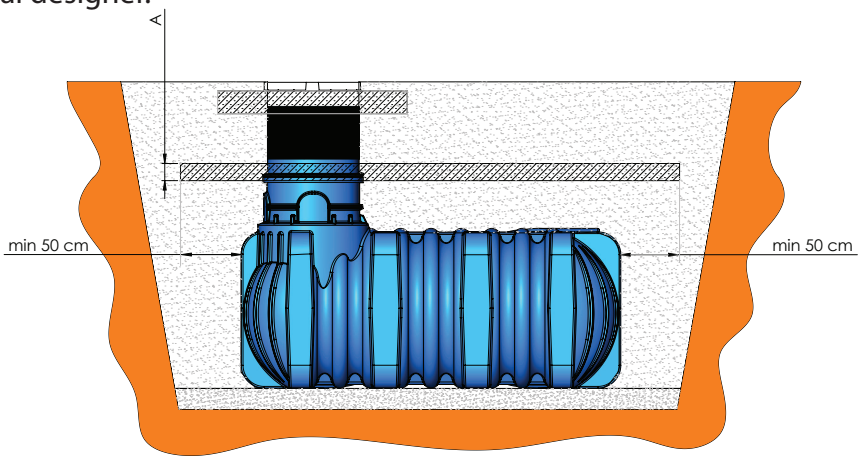


Figure 13: Installation of the tank under transport surfaces

4.5 INSTALLATION OF THE TANK IN CASE OF GROUNDWATER

Follow the instructions under 4.1 and 4.2. When installing the tank in areas where groundwater is present, it is necessary to take into account its height and install the tank in accordance with the instructions. During construction works or installation of the tank, groundwater must not be present and appropriate measures must be taken to ensure a dry work environment. When preparing the construction pit for the installation of the tank, it is recommended to use and install geotextile between the soil and the backfill material fraction.

The height of the groundwater impact on the tank can be up to the maximum height of 115 cm (measured from the bottom of the tank), as shown in Figure 14. In areas where groundwater levels are present or expected to be higher than the permissible level, additional measures should be taken to ensure that the level is maintained. The permitted level of groundwater or other water must be ensured for the entire time of use of the tank.

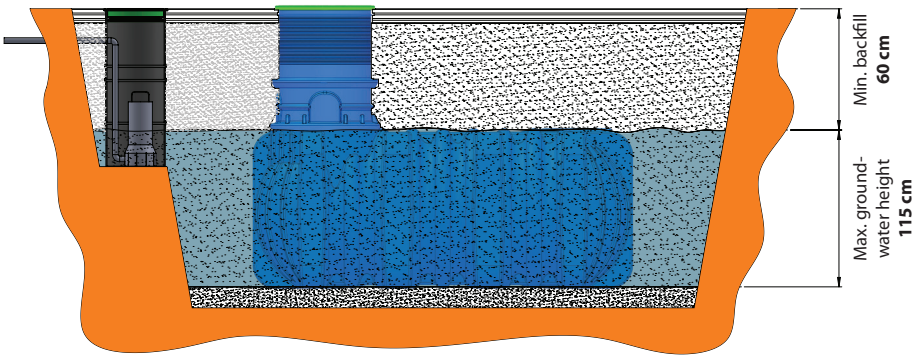


Figure 14: Installation of the tank in the presence of groundwater

In addition to the instructions described in this chapter, a minimum backfill of 60 cm should be ensured on the tank. Before that, the inspection opening must be elevated with standard elements. The installation of the standard element is presented in Chapter 5.3. If it is not possible to backfill to a height of 60 cm, the tank must be anchored. STAINLESS STEEL strips are used for this purpose. They are attached to the previously prepared concrete base. The required number of strips is shown in Table 1.

Table 1: Required number of STAINLESS STEEL strips depending on the tank size

PART NUMBER	TANK	Strips	LENGTH in m (L)
214390470	5.000 L	2 pcs	4,6
214390470	10.000 L	4 pcs	4,6
214390470	15.000 L	6 pcs	4,6
214390470	20.000 L	8 pcs	4,6
214390470	25.000 L	10 pcs	4,6

4.6 INSTALLATION OF THE TANK IN UNSTABLE SLOPES

If an unstable area is selected for the installation of the AQUAstay FLAT, it is necessary to ensure that the installation conditions are such that the AQUAstay FLAT is not affected by ground pressures and landslides. This is done with appropriate reinforced concrete (RC) retaining walls. The dimensions of the retaining wall, the amount of reinforcement and the appropriate drainage are determined by the authorized structural designer.

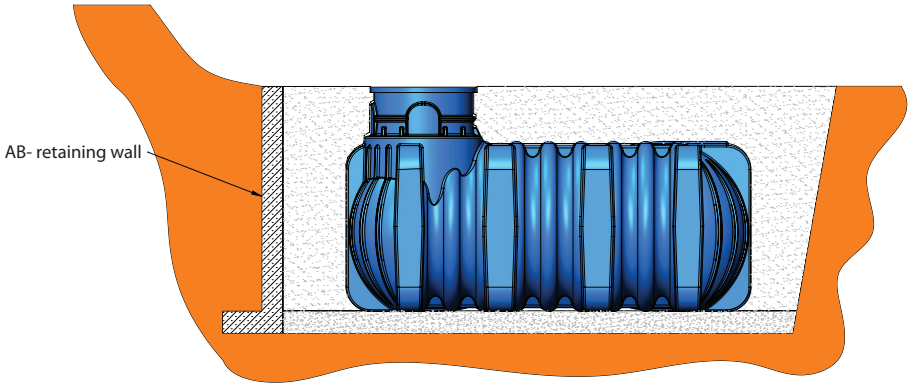


Figure 15: Installation of the tank in unstable areas

5 INSTALLATION OF ADDITIONAL EQUIPMENT

In addition to the prefabricated and built-in equipment, AQUAstay FLAT tanks can be additionally equipped with standard field elements. For this purpose, it is allowed to use standard connections from APLAST that are compatible with the tank.

All inlet pipes and conduits are laid with a 1% drop in the direction of the current; subsidence must also be taken into account. An overflow pipe must be installed to prevent overfilling the tank. All suction and pressure pipes, as well as all control cables, are routed through a protective pipe. Ensure adequate air supply when using pumps - you can use the cover with a vent in Figure 17.

5.1 INSTALLATION OF CONNECTIONS

All basic tank models have recommended connection points where inlet gaskets can be installed or polyethylene pipes can be welded. The installation of the connections should be carried out by a qualified person.

5.2 INSTALLATION OF THE COVER

The tank has a factory-fitted protective PE cover with a gasket. Clean the cover before each installation and apply a food grade lubricant to the gasket. The cover is optionally available with a lock (Figure 16) and additionally, also with a vent (Figure 17).

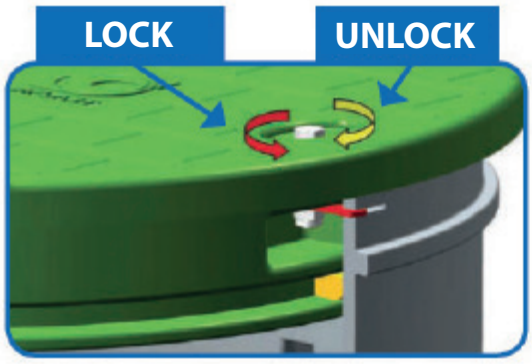


Figure 16: Cover with a lock

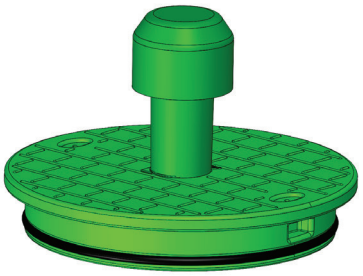


Figure 17: PE cover with a vent

5.3 INSTRUCTIONS FOR INSTALLATION OF ADDITIONAL ELEMENTS

In the case of installation of a tank with additional backfill, the tank can be lifted by a maximum of 100 cm using standard extensions or extension rings. To install the standard extension, the technological edge of the inspection opening is removed (Figure 20), after which the tank is ready for the installation of the extension (Figure 18). When installing the extension rings, the technological edge does not need to be removed (Figure 19).

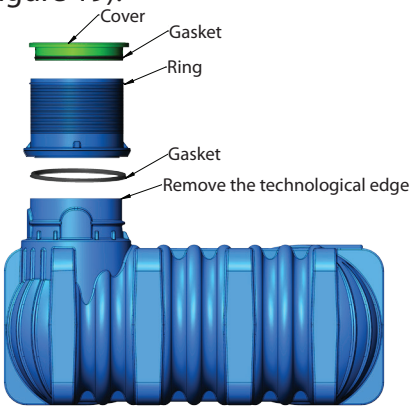


Figure 18: Ring installation option

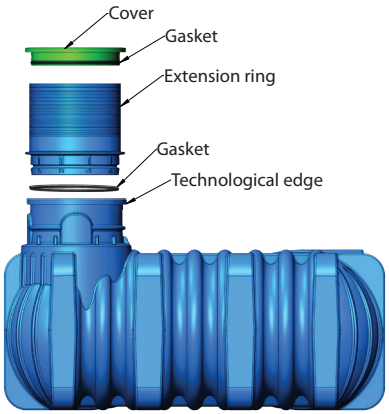


Figure 19: Extension ring installation option

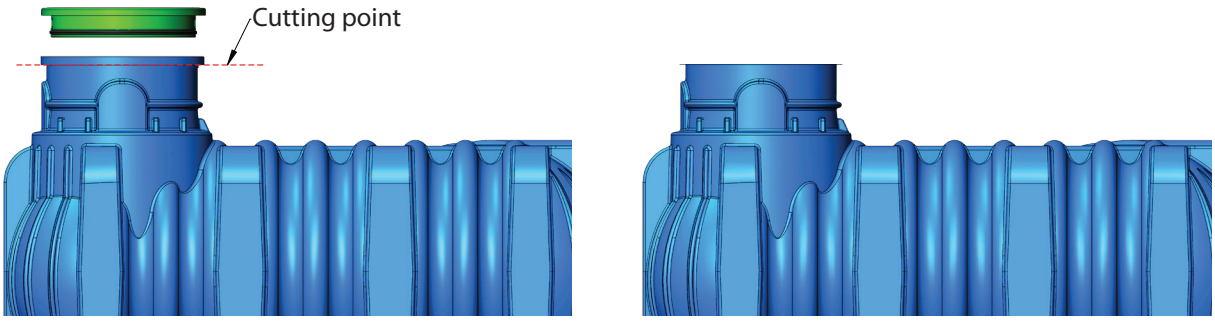


Figure 20: Cutting point of the technological edge

6 MAINTENANCE INSTRUCTIONS

When using the tank, it is necessary to regularly monitor the water level and the possible presence of sludge. We recommend that maintenance work is carried out at least once per year and if required, more often. Maintenance work may only be carried out by a person professionally trained in tank maintenance. Please take note of the following guidelines:

- for safety reasons, at least two persons must be present at the same time;
- ensure adequate safety and living conditions for the safe execution of maintenance;
- disconnect all electrical sources connected to the tank before carrying out any maintenance work;
- completely empty the tank before cleaning it;
- if necessary clean the inner surfaces of the tank;
- carry out a visual inspection of any possible damage to the inside of the tank. If damage is detected, consult the manufacturer;
- check the pipes, inlet and outlet connections, and installed systems;
- before reinstallation lubricate the cover gasket with food grade lubricant and install it on the tank. The cover must always be installed.

7 RECYCLING THE TANK

After the end of the service life of the tank, hand it over to an authorised waste management company. The material (the type of material is indicated on the product) may be fully recycled. The material is 100% recycable, thus, you will contribute to the preservation of the natural environment and the reduction of the ecological footprint, as well as to a sustainable approach to resource management.

PE - LD

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