



Instructions for Installing an AQUAstay Tank



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Instructions for Installing an AQUAstay Tank



Thank you for the confidence you gave us by selecting the AQUAstay tank. Many years of manufacturing water tanks have brought us a lot of experience in the proper installation and assembly of our products. Failure to comply with installation instructions can endanger lives and cause serious material damage, as well as nullifies the validity of the warranty.

Installation instructions are regularly updated.
Use the latest version, available on the website www.aplast.si.

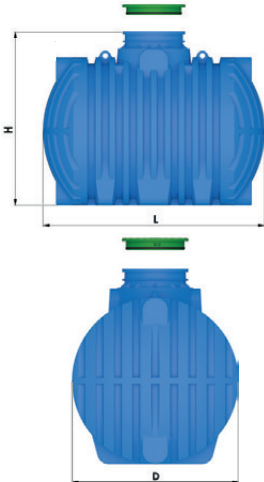
1. GENERAL INSTRUCTIONS FOR SAFE USAGE

- The contents of these INSTRUCTIONS for installation and assembly shall be followed carefully, otherwise warranty claims cannot be asserted.
- The tank shall be inspected prior to installation and verified whether it has been manufactured in accordance with your requirements.
- Installation shall be carried out by a professional company with qualified experts, who are familiar with the installation instructions. The instructions, which are attached to the bottom of the lid, shall be removed, together with the bag and clips.
- Follow the instructions for safe work when executing the works. Another person must be present to protect you, especially when manipulating and installing the tank.
- The lid of the tank must be kept closed at all times to prevent the possibility of an accident.
- The tank shall be installed only into previously prepared construction pits and backfilled according to the manufacturer's instructions.
- The use of the tank is intended exclusively for underground installation. It is forbidden to fill the uninstalled tank with water!
- The choice of lid type depends on the order and the buyer's wishes.
- Only those additional elements that have been specified and authorized by the manufacturer of the tank can be fitted onto the tank. In the event of the installation of unsuitable elements, the manufacturer cannot guarantee proper operation; hence, the buyer cannot assert the warranty rights.
- The images contained in these instructions for installation and maintenance are merely illustrative.
- Only carry out maintenance work when the tank is empty and the connected electrical parts are not functioning or are switched off.
- When installing the tank, it must be installed and filled up completely to the end (the visible part can only be the "throat" of the tank).

2. AQUAstay TANK

The AQUAstay tank has been manufactured by rotomoulding in three standard versions (L, XL and XXL). The dimensions of external clearances are shown in the table below.

2.1. TECHNICAL DATA



Volume	Length (L)	Diameter (D)	Height (H)	Weight
500 l - L		ø 1,0 m	1,0 m	49 kg
1.000 l - L			1,8 m	76 kg
2.000 l - L	1,50 m	ø 1,4 m	1,7 m	104 kg
2.500 l - L	1,80 m			120 kg
3.000 l - L	2,40 m			133 kg
3.500 l - XL	1,80 m	ø 1,7 m	2,0 m	160 kg
5.000 l - XL	2,45 m			215 kg
6.000 l - XL	2,90 m			256 kg
7.000 l - XL	3,40 m			298 kg
10.000 l - XL	4,94 m			395 kg
8.000 l - XXL	2,60 m	ø 2,3 m	2,6 m	261 kg
10.000 l - XXL	3,10 m			307 kg
12.000 l - XXL	3,60 m			350 kg
16.000 l - XXL	4,80 m			515 kg
18.000 l - XXL	5,30 m			551 kg
20.000 l - XXL	5,80 m			591 kg
26.000 l - XXL	7,50 m			770 kg
28.000 l - XXL	8,00 m			810 kg
30.000 l - XXL	8,50 m			850 kg
36.000 l - XXL	10,30 m			1.027 kg
38.000 l - XXL	10,80 m			1.067 kg
40.000 l - XXL	11,30 m			1.108 kg
46.000 l - XXL	13,00 m			1.285 kg
50.000 l - XXL	13,50 m			1.326 kg

The dimensions shown in the table have only an informative purpose and may deviate in practice.

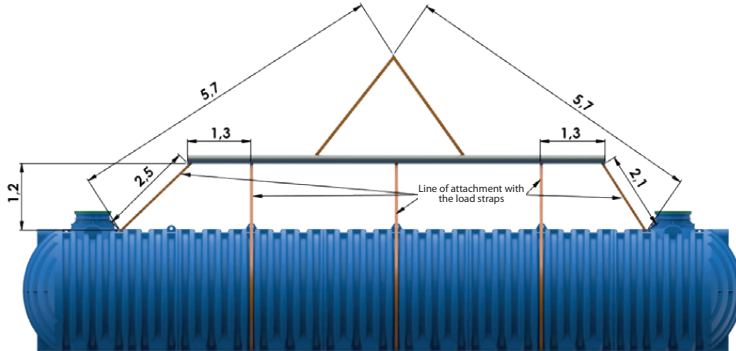
2.2. EXTRAS and FITTINGS

- Entry seals for PVC pipes of 75, 110, 125, 160 and 200 mm in diameter.
- Soothing inflow, overflow siphon and filter.
- Lids - such as a lid with additional protection and a lid with an air shaft.
- Telescope or ring (for raising the entrance to the tank).
- Connectors for connecting to PE pipes, PVC, PP and PE pipes in all dimensions.
- Sand traps of 400 and 500 mm in diameter and of different heights

3. INSTALLATION OF TANK

3.1. UNLOADING OF TANK

When delivered and unloaded, the tank is prepared for burial. Particular attention should be paid to careful unloading, because the tank can break when falling from the height. To avoid this, tanks with more than 3000 l size, are equipped with ears at inspection opening. Tanks, which are larger than 20.000 l, have to be unloaded with the help of a console. Unloading using a spoon or a fork of the machine in the middle of the tank is strictly forbidden, as it can, due the length and bending of the tank, cause damage. We recommend that you take photos of all the phases of installation.



FORBIDDEN!



RECOMMENDED!

3.2. PREPARATION OF TANK

All the basic versions of tanks contain pre-prepared connection points on which polyethylene pipes can be welded or other pipe types can be installed through the inlet seal. Before lowering it into the construction pit, the tank must be inspected to make sure it was not damaged during transport and whether it appears flawless on the outside.

3.3. ASSEMBLY OF FITTINGS

The connections on the tank are different from each other and are adjusted according to the customer's specifications. The installation of the connections should be performed by a qualified person equipped with suitable tools (crown saw, scraper, potassium lubricant ...).



3.4. EXCAVATION AND PREPARATION OF CONSTRUCTION PIT

The excavation of the construction pit should be the same as shown in figure below. Maximum depth of the pit should be sufficient for thickness of the bed and height of the tank. The construction pit has to be bigger for approximately one meter around the tank and excavated at an angle of 15 degrees. The tank should be placed on a suitable bed, which has to be solid and compact. Suitable filler material is required for tank backfilling. The bed shall be prepared with crushed material containing a mixture of grains in size from 0 to 16 mm. If you use round grain material (gravel), it must contain a mixture of grains in the size of 0 to 32 mm. Suitable thickness of bed is between 20 and 30 cm, and it shall be compressed to a densification of 97% Proctor. In the presence of ground water, it is necessary to set up the bed from lean concrete C12/15 in height of 15 cm.

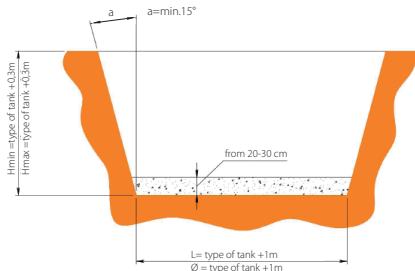


Figure 1: Excavation of a construction pit



*CRUSHED MATERIAL:
GRIT fractions 0-16 mm



*ROUND GRAIN MATERIAL:
RIVER GRAVEL fractions 0-32 mm

* The above-mentioned backfill materials prevent water stagnation in the backfill material, leaching of fine particles and thus the formation of cavities in the backfill material (settling of the terrain), possible perforation of the reservoir housing due to too large or too sharp edges of the backfill material.

3.5. PLACEMENT AND BACKFILLING OF THE TANK

Backfilling the body of the tank requires the use of appropriate backfill material - crushed material containing a mixture of grains in size from 0 to 16 mm. If you use round grain material (gravel), it must contain a mixture of grains in the size of 0 to 32 mm. Use of backfill material that does not comply with the required specification may damage the tank. The use of sand or frozen material is prohibited! The backfill material has to be consolidated and compressed carefully and in layers (up to 50 cm in height) to 97% Proctor compaction over a minimum width of 50 cm from the wall of the tank. Simultaneously with backfilling the body of the tank, water must be poured into the tank itself, so that the level of the backfill material equals the water level in the tank. The space between the tank and the bedding, must be filled and solidified as shown in Figure 3. It is necessary to fill and consolidate the entire empty space with manual tools, thus preventing possible subsequent deformations of the bottom. If there are several tanks installed in the construction pit, the additional distance between the tanks should be taken into account, which should not be less than one meter, so that the backfill can be properly consolidated. When backfilling the tank body, make sure that construction machinery does not drive over the body or in the area of backfilling.

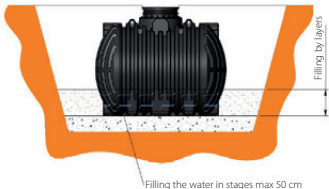


Figure 2: Placement and backfilling



Figure 3: Consolidation of the empty space under the tank

3.6. PLACEMENT AND BACKFILLING OF THE TANK IN THE EVENT OF GROUNDWATER

In case of groundwater, it is necessary to take into account the level of groundwater. In case of low ground water $H_1 = 30$ cm and up to half of the tank, it is required to place the tank on a bed of concrete with minimum 15 cm of thickness and backfill it in accordance with the previously described procedure. In case that groundwater exceeds half of the height of the tank, the tank needs to be anchored. For this purpose, you can use stainless steel band "Inox band". You can fix it at the bottom of the mortar bed with the help of an anchor bolt M10 or M12 or with threaded rods with a concrete adhesive. The fixing band may hug the body of the tank, but cannot be saddled with a tensile force, which could deform the shape of the body of the tank.

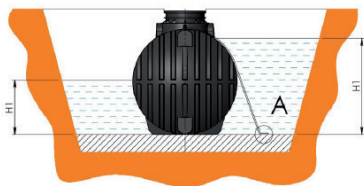


Figure 4: Setting up the tank in case of groundwater

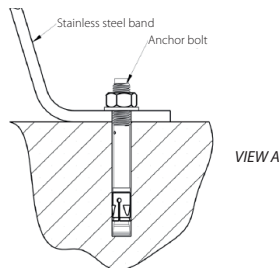


Figure 5: Detailed view of the connection with a stainless-steel band

TANK	Bands L - short	Bands L - long	Bands XL - short	Bands XL - long	Bands XXL - short	Bands XXL - long
2.000 L - L		2 pcs				
2.500 L - L		2 pcs				
3.000 L - L	2 pcs					
3.500 L - XL				2 pcs		
5.000 L - XL			2 pcs			
6.000 L - XL			2 pcs			
7.000 L - XL			2 pcs			
10.000 L - XL			3 pcs	2 pcs		
8.000 L - XXL						2 pcs
10.000 L - XXL						2 pcs
12.000 L - XXL					2 pcs	2 pcs
16.000 L - XXL					2 pcs	2 pcs
18.000 L - XXL					2 pcs	2 pcs
20.000 L - XXL					2 pcs	2 pcs
26.000 L - XXL					4 pcs	2 pcs
28.000 L - XXL					4 pcs	2 pcs
30.000 L - XXL					4 pcs	2 pcs
36.000 L - XXL					6 pcs	2 pcs
38.000 L - XXL					6 pcs	2 pcs
40.000 L - XXL					7 pcs	2 pcs
46.000 L - XXL					8 pcs	2 pcs
50.000 L - XXL					10 pcs	2 pcs

Table 1: Fixing bands for the tank



Figure 6: Fixing bands for the tank

3.7. INSTALLATION OF THE TANK INTO POORLY PERMEABLE GROUND

In case of installation of the tank in an area where soil is poorly permeable and standing water in the construction pit could occur, it is required to drain the water from the pit with a drainage system. The drainage system shall remove water so that it does not permanently stay along the full volume of the construction pit, as deformations of the tank casing may occur.

In case that a drainage system cannot be set up, instruction need to be followed (see chapter 3.6).

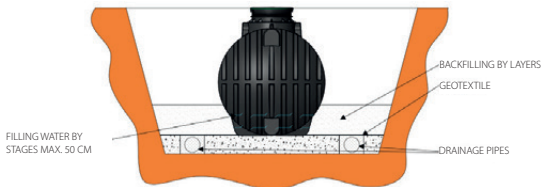


Figure 7: Installation of the tank into poorly permeable ground

3.8. INSTALLATION OF THE TANK IN AN UNSTABLE AREA

In the event that an unstable area is selected for the installation of the tank, it is necessary to build an AB-retaining wall on the side of the terrain where the pressure on the installed tank will occur, which will take over the pressure and landslides. The dimensions of the load-bearing wall and the number of fittings are determined by the representative construction engineer.

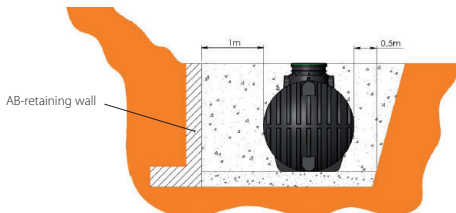


Figure 8: Installation of the tank in an unstable area

3.9. INSTALLATION OF THE TANK UNDER DRIVING SURFACES

Along with following the instructions of point 3.5, when installing a tank under driving surfaces, it has to be suitably protected, as it cannot take on the dynamic load of the driving surface. Statics need to be used to define appropriate reinforced concrete plate, as shown in the figure. Dimension A, as well as concrete mark, are defined by the representative construction engineer. Special attention is required when pouring the reinforced concrete plate, to support the tank with paneling and support pillars, to prevent deformation and sinking of the tank due to the weight of wet concrete and reinforcement. The paneling support may only be removed after final achieved capacity of the concrete plate.

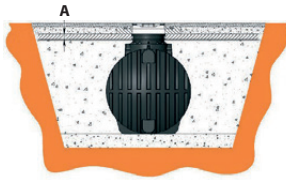


Figure 9: Installation of the tank under driving surfaces

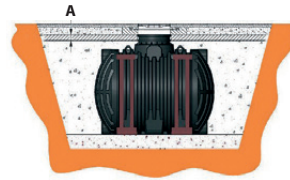


Figure 10: Installation of the tank with paneling and support pillars

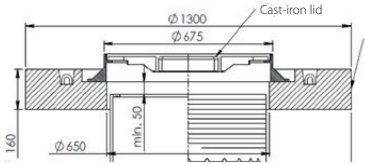


Figure 11: Detailed view of cast-iron lid installation

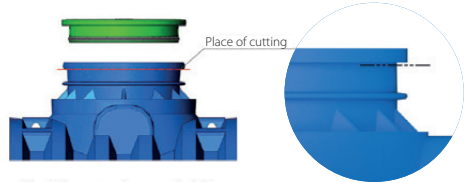


Figure 12: Place of cutting

The water tank may be installed into surfaces, where the static axial load of vehicles does not exceed 2.2 tons with a gravel bed depth of 0.8 meters. In such a case it is necessary to use a cast-iron lid of suitable capacity with reinforced concrete ring. In this case, the upper reinforcement of the inspection opening must be cut off.

3.10. INSTALLATION IN CASES OF INFILLING ABOVE THE PERMITTED HEIGHT

3.10.1 UP TO PERMITTED HEIGHT (50 cm)

After the backfilling of the tank is finished, the height of the manhole has to be adjusted to the surrounding terrain by cutting the ring of the tank. In case of too low tank installation, depending on the surrounding terrain, the tank can be raised with standard telescopes and rings, up to max. 50 cm. To install the standard ring, the technological edge of the inspection opening must first be removed in case it was not removed at the factory, then can be installed the seal, after that the tank is ready to be raised.



Figure 13: Optional elevated lid

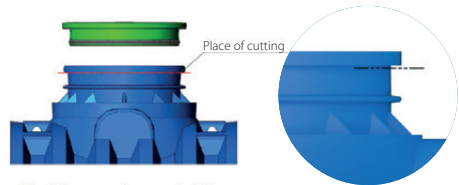


Figure 14: Place of cutting

3.10.2 ABOVE THE PERMITTED HEIGHT

In the case of installation up to 2 m above the height of the inspection opening, the tank must be installed according to the instructions in point 3.9, with a relief plate at the height of the tank. Access to the inspection opening should be equipped with rings with a diameter of DN 1000, installed eccentrically with respect to the entrance opening.

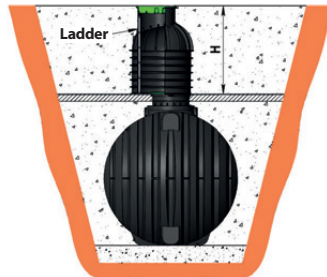


Figure 15: Installation in cases of infilling above the permitted height

In the case of installation above 2 m, the construction design of the installation is determined by the responsible engineer.

3.11. ASSEMBLY OF THE EQUIPMENT OF THE TANK

All feed and overflow pipes have to be routed with a drop of 1% in the flow direction. You also have to observe the settling. All of the suction, pressure and control devices must be routed through the empty protective tube to ensure ventilation. In case of using pumps, you have to provide an air shaft on the top lid to avoid deformations due to vacuum and to ensure sufficient ventilation inside the tank.



Figure 16: PE-lid with an air shaft

4. ASSEMBLY OF THE LID AND FINISHING WORKS

After the backfilling of the tank is finished, the height of the manhole has to be adjusted to the surrounding terrain by cutting the ring of the tank. In case of too low tank installation, depending on the surrounding terrain, the tank can be raised with standard rings, up to 50 cm. To install the standard ring, the technological edge of the inspection opening must first be removed in case it was not removed at the factory, then can be installed the seal, after that the tank is ready to be raised.

The tank has a factory-installed walkable PE lid with seal, which can be replaced with a cast-iron lid at the request of the buyer. Prior to any assembly of the lid, the seal of the lid must be cleaned and lubricated with a food-grade lubricant. In the case of a lid with a seal, a lock can be ordered as an extra, which protects the lid from being opened.



Figure 17: Optional elevated lid

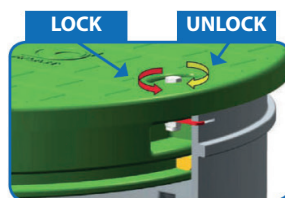


Figure 18: Lid with a lock

If the tank has a double edge at the inspection opening, and if in such case the tank is being raised with ring or when installing the heat-insulating PE-lid, the upper edge with the double edge shall be removed. The cut should be done just below the upper reinforcement, as shown in the figure

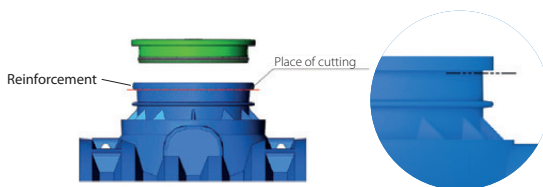


Figure 19: Place of cutting

5. DISPOSAL OF THE TANK AND REUSE

In case of disposal of the tank, hand it over to an authorized waste management company. The material is 100% recyclable. By reusing PE material, you will thus contribute your share to the protection of the environment.

