



Installation and maintenance instructions for AQUAstay FLAT Tank

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Installation instructions – AQUAstay FLAT tank

Thank you for the trust you have shown us by purchasing the AQUAstay FLAT tank. Due to the many years of manufacturing water tanks, we have been able to gather a great deal of experience, which extends from the construction to the installation of this product. We ask you to bear in mind that actions, which are not carried out in accordance with the installation instructions, can endanger lives and cause major material damage. Therefore, any disregard of these instructions will invalidate the warranty.

The manual is available in digital form at www.aplast.si.

1 GENERAL SAFETY INSTRUCTIONS

- The contents of these INSTALLATION INSTRUCTIONS 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 safety instructions when carrying out the works.
 - The tank cover must be closed at all times to prevent the possibility of an accident.
 - The tank is installed exclusively in prepared construction pits and backfilled according to the manufacturer's instructions.
 - The choice of cover type depends on the order and the customer's wishes.
 - Only those additional elements, which 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 temperature of the water in the tank must not exceed 35 °C (SIST EN 476: 2011).
 - Only carry out maintenance work when the tank is empty and the connected electrical parts are not functioning or are switched off.
 - We recommend documenting all steps of disassembly and assembly of the tank with photos;
 - The illustrations in the installation and maintenance instructions are symbolic.
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2 AQUAstay FLAT TANK

The AQUAstay FLAT tank has been manufactured by means of rotomoulding. The dimensions of the tanks are listed in the following table.

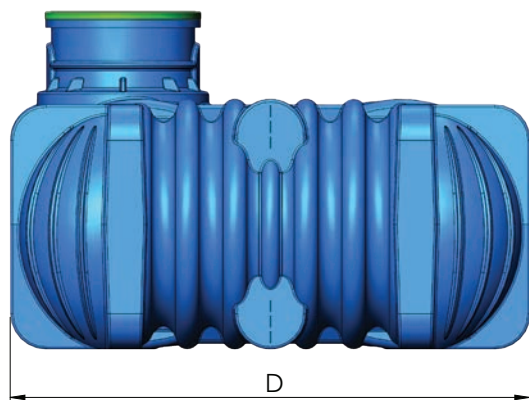
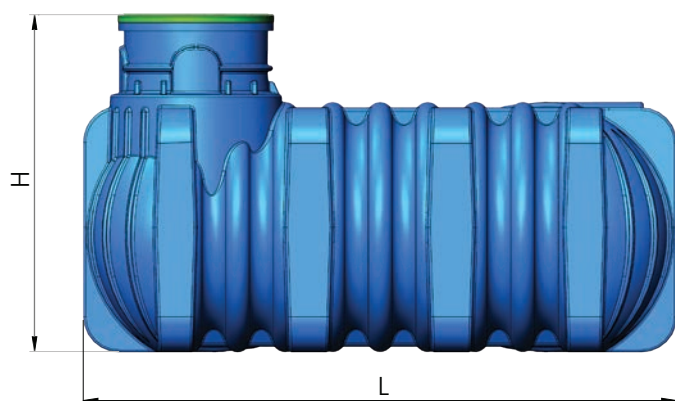
The tanks are:

- designed for the collection of drinking water, rainwater and wastewater that does not contain substances that can affect the properties of polyethylene;
- only suitable for underground installation;
- provided with surfaces for the installation of inlet seals up to a diameter of 200 mm on the tank body and up to 125 mm on the revision opening;
- equipped with a PE protective cover as standard.

2.1 TECHNICAL DATA

Volume	Number rev. open.	Height (H)	Width (D)	Length (L)	Weight
5.000 L	1	1,51 m	2,33 m	2,66 m	240 kg
10.000 L	2			5,43 m	480 kg
15.000 L	2			7,99 m	700 kg
20.000 L	2			10,55 m	910 kg
25.000 L	2			13,10 m	1130 kg

The dimensions in the table are informative, the actual dimensions may vary.



2.2 ADDITIONAL EQUIPMENT AND FITTINGS

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

- Possibility of installing an extension, a siphon, a filter ...;
- A cover lock, cast iron cover, composite cover ...;
- An extension or an extension ring;
- Couplings - for connection to PE pipes.
- Gaskets;
- Welded pipe connections.

3 TANK INSTALLATION

3.1 UNLOADING OF THE TANK

Unloading using a spoon or a fork of the machine in the middle of the tank is strictly prohibited, as damage may occur due to the length of the tank and its bending. Pay particular attention to the unloading and handling of the tank. The tanks are equipped with lifting lugs for manipulation.

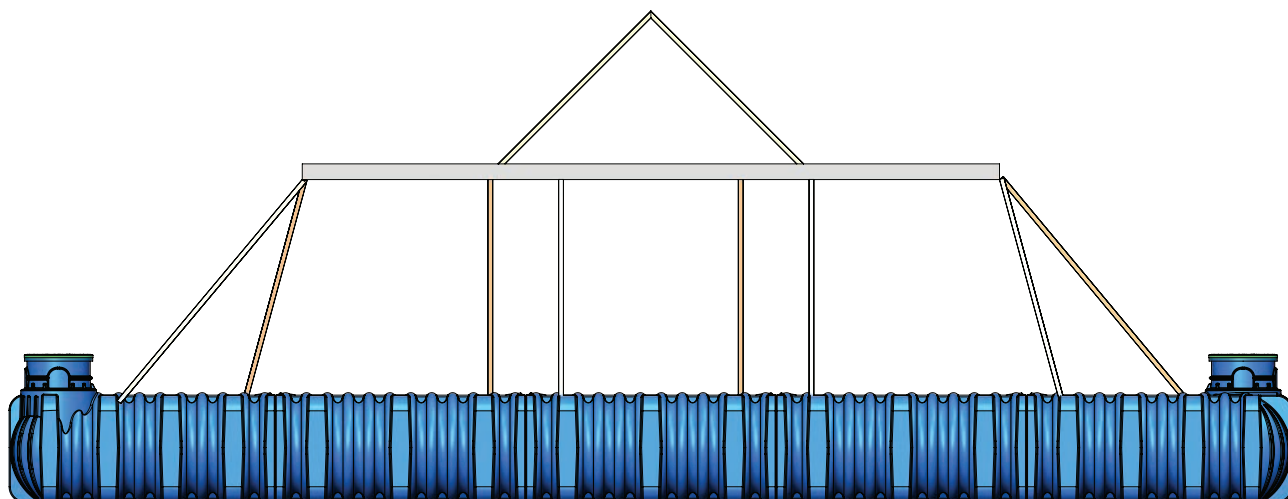


Figure 1: Lifting lugs for the tank ready for use

3.2 ASSEMBLY OF FITTINGS

All basic versions of the tanks have recommended fittings where gaskets can be fitted or polyethylene pipes welded on. The installation of the fittings should be carried out by a qualified person.

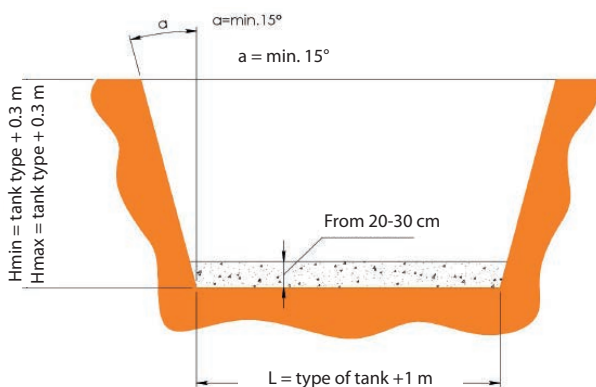


3.3 EXCAVATION AND PREPARATION OF THE CONSTRUCTION PIT

The excavation of the construction pit should be carried out according to figure 2. The maximum depth of the construction pit must be made according to the thickness of the bedding (sand or concrete base) and the height of the tank. The construction pit must be at least 1 m larger than the bottom of the tank and must be excavated at an angle of 15 degrees or in such a way as to ensure the safety of the workers.

- The construction pit bed must be firm and compact and should consist of the following materials:
small-grained material containing a mixture of grains with a size of 0 to 16 mm, or
- Coarse-grained material (gravel) with a mixture of grains from 0 to 32 mm or
- Concrete slabs.

The suitable height of the layers of the bedding is 20 cm to 30 cm and must be compacted to 97 % Proctor. If groundwater is present, the bed must be made of concrete C12/15 with a height of 15 cm.



***CRUSHED MATERIAL:**
GRIT fractions 0-16 mm



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

Figure 2: Excavation of the construction pit

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

3.4 PLACEMENT AND BACKFILLING OF THE TANK

Small-grained material with a grain mixture of 0 to 16 mm or coarse-grained material (gravel) with a grain mixture of 0 to 32 mm must be used as backfill material for the tank. The use of backfill material that does not comply with the required specifications may cause damage to the tank. The use of sand or frozen material is prohibited. The backfill material shall be carefully compacted and consolidated in 30 cm thick layers to a min. 97% Proctor over a width of at least 50 cm from the tank walls. At the beginning of the installation, water shall be poured into the tank at a height of 30 cm and the backfilling shall be continued at the same height. This process must be carried out at least up to the height of the upper edge of the tank. The backfilling of the tank can be completed by backfilling the soil up to a maximum thickness of 30 cm from the top corner.

The space between the tank and the bedding must be filled and compacted as shown in figure 4. Fill and compact all voids with manual tools and carefully fill and compact the void in the middle of the tank (Figure 5). If several tanks are installed next to each other, the minimum distance between them must be 1 m. Pay special attention to construction machinery when installing the tank so that their weight does not affect the deformation of the tank.

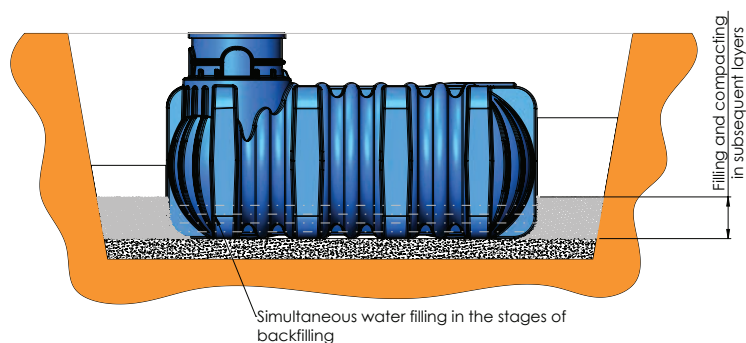


Figure 3: Installation and backfilling of the tank

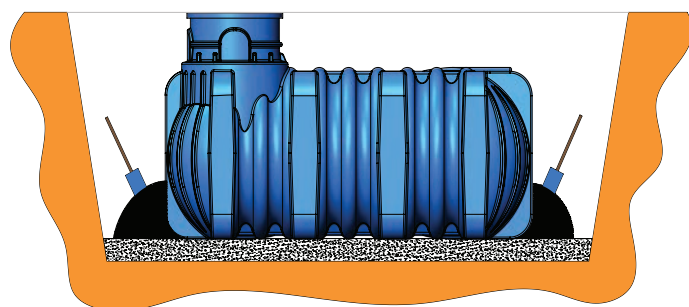


Figure 4: Consolidation of the tank

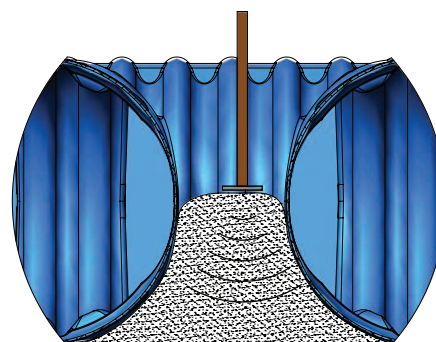


Figure 5: Consolidation of the empty space under the tank

3.5 PLACEMENT AND BACKFILLING OF THE TANK IN THE EVENT OF GROUNDWATER

If the groundwater level exceeds half the height of the tank, the tank must be placed on a concrete slab and anchored to the bed. For this purpose, use INOX fastening tapes fastened with anchor screws (Figure 7). The fastening can also be done with INOX threaded rods, which are attached with anchoring adhesive. The INOX tape may hug the body of the tank, but may not be loaded with a tensile force, which could deform the shape of the body of the tank (fig. 8).

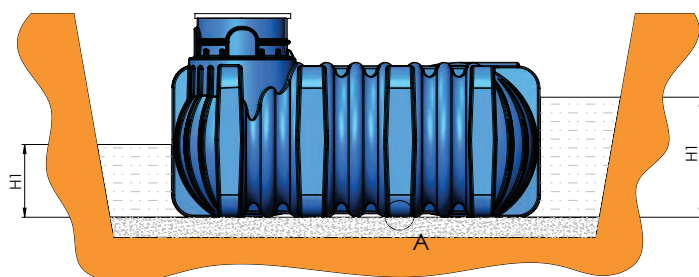


Figure 6: Tank installation in the groundwater zone

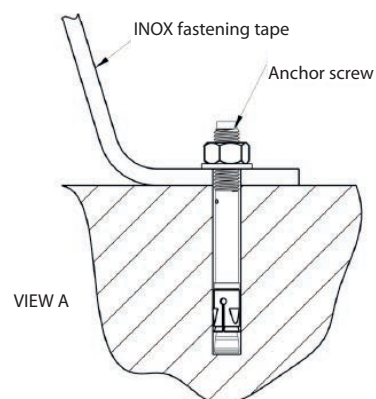


Figure 7: Detailed view of the connection with an INOX tape

TANK	FLAT tapes	Tape length
5.000 L	2 STK	4,6 m
10.000 L	4 STK	4,6 m
15.000 L	6 STK	4,6 m
20.000 L	8 STK	4,6 m
25.000 L	10 STK	4,6 m

Table 1: Fastening tapes for the tank

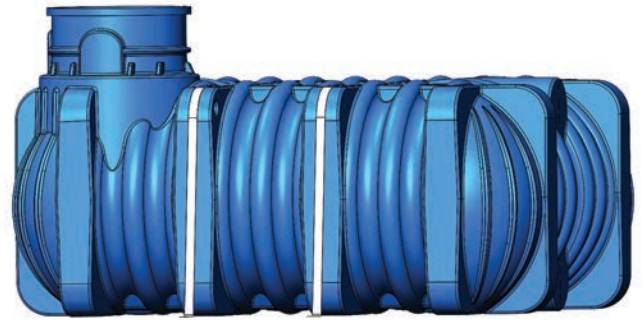


Figure 8: Place of attachment of the INOX tapes

3.6 INSTALLATION OF THE TANK INTO POORLY PERMEABLE GROUND

In case of installation of the tank in an area where soil is poorly permeable and waterlogging in the construction pit could occur, it is required to drain the water from the pit with a drainage system. An effective drainage system prevents excessive hydraulic pressure on the tank and thus reduces the risk of deformation of the tank.

In case a drainage system cannot be implemented, follow the instructions in chapter 3.5.

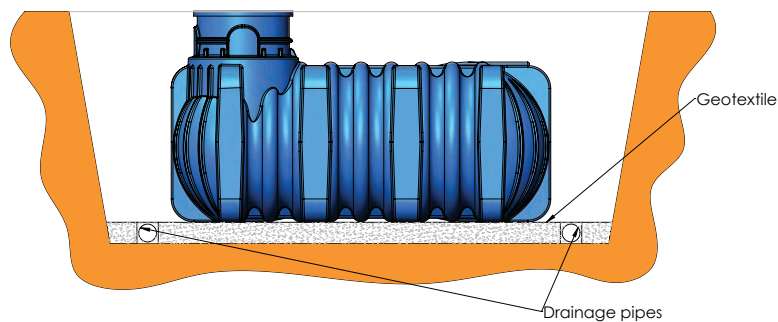


Figure 9: Tank installation in poorly permeable ground

3.7 INSTALLATION OF THE TANK IN AN UNSTABLE AREA

If an unstable area is selected for the installation of the tank, it is necessary to ensure conditions, which do not cause pressure or landslides on the tank. This is achieved by building an RC-retaining wall (reinforced concrete 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 retaining wall and the amount of reinforcements are determined by the representative construction engineer.

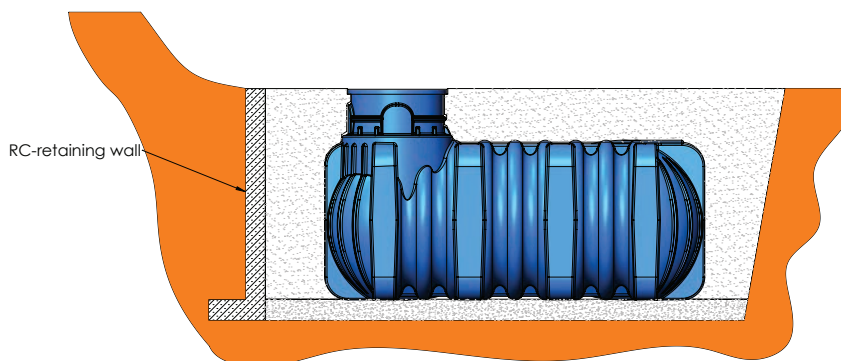


Figure 10: Installation of the tank in an unstable area

3.8 INSTALLATION IN CASES OF INFILLING ABOVE THE PERMITTED HEIGHT

If the tank is installed with additional backfill, the tank can be raised by up to 50 cm with standard rings or telescopes. For the installation of a standard ring, the technological edge of the inspection opening is cut off (Figure 13), then the tank is ready for the installation of the ring or seal (Figure 12). When installing a telescope, the technological edge does not have to be cut-off (Figure 11).

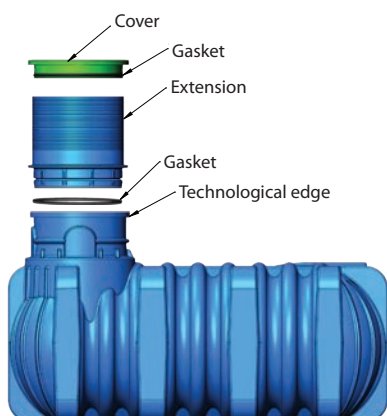


Figure 11: Optional extension assembly

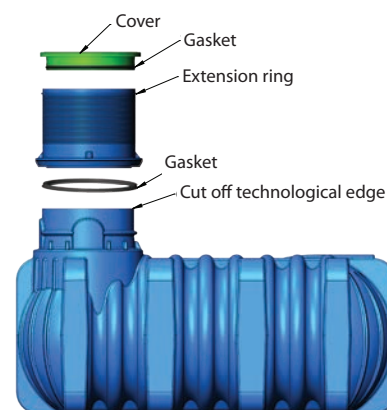


Figure 12: Optional extension ring assembly

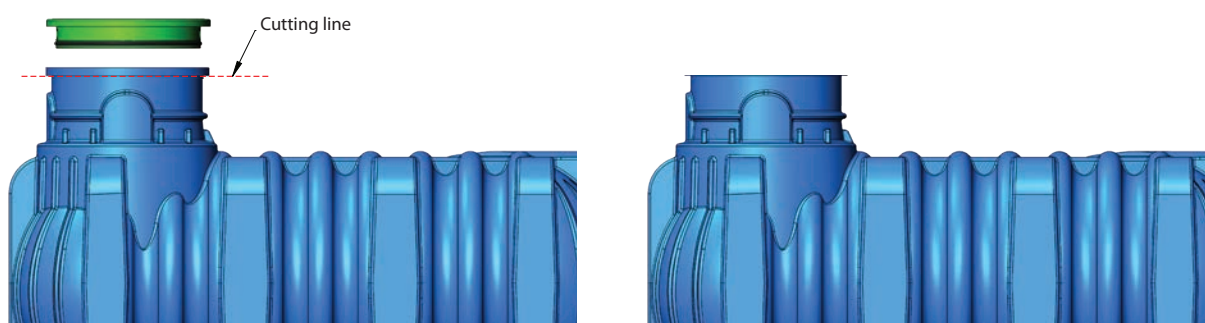


Figure 13: Location of the technological edge removal

3.9 INSTALLATION OF THE TANK UNDER DRIVING SURFACES

In addition to following the instructions under point 3.4, 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. A static calculation needs to be used to define the appropriate reinforced concrete plate, as shown in the figure 14. Dimension A, as well as the brand of concrete, are defined by the representative construction engineer. Special attention is required when pouring the reinforced concrete plate, to the support of the tank with the panelling and support pillars, to prevent deformation and sinking of the tank due to the weight of wet concrete and reinforcement.

The panelling support may only be removed after the final bearing capacity of the concrete plate has been reached.

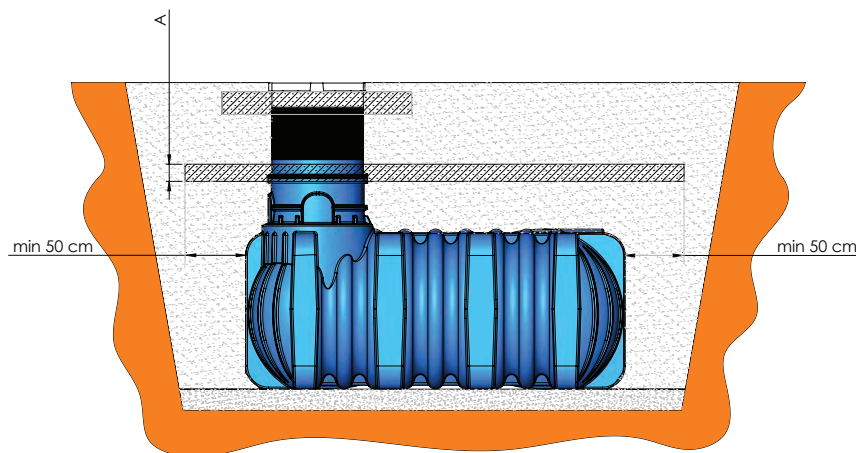


Figure 14: Tank installation under driving surfaces

If the tank is installed under a driving surface, a cast-iron cover with sufficient load-bearing capacity and reinforced concrete ring shall be used. The upper reinforcement of the inspection opening is to be cut for the installation of the RC-ring (Figure 13). The details for the installation of the RC-ring are shown in Figure 15.

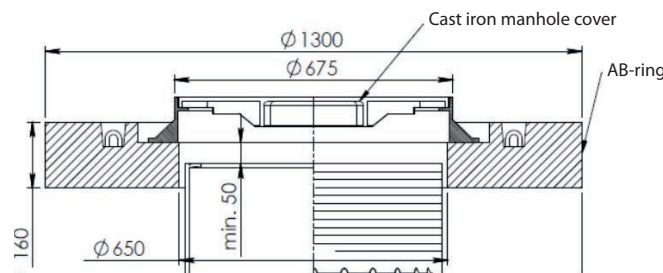


Figure 15: Detail of the installation of cast iron cover and RC ring

3.10 ASSEMBLY OF THE TANK EQUIPMENT

All inlet and outlet pipes have to be laid with a slope of 1% in the direction of the flow. Settling must also be taken into account. All of the suction, pressure and control devices must be routed through the empty protective tube to ensure ventilation. When using pumps, you have to provide a vent on the top of the cover to avoid deformations due to negative pressure and to ensure sufficient ventilation inside the tank; you can use the cover with a vent shown in Figure 16.



Figure 16: PE-cover with a vent

4 ASSEMBLY OF THE COVER

The tank is equipped with a factory-fitted PE protective cover with a gasket. Before each cover assembly, the cover gasket must be carefully cleaned and lubricated with a food-grade lubricant. The cover is optionally supplied with a lock.

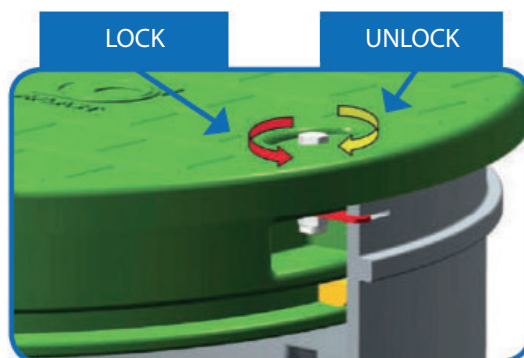


Figure 17: Cover with a lock

5 MAINTENANCE INSTRUCTIONS

Regular inspection of the interior, monitoring of the water level and the presence of sludge are necessary for the use of the tank. It is recommended that maintenance be carried out as required, but at least once a year. Please adhere to the following instructions for maintenance:

- for safety reasons, at least two people must be present at the same time;
- remove the cover with the gasket and clean if necessary;
- empty the tank completely;
- disconnect all power sources connected to the tank before maintenance work;
- check the presence of oxygen in the tank;
- carry out a visual inspection for any damage inside the tank;
- check the functionality of the connections;
- clean the surfaces of the tank;
- lubricate the cover gasket with a food-grade lubricant and assemble it back on the tank.

Regular maintenance reduces operating costs and contributes to sustainable water management.

6 DISPOSAL OF THE TANK AND REUSE

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





APLAST proizvodnja in trgovina, d. o. o.
Ložnica pri Žalcu 37, 3310 Žalec, Slovenija
www.aplast.si | info@aplast.si

