



# **INSTALLATION AND MAINTENANCE GUIDE OF THE PUMPING STATION**

# Pumping station

Pumping stations of Klaasplast OÜ are delivered in an assembled form and ready for use. The housings of the pumping station are made of armoured fibreglass (GRP) manufactured by a winding method.

Allowed installation depths comprise 1.25 multiple safety factor.

## Transportation and installation of the pumping station

The pumping station has to be handled with care and during transportation the product has to be fixed securely. Right after the pumping station is downloaded from the transport vehicle check that the pumping station has not been damaged during the transport. The maximum installation depth of the pumping station is regulated by the height of the hull of the pumping station in conformity with the project.

In case of deeper installation, an extension for the hull of the pumping station has to be ordered, which is fixed on the pumping station water-proof. The manufacturer has to be informed about the extension of the hull of the pumping station. The manufacturer shall calculate the actual installation depth and confirm whether the extended pumping station is suitable for a deeper installation. The housing of the pumping station does not need additional anchoring in the regular surface. In case of high ground water, additional anchoring has to be performed with an anchor board.

## Installation of the pumping station

The pumping station can be anchored thanks to its self-anchoring bottom, which ensures that the impact of the densified refilling of the earth on the pumping station by the force coming from the ground (weight of the ground, gravity on the base board) is at least 1,45 of the lifting power of the ground water. Thanks to the solid fixation of the pumping station in the ground, the above-mentioned tension is not transferred to the pipes connected with the pumping station.

### 1. Lifting of the pumping station

For lifting the pumping station use lifting straps. Steel wires and chains must

not be placed around the pumping station. For directing the pumping station in the lifted position use guiding ropes.

## 2. **Requirements for the installation components**

We recommend sand, gravel or crushed aggregate as filling material. The simplicity of installation and making a proper supporting surface with minimum need for densification make these filling materials ideal. The material must be clean, sorted, free-flowing and must not contain ice, snow, clay, organic material and big and heavy particles, which may damage the housing of the pumping station if they fall against the hull. Minimum bulk density is 1500 kg/m<sup>3</sup>.

### **Gravel**

The filling material may go through a sieve with 2.4 mm openings only within 3%. The material must be gravel, which particles must be within the range of 3 mm to 20 mm. Or the fraction is 4...20. Crushed aggregate The size of the gravel particles must remain in the range of 3 mm to 16 mm and the material may go through a sieve with openings of 2.4 mm within the range of 3%.

### **Sand**

The sand must be well-sorted and the material may go through a sieve with 75 mm openings within the range of 8%. The maximum size of the particle must not exceed 3 mm. Fraction 0...3.

### **Sand/gravel mixes**

Sand and gravel mixes may be used in case the ingredients are in conformity with the above given requirements for the gravel, crushed aggregate and sand.

## 3. **Anchoring**

In general the pumping station does not have to be anchored to avoid rising by the ground water. In certain situations self-anchoring in the surface of the earth may not be adequate and the pumping station needs additional anchoring. It may occur under circumstances as follows: Ground water (also temporary) may reach the surface of the earth closer than 1m The surface of the earth is not easily penetrated by water and in case of heavy rain water the water may collect in the installation well surrounding the pumping station. The surface of the ground is not bearing adequately well.

Anchoring may be performed with different anchoring devices such as an anchoring board, anchoring blocks or deep-impregnated beams. The installation performer may choose between many different variants. In case of

floor surfaces installed in buildings a cast concrete floor performs additional anchoring.

A concrete anchoring board has to be at least 150 mm thick and reach above the base by 30cm.

Two concrete blocks may be used. The concrete blocks must be placed at the same level with the bottom of the pumping station and there must be a layer of at least 300 mm-thick densified filling material between the block and the pumping station. The pumping station is fixed to the blocks by polyester straps.

Anchoring is performed with non-stretching polyester straps with minimum width of 25 mm and load bearing capacity of 2000 kg.

#### 4. **Filling**

The pumping station is installed in a well, which bottom is filled with an appropriate 20 cm-thick filling material. The area around the pumping station is bolstered layer by layer by 20 cm-thick filling material; each layer is densified up to 95% of the natural density of the surface. To avoid gaps under the pipe connections and the base, densification has to be performed very carefully. Shovel the sand manually around the pumping station. To press and densify the filling materials use a 50 mm x 100 mm board. In case the ground water is high or the area is just wet and difficult (e.g. clay surface), use only gravel and crushed aggregate as filling material. In case of high ground water, the pumping station has to be filled with water to keep it steady. To prevent the surface around the pumping station from freezing, insulation boards may be installed under the upper filling layer, reaching over the edge of the pumping station by 1m.

When the pumping station is installed in a green area, it must be observed that the hatch of the pumping station reaches above the ground level by at least 100mm to avoid rainwater flow into the pumping station.

#### 5. **Installation in a busy traffic area**

To avoid the burden caused by traffic transferred on the pumping station it must be ensured that the cast iron hatch is not supported on the ceiling of the pumping station but is supported on the surface of the asphalt or concrete floor.

# Maintenance

Before you enter the pumping station, it has to be ventilated for at least 5min. Follow the safety rules and labels in the Pumping station! Only one person can be in the pumping station at a time and the person may have light and easily-handled items along. The other person must remain outside the pumping station and observe the safety of the worker and help him if needed. The nature of maintenance work depends on the type of the pumping station.

Once a year foot valves of the pumps have to be cleaned from debris and sediments collected there. Close the valves and open the cover of the foot valve!

After six months the interior walls of the pumping station have to be washed by pressure water and clean the sediment off the bottom of the pumping station. Depending on the pumping station and the collecting sediments, the periods may be shorter or longer. Sediments have to be removed when their amount reaches to the level of the work station of the pump.

After the maintenance of the pumping station, pumps have to be installed back in the pumping station and their work in the operation mode has to be check. For lifting and lowering the pumps use only the corresponding lifting equipment or a pipe connected to the pump.

Clean the floating switches and the level sensors from sediment and dirt, check the condition of the power cables of the pump, and the ground connections of the metal constructions of the pumping station.

Check for the leakage or deformation of the housing of the pumping station.

Interior work must not be done alone! If the pumps are working below the foreseen efficiency or you can hear sounds that the pumps did not have before, we recommend informing the supplier of pumps and applying measures that enable to prevent the pumps become useless by repairing the fault.

## WARRANTY

Pumping stations sold by Klaasplast OÜ are subject to a warranty period of 24 months. Klaasplast OÜ undertakes to liquidate the faults at their expense in case:

- the fault is caused due to the defect of the construction of the pumping station or the material or its improper processing.
- The sales representative of Frog Plastic has been informed about the fault during the warranty period.
- The product has been used in compliance with the guidelines in the user guide concerning the installation and maintenance and the product has been used only for its intended purpose.
- In case the product has to be dug out for detecting the fault, it has to be performed at the presence of the manufacturer's representative.
- Only the original Klaasplast OÜ spare parts and accessories are used. Faults caused due to inadequate maintenance, improper installation, wrong repair or regular wear shall not be compensated as subject to warranty.