

## Installation and maintenance instructions for the GRAF Universal-Filter 3 external and internal

**Universal-Filter 3 external  
for green areas  
Order No.: 340020**

**Universal-Filter 3 external  
for areas traversed by light traffic  
Order No.: 340021**

**Universal-Filter 3 internal DN100  
Order No.: 340022**

**Carat filter package 2 –  
Universal-Filter 3 internal DN100  
Order No.: 342002**

**Universal-Filter 3 XL internal DN150  
Order No.: 340107**

**Carat XL/XXL filter package 2 –  
Universal-Filter 3 XL internal DN150  
Order No.: 342041**



The points described in these instructions must be observed under all circumstances. All warranty rights are invalidated in the event of non-observance. Separate installation instructions are enclosed in the transportation packaging for all additional articles purchased from GRAF.

The components must be checked for any damage prior to installation under all circumstances.

Missing instructions can be downloaded on [www.graf.info](http://www.graf.info) or can be requested from GRAF.

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## 1. General notes

### 1.1 Safety

The relevant accident prevention regulations according to BGV C22 must be observed during all work. Particularly when walking on the tanks, a 2nd person is required to secure the tank.

The relevant regulations and standards must additionally be taken into consideration during installation, assembly, servicing, repair, etc. Relevant notes can be found in the corresponding sections of these instructions.

During all work on the system or parts of the system, the entire system must always be rendered inoperable and secured to prevent unauthorised reactivation.

The tank cover must always remain closed except when working in the tank, otherwise there exists a very high danger of accidents. The seating and condition of the cover must be checked on a regular basis.

GRAF offers an extensive range of accessories, all of which are designed to match each other and which can be extended to form complete systems. The use of other accessories may lead to impediments to the system's functional capability, therefore invalidating liability for resulting damage.

## 2. Installation conditions

### 2.1 Universal-Filter 3 pedestrian weight resistant

- The Filter with the green telescopic attachment and cover may only be installed in green areas that are not traversed by traffic.
- The amount of short-term load of the polyethylene cover is max. 150 kg, the long-term area load max. 50 kg
- The maximum installation depth to the filter bottom is 1050 mm.
- Roof areas provided with a pipe connection of DN 100 = 350 m<sup>2</sup> and for DN 150 = 500 m<sup>2</sup>.

### 2.2 Universal-Filter 3 external for light traffic

- Through the use of the telescopic attachment (anthracite) and the cast iron cover Class B according to DIN EN 124 the filter may be installed in areas traversed by light traffic. Under no circumstances are the tanks to be installed in areas traversed by heavy goods vehicles or machinery (see point 5.3.2)
- The earth covering above the inlet supply pipe must be at least 450 mm; the maximum installation depth to the filter bottom is 1050 mm.
- Roof areas provided with a pipe connection of DN 100 = 350 m<sup>2</sup> and for DN 150 = 500 m<sup>2</sup>.

### 2.3 Universal-Filter 3 internal DN100 / Universal-Filter 3 XL internal DN150

- The Filter is suitable for installation in a pilot shaft or in a cistern.
- The difference in height between the supply pipe and outlet is 275 mm
- The Filter may not be installed directly in the earth.
- Roof areas provided with a pipe connection of DN 100 = 350 m<sup>2</sup> and for DN 150 = 500 m<sup>2</sup>.

## 3. Transport and storage

### 3.1 Transport

During the transport the filter must be well secured against slipping or falling. If the Filter is to be secured for transportation with webbing straps, it is to be ensured that the filter remains undamaged.

Stress and excess loading caused by impact are to be avoided. Under no circumstances is the filter to be rolled or slid over the ground surface.

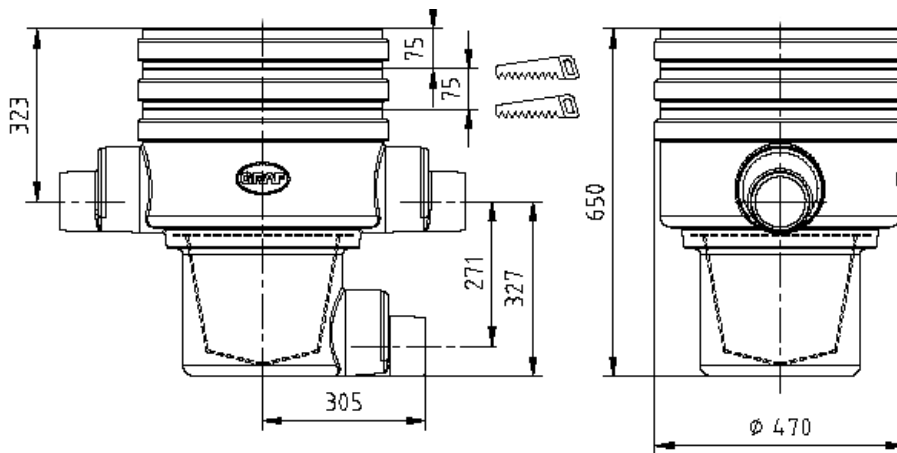
### 3. Transport and storage

#### 3.2 Storage

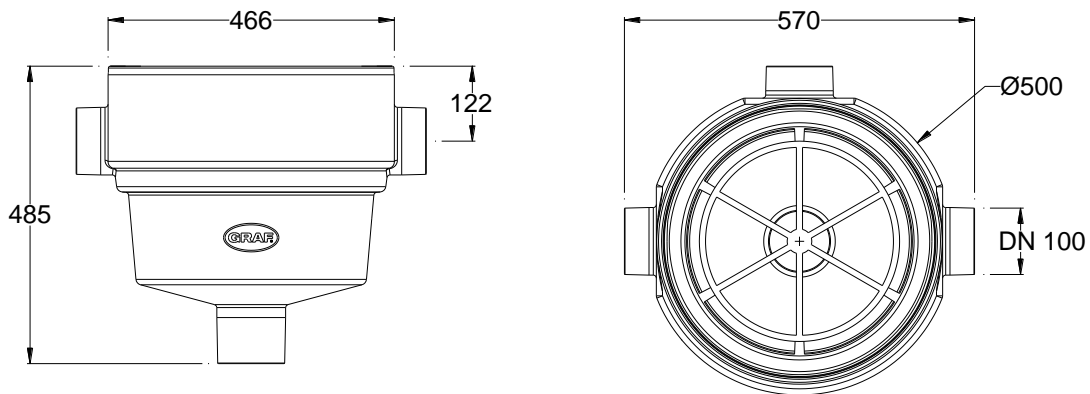
Any necessary temporary storage of the filter must be on an appropriate level surface without sharp objects. During the storage it is important to avoid damage caused by the surrounding environment or foreign objects.

### 4. Technical data

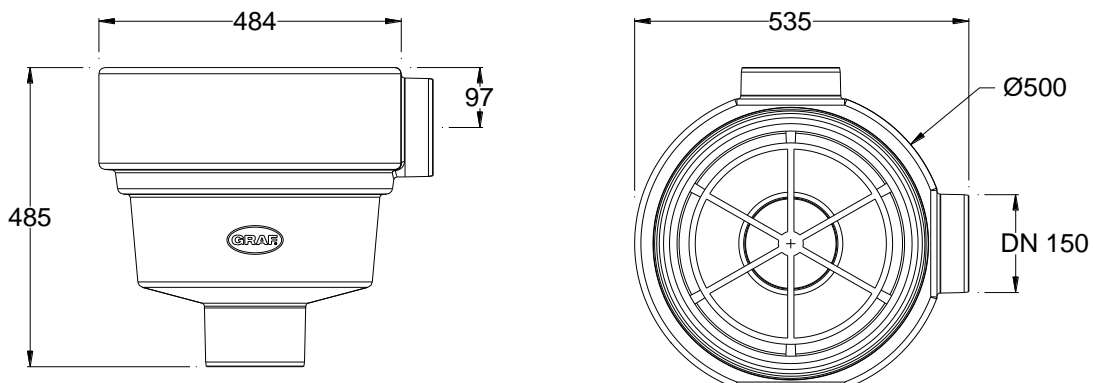
#### Universal-Filter 3 external



#### Universal-Filter 3 internal – Connection DN 100



#### Universal-Filter 3 XL internal – Connection DN 150



## 5. Assembly and installation of the Universal-Filter 3 external

### 5.1 Preparation of the excavation

So that sufficient working room is available and the filter can be evenly embedded, the surface area of the excavation should exceed the filter dimensions on all sides by approximately 50 mm. The excavation slope is according to DIN 4124. The installation excavation must be level and smooth. The depth of the excavation must be measured so that the final installation depth of the filter bottom is a maximum 1050 mm. As an under surface for setting down, a layer of smooth sand with a grain size of 8/16 according to DIN 4226 – 1 and a layer depth of approximately 10 mm should be used.

**Important:** The setting down surface for the filter must be absolutely level to ensure an optimal performance.

### 5.2 Placing in the excavation and laying the connections

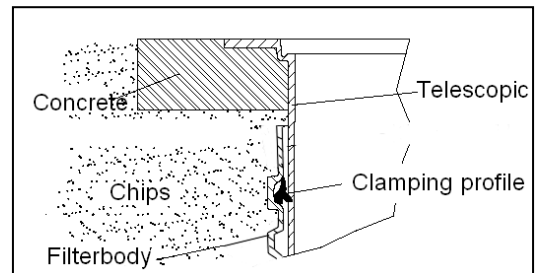
The filter is installed in the prepared excavation and is then connected to the relevant pipes etc. Attention, it is important to note that all the pipes to be installed must have a gradient of at least 1% in the flow direction without sagging or bending downward. An emergency run-off must also be connected so that a congestion or back surge may be avoided.

**Important:** DIN 1986 must be followed, therefore the diameter of the supply pipe = the diameter of the run-off pipe.

### 5.3 Telescope installation

#### 5.3.1 Telescope pedestrian resistant

The telescope is pressed into the filter housing from above. For excavation depths < 930 mm the telescopic attachment and in some circumstances, the filter housing must be shortened. It is important to pay attention that the inlet pipe is not obstructed in any way by the telescope when installed. Before pushing in the telescope the profiled sealing ring is placed in the housing's recess. The telescope and the sealing ring must be thoroughly coated with the lubricating soap included in the delivery (use no lubrication that is mineral oil based).



**Attention:** If the lubricating soap becomes dry and the telescope becomes difficult to move then there is the danger that the sealing ring will be forced out of its recess. Before filling, the sealing ring must be checked once again that it is seated correctly in position. The telescope must be sufficiently embedded and supported that no forces are transferred to the housing.

#### 5.3.2 Telescope suitable for light traffic

The telescope is installed as in Point 5.3.1. To ensure the function in areas traversed by light traffic, the telescope must be embedded around the collar with lean mixed concrete. The concrete encasement must be uninterrupted, 20 cm wide and approximately 30 cm deep.

**Attention:** It is important to use the cast steel cover. Transport vehicle weight of heavy goods vehicles and machinery is not permitted. The telescope must be sufficiently embedded and supported that no forces are transferred to the housing.

### 5.4 Filling

**Important:** Before and during the filling, the horizontal position of the filter must be checked. The length-wise embedding of the filter is with smooth sand with a grain size of 8/16 according to DIN 4226 – 1 with a width of approximately 30 cm. Each layer is to be of no more than 30 cm and must be tamped down lightly with a compacting machine or hand held tamper. Care must be taken during the embedding to ensure the filter is not damaged. To ensure that no forces are applied to the filter housing, the telescope must be well embedded and compacted. (For areas traversed by light traffic see point 5.3.2) Finally, the cover is set in place and secured so that it is child proof (point 1.1 must be followed). **The screws holding down the cover are to be made so tight that they can not be removed and the cover opened by a child!**

## 6. Assembly and installation of the Universal-Filter 3 internal

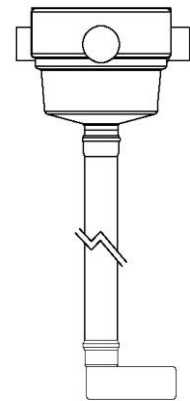
### 6.1 Filter preparation

Before the installation in the tank, the filter must be prepared as shown in the adjacent depiction.

Length of the HT/canalisation pipe – connections (completed on site) from the filter to the inflow pot:

Carat volume (liter)	Universal-Filter 3 Connection DN 100*	Universal-Filter 3 XL Connection DN 150*
2.700	1274 mm	1308 mm
3.750	1454 mm	1498 mm
4.800	1684 mm	1728 mm
6.500	1974 mm	2008 mm
8.500	1957 mm	1991 mm
10.000	2157 mm	2191 mm
from 16.000	2417 mm	2451 mm

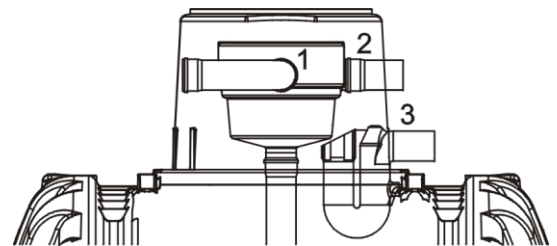
\* (+ / - 10 mm)



### 6.2 Preparation on the tank

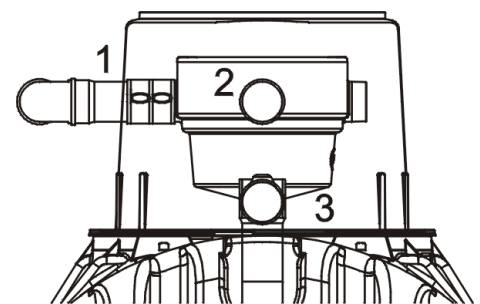
The siphon is installed in the lowest seal (3) of the tank dome. The inlet pipe is mounted on the side opening (1) the pipe is inserted from the outside. The emergency overflow (2) is installed above the siphon (3) and is installed by pushing through from the inside.

**Important:** The sealing ring from the HT – pipe coupling of the emergency overflow (2) must be removed.



### 6.3 Installing the Filter

The fixing collar is pushed over the inlet pipe that is mounted on the tanks' dome. Finally the prepared filter assembly is placed into the tank dome from above then connected with the emergency overflow and inlet pipe using the fixing collar. In this case it is a butt joint that requires no collar.



### 6.4 Assembly of the extraction mechanism

Remove the seal from the filter basket and push the metal angle of the lift out mechanism over the rim as shown in the picture.

Finally place the seal over the rim and pull back the metal angle.



## 7. Commissioning and service

Before commissioning and at every inspection, the lifting out mechanism must be positioned at 90° to the inlet so that no large objects such as leaves and twigs can catch on the handle. The straining filter is removed for cleaning and the basket must be thoroughly cleaned with water until all the pores are open. It is advised to clean every 4 to 5 weeks (more often in autumn due to more leaves and twigs) or according to requirements.

The filter strainer basket must be lightly pressed into place taking care that the seal sits precisely after every cleaning.

At the occasion of each inspection, the overflow siphon must be checked and flushed in necessary.