

Installation and maintenance instructions GRAF Infiltration tunnel / Infiltration tunnel Twin

**Infiltration tunnel 300 L,
black, lorry loading
Order No. 230010**

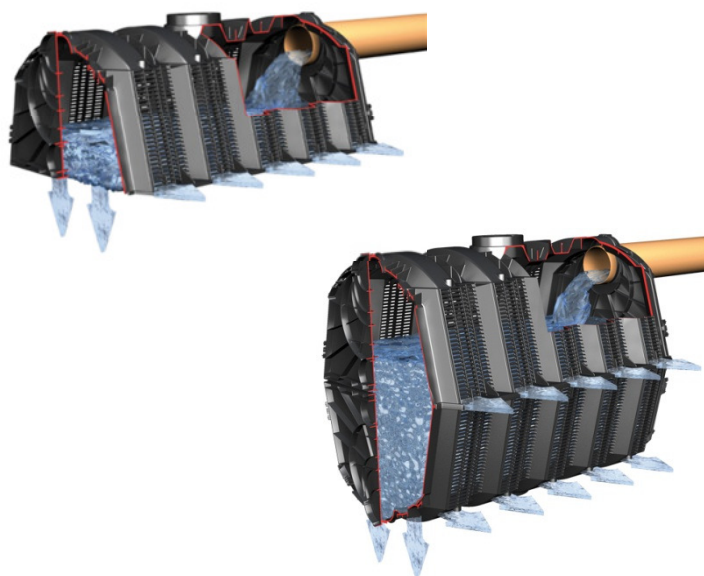
**Infiltration tunnel Twin 600 L,
black, vehicle loading
Order No. 410130**

**End plate for
Infiltration Tunnel /Twin
Order No. 231004**

Accessories:

**Connecting elements (6 Units)
Order No. 410094**

**Geotextile (per m., roll width 5 m)
Order No. 231002**



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.

Missing instructions must be requested from us immediately.

The components must be checked for any damage prior to insertion into the trench under all circumstances.

Missing instructions can be downloaded on www.graf.info.

Table of contents

1. GENERAL NOTES	8
1.1 Security	8
2. TECHNICAL DATA	8
3. INSTALLATION CONDITIONS	9
3.1 Choice of location	9
3.2 Excavation dimensions	9
4. INSTALLATION	11
4.1 Connecting the inlet and venting pipes	11
4.2 Installation of the Infiltration Tunnel / Twin	11

1. General notes

1.1 Security

The relevant accident prevention regulations according to BGV C22 must be observed during all work.

The relevant regulations and standards must additionally be taken into consideration during installation, assembly, servicing, repair, etc.

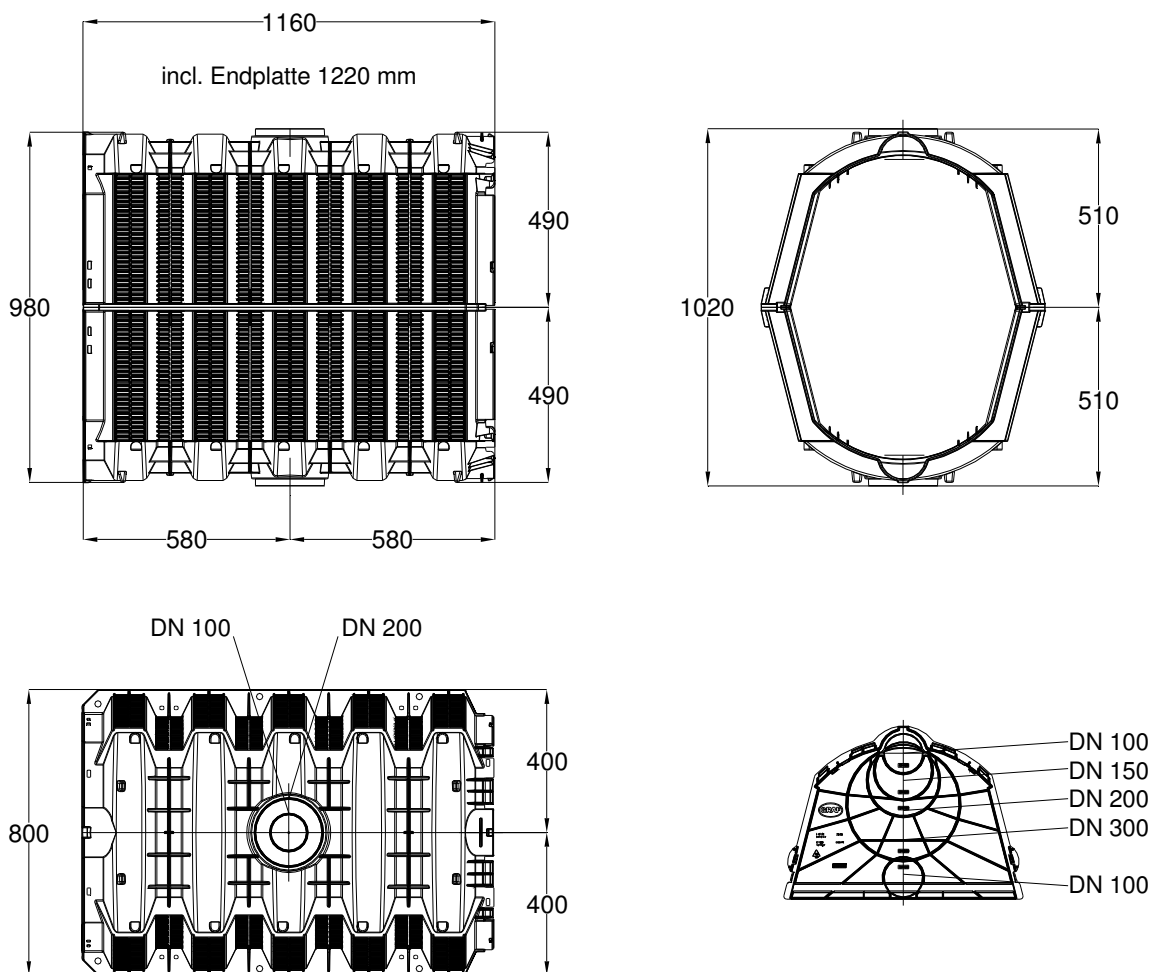
Before installation, the EcoBloc Inspect and ground plates should be checked for damage. Damaged or defective blocks must not be installed!

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.

Please note:

There is an increased risk of slipping on Infiltration tunnel system in frosty and wet conditions.

2. Technical data



3. Installation conditions

3.1 Choice of location

- Distance from basement > 6 m
- Distance from ground water minimum > 1 m
- The distance from the existing or planned trees must be at least the expected spread of the trees crown.

3.2 Excavation dimensions

The measurements of the excavation is in accordance with the number of drainage blocks to be installed by multiplying the length and width dimensions.

The following table gives the required earth covering and the maximum installation depth to the lower edge of the blind drain:

<u>Transportation loads</u>		<u>Infiltration Tunnel</u>	<u>Infiltration Tunnel Twin</u>
Short-term		max. 100 kN/m ²	max. 75 kN/m ²
Long-term		max. 59 kN/m ²	max. 35 kN/m ²
Without traffic loads	min. Earth covering	250 mm	250 mm
	max. Earth covering*	3740 mm	1480 mm
	max. Installation depth*	4250 mm	2500 mm
Vehicle loading	min. Earth covering	250 mm	500 mm
	max. Earth covering*	3490 mm	1480 mm
	max. Installation depth*	4000 mm	2500 mm
lorry 12	min. Earth covering	500 mm	-
	max. Earth covering*	3240 mm	
	max. Installation depth*	3750 mm	
HGV 30	min. Earth covering	500 mm	-
	max. Earth covering*	2740 mm	
	max. Installation depth*	3250 mm	
HGV 40	min. Earth covering	500 mm	-
	max. Earth covering*	2490 mm	
	max. Installation depth*	3000 mm	
HGV 60	min. Earth covering	750 mm	-
	max. Earth covering*	1740 mm	
	max. Installation depth*	2250 mm	

The maximum installation depth or earth covering* is related to the ground substance with an inside angle of friction from $\varphi = 40,0^\circ$.

°The material or raw material specification possibly contains recycled material.

3. Installation conditions

<u>Technical data</u>		<u>Infiltration Tunnel</u>	<u>Infiltration Tunnel Twin</u>
Volume	Litre	300 L	600 L
Weight		11 kg	22 kg
Material		100 % polypropylene (PP)°	100 % polypropylene (PP)°
Measurements	Length excl. Endplatten	1160 mm	1160 mm
	Length incl. Endplatten	1200 mm	1200 mm
	Width	800 mm	800 mm
	Height	510 mm	1020 mm

4. Installation

4.1 Connecting the inlet and venting pipes

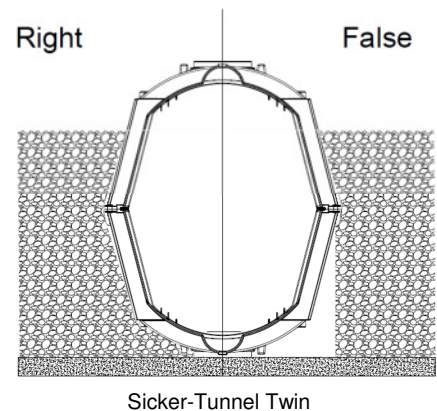
The feed pipes will be connected at the front of the end plates. For this purpose the accordingly perforated and labelled circular cut-outs will be detached. The feed pipes must extend into the tunnel modules approximately 15 cm. For assuring that the water enters into the modules in a steady way, it is essential for extensive module laying that every percolation line is equipped with its own feeding pipe. Use the connection on the upper side of the module for the deaeration / inspection end (min.1 deaeration / inspection end per line).

4.2 Installation of the Infiltration Tunnel / Twin

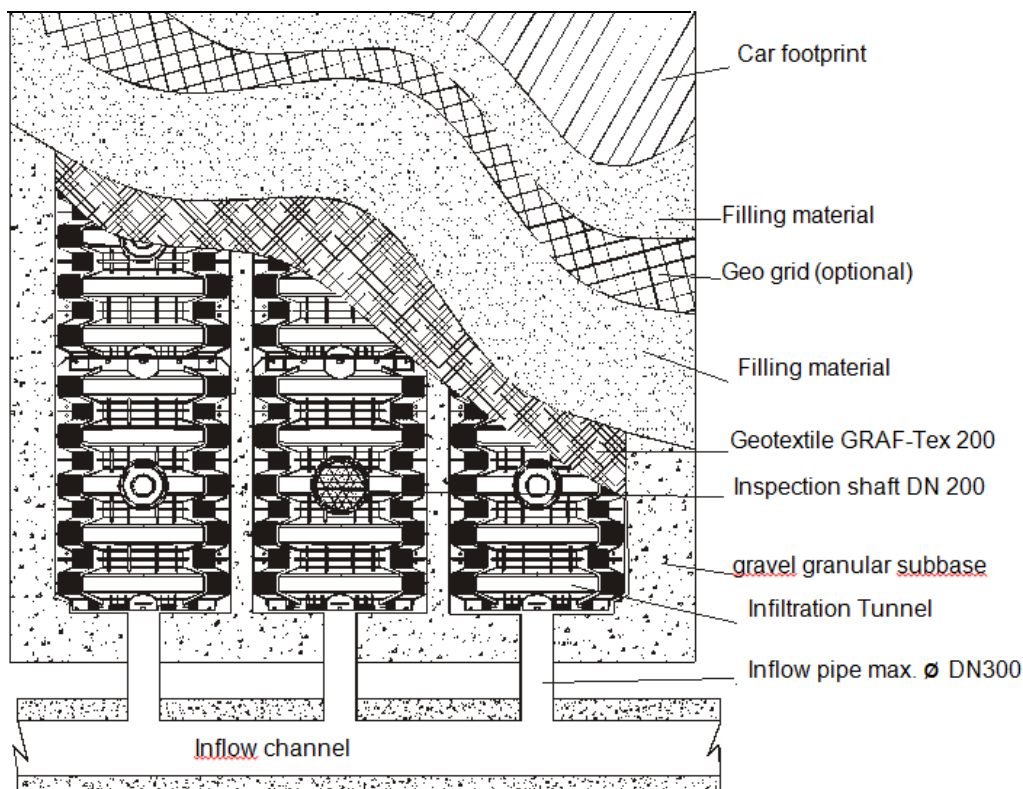
The horizontal, flat footprint of the excavation first has to be filled with a layer of grit (approx. 80 mm, grain size 8/16) which serves as granular sub-grade course. The Infiltration Tunnel / Twin are put on the gravel pit and connected with each other in lines (lengthwise). The percolation tunnel is covered with a geotextile fabric for protection. The filter fleece should overlap the end of the modules by at least 300-500 mm.

Ensure the tunnel connections have a uniform & tight fitting, with no gaps or dead spots. The first layer is gravel 20/40 and will be used to cover the Tunnel top edge completely. The material dug out during construction can then be used as filler. Afterwards the excavation will be filled steadily and in layers. The terrain of the ground surface and substructure should be the expected load to be prepared. If a lawn is planted on top of the percolation surface, the system should be covered with a waterproof film or a clay layer of approx. 100 mm, as otherwise the lawn above the percolation system may faster dry up than the rest of the lawn.

The rotting-resistant ground fence can be used as additional load distribution under trafficable areas.



Plan view:



4. Installation

Drawing – lorry – loading 60 to:

surface layer

Additionally required
black top finish to
national standards

e.g. United Kingdom 250 mm
black top layer

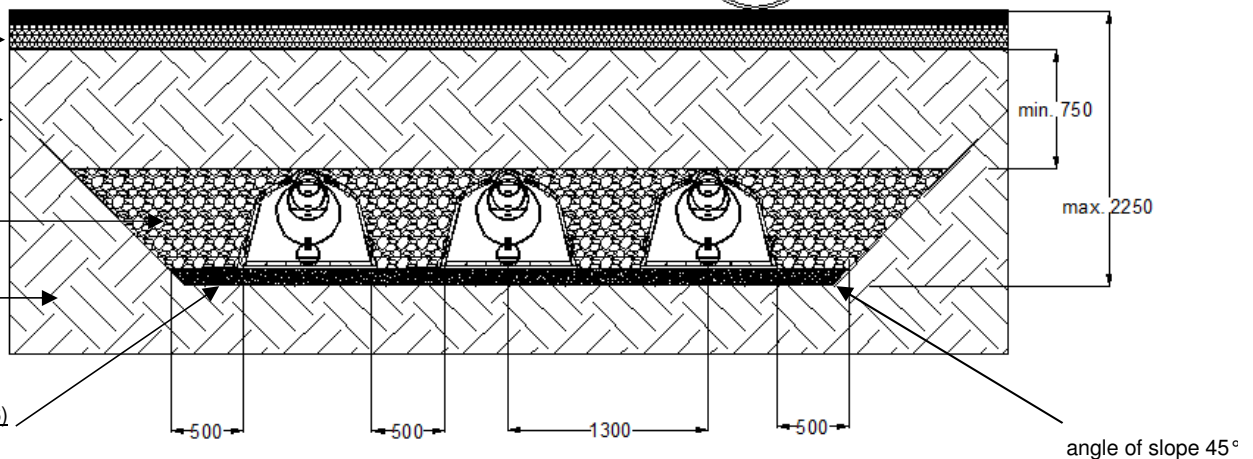
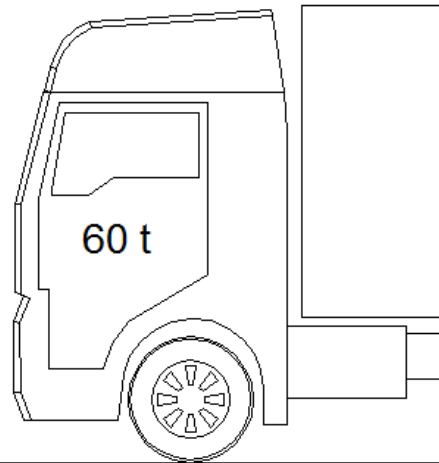
girder

filling material

gravel 20/40

soil

80-100 mm grit (8/16)
granular subbase



Section open swale infiltration ditch:

