With the INTEWA rainwater infiltration package for single family houses incl. DRAINMAX tunnel trench.

INTEWA

Free yourself from your sealed surfaces fees

An investment that can pay off in < 10 years

The sealed surfaces fee

Many cities and communities in Germany already have the jurisprudence following the conversion of the old sewage fee. This is now divided into drainage and rainwater. The diversion of rainwater into the public sewer is calculated by the connected surface and degree of sealing. With a typical sealed surface fee of 1 €/m², a 200 m² sealed surface adds 200 € and in 20 years costs 4.000 €. Since these costs are likely to increase considerably, provisions should be made at an early stage.

So free yourself from the sealed surfaces fees

If you infiltrate your rainwater completely with the INTEWA rainwater infiltration system, you are also freed from the rainfall fee! Whoever burdens the sewer system less, pays less.

Is it worth it?

The installation of the system can already be amortized in less than 10 years. Future fee increases are still not taken into account. Also from an ecological point of view, it makes sense to infiltrate clean rainwater. Thus, the rainwater is supplied back to the natural water cycle.

Tips for homeowners with existing cisterns

In an existing cistern, the overflow can also be infiltrated via a trench. Therefore you benefit twice.

System Construction for Rainwater Infiltration

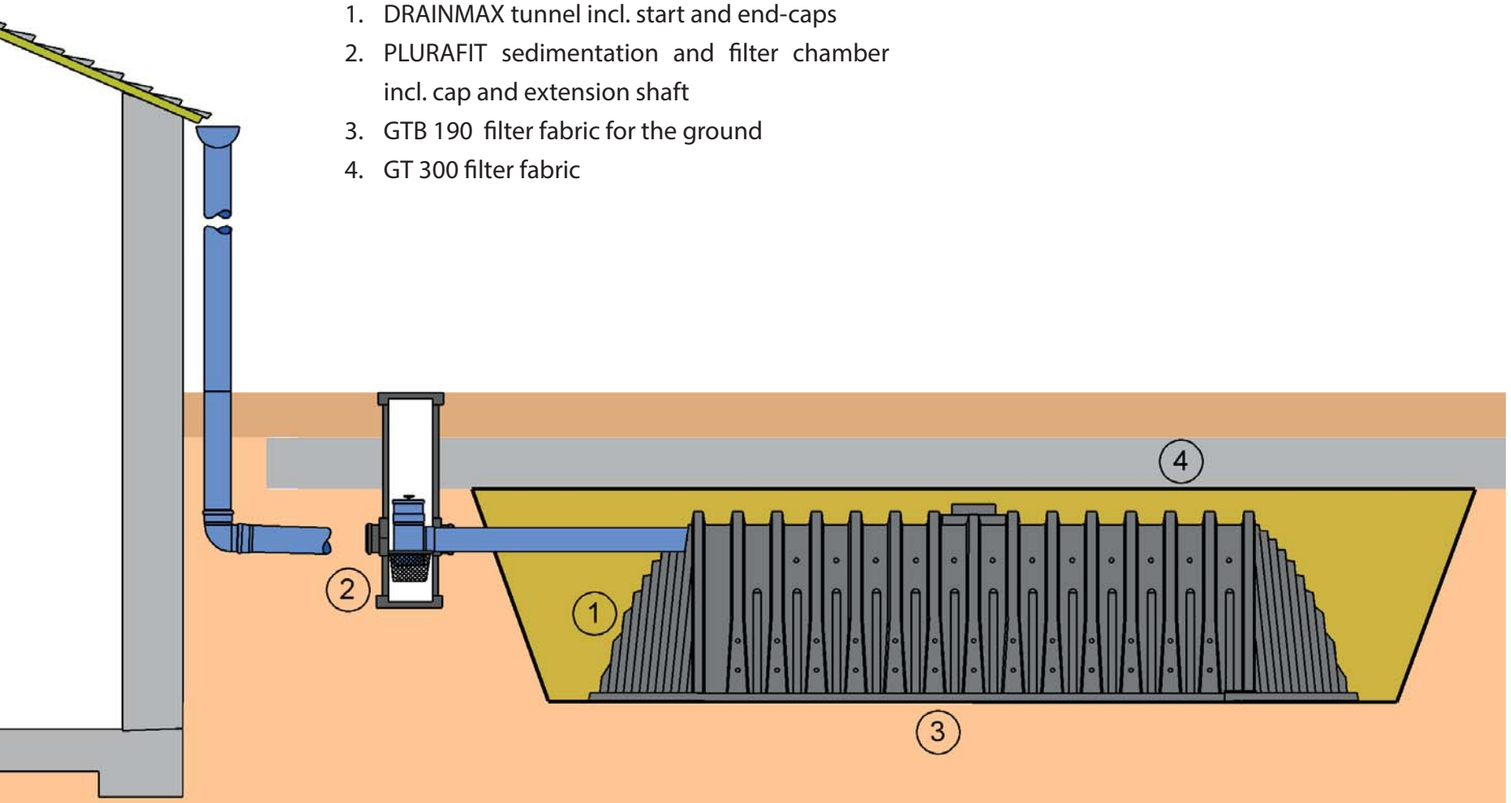
Our systems are suitable for new construction or for retrofitting in existing houses. You can install such a system by yourself within a few days or with a civil engineer in a single day. The packages include almost all components you need.

Functionality

The rainwater from the connected areas is filtered through a PLURAFIT sedimentation, filtration and separation chamber and then delivered into the DRAINMAX tunnel trench for subsequent infiltration in the soil. To protect the soil, the tunnel trench is covered with a filter fabric.

System components

1. DRAINMAX tunnel incl. start and end-caps
2. PLURAFIT sedimentation and filter chamber incl. cap and extension shaft
3. GTB 190 filter fabric for the ground
4. GT 300 filter fabric



System advantages

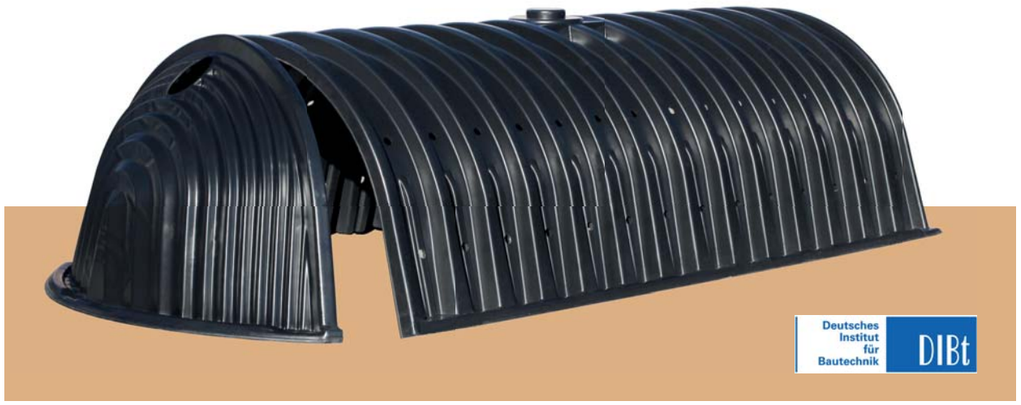
- **Best price** per m^3
- **Made in Germany:** The production of DRAINMAX tunnel trenches is in one of the most modern and largest thermoforming facilities in Europe.
- **Minimum space requirement:** Compared to conventional gravel trenches with a retention volume of approx. 35 %, the DRAINMAX trench has 100 % retention volume available.
- **Easy installation:** The tunnel can be carried by just 2 people, due to the low weight of 32 kg. The system components are therefore mounted in a short time.
- **Minimal maintanence** work by pre-cleaning with the PLURAFIT sedimentation, filter and separation chamber
- **Extremely stable** and durable (loading class to 60t)
- **Simple retrofitting**

Components for Rainwater Infiltration - Package

- DRAINMAX tunnel trench*
- DRAINMAX start- and end caps
- PLURAFIT filter / sedimentation chamber incl. cap
- Filter fabric *

1 DRAINMAX tunnel trench

The heart of the single-family house infiltration system.
The DRAINMAX tunnel trench element is a 1.6 m^3 large volume and light-plastic tray system that creates a hollow space in the soil. With these, the rainwater can be directly retained at the source and will infiltrate through the open soil and side holes.



Technical Data

Lenght/width/height	2340/1375/781 mm
Net weight	32 kg
Effective usable length	2250 m
Tolerance	4 %
Connection manhole	805 mm
Color	Black
Loading class	SWL 60
Material	PE-HD
Permitted processing temperature	+2 to +30°C
Storage volume	1600 L

* Number / quantity according to requirement

2 PLURAFIT filter

The PLURAFIT filter with sedimentation, filtration and separation insertion is installed for the preliminary cleaning of the water runoff from slightly loaded surfaces before the rainwater infiltration system. The contaminant particles of the inflowing water settle in the inserted filter basket. The water then flows in an upward direction through a submersible stainless steel sieve into the overflow. Fats and oils are separated outside the submersible elbow. Either the stainless steel sieve, or the entire insert, can be removed for maintenance purposes. The filter basket with the collected dirt can then be easily emptied.

incl. PLURAFIT Cap

PLURAFIT PF 300-C is a walkable cover. Vehicle load covers are also available.

3 GTB 190 filter fabric for the ground

The filter fabric is particularly suitable as an underlay below the DRAINMAX tunnel. The specially woven fabric is a particularly robust geotextile that can withstand heavy loads and has an outstanding long-term water permeability. The smooth and slide-resistant type of filter fabric enables cleaning of infiltration floor with high pressure cleaners.

4 GT 300 filter fabric

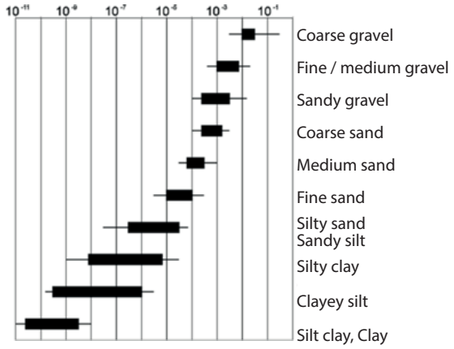
The filter fabric is specially designed for covering of the DRAINMAX tunnel. The propylene filter fabric is a particularly robust filter fabric that can withstand heavy loads. The pollutants are continuously retained in front of the infiltration system due to its good separation effect and at the same time provides exceptional long-term water permeability.

The certified filter fabrics for the approved DRAINMAX tunnel are compliant with DIBT.

Only a few Steps for the First Dimensioning

Infiltration capacity of the ground

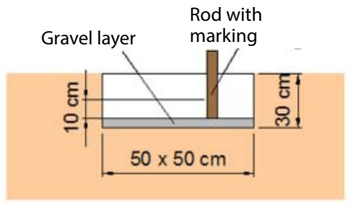
The permeability coefficient (kf-value) is a measure of permeability of soil. A permeability coefficient should be between 10^{-3} and 10^{-6} in order to ensure proper functioning of the drainage system. This value is normally found in a geological survey.



Brief test for ground consistency

The brief test serves only for self estimation.

- A 50 x 50 cm wide and approx. 30 cm deep pit is dug at the height of the later infiltration system. Important: Do not step into the pit to avoid compaction!



- To prevent flotation of the soil, it is covered with a layer of gravel. A measuring rod is inserted into the ground. 10 cm above the pit bottom a mark is placed on the measuring rod.
- Now the pit is filled with water and for 1-2 hours replenished with water (garden hose).
- First, water is filled up to the mark. With a measuring bucket, after 10 minutes, fill as much water as is required to raise the water level back to the mark. The permeability of the ground can be estimated from the quantity of refilled water.
- Repeat the previous step (at least 3 times), until a constant value is established.
- Estimation of water amount:
  - < 1,5 litres in 10 minutes - little possible infiltration (silt)
  - = 1,5 litres in 10 minutes - infiltration possible (silty sand)
  - > 3 litres in 10 minutes - good infiltration possible (sand, gravel)

Type and size of the sealed areas

Add up all your sealed surfaces (roofs, roads, car parking spaces). Typically, you will have them already from the determination of your sealed surfaces fees. A planning aid can be found on our online planner: www.intewa.de/cs/online-planer/

Evaluate the necessary trench volume in m^3

The following table shows examples of different calculation results in different areas, locations and soil conditions.

K_f (m/s)		Aachen			Berlin		
		A=100m²	A=150m²	A=200m²	A=100m²	A=150m²	A=200m²
$1*10^{-4}$	Volume in m^3	1,36	2,04	2,72	1,90	2,85	3,79
$1*10^{-5}$		1,49	2,24	2,99	2,09	3,13	4,79
$1*10^{-6}$		1,51	2,26	3,02	2,11	3,16	4,21

Determine the required components

	< 1,8 m^3	< 3.4 m^3	< 5,0 m^3
DRAINMAX Tunnel	1 pcs.	2 pcs.	3 pcs.
Filter Fabric for ground GTB 190	4 m	7 m	10 m
Filter Fabric GT 300	5 m	8 m	11 m

Free calculation service and offer

Send us the details of your sealed surfaces, the details for the infiltration capacity of the soil and your location. With our Rainplaner software, we determine based on the current rainfall data and your information, an accurate calculation of the required trench and make you an offer.

Approvals

Check with your local water authorities if a permit for your infiltration system is required. Partial amounts can also be infiltrated permit free.

DRAINMAX Trench Installation Instructions

The tunnel can be carried by just 2 people, due to the low weight of 32 kg. The tunnels are connected by overlapping the edges. With only three different component forms a DRAINMAX trench is installed in a short time.

Set tunnel trench on GTB 190

Mount start and end-caps

Install RW inlet pipe

Cover tunnel with GT-300

Cover end-caps

For more information on installation see:
www.intewa.de/products/drainmax/downloads/einbauanleitung

Our service

To ensure that your project is a success.

- Concept creation and preliminary pricing
- Dimensioning with Rainplaner software
- Support for exporting companies
- Technical documents
- System monitoring
- INTEWA Wiki, the online knowledge database

Certification

Deutsches Institut für Bautechnik DIBt

geprüft fwu Patent product

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