



BoxBarrier

Water versus water

BoxBarrier®

User manual



BoxBarrier[®]

The BoxBarrier[®] is a temporary flood protection system consisting of boxes with the following dimensions: $l = 0,90\text{m}$, $w = 0,60\text{m}$, $h = 0,60\text{m}$. The BoxBarrier[®] consists of LLDPE and can be applied during every flood threat. The BoxBarrier[®] retains water with water. That means it uses its opponent, a resource always available. This makes it very efficient. The modular flood defence consists of separate elements, which are connected with sealed joints. Each element is covered by a lid before filling with water. Because of its large weight after being filled with water it resists the pressure from the rising flood level. Due to the flexible rubber seal at the underside, placement does not require a special foundation. The BoxBarrier[®] can be placed on grass, peat, clay, asphalt and pavement with small tiles.



The transition from one underground to another, for example pavement to grass, is no problem.

BoxBarrier® elements



The box element

This is the main element. After being filled with water it is very heavy and therefore able to resist the water pressure on the flood side.



The joint piece

This part keeps the box elements connected. Because it is interlocking it enables a sturdy connection for an effective flood protection.



The lid

Closes the box and gives the box elements more rigidity at the top.



The rubber seal

At the underside of the box and joint elements it seals the BoxBarrier® to the ground and prevents water flow below the box.

Storage and transportation

Due to the stackability of the boxes it is possible to store several meters of the BoxBarrier® in a limited space. 250 meters of BoxBarrier® fit into a conventional 20 feet container. The BoxBarrier® should preferably be stored out of the sun to avoid aging of the material. In case of an emergency the BoxBarrier® is easily put onto a trailer and towed to the place of set up.



Assembling the BoxBarrier®

Installation is very easy and can be done by hand. All it needs are the three elements of the BoxBarrier® which are the boxes themselves, the joint parts and the lids, and a pump. A crew of six men with two pumps placed on a lorry can install 1000 meters within 5 hours. The procedure will be explained on the following pages.



Step 1

First unload all elements and line up the boxes with the joint elements. There is one lid for every box. The flat side of the box elements must face the water. This is very important as the rubber seal is located at this side, to make the construction watertight.



The BoxBarrier® logo should be facing the landside.

Step 2



Fit the joint part into the space provided for it on the side of the box. In order to be watertight it is very important that the side with the rubber seal is placed towards the waterside. This is the side where the box elements are relatively flat. The BoxBarrier logo should face to the land side.



Line up the box elements and the joint elements in this manner.

This is important because then the rubber seal forms a continuous line along the water side.

Step 3

First line-up the BoxBarriers[®] by interlocking the box elements with the joint elements. The seal under the boxes and joint elements needs to be positioned at the water side of this flood protection system. It is very important that the seal under the boxes and joint elements form one continuous line. Besides this it has to be guaranteed that there is a watertight connection between the boxes and the subsoil. After this step the lids can be put into position. Depending on if you want to fill the BoxBarrier[®] from the water- or landside orientate the hole in the lid towards either side.



Step 4

The last step for a safe flood defence line is filling the box elements. This can be done with any type of water supply, either water from the river, canal, flood, or if it isn't available yet, with tap water. Filling time depends on the water source and the pump. The shape of the boxes will change somewhat due to the water pressure on the inside and the boxes will adapt to irregularities in the underground.



Disassembling

After usage we advise to pump out most of the water in the box elements (with a pump or a bucket). After emptying the box elements entirely they can be stacked and stored again. A good place to store the joint elements is inside of the box elements.



Tips and tricks

- Water supply

If you can't fill your BoxBarriers with water from the river, lake or canal yet because it is not easy assessable, you can prefill the box elements with about 30 cm / one foot of tap water and wait for the water to rise until you can use water from the river, canal or lake to fill the box elements entirely. But please do it in time.

- Storage

Please store your BoxBarriers in a shady place and near the location they might be needed. Also store them in a way that they are always easy accessible and ready to use.

- Water leakage

It is mandatory to have a continuous line of the rubber seal at the front bottom side in order for the BoxBarrier[®] to be safe and a good protection for your property.

- Pump

We advise you to use a pump with a flow rate of 30 m³/h.