FLEXITEX®
GEOTEXTILE SHUTTERING FOR USE AT THE WATER-SIDE AND UNDERWATER CONCRETE WORK

PRODUCT
FLEXITEX®: TEXTILE SHUTTERING
During the last twenty years there has been a significant increase in the use of textile shuttering in concrete work, particularly at the water-side and underwater projects. The most important reason for this increased interest has been the introduction of woven fabrics made of high-strength polyamide (nylon) yarn. Coupled with simplified installation working procedures, this results in reduced working times.

The most important areas of application for FlexiTex® are:
1. Mattresses for erosion control/ stabilization of embankments and steep slopes.
2. Mattresses for constructing reservoirs
3. Recasting of and repairs to piles
4. Sacks and other woven “containers” for underwater concrete works
5. Various designs for supporting/covering pipes
6. Others design for carrying out repair work and sealing concrete walls to make them watertight etc…

THE CONCRETE
The quality of the concrete used in projects of this type is extremely important. The principle applied to remove excess water is based on pressure excavation, whereby the pressure exerted by the concrete as it is pumped in, causes rapid evacuation through the fabric. The fabric acts like a sieve and is designed to prevent particles from getting through it. It is important to use well pumpable concrete of the right quality and strength.

TYPICAL MIXING RATIO
The mixing ratio of sand and cement will vary between 2:1 and 4:1 from project to project depending on the type of work being undertaken. The quality of the concrete is very important and it is recommended that it should contain up to 30 % fly ash. Sand with a grain size of 0,3-0,8 mm is recommended, since a major requirement of the concrete is that it is easy to pump. Other possible admixtures include a material that will aid the formation of pores through which air can pass, plus a plasticizer in a proportion equivalent to between 0,4-0,8 % of the concrete’s total weight.

The above mixture will produce:
• homogeneous concrete
• good compression and high density
• rapid hardening
• silt-free surface
• high wear resistance

The typical water/cement ratio on hardening will be between 0,3-0,4.
**FLEXITEX® CAN BE SUPPLIED IN DIFFERENT THREE TYPES**

**TYPE 1: FLEXITEX® FILTER MATTRESS**
This double-weave mattress has been woven together at regular points which act as filters to even out water pressure. When using double-weave mattresses with concrete it is important to level the supporting bed. The mattresses can tolerate unevennesses of up to +/- 0.15 m per m². The mattresses, which are supplied in widths of 5.3 m, can be attached in advance to panels for rapid installation in the area to be protected. In this instance they are usually fitted with industrial quality zip fasteners for easy joining below the water level.

Plastic funnels for casting the concrete are often stitched to the mattress. However, some small on-site adjustments have to be made.

The fabric is available in roll form and can be prepared on site, either by hand or using a stitching machine if the area to be covered is large. It is generally necessary to stitch the panels on site to accommodate awkward corners etc…

A common error when laying the mattresses is the failure to protect a sufficient distance along the quay / embankment, thus causing erosion to take place beneath the mattress. In addition to adequate length, it is important to secure the end edges of the mattress. This can be done by digging a trench along the outer edge of the mattress, which is filled with concrete and placed in the trench.

Filling starts at the outermost point in the embankment by means of iron rods and rope (loops which fit over the iron rods may be stitched to the mattresses).

It is easy to repair any rips in the mattresses caused by friction, even if they are underwater.

**TYPE 2: FLEXITEX® CONCRETE MATTRESS**
This double-weave mattress does not have any filter points. The upper and lower sections are connected by means of spacing yarns to ensure that the concrete-filled mattress is of even thickness. Installation is carried out following the same procedure as for filter mattress.

**TYPE 3: FLEXITEX® FLEXIGROW**
FlexiGrow®: A double-weave mattress with successive open square areas for planting. The mattress is filled with concrete leaving open squares of textile. The squares can be cut open and filled for planting, mainly for ground stabilisation and aesthetic purposes.

Flexitex® is available in several colours upon request.
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ADVANTAGES OF USING FLEXITEX® MATTRESSES

1. Economical solution compared to traditional concrete made reinforcements
2. Easy and fast installation, up to 700m² per day.
3. Provides permanent protection against erosion and underwater scouring.
4. Outperforms traditional concrete rip rap and concrete slope paving.
5. Adapts to various subgrades

APPLICATIONS

1. Water channels: ditches, high flow channels, canals, streams, rivers, lakes,
2. Reservoirs, dams, marinas, ports, harbours
3. Slopes
4. Bridge abutments and piers
5. River and sea beds
6. Coastal revetments

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESIGN</th>
<th>TOTAL WIDTH (m)</th>
<th>AVERAGE THICKNESS (cm)</th>
<th>APPROX WEIGHT kg p/m²</th>
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<tr>
<td>78305</td>
<td>Double weave filter point mattress with rectangular points</td>
<td>5,30</td>
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<td>220</td>
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Standard roll length are 100 m, we can supply specific lengths on request.
Note: when calculating the required mattress size, pay attention that the mattress filled with concrete will shrink by approx. 10% in both directions.