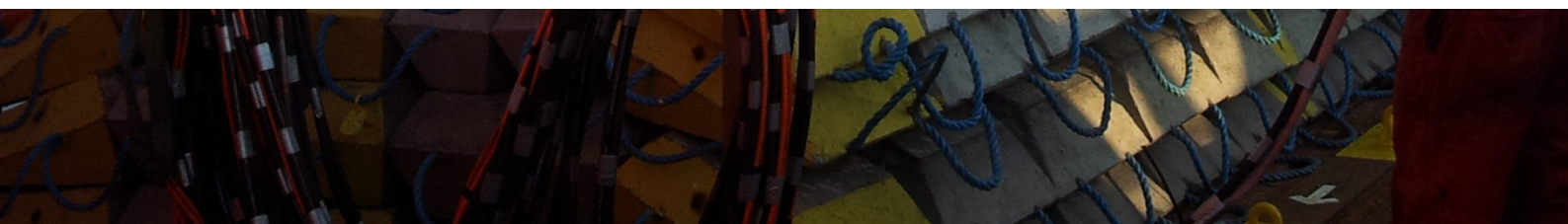
SUBSEA PROTECTION SYSTEMS



CONCRETE MATTRESSES



Subsea Protection Systems



SPS provide a recognised and cost-effective engineering solutions for the protection and stabilisation of subsea assets worldwide.

SPS is one of the world's leading manufacturers of concrete mattresses. We manufacture a wide range of mattresses in the UK and around the world, for all of the major subsea construction companies. We carry a large number of standard mattresses in stock, and can also design and manufacture mattresses to specific requirements.

Quality and safety are central to the way SPS works, and we continually strive to provide the best products to ensure safe and efficient solutions for clients working in offshore environments.

Concrete Fleximats



The fleximat is a standard SPS product. It provides a high degree of flexibility, both lateral and longitudinal, allowing it to closely follow the contours of the pipeline / umbilical and seabed. It is constructed using high strength concrete blocks and U.V. stabilised polypropylene rope.

The SPS fleximat matrix pattern reduces the open line effect thus offering additional protection and stability. Once installed the fleximat may scour into the seabed to increase in stability and overtrawlability.

Installation of mattresses is a straightforward and safe procedure using appropriate lifting equipment designed to be operated by divers or by ROV control.



- Scour prevention.
- Support for pipeline and cable crossings.



- Protection from dropped objects.
- Added weight and stabilisation.

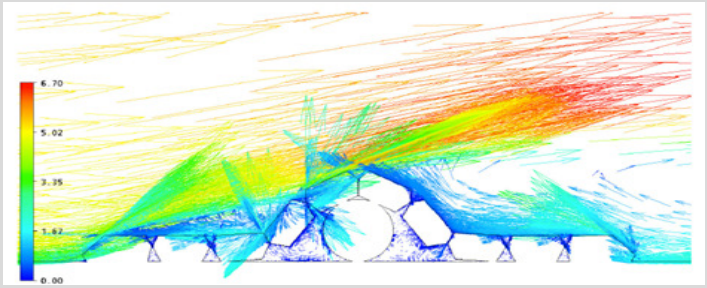


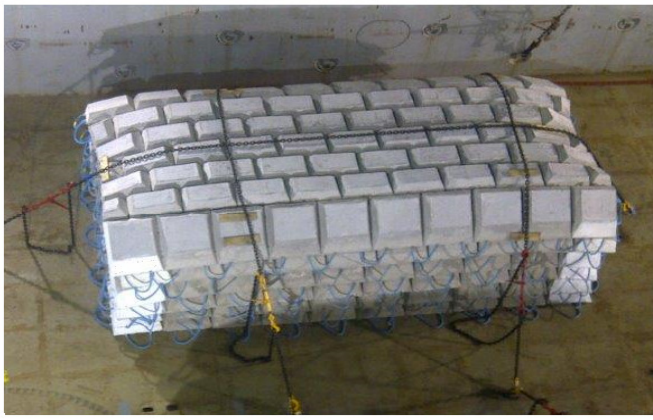
- Support for pipeline and cable crossings.
- Supports or foundations for other subsea activities.
- River bank erosion control.

Wedged (Tapered) Fleximats

Extreme seabed, current and wave conditions may determine that additional stability is required beyond that provided by the standard fleximat.

In this case SPS can provide fleximats with enlarged tapered (wedged) edge elements, which offers an improved overtrawlability profile.





Concrete Logmat



The SPS logmat is flexible in only one plane. This provides an engineering solution to two particular challenges:

Load bearing - where soft soil conditions exist a logmat may provide a foundation base for supporting a pipeline or other subsea construction;

Stabilisation - In conditions of extreme environmental loadings, buoyancy forces, or loss of weight coat, subsea pipelines may require additional weight beyond that provided by the fleximat.

SPS logmats are constructed using high strength, reinforced concrete and U.V. stabilised polysteel rope, and can be quickly and accurately deployed using SPS lifting equipment. Logmat lengths are supplied to meet a client's individual requirement.

Mattress Options

Concrete Density



The density of concrete used in the manufacture of standard mattresses is generally between 2.3 and 2.5 tonnes per cubic metre.

Under certain conditions where there may be a requirement for additional or less weight in a mattress (or other SPS product). SPS can design and supply a concrete mix with a higher or lower density than normal.

Protection Pads

Under certain operating conditions a low-friction or anti-abrasion material is required between the concrete mattress and the asset it is stabilising or protecting. SPS can provide this by fixing a range of materials to its mattress segments.



Fronded Concrete Mattresses

Fronded concrete mattresses are used to prevent seabed scour. Natural seaweed reduces water velocity locally and correspondingly reduces scour; the frond mattress replicates this natural phenomenon.

Over 1000 buoyant fronds per square metre at nominally 1m high are built into the mattress and properly deployed they will stop scour rapidly by forming a sand berm from particulate matter in the sea.

- **Industry standard products for subsea construction**
- **Cost effective and reliable**
- **Easy and safe installation**
- **Available in a range of sizes and configurations**

Subsea Protection Systems Ltd
Telephone: +44 (0)1493 600 700
Email: sps@sps.gb.com
Website: www.sps.gb.com