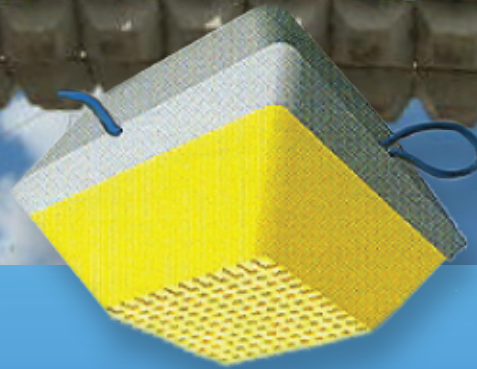




OFFSHORE TECHNOLOGY SOLUTIONS LTD.

**Nonabrasive PVC boots
protect pipeline coatings**



**Exclusive deployment
frame for precise mat
placement ***

OTSL's stabilization and protection resources encompass a wide range of systems and solutions, design to the manufacture and installation of required applications.

CONCRETE MATS, FABRIC FORMWORK and GROUTING Solutions make up part of our Manufacturing division, producing high quality engineered products designed for both marine and shore-based stabilization, support and protection.

The CM designed flexibility is engineered to protect in multiple applications, from sea-floor wide-area bed structure and wrapping methods for line and cable shielding to civil solutions for preventing and securing erosion sites along river-ways, bridge-base protection and embankment/course-ways/median riveting.

SUBSEASTABILISATION MANUFACTURING AND SERVICES

CONCRETE MATS for pipeline protection crossings and stabilisation.



OFFSHORE TECHNOLOGY SOLUTIONS LTD. (OTSL-CM Technology) *Concrete Mats*

Concrete mats manufactured by Offshore Technology Solutions Ltd. (OTSL) are the ideal solution for protecting and stabilizing unburied pipelines, flowlines, and umbilicals on the sea floor. When placed over exposed lines, these flexible structures form a strong, wide-area blanket that stays in place, even in high-current areas.

Typical Application

Concrete mats are typically used for protecting exposed pipelines and flowlines, for stabilizing exposed lines in high current locations, for support on uneven sea-bed levels, and for separating pipelines at crossings. They are also ideal for protecting and stabilizing revetments and flood banks.

Flexible, Low Profile Matrix

The hexagonal cross-section of the concrete blocks and the polypropylene rope linkages are engineered to give the mats maximum flexibility in both planes, so they conform completely to the covered area. Because the mats are only 9 inches thick, or less, they provide maximum protection and stability with minimum interference of navigation.

Standard mat size: 8ft x 20ft x 9in.

Unlimited Service Life

OTSL concrete mats last well beyond the service life of the pipeline. Neither the concrete blocks nor the polypropylene rope will degrade or deteriorate.

Optional Non-Abrasive Boots and Pads

Tough, integral, polyvinyl chloride boots protect pipeline coatings that might be damaged by contact with concrete mat blocks and can be installed on both top or bottom of each block. The non-abrasive boots become an integral part of the mat when the concrete is cast in the mold. Seventeen embedded anchors hold each boot securely in place.

Exclusive Deployment Frame

Concrete mats are lowered into place by crane, with DIVERS or an ROV directing exact placement. The exclusive OTSL deployment frame makes precision placement and handling simple and easy. When several mats are required for coverage, they can be linked together at the surface to further speed installation.

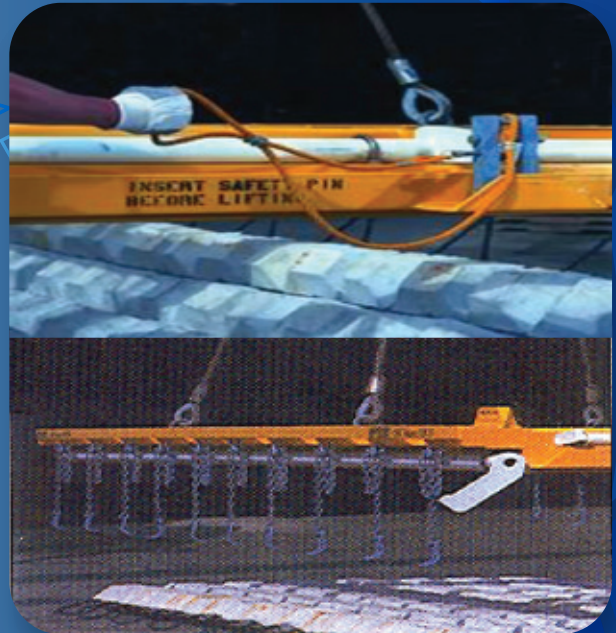
Custom Engineered

Concrete mats can be engineered and manufactured to meet the requirements of any application. Concrete density and number, thickness, size, and shape of mats can all be varied as required.

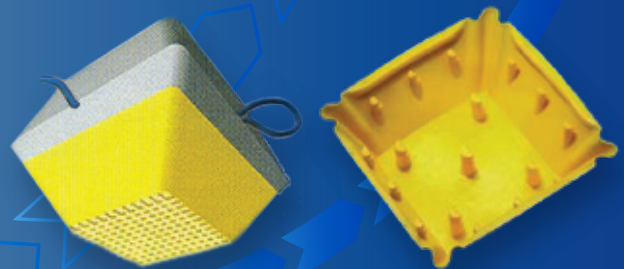
Contact Offshore Technology Solutions Ltd. (OTSL) for further information.



Mats are installed using our Exclusive Deployment Frame. Above: Mat supported from frame on chains.



Complete mat Release is achieved by removing a single pin. All chains are Released simultaneously allowing the mat to be placed precisely over the pipeline.



Tough, polyvinyl chloride, non-abrasive boots protect against pipe-coating damage.

Side coverage protects small-diameter pipe that fits between the blocks. The boots are cast into every concrete block and are secured by 17 anchors (right). The bright yellow boots provide visual aid for precise mat placement.

OFFSHORE TECHNOLOGY SOLUTIONS LTD. (OTSL)

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