

# DEEPWATER

## RETROMAT™ CATHODIC PROTECTION SYSTEM FOR PIPELINES & SPECIAL APPLICATIONS

**A Retromat has cathodic protection anodes cast directly inside a concrete mattress.**

A Retromat is a standard concrete stabilization mattress with an integral cathodic-protection system consisting of many small aluminum or ICCP anodes cast directly into the concrete. The system is designed to provide cathodic protection for pipelines at crossings or for assets in unstable seabed conditions. The mattress utilizes plastic FLXMAT shells, which have revolutionized the deployment of offshore concrete mattresses. Rather than shipping prepared concrete, we deliver a complete mat's worth of FLXMAT shells and anodes that conveniently clip together and allow local crews to assemble the mat and pour the concrete on-site.

### Perfect for pipelines

A cathodic-protection retrofit project using Retromat will provide the required stabilization and an added benefit of up to 30 years of cathodic protection for up to 3 miles of pipeline, depending on existing CP potentials and the needs of the operator. The RetroClamp system can be installed quickly by diver or ROV to electrically connect the anodes to the cathode. Originally designed to provide cathodic protection at pipe crossings, Retromats feature patented non-shielding soft pads on the underside and can be loaded with aluminum or zinc anodes, which makes them suitable for all water chemistry from seawater to river water.

### Versatile in design

The RetroMat can house either small cylindrical sacrificial anodes or ICCP anode discs, which makes it extremely useful for protecting many types of assets. For pipelines, sacrificial aluminum is used. For other structures such as docks, wind farms and waterfront structures, ICCP discs allow the system to deliver significantly more current with a small rectifier above the water line. The modular nature of a Retromat means that cathodic protection designers can ensure exactly the right amount of anode current is delivered to an asset in order to protect it for the desired length of time. The low profile of the mat makes it extremely useful in shallow water applications where buoyant anodes are not an option.

### A reliable connection

The Retroclamp is proprietary technology developed at Deepwater and available nowhere else. The Retroclamp connects the Retromat with two armored cables attached to the pipeline it will protect. Retroclamps can be installed by diver or ROV with contact tips for each application. For concrete-coated pipe, the contact tip can be fitted with a soft drill bit that allows it to penetrate the weight coat without damaging the pipe. The tensioned plate on top of the clamp ensures a strong and constant connection that won't damage the pipe.

### Other applications

In addition to pipeline crossings and general bracelet anode replacement, RetroMat can be used for pipeline river crossings, jetties and waterfronts and offshore wind farm retrofits. The mat has also been used to anchor cathodic-protection test stations and other devices such as pipeline markers and location equipment.

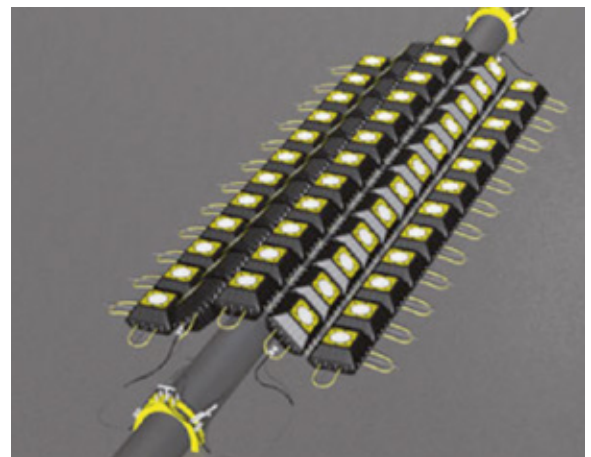
More info at [www.stoprust.com](http://www.stoprust.com)



**ANODES ARE CAST INTO THE CONCRETE SEGMENTS**  
The wire rope core of the mat provides a low resistance anode array.



**A SPECIAL DESIGN FOR QATAR**  
Aluminum anodes on this job were cast on the outside of the RetroMats.



**RETROCLAMPS ELECTRICALLY CONNECT THE MATS TO THE PIPELINE**  
The anodes are within the concrete segments on this mat.