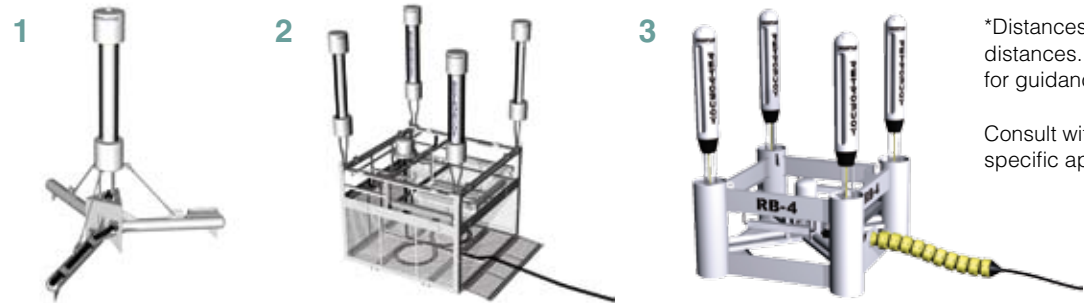


RetroBuoy Specifications

Model Name	Anodes Modules	Current Rating (A)	Anode to Structure*	Anode to Seafloor	Applications
1. RetroBuoy Jr	1	150/200	3m(10ft)	0.7m (2.3ft)	Docks and harbors, small offshore structures, jacket complexes, in tropical oceanic conditions
2. RetroBuoy Mk3	4	300/400	25m(80ft)	1.5m (5ft)	Large offshore structures in tropical oceanic conditions, with a stable sea floor
3. Retrobuoy (RB-4)	4	400/500	30m(100ft)	2.1m (7ft)	Large offshore structures in harsh oceanic conditions, with an unstable sea floor



*Distances are minimum distances. All information given for guidance.

Consult with Deepwater for specific applications.

Contact Details

Deepwater Corrosion Services Inc.

10851 Train Court, Houston, TX 77041

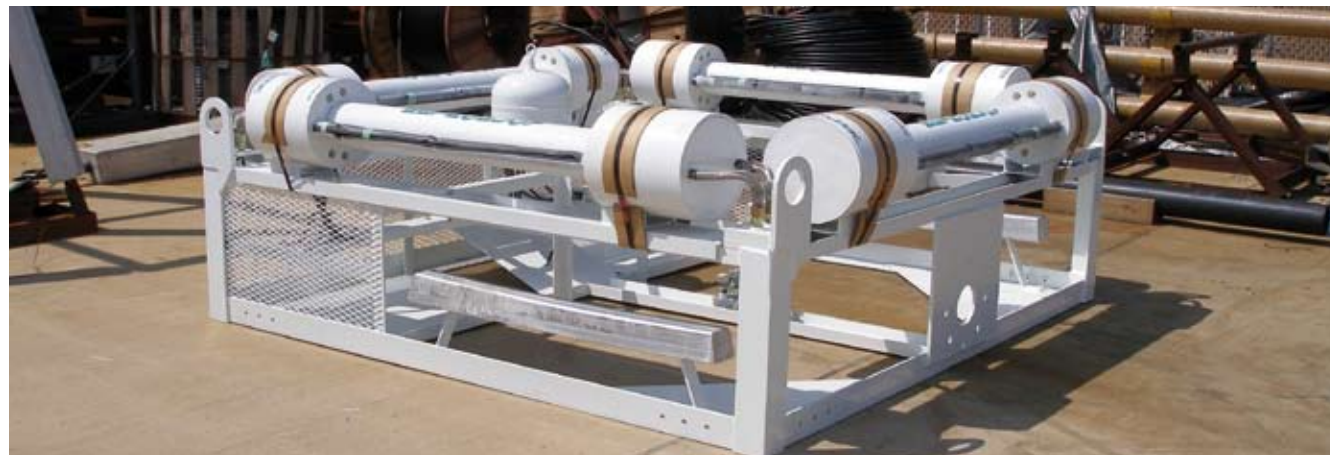
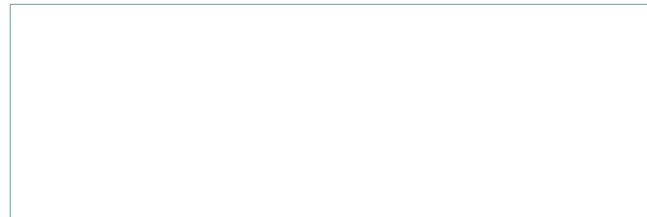
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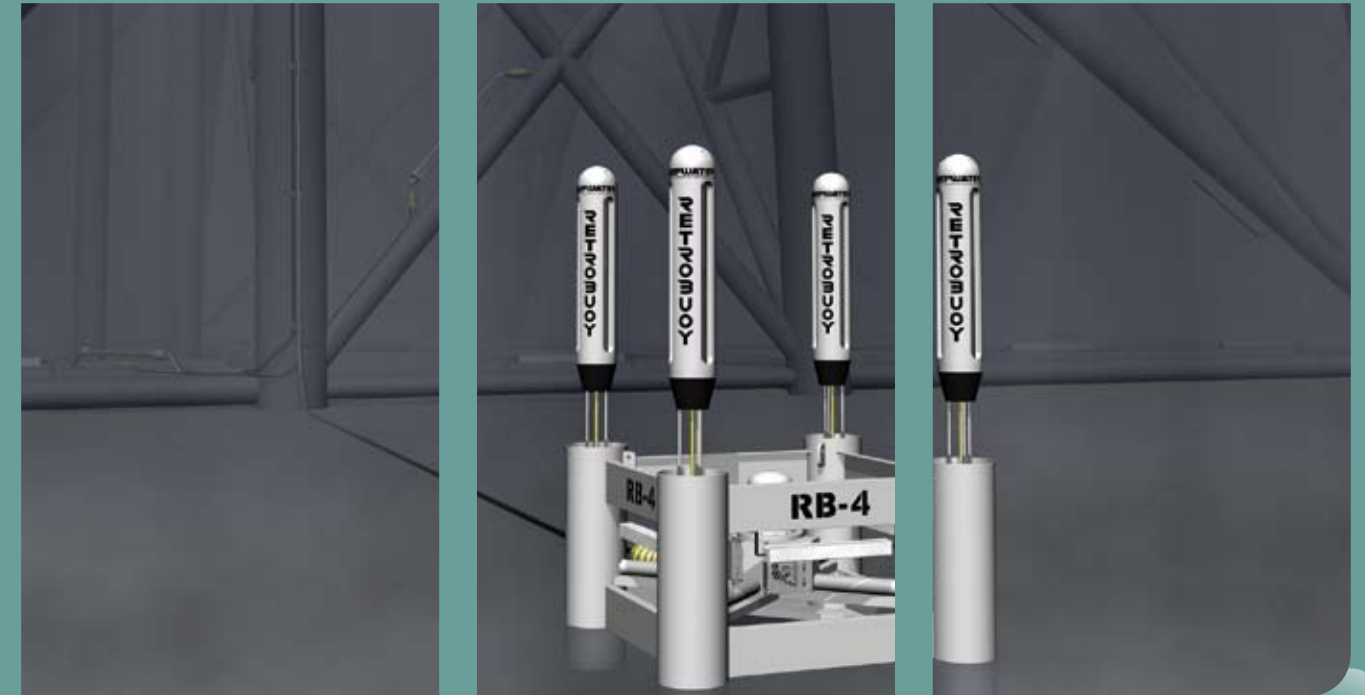
Local Exclusive Distributor



Deepwater Corrosion Services Inc.

High-Capacity Impressed Current Cathodic Protection System

RETROBUOY



DEEPWATER

www.stoprust.com

Overview

RetroBuoy is a high-capacity impressed current cathodic protection system, designed primarily to be retrofitted to existing structures. Remote anodes (located away from rather than on the structure) offer the benefit of more evenly distributed cathodic protection over larger areas. The primary applications for this type of cathodic protection are large complex steel structures such as platform jackets, or structures with many pilings in a tight geometry, such as port facilities or loading jetties. To maintain appropriate levels of protection, individual RetroBuoy anode sleds can be rated anywhere from 150 – 500 Amps for 25 years (please see the table on the reverse of this brochure).

The compact size and remote location of the RetroBuoy directly on the seabed simplifies the installation procedure, minimizing cost. It is these costs that typically dominate a large offshore cathodic protection upgrade. RetroBuoy provides the lowest installed cost per Ampere/Year of any cathodic protection system available.

Our partnerships with key transformer / rectifier manufacturers in the US and UK allow us to provide complete systems in compliance with any electrical requirements, and our own Polatrak® brand CP monitoring systems can be integrated to verify system performance over the life of the design.



Key design points

1. The use of MMO activated Titanium electrodes allows the anode sled to be operated at very high current output. This is possible because the anode electrode elements are transported in buoyant modules, which ensure that they remain surrounded by clean seawater. If the anodes were allowed to become silted at all they would have to be significantly de-rated to avoid premature failure.
2. Using a compliant design that works with the ocean currents allows the RetroBuoy to be compact and easily handled by most offshore installation vessels.
3. The oil-filled, pressure-compensated electrical junction box, which houses the electrode cables, allows the system to operate efficiently at any depth. The parallel wiring of anode cables to the main feed cables provides a high measure of redundancy in the event of an unforeseen mechanical impact.
4. New innovations in dynamic cable design are allowing more cost effective deployments of these systems on FPSO's or in deep water. Routing the power cable from the seabed to the surface via ROV eliminates a major installation cost for the system.



Applications

RetroBuoy can be used in any situation where a large offshore or marine fixed structure has available electrical power. Some applications include:

1. Large Offshore Platforms – Situated 100 feet from the platform jacket (in stable sea bed conditions) and hardwired to the surface transformer rectifier, the RetroBuoy Mk 3 can provide up to 400 Amps of CP. The model pictured below sits atop a fixed cable hopper for easy deployment. The cable is routed through an “I” or “J” tube, depending on the structure.

1a. Large Offshore Platforms – When seabed conditions are harsh (e.g. North Sea), the RetroBuoy Mk 4 (RB-4) provides extra strength and ballast.

2. Smaller Offshore Platform Complexes (Bridge Connected) – For structures clustered together and electrically connected via a bridge, many times a single RetroBuoy can protect the entire complex. Exact requirements vary, depending on the size and depth of each structure.

3. Loading Docks – For all varieties of dock and jetty structures, the RetroBuoy Jr. provides reliable CP when depth and current conditions are right.

4. FPSO's (Spread Moored) – The RetroBuoy anode sleds sit on the seabed and the feed cables will be deployed in a “Lazy S” configuration. Spread moored FPSO's are particularly suited to this strategy, as the remote anodes can protect a large area of mooring chain and other hardware.

5. Sheet Piled Wharves (not pictured) – RetroBuoy Jr. can protect sheet pile bulkheads, in much the same manner as docks and jetties. Individual instances have varying current and depth requirements.

