JINSON MARINE PTE LTD

CATHODIC PROTECTION • SACRIFICIAL ANODE SYSTEMS

Jinson

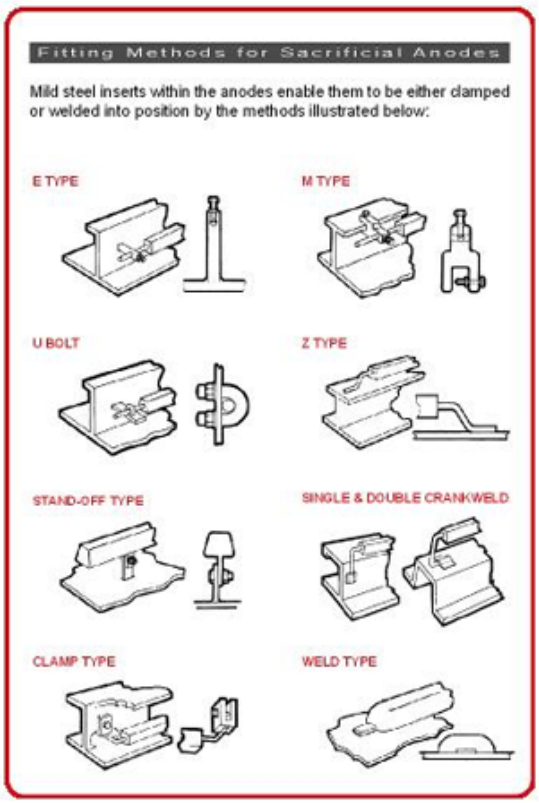
Cathodic Protection Principles

Instead of the conventional insulating coat or paint where corrosion occurs instantly when the layer is damaged, cathodic protection provides an active and deliberate electrochemical preservation system of corrosion protection that is both effective and efficient.

Protection is carried out in the following two methods:

Sacrificial Anode Systems

An anode of greater negative potential is connected to the protected structure, forming a galvanic cell in the submerge electrolyte (e.g. salt water). The anode will then be sacrificed in place of the protected structure. Anodes are made of either Zinc or Aluminum, depending on the use of it.



ZINC

Besides having an even corrosion pattern, zinc has reliable electrical capacity, making it virtually unaffected in any current density conditions. It also has a long working life.

Applications:

- Ballast tanks, hulls area, barge, buoy, floating dock, storage tank drilling rig etc.
- Condenser, heat exchange, sea water piping, seal lock, boring (platform etc. (Zinc is not suitable in high temperature environments (of 50UC and above)

ALUMINUM

Due to its lightweight, smooth corrosion pattern, high electrical capacity and stability, fewer aluminum anodes are required for a given installation as compared with zinc.
This results in a substantially lower cost of per installed system.

Applications:

- Hulls and tanks of ships (Except certain cargo tank)
- Fixed offshore structures
- Semi-submersible
- Pipelines
- Jetties (etc)

CATHODIC PROTECTION • IMPRESSED CURRENT SYSTEMS

Protection is carried out in the following two methods:

Impressed Current Systems

Impressed Current Systems were developed originally to protect the underwater external hulls of large tankers and bulk carriers that could not be satisfied adequately by Sacrificial Anode Systems.

In this system a Transformer Rectifier (T.R) together with an auxiliary anode is used to create an electric field at the metal surface. Electro-current flows from the anode through the electrolyte and to the structure before finally returning to the negative terminal of the DC power supply. This system together with the use of inert anodes will enable the largest and most efficient coverage of protection without suffering significant wastage themselves.

BENEFITS OF IMPRESSED CURRENT SYSTEMS:

- Minimum time and cost savings for maintenance
- Provides a uniform coverage of corrosion protection over a larger surface area
- Automation allows hulls to be kept at optimal condition at all times
- Minimal frictional resistance on the hull
- Continuous and ease of monitoring hull potential