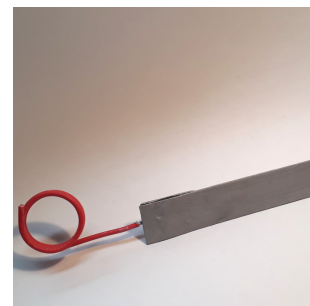


# TECHNICAL DATASHEET

## DuoGuard Strip™

A hybrid anode system which acts to stop and control corrosion of reinforcing steel in concrete.



### Uses

DuoGuard Strip is used to provide corrosion protection to sound but contaminated reinforced concrete elements to minimise maintenance and extend the life of structures.

### Advantages

- Compact sizes
- Installed in the cover zone where there is congested steel
- No long term power supply needed
- Large charge capacity > 375 to 750 kC
- High impressed current density >1000 mA/m<sup>2</sup>\*
- Long life with minimal long-term costs
- Rapidly halts steel corrosion to eliminate further concrete spalling
- Suitable for carbonated and chloride contaminated structures
- Pre-mixed bedding mortar
- Measurable performance
- Up to 50 year service life\*

### Description

DuoGuard Strip™ is a dual technology hybrid anode™ utilising a sacrificial metal in both an impressed current and galvanic anode role. Initially an impressed current is driven from the DuoGuard Strip anode to the steel using a temporary power supply and corroding sites on the steel are moved to the surface of the installed anode. This occurs because the treatment generates inhibitive hydroxide ions at the steel and aggressive chloride ions are drawn from the concrete to the installed anode. At the end of the brief impressed current treatment the DuoGuard Strip anode is connected to the steel to act as a sacrificial anode in a long term preventative role.

### Standards Compliance

BS EN ISO 12696:2016 cathodic protection of steel in concrete.

### Application

Design of the DuoGuard Strip system shall be undertaken by a competent designer. Application shall follow the guidelines of BS EN ISO 12696:2016 and DD CEN/TS 14038-2:2011 and shall be in accordance with the Installation Guidelines, summarised as follows:

The anode units are typically installed into slots cut within the concrete to a width of 10mm and a depth of 30mm, using DuoCrete P embedding mortar, at a density of 4-9 units/m<sup>2</sup> concrete surface depending on local conditions and steel density.

The individual DuoGuard Strip units are then connected electrically to a feeder wire which runs to the temporary power supply for the impressed current phase of the treatment (typically 1 week) during which time the anodes distribute ~50-500kC/sqm steel surface.

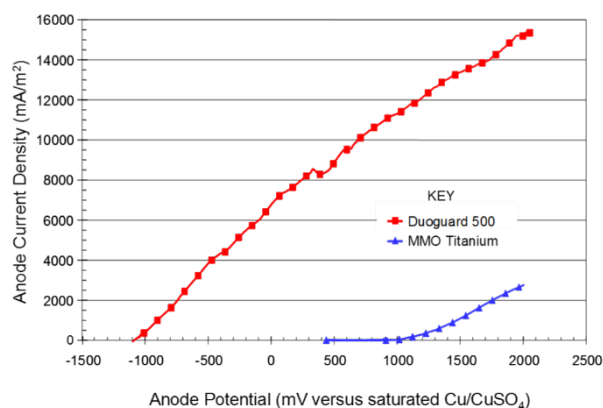
After the impressed current phase the feeder wire is removed from the temporary power supply and connected to the reinforcing steel. The DuoGuard Strip units are now operating in galvanic mode, maintaining the steel in a passive state.

### Properties

Product	Thickness	Width	Length	Zinc Weight
<b>DuoGuard Strip 20/250/4</b>	5.5mm	20mm	250mm	140g
<b>DuoGuard Strip 20/500/4</b>	5.5mm	20mm	500mm	280g

## Technical Data

The DuoGuard Strip anode offers the significant advantage of running at relatively low driving voltages in impressed current mode versus the commonly used MMO anode. A polarisation curve for a DuoGuard™ 500 anode is shown below and demonstrates the high current densities possible at low drive voltages.



## Limitations

In order that suitable current flow and lifetime be achieved from the DuoGuard Strip anode, certain practical considerations should be taken into account. The patch repair material cover for the DuoGuard Strip unit must be a minimum depth of 10mm. When installed in a patch repair, the resistivity of the repair material should be in the range 50-200% of the parent concrete.

Any discontinuous steel should be either electrically bonded to, or electrically isolated from, the system negative. Any cracks or delamination in the concrete which affect ionic current flow will affect performance of the DuoGuard Strip unit and should be pre-treated. During installation, electrical shorts between the DuoGuard Strip anode and other metal components must be avoided.

\*Service life and current density will depend on local site conditions including chloride contamination, concrete properties, humidity and temperature.

## Packaging

25 units per box individually wrapped in plastic bag with silica gel plus polymeric screw connectors.

## Storage

Store dry

Packaging should only be opened when the product is required.

The individual bag should be closed at all times when not in use. Do not remove silica gel.

Do not allow contact with oxidizing materials.

## Ancillary Materials

DuoCrete P Mortar

MN15 Manganese dioxide reference electrodes

XLPE coated titanium wire

Monitoring equipment

## Precautions - Health and Safety

Health and safety protective clothing, gloves and eye protection must be worn at all times.

## Specification Clause

The discrete anode shall be a sacrificial alloy anode with an integral titanium electrical connection which retains the option to operate in both impressed current and sacrificial anode modes. The anode shall be embedded within a 30mm deep slot and 10mm wide in the concrete using a factory pre-mixed backfill mortar of pH<12.8 which remains pliable for a minimum of 48 hours.

## Technical and Sales Support

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