

# CorroDisc 125



Discrete anodes for impressed current cathodic protection of steel in concrete

## General description and Installation guidelines

### Product application

The product is indicated as CorroDisc discrete anode.

CorroDisc is an ICCP composite discrete anode specifically designed for giving electrochemical protection, known as impressed current cathodic protection (ICCP), for the prevention of corrosion of the concrete steel reinforcement according to the international standard ISO/EN 12696. The current required for cathodic protection is provided by a DC power source supplied through an anode feeder cable.

### Product description

The anode is premanufactured as a complete anode system. The heart of the anode is based on an expanded mesh MMO-coated titanium electrode. This electrode material is pre-casted in an acid resistant cementitious mortar. Through an ion-conductive adhesive (upon request pre-applied) or a thin layer of mineral based mortar the anode is applied directly on the reinforced concrete surface avoiding the need for slots, holes or grouts. The adhesive in combination with an additional 6mm plastic fixing (**A**) enables the anode to be securely and durable adhered to the surface of the concrete structure. The ion-conductive adhesive or mortar functions as a salt bridge, bridging the premanufactured anode with the concrete structure avoiding the electrochemical reactions taking place in the adhesive. The upright edge of the anode is with a bevel (**B**) for caulking in case the adhesive is used which is not needed when using a mortar for application. The anodic electrochemical reactions taking place on the electrode material produce hydrogen-ion ( $H^+$ ) and oxygen gas ( $O_2$ ). The acidification by the anode reaction will not harm the mortar and the oxygen gas will be easily dissipated by the natural porosity of the silicate based mortar.

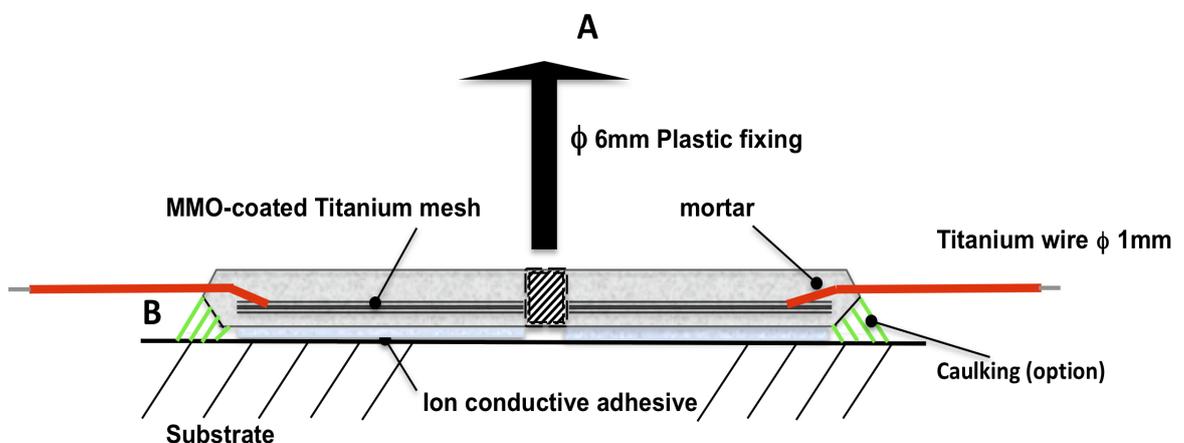
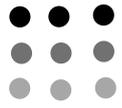


Fig. 1 Sketch of the anode



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## Advantages

- **Easy economic installation** - Surface applied thanks to the ion-conductive adhesive or repair mortar, and therefore the most economic CP system on the market avoiding grinding, drilling or embedding the anodes in the structure.
- **Natural Gas venting** - The microcrystalline structure of silicates has a pore size that allows the free passage of water vapour and oxygen.
- **Longevity** - The insoluble silicates formed in the chemical reaction are resistant to strong acid attack and can provide for much longer life expectancies.
- **Ample protection** - satisfies the 100mV criteria for effective cathodic protection according the international standard ISO12696.
- **Convenient pilot testing** - Design engineers can easily apply and displace each individual Corrodisc anode to analyse the effects of steel polarisation in relation to anode distance, current and voltage output.

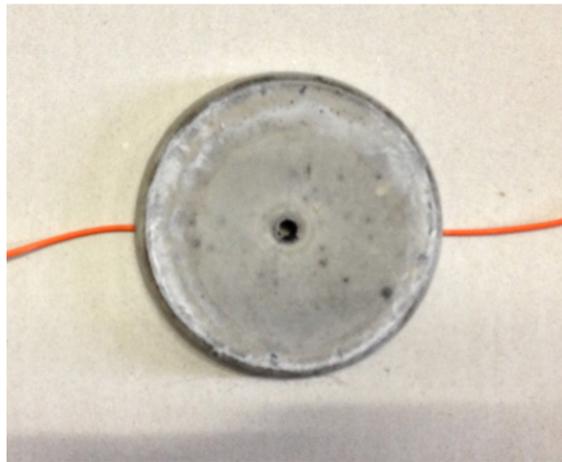


Fig. 2 Picture of the Corrodisc

## ICCP design

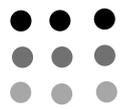
In line with other CP systems, a CP system based on Corrodisc discrete anodes should be designed by qualified and certified specialists and installed by qualified and experienced contractors.

## Installation

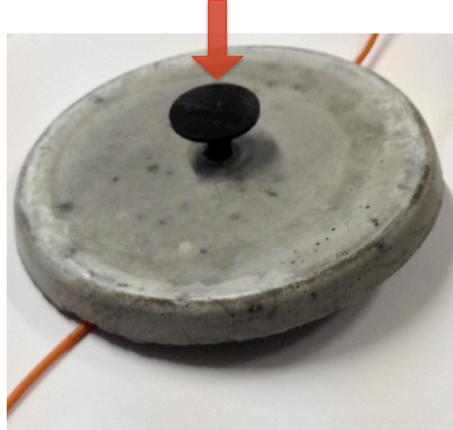
Corrodisc discrete anodes are installed directly on the concrete surface. The concrete surface should be cleaned but not sealed. It should also be smooth and flat. Paint, coating, dust, grease or water should be removed locally with a surface area slightly larger (appr. 2 - 3 cm) than the anode's surface area. If necessary sand the rough or uneven area with sandpaper or a grinder.

Drill a 6mm diameter hole not deeper than 20mm directly into the concrete in the middle of the designated cleaned area.

Remove the backing film from the adhesive. Position the anode exactly above the designated area with the plastic fastener (Plastic Tree Clip see Fig. 3) fixed in the hole in the middle of the anode.



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**Fig. 3 Plastic fixings for the Corrodisc**

Push the anode on the surface together with the fastener into the drilled hole. Make sure that the adhesive is in good contact with the concrete.

In case the anodes are subject to running water it is recommended to seal the seam with a permanent elastic watertight sealing agent or caulk all around the anode between the Corrodisc and the concrete surface avoiding the water penetrating or rinsing off the ion-conductive adhesive or use a thin layer of repair mortar to fix the anode onto the concrete surface.

Connect strings of Corrodisc discrete anodes together as recommended by the CP design specialist using coated titanium feeder wire. All wire jointing requires the use of titanium metal crimps, secured using the appropriate crimping tool and protected by heat shrink tubing.

After connections have been made each anode feeder circuit have to be controlled after the continuity should be tested with a resistance meter.

For aesthetical reasons the Corrodisc discrete anodes can be coated with vapor permeable paints with  $S_d$  value of maximum 5m, preferable silicate based breathable paints.

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01

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**Approved**  
R. Giorgini

The information, and, in particular, the recommendations relating to the application and end-use of CorrPRE's products, are given in good faith based on CorrPRE's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with CorrPRE's recommendations.