

INSTALLATION GUIDELINES

Galvex 60 & 100 hybrid

Zinc sacrificial anodes for corrosion control of steel in concrete.



Installation procedures

Sacrificial zinc anodes imbedded in an ion-conductive auto moistening coating and a conductive geopolymer mortar, for cathodic protection of reinforced concrete structures.

System monitoring can be performed according international standard EN/ISO12696. Manual or fully automated remote monitoring equipment can be supplied by your supplier together with the anodes on request. Be aware that monitoring equipment designed for impressed current CP-systems are not always compatible with galvanic CP-systems based on zinc sacrificial anodes.

Before installation it is required to observe the instructions mentioned in the Material Safety Data Sheets (MSDS).

Procedure

1. Check accessibility of the construction and take precautions if necessary
2. Prepare the concrete surface
3. Localise the reinforcement
4. Check electric continuity of the reinforcement
5. If required, perform additional potential mapping of the reinforcement to indicate the degree and extend of expected corrosion
6. Install the Galvex discrete anodes
7. Make electric connections of the reinforcement with the anode
8. Check electric connections with a resistance meter
9. Patch the concrete

It is recommended to keep up a log-book in which all steps are described and checked. Situations which differ from the installation procedures must be indicated accurately in the log-book and checked and signed by the supervisor prior to proceed.

If certain situations are unclear regarding the proper handling of the anodes, we recommend contacting your distributor before proceeding with the installation. Each step of the installation procedure is described in detail below.

Surface preparation

Prior to install the anodes the concrete should be prepared in the following manner (*please check manufacturer's spec of the repair mortar*):

1. Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Be sure repair area is not less than 5cm in depth.
2. In case the depth of the repair area is less than 5cm and cannot be enlarged for proper anode installation, please check with your supplier.

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3. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of 2mm for proper mortar adhesion.

4. Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust at least there where the anodes are installed. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water after mechanical cleaning.

Localize the reinforcement (if necessary)

The best and easy way to localizing the reinforcement is by use of rebar locator, which accurately locates reinforcing bars and welded wire meshes. Some rebar locators also measures the concrete cover and determines the diameter of the bars. A list of suppliers can be forwarded by your supplier upon request.

Check electric continuity of the reinforcement

After making the right mechanical connection check the electric continuity of the reinforcement using a digital multimeter. Contact is obtained by using so called alligator clips. Switch the central knob of the multimeter to the resistance position (Ω) and measure the resistance. The criterion for continuity is less than 1 Ω (DC-) resistance. If required, perform additional potential mapping

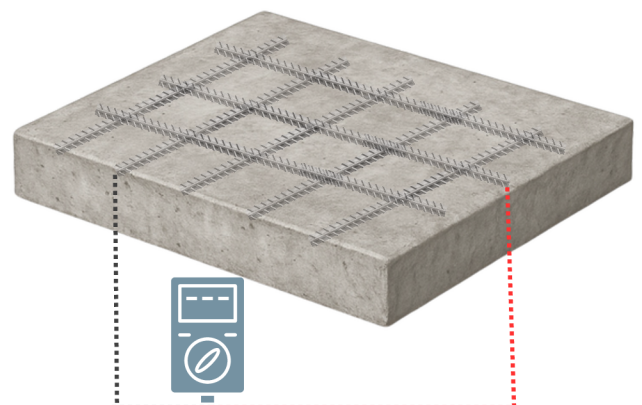
Additional potential mapping (if required)

If required, perform additional potential mapping of the reinforcement to indicate the degree and extend of expected corrosion. If a selective approach is desired due to economic reasons potential mapping of all concrete elements involved should be considered.

During mapping the values are logged as computer-tables and later on, with special software, processed as corrosion-graphics. This type of software analyses potential-values and gradients, and calculates for each measuring location the possible chance of active corrosion.

After the interpretation the results are presented as colour-cards. By using this measuring method hundreds of square meters of concrete surface per hour can be mapped and processed.

For further information about this technique and making the right interpretations, please contact your supplier.



Check electric continuity of the reinforcement

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Installing the Galvex

When the area is prepared and clean, find appropriated locations close to the bars with an anode distribution as best as possible described in the spec. If the area is smaller than a m2 place enough anodes to get similar ratio as stated above. Place and fasten the anodes securely on the steel bars so they will not move and loosen during the repair mortar application, concrete casting or shotcrete application.

Be aware of enough spacing between the anode and the existing concrete. In that way the repair mortar or concrete can easily force its way around the anode and create a good adherence with the pre-applied geopolymer encasement for sound electrolytic continuity between the anode and the concrete structure.

Connect anode to reinforcement

Durable connections with the reinforcement can be realised in many different ways.

1. By using powder actuated or gas-driven fastening tools. Pre-drilling holes in the concrete cover will make the handling of these type of tools more accurate.
2. By welding. We can supply standard weldable groundings with M6 or M8 studs which can be directly welded onto the reinforcement with use of portable welding equipment.
3. Threaded studs could be welded also directly onto the steel reinforcement bars.

Check electric connections with a resistance meter

Each electric connection of the anode with the rebar is checked in a similar way as described in above.

Instead of making the contact with alligator clips directly on the connections, it could be checked by making contact directly with the current distributor bar of the anode and the reinforcement.



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Patch the concrete

Use of CP approved mortars.

Be aware that the mortar needs to make good contact with the anode all the way around and between the anode and the rebar.

Monitoring

If required reference electrodes (RE) which are suitable for concrete are applied for monitoring purposes. Reference electrodes can be supplied together with the anodes upon request. For proper data storage and data interpretations contact your supplier or refer the international standard EN/ISO12696.



All technical data stated in this Technical Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control. 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.

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