

INSTALLATION GUIDELINES

Galvex GX 60 & GX 100 Patch Anode

Hybrid zinc sacrificial anodes for corrosion control of steel reinforcement in concrete



Installation procedures

The Galvex Hybrid is a compact zinc anode embedded in an ionically conductive, self-moistening paste and a conductive geopolymer mortar for the cathodic protection of reinforced concrete structures.

It is supplied ready for immediate installation.

System monitoring can be performed in accordance with international standard EN ISO 12696. Monitoring equipment can be supplied by your distributor together with the anodes upon request. Be aware that monitoring equipment designed for an impressed current CP system is not always compatible with a CP system based on galvanic anodes, particularly when current densities are monitored.

Procedure

1. Check access to the structure and take the necessary precautions
2. Prepare the concrete surface
3. Locate the reinforcement
4. Check the electrical continuity of the reinforcement (*Not necessary for patch anodes*)
5. If required, perform additional potential mapping of the reinforcement to indicate the degree and extent of expected corrosion
6. Install the Galvex Hybrid discrete anodes
7. Make electrical connections between the reinforcement and the anode
8. Check the electrical connections using a resistance meter
9. Patch the concrete
10. Check the polarisation of the reinforcement using reference electrodes

It is recommended to keep a logbook in which all steps are recorded and checked. Any deviations from the installation procedures must be accurately recorded in the logbook and checked and signed by the supervisor before proceeding.

If any situation is 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 installing the anodes, the concrete should be prepared as follows (*please check manufacturer's spec of the repair mortar*):

1. Remove all deteriorated concrete, dirt, oil, grease and other bond-inhibiting materials from the surface.
2. If the depth of the repair area is less than 1.5 cm and cannot be increased to allow proper anode installation, please contact your supplier.

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3. Preparation should be carried out using high-pressure water blasting, a scabblor or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of 2 mm for proper mortar adhesion.

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

Locate the reinforcement (if necessary)

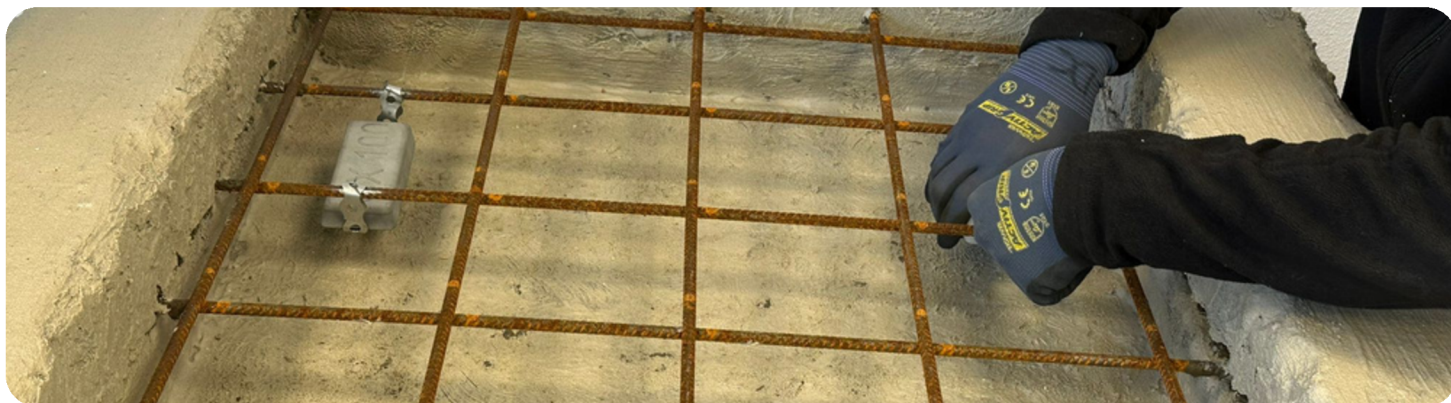
The best and easiest way to locate the reinforcement is by using a rebar locator, which accurately locates reinforcing bars and welded wire meshes. Some rebar locators also measure the concrete cover and determine the diameter of the bars. A list of suitable suppliers can be provided upon request.

Additional potential mapping (if required)

If a selective approach is desired for economic reasons, potential mapping of all concrete elements involved should be considered.

During mapping, the values are logged in computer tables and later processed using specialised software as corrosion graphics. This type of software analyses potential values and gradients and calculates the likelihood of active corrosion at each measurement location. After interpretation, the results are presented as colour maps. By using this measuring method hundreds of square metres of concrete surface per hour can be mapped and processed.

For further information about this technique and making the right interpretations, please contact us or your local distributor.



Install the Galvex Hybrid Anode

Place and fasten the anodes securely to the steel bars so that they cannot move or become loose during repair mortar application or concrete casting. Ensure sufficient spacing between the anode and the existing concrete. This allows the repair mortar or concrete to flow around the anode and ensures good adhesion to the paste, providing sound electrolytic continuity between the anode and the concrete structure.

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Connect the anode to the reinforcement

Durable connections to the reinforcement can be achieved in various ways.

The preferred method is welding, as it ensures a long-lasting and reliable bond. It is essential that the connection to the rebar is made properly, since the connection must remain effective for the entire design life.

Check electrical connections with a resistance meter

Each electrical connection between the anode and the rebar should be checked as described below.

After making the connection, check its electrical resistance using a digital multimeter. Set the multimeter to the resistance setting (Ω) and measure the resistance. The criterion is a resistance of less than 1 Ω (DC).

Instead of measuring directly at the connection strip, the measurement can be taken between the anode current distributor bar and the reinforcement.



Patch the concrete

Use non-shrink, fibre-reinforced and CP-approved repair mortars (CorroFix RM) according to EN/ISO12696.

Before applying the mortar, saturate the concrete surface with clean water. The substrate should be saturated but surface-dry, with no standing water. Ensure that the mortar makes good contact with the anode on all sides and fills the space between the anode and the rebar.

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Measure polarisation

If required, reference electrodes (REs) suitable for use in concrete can be installed for monitoring purposes. Reference electrodes can be supplied together with the anodes upon request. For proper data storage and interpretation, contact our distributor or refer to international standard EN ISO 12696.



Pitfalls

Improper connections

This is the most critical aspect of your CP or anode system. If the connections are not made correctly, they may deteriorate over time, causing the anode to stop functioning and the structure to lose its protection.

Proper embedding

The Galvex Hybrid anode must be fully embedded in mortar to ensure good electrolytic contact with the surrounding concrete. If this step is not performed correctly, the anode may not operate at its full potential.

All technical data stated in these Installation Guidelines 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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