

PRODUCT DATA SHEET

Sika® FerroGard®-360 Duo

MULTIFUNCTIONAL HYBRID ANODE FOR CORROSION MITIGATION AND PREVENTION

DESCRIPTION

Sika® FerroGard®-360 Duo is a zinc based multifunctional, discrete sacrificial anode for reinforced or prestressed concrete structures which are corroding as a result of carbonation or chloride ingress.

Sika® FerroGard®-360 Duo is a dual technology anode combining 'Impressed Current' and 'Galvanic' cathodic protection systems.

This anode can be used in place of the standard Sika® FerroGard® Duo anodes (-310 Duo, 315 Duo, etc...) in thin structures which do not have enough thickness for the application of the standard hybrid anodes and/or areas of congested reinforcement. May also be used in existing contaminated reinforced concrete that requires an increase in section thickness using a new layer of reinforced concrete.

The complete anode component consists of a cylindrical zinc core encased in an activating mortar. In existing sound contaminated concrete, Sika® FerroGard®-360 Duo works in 2 phases:

1st phase- an impressed current is driven from the Sika® FerroGard®-360 Duo anode to the reinforcement using a temporary power supply. During this stage, the reinforcement's passive film is strengthened and aggressive ions are drawn towards the anode.

2nd phase - at the end of the 1st phase the power is removed. The anode then acts as a long term sacrificial anode preventing further corrosion.

In combined new and existing concrete, Sika® FerroGard®-360 Duo is connected to both existing and new reinforcement and works in 2 phases in the same way as for existing concrete.

USES

Sika® FerroGard®-360 Duo may only be used by experienced professionals.

- Targeted or global protection of reinforced structures suffering damage induced by chloride and/or carbonation
- For reinforced and pre-stressed concrete structures

(thin sections and/or congested reinforcement) such as bridges, car parks, coastal structures, industrial structures and residential high rise

- Whenever there is the need to provide protection to reinforcement for combined structures (existing & new)

CHARACTERISTICS / ADVANTAGES

- Multifunctional
- No long term power supply needed
- A variety of sizes to suit the structure
- Initially delivers an impressed current using a temporary power supply
- Creates a passive environment during the impressed current activation, draws the aggressive ions to the anodes and the passive film is strengthened around the reinforcement
- Acts as sacrificial anode without the requirement for an external power supply at the end of the impressed current phase
- No long term maintenance
- Further passivating charge can be applied if required if anodes were installed using the hybrid technology
- Minimal long term costs
- Performance can be monitored
- Cost effective long term durable corrosion control solution
- No risk of hydrogen embrittlement (design dependent)

PRODUCT INFORMATION

Composition	Zinc compound inner core encased in an activating mortar
Packaging	30 units per box.
Appearance / Colour	Cylindrical shaped mortar with integrated titanium connecting wire
Shelf life	5 years from the date of production
Storage conditions	Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between -5°C and +30°C. Always refer to packaging. Do not allow contact with oxidizing materials.
Length	190 mm
Diameter	32 mm
Zinc Weight	270 g

TECHNICAL INFORMATION

Charge Capacity	> 125 to 900 kC* * Dependent on local conditions, including chloride concentration, concrete properties, humidity and temperature.
-----------------	---

SYSTEMS

System Structure Other multifunctional anode sizes are available with different zinc content and dimensions:

Name	Zinc content
Sika® FerroGard®-350 Duo	120 g
Sika® FerroGard®-355 Duo	180 g
Sika® FerroGard®-365 Duo	370 g

Other standard hybrid anodes are available with different zinc content and dimensions:

Name	Zinc content
Sika® FerroGard®-310 Duo	65 g
Sika® FerroGard®-315 Duo	120 g
Sika® FerroGard®-320 Duo	180 g
Sika® FerroGard®-325 Duo	270 g
Sika® FerroGard®-330 Duo	370 g

APPLICATION INFORMATION

Ambient Air Temperature	+5 °C min.
Substrate Temperature	+5 °C min.

APPLICATION INSTRUCTIONS

APPLICATION

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

Reference must also be made to the full Sika® Method Statement: Sika® FerroGard®-300s Duo Hybrid Galvanic Anodes For Slim Structures.

Sika® FerroGard®-360 Duo anodes are installed following guidelines in EN 12696:2012 and CEN/TS 14038-2:2010(E).

The anodes are typically positioned adjacent to the reinforcement at a density of 4-9/m² of surface concrete. Spacing between anodes is dependent on chloride contamination and steel density - refer to the spacing table in the relevant Sika® Method Statement.

Corrosion protection/prevention in existing sound contaminated structures

Summary:

1. According to the site drawings, mark the location of the anodes for a given zone.
2. Saw cut a groove connecting the anodes together.
3. At the designed location, adjacent to a reinforcement bar, saw cut a groove according to the size of the anode type (refer to the Sika® Method Statement) ensuring the reinforcing steel is not damaged.
4. Attach the anodes to the reinforcing bar using 2 plastic cable ties.
5. Each individual Sika® FerroGard®-360 Duo anode is electrically connected to a titanium feeder wire which runs to the temporary power supply for the impressed current phase of the treatment.
6. After 1-2 weeks the feeder wire is removed from the power supply and connected to the reinforcement steel. The system is now operating in galvanic mode, maintaining the steel in a passive environment.

Corrosion protection/prevention in combined existing and new concrete

Follow the previous procedure and ensure the network of hybrid anodes are connected to the existing and new reinforcement.

FURTHER INFORMATION

Sika® FerroGard®-300s Duo Hybrid Galvanic Anodes For Slim Structures

IMPORTANT CONSIDERATIONS

In order that suitable current flow and longevity can be achieved from Sika® FerroGard®-360 Duo anodes, certain practical considerations must be taken into ac-

count.

- When used in existing concrete, the patch repair material cover for the Sika® FerroGard®-360 Duo unit must be a minimum depth of 20 mm.
- Any discontinuous steel must be either electrically bonded or electrically isolated from the system negative.
- Any cracks or delamination in the concrete which affect ionic current flow will affect performance of the Sika® FerroGard®-360 Duo anodes and must be treated before installation.
- During installation, electrical shorts between the anodes and other metal components must be avoided.
- The time to achieve passivity will be dependent on site conditions.
- Depolarisation of treated steel will be slower in moist conditions.
- Design of the galvanic protection system must be undertaken by an experience qualified corrosion engineer.
- Installation must be carried out in accordance with engineers design and specification.

BASIS OF PRODUCT DATA

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

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

ECOLOGY, HEALTH AND SAFETY

REGULATION (EC) NO 1907/2006 - REACH

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in this product data sheet.

Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w)

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Sika Italia S.p.A.

Via Luigi Einaudi, 6
20068 Peschiera Borromeo (MI)
Phone: +39 02 54778 111
Fax: +39 02 54778 119
info@sika.it
www.sika.it

Product Data Sheet

Sika® FerroGard®-360 Duo
November 2019, Version 01.01
020303090010000030

SikaFerroGard-360Duo-en-IT-(11-2019)-1-1.pdf

