Vector®

Galvashield® Fusion™ T2

Self-Powered Dual Phase Hybrid Anode Series

Description

Galvashield Fusion T2 is a second generation hybrid anode system used to control corrosion in reinforced concrete structures. Galvashield Fusion T2 is a Type 2 anode for embedment within drilled holes in sound concrete.

Galvashield Fusion T2 combines the high level performance of an impressed current electrochemical treatment system with the long-term maintenance-free capabilities of an alkali-activated galvanic cathodic prevention system. The single-unit system does not require complex wiring or an external DC power supply (temporary or permanent).

When installed, the inbuilt impressed current component provides an initial phase of high charge density that passivates active corrosion (Phase 1). Then, the anode automatically switches to a cathodic prevention phase, which maintains steel passivity and provides long-term, maintenance-free corrosion protection (Phase 2).

The anode spacing and parameters of pre-treatment are customised by Vector Corrosion Technologies based upon the specific condition of the structure and are in conformance with the principals of ISO BS EN 12696:2016.

Applications

- Multi-story Carparks
- Bridge Decks, Columns & Beams
- Marine Piers and Wharfs
- Balconies

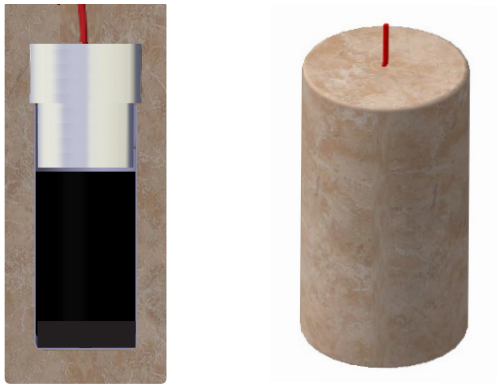
Features and Benefits

- **Proven Technology** - ICCP electrochemical treatment and alkali-activated galvanic anode technologies fused together into a single unit.
- **Simple Installation** - Galvashield Fusion T2 is a single unit hybrid system with no external power requirements.
- **Fit & Forget** - Galvashield Fusion T2 operates automatically once installed, reducing access requirements and therefore time and cost.
- **Long Lasting** - Provides corrosion protection for up to 30+ years without the need for maintenance.* Phase 1 can be designed to be repeated at any time if desired.
- **Measurable Performance** - While not critical for the long term operation of the system, the site performance can be measured and validated if required.

Specification

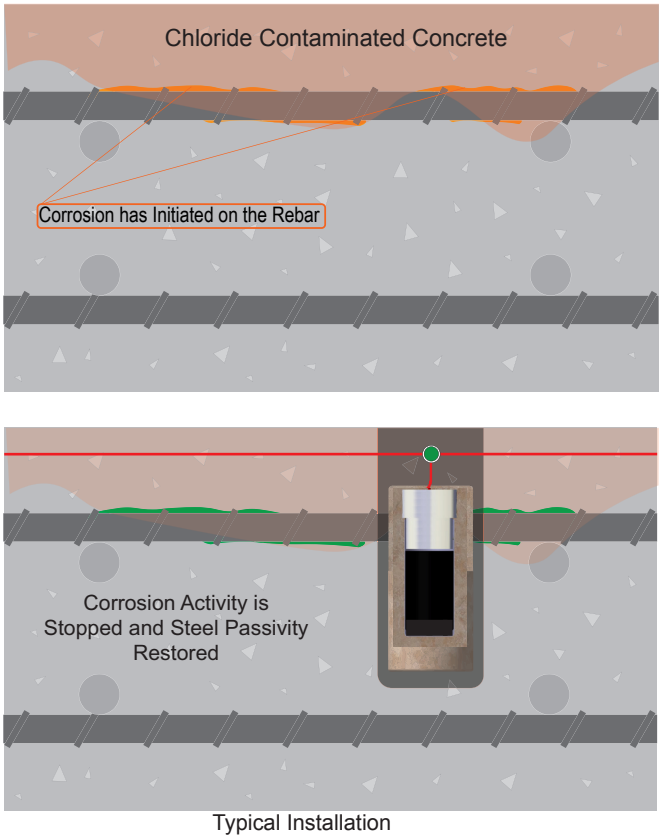
Embedded anodes shall be Galvashield Fusion T2 anodes as designed by Vector Corrosion Technologies. The dual phase anode shall be pre-manufactured and shall include a self-powered ICCP anode and an alkali-activated galvanic anode in a single unit. The galvanic anode shall have a zinc core in compliance with ASTM B418 Type II and be encased in an activated cementitious mortar with pH of 14 or greater. The anode unit shall contain no intentionally added chloride, bromide, sulphate or other constituents that are corrosive to reinforcing steel as per ACI document 222R.

**As with all galvanic protection systems, service life is dependent upon a number of factors including reinforcing steel density, concrete conductivity, chloride concentration, humidity and anode spacing.*



Cut-away of Galvashield Fusion T2

Level of Protection	Description	Galvashield® Fusion T2
Corrosion Prevention	Mitigates initiation of new corrosion activity	•
Corrosion Control	Reduces on-going corrosion activity	•
Cathodic Protection	Reduce or eliminate on-going corrosion activity	•



Typical Installation

Vector®
Galvashield® Fusion™ T2

Summary Installation Procedure

Galvashield Fusion T2 anodes shall be installed on a grid pattern as specified in the design document. Using a rebar locator, locate existing steel and mark areas to drill anode installation holes to avoid cutting steel. When possible, anodes should be installed in the centre of a reinforcing grid or a minimum of 100 mm away from steel. Verify continuity of steel with a multi-meter.

Drill holes as per the design to accommodate the anodes. Pre-wet the holes and the anodes to a saturated surface dry condition, then install with Galvashield Embedding Mortar. Mix one 20 kg bag of mortar with 3.2 to 3.7 litres of potable water. Add the powder to the water and mix with a drum or paddle mixer until a smooth consistency is achieved. Do not use partial bags.

Place the mixed embedding mortar into the bottom 2⁄3 of each hole and slowly press the anode into the mortar, allowing the mortar to fill the annular space ensuring there are no air voids between the anode and the parent concrete. The minimum cover depth over the anodes shall be 20 mm.

Anodes may be individually connected to the steel reinforcement or may be connected in a circuit as per the design. Saw cut a groove approximately 5 mm wide by 12 mm deep into the concrete to interconnect the rebar connection holes and anode holes.

Connect the anodes to the interconnecting header wire with the supplied connectors (wire and connectors are available as the Vector Anode Connection Kit). Verify continuity between anode locations and rebar connections with a multi-meter. Connect each end of the circuit to the steel at the rebar connection points.

Place wires into grooves and top off anode holes and saw cuts flush to the concrete surface with embedding mortar. Embedding mortar should be wet cured or cured with a curing compound and protected from traffic for 24 hours.

Precautions

Galvashield Fusion T2 anodes are not intended to address or repair structural damage. Where structural damage exists, consult a structural engineer. Any discontinuous steel should be either electrically connected or isolated. Complete concrete repairs prior to the installation of Galvashield Fusion T2 anodes.

Storage

Store in dry conditions in the original unopened box. Avoid extremes of temperatures and humidity.

Health & Safety

As with all cement-based materials, contact with moisture can release alkalis which may be harmful to exposed skin. Galvashield Fusion T2 and Galvashield Embedding Mortar should be handled with suitable gloves and other personal protective equipment in accordance with standard procedures for handling cementitious materials. Dispose of excess material as per local requirements. Additional safety information is included in the Safety Data Sheet.

Unit Dimensions

Unit	Description	Unit Size diameter x length	Minimum Hole Size diameter x depth
Galvashield Fusion T2-100	2nd Generation Hybrid System	46 x 100 mm	50 x 130 mm
Galvashield Fusion T2-135	2nd Generation Hybrid System	29 x 135 mm	32 x 165 mm
Galvashield Fusion T2-C	2nd Generation Hybrid System	Custom	Custom

Packaging

Galvashield Fusion T2 anodes	20 units per box, weight varies.
Galvashield Embedding Mortar	20 kg bags one bag per 40-80 units
Vector Rebar Connection Kit	Contains 20 steel connections and 20 anode connectors per kit. Innovative design allows for quick rebar connections to be made.
Vector Anode Connection Kit	Contains 14m insulated cable, 23 anode connectors, and 5 steel connections per kit. For use when Galvashield anodes are installed in series.
Vector Setting Tool	1 unit per box

About Vector

Vector Corrosion Technologies takes pride in offering technically advanced, cost effective corrosion protection solutions to extend the service life and improve the durability of concrete and masonry structures around the world. Vector has earned numerous project awards and patents for product innovation and is committed to a safe, healthy and sustainable environment. For additional information or technical support, please contact any Vector office or our extensive network of international distributors, details of which can be found on our website.

3051-2017Oct02 UK

Vector Corrosion Technologies Ltd. 474B Dovercourt Drive, Winnipeg, MB R3Y 1G4
Vector Corrosion Technologies Limited 27a Upper High Street, Cradley Heath, UK B64 5HX
Vector Corrosion Technologies, Inc. 8413 Laurel Fair Circle, 200A, Tampa, FL, USA 33610

VECTOR CORROSION TECHNOLOGIES

CAN: Phone: (204) 489-9611 Fax: (204) 489-9633
USA: Phone: (813) 830-7566 Fax: (813) 830-7565
Email: info@vector-corrosion.com
UK: Phone: +44 (0)1384 671400
Email: info@vector-corrosion.eu