

## Vector®

### Galvashield® XP Compact

#### Type 1A Embedded Galvanic Anode Units with One-and-Done™ Connection

#### Description

Designed with the contractor in mind, Galvashield XP Compact is the most user friendly and economical anode on the market. The prevailing feature of Galvashield XP Compact is the unique "One-and-Done" connection method that cuts installation time by more than half.

Galvashield XP Compact galvanic anodes set a new standard for simplicity without sacrificing anode performance. Galvashield XP Compact anode units utilize an innovative zinc anode core design surrounded by an enhanced formulated cement-based mortar to provide corrosion mitigation to reinforced concrete structures. The anode units are alkali-activated (Type 1A) with an internal pH of 14 or greater to keep the zinc active over the life of the anode while being non-corrosive to reinforcing steel. Once installed, the zinc anode corrodes preferentially to the adjacent reinforcing steel, thereby providing galvanic corrosion prevention.

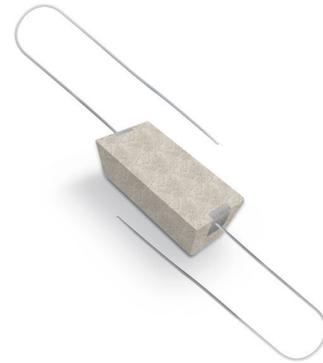
#### Applications

- Mitigates incipient anode formation (halo effect / ring anode)
- Partial depth and full depth concrete repairs
- Bridge widening and other structure modifications
- Slab replacements, expansion joint repairs and other interfaces between new and existing concrete
- Repair of prestressed and post-tensioned concrete
- Chloride contaminated or carbonated concrete
- Repair of structures with epoxy-coated rebar

#### Features and Benefits

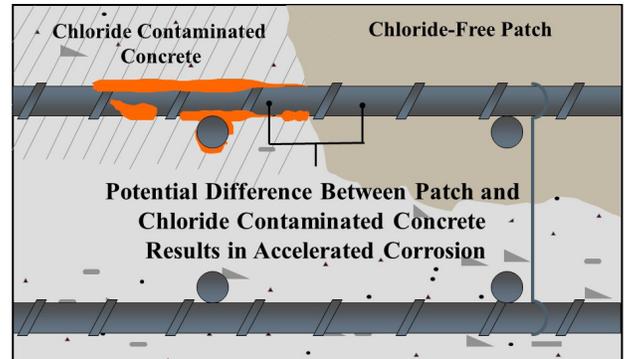
- **Single, integral steel wire connection** – saves labor with fast installation, provides dependable steel-to-steel contact with no intermediate materials such as galvanizing (which can corrode over time) and compromise the long-term electrical connection.
- **Low profile design** – perfect for structures with low concrete cover, congested steel or to minimize concrete removal.
- **Alkali-activated** – Galvashield technology maintains activity of zinc while being non-corrosive to reinforcing steel. Over 15 year track record with successful installations around the world.
- **Cast zinc core** – provides a secure long-term electrical connection between the zinc and the lead wires.
- **Meets ACI 562-13** – does not contain intentionally added chloride, bromide, or other constituents that are corrosive to reinforcing steel (Section 8.4.1)
- **High surface area to mass ratio** – allows for compact anode design without sacrificing anode current output.
- **Discrete anode** – allows for targeted protection at areas of high corrosion risk.
- **Versatile** - can be used for both conventionally reinforced and prestressed or post-tensioned concrete.
- **Low maintenance** - requires no external power source or system monitoring.
- **Long lasting** - 7 to 20 year service life\* reduces the need for future repairs.

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

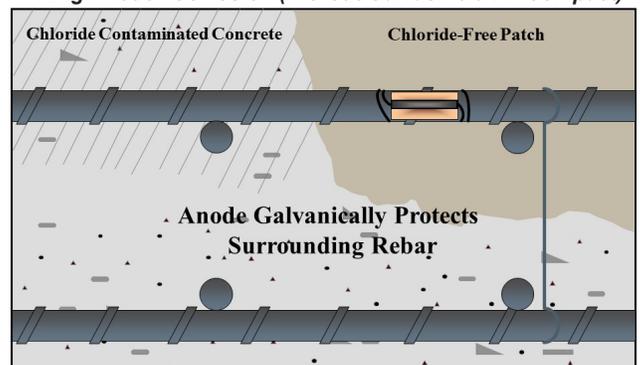


*Galvashield XP Compact*

Level of Protection	Description	XP Compact
Corrosion Prevention	Mitigates initiation of new corrosion activity	•
Corrosion Control	Reduces on-going corrosion activity	
Cathodic Protection	Reduce or eliminate on-going corrosion activity	



*"Ring Anode" Corrosion (without Galvashield XP Compact)*



*Galvashield XP Compact prevents "Ring Anode" Corrosion*

# Vector®

## Galvashield® XP Compact

### Specification Clause

Embedded galvanic anodes shall be pre-manufactured with nominal 40 grams of zinc in compliance with ASTM B418 Type II cast around a single uncoated, non-galvanized steel tie wire, which extends from the anode in two locations, and encased in a highly alkaline cementitious shell with a pH of 14 or greater. The anode unit shall contain no intentionally added chloride, bromide or other constituents that are corrosive to reinforcing steel (refer to ACI 562-13, Section 8.4.1).

Anode units shall be supplied with an integral unspliced wire for tying to the reinforcing steel. Anodes shall be connected the reinforcing by wrapping the wires around the steel and then twisting them together to secure the anode in place and provide a reliable electrical connection to the steel.

### How It Works

When two dissimilar metals are coupled together in an electrolyte (in this case concrete), the metal with the higher potential for corrosion (zinc) will corrode in preference to the more noble metal (reinforcing steel). Galvashield XP Compact anodes are embedded in concrete repairs to provide corrosion prevention or corrosion control to the reinforcing steel in the adjacent area.

### Product Anode Details

Anode Name	Anode Type	Nominal Dimension (mm/in.)	Zinc Mass (g)
Galvashield XP Compact	1AP	31 x 25 x 64 mm (1.2 x 1.0 x 2.5 in.)	40

### Anode Type and Class

- 1 - Embedded in Repairs
- 2 - Embedded in Sound Concrete
- A - Alkali-activated using High pH
- H - Halide-activated using Corrosive Salts
- P - Corrosion Prevention
- C - Corrosion Control

### Installation Instructions

Concrete removal shall be performed in accordance with ICRI Guideline R310.1R. Completely remove concrete and all residual mortar from the full circumference of all corroding rebar to expose clean steel.

The anode units and repair material should be installed immediately following preparation and cleaning of the steel reinforcement. The location and spacing of the units shall be as specified by the designer (refer to design criteria). To achieve maximum performance, use one anode on each exposed bar at the interface between new and existing concrete. The units can be placed around the perimeter of the repair or on a grid pattern to protect a second mat of steel if required.

Securely fasten the anode units from the side or beneath the exposed rebar as close as practical to the surrounding concrete [preferably within 4 in. (100 mm)] while ensuring that enough

space remains to fully encapsulate the unit in the repair. Wrap each end of the tie wire around the clean reinforcing steel at least one full turn. Bring the two free ends together and twist tight for secure connection. The minimum cover of the repair material over the units should be ¾ in. (20 mm).

Anode-to-steel continuity and steel-to-steel continuity within the patch should be verified with an appropriate meter; discontinuous steel should be tied to continuous bars using steel tie wire and re-tested. A value between 0 and 1 ohm should be achieved.

### Repair Materials

For optimum performance, use a repair material with resistivity less than 15,000 ohm-cm. If a higher resistivity repair material is to be used or if the resistivity of the material is unknown, pack Galvashield Embedding Mortar between the anode unit and the substrate to provide an ionically conductive path to the substrate. Prior to placing the repair material, pre-wet the concrete substrate and the anode units to achieve a saturated surface dry condition, then complete the repair. Do not soak the anode units for greater than 20 minutes.

### Precautions

Galvashield XP Compact anodes are intended to provide targeted corrosion mitigation and do not address or repair structural or concrete damage. Where structural damage exists, consult a structural engineer. To control corrosion in a broad area, install units on a grid pattern within the repair or in sound concrete. Consult Vector for further product recommendations.

### Packaging

Galvashield® XP Compact	50 units per box	15 lbs (6.8 kg)
Galvashield Embedding Mortar		11 lb. (5 kg) bag

### Storage

Store in dry conditions in the original unopened box. Avoid extremes of temperature and humidity. Units should be installed within 2 years.

### Health and Safety

As with all cement-based materials, contact with moisture can release alkalis which may be harmful to exposed skin. Galvashield anode units and Galvashield Embedding Mortar should be handled with suitable gloves and other personal protective equipment in accordance with standard procedures for handling cementitious materials. Additional safety information is included in the Material Safety Data Sheet.

### 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.

# Vector®

## Galvashield® XP Compact

### Galvashield XP Compact

#### Corrosion Prevention Spacing\*\*

Steel Density Ratio	Low to Moderate Risk (Less than 0.8% Cl / Carbonated)		High Corrosion Risk (0.8 to 1.5% Cl)	
	mm	in.	mm	in.
<0.3	750	30	600	24
0.31 - 0.6	600	24	500	20
0.61 - 0.9	500	20	400	16
0.91 - 1.2	450	18	350	14
1.21 - 1.5	400	16	250	10
1.51 - 1.8	350	14	200	8
1.81 - 2.1	300	12	175	7

\*\*Maximum grid dimensions are based on typical conditions. Spacing should be reduced as appropriate for severe environments or to extend the expected service life of the anode. To achieve maximum protection, use one anode per reinforcing bar where the bar enters the repair area.

**For extremely high corrosion risk applications (> 1.5% Chloride), contact Vector for assistance.**

Note: Chloride content is based on percent by weight of cement.

1059-2015.Jul131