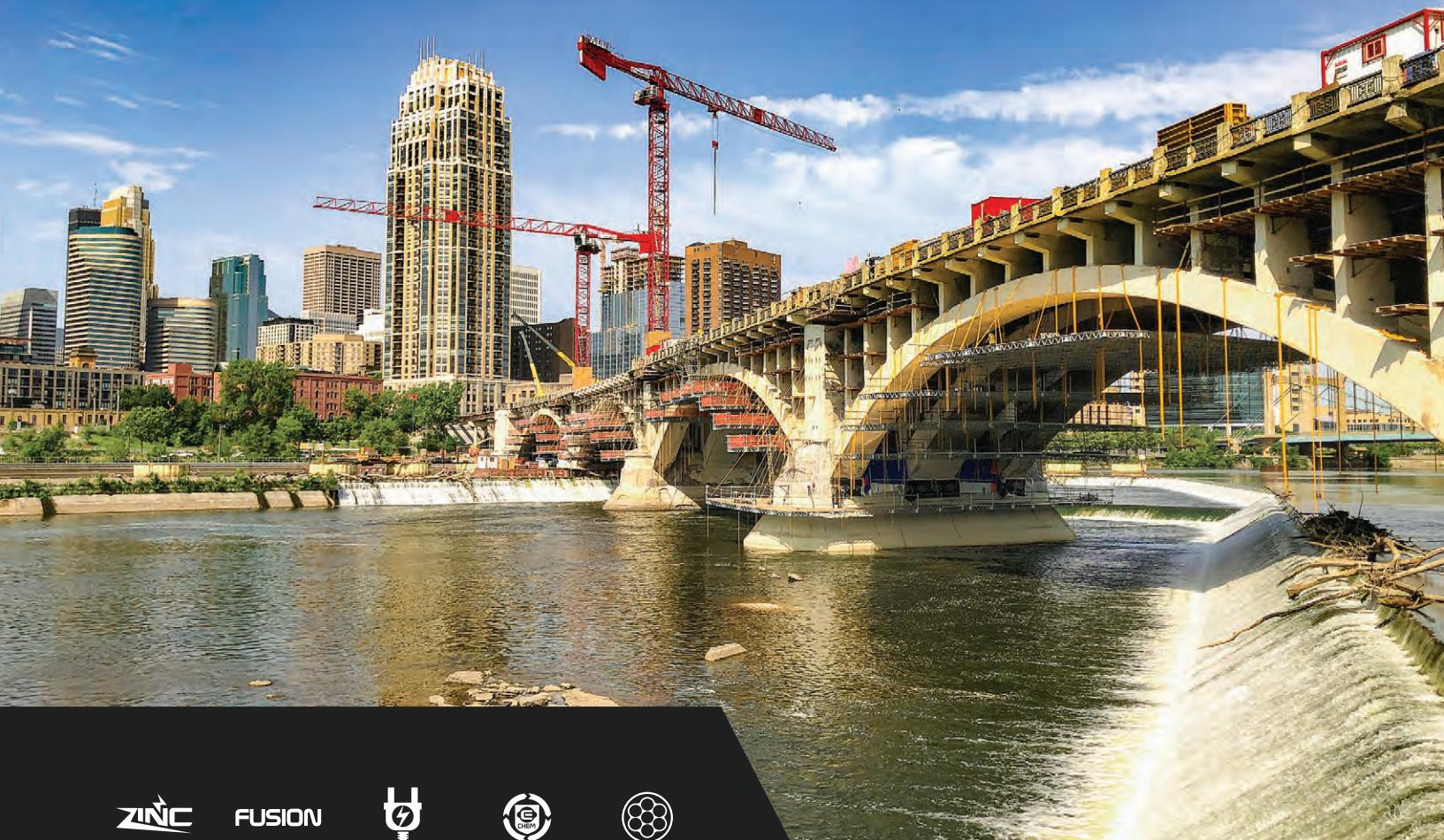




# Corrosion Control Technologies

Unlock the Power of Corrosion Control with Our Complete Range of Technologies



FUSION



**We Save Structures™**

[Vector-Corrosion.com](http://Vector-Corrosion.com)



Galvanic systems provide protection to reinforcing steel through the use of sacrificial anodes.

# Discrete Galvanic Anodes

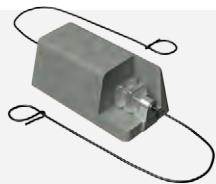
No monitoring required

Low maintenance

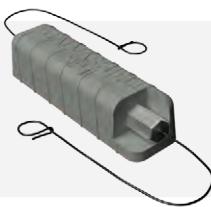
Wide range of anode systems

## Patch Accelerated Corrosion

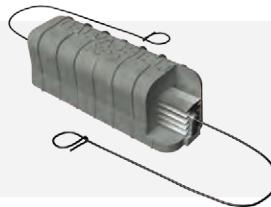
Type 1A embedded anodes are alkali-activated and typically used around the edge of concrete repairs to prevent incipient anode formation (halo effect).



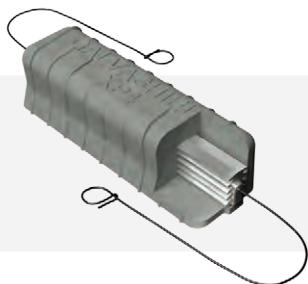
Galvashield® XP Compact



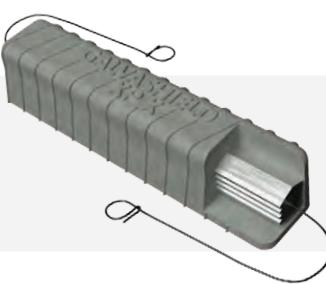
Galvashield® XPT



Galvashield® XP2



Galvashield® XP4



Galvashield® XPX



CHLORIDE CONTAMINATED CONCRETE

CHLORIDE-FREE REPAIR

POTENTIAL DIFFERENCE BETWEEN REPAIR AND CHLORIDE CONTAMINATED CONCRETE RESULTS IN ACCELERATED CORROSION

## What is the Halo Effect?

When a concrete repair is completed, fresh high pH concrete is placed in the repair area. The chemical makeup of the new concrete differs from that of the surrounding concrete, creating a differential of activity between them. Since reinforcement passes through both of these environments, a corrosion cell forms due to the electrochemical imbalance across the steel.

The large difference in corrosion potential (voltage) combined with the short distance between anode and cathode, leads to accelerated corrosion in areas near the repair, resulting in a “halo” of spalling around the perimeter of the repair.

## General Protection

Type 2A discrete galvanic anodes are installed into drilled holes for general protection or for targeting specific corrosion hotspots.



Galvashield® CC2

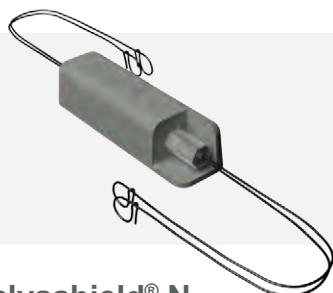
Galvashield® CC4

Galvashield® CCX



## New Construction

Galvanic anodes can be used in new concrete construction for global protection or to target problem areas such as construction joints.



Galvashield® N

- ➡ Alkali-activated corrosion prevention anode
- ➡ Extra-long tie wires to position anode in center of reinforcing grid

Each variant in these product lines is optimized to prevent or control corrosion in a range of conditions found in reinforced structures. These conditions include:

**Steel Density:** High density of steel reinforcement requires more powerful and larger anodes.

**Corrosion Risk:** Areas with high chloride levels require more protection than areas with low chlorides or carbonation.

**Environmental Temperatures:** An increase of 10-15°C can double the corrosion rate and should be accounted for in the design and anode selection.

### Embedded Anode Nomenclature

#### Type 1

Connected to exposed reinforcing in concrete repairs, joints or between new and old concrete.

#### Type 2

Installed into holes drilled in sound concrete to provide proactive protection in areas at high risk of corrosion.

#### Class A

Zinc activated by alkaline mortar pH 14+

#### Class H

Zinc activated by halide salts such as chloride or bromide



Galvanic systems provide protection to reinforcing steel through the use of sacrificial anodes.

# Distributed Galvanic Anodes



## Embedded Anodes

Common applications for embedded distributed anodes are large area repairs, overlays, or encasements such as concrete jacketing.



**Galvashield® DAS**

- Long alkali-activated anodes
- Custom-designed for the application



**Galvashield® DAS-X**

- For protection in extreme environments

## Surface Applied Anodes

Galvanic anodes can be placed onto the surface of the structure and connected to the embedded reinforcing steel.

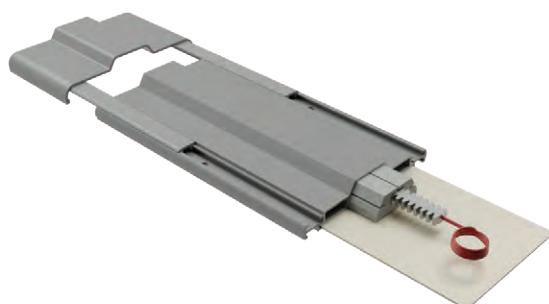
**Galvanode® ASZ+**

- Metalized zinc anode
- Humectant activator for higher current and improved bond



**Galvashield® SM-DAS**

- Innovative design for fast installation
- Easily replaceable in the future



## Jacketing

Galvanic jackets are used for piles, abutments, walls and columns on marine and non-marine structures and include anodes and stay-in-place form work.



### Galvashield® Tidal Jacket

- ➔ Zinc mesh anode inside FRP forms with optional bulk anode
- ➔ Saltwater tidal zone protection



### Galvashield® DAS Jacket

- ➔ Alkali-activated anodes, FRP or PVC forms with optional bulk anode
- ➔ Complete protection of marine and non-marine piles and columns

### Galvashield® Tidal Plus Jacket

- ➔ Zinc anode strips inside wicking fabric, FRP or PVC forms with optional bulk anode
- ➔ Saltwater tidal and transitional zone protection



### Silver Bullet® Al Bulk Anode



The Silver Bullet Aluminum Bulk Anode is a cost-effective solution when protection is required for submerged pile sections and has been specifically designed for use with Vector's Galvashield® Jacket Systems. The 25 lb. (11.3 kg) mil-spec aluminum alloy will provide over 20 years of protection to most concrete and steel piles without contributing to marine life zinc toxicity.

Combine the benefits of an electrochemical treatment and galvanic protection in a single anode unit.

# Fusion Anodes

Two-stage, long-term protection

Inbuilt power supply passivates active corrosion

Passivity is maintained with galvanic cathodic prevention

Powered galvanic technology that combines Stage 1 impressed current (passivation) and Stage 2 galvanic anode (maintenance) into a single unit.



## Galvashield® Fusion® T2 Standard

- ➡ Type 2 corrosion passivation and cathodic prevention anode unit
- ➡ Custom-designed solution for global or targeted protection



## Galvashield® Fusion® T2 Slim

- ➡ Smaller diameter for faster installation
- ➡ Lower steel densities



## Global vs Targeted Protection

### Global

Protect the entire structure or large structural elements

### Targeted

Only protect areas of active corrosion or high corrosion risk

Impressed current cathodic protection systems provide protection through externally powered anodes.

# Impressed Current Anodes

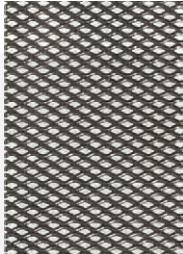


Impressed current cathodic protection systems use an external power supply and deliver a high level of protection.

High level of protection

Long life system

System monitoring and maintenance is necessary



## Elgard® & Lida® Titanium Mixed Metal Oxide Anodes

- ▶ Mixed metal oxide coated titanium anodes
- ▶ Mesh or ribbon mesh available

## Ebonex®

- ▶ Cylindrical or star-shaped discrete ceramic anodes
- ▶ High current capacity with ventilation

## DAC-Anode®

- ▶ Surface-applied ICCP anode
- ▶ Primary anode wire embedded in a conductive coating





## Technology Development

Vector continues to lead the way with major research and development activities conducted at our two laboratories.

Vector's UK-based laboratory performs fundamental research in the area of concrete corrosion and cathodic protection of concrete.

Vector's North American product development lab is the proving ground for innovations in concrete anodes and post-tension corrosion mitigation technologies.



Scan to view Vector Corrosion Technologies' technical data sheets for selecting the correct product for your structure.

## Technical Consultation

Vector works collaboratively with engineering consultants, government agencies, private owners and contractors to identify the root cause of deterioration and deliver technologically advanced, cost effective corrosion solutions. Our certified cathodic protection engineers and technicians are trained in the most advanced concrete restoration and corrosion mitigation techniques.

## International Distribution

Vector's cathodic protection technologies are available worldwide from over 30 distributors strategically placed in most major markets.

Parchem Construction Supplies is the licensed distributor of Vector products in Australia, and Concrete Plus is the licensed distributor in New Zealand.



# Vector Corrosion Technologies

[Vector-Corrosion.com](http://Vector-Corrosion.com)

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P 1300 737 787

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### New Zealand

Concrete Plus  
150 Hutt Park Road, Gracefield, Lower Hutt NZ 5010  
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