The Problem

Concrete corrosion problems occur when contamination results in a loss of steel passivity. The resulting ‘Rust’ occupies a volume much greater than the steel it consumes. This expansion leads to cracking, concrete delamination and eventual structural implications.

International estimates put the costs of corrosion to an economy at 3-5% of GDP.

What causes Corrosion?

A number of everyday contaminants can cause steel to corrode in concrete.

- Seawater & airborne salts
- De-icing chemicals
- Carbon dioxide in the atmosphere
- Cast in chlorides
- Sea dredged aggregates

Galvashield® FUSION™
Next Generation Technology

Galvashield® Fusion™ is a next-generation corrosion protection system that combines the designable performance of an ICCP system with simple maintenance-free performance and installation of a galvanic system. Through extensive innovation Vector has developed a unit which offers short term ICCP to re-passivate steel (Stage 1) and long-term cathodic prevention to maintain that state (Stage 2). This is achieved with a single unit without the need for any external power or complicated wiring. This two stage treatment is designed to the performance requirements of ISO and NACE standards.

Traditional Cathodic Protection Systems

Traditionally, Impressed Current Cathodic Protection (ICCP) has worked by utilising a small electrical current generated by an external power source to control corrosion. Due to the nature of the technology, power, monitoring and maintenance are all continuously required over its life. This often leads to systems being overlooked with time. One independent report indicates that after 15 years, there was a 50% probability that the system would not be working and would require repair. This increased to 75% at 20 years.

Galvanic Corrosion Control systems have increased in popularity over the past 20 years due to their simplicity. No external power or monitoring are required for their function. This makes them an attractive option, even though they have a finite life and their performance cannot be altered once installed.
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Next Generation Corrosion Protection System

Stage 1
A high but short term electrochemical treatment to effectively mitigate corrosion and re-passivate steel. The aim of Stage 1 is to reinstate the alkaline environment around the steel.

Stage 2
Once Stage 1 is complete the units automatically switch to a corrosion prevention system, where the galvanic current maintains steel passivity for the life of the system.

Active Corrosion

Stage 1 Electrochemical Treatment 50+ Days

Stage 2 Cathodic Prevention 30+ Years

Key Benefits

- Proven Technology
  ICCP and alkali-activated galvanic anode technologies fused together into a single unit.
- Simple Installation
  Galvashield® Fusion™ T2 anodes provide ICCP and galvanic protection with no external power requirements.
- Fit & Forget
  Galvashield® Fusion™ operates automatically once installed, reducing access requirements, time and cost.
- Long Lasting
  Provides corrosion protection for 30+ years without the need for maintenance.*
- Measureable Performance
  While not critical for the long-term operation of the system, site performance can be measured and validated if required.
- Economical
  Up to 40% reduction in installed cost when compared to other embedded galvanic systems.

*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.

Galvashield® Fusion™ T2 Anode

Alkali-activated Galvanic Anode (20 years' track record worldwide), provides Stage 2 Cathodic Prevention.

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**Vector Corrosion Services**

**VCS** provides solutions for engineers, contractors and asset managers facing corrosion and concrete durability concerns. We offer non-destructive testing & monitoring, corrosion engineering and Cathodic Protection design services for infrastructure and building assets. Our Certified Senior Cathodic Protection Engineers are experts in sustainable solutions for durable concrete structures.

Contact **Vector** today for a **free consultation** on your structure.

Vector employees are active members of the world’s leading organizations (ICorr, NACE, CPA) on corrosion science, ensuring our advice and solutions are the most current and advanced in the industry.

The process for the most effective **Corrosion Management System**

- Contact **VECTOR**
- Full **Site Survey**
- Analyze **Results**
- Determine **Corrosion Management Options**

Structure View®  
Site Monitoring

Typical **Applications**

- PARKING STRUCTURES
- BUILDINGS
- BRIDGES
- MARINE
- POWER & ENERGY

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At Vector Corrosion Technologies, concrete preservation is what we do. With the largest range of cathodic protection technologies and services to control concrete corrosion, Vector offers an innovative solution for most every budget and service life objective.

- Galvanic Systems
- Impressed Current Systems
- Fusion Systems
- Electrochemical Treatments (Re-alkalization & Chloride Extraction)
- Post-tensioned Corrosion Protection Systems

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

Trust in Vector
Vector’s cathodic protection technologies are available worldwide from over 20 distributors strategically placed in most major markets. Contact Vector or visit our website for an up-to-date list of international distributors.

#WeSaveStructures