Galvanode® DAS

Technical Data Sheet

Distributed anode for Corrosion Control and Cathodic Protection

Description

Galvanode DAS is a distributed anode system designed to provide corrosion control or cathodic protection to concrete decks, columns, beams and walls. Galvanode DAS galvanic anode system is distributed over concrete and masonry structures to provide global corrosion protection.

The quantity of zinc provided, the anode shape, electrical components and installation procedures can be customized to meet specific project requirements. Individual Galvanode DAS anode components are typically square, rectangular or circular in cross section and can be supplied in lengths of up to 2.0m. The system is quickly and easily installed to provide corrosion protection for a variety of applications. The system can be encased in new concrete, embedded in concrete overlays, encapsulated inside reinforced concrete jackets or used in conjunction with stay-in-place FRP or steel jackets for column and pile protection.

Uses

- Bridge and marine structures
- Power and industrial plant rehabilitation
- Concrete jacketing/section enlargement
- Galvanic jackets for columns and piles
- Galvanic deck overlays
- Service life extension in severe service conditions
- Conventionally reinforced and prestressed/ post tensioned concrete

Galvanic anode system on bridge pier prior to concrete placement.

How does it work?

When two dissimilar metals are coupled together in an electrolyte, the metal with the higher potential for corrosion (more electronegative) will corrode in preference to the more noble metal. In concrete applications, the Galvanode DAS zinc anode component corrodes in favor of the reinforcing steel and produces an electrical current that mitigates corrosion activity.

Advantages

- Proven technology - supported by independent test program.
- High capacity - can provide more zinc and more current output than other galvanic anode systems.
- Design flexibility - anode design and spacing can be customized to meet project performance requirements and service life objectives.
- Versatile - can be used for both conventionally reinforced and prestressed or post-tensioned concrete.
- User friendly - installation is quick and easy, requiring no specialized equipment.
- Low maintenance - requires no external power source or system monitoring.
- Measurable - system performance can be easily monitored if required.
- Embedded system - provides more uniform performance, eliminates risk of vandalism.
- Long lasting - 10 to 20 year service life* reduces the need for future repairs.

Level of Protection	Description	Galvanode DAS
Corrosion Prevention	Preventing new corrosion activity from initiating	✓
Corrosion Control	Significantly reducing on-going corrosion	✓
Cathodic Protection	Stopping active corrosion by applying on-going electrical current	✓

Galvanic anode system on bridge deck prior to placement of reinforced concrete overlay

Galvanode® DAS

Specification Clause

Galvanic protection shall be provided using Galvanode DAS anode units as manufactured by Vector Corrosion Technologies and supplied by Parchem Construction Supplies. The distributed galvanic anode units shall be alkali-activated with a pH greater than 14 and contain zinc evenly distributed along the length of the unit. Zinc shall be in compliance with ASTM B418 Type II (Z13000) and ASTM B6 Special High Grade (Z13001) with iron content less than 15 ppm. The zinc shall be formed around a steel core which is continuous along the length of the unit. The anode unit shall include FRP reinforcing to resist expansion, and shall not contain added sulfates, nor constituents that are corrosive to reinforcing steel as per ACI 222R such as chlorides, bromides, or other halides. Unless otherwise specified, the anode unit shall be supplied with a pair of integral heat-treated, uncoated steel tie wires with loop ties to make connections to the reinforcing steel.

Design Criteria

Galvanode DAS distrubuted anode system can be used for corrosion prevention, corrosion control or cathodic protection applications. Anode design and spacing are varied to meet project objectives. Anode spacing generally ranges between 150mm and 750mm on center depending upon project objectives, the severity of the service environment and expected service life of the anode components. For assistance with system advice, please contact Parchem Construction Supplies.

Typical Anode Unit Sizes*		
Anode Size	Zinc Weight	
	lb./ft.	kg/m
Small	0.25	0.37
Medium	0.60	0.89
Large	1.20	1.80

*Galvanode DAS anode unit size and lengths are customised to meet project requirements. Typical anode weights are listed above.

Installation Instructions

Galvanode DAS distributed anode system is used for a wide range of applications. Specific application procedures are developed on a project-by-project basis. For additional information, please contact Parchem Construction Supplies.

Precautions

Galvanode DAS distributed anode system is not intended to address or repair structural damage. Where structural damage exists, consult a structural engineer. Do not allow Galvanode DAS anode units to be soaked prior to installation. For optimum performance, encasement concrete, grout or repair mortar resistivity should be less than 15,000 ohm-cm. Products such as Renderoc LA55 meet this criteria. Concrete with significant amounts of polymer or silica fume may have higher resistivity. For applications where wetting will occur such as in tidal zone protection, use Galvanode DAS Marine anode units.

Supply

The Galvanode DAS Distributed Anode System is custom packaged based on project requirements. For additional information, contact Parchem Construction Supplies.

Storage

Store in dry conditions in the original unopened containers for up to one year from date of manufacture. System should be installed within one month of opening container. Take special precaution not to damage anode components during transportation or while handling. Avoid extremes of temperature and humidity.

Shelf life

Shelf life 12 months.

Health and Safety

Contact with moisture can release alkalis which may be harmful to exposed skin. Anode components should be handled with suitable gloves and other personal protective equipment in accordance with standard procedures for handling cement and other alkaline materials. Additional safety information is included in the Material Safety Data Sheet.

Related Documents

A range of related documents are available including installation instructions, guideline specifications, project histories, applications and SDS. For more information, please contact Parchem Construction Supplies.

Parchem Construction Supplies Pty Ltd
7 Lucca Road, Wyong NSW 2259
Phone: 1300 737 787
www.parchem.com.au
ABN 80 069 961 968

Distributed in New Zealand by: Concrete Plus Ltd
23 Watts Rd, Sockburn 8042 Ph: 03 343 0090