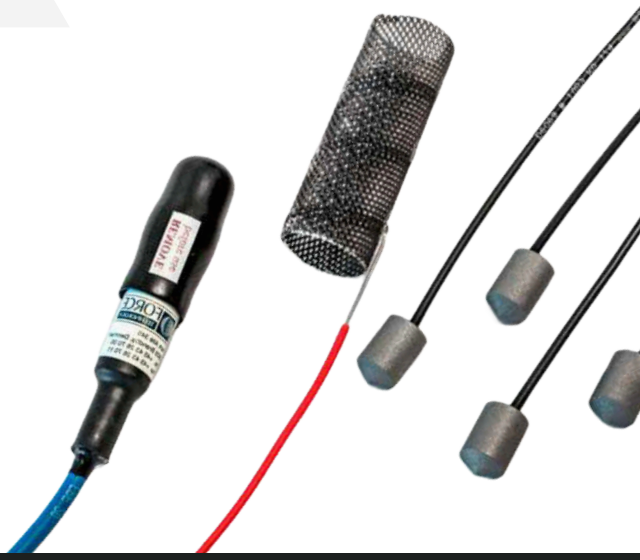
CorroRisk

Corrosion Monitoring Probe for Existing Concrete Structures

STRUCTURAL HEALTH MONITORING



Embedded Early-Warning Corrosion Monitoring for Proactive Asset Management

CorroRisk is an embedded corrosion monitoring probe designed specifically for existing reinforced concrete structures. CorroRisk enables owners and engineers to monitor corrosion conditions within critical structural elements and make informed, proactive maintenance and rehabilitation decisions.

The CorroRisk probe uses measuring electrodes positioned at defined depths within the concrete cover to provide early indication of corrosion initiation. Measurements can be obtained using the CorroZoa handheld measuring device or through a compatible data logger for remote monitoring applications.

Features & Benefits

- **Reduce lifecycle cost and unplanned closures** - detect corrosion risk early to schedule targeted, cost-effective maintenance before deterioration worsens — intervening only where and when the data says it's needed.
- **Early warning at multiple depths** – identifies corrosion risk within the cover zone, indicating when chlorides/carbonation approaches the steel before cracking, spalling, or other visible signs of deterioration occur.
- **Engineered for existing structures –** developed specifically for installation in existing concrete structures, with a cement mortar membrane that provides good affinity with the surrounding concrete.
- **Monitor without site visits –** can be connected to a compatible data logger for continuous monitoring and remote surveillance.
- **Long service life –** the electrolyte volume within the multi-electrode cell supports long-term monitoring performance.
- **Condition data for inaccessible elements –** delivers objective condition data from concealed or inaccessible structural elements, eliminating guesswork.

Applications

CorroRisk is recommended for concrete structures exposed to aggressive corrosion environments and locations where routine visual inspections are difficult or impractical.

Typical applications include:

- Bridge decks exposed to de-icing salts
- Marine and coastal structures
- Bridge piers in seawater environments
- Underground parking structures
- Public swimming pools
- Tunnels and buried structures
- Critical infrastructure requiring long-term corrosion monitoring

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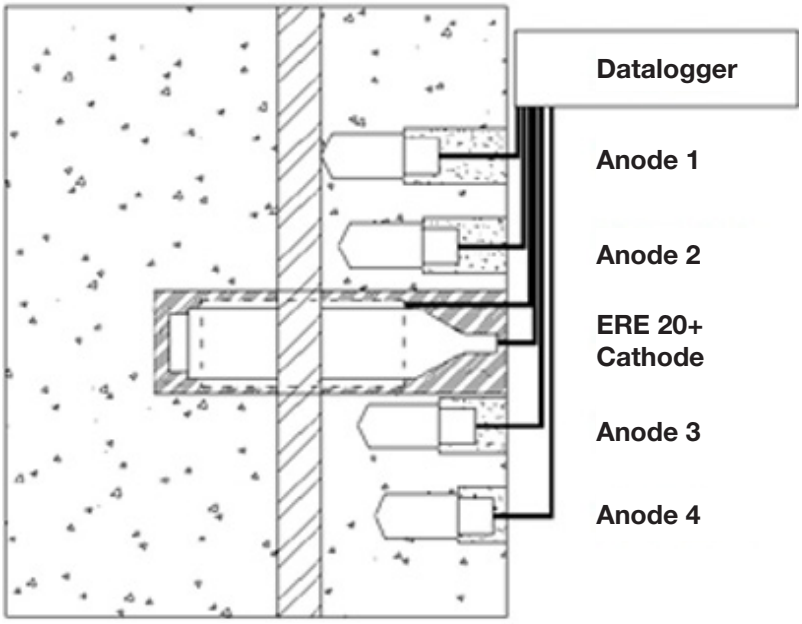
How It Works

The CorroRisk system consists of one multi-electrode sensor and four reference electrodes installed within the concrete cover zone.

As corrosion conditions develop within the concrete cover, the electrochemical response of the measuring electrodes changes. The resulting current is measured using a CorroZoa meter or compatible data logger.

Monitoring trends over time provides an indication of corrosion risk development and allows owners to identify potential problems before corrosion-induced deterioration becomes visible.



Sketch of the CorroRisk Probe.

Technical Properties

Parameter	Details
Reference electrode diameter	12.3 mm
Reference electrode length	18 mm
Multi-electrode diameter	20 mm
Multi-electrode length	100 mm
Cable type	Copper wire, 7-strand, XLPE insulation with PVC sheathing
Single electrode potential	+150 to +200 mV vs. SCE*

* At 25°C
* Saturated calomel electrode

Installation

CorroRisk sensors are installed within the concrete cover at predetermined depths and locations to monitor corrosion risk development within the structure.

Detailed installation instructions are available from Vector Corrosion Technologies

Related Products

- CorroZoa Corrosion Monitoring Meter
- CorroWatch Corrosion Monitoring Probe

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Talk to an Expert

Vector Corrosion Technologies provides full specification support installation guidance and system design assistance for the CorroRisk probe.

Contact your regional Vector representative to discuss your project, request sample specifications and drawings or arrange a technical presentation for your team.

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