

CorroRisk- Retro-Fit Corrosion Sensor



Figure 1. CorroRisk probes mounted on bridge pillar



Figure 2. CorroRisk mounted on bridge pillar and covered with latticework

Introduction

The CorroRisk probe has been developed for use on existing concrete structures. The probe ensures that reinforcement corrosion can be predicted in good time before the actual initiation. The planning of the necessary maintenance can be optimised and the result is a lower cost of repair and fewer traffic obstructions.

The CorroRisk probe is recommended to be used in all types of existing concrete structures, especially in aggressive corrosive environments and where visual inspection is difficult. This could e.g. be pillars in seawater (Figure 1), bridge decks, multi-storey car parks exposed to de-icing salt and various structures in swimming pools.

CorroWatch is recommended for new structures. It is installed before casting the concrete.

Structure

The CorroRisk probe consists in the standard version of 4-8 measuring electrodes and 1 combi-electrode. The electrodes are made of the same material as the reinforcement. The combi-electrode consists of a titanium net and a reference electrode (ERE20), which has been developed earlier for use in concrete structures.

Measuring method

Initial corrosion is discovered when threshold values of the potentials or current have been exceeded. The potential of the equilibrium is measured between the combi-electrode and the individual electrodes in the concrete cover.

Installation

The CorroRisk is usually mounted in the cover layer between the concrete surface and the outer reinforcement layer. The electrodes are mounted in different but well-defined depths in the cover layer. All electrodes are mounted in a circle around the combi-electrode. The electrodes are supplied with a coaxial cable, which on the concrete surface is protected by a latticework. The cables are lead to a monitoring box, and e.g. a data logger (Figure 2 and 3).

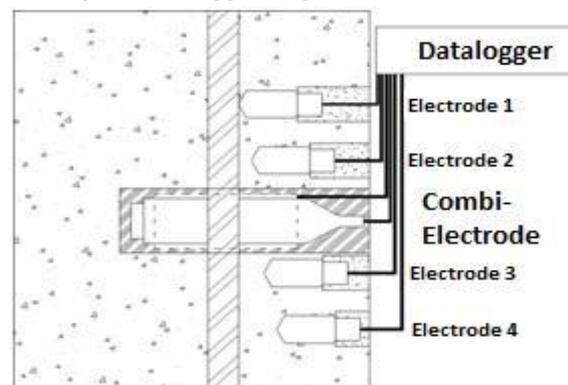


Figure 3. Sectional view of the mounted CorroRisk probe