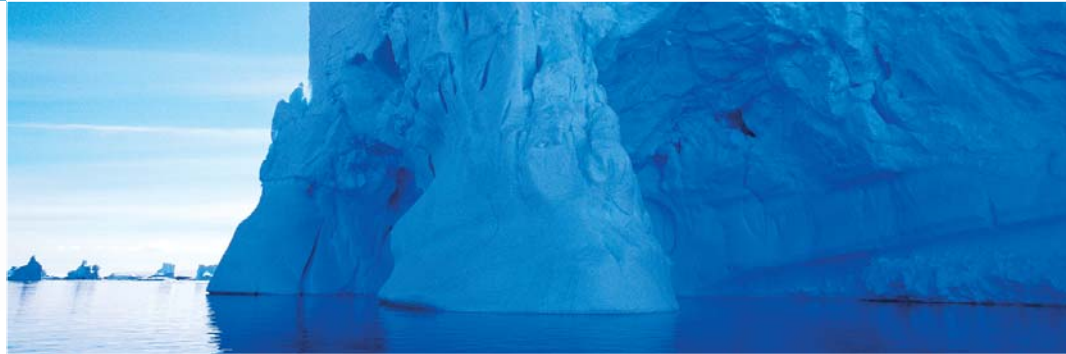




M9 Probe®



PROCES M9 Probe

Concrete Monitoring Probes

The PROCES M9 probe is the latest development in CAPCIS design multi-element sensors used to monitor the corrosion rate and condition of reinforced concrete structures and in particular the rate of ingress of corrosive conditions (chlorides or carbonation) into the concrete allowing prediction of the time of onset of corrosion. The probe is designed for installation within the reinforcement cage prior to concreting. The C-series probes are available for installation into existing structures.

This data sheet provides information on a standard probe configuration. Probes are designed and manufactured to suit the particular structure. Key factors to be taken into account in the design are the reinforcement density and cover, type of form work, location of connecting socket or permanent monitoring equipment, access during and post construction, etc.

Elements

The standard M9 probe comprises the following elements:

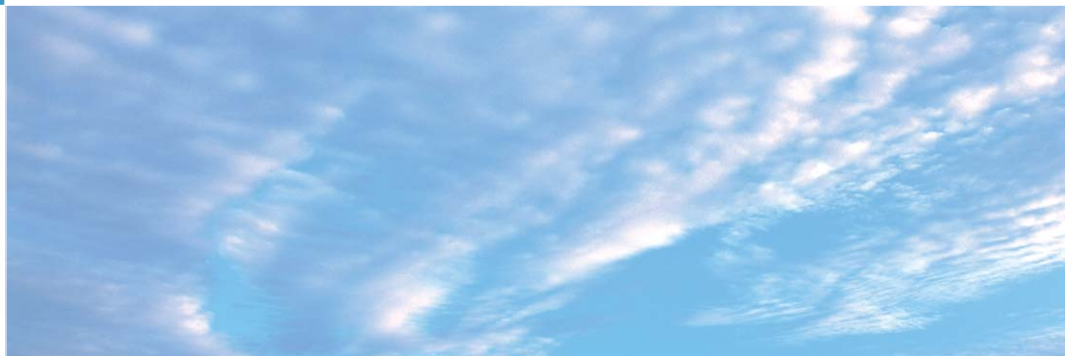
- WE** Carbon steel working electrode (3 off)
- I_RE** Hastalloy-C inert reference electrode (3 off)
- T_RE** External Mn/MnO₂/NaOH reference electrode (1 off - optional)
- AE** 316SS auxiliary electrode (3 off)
- GND** Flying lead connection (2 mm² csa single core cable) to main reinforcing steel with integral connection (1 off – optional).
- T** Platinum resistance temperature sensor
- 15 core, foil screened, XLPE double insulated instrument cable (5 m standard length).

When connected to CAPCIS Concerto© RCC monitoring instrumentation the probe provides the following standard set of measurements:

- Corrosion Potential (E_{corr}) of the working electrodes and the main reinforcement with respect to the reference electrode
- Corrosion Rate (I_{corr}) of the working electrodes and the main reinforcement using the Linear Polarisation Resistance (LPR) method



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- Concrete resistivity
- Concrete temperature

The probe also enables the following optional measurements:

- 'Macro-cell' measurements of coupling current between working electrodes and main reinforcement (for use with cathodic protection systems)
- Potential between auxiliary electrode and working electrodes and/or main reinforcement

By measuring the change in conditions on the different working electrodes the rate of ingress of corrosive conditions (i.e. chlorides and/or carbonation) can be determined and hence the time to onset of corrosion of the main reinforcement determined.

When used in conjunction with Concerto RCC monitoring equipment the maximum measurable corrosion rate is 52 mm/yr (2000 mpy), with a measurement resolution of better than 25 nm/yr (0.001 mpy).

Environmental

- Operating Temperature -10 to +70°C
- Designed for direct burial in concrete

Dimensions (Standard Probe arrangement)

Length (excluding all cables)	220 mm
Length of flying lead cable	200 mm
Depth	90 mm
Width (excluding external reference)	90 mm
Width (with external reference)	135 mm
Weight (excluding cable)	750 g

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