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T E C H N I C A L D A T A S H E E T

Corrosion Rate (LPR) CP300 - Side Profile Probe Head

Description

The CP300 is manufactured as a robust assembly based on the established technology and record of the CP10P silver/silver chloride half-cell.

The construction provides a 3-electrode test arrangement comprising of a half cell and graphite auxiliary electrode that are mounted together in an inert resin to form an integral unit. The third electrode is the working electrode or steel that is being targeted for monitoring.

This allows the installation to be a one step process.

Electrochemical potential measurements are routinely used as an indicator of corrosion activity experienced by reinforcing bar within concrete.

The information provided by this, although useful in itself, does not allow an instantaneous assessment of the rate of corrosion the bar is experiencing.

The corrosion rate is affected by changes in environment, such as chloride and oxygen levels.

Corrosion potential change alone may not provide an accurate view of loss of metal and is therefore an indicative only change. Corrosion rate will provide information as a metal loss value that can be key to management decisions on a structure.

The CP300 allows the assessment of instantaneous corrosion rates by employing the linear polarisation resistance measurement (LPRM) technique.

Traditionally this has been carried out manually, but may now be automated using the Achilles Suite of Structural Healthcare systems .

Compatibility with all known datalogging equipment and remote sensing is also highly likely.

If extraordinarily long cable lengths are required then the user is advised to specify the type of screening for cables and consider the use of buffer amplification of signals.

Interpretation criteria

The interpretation of corrosion current densities in concrete has as yet no internationally recognised standard.

However, for guidance corrosion rates of less than $1\mu\text{m}/\text{yr}$ would generally indicate little expected damage to a structure in its lifetime (generally assumed to be 25 yrs).

In the range 1 to $5\mu\text{m}/\text{yr}$ the interpretation should be regarded in conjunction with local conditions.

However, rates greater than $10\mu\text{m}/\text{yr}$ should give rise to protection systems being considered as a matter of urgency particularly if this is a continuing trend assessed over several data sets.

Specific circumstances are not considered within these guidance notes and the user may consult C-Probe for closer analysis of specific situations.

Note: In all applications a welded or drilled/tapped steel connection must be provided.



CP300 Corrosion Rate Probe