iCOR

Innovative Corrosion Detection

A NDT device for detailed corrosion evaluation of reinforced concrete structures

Giatec's iCOR offered by Macben is a novel compact and comprehensive non-destructive testing tool for detailed corrosion evaluation of reinforced concrete structures. There is not necessary to have an electrical connection to the rebar. It is equipped with high precision sensors to measure the corrosion rate of rebar, the in-situ electrical resistivity of concrete, corrosion potential of rebar as well as ambient temperature and relative humidity. iCOR utilizes wireless technology to transmit data to a tablet, where data can be stored, analyzed and visualized. iCOR has been successfully utilized by consulting companies for smart early detection of corrosion problem in reinforced concrete structures.

- ✓ Detection of corrosion in the reinforcement
- ✓ Measurement of corrosion rate in-concrete structures
- ✓ Determination of corrosion potential of rebar in concrete
- ✓ Measurement of real in-situ electrical resistivity of concrete
- ✓ Rehabilitation and repair of concrete structures

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Features:

Fast: measurement within seconds

Real-time: contour mapping of corrosion rate, electrical resistivity and corrosion potential

Accurate: comparable to laboratory techniques

Non-destructive: used for existing structures

Easy-to-use: requires minimum training

Non-subjective: algorithm-based interpretations

Efficient: detect initial signs of corrosion

Cost effective: multiple parameters in a single measurement for durability assessment

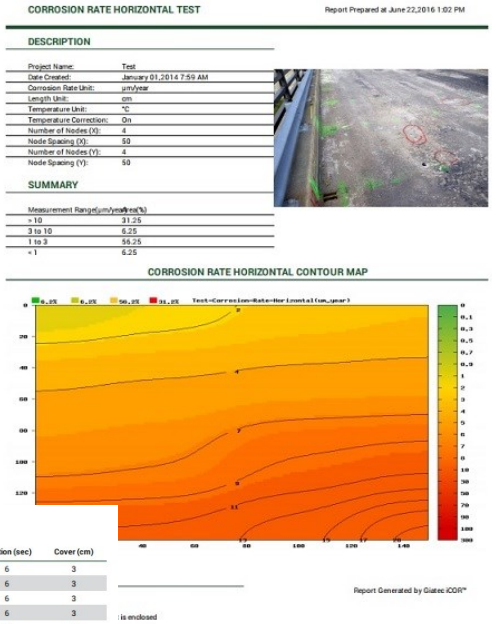
Technical data:

- **Testing Time:** 5-15 second (6 mesasurements)
- **Operating Temperature:** 0-45°C
- **Operating Humidity:** 20-90 %
- **Storage Temperature:** 0-70°C
- **Storage Humidity:** 5-90 %
- **Operating Voltage/Current:** 24 V
- **Dimensions:** 250x7 mm

It is possible to do transverse reinforcement measurement, because iCOR benefits from the directional measurement capability which allows you to do the measurement in both vertical (Y) and horizontal (X) direction.

The user needs to input the cover thickness in the software for corrosion rate measurement. The range of cover thickness can vary from 1 cm to 9 cm with an increment of 1 cm.

The application allows to export the data as PNG (only contour map), PDF report (general information about the project and the main results) and .csv (raw and analyzed data for each measurement points). The documents can be shared by email, DropBox, Bluetooth...



CORROSION RATE HORIZONTAL TEST

Report Prepared at June 22,2016 1:02 PM

DESCRIPTION

Project Name:	Test
Date Created:	January 01,2014 7:59 AM
Corrosion Rate Unit:	µm/year
Length Unit:	cm
Temperature Unit:	°C
Temperature Correction:	On
Number of Nodes (X):	4
Node Spacing (X):	50
Number of Nodes (Y):	4
Node Spacing (Y):	50

SUMMARY

Measurement Range(µm/year)	Area(%)
> 10	31.25
3 to 10	6.25
1 to 3	56.25
< 1	6.25

CORROSION RATE HORIZONTAL CONTOUR MAP

Report Generated by Giatec iCOR™

is enclosed

CORROSION RATE HORIZONTAL TEST RESULTS - RAW DATA

X	Y	Corrosion Rate (µm/year)	Temperature (°C)	RH	Duration (sec)	Cover (cm)
0	0	0.663	15.5	33%	6	3
50	0	1.91709	13.5	36%	6	3
100	0	3.2885	10.5	42%	6	3
150	0	3.816	17.5	33%	6	3
0	50	4.995	16.0	33%	6	3
50	50	5.178	18.0	31%	6	3
100	50	5.341	15.0	36%	6	3
150	50	5.428	16.0	44%	6	3
0	100	6.259	15.0	36%	6	3
50	100	6.76	12.0	41%	6	3
100	100	9.506	13.0	36%	6	3
150	100	10.237	11.0	41%	6	3
0	150	12.152	12.0	39%	6	3
50	150	12.297	16.0	34%	6	3
100	150	15.1859	17.0	32%	6	3
150	150	22.315	12.0	39%	6	3

iCOR unit, USB cable; Communication software, User manual, connection sponges, conductive gel

V2017_06

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Material Testing Equipment