

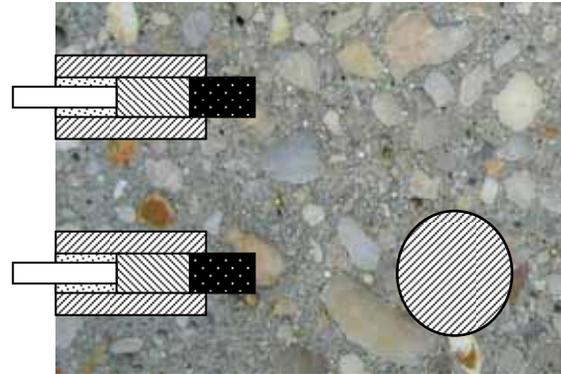
Purpose

The **HUM-Meter** is used to monitor the internal moisture content in concrete for evaluation of:

- The corrosion status of reinforcement, because moisture content is one of the parameters that affects corrosion rate
- The effectiveness of drying procedures for arresting the progress of harmful reactions, such as ASR (alkali silica reaction), that depend on moisture
- The effectiveness of methods used to dry the concrete substrate before application of a moisture sensitive covering

Principle

To measure internal moisture content, sensors are installed into holes drilled into the concrete. The system is based on measuring the electrical resistance between two graphite probes or between a graphite probe and the reinforcement. The measured resistance and the known distance between the probes (or between a probe and reinforcement) are used to calculate the resistivity of the concrete and the moisture content is determined using an established relationship between moisture content and resistivity. The relationship can be obtained experimentally for a given concrete, or approximate empirical relationships can be used for common concretes.

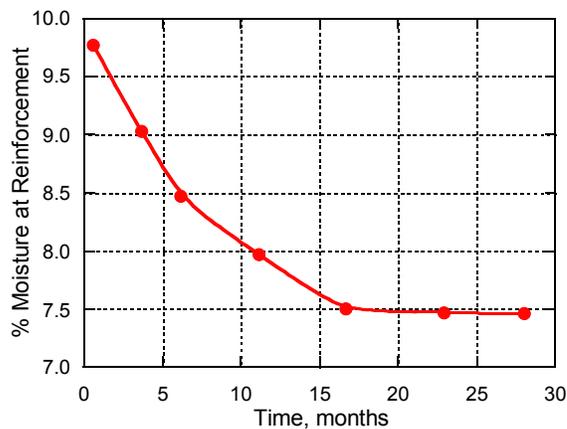


The graphite probes are 12 mm in diameter and 20 mm long. The holes are drilled to the depth where moisture content is to be determined.

Precision and Accuracy

The accuracy of the moisture content measured by the **HUM-Meter** with graphite probes is $\pm 1\%$ for concrete with a water-cement ratio of 0.50. For concretes with other w/c values, the accuracy has to be evaluated by specific correlations developed on cores. The coefficient of variation of replicate test results is about 5%.

Testing Example



*The effect of a surface treatment on a bridge column measured over time with **HUM-Meter** Graphite Probes*

HUM-Meter

The H-10000 HUM-Meter and Ordering Numbers

Item	Order #
Digital meter with AC converter	H-10010
Cables, 2 pcs	H-10020
Temperature probe	H-10030
HUM-Graphite Probes, 10 pcs.	H-10040
Bushings for surface installation, 10 pcs	H-10050
Attachment pin, 20 mm long, 10 pcs	H-10060
Attachment pin, 40 mm long, 10 pcs	H-10070
Attachment pin, 140 mm long, 10 pcs	H-10080
Probe installation shaft, 300 mm long	H-10090
Silicone tube	H-10100
Drill bits: 12 mm and 18 mm	H-10110
Reinforcement locator	H-10120
Reinforcement adaptor	H-10130
Allen key, 10 mm	H-10140
Rubber ball dust remover	H-10150
Manual	H-10160
Attaché case	H-10170

