Concrete Setting Sensor

SOFO

- Determination of concrete hardening time
- Easy to embed in fresh concrete
- Can be re-used for long-term monitoring
- High resolution
- Temperature insensitive
- No calibration required
- Immune to electromagnetic fields

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SDS 10.15 (2004/04)

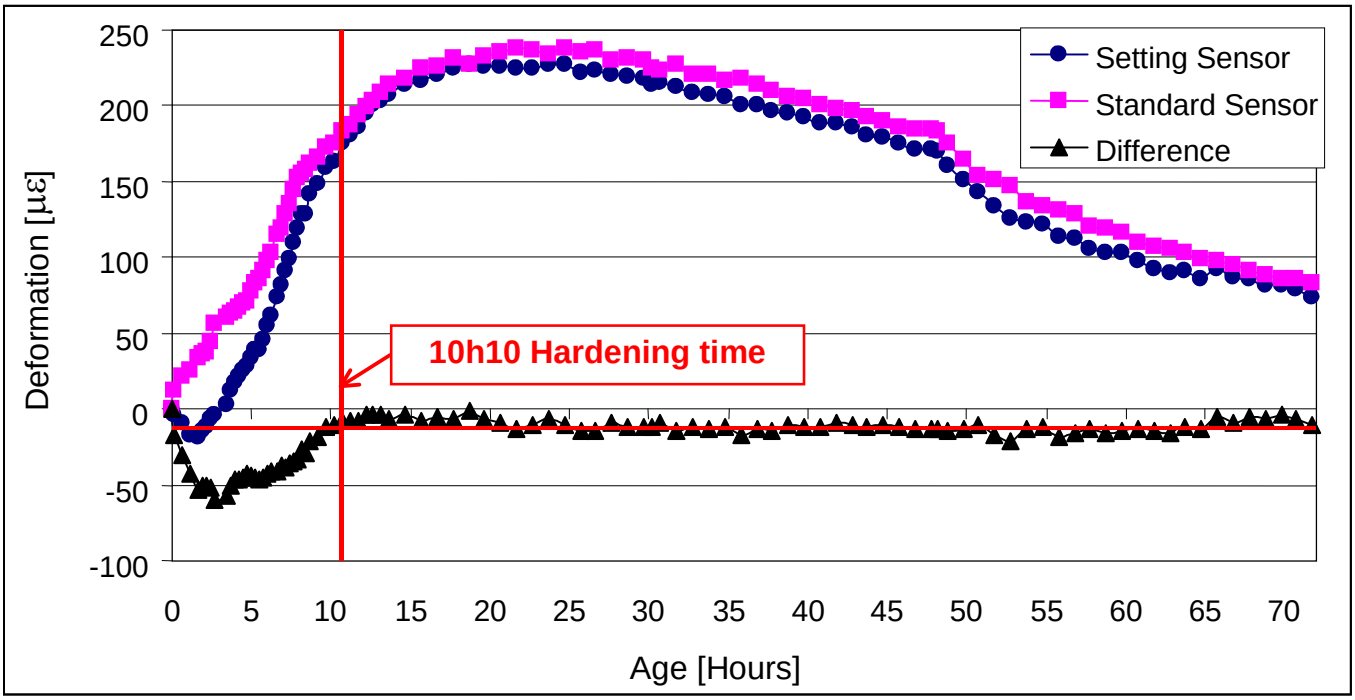
Data Sheet

Description

The Concrete Setting Sensor is designed to measure the hardening time of concrete. Its measurement principle is identical with the one of Standard SOFO Deformation Sensors. The only difference is that the axial stiffness of the protection tube of the Concrete Setting Sensor is several orders of magnitude larger, and its thermal expansion coefficient is different from that of non-hardened concrete. One Concrete Setting Sensor and one Standard Sensor are to be installed side by side and their measurements are to be compared.

In the initial phases after concrete pouring, when concrete has not hardened, the Standard Sensor accurately measures the very early age deformations of concrete, while the Concrete Setting Sensor deforms mainly due to temperature variations. Because of its high rigidity and different thermal expansion coefficient, it does not follow accurately the very early age deformations of concrete. Thus, before concrete hardening, the measurements realized by the Standard Sensor and the Concrete Setting Sensor are different.

When hardened, concrete becomes sufficiently stiff to transfer all its deformations to the Concrete Setting Sensor, and both sensors measure identical deformations. The instant when the difference between the Standard and the Concrete Setting Sensor measurements becomes constant, corresponds to the hardening time of concrete. An example of such a measurement is presented in the following figure.



Technical characteristics

Standard active lengths	0.5 m or 1 m
Time resolution for concrete setting	1 h
External diameter	21 mm
Axial stiffness (EA)	35 MN
Mass	<1.4 kg/m

All information contained herein is believed to be accurate and is subject to changes without notice