

Optimised concreting processes by measuring the concrete temperature and maturity with PERI sensors

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The PERI InSite Construction Temperature Monitoring and Concrete Maturity Kit

With PERI InSite Construction, PERI is bringing various digital solutions to market that optimise the concreting process on the construction site and help to save time and cut costs. The key: a measuring device, a cloud and the sensors themselves. These include the PERI InSite Construction Temperature Monitoring and Concrete Maturity Kit for efficient measurement of the temperature and determination of the maturity of the concrete.

The PERI InSite Construction (ISC) Temperature Monitoring and Concrete Maturity Kit measures the temperature at different points in the concrete and then transmits the data directly to the user via the ISC Web Application. This eliminates the need for time-consuming manual readout and recording of the measuring points during the concreting process. The ISC Temperature Sensor Cable can be installed in any area of the reinforcement prior to concreting.

The standard ISC Kit consists of a technical cabinet, a main unit integrated into the cabinet as a gateway, five temperature nodes, a total of 100 m of temperature sensor cable and an ambient climate node.

Optimised concreting process

If the temperature of the concrete is higher or lower than desired, the user receives a notification and can take appropriate action. In the case of mass concretes, the temperature difference between the core and outer layers can be monitored to reduce thermally induced cracking. The temperature measurement process also



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helps to determine the concrete maturity and thus the ideal time for striking.

This means that the utilisation and operating times of the formwork can be optimised, which may allow the striking process to be carried out early or the amount of formwork material to be reduced, thus resulting in time and cost savings on the construction site. In addition, the use of the ISC Temperature Sensor Cable is reflected in a higher concrete quality.

Another advantage relates to the topic of sustainability: no batteries, transmitters, receivers or circuit boards are left in the concrete after the system is used.

Location-independent, real-time analysis thanks to web application

On account of the ISC Web Application, the user is able to analyse the data irrespective of time and location. The web-based tool can be accessed using various devices.

The ISC Web Application has an intuitive interface that provides users with a real-time overview of the concreting process and concrete maturity. The dashboard of the application can be configured according to individual customer requirements. The user is also automatically notified when pre-set values are reached. In addition, another notification and blog function facilitates straightforward and transparent communication within the project team. The amount of effort involved in documentation procedures is minimised due to the fact digital reports on completed concreting processes can be generated easily.

Ease of use

The process of measuring the concrete temperature and determining the concrete maturity is very simple. The system is compatible with all formwork systems and constitutes a standardised system for the entire concreting process. Due to the fact that it operates over the mobile communications network, the user benefits from broad network coverage, which minimises costly downtime and ensures continuous data transmission. The ISC Sensor Node is charged efficiently in the ISC Technical Cabinet or directly via the mains supply.

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Image 1

The ISC Temperature Sensor Cables continuously measure the temperature of the concrete. The ISC Temperature Sensor Cables are very easy to install: They are installed in the reinforcement prior to the concreting process.

(Photo: PERI AG)

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Image 2

To transmit measured values, the sensors are then connected to an ISC Temperature Sensor Node.

(Photo: PERI AG)



Image 3

The ISC Temperature Nodes can be affixed almost anywhere, for example to the formwork or a guardrail.

(Photo: PERI AG)



Image 4

After connecting the sensors to the ISC Temperature Node, the data determined is forwarded to the ISC Main Unit and then stored in the ISC Web Application.

(Photo: PERI AG)

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Image 5

The ISC Technical Cabinet provides space for the main unit and several different ISC Sensor Nodes. Each of these nodes can be connected to a different sensor. This enables large amounts of data to be collected simultaneously.

(Photo: PERI AG)

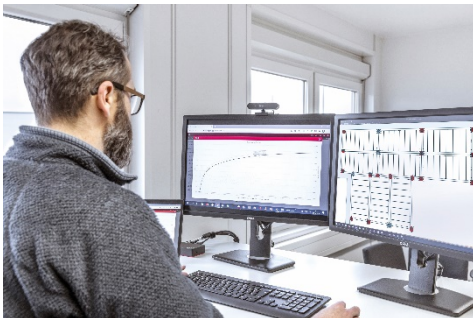


Image 6

Thanks to the ISC Web Application, the captured data can be analysed in real time in order to achieve an optimal concreting result.

(Photo: PERI AG)