

IntelliRock Temperature Loggers

IntelliRock Temperature Loggers can monitor and document the temperature profiles and gradients of in-place concrete. Since a large number of sensors can be used with a single on-site reader, detailed temperature profiles can be easily and cost-effectively generated.

Applications

The ability to determine true, in-place concrete temperature in real-time can greatly enhance one's ability to manage critical path workflow:

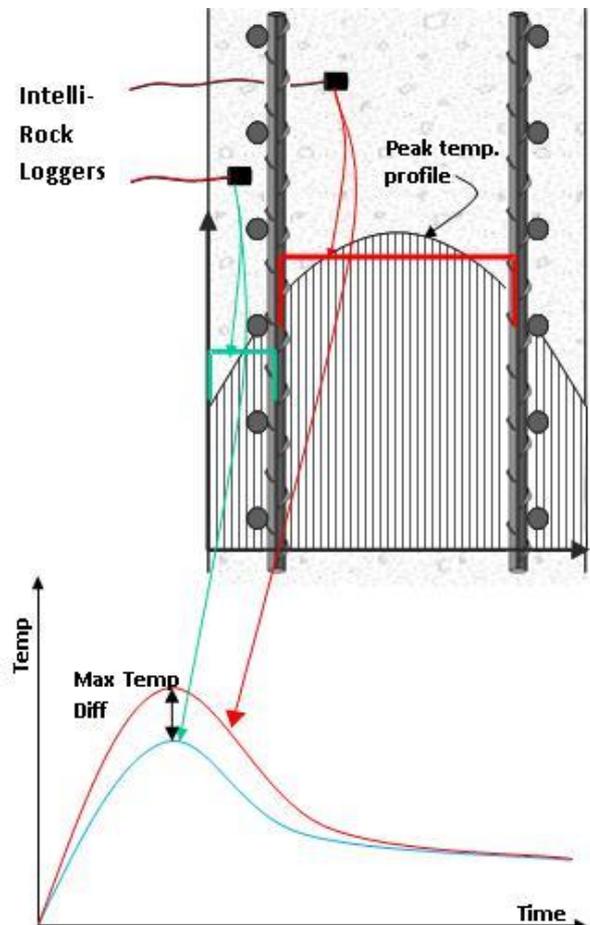
- Cold weather - Determine & document temperature profiles and regulate thermal protection.
- Large Element Pours / Mass Pours – Thick pours generally require the maximum temperature and the surface to bulk difference to be monitored due to self insulation.
- Cylinder Curing - Measure and document concrete cylinder curing conditions including tanks and moist rooms

Why Monitor Temperature?

Thermal cracks: Temperature rise (especially significant in mass concrete) results from the heat of hydration of cementitious materials. As the interior concrete increases in temperature and expands, the surface concrete may be cooling and contracting. This causes tensile stresses that may result in thermal cracks at the surface if the temperature differential between the surface and centre is 20–30 degrees depending on mix. The width and depth of cracks depends upon the temperature differential, physical properties of the concrete, and the reinforcing steel.

Strength: Concretes mixed, placed, and cured at elevated temperatures normally develop higher early strengths than concrete produced and cured at lower temperatures, but strengths are generally lower at 28 days.

Delayed Ettringite Formation (DEF): Maximum temperatures must be monitored to ensure that the formation of DEF is not assisted which occurs where temperatures are high. This can lead to cracking and durability issues with the resulting structure. Most specifications have maximum temperatures for this reason.



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Advantages over Concrete Thermocouples

IntelliRock temperature loggers are more durable and simpler to operate than a thermocouple based system, benefits include:

- Durability, second generation logger encase all electronics in a durable plastic casing and have a redesigned stronger yellow cable selected to hold up to the rigours of concrete pouring and vibration
- No Data Loss, each logger is self contained, with its own thermistor, battery, circuitry and memory. There is no permanent connection to the reader and even a damaged cable can be re-terminated easily
- No Programming, loggers are ready to run out of the box pre set with a logging period and duration
- Simple Installation, rather than working with finicky and expensive thermocouple wire and calibrating each sensor Intelirock loggers only need to be tied into place within the reinforcing cage and the cable led to a point outside the form work
- No theft or damage to data logger, there is no data logger or other box on site to steal, break or even be run over by vehicles

Standard Temperature Loggers

The IntelliRock probes contain a thermistor, a battery, and a microprocessor. They are a consumable sensor and data-logger in one. During installation the probe is tied to reinforcing, the wires are lead to the top of the pour and then the probes turned on using the reader. The Reader is plugged into the probe exactly like a speaker wire. Once the probe is running the Reader is unplugged and the probe works independently.

The loggers are pre-programmed to log at differing intervals and time lengths. The wires can be from 1.3m to 50m. The reader is capable of downloading up to 100 loggers for viewing on the reader on in the Rockware software. The data files are highly portable and very secure. The loggers come in single and re-usable configurations lending them to lab and site applications.



Probe



Reader

About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.

Other Equipment

PCTE supply three main ranges: NDT, Lab and Geotech Instrumentation.

NDT includes: Rebound Hammers, Covermeters, Ultrasonics, GPR, Corrosion Testing, Coating Testing and Foundation Testing

Lab includes equipment for: Concrete, Cement, Aggregate, Soil, Asphalt and Metal

Geotech Instrumentation includes: Strain Gauges, Piezometers, Inclometers, Extensometers, Tiltmeters, Load Cells and Dataloggers