

Monitoring Excavations

Foundation slab



Background

During the cement hydration process, the heat generated by chemical reactions can induce internal stresses in the concrete, with the risk of thermal shrinkage cracking. To prevent these issues and ensure proper hardening of the material, temperature monitoring becomes a critical factor. In a major industrial expansion project involving the construction of the foundation slab for a new silo and grinding facility, the need arose to monitor the thermal behavior of the concrete, ensuring compliance with design specifications and current regulations.

The solution

The monitoring system installed by Cismondi involves the use of four *WineCap™* temperature dataloggers placed at strategic points within the foundation slab, each paired with two IP68-rated platinum resistance temperature detectors (RTDs), installed at different casting depths. The system is completed by a gateway (MWDG) equipped with a box and photovoltaic panel (BOX-PPS), allowing installation in areas without access to mains electricity. The collected data is sent to the Cloud Service, where it can be viewed, downloaded, and managed remotely – providing effective and timely control over concrete conditions.

The result

The monitoring system enabled the tracking of concrete temperature trends during the casting phase and later during setting and hardening. The collected data helped prevent shrinkage and cracking phenomena, improving the overall quality of the structure and ensuring adherence to design parameters.



The winning choice *WineCap*

- ✓ WSD12-TT1K (2 inputs for external temperature transducers)
- ✓ PT1000-IP68 (PT1000 sensor for heavy-duty applications)

