CasTemp®
Continuous temperature measurement in liquid steel
The CasTemp® system is used to safely, reliably, and continuously measure the temperature of liquid steel in the tundish in a continuous casting plant.

The system has been designed to withstand the environment within a steel plant and is the global standard for continuously measuring temperature.

The CasTemp® system gives an accurate temperature measurement throughout the casting sequence and is positioned close to the steel outlet. CasTemp® is a ‘fit and forget’ system that does not need any handling.

The CasTemp® probe is inserted through the sidewall of the tundish using a system designed to remove the risk of steel leaking. The probe can be used in all types of tundish.

The CasTemp® probe contains a type-B thermocouple housed in a robust refractory sheath, which can withstand thermal shock and gives a fast temperature response.
Benefits

- Improved safety by removing the possibility of the operator being exposed to liquid steel
- Continuous temperature readings throughout the whole casting sequence including preheat
- A fast response because the probe is fully submerged in liquid steel
- Improved output by optimising the speed of casting
- Reduced temperature-related breakouts and freezeoffs
- Avoids contact with corrosive slag
- Accurate measurements during ladle changes

The graph shows the difference between spot measurements and continuous measurements given by the CasTemp® probe.
The system

The following shows the essential parts of the CasTemp® measurement system.

Well block
- Securely holds the probe in the lining of the tundish

Embedding tool
- Correctly lines the well block up in the tundish

Hot-zone cable
- Connects the probe to the instrument

Continuity checker
- Verifies that the probe is working
Conti-Lab E instrument
Processes and displays the measurements

Mortar
Secures the probe in the block

Retaining system
Locks the tundish equipment in place

CasTemp® probe
Measurement sensor
Preparing the system

The CasTemp® system is quick and easy to install. The main steps are:
- welding the retaining plate; and
- fitting the well block.

The CasTemp® retaining system is reusable and keeps the CasTemp® safely in place throughout the casting sequence.

For more detailed information, see the CasTemp® Instruction and Operating Manual.

Using the probe

The main steps of using the CasTemp® probe are:
- inserting the probe;
- securing the retaining plate; and
- connecting the hot-zone cable.

Measuring

CasTemp® continuously measures the casting temperature throughout a casting sequence enabling closed-loop caster control. The system is not affected by the level of liquid steel or slag, or the machine being used.

The Conti-Lab E is a robust instrument that can be placed close to the measurement point. The large display makes sure that it can be read at a distance of up to 30 metres.

Conti-Lab E links to the plant computer and has a number of communications options, which are programmable.

Connection system

There are three different types of connection systems, designed to connect the CasTemp® probe to the Conti-Lab E instrument.
- Hot-zone cable using platinum wire in a braided steel hose designed for the harshest conditions
- Hot-zone compensation cable in a fireproof rubber hose designed for most applications
- Cold-zone compensation cable designed to offer fast and economical repair