ProserviceTech
INNOVATION IN FOUNDRY PROCESS

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ITACA | Pyro

The metallurgical process has various factors that can compromise the casting's quality and cause different defects. The pouring temperature is one of these key factors. Its monitoring and its control allows to minimize some defects like cold junction, sintering, cementite.

ITACA Pyro has been developed to help foundries in continuously monitoring the iron temperature during the pouring phase.

The continuous measurement is important because the foundry has to understand what is happening mould by mould, and not to have a rough idea averaged on a batch or on a shorter or longer time basis.

The most common system for the monitoring of the temperature is the dip probes, that is universally considered to be an accurate system. Unfortunately, the system thermocouple plus acquisition hardware is a source of variance. There can be even differences of 10°C between 2 measurements taken on the same liquid metal, because of the operator behaviour, immersion time, immersion depth.

ITACA Pyro minimizes the operator interference and automatically updates the current temperature range for a specific alloy or casting (option when connected to ITACAX or pouring devices). Ovnly when the calibration

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of the emissivity is required, it will request an action from the operator and will automatically verify the current emissivity value, against the temperature measurement by an immersion probe.

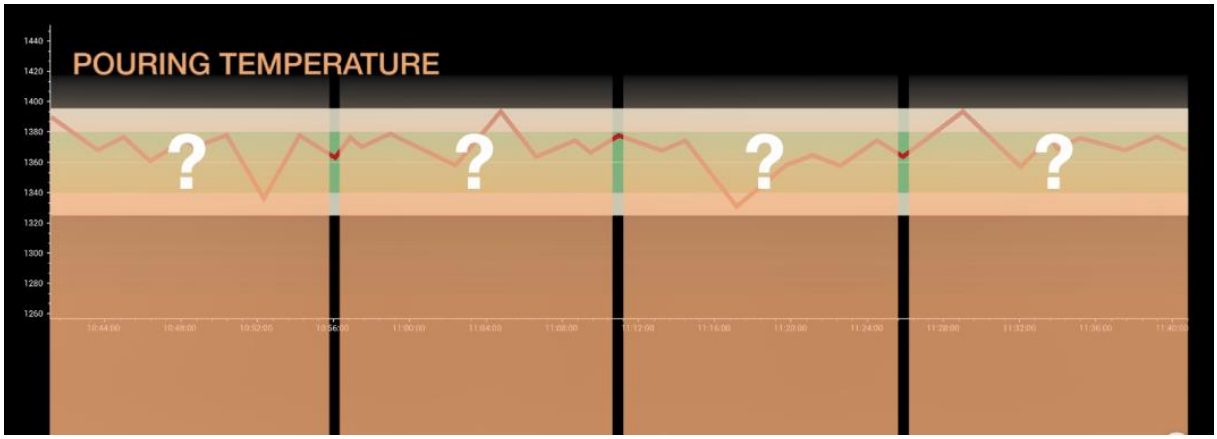

Figure 1: Actual situation with Dip Probe measurement system

How does it work?

For each alloy, casting family or single casting, it is possible to associate a range of acceptability for the pouring time. During the production, mould by mould, ITACA Pyro will verify the temperature measurement alerting the operator by a visual (or acoustic) signal, in case it goes out of range. In addition to the acceptability ranges, it is possible to set the frequency of calibration: ITACA Pyro will alert the operator when a new acquisition with dip probe is required, automatically calibrating the emissivity of the pyrometer. Each acquisition in then saved into the database, making all the data available for any further analysis.

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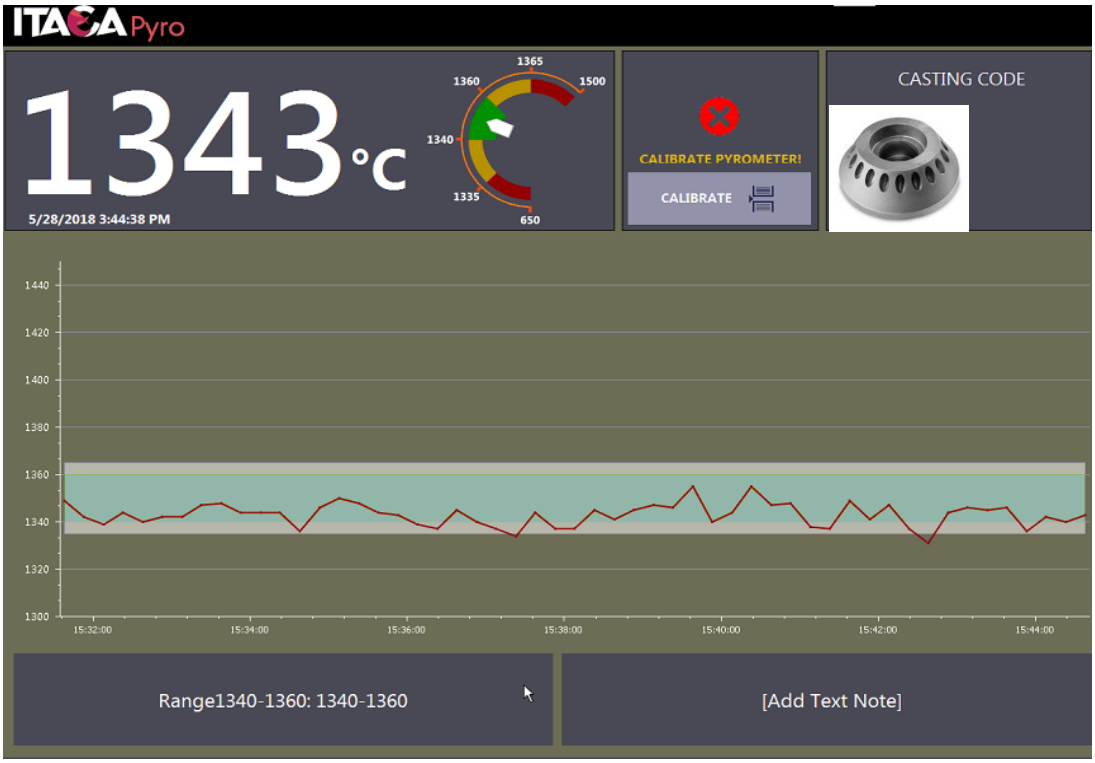
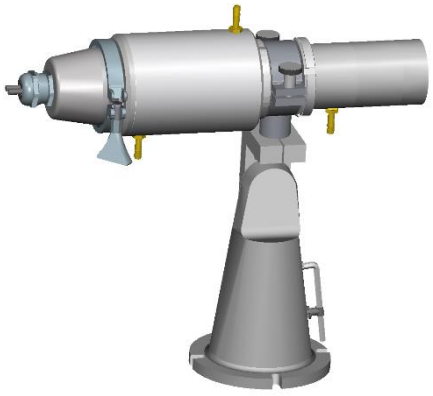


Figure 2: ITACA Pyro interface

ITACA Pyro has been engineered in the same environment of ITACA family and its function can be integrated as an important source, into the comprehensive metallurgical control system ITACAX. Combining it with other sources of information such as thermal analysis, chemical analysis, sand properties etc., the system allows the clearest monitoring of the metallurgical process.

ITACA Pyro Technical specification



- Optical Pyrometer designed to measure the temperature of liquid iron;
- Temperature range: 650° - 1700°C;
- Maintenance-free, wear-free;
- Optics with rectangular target spot ensures reliable temperature data even when pour stream position varies;

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- Dual wavelength technique yields accurate readings despite smoke or dust in the sight path;
- Sighting options: integrated camera connected to external monitor (coaxial cable);
- Easy and safety set-up;
- High temperature proof metallic case;
- Air cooling and lens-cleaning system;
- Software installed on a desktop PC;
- Predisposition for connection to ITACAX;
- Remote assistance.