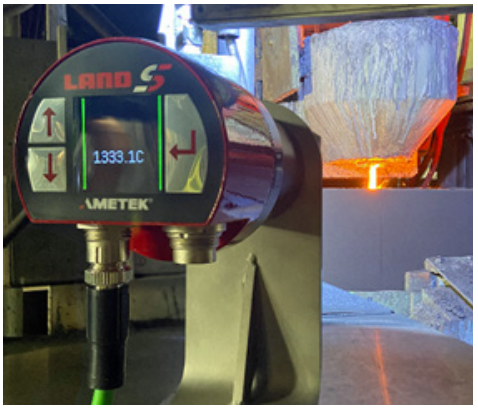
APPLICATION SHEET

Temperature Measurement of Liquid Metals (Iron and Steel) during Tapping

THE TASK
Foundry Tapping Stream Temperature Measurement



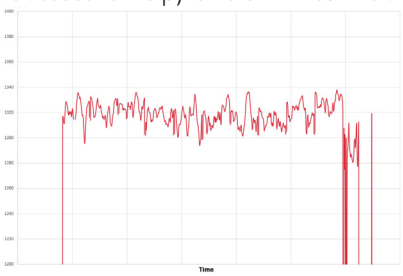
In automated foundry tapping processes, the temperature of liquid metals (steel/iron) is typically measured by sporadically dipping thermocouples into a tapping ladle. This is a dangerous process and measurements vary with operator technique and depth of the dip. For all automated mold tapping processes, accurate consistent measurement of each mold's temperature is important. It ensures continuous quality control of the process and documentation for each part produced.

Using AMETEK Land's application specific SPOT MeltMaster (MM) pyrometer, tapping stream temperatures are measured safely, faster, more accurately and more reliably. Non-contact temperature measurements are taken directly from the liquid tapping stream as it runs into the molds.

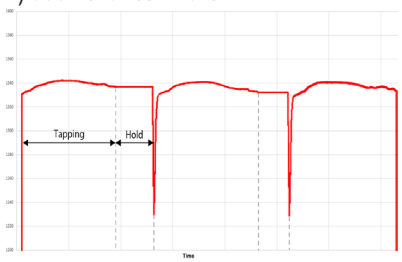
THE SOLUTION
SPOT MM Smart Tapping Stream Temperature Application Pyrometer

In foundry tapping applications, pouring stream conditions change rapidly. As the liquid metal surface changes during the pouring process and thin surface oxide layers form and reform, a special pyrometer is needed to provide accurate continuous measurements of the liquid metal temperature.

AMETEK Land offers the SPOT MM smart application pyrometer, an advanced, non-contact infrared pyrometer, specifically designed to provide a single-sensor solution for liquid metal temperature measurements in foundry tapping applications. Optimized signal processing and an integrated application mode allow the SPOT MM to accurately measure the tapping stream temperatures throughout the process, despite the continuous surface and condition changes. Multiple digital and analog interfaces allow the SPOT MM to be easily integrated into new and existing process control systems. The integrated visual camera enables the operator to monitor and control the tapping process in real time, while the embedded webserver of the SPOT MM enables full remote access to the pyrometer without installation of any additional software.



Raw Data Reading



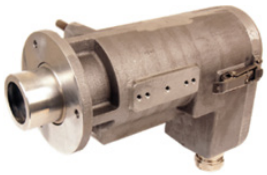
SPOT MM Application Mode reading

SPOT MM Video Camera

BENEFITS
Advantages for foundry tapping processes

- **Application Pyrometer**
  optimized for immediate operation while allowing process-specific configuration
- **Fast Tapping Stream Temperature Measurements**
  direct and accurate tapping stream temperature measurement (1 kHz)
- **Plug'n'Play**
  optimized temperature measurement directly from the liquid stream
- **Smart Pyrometer**
  integrated webserver allows fully remote access
- **Remote Access & Integrated Camera**
  full process control through digital interfacing and integrated camera
- **Multiple Interfaces**
  analog and digital input and outputs, Modbus TCP/IP ethernet protocol

SPOT MM
550-1800 °C / 1022-3272 °F



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