Indian foundry reaps benefits of liquid metal temperature measurement



PSG Foundries, the foundry division of PSG and Sons based in Coimbatore, India, was looking for an effective solution for accurately measuring the temperature of liquid metals. The business purchases over 10,000 DIP thermocouple consumables each year and was in search of a solution that was both safer and more cost effective. Its aim was to optimise the quality of the molten metal, whilst achieving significant annual savings on consumables.

The leading industrial, infrared non-contact temperature measurement specialist, AMETEK Land, recommended the Cyclops 055L-2F Meltmaster, a high-precision portable non-contact thermometer that provides accurate measurement of liquid metal temperatures in the range 1000 to 2000°C.

HOW IT WORKS

The operator stands three to four metres away from the molten metal and points the Cyclops Meltmaster at the liquid. The operator pulls the trigger to take a measurement. That measurement is then displayed in four simultaneous modes, including *continuous, peak, valley* and a unique advanced *Meltmaster* measurement mode to meet users' specific requirements.

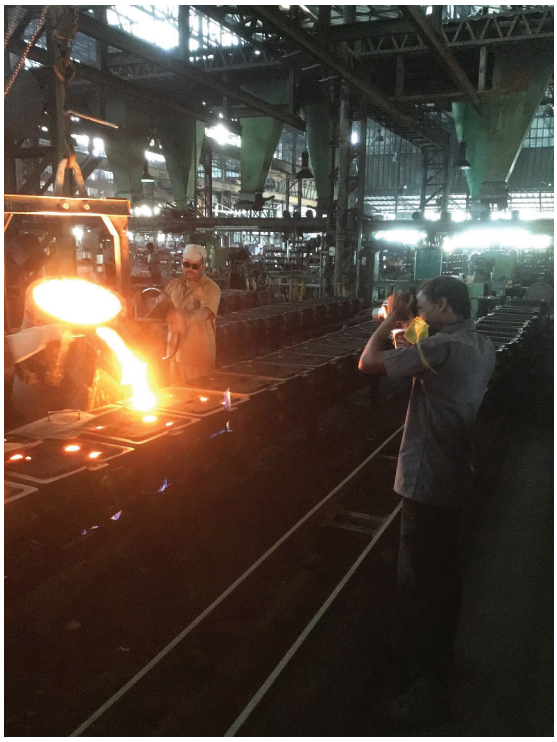
A clear, wide-angle field of view and a small, clearly defined measurement area help ensure accurate sightings. All processed temperature values are shown continuously on the display when the trigger is pressed.

Representing a good return on investment, since its purchase the Cyclops Meltmaster has paid for itself in less than six months and uses no consumables.

In addition, the Meltmaster will accrue greater value to the foundry over the years by enabling it to deliver the best and most consistent mould value by accurately measuring liquid metal temperatures using a single instrument.

THE BENEFITS

In addition to a relatively quick return on investment, the Cyclops 055L-2F Meltmaster offers PSG Foundries several other advantages. Because of the non-contact nature of its measurement, it is much safer from an operational point of view. The temperature readings are triggered from three to four metres away from the



PSG Foundries was established in 1974 to supply high-quality castings for engineering industries, both in India and overseas. The foundry produces a wide range of grey iron, SG iron (nodular / ductile) and Ni-hard castings of high integrity, creating a niche for itself in the global market. In total, PSG Foundries produces approximately 600 tons of high-quality castings per month.

molten metal, providing a much higher level of operator safety.

There is the high accuracy of system, even while taking the temperature of the pouring of the last mould. The instrument is renowned for its ability to measure real liquid metal temperatures, regardless of high-temperature sparks, low-temperature water vapour, dust and smoke, which can cause errors in temperature measurement.

The instrument features four trigger operating modes for datalogging. Modes are available from logging a measurement for each trigger release to precisely executed, pre-configured routes for consistent, repeated long-term readings. This innovative pyrometer can store up to 9,999 readings.

Emissivity compensation is provided via an icon-based menu system. The operating waveband is carefully chosen to minimise errors due to uncertainty in emissivity and the effects of atmospheric vapour components, such as steam or hot sparks. Consistency of measurement is assured as the system also offers excellent repeatability.

With on-board storage, the Cyclops 055L-2F provides fast, simple data logging with Bluetooth® and USB connectivity to download this data to a PC or mobile device for analysis and trending.

Its rugged instrument casing is designed to withstand harsh environments for extended periods. It also features a lens protector that maintains the optics in good condition.

The ergonomically friendly equipment is designed for single-hand operation, with contact-free measurement for better safety and easier use in hazardous environments.

"AMETEK Land's Cyclops Meltmaster infrared, non-contact thermometer is a highly effective solution for accurate temperature measurement of molten metal. It provides easy, accurate point-and-measure temperature readings. Since its introduction, our plant has significantly reduced our expenditure on disposable DIP type thermocouples," said Mr S Kuppusamy, vice president of PSG Foundries.

"Foundries in India have come to recognise the major advantages of our Cyclops Meltmaster both in terms of cost savings and in safer plant operation," notes Prasath Venkatasamy, national service manager for AMETEK Land in India. "Also, since the equipment is made in India and calibrated in our own NABL-accredited laboratory, our customers benefit from an easier transaction, shorter delivery times, local technical support, and access to annual calibration services."



The instrument can measure the real liquid metal temperature, regardless of high temperature sparks, low temperature water vapour, dust and smoke that can cause errors in temperature measurement.

"Measuring the temperature of molten metal in a foundry can be a slow and disruptive process. The use of disposable dip thermocouples can be both expensive and hazardous. The Cyclops 055L-2F Meltmaster is both fast and accurate, easy to use and does not contact the liquid metal. It is proven to save foundries both time and money by reducing the number of dips required with disposable thermocouples," continues Venkatasamy.

Providing highly accurate measurement and consistency, the Cyclops gives the operator confidence in the measurement for process and quality control applications. The Meltmaster's unique measurement mode provides advanced noise rejection, which locks onto the true liquid metal temperature.

Fitted with an internal, neutral density filter within the visual sighting system, the Cyclops 055L-2F provides some additional eye comfort when viewing high temperatures, without affecting the brightness or clarity of the internal temperature display.

Foundries like PSG in India can now accurately measure the temperature of liquid metal, while providing a much higher level of operator safety and achieving significant savings on consumables.

Contact: AMETEK Land, Stubley Lane, Dronfield S18 1DJ UK.
Tel +44 (0) 1246 417691, fax +44 (0) 1246 410585,
email: land.enquiry@ametek.com web: www.ametek-land.com

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