

Molten Glass Temperature Measurement

INDUSTRY

Glass Manufacturing

SOLUTION

Impac ISR 6 Pyrometer

EQUIPMENT

Molten glass pouring stream

CHALLENGE

The customer needed a pyrometer that allows for continuous measurement of a molten glass stream (~1,150°C) in a dirty environment. Inconsistent pouring temperature was causing quality issues further down the line at the finishing end. The customer was looking to improve on their inconsistent handheld measurement process and use reliable temperature data for a continuous feedback loop to control the pouring temperature.

SOLUTION

The team at AE suggested mounting an Impac ISR 6 pyrometer at each of their pouring streams. With the ratio mode, it uses two adjacent wavelengths for temperature determination to ensure that temperature measurement is largely independent of the object's emissivity and, in wide ranges, unaffected by dust and other contaminants in the field of view. The ISR 6 pyrometer has been proved to provide accurate measurement data for recycled glass and molten mineral rock, once the K-factor setting has been set for each material.



CONCLUSION / RESULT

Working closely with the customers, the AE team was able to further deduct that running an air purge is critical for this application, due to the build-up of debris. AE's application engineers found they could obtain a strong measurement signal even when moving the pyrometer further away from the molten stream, removing the need for a water-cooled jacket. This reduced the cost and installation requirements for the customer.

After a successful trial, the customer went on to convert a complete factory and install multiple pyrometers for monitoring all their pouring streams (one pyrometer per stream).

AE's SCR power controllers are also being considered for even more control of the flow of molten glass, depending on future upgrades to the furnace and electric heaters being used.



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