

Light Bulb Manufacturing

Light Bulb Sealing



Q

Question

How to reduce the scrap rate due to poor bonding between the base of the glass bulb and the metal mount?



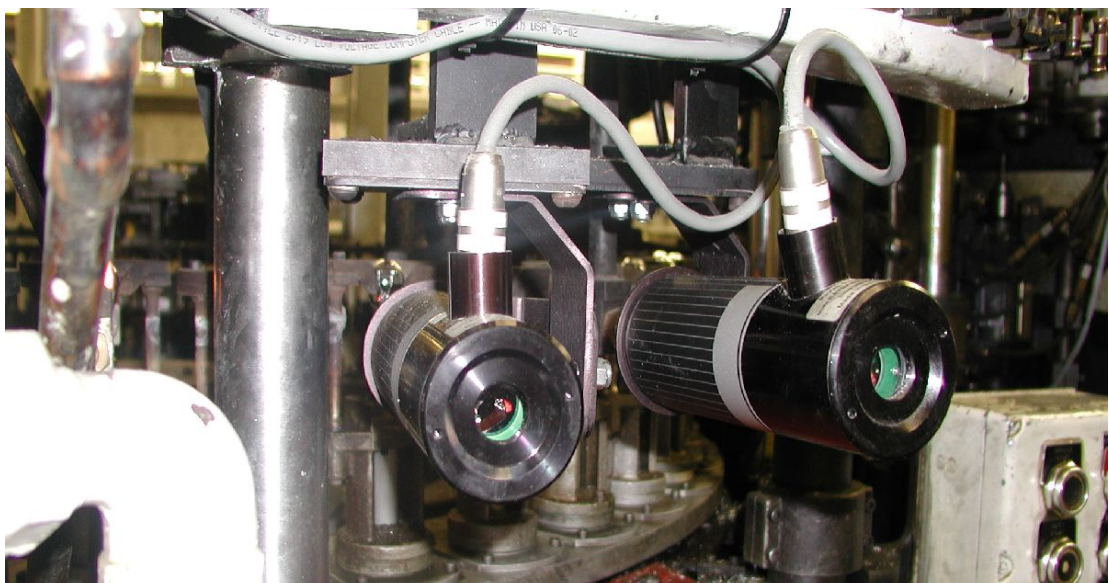
A

Answer

Situation Analysis

During the manufacture of incandescent light bulbs, an adhesive is added to the interior of the metal mount, which is then preheated in a carousel with an open flame. The base of the glass bulb is also baked in an open flame on a second carousel and then the two components are pressed together. Since both parts are constantly rotating during the heating process, using noncontact infrared temperature sensors is the only way to accurately measure the temperature. In addition, the sensor must have high optical resolution to measure the small bulb components. Details of this application include:

- Measurement temperature range: 840 to 920°C (1544 to 1688°F)
- Ambient temperature: up to 65°C (150°F)
- Spot size: 4.5 mm and 30 mm (0.175" and 1.2")
- Distance: 200 mm to 300 mm (8 to 12")



Note: The SXG5 of the Raytek Marathon Series has been replaced by the MMG5.

A

Answer

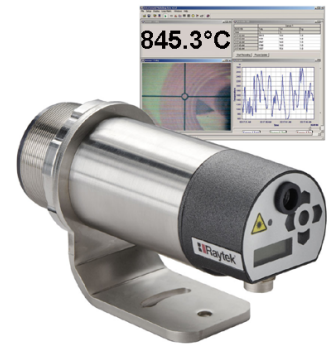
Solution and Improvements

The Raytek MMG5 sensor is the ideal choice to accurately measure temperature for this application, since the same type of sensor may be used for both the metal and glass components. With variable focus optics available, this sensing head can be mounted at any range of distances and has the ability to be adjusted to obtain a spot size of up to 70:1 optical resolution.

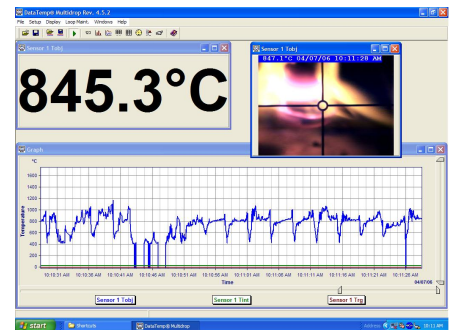
Simultaneous analog and digital outputs are standard for real-time monitoring and data capture, along with Raytek DataTemp Multidrop software which allows for signal post-processing and a large number of other sensor setup capabilities for process control and monitoring.

With its 5 μm spectral response, the MMG5 will yield higher accuracy than a longer wavelength unit when faced with slight variations in emissivity arising from material batch variations.

Other standard features on the MM platform include the alarm output for over-temp conditions, as well as laser and through-the-lens sighting for easy alignment during setup.



High-Performance Pyrometer MMG5 of the Raytek Marathon Series



The DataTemp Multidrop Software displays the current temperature

Raytek Product

- Marathon MMG5
(Standard focus w/ laser sighting)

Benefits

- Reduced Scrap from Maximized System Efficiency
- Ease of Quality Tracking with Automatic Log File Creation
- Interchangeability of Sensors

Accessories

- Adjustable Mounting Bracket
- Air Purge Collar
- Right Angle Mirror
- RS485/RS232 Converter
- DataTemp Multidrop Software

For customized solutions to your process, please contact:

www.flukeprocessinstruments.com

* Photos courtesy of aboutpixel.de/mediamacher

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