

Infrared heat cures powder coating on brake pads

By installing an infrared oven from Heraeus Noblelight, Federal Mogul has eliminated a previous bottleneck and quadrupled the productivity of curing a powder coating of a range of brake pads.

Federal Mogul supplies brake pads, shoes and linings. An important stage in the production of brake pads is the application of an anti-corrosion coating, which provides protection to the pad against water damage during operation. After this black epoxy coating is applied on the production line, it must be then be cured. However, with increasing production requirements, because of growing sales demands, it was found that the curing operation could no longer keep pace with coating application and it was decided to investigate improved powder coating curing technology to eliminate what was becoming a production bottleneck.

As it was a requirement of the curing process that any heat applied should be effective only at the product surface and not within the material of the product, it was decided that infrared, offered the best solution to the problem. In addition, as any new curing system had to be fitted within limited existing space on the production line, this also precluded technologies such as convection ovens and reinforced the argument for infrared.

Infrared is ideally suited to the curing of powder coatings and acts in two stages. The pre-heat stage brings the powder to melt and flow temperature and the coated component is then held at temperature to allow curing to take place.

Medium wave infrared is especially suited to this application and Heraeus carried out tests to establish how best to meet the curing requirements. As a result, a 162kW infrared oven, fitted with 30 fast response medium wave emitters, a honeycomb wire belt conveyor and a control panel for both emitters and conveyor, was installed. This is divided into two zones to provide the melt and cure. With a control panel and a potentiometer the power and dwell within the oven can be varied to provide a curing profile to suit a range of pads.



Features

- quadrupling the productivity of curing
- eliminating bottleneck

Technical Data

- medium wave infrared oven
- total power of 162kW
- 30 fast response medium wave emitters
- 78kW/m² over the first 1.2m of the oven's length
- 51kW/m² over the final 0.8m of the oven's length
- control panel with five selector switches, each controlling six emitters so that these can be set to zero, 50% power or 100% power, as required
- potentiometer provides speed control of the conveyor between 0.5 and 2.0m/min

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