Infrared Booster Speeds Up Powder Coating and Improves Quality of gas cylinder

A retrofitted, Noblelight infrared booster oven from Excelitas has allowed South Staffs Industries Ltd (SSI) to increase throughput and improve quality on the powder-coating line at their Tipton LPG gas cylinder re-qualification factory.

SSI repairs, refurbishes and requalifies low pressure propane and butane cylinders and ammonia, nitrogen and refrigerant gas cylinders to British Standards, with facilities to requalify cylinders up to 50 Bar. Refurbishment of LPG cylinders, which typically takes place after 15 years in service, includes for example removal of old paint and a new powder coating.

Powder coating is carried out to restore the color scheme of the original cylinder manufacturer and, historically, the coating has been gelled and cured in a gas-radiant oven, which emits long wave infrared. However, this oven could prove inefficient and SSI decided to investigate ways to improve the overall efficiency of the process and increase the powder-coating line speed.

On the advice of powder-coating specialists NDK Finishing Systems, SSI contacted leading infrared expert Excelitas, who carried out preliminary investigations on the existing gas radiant system, using a Datapaq oven tracker. These established that the maximum temperature achieved after 405 seconds was 170°C, a temperature which could fail to achieve full curing of the powder.

After carrying out tests on a range of cylinders at its Application center, Excelitas proposed that an electric, 156kW medium wave infrared booster oven should be retrofitted in front of the existing gas radiant oven. This has four zones to cater for the different size of cylinder.

Subsequent Datapaq readings have shown that the booster oven very quickly raises the body temperature of the coated cylinders so that dwell time in the gas radiant oven is substantially reduced, allowing line speeds to be increased by 19%. In addition, optimum curing temperatures can be achieved consistently, leading to quality improvements.

As Ryan Cummings, operations director at SSI, comments, “The booster oven has allowed us to significantly increase our powder coating efficiency, with potential for further benefits once other parts of the process are improved.”

Features

- Fast, medium wave infrared booster
- Energy-efficient
- Improved quality

Technical Data

- 156 kW infrared emitter
- 4 zones switchable
- PID control

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