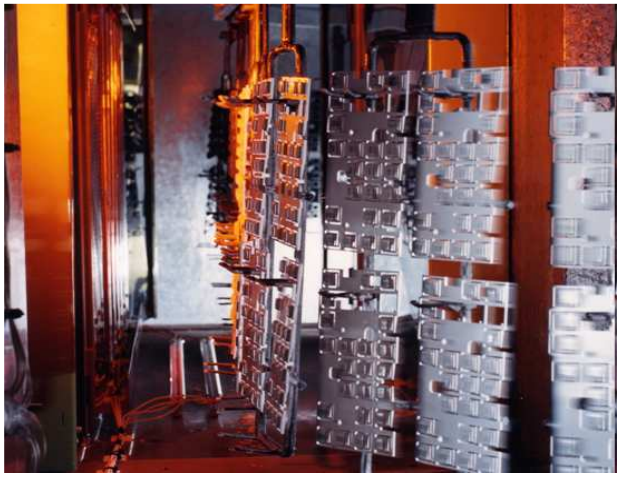
Infrared Oven provides rapid cure

An infrared oven from Heraeus Noblelight is providing drying and curing of paint and lacquer on injection moulded keypads in less than 20% of the time it would take with a convection oven at the Plymouth factory of Kestrel Injection Moulders Ltd. Kestrel produces a wide range of products for major companies in the UK and Europe in the electronics, automotive, computer, white goods and DIY fields.

Microwave oven keypads for a major electrical equipment manufacturer are moulded at Kestrel and then need to be printed and coated with a clear protective lacquer. Kestrel established that the prime reason for a quality problem was the fact that the keypads spent around 20 minutes in the convection oven, which had been used to cure the lacquer after spraying. During this prolonged drying time dust could settle on the painted surface with detriment to the final finish. Consequently, Kestrel decided to investigate alternative drying and curing techniques, bearing in mind that they suffered from certain space constraints at their Plymouth factory. Trials at Heraeus's Test Centre established that the lacquer could be cured rapidly and successfully using medium wave infrared.

As a result, a monorail oven, featuring two 3kW infrared cassettes was installed by Kestrel. This is just 1.5m long and 1m high and fits quite easily within the space available. In operation, it is used to provide drying and curing for two types of keypad. With some pads it is necessary to apply a coating of a water-based paint after moulding. This coating is dried in the oven before the mouldings are printed and then sprayed with a two-pack, resin-based clear lacquer. The mouldings are then passed again through the oven for curing. Some pads do not require the paint coating and they are loaded directly into the oven after moulding, printing and lacquering.

Since the installation of the oven, it has been found that the reject rates have reduced dramatically, as the pads are dried and cured in just 3.5 minutes, compared with the twenty minutes in the convection oven. As a result, there is less opportunity for settling dust to damage the final finish. Furthermore, the infrared system has proved significantly more energy-efficient than the convection oven, as it needs to be switched on only when it is operating.



Features

- reject rates reduced
- increased quality of coating
- energy efficient

Technical Data

- medium wave infrared system
- two 3kW cassettes, fitting in available space

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