



Infrared innovation saves energy in the reflow process

High quality contact plates used for sensors and switches in electronics and motor vehicles are electrolytically tin-plated to provide corrosion resistance and solderability. Around a third of the plates are then finished in a reflow process, where the layer of tin is re-melted to achieve an even better bond between the tin and the plate.

The reflow process takes place at Wilms GmbH in a roll-to-roll process and is very energy-intensive. The company, which is based in Menden, builds galvanizing plants for the tinning of steel and non-ferrous sheet metal worldwide. In the reflow plant, Wilms has been using Heraeus infrared ovens for a long time. However, the project managers at Wilms were looking to achieve energy savings and for energy-efficient alternatives. After consultation with the application specialists from Heraeus, a solution was quickly found using innovative MAX infrared ovens. These combine infrared radiation with convection and optimum reflection. In the oven interior only quartz glass materials including QRC® nanoreflectors from Heraeus are used. MAX infrared ovens are aimed at products that need to reach very high temperatures very quickly and they transfer energy to the products particularly efficiently.

At Wilms, two MAX infrared ovens have now replaced some of the standard Heraeus ovens. In the new reflow line, a reflow plate runs after tinning passes through a convection oven, which dries the moisture. It then reaches the first MAX infrared oven at a temperature of about 60°C. There, the sheet is heated very rapidly to about 200°C and thereafter brought to the required target temperature of about 230°C in the infrared standard module. Jürgen Weber, head of R+D Infrared at Heraeus Noblelight: "MAX ovens are ideal for energy-efficient, very fast heating, however, the standard infrared modules offer greater controllability so that the target temperature can be precisely achieved." After the modification of the plant, the process runs as fast as before, at about 8m/min, but with considerably less energy input. On average, the reflow system with the MAX oven runs about 180 days a year, 24 hours per day. This showed an energy saving of about 30% compared to the previous system with standard infrared modules.



Features

- Tinning of steel and non-ferrous metal sheets
- Reduction of operating costs
- Energy savings of up to 30%

Technical Data

- 2 MAX infrared ovens
- Production line speed: 8m/min.
- Operating times: 180 days/year, 24 hours

Germany
Heraeus Noblelight GmbH
Infrared Process Technology
Reinhard-Heraeus-Ring 7
63801 Kleinostheim
Phone +49 6181 35-8545
Fax +49 6181 35 16-8410
hng-infrared@heraeus.com
www.heraeus-noblelight.com/infrared

USA
Heraeus Noblelight America LLC
1520C Broadmoor Blvd.
Buford, GA 30518
Phone +1 678 835-5764
Fax +1 678 835-5765
info.hna.ip@heraeus.com
www.heraeus-thermal-solutions.com

Great Britain
Heraeus Noblelight Ltd.
Clayhill Industrial Estate
Neston, Cheshire
CH64 3UZ
Phone +44 151 353-2710
Fax +44 151 353-2719
ian.bartley@heraeus.com
www.heraeus-infraredsolutions.co.uk

China
Heraeus Noblelight (Shenyang) LTD
2F, 5th Building 5
No. 406, Guilin Rd, Xuhui District
200233 Shanghai
Phone +8621 3357-5555
Fax +8621 3357-5333
info.hns@heraeus.com
www.heraeus-noblelight.cn