



Infrared Heaters Weld Transport Boxes

Complex wheeled trolleys are produced from injection moulded plastic panels quickly and in an automated process within a special purpose machine, manufactured by Robot Units of Winsford. Infrared emitters transmit heat without contact to suit the programmed production processes. This protects the material, improves the quality of the end product and so reduces final costs.

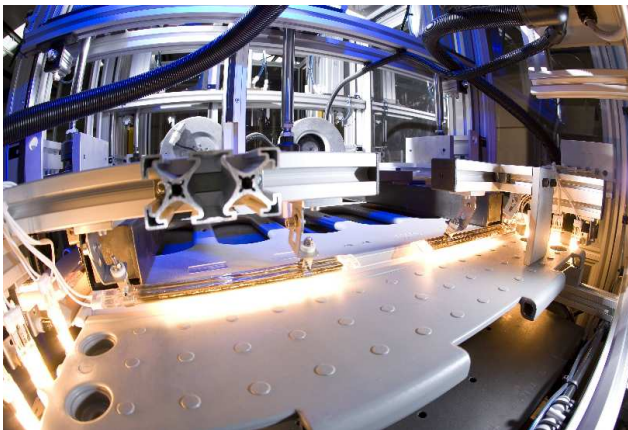
Flat, blow moulded panels from thermoplastic HDPE (high density polyethylene) are supplied basically as unfolded boxes, together with all the integral fixing lugs and holes and slots which would be used in subsequent assembly operations. The formed panels eventually form the rear section of a new lightweight, wheeled trolley intended for bulk deliveries to supermarkets and for transporting linen around hospitals.

The lugs and slots, together with various mating faces, are used to weld the box together. However, their location is such that they are of different thicknesses and geometry. They are also of different shades.

Tests demonstrated that the weld achieved using short wave infrared emitters was stronger than the parent material itself and that there was no burning of the HDPE.

An array of short wave infrared emitters, of different lengths and power ratings, was fitted in the forming station. When the flat moulding arrives at the forming station it is first clamped before the individual short wave emitters are fired up in a programmed sequence to comply with the geometry, thickness and colour of the plastic panel. The flat panel is then folded by the pneumatic tooling and the selected, softened faces and connection points are welded together. Cold air is blasted into the station and the box is removed from the machine.

Infrared radiation is transferred without contact and generates heat directly within the product. Unlike contact plate welding, there is no hot plastic left on the heating source. So plastic parts can be welded together in a way which is reproducible every time, without smell, in a matter of seconds. There is no need for time-consuming cleaning procedures. In seconds, infrared radiation can be targeted to melt the mating surfaces of a product, which then are joined by simply pressing them together.



Features

- Infrared emitters are being used to weld HDPE panels during their forming into a box construction
- Lugs and slots of different thicknesses, geometries and shades, together with various mating faces, are used to weld the box together

Technical Data

- Short wave infrared emitters
- response time of seconds so that they can be easily controlled
- cycle times between 15 to 45 seconds

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