



Infrared Heat Helps Bentley Make the Headliners

Two purpose-designed infrared heating systems are helping to ensure a perfect fit and increase longevity of the headliner interior leather trim on Bentley Continental's 4-door and 2-door models.

Headliners are interior trims, which are fitted in the upper front section of the passenger compartment. The trim of Bentley consists of three components: a substructure/fabric, an adhesive and the leather-facing piece.

Bentley recently introduced a new adhesive, which allows a 5-fold increase in the bond strength of the two materials being joined. However, the properties of the new adhesive require that it be heated to an activation temperature of 65°C if the takt time was to be maintained.

It was soon discovered that heating and joining with a standard convection oven there could often be slight movement between the substructure fabric and the leather, which was not acceptable to Bentley's strict quality control regime. To solve the movement problem and realise the benefits of the new adhesive, Bentley contacted JSK Ultrasonics, of Milton Keynes, who devised the total trim handling system, incorporating fast response, medium wave infrared emitters from Heraeus.

In operation, the substructure fabric is first sprayed with the adhesive and then located exactly in place on the pre-cut leather trim in a vacuum press. A vacuum of 7inHg is then applied to ensure that this alignment is maintained. The infrared system in its handling frame is then moved into position over the vacuum press membrane, which is heated to 85°C. Some of the heat is lost in the membrane but a temperature of 65°C is reached on the bond line (between the substrate and leather) after a PID controlled cycle time of around 3 minutes, when the heating frame is lifted and the vacuum removed. The completed headline assembly is then fitted to the vehicle.

In practice, two adhesive activation systems have been supplied. One features fifteen 5kW, fast response medium wave emitters and serves the 4-door model, while a 108kW system is split into two 54kW units and serves the 2-door model.



Features

- drying of adhesives
- headliner interior leather trim connecting to substructure

Technical Data

- two systems
- one with 15 fast response medium wave emitters each of them 5kW serves 4-door model
- second with total power of 108kW in two units of 54kW serves 2-door model
- heating time of around 3 minutes
- PID control

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