

Heraeus



Infrared Heat for the Automotive Industry

Heraeus Noblelight

© Jaguar Motors Ltd., UK

Infrared emitters to dry paint on bodywork is well known. However, that is only one of the innumerable applications of infrared technology in the manufacture of motor vehicles. From the manufacture of driving mirrors to the forming of carpets or the welding of windscreen wiper fluid cylinders – on the long road from the manufacture of individual components to the production of complete vehicles, there is scarcely a component which does not come into contact with infrared at least once.



Welding



Processing of sound deadening material

● **Powder Coating or Paint curing**

oil filter housings
engine blocks
cylinder head, pistons and other motor parts
steering column

● **Welding**

fluid reservoirs
filter assemblies
air filter box
automotive batteries

● **Drying flux powder**

radiators
battery plates
insulating coating on windings for starter motors

● **Brazing of radiators**

● **Heat shrinking of protective tubes over wiring looms**

● **Heating wiring looms for easier mounting**

● **Airbag assembly**

● **Preheating steel prior to punching**

● **Vulcanizing of the tyre tread**

● **Fixing of sound deadening material**

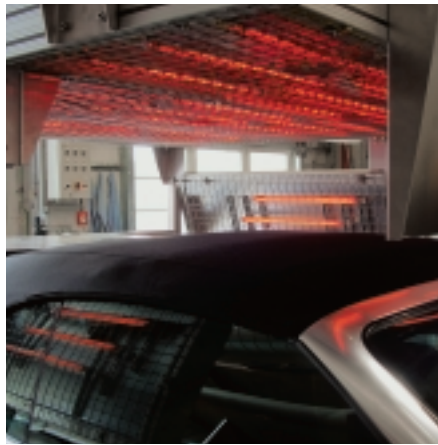
Drying flux powder on radiators



Heating of wiring looms



**Cars
Need
Infrared**



Heating of the soft top to improve flexibility



Heating of chrome strips



Heating of glass prior to PU-foam application

- **Manufacture of mirrors**
Silvering and protective coatings
- **Laminating of glass**
- **Drying screen printed ink on car glass**
- **Heating**
glass prior to PU-foam application
the soft top to improve flexibility
chrome strips
- **Forming of headliner**
- **Forming and laminating of the parcel shelf**
- **Bonding of roof rack**

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Painting of wing mirror casings

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Infrared has an Intensive Heating Effect

Carpets, trims, loudspeaker housings – all things which we take for granted in a car. Infrared is used to ensure that seat covers have no creases and trims and carpets fit exactly.

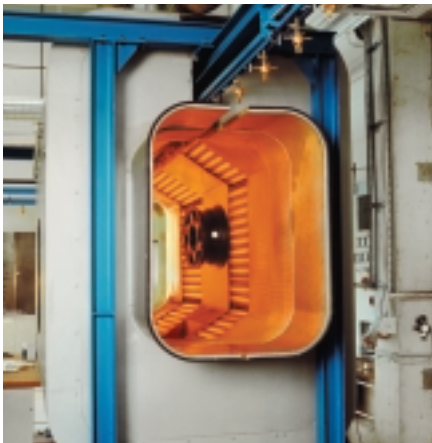
- Powder Coating
aluminum wheels
rocker panels
- PVC Coating of sill panels
- Thermoforming interior and exterior trim components
- Manufacturing of interior trim
- Stress relieving of molded components
- Heating plastic seat covers prior to perforating
- Heat staking of door panels, -dashboards and front grill assemblies



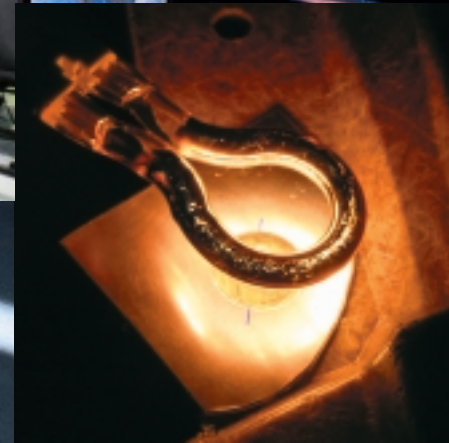
Removing creases



Coating of aluminum wheels



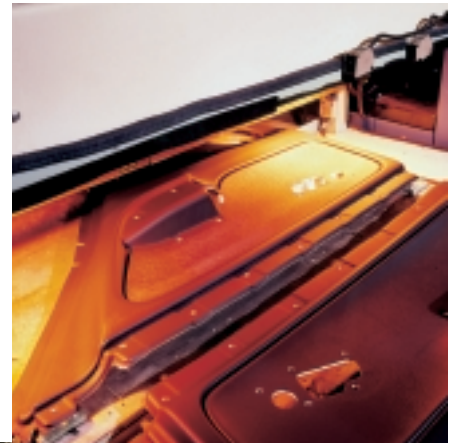
Forming of interior trim



Heat staking



- Curing coating on rubber seals
- Preheating doors and door seals
- Flocking of door seals
- Forming of carpets
- Removing creases from seat covers and door panels
- Activating adhesive on protective trim/strips
- Drying cavity wax
- Embossing of fabric for door panels and dash assembly
- Activating adhesive on door panels
- Drying lacquer on loud speaker covers
- Heat stretching of loud speaker covers



Forming of carpets



Preheating door seals



Activating adhesives

Heating of exterior trim

Infrared Heat is Flexible

Curing of coating on sound deadening material



Car body painting

Virtually every part of a car comes into contact with infrared during its manufacture. Consequently it is important to select the right emitter, to suit the product in the optimum fashion and to achieve the desired effect. Heraeus Noblelight offers a large range of infrared emitters so that it can select the perfect one for you.



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- **Drying and curing**

- car body painting
- spot repair
- hydro wax protective painting
- reflective coating on light assemblies
- protective powder coating on brake discs
- paint on petrol tanks
- paint on plastic bumpers

- **Bonding of friction material on brake part materials**

- **Welding**

- filter tube to fuel tank
- light cluster assemblies

- **Curing of coatings on bitumen sound deadening material**

Curing of paint on plastic bumpers



Drying of reflective coating on light assemblies



Drying of paint on petrol tanks



Heraeus Noblelight Emitters – customised to match your operational requirements

- **Wavelength's matched to the absorption characteristics of your substrate or coating**
 - **Power, heated length and shape tailored to suit your application**
 - **Heat where it's required, when it's required**
- Energy efficient solutions that will enable you to speed up your process and improve the quality of your product.**

Carbon Infrared Emitters CIR®

CIR emitters combine a medium wave spectrum with fast response times and high power outputs. These emitters are produced as round tube- or twin tube emitters, in lengths up to 3m, with maximum power outputs of 100 kW/m² for round tube or 150 kW/m² for twin tube emitters.

Medium Wave Infrared Emitters

Standard emitters with a medium wave spectrum, solid, flexible in construction, lengths (up to 6m) and power output (max. 60 kW/m²), especially suitable for continuous processes.

Fast Response, Medium Wave Infrared Emitters

Emitters, with an improved output in the medium wave (2-4micron). Response times as fast as short wave, with a maximum power output of 150 kW/m² and lengths up to 6.3m

Short Wave Infrared Emitters

Infrared emitters in the short wave region. Twin tubes with lengths of up to 2.4m and high maximum power output of 200 kW/m².

Infrared Halogen Emitters NIR

Halogen infrared emitters with a spectrum in the near-infrared region, a maximum power output of 1000 kW/m² and very fast response times.

Modules

Infrared modules are built in the sizes to suit customer systems, with the optimum infrared emitters and with the power output necessary for the process.

Emitters for Targeted Heat

meet all requirements in finishing processes, where only very small or curved faces, edges, borders or defined contours of the product need heating. For this Heraeus has developed purpose built products such as contoured emitters, small surface emitters, Omega emitters and emitters for heating hot rivets.

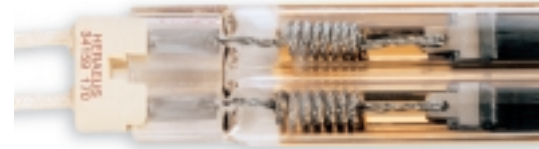
Common to all of these emitters is their focus in shape, size and spectrum to the desired process. Heat is produced in a targeted fashion exactly where it is needed. Consequently energy losses to the surrounding area are very small.

Infrared emitters are produced as round tube or twin tube. **Twin Tube Infrared Emitters** have a high mechanical stability and can be produced in every required length up to 6.3m

A **Gold Reflector** on the IR emitters reflects the IR radiation; the effective radiation onto the object is therefore roughly doubled.

Infrared radiation transfers heat directly and at high efficiency. Heraeus infrared heating technology means heat only where it is needed, at the optimum wavelength for the material and in line with the process.

Heraeus Noblelight is a specialist in customer-specific infrared emitters and helps in the selection of the optimum emitter.



Carbon Twin Infrared Emitters CIR



Carbon Round Tube Infrared Emitters CIR



Medium Wave Infrared Emitters



Fast Response, Medium Wave Infrared Emitters



Short Wave Infrared Emitters



Infrared Halogen Emitters NIR



Infrared Halogen Emitters NIR

Tested, Checked and Proven

Know-how with tradition

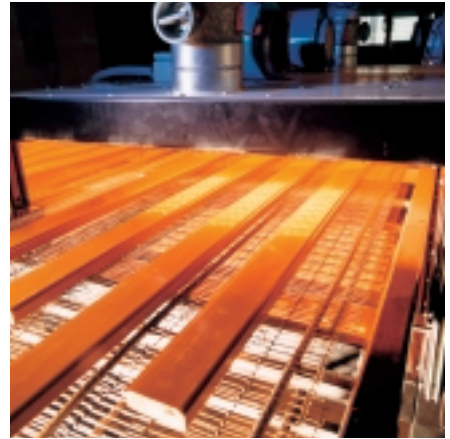
Heraeus Noblelight has many years' experience in infrared heating technology and provides individual advice and service. Heraeus Noblelight offers its customers the capability for proving trials in its in-house Applications Center or on-site with experienced technical assistance. In Application Centers in Kleinostheim (D), Liedekerke (B), Bromborough (GB), Atlanta (USA) and Cavenago Brianza (I), you can examine the effects of infrared and the different infrared spectral radiation on your product as well as measure the temperature distribution during the heating process. From these results Heraeus engineers can calculate the required power output and other parameters needed for your new thermal process. In addition we offer a range of portable test equipment which can be used for an online appraisal of the benefits of infrared.

Areas of Application

- Heating
- Drying
- Coating
- Laminating
- Annealing



Tests in the Application Center



Tests with customer materials

Heraeus Noblelight is your partner for industrial heating processes in

- Glass
- Plastics
- Textiles
- Automotive
- Semi-conductor Manufacture
- Food Processing
- Print and Paper
- Electronics
- Metals

Heraeus sales engineers use 30 years of company experience from all major industries to give you expert guidance during the initial stages of your thermal process design.



Drying trials on-site with portable test equipment

We reserve the right to change the pictures and technical data of this brochure.

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