



## Short Wave Infrared Emitters for Powder Coatings on Engine Housings

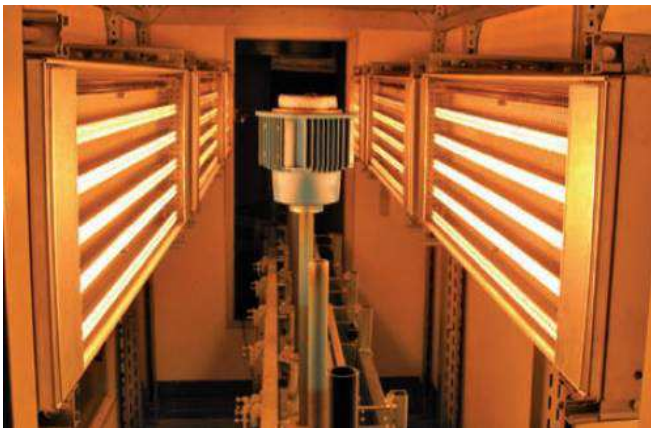
Demag Cranes and Components manufactures high value engines, which feature a high value housing with a top class coating. In an existing, in-line plant, various sizes of engine housings are coated with a powder lacquer. The prefabricated engine housing, with its cooling fins, has a greater mass than empty housings and presents a tough challenge for powder coating.

However, particularly critical in this installation was the fact that there was very little space in the plant in which to carry out the heating processes. The execution of the project came about as a result of a collaboration between several partners in the framework of the I-KON e.V network (The North German Engineering Specialist Organisation for Surface Technology) under the leadership of the AB-Anlagenbau.

Convection ovens, gas infrared and induction proved unsuitable for this application, because they either require too much space or too much maintenance. In the end, electric infrared emitters were chosen as the heating source, because infrared radiation is readily absorbed by powder, so that the powder heats up very quickly. Powder is gelled significantly by infrared than it is in a convection oven. Fast gelling improves the coating quality and permits higher line speeds. Short wave emitters are particularly efficient and powerful and the fast transfer of large amounts of thermal energy allowed short wave emitters to cope easily with the restricted available space.

Today, the engine housings are rotated as they travel through the plant and are electrostatically coated in a fully automatic process using an orbital conveyor. The powder is first heated melted in the heating zone and then cured in a holding zone. There are two infrared modules in the heating and gelling zone and these heat the powder and the housing surface up to 180 °C in a few minutes. In the adjacent holding zone there are two facing infrared modules, which quickly cure the molten powder and depending on the size of the housing, individual emitters can be switched on and off.

Demag are very pleased with the efficient final solution and especially with the extremely consistent surface quality of the powder-coated engine housings.



### Features

- Powder coating on engine housings
- Masking with stencil for powder recovery
- Highly reactive infrared powder for high quality
- Compact infrared system which saves space

### Technische Daten

- Short wave infrared emitters with reaction times of a few seconds
- Three individually controllable zones
- 144kW nominal output
- Rotating holders on conveyor and linear axes for the powder application providing consistent coating

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