



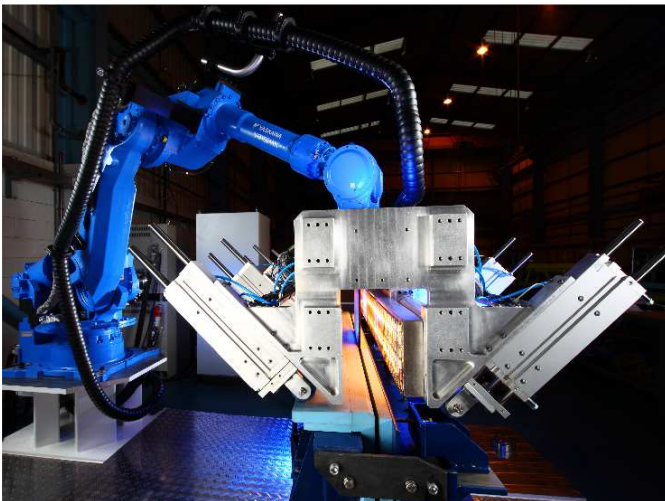
Heraeus Infrared helps to develop Composites Manufacturing Technology

An infrared heating system from Heraeus Noblelight is helping the Hyde Group of Stockport to develop composites manufacturing techniques to advance the application of composite structures in the aircraft of the future. Composite materials are being increasingly specified in aircraft structures and components, with Boeing's 787 Dreamliner currently featuring composites structures for over 50% of its structure, including the fuselage. This allows dramatic savings in weight allowing corresponding improvements in fuel economy.

The Hyde Group is a leading global company with many years experience of project management, design, production and support aspects of aircraft tooling. It carries out extensive research and development projects and programmes for aircraft manufacturers and one such project involves the forming of multi-ply, pre-preg composites. Multi-ply composite assemblies are rigid by nature and, consequently, they must be softened if they are to be formed into specified profiles on moulding tools before curing in autoclaves. Hyde's project engineers investigated various heating techniques to achieve the required softening of the multi-ply assemblies. The softening process was first investigated using hot air guns but warm air ovens were rejected as a solution because of their space requirement and oil-heated mould tools were considered to be potentially contaminating in a process which demands extreme cleanliness.

Eventually, after successful tests at Heraeus's Neston Applications Centre, it was decided to use a fast-response, medium wave infrared heating system. This is installed in a robotic cell and the multi-ply assembly is located in front of the 6 kW infrared emitter by two robots, heated to around 70°C until it is suitably pliable and then laid on the moulding tool, where specially designed rollers ensure that it follows the tool profile.

"We had used infrared previously to assist in glueing processes," explains project engineer, Matt Garner. "We have been very pleased with their precise controllability and compactness in this new important project."



Features

- developing of composite manufacturing techniques
- forming of multi-ply, pre-preg composites
- softening of the material by infrared heat
- spar folding

Technical Data

- fast response medium wave infrared emitters
- robot system
- 70°C

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