



## Infrared emitters optimise vacuum laminating

Car doors, centre consoles and dashboards are made of plastic carrier parts that are clad with foil. This is usually done by vacuum laminating, a process in which an adhesive is applied to the foil or the carrier part.

3CON develops and manufactures innovative tools and machines for the production of car interior parts, such as door panels, instrument panels and many other components. As an internationally operating, technology trend-setting company, 3CON supplies products to all well-known OEM and tier 1 automotive suppliers.

3CON was the first manufacturer of vacuum laminating machines for automotive applications to use Heraeus infrared emitters to heat TPO and PVC foils. Compared to conventional fused silica emitters, Heraeus infrared emitters offer enormous advantages. They heat up the foils faster, reduce cycle times and at the same time save energy, which represents a technological quantum leap for this kind of application.

Long-term series of tests to determine the optimal radiation wavelength were carried out before the fast response medium wave infrared emitters were ready for use. The tests involved in particular PVC and TPO foils and their through-heating behaviour. One aim was to find the optimal wavelength that enables uniform and extremely fast penetration of the infrared radiation into the materials. Heraeus Noblelight manufactures infrared emitters that precisely meet the customer's requirements. Moreover, the emitter control unit developed by 3CON allows the emitter wavelengths to be exactly adjusted to the requirements of the materials. In addition to advantages for the process, this results in a reduction of heating times, or cycle times, by about five seconds. What is more, the fast response medium wave IR emitters used save space and energy compared to the fused silica emitters used hitherto. Standby control as in the case of fused silica emitters, that require permanent preheating to about 30%, is not necessary. Infrared emitters are switched on only when heat is actually required. This avoids unnecessary heating of the machine's periphery, which results in substantial savings of energy. Also, the bottom heating element no longer needs to be moved out, as was necessary hitherto to avoid possible overheating, because IR emitters are cold immediately after switch-off due to their low mass. Accordingly, the additional standby position, that requires about 6 square metres of space, is not needed when using fast response medium wave infrared emitters.



### Features

- Plastic carrier parts are laminated with TPO or PVC foil
- Replaces fused silica emitters
- Shorter cycle times
- No standby required
- Space and energy saved

### Technical data

- Fast response medium wave infrared emitters
- Short response times enable 3CON emitter control unit
- Pulse width regulation from 0% to 100%

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