

Press Release

InfraTec GmbH Infrarotsensorik und Messtechnik

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Non-Destructive Testing of CFRP Components

Thermography as a method of quality assurance in the aerospace industry

Composites in general and carbon fibre reinforced polymers (CFRP) in particular, have long played a major role in the aerospace industry. They are lightweight, extremely strong and can withstand high mechanical stresses. Through their use, fuel consumption can be reduced and CO₂ emissions often noticeably drop decreased. However, assembly errors of these materials can result in severe consequences. This makes examining the components and parts made of CFRP to test for strength through the rigorous demands of the aerospace industry that much more important.

Non-destructive testing (NDT) through active and passive thermography has set new standards in this field. Both methods can be used to visualize and analyse a lot of materials for different types of errors. These methods save money due to the fact that the examined pieces remain intact, and are also efficient because thermal imagers can capture large areas. Facts that are becoming more relevant for the industry, as quality and reliability must always be matched with profitability.

Depending on the process, users can make temperature differences visible for processes that are inherent or caused by externally induced heat flows. Depending on the structure and the thermal conductivity of the analysed material, errors in deeper layers can also be precisely identified. Things like impact damage, delamination, inserts, curing or adhesive failures in frames and stringers can be accurately assessed in terms of type, size and location.

For such demanding tests, InfraTec provides two powerful solutions with the high-end camera series ImageIR® and the VarioCAM® High Definition series. The thermal imagers enable precise, high-resolution temperature measurements of CFRP panels, which are required due to the large differences in the thermo-physical properties of the fibre-reinforced composites. A specially-developed precision calibration ensures high measurement accuracy.

Both thermal imaging system series are impressive in their stand-alone versions and as components of turnkey automation solutions. In combination with efficient control and analysis, as well as customised and appropriate continuous operation excitation sources and controllers, InfraTec offers the total package. The NDT user can flexibly adapt these systems to different test conditions.

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About InfraTec

The InfraTec infrared sensor and measuring technology company was founded in 1991 and has its headquarters in Dresden, Germany. The privately held company employs more than 200 employees and has its own design, manufacturing and distribution capabilities.

With its Infrared Measurement business unit, InfraTec is one of the leading suppliers of commercial thermal imaging technology. In addition to the high-end camera series ImagerIR® and the VarioCAM® High Definition series, InfraTec offers turnkey thermographic automation solutions.

Infrared sensors, with electrically tunable filters based on MOEMS, count among the products of the infrared sensor division, next to spectrally mono and multi channel infrared detectors. These detectors can be used in gas analysis, fire and flame sensor technology and spectroscopy.

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