

NON-DESTRUCTIVE INSPECTION OF CARBON BICYCLE COMPONENTS

Carbon frames, handlebars and rims can contain internal defects that are not visible from the outside. Optically excited lock-in thermography enables non-destructive detection of delaminations, porosity, dry areas or fiber waviness.

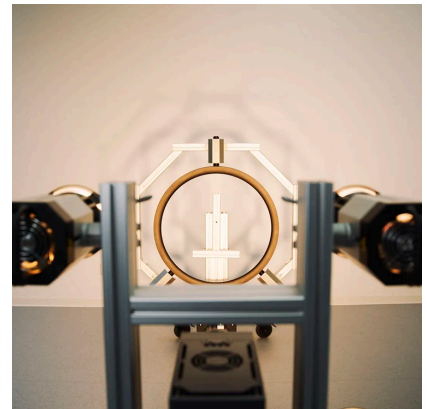


THE CHALLENGE

CFRP bicycle components are often manufactured in complex manual and automated processes. Variations during lay-up or curing can lead to delaminations, porosity, dry areas or fiber waviness. In frames, handlebars and rims, such strength-relevant defects are often located inside the component and cannot be reliably detected by visual inspection alone.

THE SOLUTION

With optically excited lock-in thermography, the component surface is periodically heated using halogen lamps. An infrared camera captures the resulting heat flow within the material. Defects and irregularities disturb the thermal response and create characteristic contrasts that are evaluated by software. The method is particularly suitable for thin-walled CFRP structures and complex joint areas.



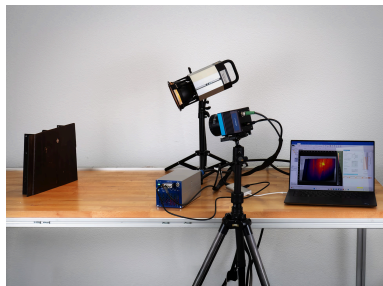
THE RESULT

Thermographic inspection enables non-destructive detection of hidden material and processing defects before affected components are further processed or assembled. The method can be used for laboratory testing, sample inspections and automated serial inspection, supporting reproducible quality assurance of carbon bicycle components.

THE PRODUCTS

OTVIS PRODUCT FAMILY

Optically excited lock-in thermography for precise non-destructive testing



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