

DETECTING DELAMINATION IN CERAMIC BRAKE DISCS AT AN EARLY STAGE

A reliable bond between the friction layer and carrier is essential for the safe performance of ceramic brake discs. Thermography enables non-destructive detection of initial delamination and allows its development to be documented throughout lifetime testing.

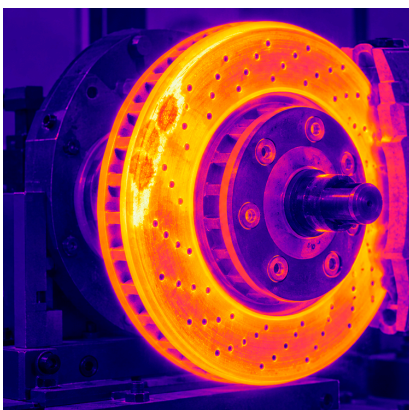
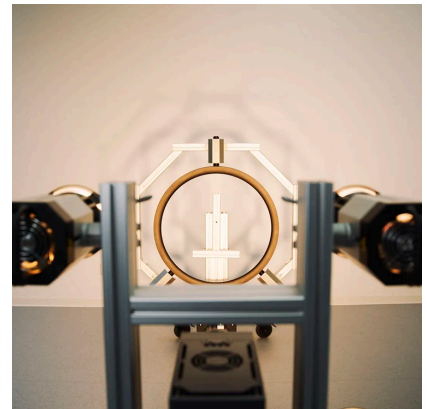


THE CHALLENGE

In ceramic brake discs, the friction layer must remain securely bonded to the carrier throughout the component's service life. Separation at this interface can affect component performance but is not visible from the outside. Detecting initial delamination at an early stage is particularly challenging, as the affected interface may be only a few micrometers thick.

THE SOLUTION

Optically excited lock-in thermography is used to examine the bond between the friction layer and carrier non-destructively. After production, the initial condition of the brake disc is documented in a baseline measurement. During subsequent lifetime testing, repeat inspections are carried out at defined intervals. This allows delamination to be detected and its development to be tracked up to potential component failure.



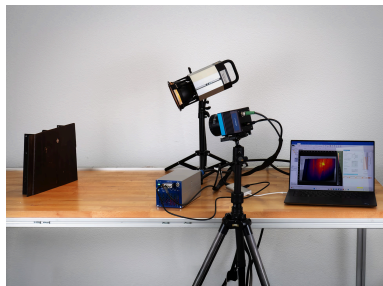
THE RESULT

Thermographic inspection enables reproducible assessment of the interface between friction layer and carrier throughout the validation process. Different disc diameters and thicknesses can be accommodated, and both sides of the brake disc can be inspected. The documented results help development teams identify changes at an early stage and feed the findings back into the manufacturing process.

THE PRODUCTS

OTVIS PRODUCT FAMILY

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



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