



TECHNICAL CERAMICS

1 + 2 *Ceramic components such as aircraft engines or insulators can be tested non-destructively and in a contact-free manner using terahertz measurement techniques*

Non-destructive testing using terahertz measurement techniques

The testing of ceramic materials makes high demands on the selected test procedure. Terahertz measurement techniques allow measurements on the surface and in the interior space of ceramic specimens. Terahertz measurements are contact-free and do not require any additional coupling medium, thus avoiding the not uncommon problem of residue removal. In contrast to contactless X-ray techniques, terahertz measurement techniques present no health risks.

Thickness, defects, cavities and pores can be reliably and clearly detected using this measurement technology.

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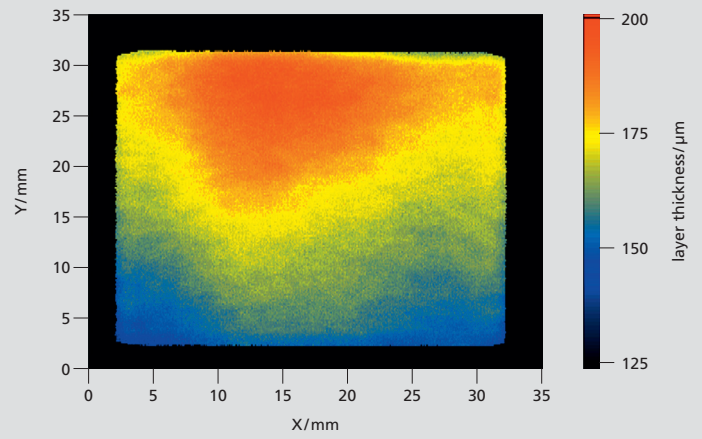
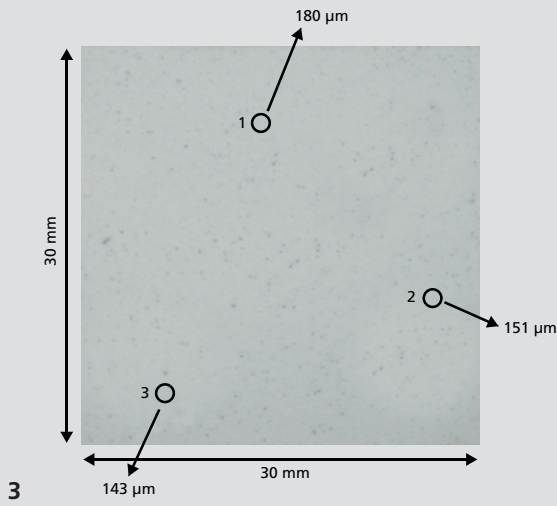
www.TeraTec.org
www.itwm.fraunhofer.de/en

The benefits

- Contact-free: the specimen does not come into contact with any coupling medium
- Simple integration of compact measurement modules into existing production and quality systems
- Specimens with internal cavities can be analyzed
- Inspection of green ceramics and sintered ceramics
- Measurement in transmission and reflection configuration

The system

- Robust design with long-term stability
- User-friendly operator and analysis interface
- Simple adaptation to measuring task
- Radiation harmless to health



3 Ceramic layer on a steel plate: Thickness fluctuations can be measured. Left: Specified measurements determined with the eddy current method

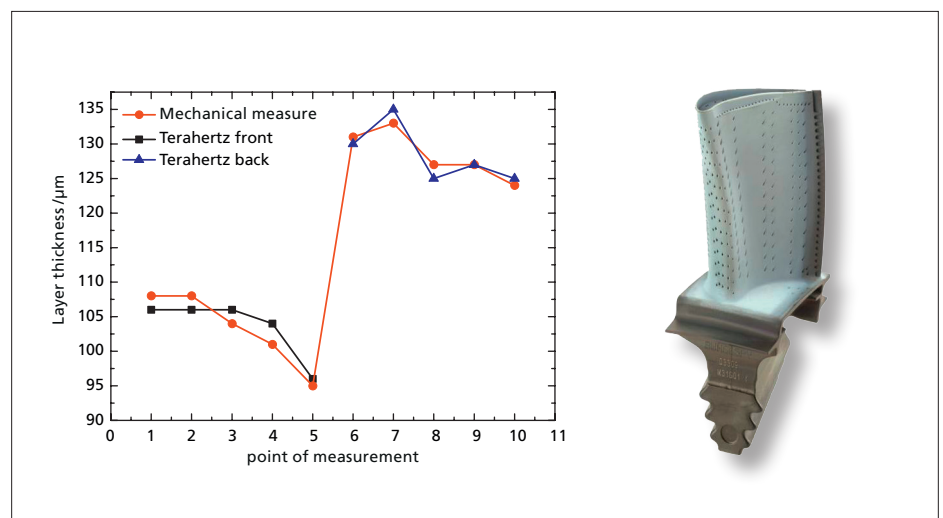
4 Thickness distribution quantitatively displayed

Inspection of ceramics

- Detection of
 - Inhomogeneities
 - Cracks
 - Inclusions
 - Cavities and defects on the inside of the specimen
- Measurement of green ceramics and sintered ceramics
- Thickness measurement of ceramic layers
- Real-time measurements in coating processes

Our offer

- Consultation – on technology and application aspects
- Initial tests – measurements in our application lab
- Feasibility studies – technically and economically
- Equipment rent – for limited-period tasks
- Contract measurement – for industry and research
- Development – from single components to individual complete systems
- Measurements on customer's site –with mobile systems on any large objects



The chart shows the thickness distribution from measurements at a certain height level. Turbine blade: Thickness measurement of ceramic thermal barrier coating.