Efficient Testing Solutions

SURAGUS
Sensors & Instruments

Textural Analysis & Defect Detection for Carbon Fibers

DATA SHEET - EddyCus® CF map 4040

The **EddyCus® CF map 4040** is a desktop device especially designed for the mapping of carbon fiber texture. The testing system utilizes the electrical conductivity of the carbon fibers to gain structural information such as fiber orientation and fiber distribution. The high resolution EC-scans also enable defect detection, e.g. **gaps, fuzzy balls, misalignment, wrinkles, overlaps**, and often **impurities, cracks and delamination**.

The EddyCus® system can be used at any stage in the production: for example for carbon fiber textiles, stacks, preforms or composites. Simply flat to slightly curved parts or preforms can be checked by the table top system. Therefore, it particularly helps process engineers or R&D focused groups to evaluate the results of individual production steps.

The **software** allows to **filter** differently **oriented layers** or highlight **anomalies** such defects. The user can classify the results to deepen the understanding of the material.

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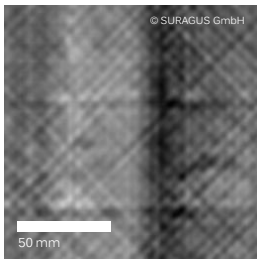
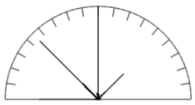
Understanding carbon fiber materials.

Certified ISO 9001

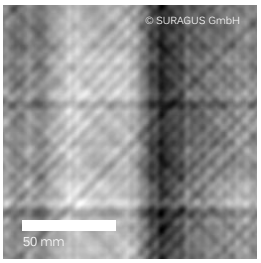
DATA SHEET

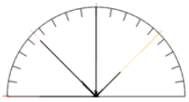
EddyCus® CF map 4040 – Textural Analysis & Defect Detection



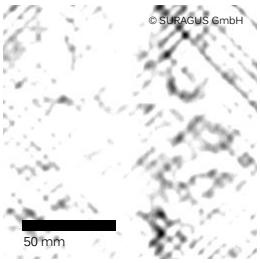


Original EC-Scan
as measurement result





EC-Scan filtered regarding four dominant ply orientations for textural analysis.



Anomalies within the texture can be characterized by the user.

EddyCus® CF map 4040

Parts geometries	Flat or slightly curved
Scan area	400 x 400 x 150 mm³
Min. pitch	0.025 mm
Speed	100 – 300 mm/sec
Mode	Sliding contact or non-contact
Materials	CF fabric, textile, stack, prepreg, preform, composite
Add-ons	Camera for positioning, distance sensor
Device size (w/h/d)	820 x 680 x 600 mm

CHARACTERIZATION & APPLICATION

Textural Analysis

- Fiber orientation of individual layers & hidden layers
- Fiber spacing & fiber distribution

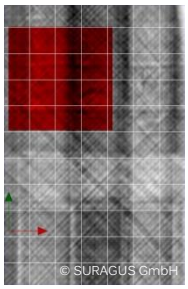
Defects & Errors

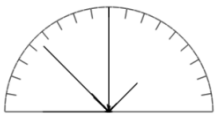
- Gaps
- Overlaps & wrinkles
- Misalignments & undulations
- Delaminations
- Fuzzy balls

Application Fields

- Automotive & aircraft structures
- Energy sector (pipes & tanks)
- Civil engineering (bridges)
- And many more

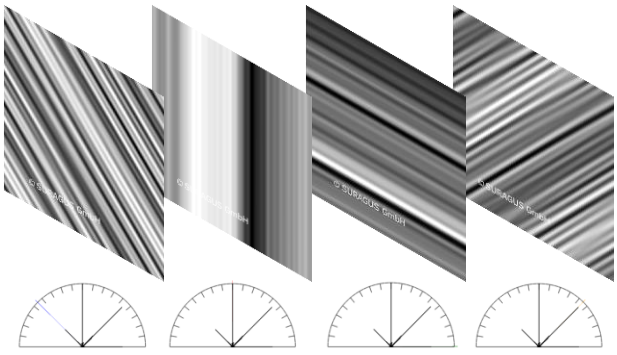
LAYER SEPARATION





EC-Scan with marked area for advanced image processing.

Individual plies can be separated when differently oriented within the stack. Therefore, the user marks an area of the EC-Scan (see above figure) and then filters the particular orientation in the polar diagram, which shows the histogram per angle.



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