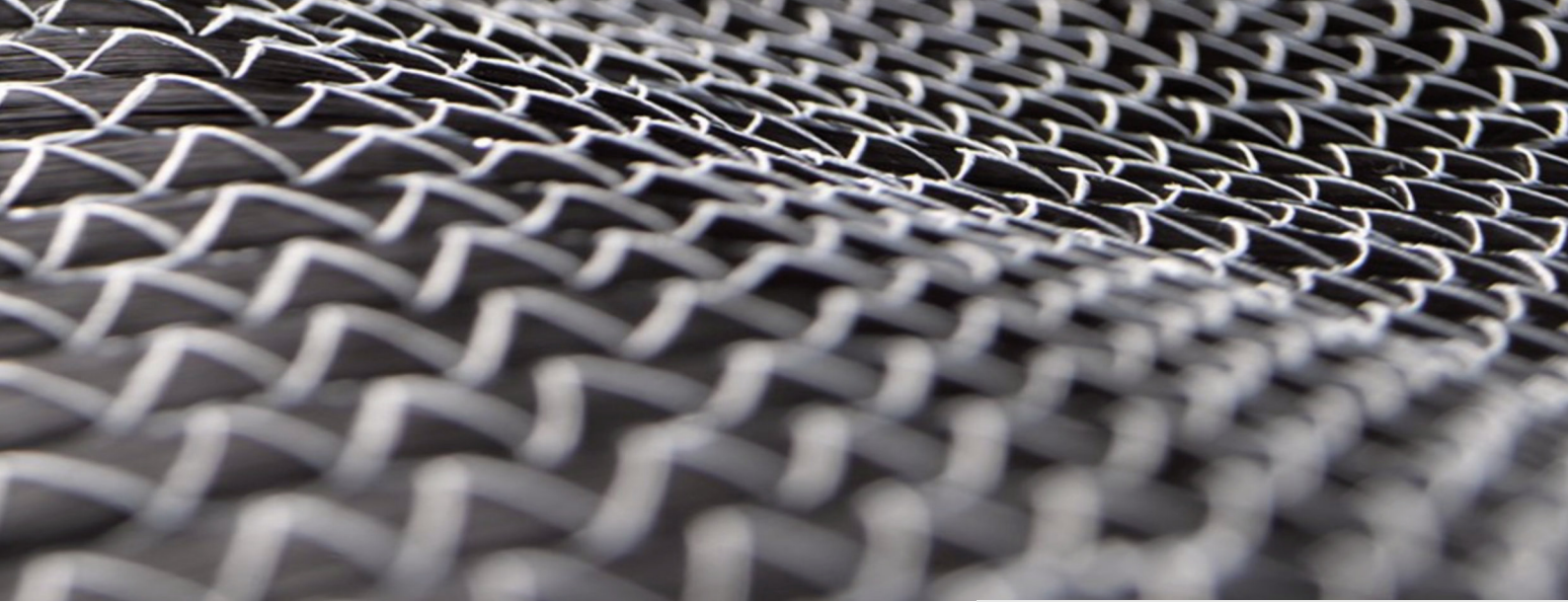


Quality Assurance of Carbon Fiber Materials

S_C_QUA_10



Quality Assurance of Carbon Fiber Materials

SURAGUS offers systems for **non-destructive** and **non-contact** testing of various carbon fiber materials without the use of coupling media. The NDT is applicable to composites and dry carbon fiber fabrics. Therefore, the eddy current testing has the potential to be used as a holistic quality assurance method across the **entire value chain**.

For multi-axial textiles in particular, the high-resolution sensor systems allow the **determination** of local **quality parameters in hidden layers** such as **fiber orientation or fiber uniformity**.

Fiber areal weight can also be determined non-destructively for chopped carbon textiles and recycled preforms or tapes. Further, **damage and defects** such as **undulations, gaps** and **misalignments** can be detected.

The EddyCus® CF systems are available for **offline, at-line, and inline** quality assurance. The SURAGUS testing solution supports the improvement of product quality by a direct **process control**, by increasing **material yield**, and by conducting incoming and outgoing **goods inspection**.

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1st Place



Characterizing - Carbon Fiber Structures

EddyCus® systems visualize fiber structure of hidden layers within a multi-axial composite or fabric. The EC-scan (eddy current image) provides insights on quality parameters such as fiber orientation or distribution of the carbon fiber textile. The NDT system is applicable to cured composites as well as to dry fabrics.

Application

- ▶ Non crimp fabrics (NCF)
- ▶ Preforms
- ▶ Multi-axial fabrics
- ▶ Carbon fiber reinforced plastics (CFRP)
- ▶ Carbon fiber stacks

Structural Parameters

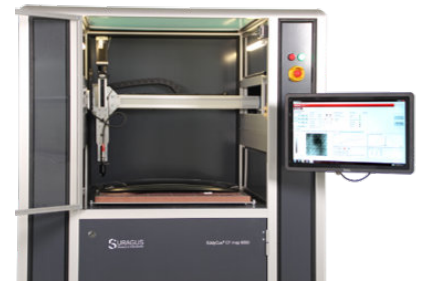
- ▶ Fiber orientation of individual and hidden layers
- ▶ Fiber spacing and distribution

Defects & Errors

- ▶ Gaps
- ▶ Misalignment
- ▶ Wrinkle & overlap
- ▶ Undulation & distortion

Products

- ▶ EddyCus® CF inline GAP
- ▶ EddyCus® CF rob
- ▶ EddyCus® map 6060
- ▶ EddyEVA



EddyCus® CF map 6060



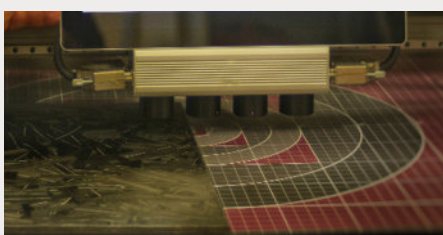
EddyCus® CF rob



EddyCus® CF Inline FAW



EddyCus® CF portable FAW



EddyCus® CF map 5050 ISO

Fiber Areal Weight and Isotropy Measurement

The accurate determination of the **FAW** of carbon fabrics in particular is important to manufacturers of carbon fiber **non-woven** and **UD-tapes**. Eddy current testing utilizes the electrical conductivity of the fiber to characterize the amount of fibers within a **locally defined area**. Subsequently, the basis weight can be **mapped offline** or **monitored inline, without any contact** to the carbon fiber textile.

Benefits

- ▶ Non-contact
- ▶ Coupling-media free
- ▶ Penetration of several layers
- ▶ Inline and offline
- ▶ Potential to assure entire value carbon chain
- ▶ Applicable to carbon fabric and composites

Applications

- ▶ Carbon non-woven
- ▶ UD-tapes
- ▶ Non crimp fabrics (NCF)
- ▶ Carbon fiber SMC

Products

- ▶ EddyCus® CF inline BW
- ▶ EddyCus® CF inline ISO
- ▶ EddyCus® CF portable
- ▶ EddyCus® CF map 5050 ISO