SURAGUS
Sensors & Instruments

EddyCus® inline ISO – Fiber Weight & Fiber Orientation

P_ISO_ 20

Inline Isotropy, Fiber Weight & Orientation Measurement of Discontinuous Carbon Fibers

SURAGUS' **new EddyCus inline ISO** enables inline assessment of uniformity and isotropy (alignment) of discontinuous carbon fiber materials. For recycled carbon fibers (rCF) especially, decisive properties on product quality and integrity such as **fiber orientation** or **degree of isotropy** and the **fiber distribution** or **weight uniformity** are measured. The EddyCus inline ISO determines these properties **non-destructively and without contact during production** and can be used to control the manufacturing of impregnated or dry airlayed, wetlayed, non-wovens and chopped fiber mats. When compared to alternative technologies such as Beta-Ray which can only measure fiber weight or optical systems which can only measure fiber angle, the EddyCus inline ISO incorporates a new sensor design with sensor focus and specialized algorithms enabling the simultaneous measurement of both fiber areal weight and bulk prevalent orientation for rCFRP or CF-SMC.

Based on **long-term proven** eddy current testing technology, the EddyCus inline ISO allows for inline testing of the **isotropic or anisotropic** character of **chopped, discontinuous, recycled mats or continuous carbon fiber non-wovens made for high performance application** in semi-structural parts.

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Engineered and Made in Germany

TÜV SÜD ISO 9001

JEC GROUP WINNER OF 2016 INNOVATION AWARD

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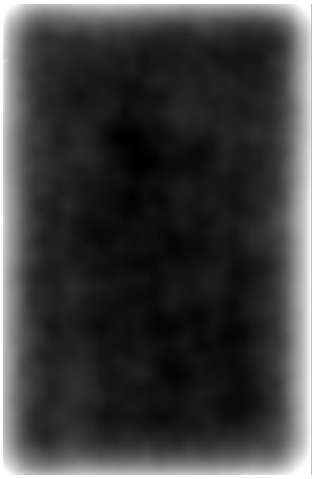
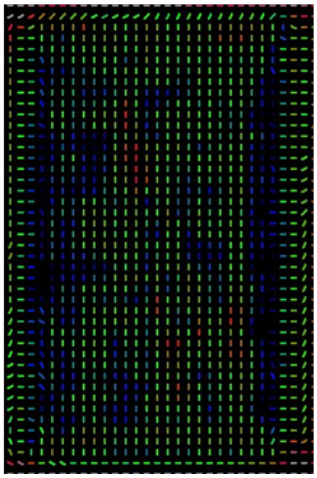
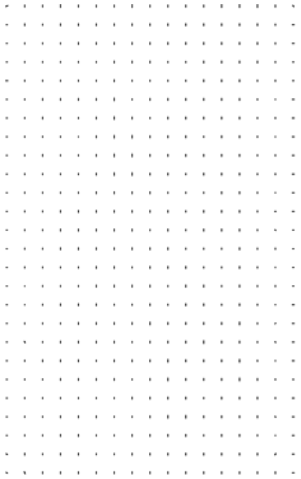


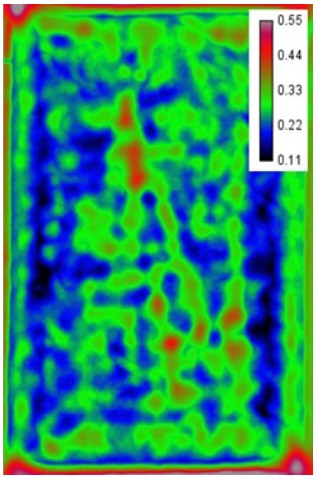
Fiber Areal Weight



Prevalent Fiber Orientation



Scaled Tensor



Anisotropy Strength

Measurement technology	Non-contact high frequency eddy current sensor
Measurement area	20mm in diameter
Required space	Small – approx. 300 mm in production line
Sample rate	1 - 50 measurements per second 1 measurement/mm @ 5m/min production speed
Interface	Process control with uplink to PLC or production control system via UDP or TCP/IP and API integration
Value propositon	Degree of Isotropy (maximum orientation / min orientation Ratio MD/CD - machine direction to cross direction Fiber weight distribution [g/m²] Fiber orientation in degree [°]
Carbon fiber materials	CF non-woven, CF chopped, recyled CF, CF mats airlayed; sprayed discontinous CF with theromplastic or thermoset matrix
Max. sample thickness	15 mm (larger on request)
Web fluttering tolerance	1 mm

Characterization & Application

Results

- Check local fiber orientation in cross section
- Identify high-/low density areas
- Non-destructive and no sample preparation

Application and Value

- Feedback of data into material flow simulation
- Evaluation of CF-SMC processing
- Distinction between GF / CF material
- Non-destructive material specification
- High quality short fiber product