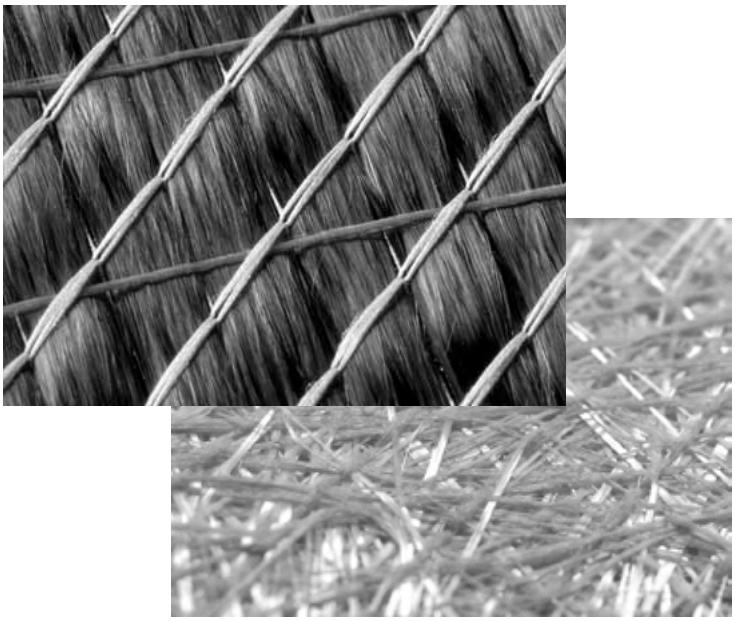
EasyInspect & EasyMeasure

dr. schenk

Automatic Quality & Process Control for Composites



Applications

- Glass fiber / carbon fiber mats
- Glass / carbon uni- and multi-directional weaves
- Glass fiber / carbon fiber textiles
- Prepregs

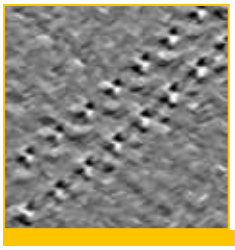
Highest quality for composites

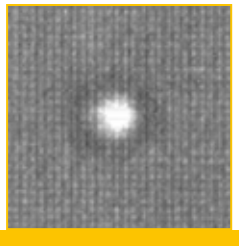
Due to their application in high end products composite materials have to fulfill extremely tight specifications. Requirements for the product quality are strict. This makes automatical optical inspection indispensable.

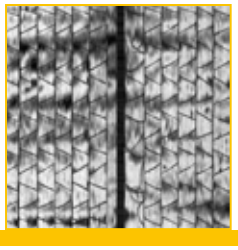
The superior Dr. Schenk's EasyInspect and EasyMeasure are the state-of-the-art automated optical inspection solutions for composite materials used in applications such as airplanes, automobiles, light weight structures, and more. They allow manufacturers to produce high-quality products that deserve the trust of customers, and at the same time guarantee an efficient production at any line speed.

Composite material defects

- Contaminations, e.g:
  - Particles
  - Foreign fibers
- Irregular fiber distribution:
  - Thick spots / Thin spots
  - Holes /Gaps
  - Missing / broken threads
- Streaks
- Wrinkles
- Missing stitches
- and many more...





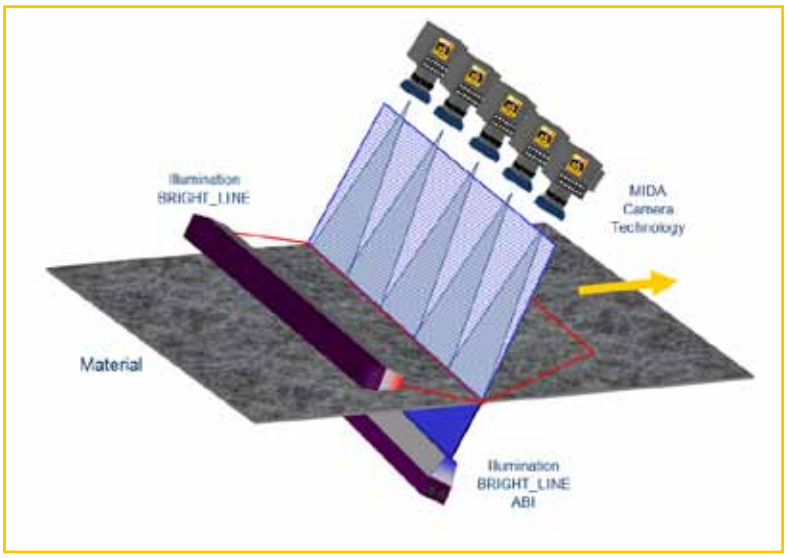


Composites

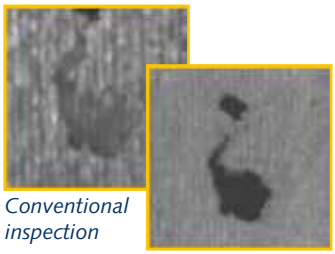
New Inspection Technology - Adaptive Background Illumination and Virtual X-Ray

In addition to the standard inspection setups, Adaptive Background Illumination (ABI) is a completely new concept tailored specifically for the demands of composite inspection. A background illumination in transmission is combined with a reflection illumination for optimal inspection results. The background illumination intensity can be adapted to every material density and characteristic, offering a perfect optical compensation of the material noise for all products. This leads to a significantly improved defect detection and classification based on a better signal-to-noise ratio compared to conventional inspection systems.

ABI can be combined with Virtual X-Ray, which offers an illumination with ultra-high light intensity using modern high power LEDs. This is especially effective for detection and classification of e.g. small foreign material inclusions (differentiation to material noise and neps) on the top and bottom sides of the composite material. Thanks to the Dr. Schenk MIDA technology (Multiple Image Defect Analysis), ABI and Virtual X-Ray can be used on the same scan line by multiplexing between them.

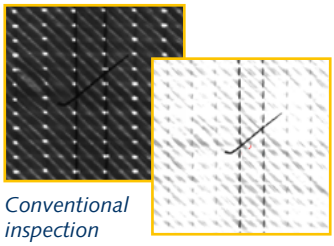


Optical Setup of Virtual XRay and ABI



Conventional inspection

Inspection with ABI

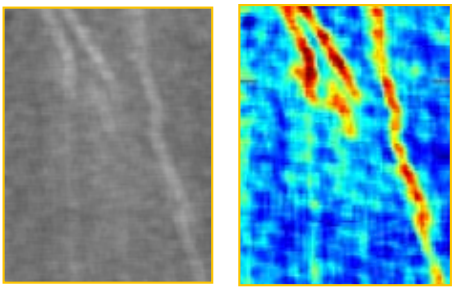


Conventional inspection

Inspection with Virtual X-Ray

EasyMeasure monitoring

Material homogeneity, grammage and mechanical stability are important properties of a composite material. Dr. Schenk's EasyMeasure offers complete monitoring of these aspects for the full material width with more than 65.000 gray levels. The high performance of the inspection system allows the detection of large-scale inhomogeneities (like material cloudiness) in high resolution and great detail.



EasyMeasure homogeneity map in gray values and false-color display

About Dr. Schenk

Dr. Schenk GmbH offers inspection and measurement solutions for automated quality assurance and production process control - a key success factor in the making and converting of many materials, e.g. plastics, textile materials, nonwovens, paper, metal, or glass, for a multitude of markets like display glass, automotive, packaging, medical, renewable energy, and many more.
From modular standard units to highly customized systems – Dr. Schenk's solutions have precision in focus!

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