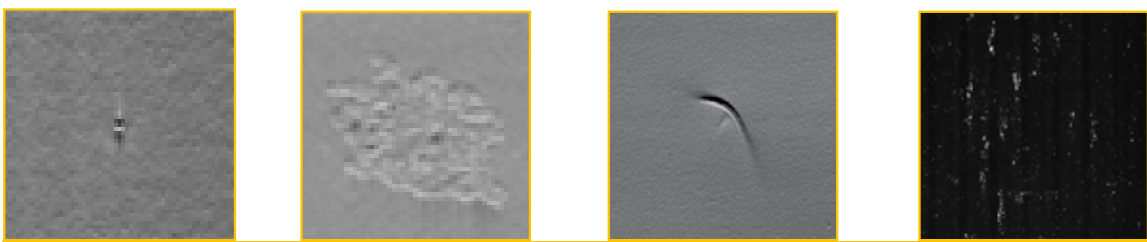


## The Swiss Knife for Flexible Packaging - One Inspection System for all Products and Steps



## One System for All Inspection Tasks



# EasyInspect & EasyMeasure

## 4-in-1 Solution for the Production of Flexible Packaging

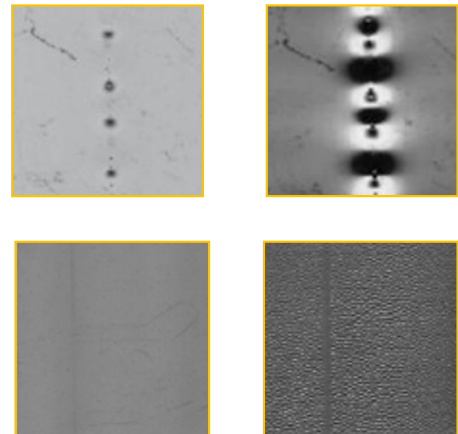
Use one inspection system that inspects all different kinds of base, coated, metallized and converted film products at a slitter or re-winder, even at highest speed. This is possible with the unique Dr. Schenk MIDA technology (Multiple Image Defect Analysis) that catches all base film defects and coating defects, and also monitors the homogeneity of the material with one single camera row - but multiple optical channels:

- Transmission channel (e.g for Insects / Foreign Materials / Pin Holes)
- Transmission distortion channel for defects like Gels or Orange Peel and for improved classification with multiple images for each defect
- Reflection channel (Coating Defects and Homogeneity; Haze Measurement)
- Discrimination of Pin (Through) Holes and Pin Marks (missing layer) for metallized film

## Base Film Defect Detection

With Dr. Schenk's EasyInspect and EasyMeasure inspection package, typical defects in the base film of all flexible packaging can be detected quickly and reliably, no matter which production technology process is used:

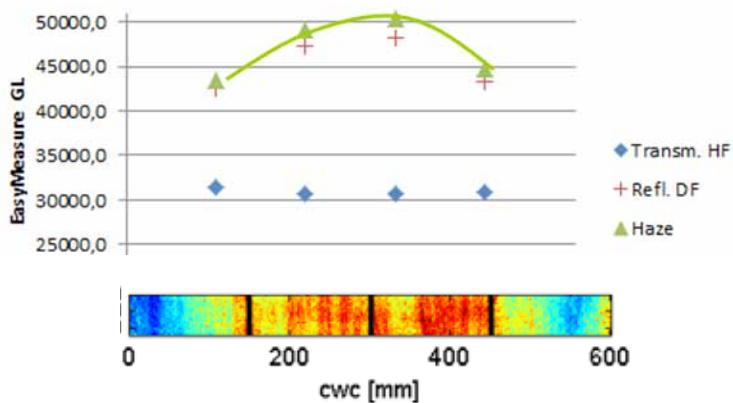
- Extruded / blown film (PE, PET, APET, EVA, PLA, etc.)
- Extruded / cast film (CPP, PA/PE, LDPE/LLDPE, etc.)
- Stretched / Oriented film (OPP/OPET, BOPP, BOPET, etc.)



*Gel and Orange Peel defects in Brightfield Transmission Channel (left) and Distracting Optical Channel (right)*

## Base Film Haze Measurement

The Darkfield Reflection optics of Dr. Schenk can measure the haze of the base film with unparalleled inline precision, using more than 65.000 gray levels (16 bit) which results in valuable feedback for process control and improvement.



## Base Film Defects

- Gels, Fisheyes:
  - P-gel (polymerization gel)
  - E-gel (extrusion gel)
- Oil Stains
- Burn Spots
- Orange Peel (Bubbles)
- Scratches/ Wrinkles
- Insects



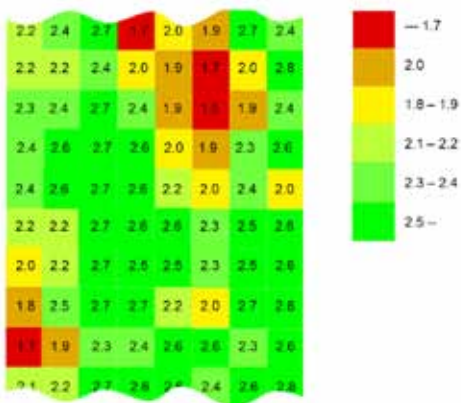
## Ensures Quality, Improves Your Process



Dr. Schenk inspection system at a rewinder

### Measuring Optical Density of Metallized Film

With Dr. Schenk's EasyMeasure, the optical density of metallized layers on packaging film can be reliably monitored for 100% of the material, at rates of down to 0.1 % light transmission. OD values are displayed in user-defined granularity on the material map, allowing exact analysis and process optimization.

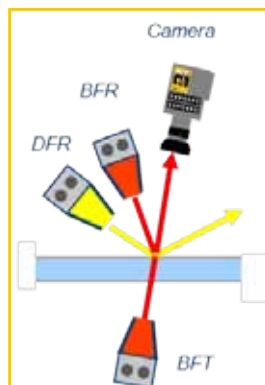


Displaying the optical density of a metallized layer on a packaging film. Values below 1.8 OD are marked as critical.

### Metallized and Coated Film Defect Detection

The Dr. Schenk EasyInspect system can detect and differentiate Pin Holes vs. Pin Windows, and other coating defects on metallized film or clear (solvent or  $AlO_x$  coated) film reliably. With the MIDA technology (Multiple Image Defect Analysis), this can be done using multiple optical channels, for these film types:

- Metallized Films
- $AlO_x$  Coated Films
- Water-based (Solvent) Coating / Films



### MIDA Technology

Dr. Schenk's unique Multiple Image Defect Analysis (MIDA) provides multiple separate channels with individual optical setup for a single camera line. This saves time, money and installation space.

### Metallized and Coated Film Properties

Monitoring the coating layers of  $AlO_x$  and solvent-based coated film or metallized film is the final inspection task for flexible packaging products.

EasyMeasure completes the Dr. Schenk inspection package by generating a homogeneity map of surface properties like:

- Coating Homogeneity
- Optical Density
- Material Transparency
- and other, user-defined quality criteria

Operators are notified of any issues quickly and so can take counter-measures as early as possible. This helps to save money and improve the production process permanently.

Your Reliable Partner



*Dr. Schenk's production site*

Dr. Schenk GmbH, established in 1985, is an innovative high-tech company based near Munich, Germany. Dr. Schenk develops, produces and markets optical surface inspection and measurement solutions for automated quality assurance and production process monitoring. This includes high-quality, customizable handling solutions. Our products are 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.

Throughout the world Dr. Schenk's 220 employees continue to set new standards for the inspection of surfaces. Over 10,000 m<sup>2</sup> of modern, cleanroom-capable production and testing facilities are available to research, development and production to apply cutting-edge optics and electronics to customer applications.

Dr. Schenk offers extensive from-lab-to-fab knowledge. Customers benefit from our expertise in the translation of lab applications to large scale productions. Our sophisticated handling solutions complete the one-stop-shopping experience.

The company's objective is complete customer satisfaction. This is achieved through innovative and practical solutions that can be implemented into new and existing production lines. Local sales and service facilities around the world ensure fast support, technical service, training and consulting at any phase of a project.

From modular standard units to highly customized systems – Dr. Schenk's solutions have precision in focus!!

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