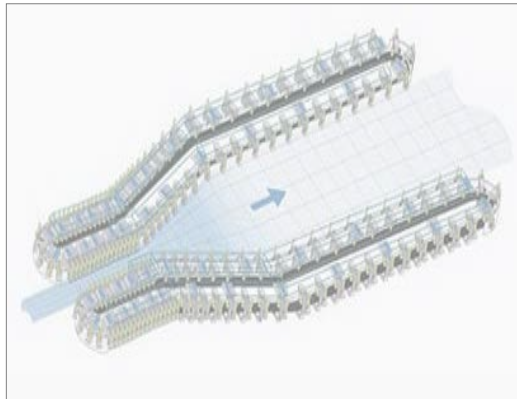


In-line Inspection for High-Quality Stretched Films Reliable Detection of Smallest Defects



*BOPET production line,
simultaneous stretching process*

As the market for high-end films, e.g. BOPET, continues to grow manufacturers face the challenge of increasing their production and producing material of better quality.

The films must be free from even the smallest defects in order to avoid function failure of the finished products, e.g. high-quality displays.

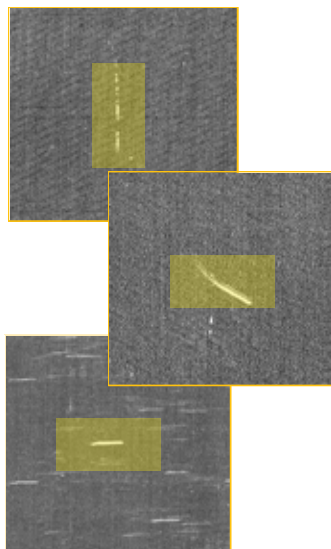
Dr. Schenk's solutions help to ensure highest material quality and optimize the production process.

Defect detection in high-quality films: Aiming for zero-defect

Since even a micro-scratch in a high-end TFT display can lead to the total failure of the display it is in the film manufacturers' interest to catch those defects before the film is processed further.

Dr. Schenk's application of transmission and reflection optics ensures that those critical micro-scratches are caught early in the production process. The benefit is that the production processes can be adjusted at the earliest possible time. This saves time and money by not processing defective material any further and by avoiding these defects in future production.

EasyInspect is the ideal inspection solution for high-quality films and foils, such as PE, PET and BOPET.



Scratches in BOPET film in various directions

KEY FEATURES

- Advanced camera and illumination technology for highest contrast and optimized resolution
- Ultra-bright LED units for maximum light
- Reliable and accurate defect classification
- In-line capability
- Standard components for optimal price / performance ratio
- User-friendly interfaces, e.g. roadmap (SEMI standards)
- Data storage function for quality evaluation and process optimization

How micro-scratch detection with Multi-Directional Darkfield Technology works

Typical defects in high-end films are pinholes, gels, coating defects - in the case of converted films - and scratches. If scratches are oriented perpendicular to the transport direction of the film they are relatively easy to detect. When they appear in the transport direction of the material their detection becomes far more difficult.

The main challenge in the detection of micro-scratches is for the cameras to catch enough of the light emitted by the defect. Only a small amount of the light emitted from a micro-scratch in MDO reaches the cameras. This is especially true for scratches that are free of foreign contaminants which would scatter the light more.

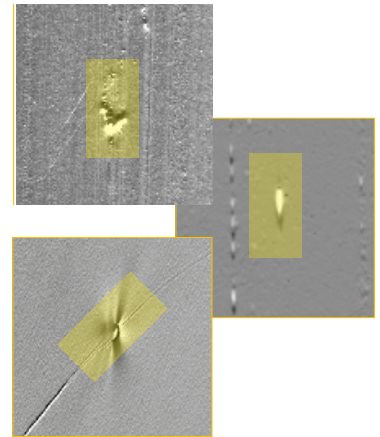
The novel Multi-Directional Darkfield Illumination provides a virtual 360° light coverage. Multiple different incident light angles ensure that scratches in any direction scatter sufficient light to be detected by the cameras.

EasyInspect detects defects that occur during the production of the film base material or in subsequent processing steps, e.g. stretching or coating. It offers reliable and repeatable detection of smallest defects and helps manufacturers to produce highest quality materials.

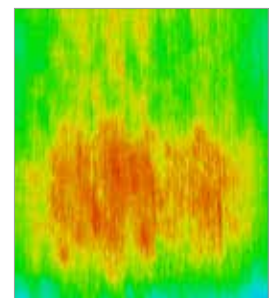
EasyMeasure option: 100% process control

To improve the process control even further, EasyInspect can be equipped with the EasyMeasure function. EasyMeasure is ideal for monitoring e.g. thickness variations, porosity or the quality of coating layers.

True to the name monitoring is easy to perform and adds extra control over the high-quality film production process.



Typical defects in high-end films: gel, die-line & fish-eye, scratch



Thickness monitoring of BOPET film



AOI of transparent BOPET film

KEY BENEFITS

- Ensure optimum product quality
- Optimize the stretch film manufacturing process through adjustment of the stretching tool
- Combine defect inspection & material monitoring
- Establish consistent quality standards
- Improve yield by quickly identifying the source of a defect and eliminating the problem immediately

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 your material in focus!

CONTACT

Dr. Schenk GmbH Industriemesstechnik

Headquarters

Bussardstr. 2
82166 Graefelfing
GERMANY

Phone: +49-89-85695-0
Fax: +49-89-85695-200

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