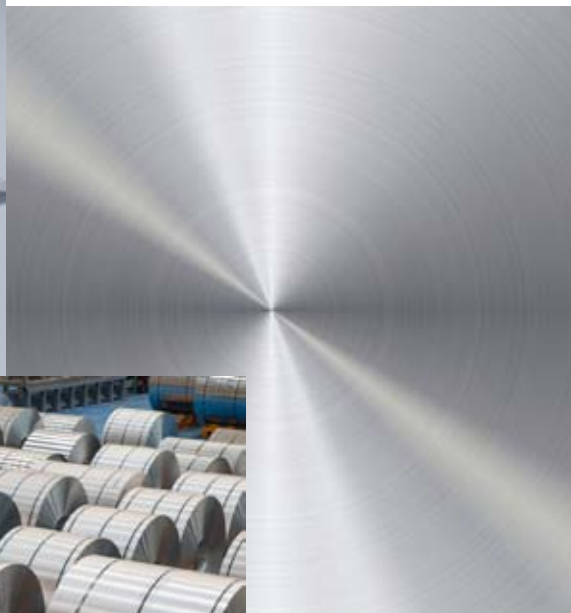
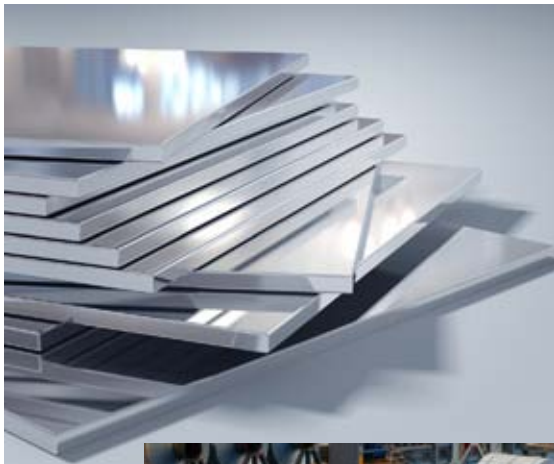
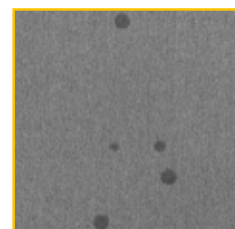
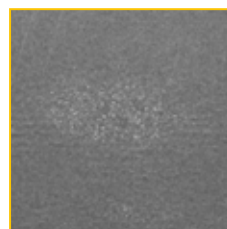
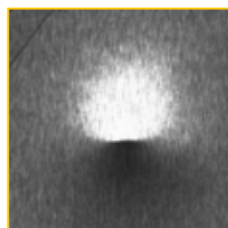
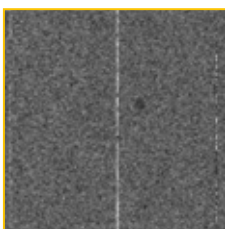


Automatic Optical Surface Inspection for Aluminum



Aluminum

The Complete Inspection Solution



EasyInspect & EasyMeasure

YOUR BENEFITS

Powerful Automatic Optical Inspection

- Best detection rates using multiple views with advanced lighting technology for every defect (MIDA technology)
- Intelligent classification combining all defect information from all views to differentiate critical defects from uncritical material irregularities

Best Technology in Optics, Electronics, Software

- Special optics for directed light to detect smaller topographic defects reliably
- Unique Ultra High Speed Dual Line Camera (up to 1280 MHz) for highest inspection speed and improved sensitivity for low contrast defects
- Advanced software, including streak and period detection

Quality Information System (QIS)

- System *Industry 4.0 Ready* using open SQL database for storage and further processing of information
- Flexible reporting for internal and external documentation of material quality

Typical Applications

- Rolling Mills
- Temper Mills
- Tension Levelling Lines
- Stretching Lines
- Lithographic Lines
- Separator Lines
- Coating Lines
- Winders and Slitters
- Specialized Applications

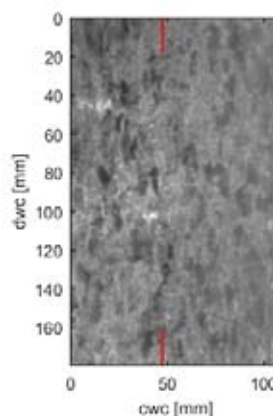


EasyMeasure for monitoring the aluminum surface properties

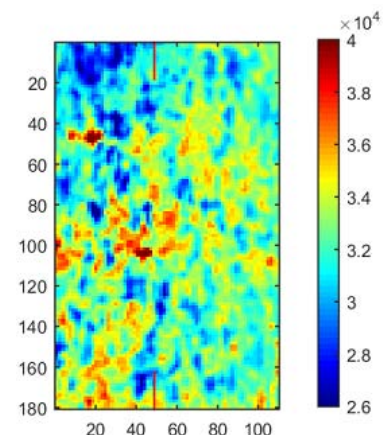
EasyMeasure provides comprehensive information about the aluminum surface e.g. coarseness, gloss or coating homogeneity, to optimize the production process and product quality.

Combine Dr. Schenk's EasyInspect for local defect detection with EasyMeasure for complete material monitoring to gain an added dimension of quality control.

With this system you have a fast and powerful control tool for quick corrections of costly production malfunctions, without additional hardware and implementation costs.



Example of EasyMeasure display of coarse core effects on aluminum surface, displayed in gray values and false color at a 16 bit resolution²

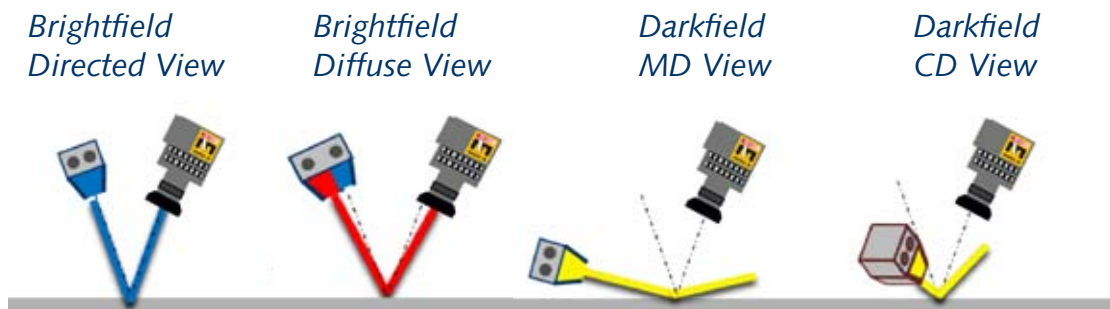


Ensures Quality, Improves Your Process

EasyInspect - powerful inspection of aluminum with MIDA

EasyInspect uses Dr. Schenk's unique MIDA (Multiple Image Defect Analysis) technology to inspect aluminum with multiple views. The powerful software combines all information from 2x4 optical channels, ensuring the most comprehensive defect classification to differentiate critical defects from uncritical material irregularities.

With four views for the top side and the same four views for the bottom side, unparalleled precision in detection is achieved.



| Defect Types | | | |
|---|--|--|--|
| Contrast Defects Absorbing Defects | Topographic Defects Deformation Defects | Scattering Defects (Cross Direction) | Scattering Defects (Machine Direction) |
| Defect Classes | | | |
| Rubbing scratches Water stains Splashed paint Pickup / Black Streaks Pigment Stripes Scales Dross Edge Defects | Coater Roll Defects Indentations Pressure Marks Hills Craters Dents Blisters | Pigment Stripes Scratches Cross Breaks Pits Rubs Pinches Laminates Pinheads | Rubbing Scratches Pits (Corrosion) Rubs Pinheads Rolled over Scratches |
| Defect Image Examples | | | |
| | | | |
| | | | |

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. The systems 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 over 300 employees continue to set new standards for the inspection of surfaces. More than 12,000 m² 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.

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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