

ROSI | Real-Time Optical Surface Inspection



AI-POWERED OPTICAL QUALITY MEASUREMENT FOR MAXIMUM PRECISION

Achieving consistent quality in processing panel-shaped materials requires accuracy, precision, and intelligent automation. Grenzebach's Real-Time Optical Surface Inspection technology, short ROSI, delivers quality assessment of panel products, automatically sorting them into multiple quality categories based on individual customer specifications.

At its core, the system features Grenzebach's camera solution, which, intelligently combined with state-of-the-art LED illumination, enables precise geometry and defect analysis. This cutting-edge machine vision technology identifies surface defects and dimensional deviations. Furthermore, it detects open parts, color variations, and rough textures—providing optimal grading results and minimizing waste across a wide range of materials.

ROSI—FOR RELIABLE AND LOW-MAINTENANCE OPERATION

» **Robust and Durable**

High mechanical stability provides long-term reliability in demanding environments.

» **Self-Monitoring System**

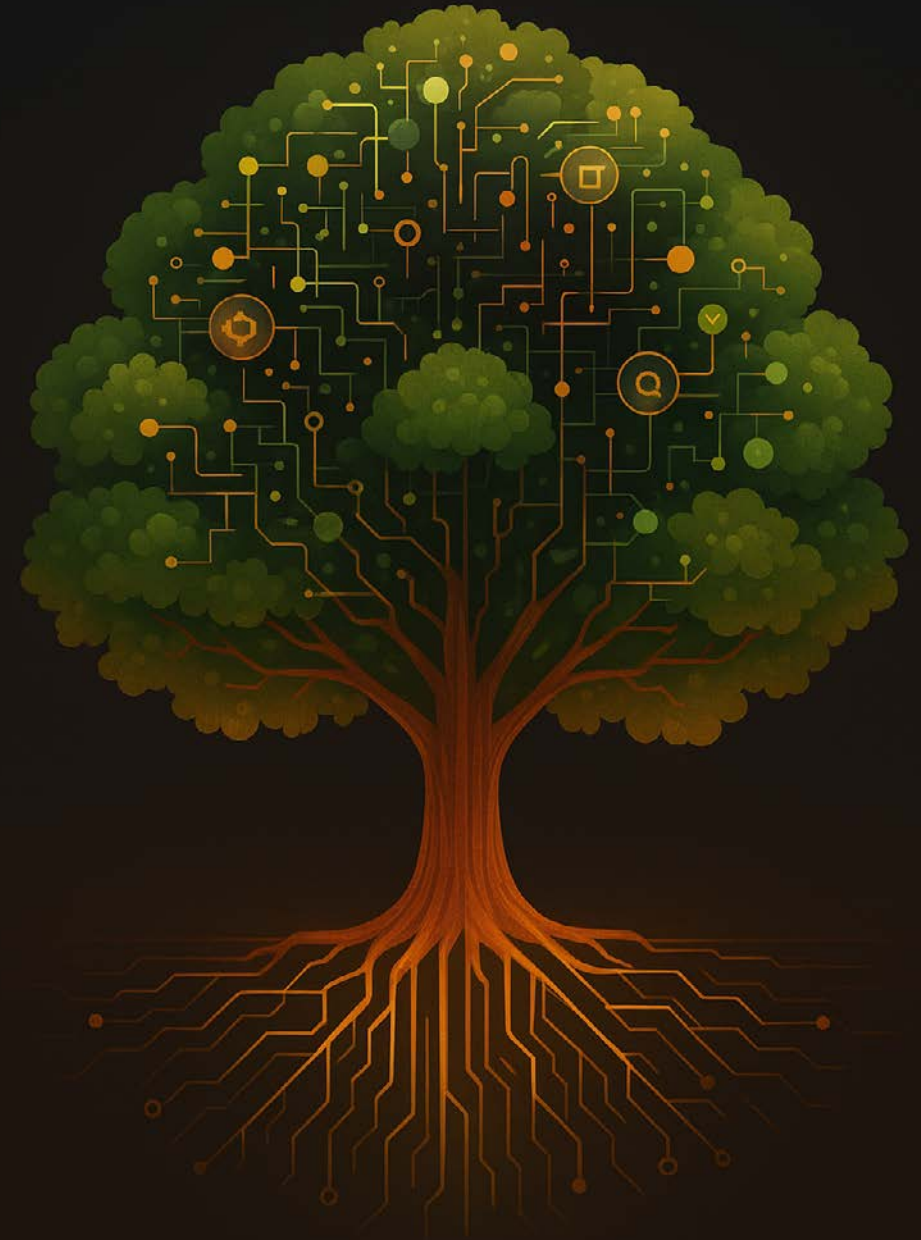
The system minimizes maintenance and reduces downtime and operational costs.

» **Seamless Integration**

Web-based user interface for easy integration on actual operating systems.

» **Remote Support**

Secure remote access for efficient troubleshooting and service.





ADVANCED OPTICAL INSPECTION

» Adaptive LED Technology

LED lighting can be flexibly adapted to suit various panel materials and surface characteristics for optimal surface illumination.

» Multi-Channel Imaging

Inspects surfaces using reflection and transmission images for comprehensive defect detection.

» High-Speed Processing

Real-time image analysis enables immediate defect detection for fast and accurate quality assessment.

SMART DEFECT CLASSIFICATION AND QUALITY GRADING

» AI-Driven Image Analysis

Detects and classifies standard and customer-defined board defects.

» External Extensions

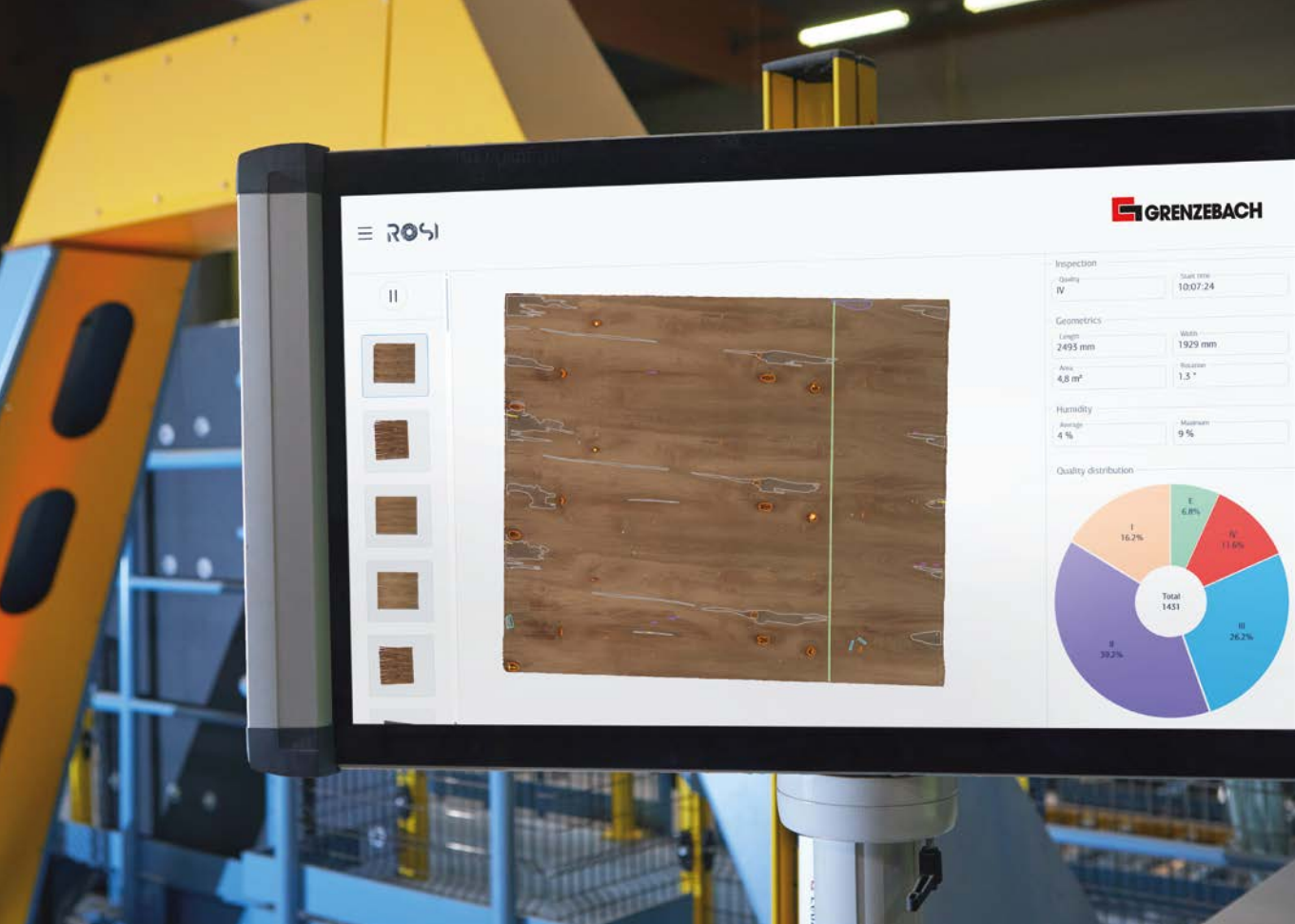
By adding additional sensors (e.g., moisture, thickness, density), the quality assessment can be flexibly extended to meet customer requirements.

» Precision Grading

All acquired board information can be easily used for grading evaluation, resulting in customer-specific rules.

» Optimized Sorting

Changes in grading rules can be simulated offline, eliminating the need for inline experimentation.



AI-POWERED SURFACE INSPECTION
SMARTER. FASTER. MORE ACCURATE.

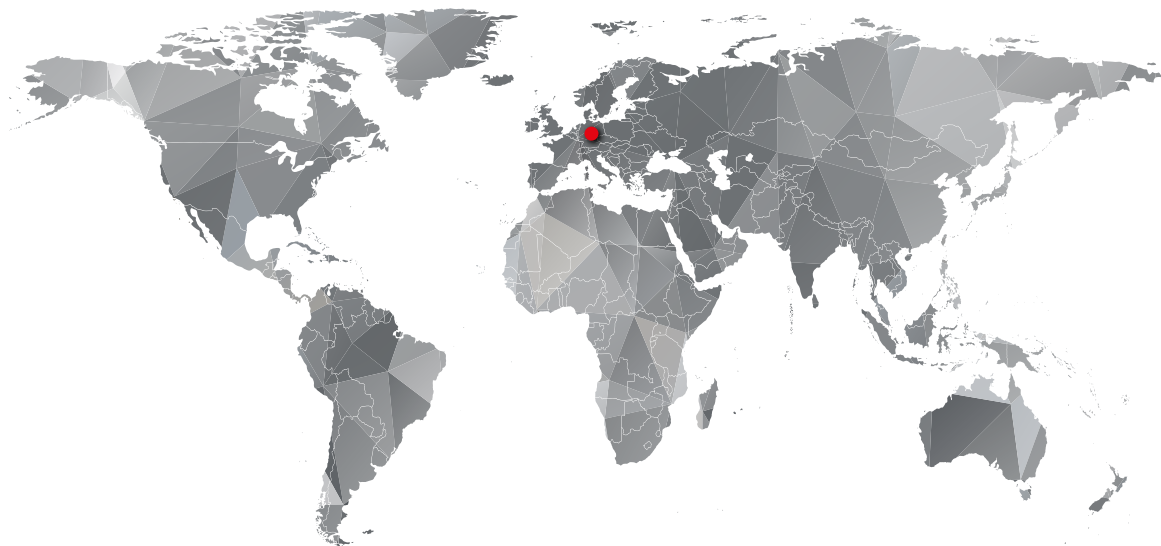
INDIVIDUAL GRADING RULE CREATION

Our rule system allows easy and flexible adaptation of grading rules to meet each individual customer's requirement. Also, for independent or complex changes by the customer itself, no programming skills are required. Rules are easily combined by drawing lines.

The board's quality results are automatically processed based on the customer-defined grading rules, providing consistent, reliable classification and optimal material flow without manual intervention.

YOUR KEY BENEFITS

- » **AI Board Analysis**
State-of-the-art technology enables easy integration of customer-defined defect detection.
- » **Individual Quality Grading**
Flexible grading rules open each customer to the maximum grading opportunities.
- » **Reduced Waste, Increased Yield**
Precise board analysis and flexible sorting lead to significantly higher target values.
- » **Flexible System Integration**
Access and control from all over the plant.
- » **Faster, More Efficient Production**
Automated processes and real-time evaluation speed up the production line, improving overall efficiency.
- » **Less Manual Interventions**
Automated decision-making minimizes manual tasks, allowing employees to focus on higher-value activities.



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