



SpechtLab: AI SERIES : CUTTING BLADE
CONTROL SYSTEM

Make the Invisible Risks in Production Visible

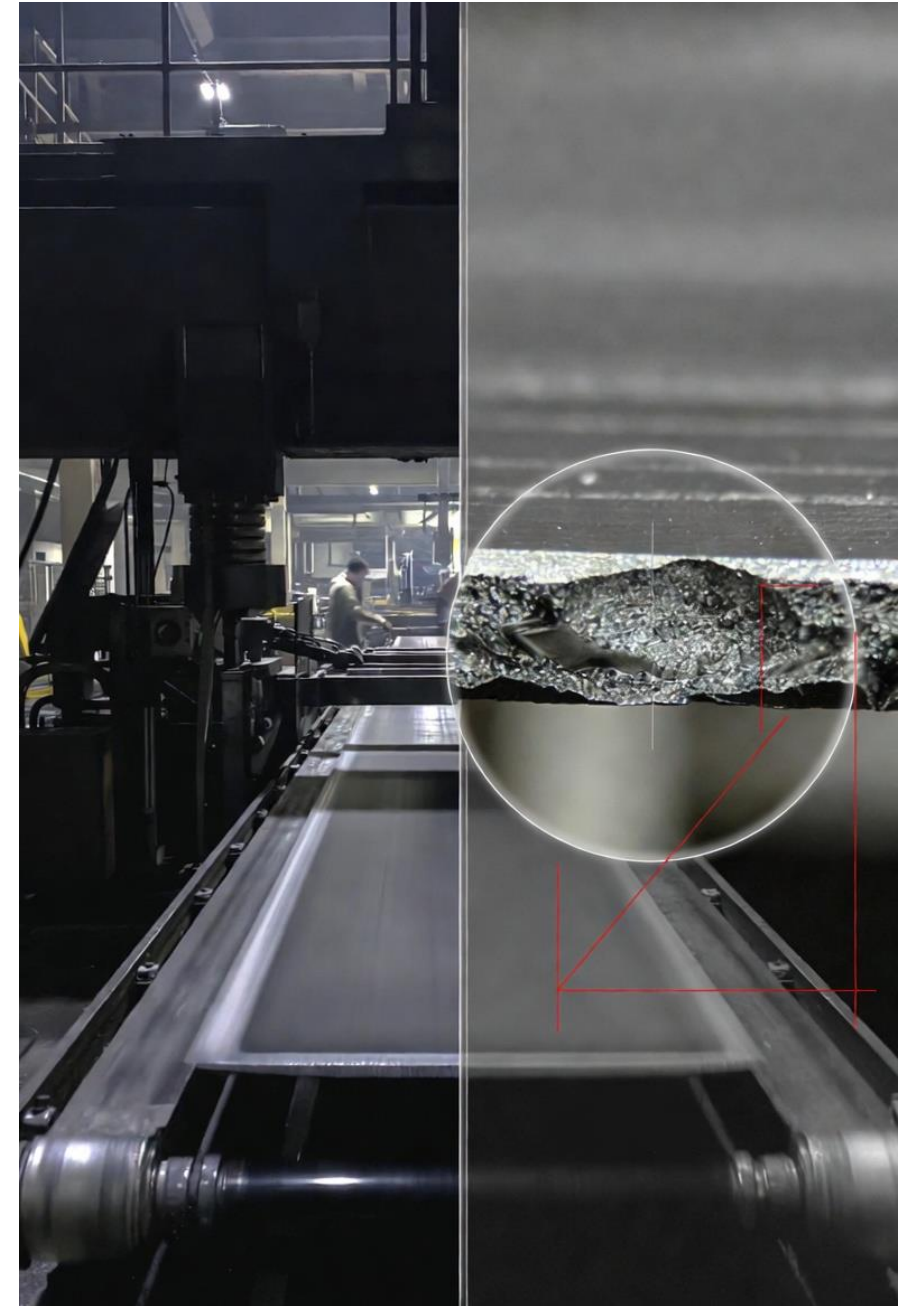
In flat product manufacturing lines, edge trimming is often treated as merely a mechanical operation. However, cutting quality directly determines scrap rate, blade life, and final product surface quality.

The SpechtLab Cutting Blade Control System makes this critical but neglected area quantifiable, measurable, and traceable.



Key Problems Encountered

- Edge breaks and micro-tears going unnoticed by the operator
- Blade wear being detected late
- Unplanned downtime and unnecessary blade changes
- Failure to establish a data link between cutting quality and process parameters

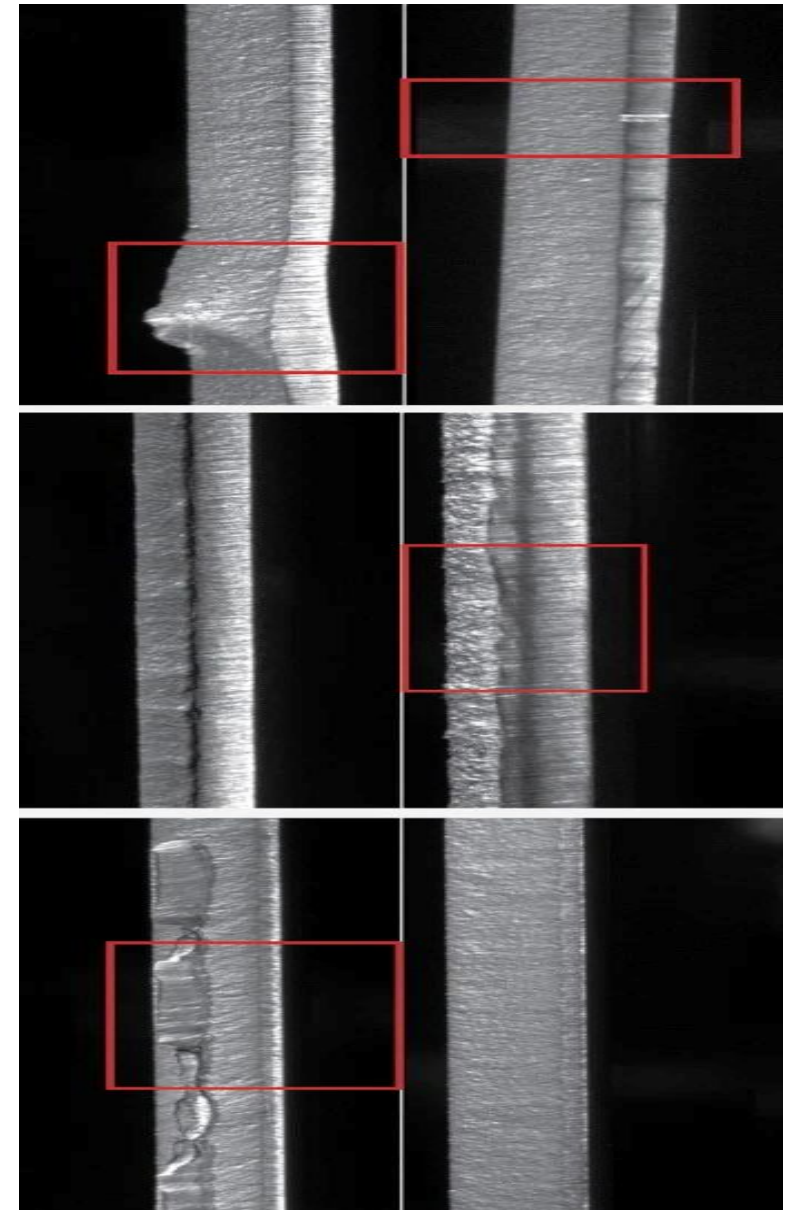


PROPOSED SOLUTION: SpechtLab Cutting Blade Control System

- Offers cutting area visualization
- Real-time analysis of edge texture, automatic detection of breaks and irregular cuts, and transfer of measurement results to PLC and higher-level systems,
- All under a single integrated structure.

System Architecture

- Industrial camera and optical system
- Industrial lighting unit
- Real-time image processing and analysis software
- PLC / SCADA / MES integration
- The system can be integrated into existing lines with minimal intervention.

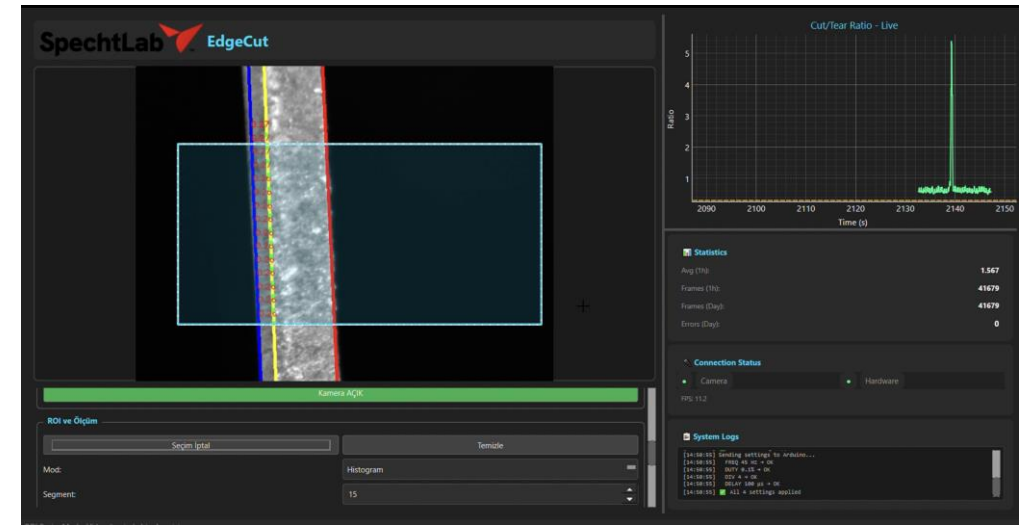


Measured Parameters

- Edge cutting smoothness
- Micro-rupture and tear density
- Blade sharpness indicators
- Edge surface texture continuity
- These parameters create an early warning mechanism for product quality and blade performance.

Operational Gains

- Reduced scrap rate
- Data-driven management of blade life
- Reduced unplanned downtime
- Reduced operator dependency
- Increased line repeatability



Real time, cutting edge inspection with SpechtLab EdgeCut-Vision System

TECHNICAL SPECIFICATIONS

- **Measurement Field of View (FOV):** 30 mm – 80 mm (configurable according to application)
- **Measurement Accuracy:** ± 0.05 mm (typical), ± 0.02 mm (optional optics)
- **Spatial Resolution:** 10–30 μm / pixel
- **Line Speed Compatibility:** 0 – 300 m/min (custom configuration possible for higher speeds)
- **Measurement Frequency:** 1 kHz – 10 kHz (adaptive sampling depending on line speed)
- **Algorithmic Delay:** <10 ms
- **Detected Defect Types:**
 - **Micro-breaks and tears**
 - **Irregular cutting marks**
 - **Edge waviness**
 - **Surface distortions due to blade wear**



TECHNICAL SPECIFICATIONS

- **Camera Type:** Industrial Area Scan
- **Camera Interface:** GigE
- **Lighting:** High-intensity industrial LED (strobe or continuous)
- **Operating Environment:**
 - Ambient temperature: 0 – 55 °C
 - Industrial enclosure for vibrating and dusty environments
 - IP65
- **Data Outputs:**
 - Digital I/O (Alarm, OK/NOK)
 - Analog output (0–10 V / 4–20 mA)
 - Industrial Ethernet (Profinet, EtherNet/IP, Modbus TCP)
- **Top System Integration: PLC / SCADA / MES (fully compatible with SpechtLab Axon)**
- **Data Logging and Traceability:**
 - Product-based edge quality data
 - Time-stamped measurement records
 - Retrospective quality analysis and reporting





Manufacturing is Blind & it's Costing Billions



Conclusion:

Although edge cutting may seem like a small detail, it can lead to significant losses if left unchecked.

With SpechtLab Cutting Blade Control System: you measure risks you cannot measure, and you take control of processes you cannot control.

SpechtLab™



We are highly sensitive about
what makes sense for your future.

SpechtLab™



It makes sense
to develop the
most sensitive
technology ever.