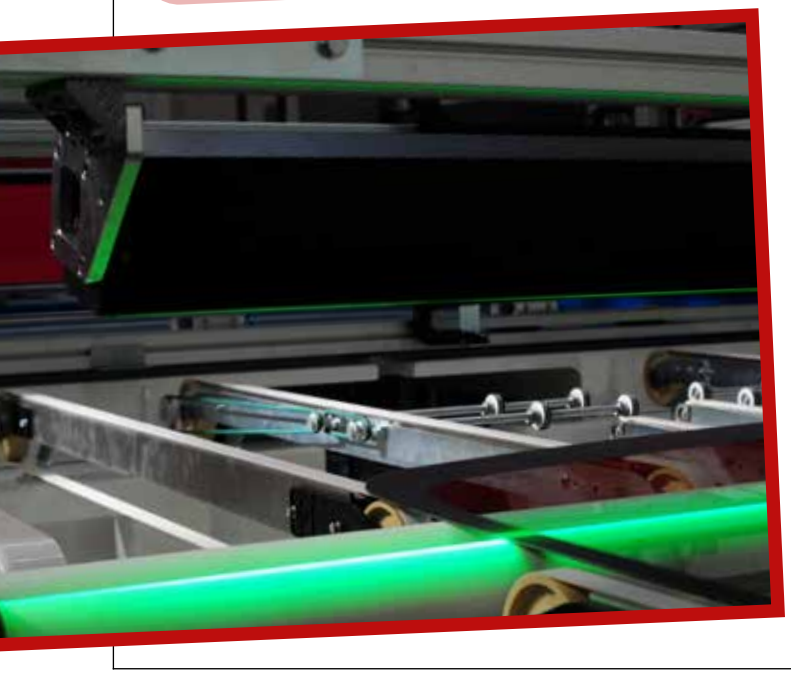
BED line efficiency maximization - courtesy of CUGHER

Developed with Acelabs, CUGHER's BED system delivers real-time edge defect detection for flat glass panels. It combines precision vision technology with smart software, ensuring top-tier quality control, seamless integration and production continuity - all of which renders it indispensable for automotive and appliance glass manufacturing lines.

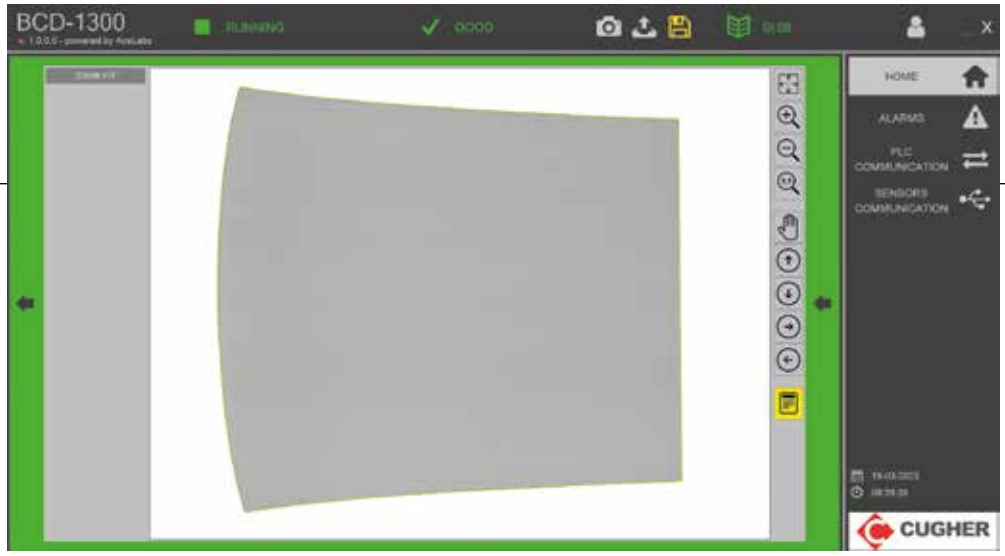


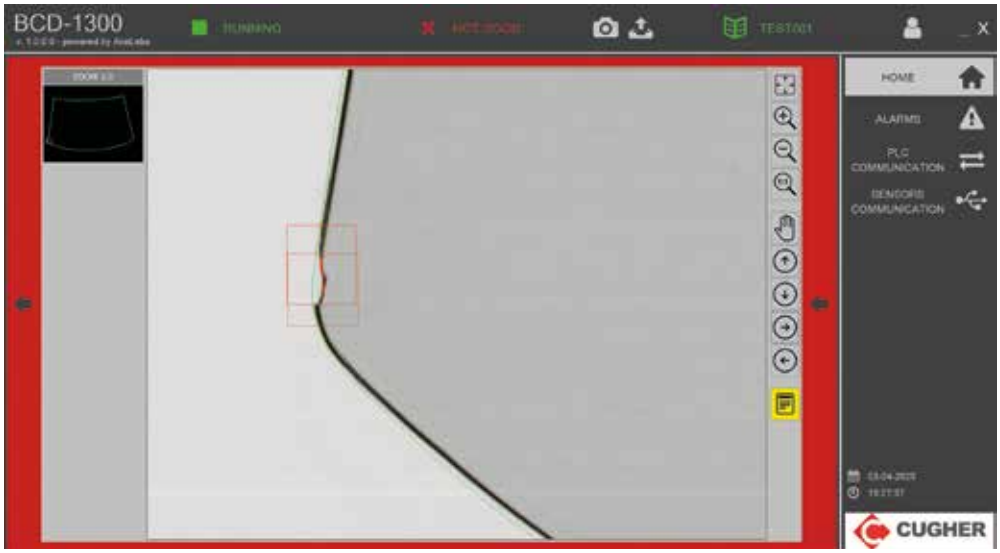
In such high-precision industries as automotive and home appliances, edge quality in flat glass panels is no longer just a visual matter. It's a fundamental requirement for performance, safety and downstream processing. Here, ensuring the integrity of each panel before it reaches critical production steps is key to maintaining high-quality standards. This is precisely where the BED - Broken Edges Detector comes into play. Cugher Glass, a company renowned worldwide for its expertise in the automation of flat glass screen printing processes, has joined forces with Acelabs, a specialist in advanced vision systems, to bring to market a highly reliable solution to this challenge. An advanced detection system has been developed to accurately and rapidly identify edge defects, ensuring consistent glass quality and seamless production continuity. Engineered as an advanced vision system, BED is specifically designed to detect edge and corner defects on flat glass panels. Installed just after the washing station, it provides real-time quality control, helping manufacturers eliminate defects before they affect processes like printing, bending, or tempering.

TECHNICAL HIGHLIGHTS AT A GLANCE

BED combines high-resolution imaging with intelligent software to deliver fast, accurate and actionable inspection data:

- Real-time inspection powered by an 8192-pixel line scan camera (0.17 mm/pixel resolution);
- Optimized lighting via green LED backlighting





for maximum contrast on edge defects;

- User-friendly software interface with full recipe management functionality.

The system is designed to detect several critical defect types, including chips and broken corners, which can weaken the panel's structure. It also identifies grinding anomalies, inclusions such as air or tin and surface contamination that may affect the glass's quality and performance. The BED system is not just about precision. It's about usability, empowering operators with the intuitive features for smooth integration into daily operations that follow here:

- Automatic training system for fast calibration when switching glass types;
- Seamless communication with the line PLC, enabling synchronized process control;
- Instant defect visualization through pan and zoom functions on real-time images;
- Comprehensive recipe management, allowing duplication, editing and protection of profiles across shifts and batches.

FAST, SEAMLESS INSTALLATION AND ADAPTABILITY

Delivered as a compact, enclosed cabinet, BED includes all essential components for quick deployment directly onto the production line. Custom sizes are available to suit various glass widths and conveyor layouts, making integration straightforward - even for complex line configurations.

OPTIONAL ADVANCED CAPABILITIES

For manufacturers aiming to achieve an even higher level of quality control and traceability, the BED system can be enhanced with a range of upgrade options. These include the integration with surface inspection systems, such as GQVS, to ensure complete control over the glass quality. The system also allows for defect image capture and metadata logging, enabling full traceability across the production process. Additionally, it offers remote diagnostics and support via a dedicated interface and provides extended recipe management and production reporting for deeper performance analysis. Finally, thanks to defect-based classification, it supports automated rejection logic using actuators or stackers, ensuring only compliant panels proceed through the line. BED is not merely an inspection tool. It's a comprehensive solution for ensuring process reliability and product conformity. Engineered to seamlessly integrate into modern production lines, it enables manufacturers to maintain stringent quality standards, reduce nonconformities and optimize downstream operations. With its advanced detection capabilities and scalable architecture, BED represents a strategic investment in precision, efficiency and traceability within flat glass manufacturing.

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