



MCM PACKAGING QUALITY SYSTEMS

VISION FOR PACKAGING

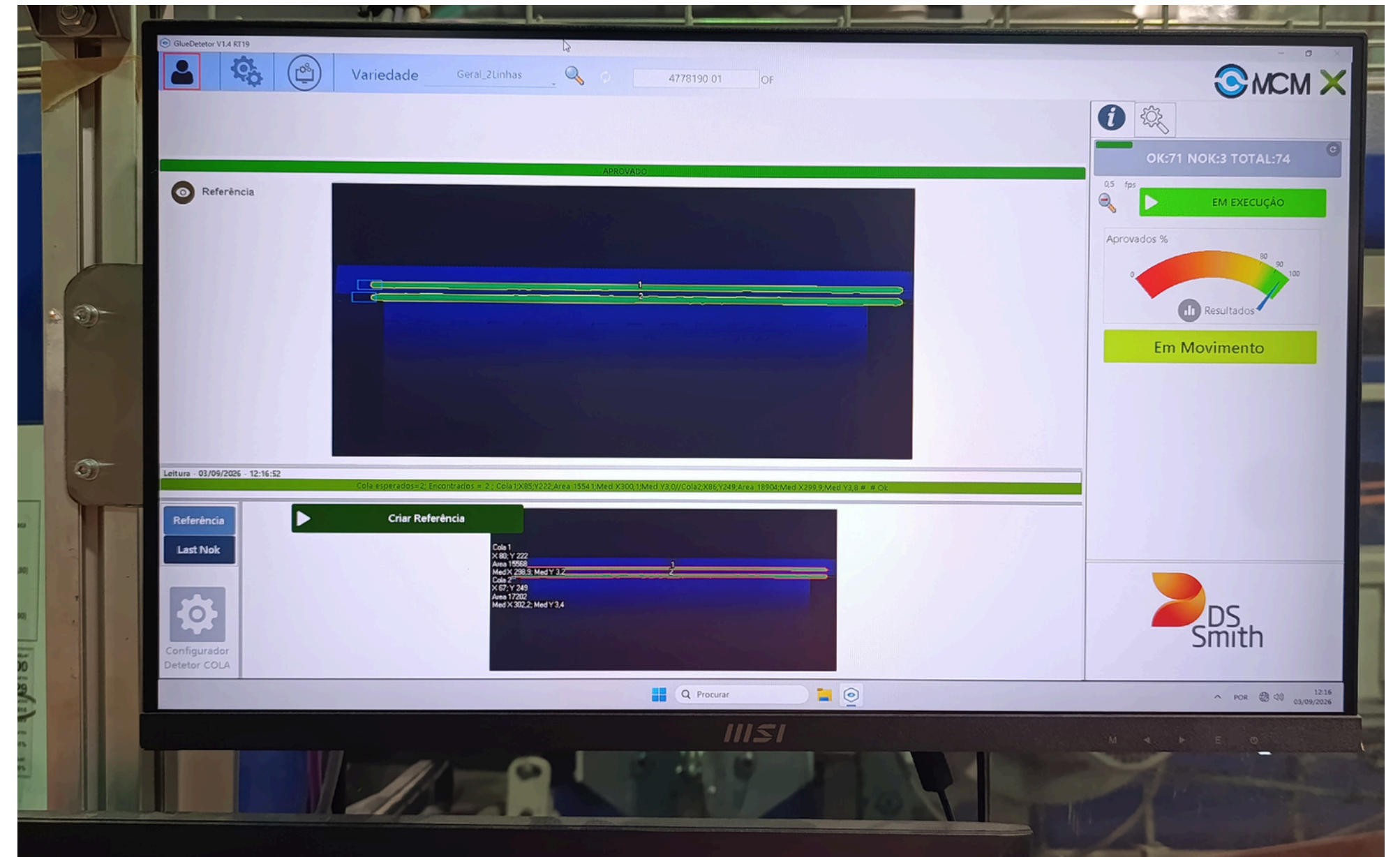
Tailored, repeatable inspection for corrugated packaging production.

Purpose-built systems. One consistent quality strategy.

REAL-TIME / OFFLINE / PORTABLE / 2D / 3D / AI

ENGINEERING TAILORED TO THE LINE

MCM has developed industrial testing and computer-vision solutions since 2001.



A PRACTICAL MIX OF TECHNOLOGIES

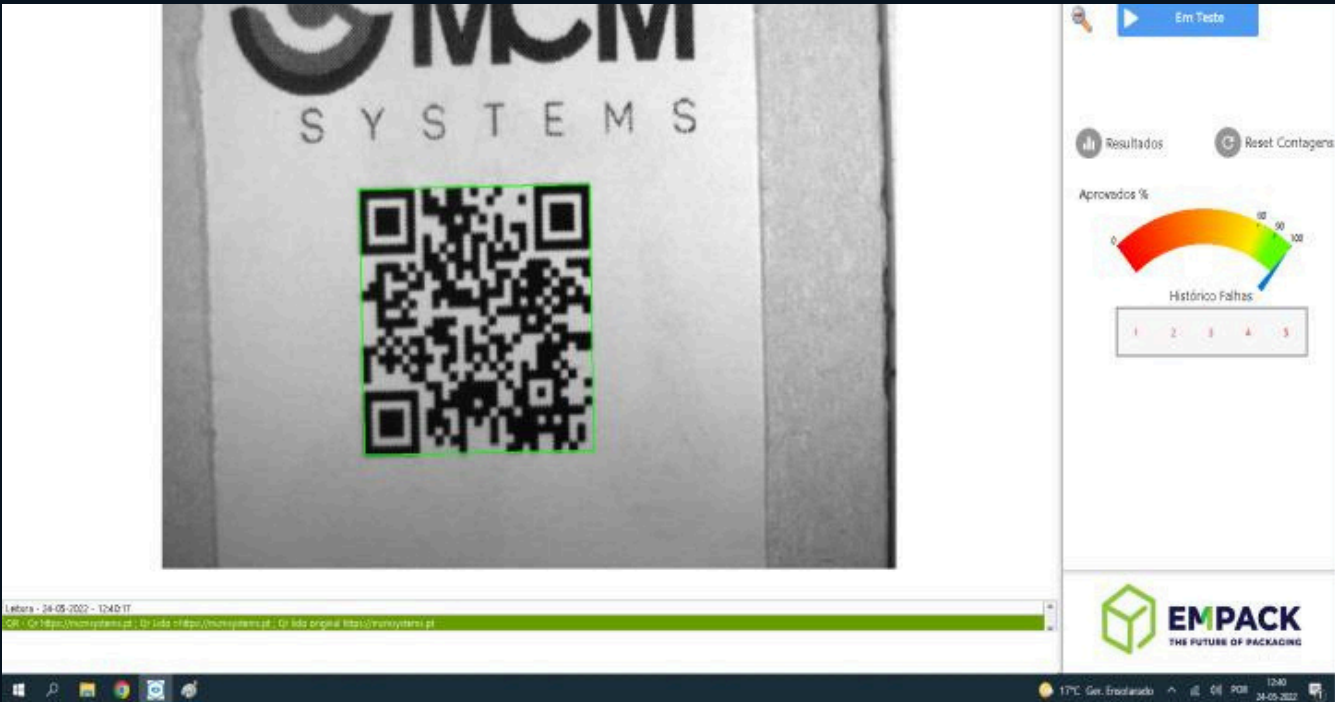
MCM combines virtual instrumentation, industrial testers and computer vision. Each solution is configured around the product, process and decision required - using 2D, 3D or AI-based vision where it adds value.

- | | | |
|-----------|------------------------|--|
| 01 | CHECK INVERSION | Sheet identity, orientation and print registration before die cutting. |
| 02 | WARPSense | Non-contact 3D measurement of stack curvature after the corrugator. |
| 03 | CREASE METER | Portable, repeatable measurement of crease performance and washboard. |
| 04 | PRINTSense | Complete offline inspection of dimensions, colour and printed content. |
| 05 | CURROSense | High-speed in-line detection, classification and production response. |

Always tailored to the client, while designed for repeatable deployment and operator use.

STOP THE WRONG SHEET BEFORE DIE CUTTING

Verify orientation, identity and print position while the sheet is still recoverable.



CORE INSPECTIONS

- + Inverted-sheet detection before the die cutter
- + Reference-image or board-bend verification
- + 1D and 2D barcode decoding plus OCR
- + Print-offset and registration measurement
- + Serial-number verification

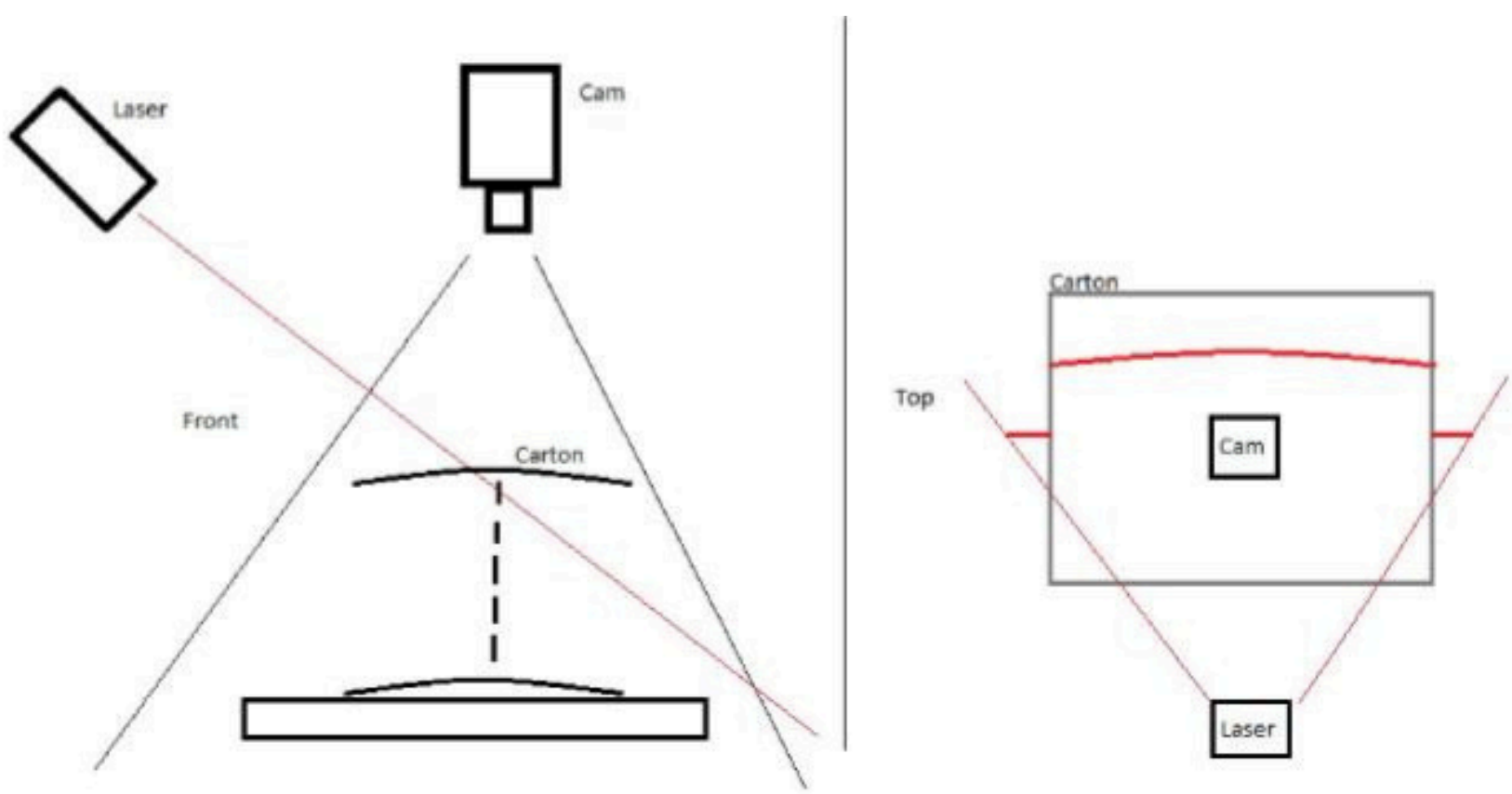
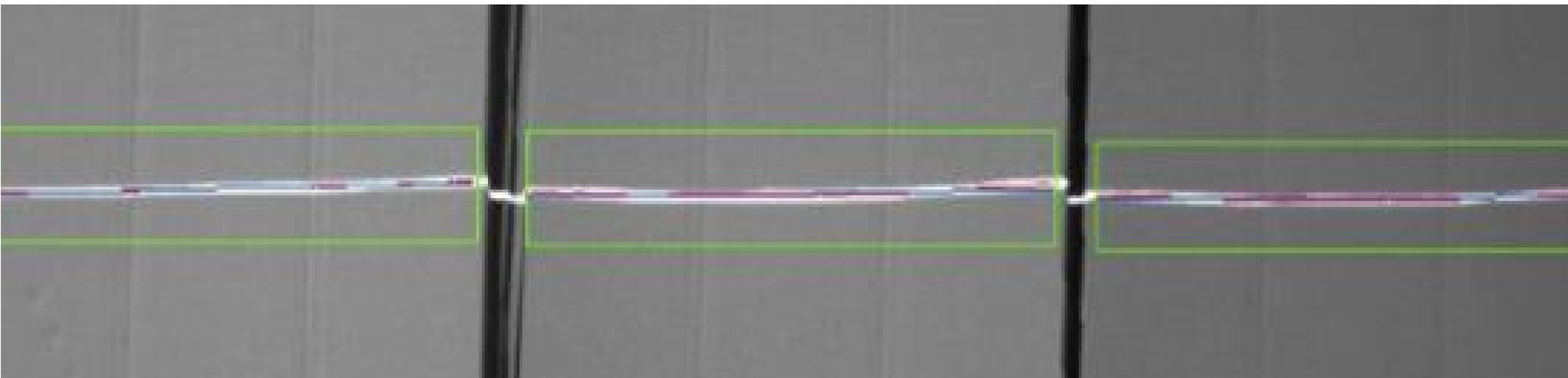
PRODUCTION RESPONSE

DECISION	Pass or reject against the configured reference
ACTION	Warn the operator or stop the machine
EXTENSION	Case-maker checks for crease, glue presence and gap

One station confirms the correct board, correct orientation and correct printed position.

MEASURE STACK CURVATURE WITHOUT STOPPING PRODUCTION

A non-contact 3D check positioned after the corrugator.



PROJECTED-LASER TRIANGULATION

The projected laser measures the upper profile of each stack. Triangulation provides accurate curvature data without physical contact and without pausing the stack movement.

- 4

STACKS MEASURED
SIMULTANEOUSLY
- 3D

NON-CONTACT PROFILE
MEASUREMENT
- 0

PRODUCTION STOPS REQUIRED FOR
THE TEST

MEASUREMENT	Upper curvature of a stack of sheets
INSTALLATION	After the corrugator
PRODUCTION DATA	Receives variety and stack-count information
TRACEABILITY	Tracks the correct stacks through the management system

TURN CREASE QUALITY INTO REPEATABLE DATA

Portable measurement for production procedures, investigation and traceability.



WHAT IT MEASURES

Crease functionality is measured and correlated with washboard, using configurable acceptance limits for every quantity under control.

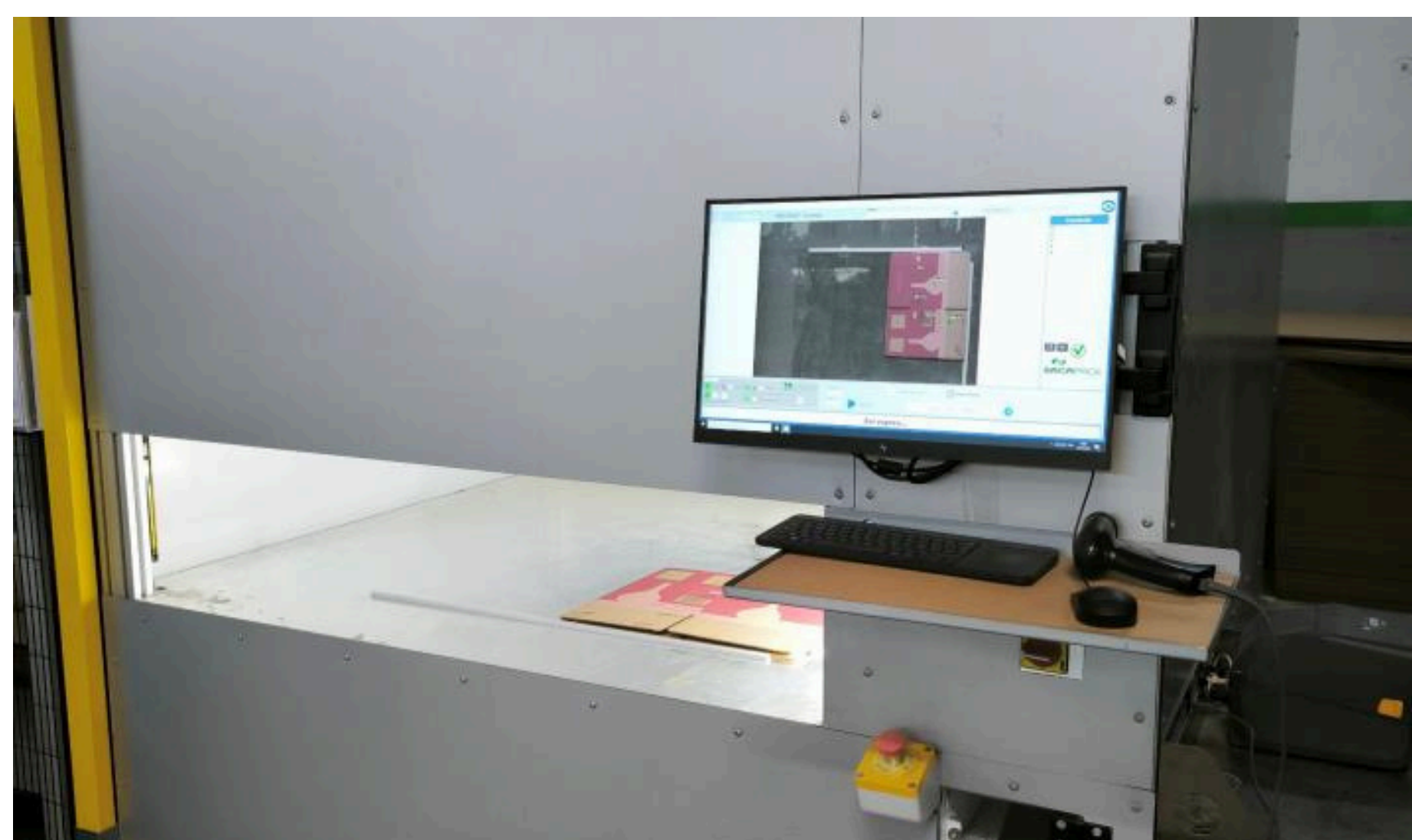
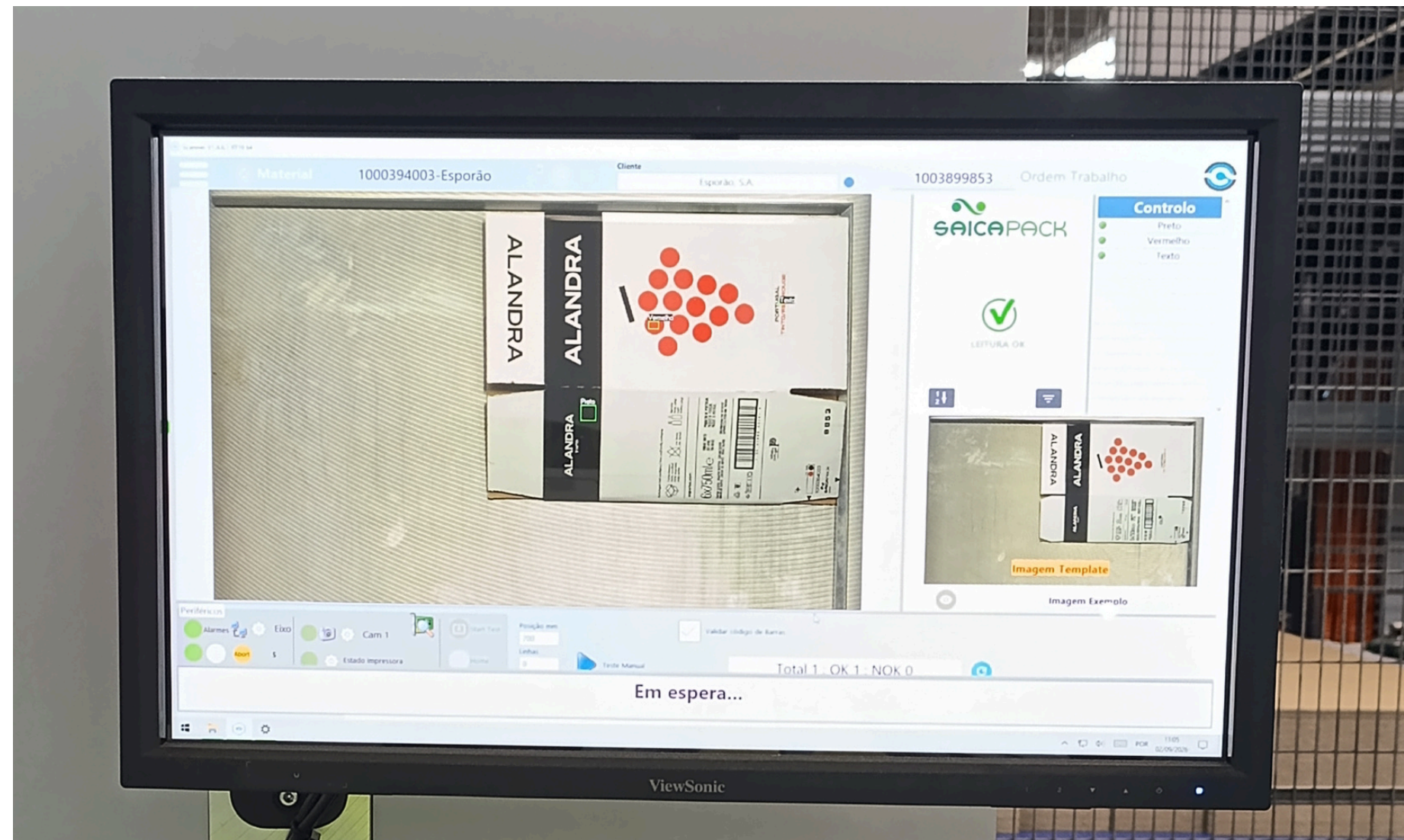
READY FOR PRODUCTION

- + Automatic calibration procedure
- + Portable and easy to use
- + Repeatable and reproducible results
- + Database search by date, customer or production order

Consistent measurement replaces subjective crease assessment with comparable production records.

CONTROL EVERY DETAIL ON A COMPLETE SHEET

A commercial inspection system that compares random production samples with an approved board to verify dimensions, cut geometry, print, colour, text and product identity.



FAST VARIETY SETUP

The variety editor lets the operator select inspection types, configure measurement characteristics and define acceptance limits for each product.

Production challenge

The quality team needed a faster and more objective way to verify finished corrugated sheets. Printing differences, text errors, colour changes, cutting misalignment or wrong product identity can be difficult to catch consistently with manual random checks alone.

MCM solution

MCM developed an off-line inspection system in which an approved board becomes the reference. During production, an operator can select a random sheet and place it in the machine. The system automatically compares the sample with the reference and records the inspection result.

INSPECT INSIDE THE CORRUGATOR

High-speed in-line vision for defects caused by the process or raw material.

**2**

HIGH-RESOLUTION LINE-SCAN
CAMERAS

3 m

MAXIMUM INSPECTION WIDTH

300

METRES PER MINUTE MAXIMUM
SPEED

STABLE IMAGING

Industrial dark-field lighting highlights surface and bonding defects while reducing sensitivity to external light disturbances.

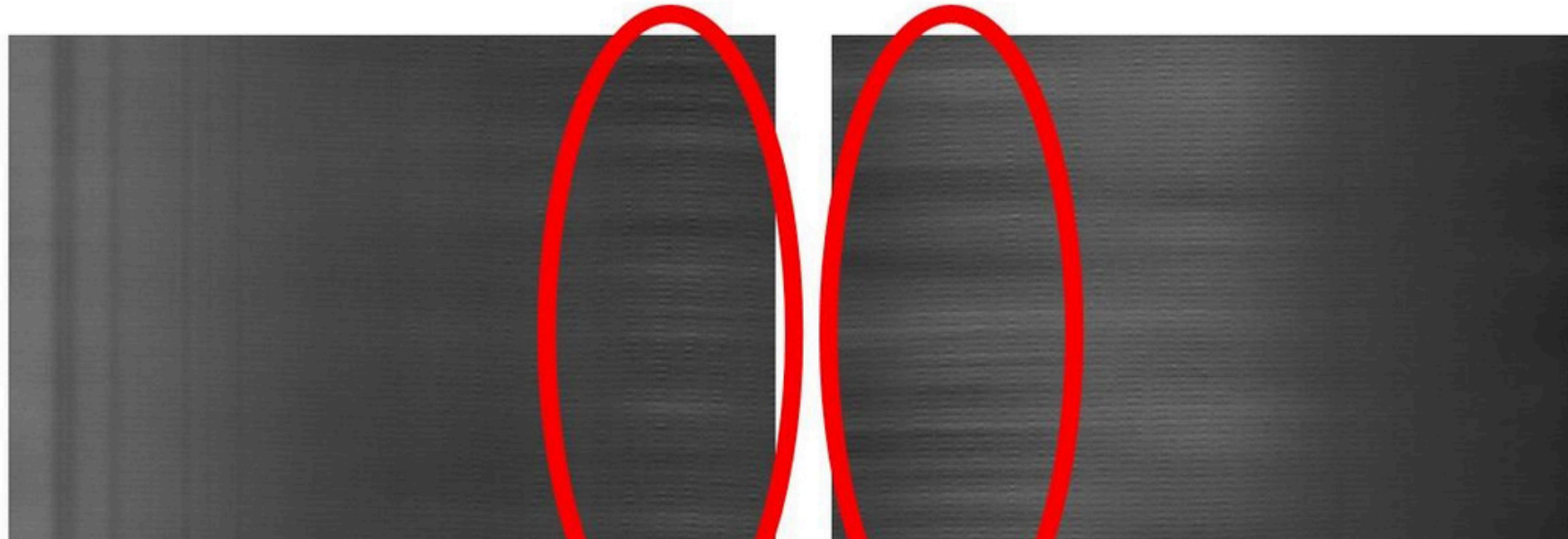
CONNECTED TO THE PROCESS

The system can receive paper size and line speed, then issue configurable I/O commands to warn, slow or stop the corrugator.

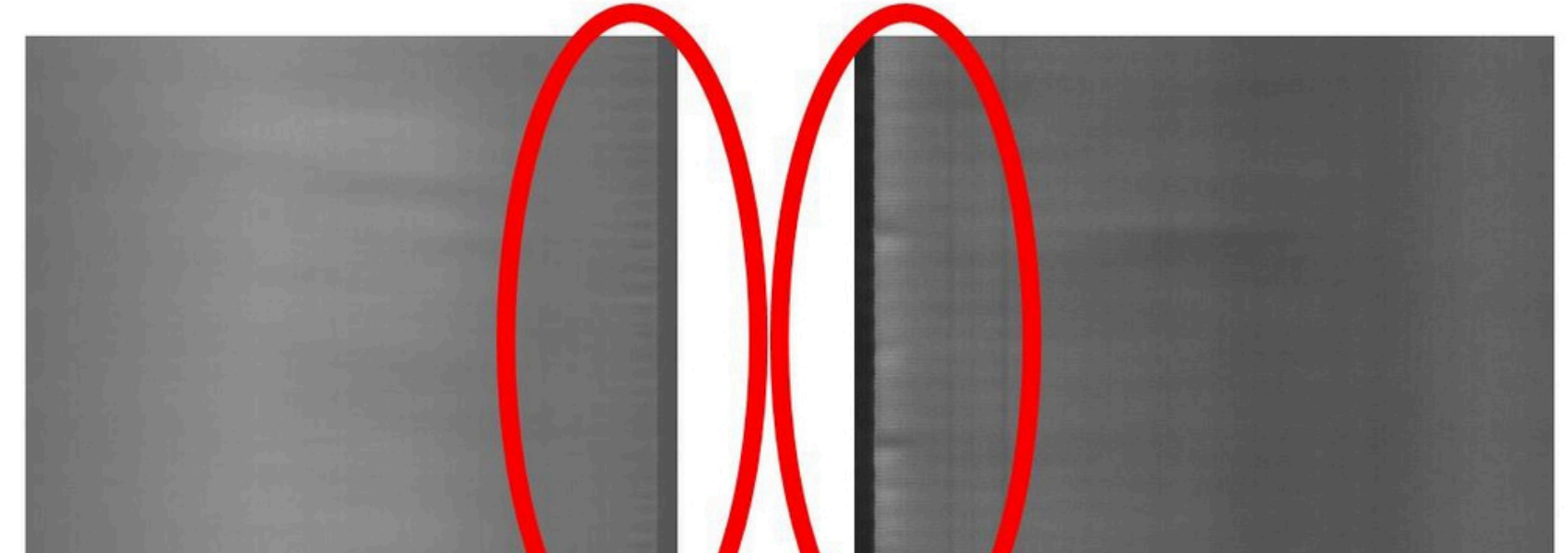
Configured for different paper grades and flute profiles, with automatic pass/reject judgement.

CLASSIFY DEFECTS. ACT WITH THE RIGHT RESPONSE.

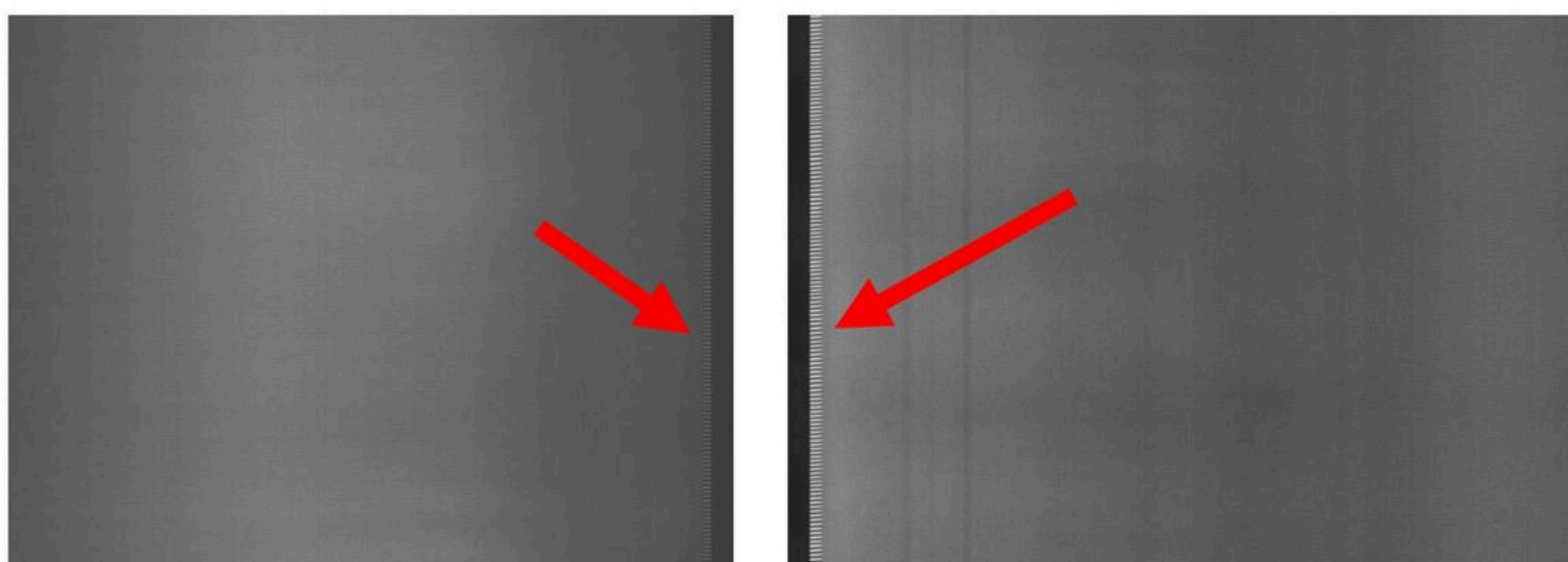
A dedicated AI library supports automatic judgement, defect teaching and production tracking.



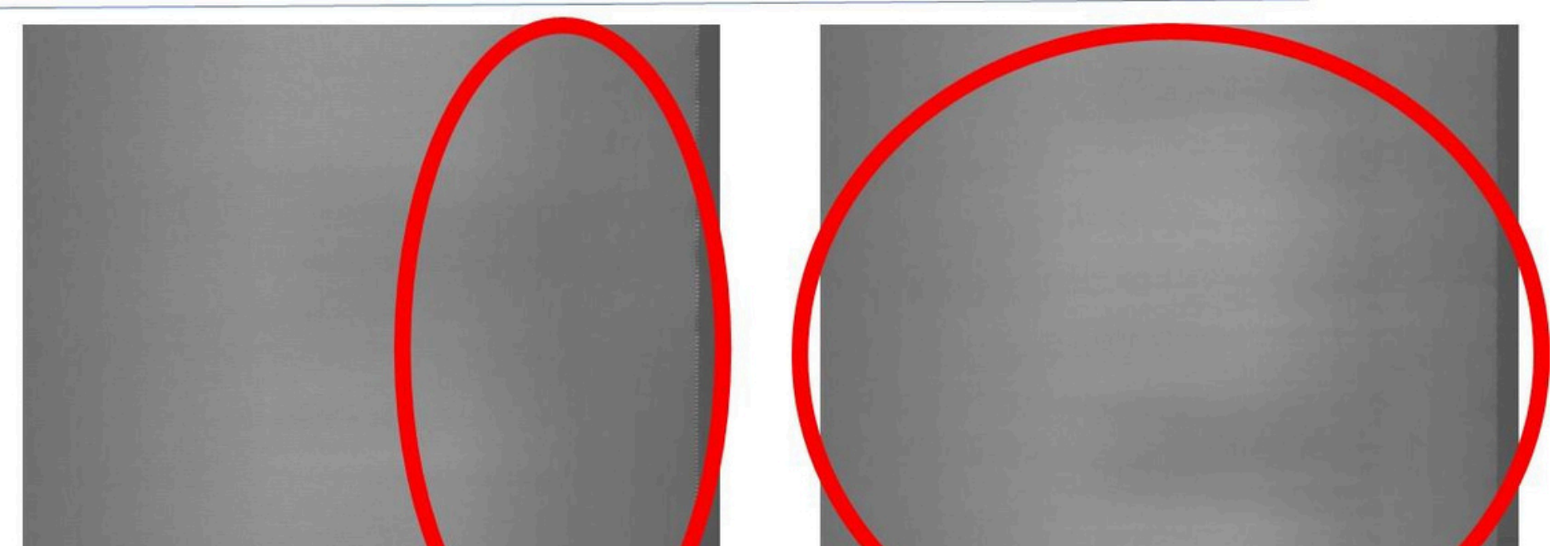
WASHBOARD / RESONANCE



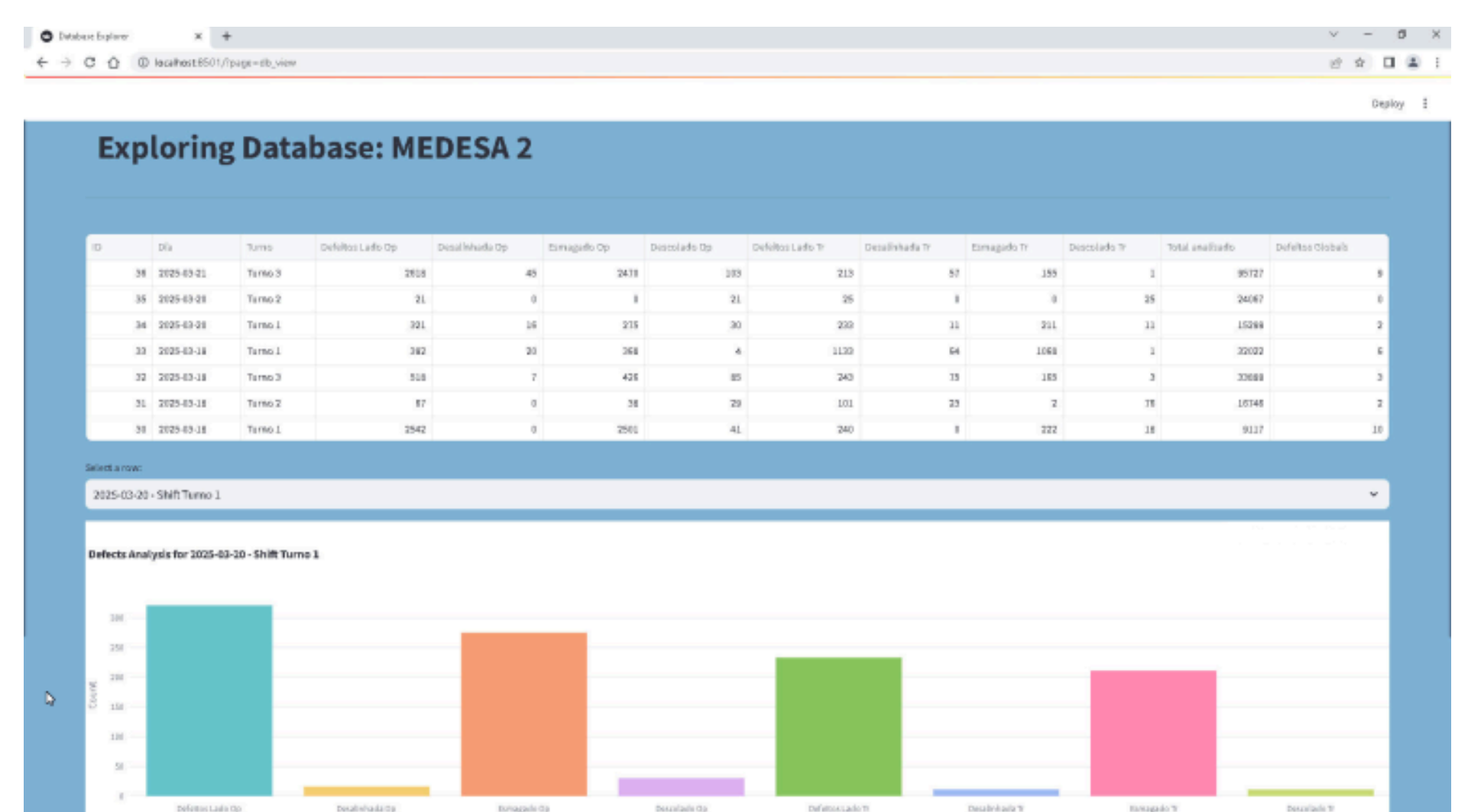
CRUSH



MISALIGNMENT



UNGLUED



V2 PERFORMANCE GAINS

- + Improved detection accuracy and classification by defect type
- + A clearer interface for teaching new defects
- + Support for two bridges in one system
- + Improved production-database interface and complete tracking

ONE QUALITY FLOW ACROSS THE FACTORY

Each system captures the right evidence, applies a configured decision and returns useful production information.

01

IDENTIFY

Product, variety, order, sheet size or line speed.

02

CAPTURE

Controlled lighting, industrial imaging or calibrated measurement.

03

DECIDE

Limits, reference comparison, geometry rules or AI classification.

04

ACT + TRACK

Warn, reject, slow, stop and record the production result.

CONFIGURABLE CONNECTIONS

- + Digital I/O and machine commands
- + Management-system and production-database data
- + Production-order traceability
- + Industry 4.0 compatibility where specified

PRODUCTION VALUE

- + Earlier detection of defects
- + Consistent automatic judgement
- + Less manual inspection effort
- + Lower waste and stronger customer confidence



LET'S BUILD THE RIGHT INSPECTION

QUALITY CONTROL FOR REAL PRODUCTION LINES

MCM combines tailored engineering with repeatable industrial measurement - from portable quality tools to high-speed in-line vision.

MCM SYSTEMS

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