SIGA VISION
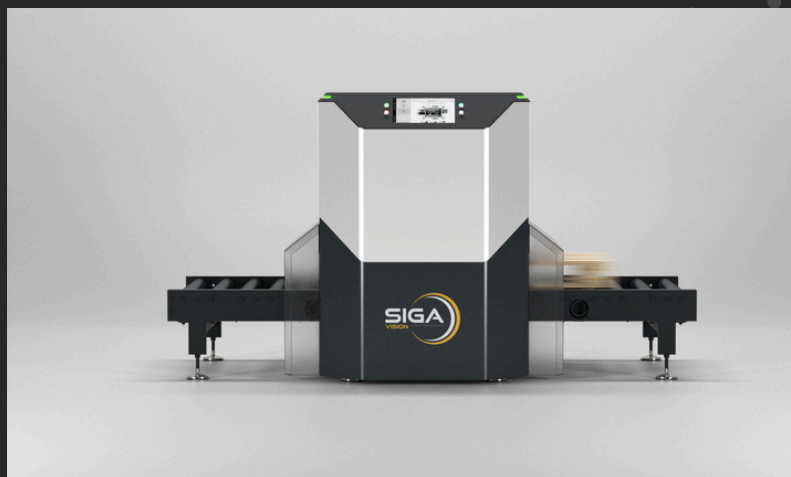## INSPECTION SYSTEMS
An Mpac Group Company

Siga Vision
AI-Powered Pallet Inspection

www.sigavision.com

Pallet Check

The Siga Pallet Check ensures only structurally sound, clean, and compliant pallets enter your production process — preventing unplanned downtime, safeguarding equipment, and maintaining high product quality.

Designed for seamless integration with new and existing lines, and powered by cutting-edge AI and 3D vision systems, the Siga Pallet Check is the new benchmark in intelligent pallet inspection.

Track, Report, Improve

- Supplier traceability enables you to monitor pallet quality by vendor, providing the data needed for targeted feedback and smarter procurement decisions.
- Tracks long-term performance across shifts, lines, and facilities, with a built-in machine dashboard that provides real-time visibility and enables immediate action on quality issues.
- Seamlessly integrates with any SCADA or MES system, enabling centralized monitoring, live analytics, and data-driven quality control across your entire operation.

Quality Assurance

- Ensures only structurally sound pallets are used, maintaining product integrity during packaging, stacking, and transport.
- Helps maintain compliance with safety and shipping standards.
- Configurable sorting logic allows you to direct pallets to different workflows based on defect type — from repair, return, to reuse.

Improved Efficiency

- Minimises downtime and operational disruption caused by defective pallets
- For example, equipment damage, product loss, production downtime
- Reduces waste by enabling the early detection and rejection of non-compliant pallets.
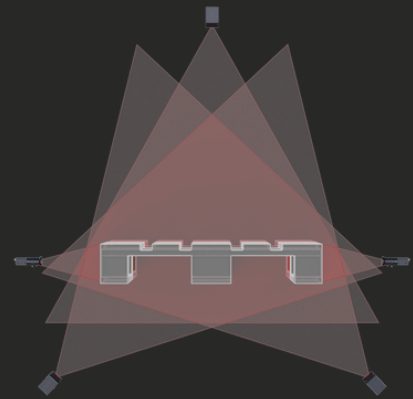
Designed for Any Line

- Compact design allows for easy integration into existing or new lines without major reconfiguration.
- Built-in remote support allows for rapid diagnostics, updates, and support.

Vision Technology

AI based analysis on 3D and 2D cameras.
The system uses high-resolution 3D laser profilers to scan the top, bottom, and sides of each pallet, capturing detailed structural data with exceptional dimensional accuracy. Side views are captured by dedicated 2D cameras, which also identify markings and labels. All visual data is analysed using advanced AI software, trained to recognise a wide variety of pallet defects with precision beyond human capability.

Each pallet is scanned from multiple angles, generating up to 200 high-resolution images per cycle. These images are processed in real time by Siga's proprietary machine learning platform, delivering accurate, repeatable assessments without operator intervention. Customisable inspection tolerances can be defined per pallet type, supplier, or customer requirement.
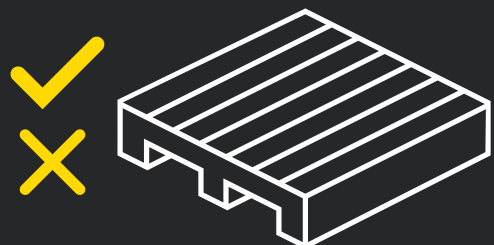
Defect Detection

The Siga Pallet Check system detects and reports a wide range of pallet defects with high precision:
1. Structural integrity issues such as missing, broken, or dislocated boards and blocks
2. Perimeter block condition: rotation, cracks, vertical splits
3. Dimensional validation of pallet length, width, height, squareness
4. Cracks in boards and blocks, including splits and fractures
5. Protruding or improperly seated nails
6. Surface anomalies like plastic, paper residue, or loose debris
7. Logo, stamp, or marking detection and verification
8. Obstructed or blocked tunnels preventing proper forklift access

Utilizing this inspection for:
- Appearance-based grading for sorting or rejection
- Real-time visualisation and defect tagging via the operator interface
- Full integration with SCADA/MES for automated reporting and traceability

Technical Specification

Parameter	Specification
Inspection Rate	Up to 500 pallets/hour (Dependent on infeed)
Footprint	W 1.2m x L 1.6m x H 1.6m (excluding conveyors)
Operating Hours	24/7, 52 weeks/year
Pallet Compatibility	Euro, Block, GMA, CHEP, LPR, custom
Operating Environment	5–40°C	Dry IP54 Enclosure
Power & Air	230 VAC, 415V or 110V	Max 5 Bar
Integration	Ethernet/IP, OPC-UA CSV, PDF, JSON
Image Storage	Defect-tagged image archive per pallet

Trusted Engineering Backed by CSi

Built on CSi's proven expertise in pallet handling and Siga's cutting-edge vision technology, the Siga Pallet Check delivers a hybrid inspection platform that merges mechanical precision with advanced visual intelligence. Designed for high-speed, industrial environments, this solution ensures unmatched reliability and performance — even under demanding conditions.

Fully Automated

Modern "lights-out" manufacturing and automated warehousing depend on flawless input control. The Siga Pallet Check ensures only compliant pallets enter your production or logistics process, minimising unplanned stoppages and guaranteeing a smooth, uninterrupted flow.

Self-Cleaning & Low Maintenance

To maintain inspection accuracy over time, the system features integrated air shields that prevent dust and debris from settling on critical optics. Additionally, the cameras are equipped with active self-cleaning mechanisms that keep lenses clear, ensuring consistent performance with minimal operator intervention.

Configurations

The system scales from standalone inspection units to fully integrated multi-line sorting cells — configurable to your throughput and layout.
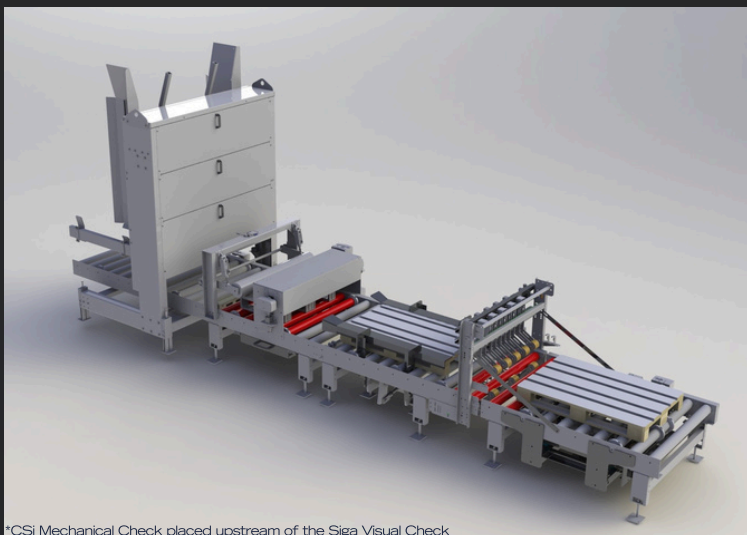

Standalone Unit

A compact, self-contained inspection system designed for seamless deployment into existing or new production lines — without major layout changes or additional infrastructure.
- Ideal for brownfield upgrades or space-constrained operations

In Line Integration

Designed to work directly with the CSi destacker, enabling continuous, unattended pallet inspection in high-throughput environments.
- Automated destacking and inspection with no manual intervention
- Optimized for warehouse and packaging lines using pooled or mixed pallet types

Hybrid System

A 2-stage inspection system combining mechanical validation with advanced AI vision. The first stage performs: Full load testing to verify structural strength, Nail pressing to eliminate protrusions, Integrated brushes to remove debris. Ensuring pallet rigidity under real-world conditions.

The second stage uses the Siga Vision unit with 3D and 2D imaging to detect: cracks, misalignments, foreign objects, plastic residue, and labelling issues.

*CSi Mechanical Check placed upstream of the Siga Visual Check

What we do

SIGA Vision are specialists in machine vision for high-speed packaging and automation.

We deliver on-time, reliable and consistent machine vision systems that help manufacturers automate inspection and ensure compliance on high-speed lines.

3D Inspection

SIGA's platform lets us decide on the best 3D inspection solution for your task, ensuring reliability and flexibility in meeting your needs.

Product Positioning

Accurate placement means accurate product handling. SIGA's system provides enhanced accuracy and reliability.

Product Classification

Choice of classic or advanced training gives SIGA V2 an edge in how we deliver your product classification needs.

Print Verification

SIGA V2 offers standard and enhanced print verification, utilising the latest in edge learning to provide swift and accurate set up.

Surface Inspection

Utilising 3D or 2D systems to accurately inspect surfaces, SIGA's V2 provides robust inspection every time.

24/7 Support

SIGA Vision supports you around the clock, meaning your operations are minimally impacted when a system is down.

Contact us

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