

Revolutionizing Built-In Quality in Manufacturing with JIDOKA's AI Vision Solutions

JIDOKA's AI vision systems break through the limitations of traditional machine vision and enable true built-in quality. Thanks to deep learning, flexible deployment, and real-time analytics, manufacturers can ensure reliability, reduce waste, and scale with confidence.

INTRODUCTION

In the transition toward future-proof manufacturing, quality and production teams are increasingly focusing on built-in quality: products must meet the highest quality standards directly during production. By proactively detecting quality issues before they escalate, the production process can be optimized without sacrificing efficiency.

Traditional machine vision solutions were initially seen as the ideal answer. These rule-based systems were effective at detecting objective defects, but often failed when it came to subjective deviations caused by changing conditions on the production line, such as fluctuating lighting, vibrations, or dust. This resulted in a high number of false positives and false negatives, leading to increased costs, complexity, and frustration.

THE SHIFT TO QUALITY 4.0

These limitations marked a turning point in the industry. Today, manufacturers are asking for:

- Complete detection of both objective and subjective defects
- Inspection both in-line and end-of-line
- 100% system stability under varying line conditions
- AI analytics for true process optimization, without high implementation costs

JIDOKA'S AI VISION INSPECTION SOLUTIONS

JIDOKA's award-winning deep learning solutions deliver best-in-class quality with low total cost of ownership.

1. Preconfigured Pipelines & Pretrained Domain Models

Fast implementation

Plug-and-play use-case pipelines with minimal configuration.

Optimized performance

Pretrained models adapt to your domain using less training data.

Benefits

Rapid deployment, reduced development effort, and maximum performance.



2. Unmatched flexibility & configuration freedom

- Adapts to changing production and quality requirements
- Supports multiple customer quality standards
- Selective inspection for optimal throughput
- Suitable for multiple inspection stages

User-friendly interface

Non-experts can easily manage models, defects, and acceptance criteria.

Benefits

An optimal balance between quality and speed, lower costs, and maximum control.

3. Integration with Existing Systems

- Fully hardware-agnostic
- Seamless integration with ERP, MES, IIoT, cloud, on-premise, and edge environments.

Benefits

Fast deployment in existing environments with minimal engineering effort and cost.

5. Comprehensive Defect Detection

- Surface defects (scratches, dents)
- Anomaly detection (shape, color, size)
- Assembly verification
- Audio analysis (sound & vibration)
- Label and barcode identification
- Radiography for internal defects
- Print and packaging inspection

RESULTS

- 12,000 inspections per minute
- 99.5% accuracy
- +33% throughput
- 30–40% fewer false positives
- ROI within 8–16 months

4. 360-Degree Product Inspection

- Images from multiple sides are combined
- Detection of an unlimited number of defect types without changes to handling

Benefits

Higher reliability, reduced waste, and increased customer satisfaction.

6. AAI Analytics & Reporting

- Insight into production performance
- Early detection of defect trends
- Reduction of unplanned downtime

CONCLUSION

JIDOKA's AI Vision Inspection Solutions combine speed, flexibility, reliability, and data-driven insights. With these solutions, manufacturers overcome the limitations of traditional machine vision and achieve structurally embedded quality in their production processes.