



MIKRON VISION SOLUTIONS
Image Acquisition Specialists





IN 1999, WE ESTABLISHED
OUR DEDICATED TEAM OF MIKRON
VISION ENGINEERS. COMBINING
YOUR REQUIREMENTS WITH
MIKRON EXPERTISE, THEY
TRANSFORM YOUR NEEDS
INTO A FULLY TAILORED SOLUTION.

AT MIKRON, WE WORK TOWARD
YOUR PRODUCTIVITY.

600+

= number of vision systems installed by
Mikron Vision Solutions

WHY CHOOSE MIKRON VISION SOLUTIONS ?

Expert Vision for Automation

- In 1999, we established our dedicated team of in-house vision engineers.
- After 600+ installed vision systems, across a full range of industries from medical to consumer goods, we have a thorough understanding of vision systems and their integration.
- Mikron's experienced engineers understand the key factors for success in your business sector. Our systems are specifically chosen for, and fully integrated with, the design and function of your machine.
- Our vision systems are compatible with the most stringent certification standards, such as Food and Drug Administration's CFR 21 standards.

For automation with vision, your partner is Mikron

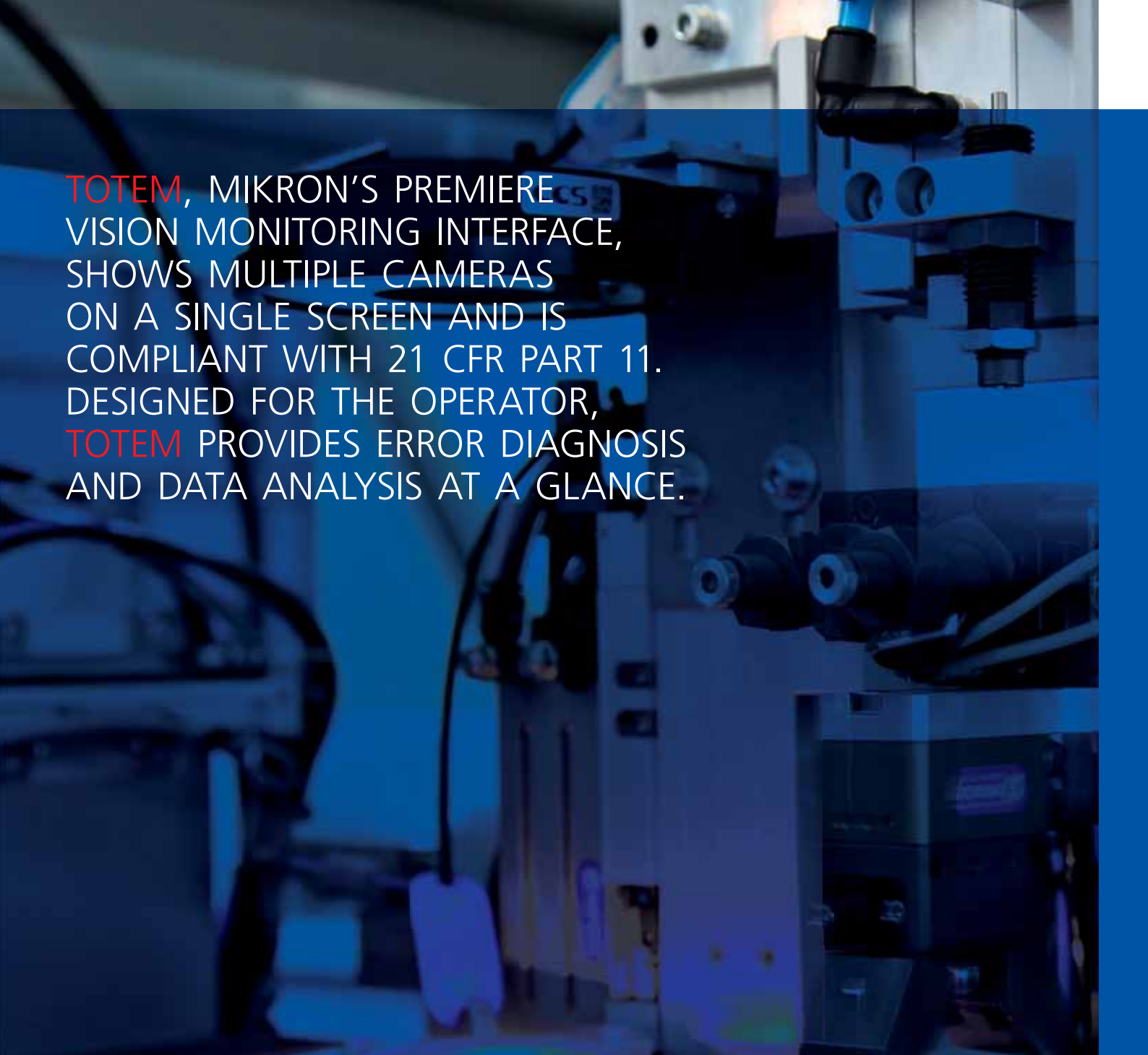
- The responsiveness and professionalism of a specialized team.
- Manufacturing centers in Europe, North America and Asia.
- Guaranteed support around the world.

Innovative and specialized solutions

- Totem interface : centralized display and control via smart cameras.
- 3D reconstruction with multiple images.
- Vision-controlled motion.
- Broad range of non-conventional optics.

Guaranteed productivity

- Solutions based on recognized, reliable standards.
- Use of Cognex and Keyence solutions.
- Validation in line with GAMP5 standards and qualified systems.
- Monitoring of modifications in line with 21 CFR part 11.



TOTEM, MIKRON'S PREMIERE VISION MONITORING INTERFACE, SHOWS MULTIPLE CAMERAS ON A SINGLE SCREEN AND IS COMPLIANT WITH 21 CFR PART 11. DESIGNED FOR THE OPERATOR, **TOTEM** PROVIDES ERROR DIAGNOSIS AND DATA ANALYSIS AT A GLANCE.



MIKRON VISION SOLUTIONS

EFFICIENT INTELLIGENCE

To ensure quality at every step of assembly, Mikron Vision Solutions verifies that only correct parts leave your production area. As your vision partner, Mikron designs the solution to match the demands of your process, your business sector and your customers.

OPTIMUM IMAGE QUALITY

Successful vision systems require careful equipment selection; cameras, optics and lighting must each complement the other. Mikron Vision Solutions selects each element to guarantee the best possible performance.

THE BENEFIT OF A SMART CAMERA

Compact, powerful and simple to maintain, smart cameras are perfect for fully-integrated applications. Positioned at strategic locations within your assembly solution, each camera automatically captures images, processes the data and sends the results to the Mikron controller or Totem.

TOTEM VISION MONITORING SYSTEM

Mikron has developed a intuitive interface we call Totem. On a single screen any operator using Totem can display multiple cameras, diagnose error conditions and analyze meaningful data.

Harmonious with all types of In-Sight smart cameras, the Totem interface is perfectly suited to the demands of the medical industry. As it tracks the modifications made to any camera, Totem allows you to meet the rigorous specifications of the FDA's medical standards (21 CFR part 11).

SHAMAN, FOR PC-BASED VISION

When a solution requires the most complex and customized algorithms, Mikron will specify a PC-based vision system. Coupled with any type or format of camera, these systems analyze data via Shaman, our proprietary software environment, using the Cognex VisionPro industrial libraries.

Readily configured to your specific system requirements, Shaman is particularly robust and user-friendly.

MORE THAN 600 INSTALLED VISION SYSTEMS

Sectors of applications

- Pharma / Medical
- Automotive
- Electro / Electronics
- Consumer goods
- Industrial / Building

Measurements & Inspections

- Dimensions (label positions, needle gauge, etc.)
- Quality (welds, assembly, molding, etc.)
- Color (presence, absence, variant control, etc.)
- Code reading (pharmacode, barcode, data matrix, print, etc.)
- Marking quality (OCV, presence, etc.)
- Position (controlling robot axes, orientation, angle, etc.)

FOR COMPLEX CHALLENGES,
MIKRON VISION DEVELOPS
HIGH-PERFORMANCE SYSTEMS.
THIS ABILITY TO INNOVATE IS INVALUABLE
TO OUR CUSTOMERS, PARTICULARLY WHEN
SAFETY AND COMPLIANCE MUST BE
MATCHED WITH **HIGH PRODUCTIVITY.**

INNOVATIVE SOLUTIONS

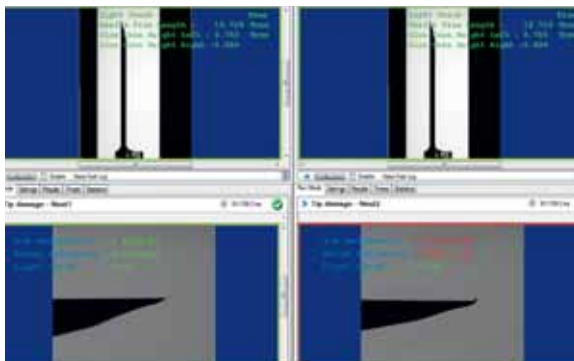
NEEDLE INSPECTION SYSTEM

Patient comfort depends on quality. To protect patients from burrs, bluntness or misshapen needles, Mikron Vision Solutions created a vision system to inspect needle tips at 168 parts per minute.

Mikron's Shaman software was a natural fit for this complex, PC-based solution.

The 6-camera system includes 2 cameras to check needle length, angle and adhesive application, while 4 cameras inspect the needle tips.

Mikron's vision engineers developed a quality control system capable of positively orienting and inspecting each needle with just 4 images, in 800 milliseconds. The results: 7 micron repeatability. Incomparable precision. Comfortable patients.



INSULIN PEN INSPECTION SYSTEM

Not all insulin pens are alike. Producing 220 parts per minute, Mikron's automated assembly solution incorporates 22 Cognex In-Sight smart cameras to verify the correct variant and assembly of each pen.

For this application, Mikron's vision engineers developed a sophisticated color-sorting software to positively identify and match 20+ color variants across multiple parts and materials. The powerful system also detects, calculates and accounts for colors reflected from one part to another.

With Mikron's Totem interface, monitoring all 22 cameras is easy and straightforward for operators. Data analysis, error diagnosis and modification tracking are available with a single touch.



A PERFECT VISION OF YOUR NEEDS



| | | | |
|---|----|----|---|
| | 1 | 2 | 3 |
| 4 | 5 | 7 | |
| | 6 | | |
| 8 | 9 | 10 | |
| | 11 | 12 | |

1. Checking the correct selection of a spring in a selector
2. Counter wheel positioning
3. Flexible feeding system Polyfeed
4. Label presence on blister, needle set presence, empty pocket control
5. Print quality / print variants
6. Checking the assembly of a spraying device
7. Checking the quality of a tube cut
8. Assembly check
9. Ensuring pushrod contact
10. Checking the application of oil to a gear wheel
11. Integrity of gear teeth
12. Locating the wire weld position for an airbag trigger

ABOUT US

Mikron Automation is headquartered in Boudry (Neuchâtel), in a region that is regarded as the heart of the Swiss watchmaking industry. To date, Mikron Automation has installed more than 3,000 assembly and testing systems worldwide. Its international customers operate in the following markets: Pharma and Medical Devices, Automotive Supply, Electrical/Electronics, Consumer Goods and Construction/Building. Mikron Automation employs around 590 people at its sites in Boudry (Switzerland, headquarters), Berlin (Germany), Denver (USA), Singapore and Shanghai (China).

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