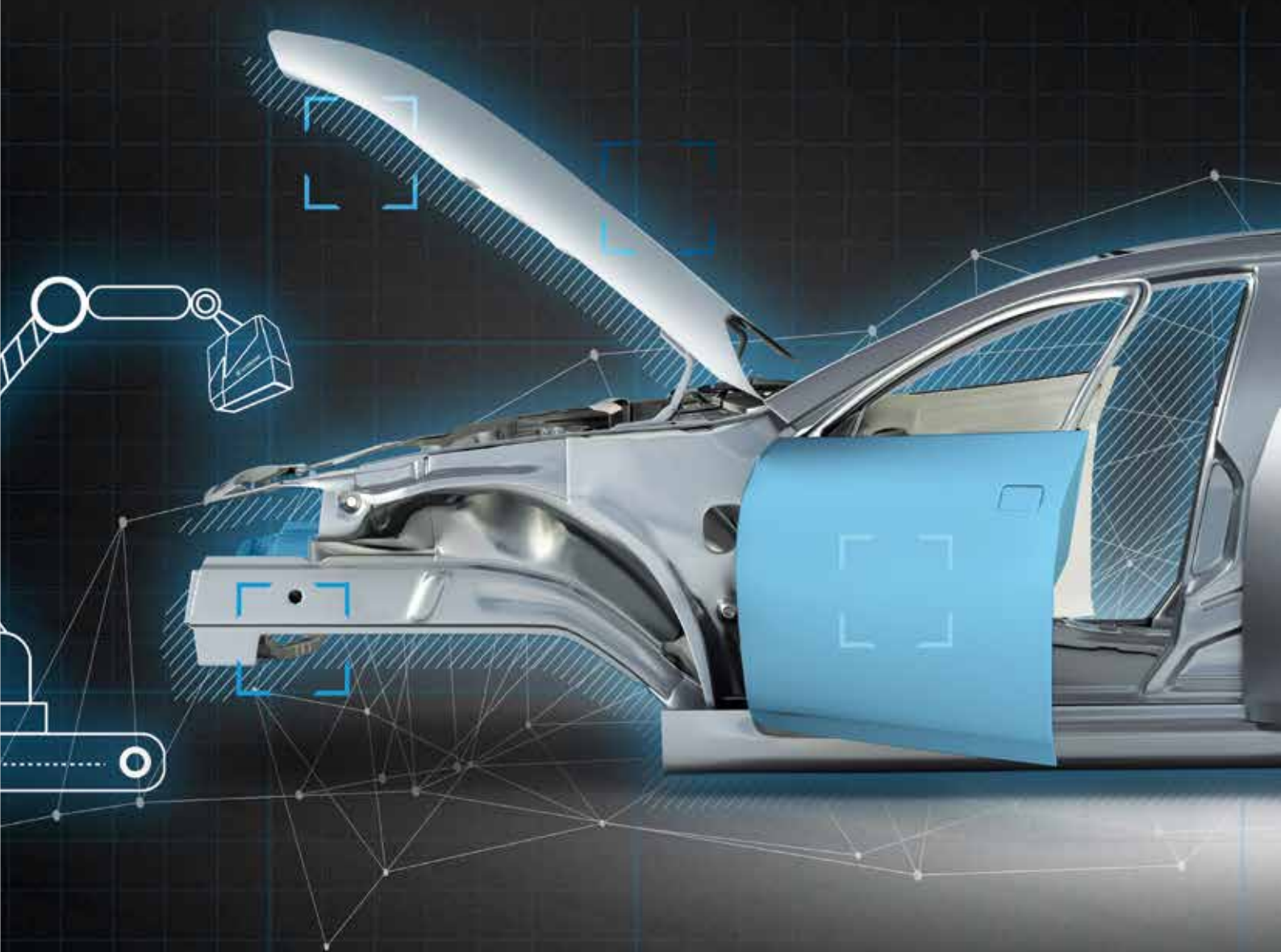




**VITRONIC**  
the machine vision people

VIRO WSI

# PREVENT RECALLS WITH AUTOMATED WELD SEAM INSPECTION



# THE SOLUTION IS VIRO WSI

## Flawless Weld Seams – Maximum Efficiency

Defective weld seams, especially those found in safety-relevant automobile components, can lead to serious problems. In worst case scenarios, recalls can cost a company millions, not to mention the damage they do to a company's image.

VITRONIC's VIRO WSI helps manufacturers ensure that only flawlessly welded components are used in the production process. This optical inspection system is a fully automated solution that inspects all weld seams and detects all relevant defects 0.1 millimeter and larger. VIRO WSI is 100% reliable and extremely efficient, even when inspecting complex components that are difficult to access.

The fully integrated inline inspection makes it easy to quickly intervene in the upstream welding process. This consistently reduces defects, optimizes processes, and prevents downtime, reworking, and rejects.



## VIRO WSI from VITRONIC Uses Cutting-Edge Technology to Benefit You

- » 100% inline inspection
- » Unrivalled broad inspection range
- » User-friendly software
- » Maximum product quality
- » Continuous process optimization
- » Time and cost savings

# VITRONIC SETS THE BENCHMARK

## The Technology Leader in Weld Seam Inspection

With VIRO WSI, VITRONIC sets the benchmark for automated weld seam inspection. The inspection cell with sensor, high-performance computer unit, and software have been tried and tested time and again and are continuously developed. VIRO WSI has been successfully used in the international automotive and automotive supplier industry for many years: for axle components, bodywork, steel wheels, exhaust systems, seats, and batteries. When it comes to safety-critical weld seams, VIRO WSI is a key component in automated manufacturing. And not just for the automotive industry.

## VIRO WSI Sees More

Today, automated welding is state-of-the-art. However, weld seams are often visually inspected by humans and these inspections can be prone to errors because of human unpredictability. Automated, optical inspection by VITRONIC is far superior in this case. VIRO WSI performs objective inspections, irrespective of external influences, and uses predefined quality criteria to ensure reliability. The smallest defects in weld seams are captured and parts with defects are automatically rejected.

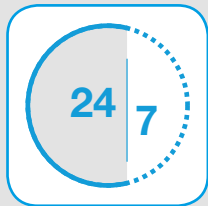
## Manual and Automated Rework

VIRO WSI offers a variety of options for reworking. Defective components and seams are displayed at interactive visualization stations for manual reworking. The worker confirms reworked components immediately at the terminal and the data is saved in the database for documentation. The system uses a specially-developed software algorithm for automated reworking.

## The Advantages of Automated Inspection



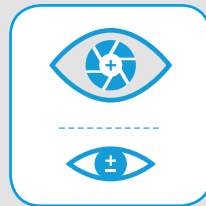
**Inline inspection**



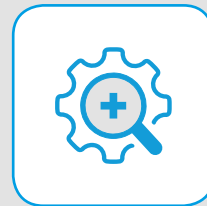
**Maximum availability**



**100% traceability**



**100% objectivity**



**Data for process optimization**

# SEAMLESS INSPECTION

## Maximum Performance for All Seam Types

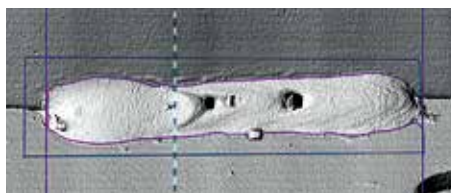
VIRO WSI has a broad inspection range that is unparalleled in the market using inspection criteria that can be customized for a variety of requirements and applications.

The system is extremely reliable even for flat seams, as well as for highly reflective materials, such as aluminum, and for seams with different geometries, even at high image acquisition speeds. VIRO WSI determines the precise size and position of the defect and classifies them.

## A Look at Precise Defect Visualization



Fillet weld with pores:  
Real image



Fillet weld with pores:  
Precise, detailed inspection images



Fillet weld with pores:  
3D visualization for workers

## Especially Broad Inspection Range

- » Throat thickness
- » Distance in X/Y
- » Spacing edge detection
- » Hole/burn through
- » Weld connection signal jumps
- » Weld connection angle
- » Weld width/length
- » Weld width/position for lap welds
- » Weld undercut
- » Weld position
- » Weld convex/concave
- » Weld unsteady
- » Weld volume
- » Unwelded butt weld
- » Surface irregularity
- » Object height
- » Pores
- » Spatters
- » Unequal leg length
- » Depression

## The Solution for All Seams

The VIRO WSI sensor system was developed by VITRONIC specifically for weld seam inspection. VIRO WSI inspects all types of seams, irrespective of the weld method used, and identifies defects 0.1 millimeter and larger.

VIRO WSI inspects:

- » Laser seams | » MIG/MAG seams | » Soldered seams

# USER-FRIENDLY SOFTWARE

## Visualization and Documentation

All information is concisely visualized and can be accessed immediately, from setting up parameters for inspection to displaying defects for reworking. All inspection results, even external process and inspection data, are saved for documentation purposes in an integrated database for each seam and component.



Worker view: clear defect visualization in live operation

## Data Analysis and Process Optimization

The captured data ensures seamless traceability and also serves as an excellent basis for analysis. By linking this data intelligently, processes can be optimized and costs can be reduced, while maintaining a consistently high level of quality at the same time. This is essential if companies want to stay ahead of the competition.



### Finding Solutions – Since 1995

VITRONIC weld seam inspection systems have been successfully used worldwide since 1995. VITRONIC has a complete view of the production process and finds economic and efficient solutions for every application.

For decades, OEMs and tier 1 suppliers have relied on VITRONIC's technical expertise and customer-oriented consulting. They regularly rank VITRONIC, the technological leader, number one in internal benchmark tests.

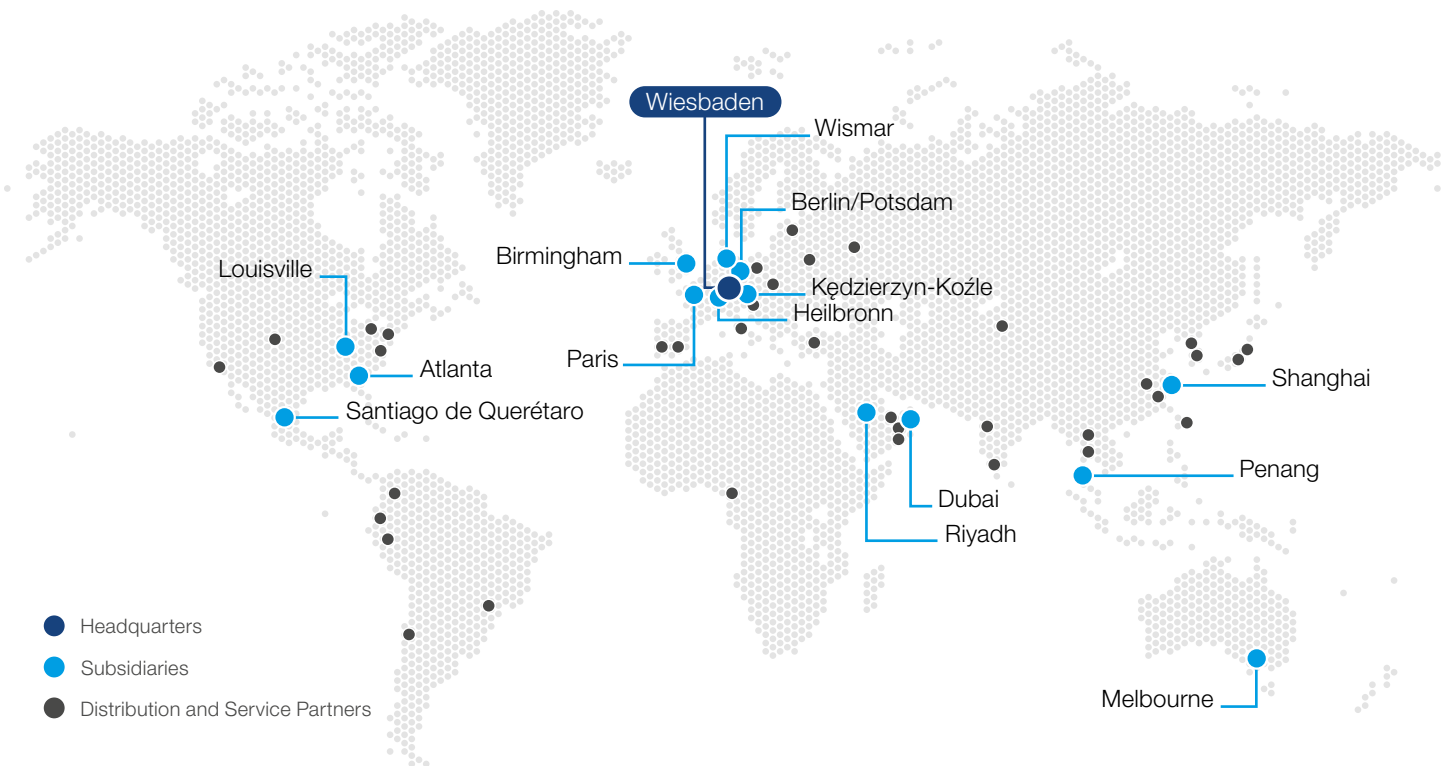
CONSULTING

PROCESS INTEGRATION

SERVICE

TRAINING COURSES





# VITRONIC WORLDWIDE

VITRONIC is a global leader in the field of industrial machine vision headquartered in Wiesbaden, Germany. Since its foundation in 1984, the privately owned company has been offering highly innovative solutions in industrial automation, logistics automation and traffic technology. Today, VITRONIC supports customers in over 60 countries via a global network of subsidiaries, service centers and partner companies.

All of the companies' products are developed, designed and manufactured by VITRONIC in Germany. They range from standardized to fully customized solutions.

Feel free to contact us – we look forward to hearing about your projects.

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