

Digital Transformation in Manufacturing: Smart Quality Inspection, Digital Assistance & Adaptive Robotics

AMB 2026, Stuttgart

18.09.2026

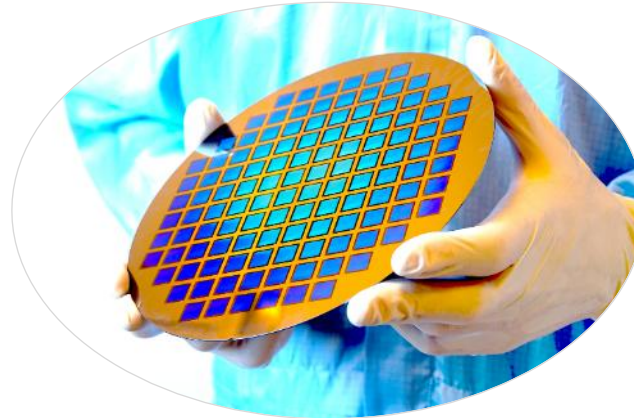
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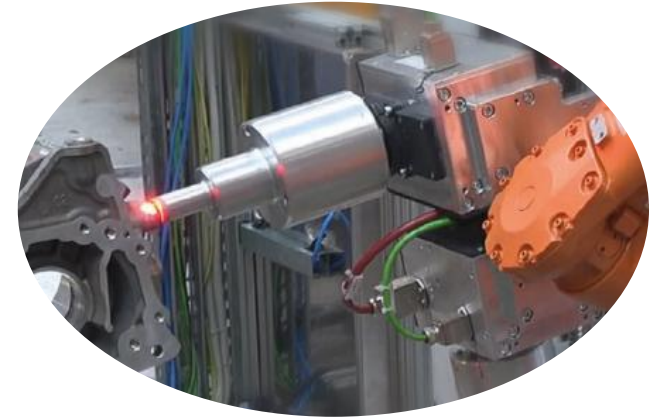
Research. Technologies. Industrial Solutions.



We focus our research on industrial challenges and work with the best partners.



From there we develop technologies and processes for our customers.



And we provide industrial solutions for a better production and new products.

Facts about PROFACTOR.

Transforming Research into industrial Solutions.

Since 1995

ca. 90 smart People

>9 Mio. EUR Turnover

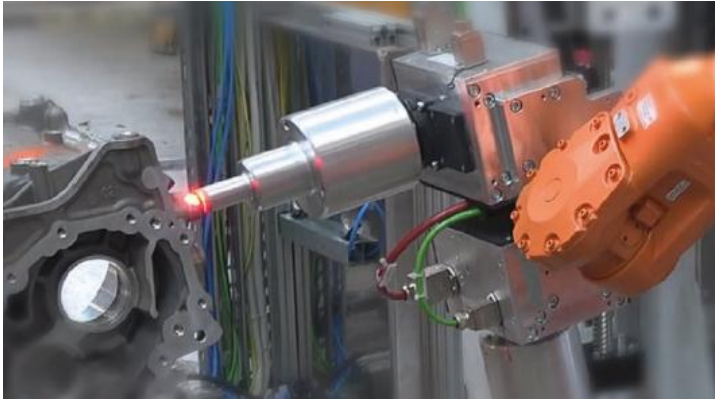
>150 Projects per Year

2 Locations: Steyr and Vienna

2 strong Owners: Austrian Institute of Technology (AIT) and Upper Austrian Research (UAR)

From Quality Inspection To Adaptive Robotics

Industrial Inspection



- Surface Inspection of Metal Parts
- Surface Inspection of Fiber Composites
- Crack Detection by Thermography

Digital Assistance



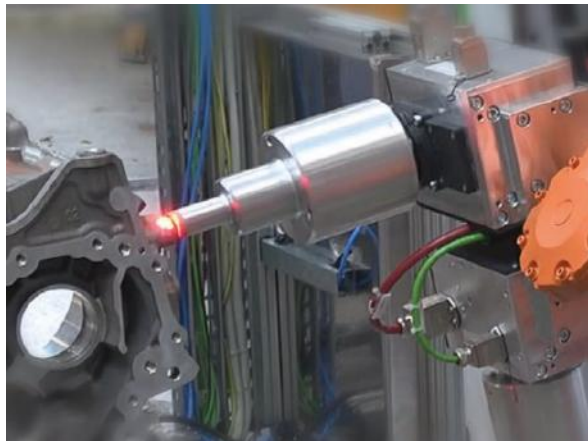
- Digitization & Assistance for Quality Assurance
- Visual Scene Understanding

Adaptive Robotics



- Collaborative Machining
- Collaborative Handling and (Dis-)Assembling

Industrial Inspection



Surface Inspection
of Metal Parts



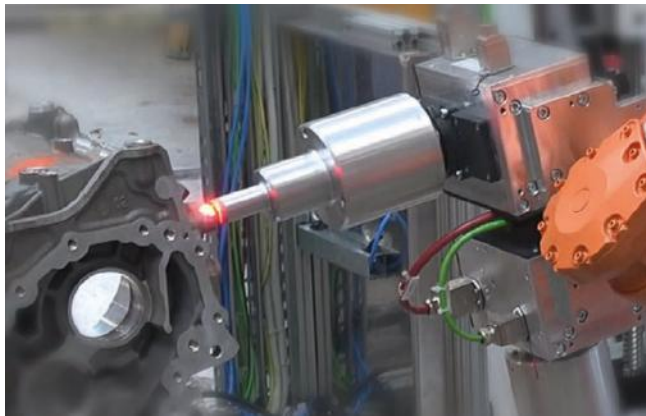
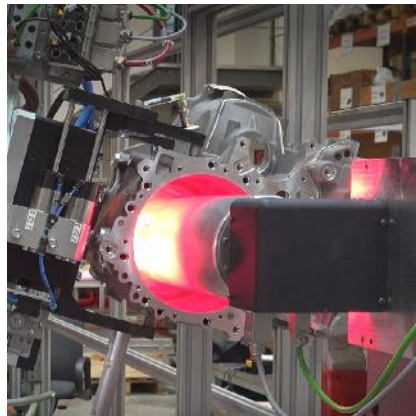
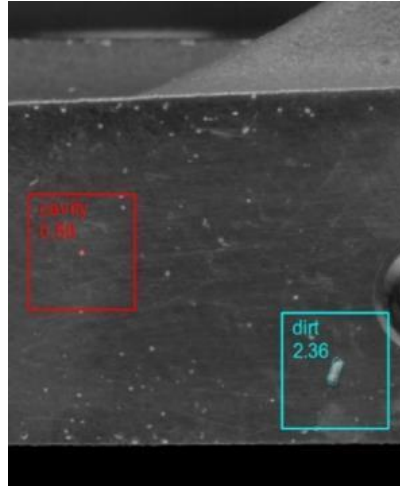
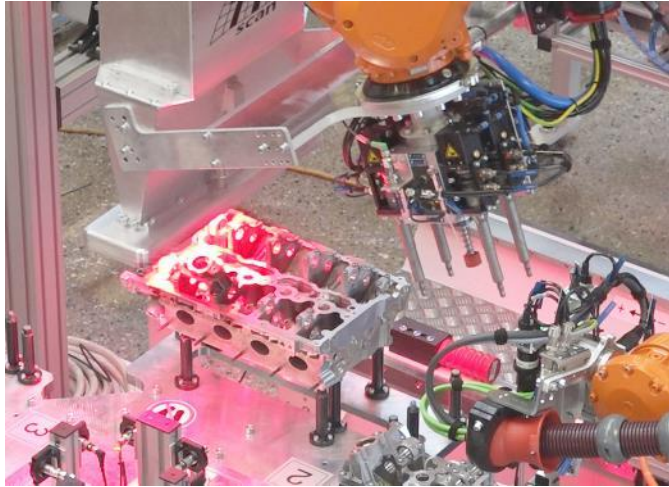
Surface Inspection
of Fiber Composites



Crack Detection
by Thermography

Surface Inspection of Metal Parts

Solutions Portfolio: Industrial Inspection



Advantages

- In-line and end-of-line inspection of raw and machined metal parts
- Analysis of surface topography
- Minimal false-positive rate
- Qualifying of defects through machine learning

References, Application Fields

- Automotive Industry
- Engineering Industry
- Casting and Forging Industry



[Video: Industrial Inspection for Quality Assurance of E-Drive-Housings](#)



www.profactor.at/en/solutions/surface-inspection-of-metal-parts/

Surface Inspection of Metal Parts

Solutions Portfolio: Industrial Inspection

Surfaces



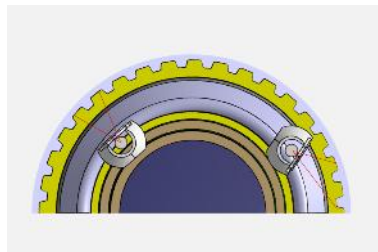
TPScan Sensor

- Fast quality control of large, flat surfaces
- 5 Illumination orientations allow detection of 3D-defects
- Robust against false-positives (false calls)



Lateral Surface Sensor

- Sensor with high resolution camera and integrated illumination
- Allows flexible and individual adaption to specific measurement task
- Compact design -> easy to integrate



Sensor for tooth flanks (under dev.)

- Fast inspection of inner gear parts
- Surface inspection of tooth flanks and tooth tips

Boreholes



Rotating Sensors

- Perfect for the inspection of inner surface of boreholes, radii, clearances
- Rotating camera with three illumination orientations
- Sensor with fixed and variable diameter range



Borehole Sensor Linear

- Image acquisition during the movement of the sensor along the bore axis
- Inspection of very deep boreholes
- Individual sensor lengths possible

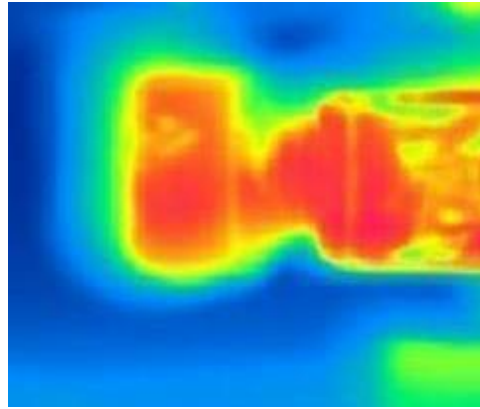
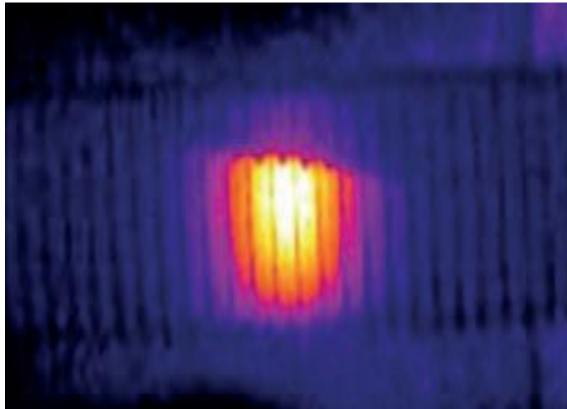
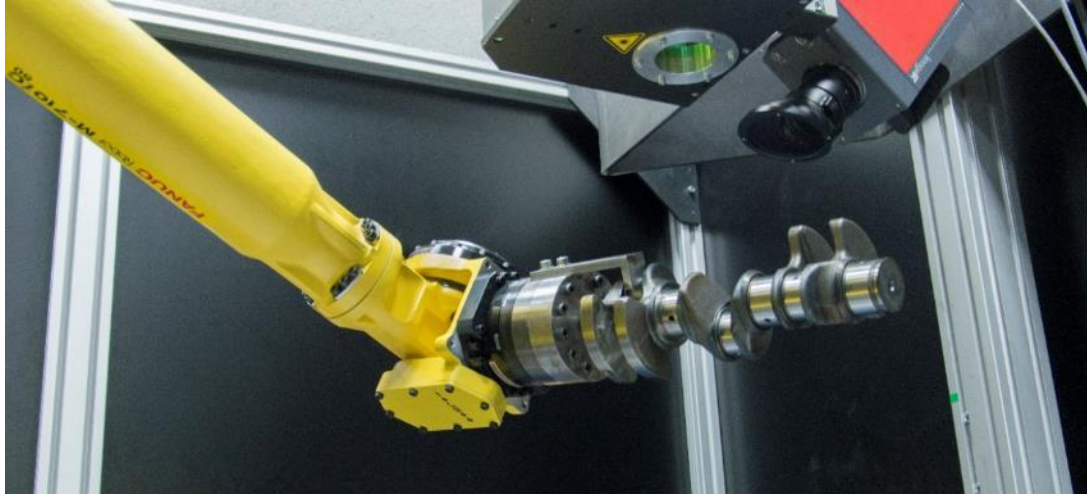


Endoscop Sensor

- For small and deep boreholes, blind holes or inspection areas hard to access
- Sensors for a range of diameters, starting from 4mm diameter.

Crack Detection by Thermography

Solutions Portfolio: Industrial Inspection



Advantages

- Non-contact and non-destructive technology to detect closed and visible defects such as cracks, voids, inclusions and local inhomogeneities
- For electrically conductive and insulating materials
- Determination of joining quality (welding, bonding), control of delamination, adhesion or thickness of coatings
- Very flexible due to the use of clocked or scan mode

References, Application Fields

- Automotive Industry
- Engineering Industry
- Casting and Forging Industry



www.profactor.at/en/solutions/crack-detection-by-thermography/

Digital Assistance



Digitization & Assistance
for Quality Assurance



Visual Scene Understanding

Digitization & Assistance for Quality Assurance

Solutions Portfolio: Digital Assistance

Advantages

- Quality control and assistance for conveyor belt scenarios
- Self-learning machine vision detects deviations from production planning
- Projection of information for workers onto the moving products
- Complete digitalisation of product condition and quality before delivery

References, Application Fields

- Manufacturing or assembly lines with high product variations
- Industrial kitchen furniture manufacturing
- Manufacturing of personal safety equipment



[Video: Quality control and assistance for conveyer belt scenarios](#)

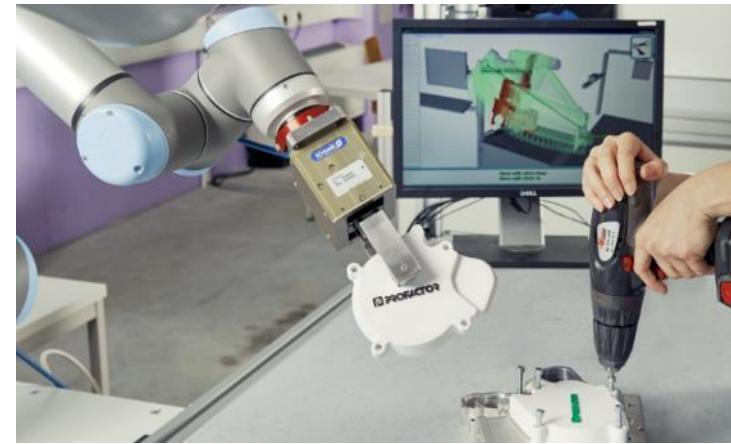


www.profactor.at/en/solutions/digitization-and-assistance-for-quality-assurance/

Adaptive Robotics



Collaborative Machining



Collaborative Handling and
(Dis-)Assembling

Our Robotic Systems



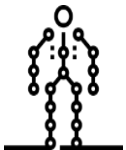
Lightweight robots for sensitive process operations



Intuitive task input through demonstration using gestures and pointing tools



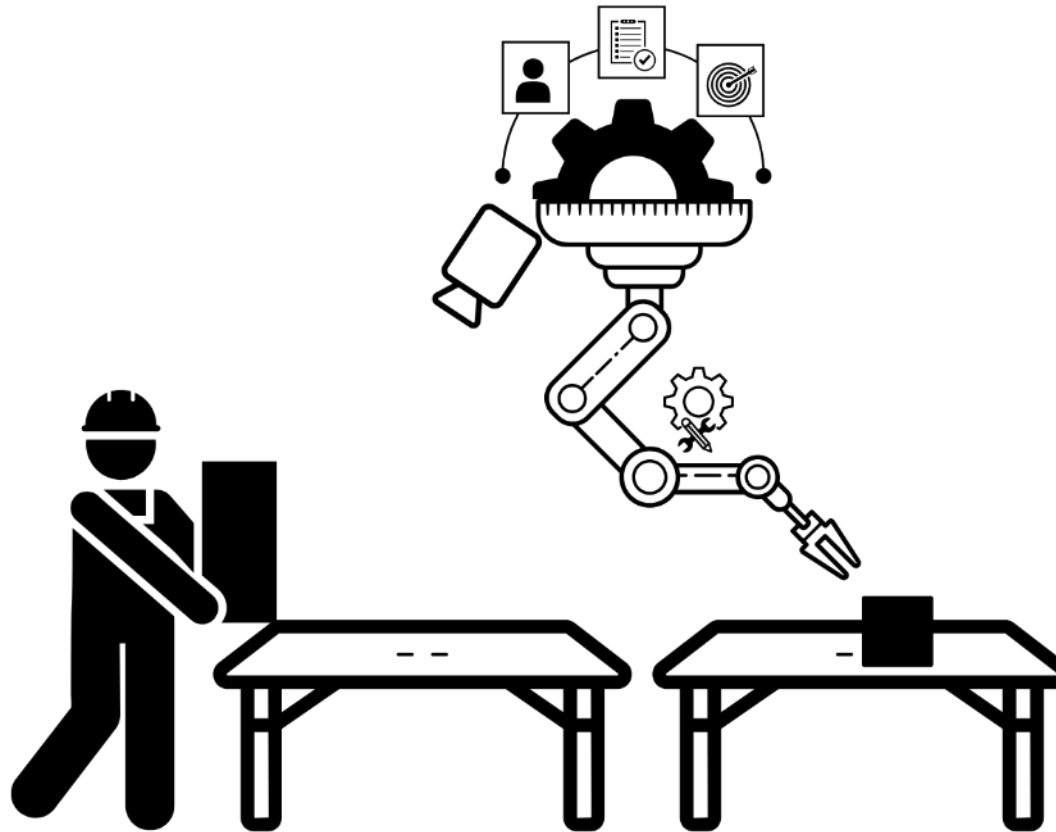
Context-aware projection to visualize task input directly on the workpiece



Dynamic detection and tracking of people

Capturing the Current State

Automatic AI-Assisted Programming



Intuitive Process Input

Intuitive Visualization



2D/3D detection of object positions and orientations



Simplified user interfaces for image-based input



Context-aware robot path calculation



Lower equipment costs through the automation of handheld tools

Adaptive/Assistive Systems for Modern Manufacturing



Robotic System for
Adhesive Application and
Joint Sealing



Robotic Welding System



Robotic System for Quality
Inspection



Robotic Bin-Picking System



Robotic Assembly System



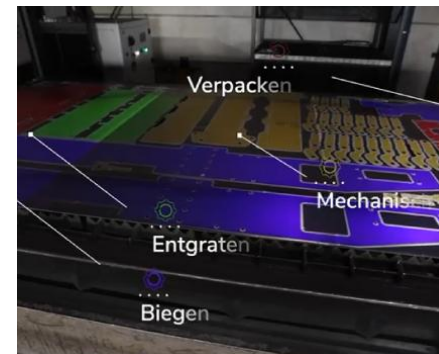
Robotic System for Painting
Furniture Fronts



Robotic System for
Sanding, Polishing and
Oiling



Assistance System for
Assembly and In-Line
Quality Control

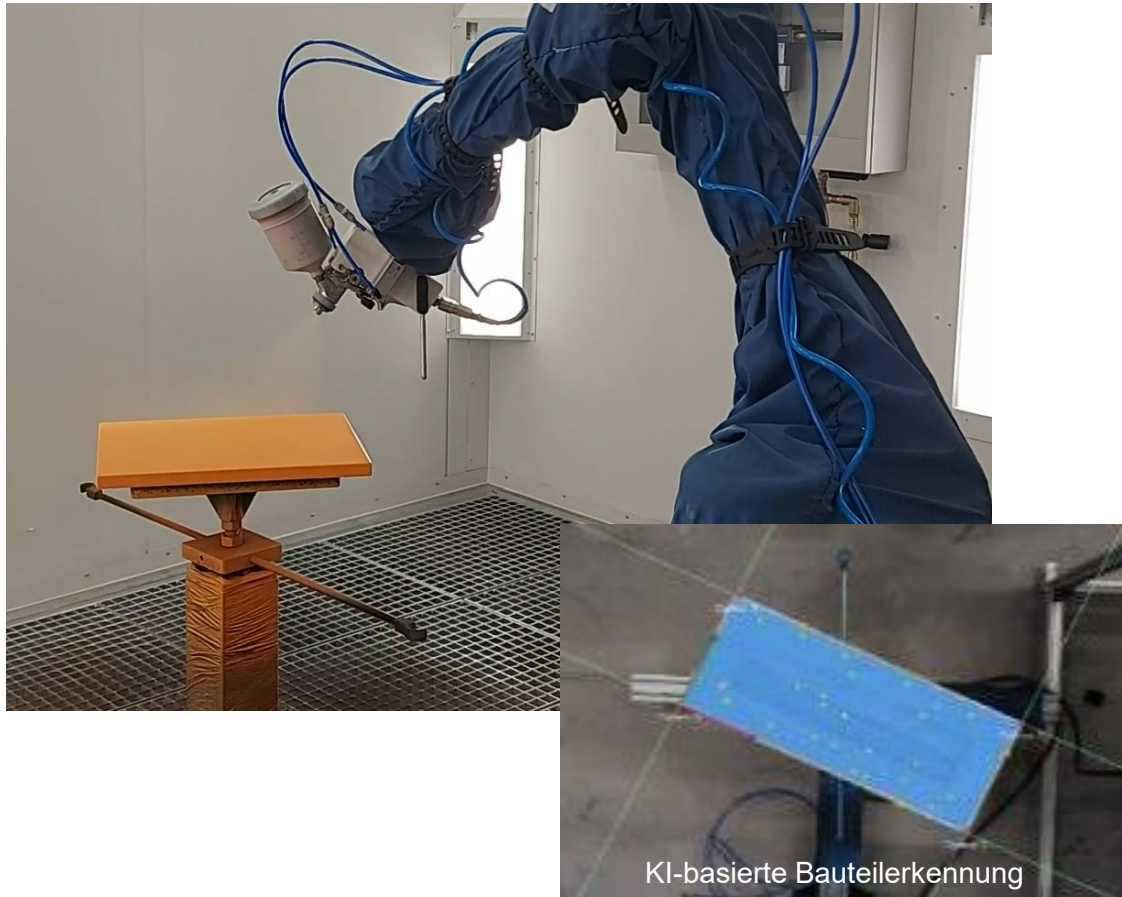


Assistance System for
Picking and Sorting Cut
Parts



Assistance System for
Inspection and Final Quality
Control of Assemblies

Robotic System for Flexible Painting of Furniture Fronts



Technology

- Cameras and sensors detect the workpiece, and the robot automatically calculates the required path.
- The system paints rectangular panels of varying sizes using a standard gravity-feed spray gun.

Benefits & Advantages

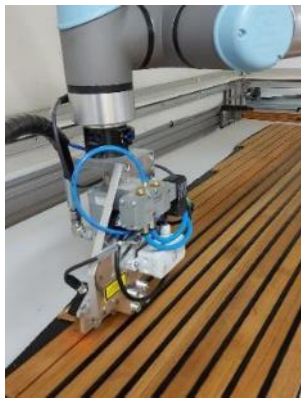
- Task setup for each workpiece in under 20 seconds
- Automation even for very small batch sizes
- No programming skills required
- Reduces operators' exposure to repetitive, monotonous tasks
- More uniform coating of large workpieces

Applications / Reference

- Painting of kitchen cabinet fronts

www.profactor.at/q-station

Robotic System for Adhesive Application and Joint Sealing



www.profactor.at/loesungen/robotik-und-automation/

Technology

- Cameras and sensors detect the workpiece, and the system automatically calculates the robot path along the joint.
- The system applies adhesive or sealant into joints, using specialized tools where required.

Benefits & Advantages

- Very fast task setup (< 20 seconds) with no programming skills required
- Reduced material consumption and consistently high quality

Applications / References

- Application of adhesives, sealants and high-viscosity materials
- Production of boat decking

Robotic System for Flexible Sanding, Polishing and Oiling



Technology

- Cameras and sensors detect the workpiece, and the robot automatically calculates the required path.
- The system sands, polishes or oils a wide range of surfaces and contours using standard commercially available tools

Benefits & Advantages

- Very fast task setup (< 20 seconds) with no programming skills required
- Flexible processing of different workpiece sizes and geometries, with no dedicated fixture required

Applications / References

- Surface finishing of different materials and workpiece geometries
- Oiling of lounge chairs and furniture fronts

www.profactor.at/robotik-und-automation/

Robotic System for Flexible Welding

Technology

- Cameras and sensors detect the workpiece, and the robot automatically determines the welding points.
- The system can weld a wide range of workpiece geometries with angles between 30° and 170°.

Benefits & Advantages

- Very fast task setup (< 20 seconds) with no programming skills required
- Flexible welding of different workpiece geometries, with no dedicated fixture required

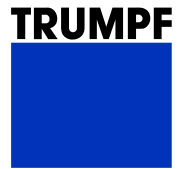
Applications / References

- Welding of small batches and batch-size-one production
- Welding robot for solar thermal systems – Gasokol
- Welding of plastic components – Edlmair Kunststofftechnik

[Video: Kollaborativer Schweißassistent](#)

www.profactor.at/robotik-und-automation/

Working with strong Research and Industry Partners.



We are looking forward to working with you.

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