

Options

- Remote maintenance
- Training at bwm
- Installation and commissioning in your factory
- Initial support and training in your factory

Our performance profile

- | | |
|----------------------------------|--------------------------------|
| • Manufacture of turnkey systems | • Control engineering |
| • Main contractor | • Gauging and testing |
| • Engineering | • Robotics |
| • Design | • Laser technology |
| • Production control | • Optical measuring techniques |
| | • Service |
| | • Installing and commissioning |
| | • Field bus systems |
| | • Instruction and training |

Optical measurement technology

- Test
- Measure
- Valuate

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Optical measurement technology for optimal results

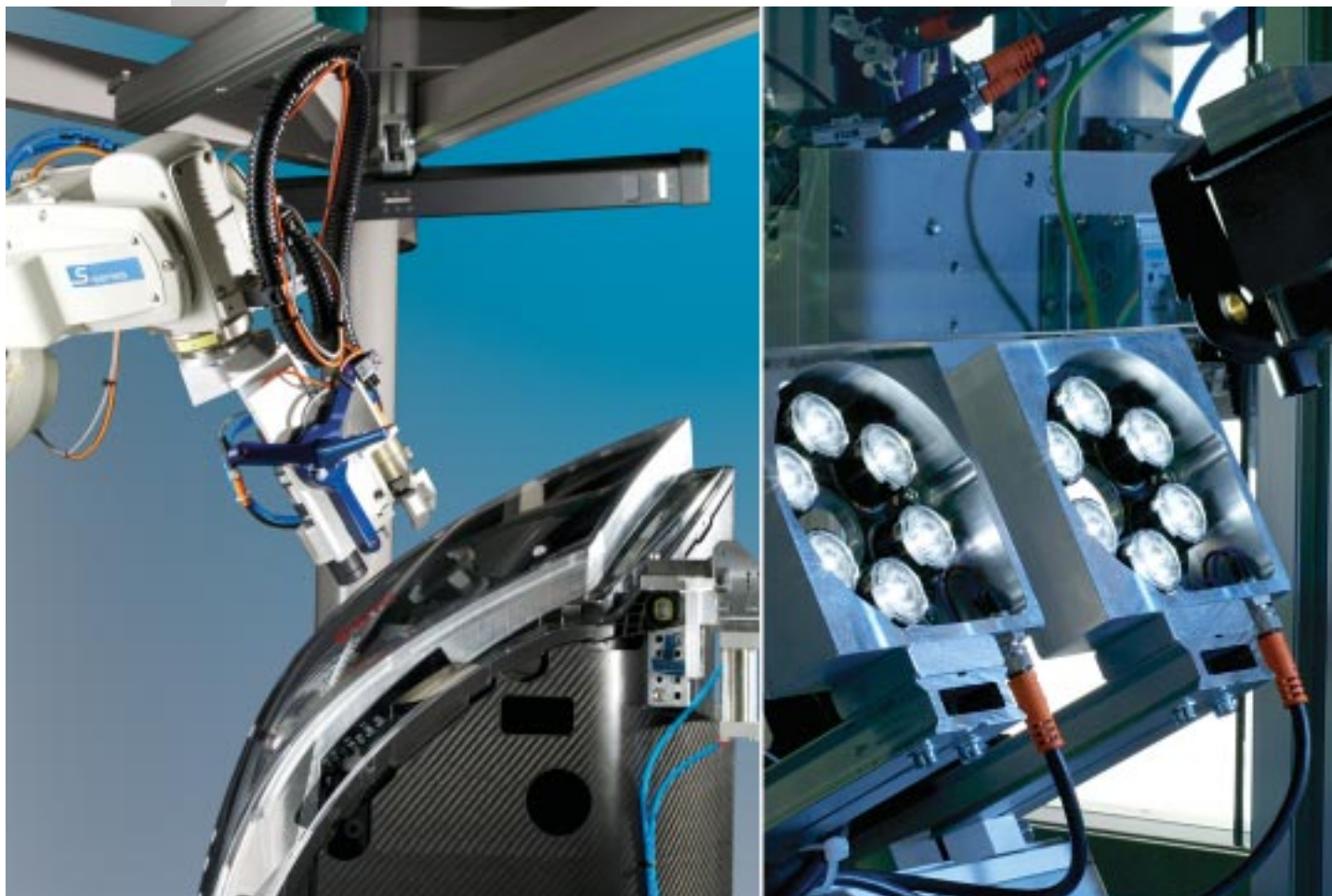
Compared to mechanical systems, in many applications optical measurement technology used in industrial production proves far superior in terms of flexibility, speed and data quality.

By using image processing systems for examining components – such as the modular testing system MO/P/S®, we at **bwm** have been abreast of this development for many years already.

By systematically extending the range of our offering in the field of test engineering, today at **bwm** we implement customer-specific systems for automatic testing and for 2D and 3D measurement of an extremely wide range of components and materials.

In many cases these demanding testing assignments cannot be resolved by means of standard systems. Therefore, sensors have to be selected to meet the respective specific problems. Complete systems are then created in combination with the innovative **bwm** system solutions that meet the special requirements imposed on testing procedures in production with regard to flexibility, reliability and economic efficiency.

It goes without saying that if necessary the measuring systems are integrated in existing plants.



Customer-specific test systems

- Definition of the measuring assignment in collaboration with the customer
- Selection of the sensors, taking into account the required properties, accuracy and the budget
- Preparation of the overall concept, including automation and control technology and the mechanical and electrical layout design
- Implementation of the complete system from a single source



Image processing

- Identification of variants
- Position and presence monitoring
- Identification of defects/gaps
- Measurement of geometric variables
- Robot control system
- Character recognition, barcode, data matrix



Modular testing system MO/P/S®

- Interactive preparation of test assignments
- Modular software concept
- Easy handling
- Control of multiple testing processes / cameras
- Interfaces to all established control systems

Example applications

- Robot-assisted 3D shape detection on transparent, mirroring and diffuse-scattering components and modules
- Inspection of transparent materials for scratches, cracks, inclusions, bubbles etc.

3D shape detection

- Checking of geometric dimensions
- Registration of free-form surfaces
- Comparison versus CAD
- Identification of variants on complex objects

Measuring methods

- Laser triangulation
- Confocal sensors
- Reflection measurement techniques

Applications

- Geometry measurement of e.g.
- Welded building constructions
 - Panes, mirrors, lenses
 - Modules
 - Injection moulded components

Combination with **bwm** system solutions

- Robot cells
- Rotary and in-line transfer concept
- Line concept

