Equipped to meet all Industry 4.0 requirements

The comprehensive software package makes these 3D measuring and test systems suitable for use in the areas of development and application as well as for 100% in-line testing. All models are future-proof and feature interfaces for stand-alone use or for partially or fully automatic operation within the production environment. As a result, the measuring systems are well equipped to meet upcoming Industry 4.0 requirements.

Wide experience in optical metrology

Over 20 years of experience, continuous development and close communication with users have gone into the creation of this new line of optical measuring and test systems.

KoCoS has built up a broad spectrum of know-how within the high-tech sector. Tried and trusted products include OMCAT, a 3D polar coordinates measuring system for testing and automatically controlling manufacturing processes for rotationally symmetrical bodies, especially exhaust catalytic converters, and WATOM, the optical measuring system for controlling and checking the edge grinding process for semi-conductor wafers.

Because of this broad experience base, the move to create systems providing general manufacturing metrology for cross-industry use was the next logical step.

All shape and position tolerances in accordance with ISO 1101 for the entire measurement object, freely definable sections or individual areas can be measured:

Identification of imperfections
Inspection of defects

Geometrical measurements

- Volume
- Diameter
- Radius
- Circumference
- Length
- Angle

Shape and position testing

- Straightness
- Circularity
- Cylindricity
- Perpendicularity
- Parallelism
- Coaxiality
- Circular run-out
- Total run-out
- Profile shape/surface shape
- Deviation from nominal contours/surfaces
- Fit (minimum circumscribed, maximum inscribed) of all measured contours

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Optical 3D measuring systems

LOTOS automatic measuring systems can measure the full outer contours or individual areas of any measurement object quickly and precisely, irrespective of the shape, and test them for imperfections. The three-dimensional, non-contact measurement is carried out using optical measurement sensors with accuracy in the μm range.

The result is a representation of the measurement object as a 3D model. Powerful, intuitive software allows the measurement results to be assessed extremely quickly.

Easy integration into any data environment as well as traceability and reprocessing for all measurements make these measuring systems suitable for an extremely wide range of applications.

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Measure objects quickly and precisely

LOTOS systems make it possible to make a three-dimensional measurement of the entire outer contour or a freely definable section of any measurement object. The measurement object is turned on a rotary stage. At the same time, a high-precision vertical measuring stage is used to move a multi-dimensional laser sensor along the measurement object to measure its entire outer contour. This contour can then be tested fully automatically for pre-defined geometrical properties. Because of the wide range of possible uses, applications for in-process testing and for quality testing exist in almost all industries.

Optimum quality and process control due to excellent measurement capability

Thanks to in-process test and regulation methods, LOTOS can be used to optimise manufacturing processes in respect of quality and economic efficiency. The use of high-precision mechanical and optical components guarantees high measurement accuracy in the µm range. The measurement sensor has a high resolution and its functioning is not affected by the surface of the measurement object. Measurement objects with surface variations caused by welded joints or coatings, for example, can be measured precisely without outliers too.

High productivity with fast, automated measurements

Fast stages for positioning the measurement object and sensor, a powerful internal evaluation and control processor and an additional real-time processor allow fast, fluent operation because processes run in parallel.

It takes less than 10 seconds to complete a full measurement and assessment of a component. Test plans can be chosen in a matter of seconds or can be read in automatically to perform a wide range of measurement tasks efficiently.

Cost-efficient due to wide range of possible applications

Flexible holding fixtures completely eliminate changeover times or keep them very short for tests on a wide range of different products. Coupled with the large measuring range, this means that these systems can measure everything from very small parts to heavy machine components. Whether required for tasks connected with development and optimisation or for in-process testing and process control, a wide variety of measuring tasks can be carried out flexibly and efficiently with just one LOTOS measuring system.

High operational reliability and availability

Whether used in the measuring room or in harsh manufacturing environments, the robust design of LOTOS measuring systems guarantees a long service life, while maintenance-free components from leading manufacturers ensure high availability. All mechanical parts and sensors are dust-protected and designed to compensate for environmental influences. In addition, self-monitoring functions provide high operational reliability and accuracy even under fluctuating environmental conditions.

Intuitive operation and powerful software

Simple, intuitive operation provides safety and reliability. This means that operators require very little training.

The powerful software features expert modes for advanced requirements in development and application as well as measurement monitors for one-key operation by the machine operator on the shop floor. Various poka-yoke functions prevent all kinds of operator error and support fast, intuitive test plan creation. Not only does the software provide traceability for every measurement, it also allows all measuring steps to be reprocessed with adapted parameters, even without a measuring system.

The LOTOS software features direct in-line production monitoring functions and statistical functions as well as synchronous remote administration for all measuring systems.

LOTOS

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