

HEITEC AG Press Release

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Measuring and testing in sync with automation

Networked measurement technology plays an important role in quality assurance from the perspective of Industry 4.0. Heitec, the automation specialist based in Erlangen, Germany, develops testing devices to measure workpieces and detect errors for international automotive suppliers and many other industries.

The automotive industry requires fast and robust measuring and testing procedures to implement its zero defect strategy. Measuring technology for inline operation must also be automated in such a way that quality defects and process fluctuations can be immediately detected and reported directly to production.

For SMP Samvardhana Motherson Peguform in Neustadt on the Danube, Heitec is developing and manufacturing fully automated measuring and testing systems to monitor front bumpers, cockpits, and side panels. Depending on the task and requirements, appropriate sensors comprising up to 25 cameras or laser scanners perform a contactless and non-destructive check of the correct installation of safety and assistance systems, lighting and park assist sensors, and radar and lane-change detection systems, or check for the presence of emblems, screws, or clips. At the same time, the system monitors installed cable harnesses and related components that are connected to the testing system via specially designed adapters and checks the functionality by means of analysis software. Verification is based on the construction contract, which has been previously scanned in using the barcode, and the associated data from the database. A second test object can be loaded and prepared while the

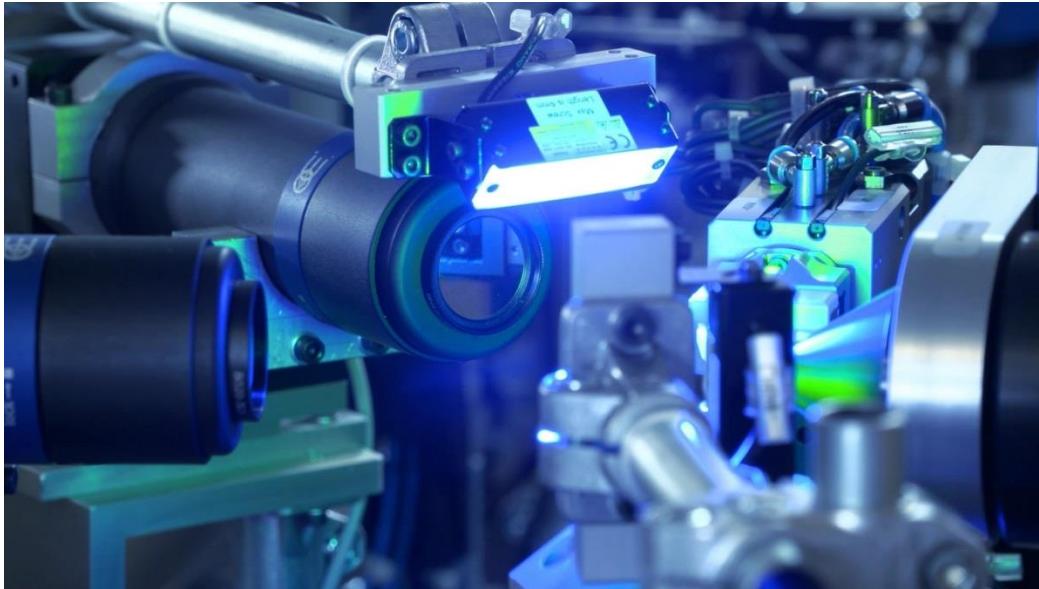
test is being performed. Depending on the scope of the test, the Heitec system requires between 10 and 90 seconds for a complete measurement cycle.

HeiCMD (cylinder measuring device), the fully automated measuring system, performs dimensional and geometric testing of rotationally symmetric parts with narrow shape and size tolerances. It analyzes the maximum, minimum, and mean diameter over the entire measuring range or partial ranges as well as cylindricity, parallelism, and straightness. The results of measurement can be used for pairing or classifying bushings and shafts. The analysis software reads out the measured data in real time, processes it, and displays it either numerically or graphically. The measurements are accurate up to a ten-thousandth of a millimeter. Depending on requirements, the measuring station can be equipped with a pneumatic plug gauge or measuring ring, or with a tactile probe or optical laser to measure internal and external properties. For the pneumatic measurement, a high-precision piezoresistive transmitter with a built-in temperature sensor for temperature compensation is used. Pneumatic and tactile versions can be combined as needed. In the case of a fully automated plant, a handling robot removes the cylindrical rolls from pallets, places them in the testing unit, and then re-palletizes them.

Surface inspection systems detect production faults, damage, and contaminants and determine roughness, concentricity, and geometric dimensions. For international automotive suppliers, Heitec is developing an automated testing unit with a line scan camera, entocentric lens, and barlight. Using the 3D scattered light method, the system detects defects on the lateral surface of cylindrical workpieces as of a minimum size of 0.02 mm with a 50 mm field of view in the line direction while differentiating between scratches and dents. The design permits production-integrated, one-hundred-percent inline testing of piston pins within one second. Depending on the particular cycle times of the production lines, ranging from 0.5 to 1.8 seconds, the systems can be designed as end-of-line testing units with one or two tracks.

As a solution provider in the field of automated measuring and testing technology, Heitec offers its customers the complete service chain, from process analysis to the integration of individual solutions into the production line. Depending on the task, test objects can be measured and tested tactilely

or pneumatically by means of ultrasound or laser vision systems, using induction techniques or computer tomography.



Caption

Testing device for rotationally symmetric parts (Source: Heitec)

HEITEC AG company profile

HEITEC stands for industrial expertise in automation and electronics, offering solutions, products and services with a focus on software, mechanics and electronics. With high-tech, reliable and economical system solutions, HEITEC helps its more than 2,000 customers increase their productivity and optimize their products. More than 1,000 employees in many locations in Germany and abroad guarantee customer proximity and industry expertise. More than 60 percent of the employees are college graduates or have a technical background. HEITEC has reported growth rates far above 10 percent in recent years, doubling its revenue in five years.

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