WENZEL®
The company of µ

New Structured Light Projection and Image Processing Sensor

Phoenix

THE NEW PHOENIX

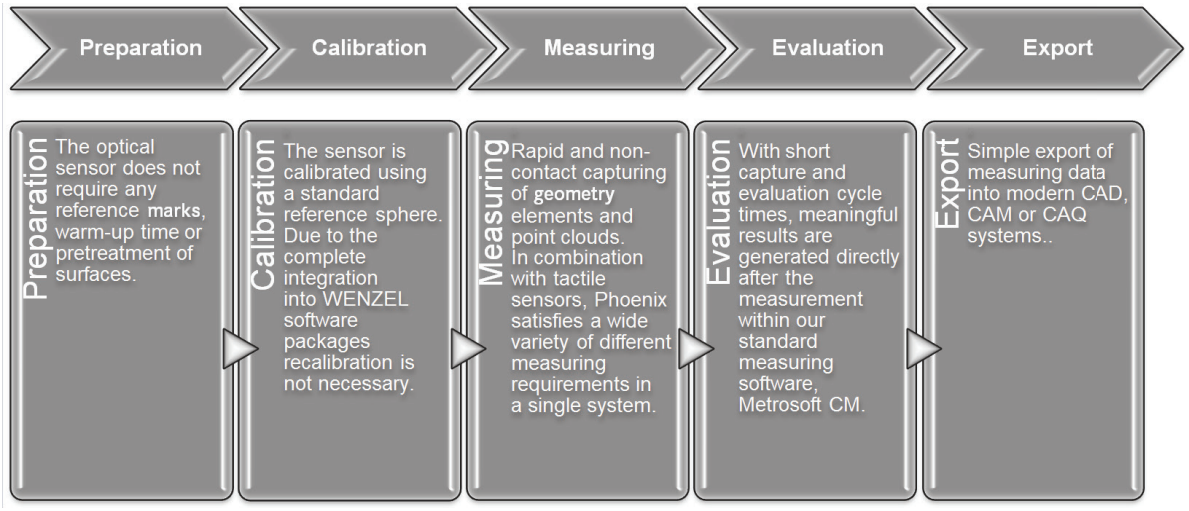
The Revolution in Optical Measurement

With the new Phoenix, WENZEL has perfomed pioneering development work in optical measurement technology. The new optical, non-contact 3D sensor captures point clouds and geometry elements on different materials in one working cycle.

It can be used in automatic probe changers alongside tactile sensors, so that multiple applications can be performed with a single measuring system. These multiple and flexible applications and many other highlights make the Phoenix the ideal tool for quality assurance, production monitoring and analysis.

Typical application areas of the Phoenix are in the automotive industry, but also in plastic and sheet metal processing. Previously time-consuming inspections can be done quickly and reliably especially in mass production, such as in car body, sheet metal or plastic part production. Its small, lightweight design allows the sensor to be fitted to standard 3D coordinate measuring machines in production lines and metrology rooms.

At a glance
Phoenix measuring process

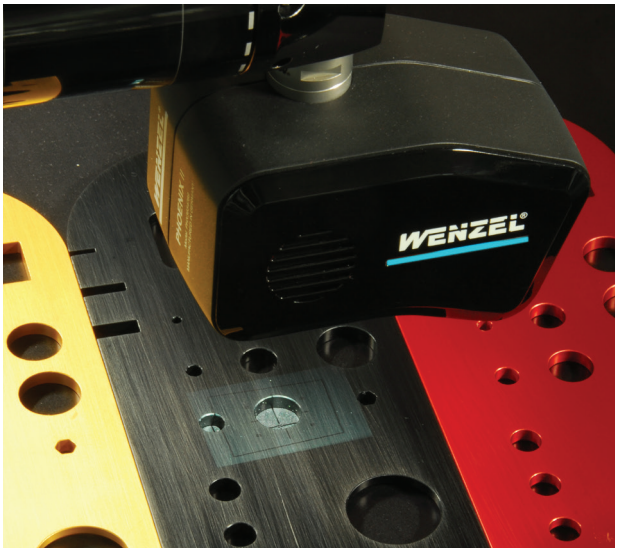


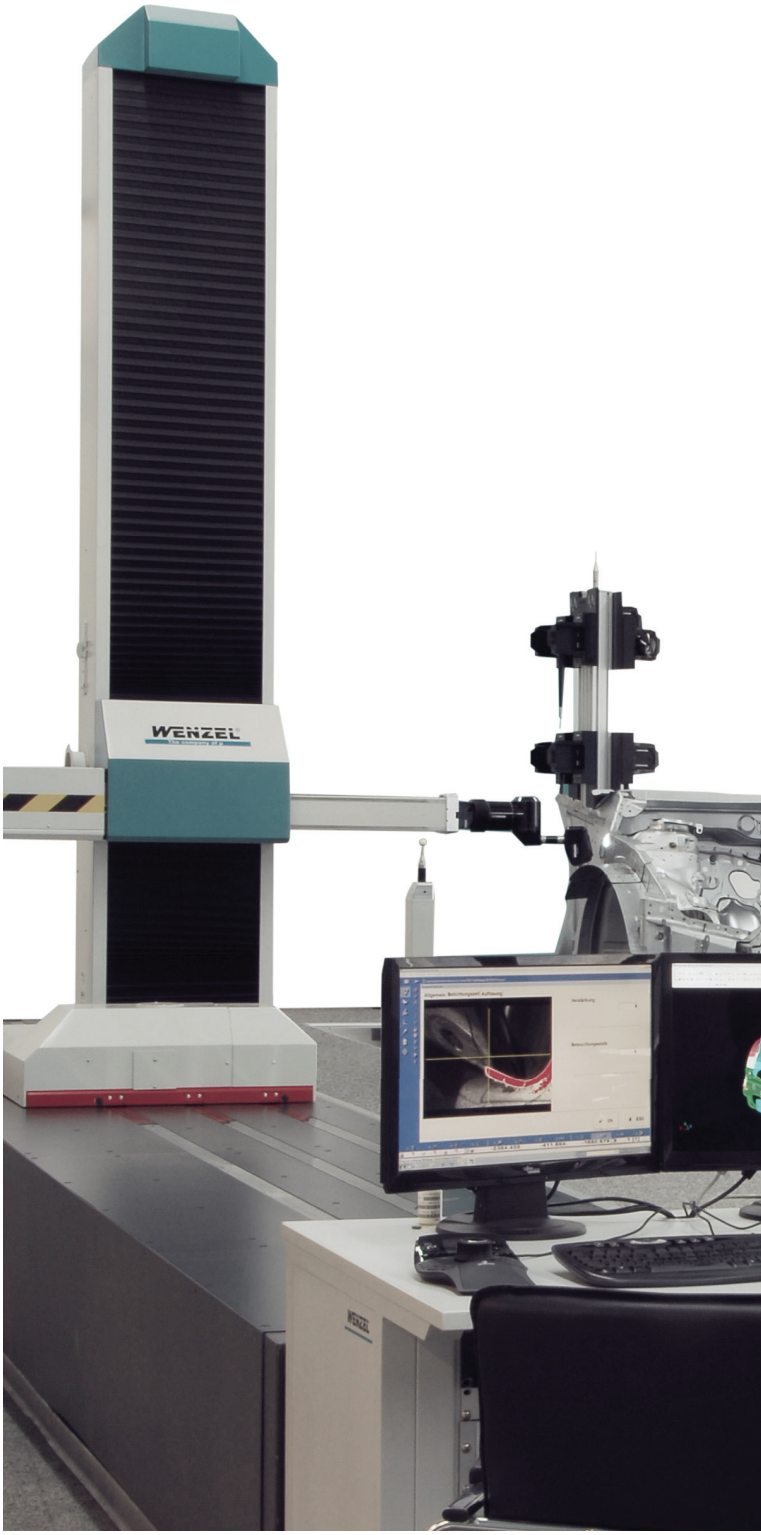
ALL IN ONE

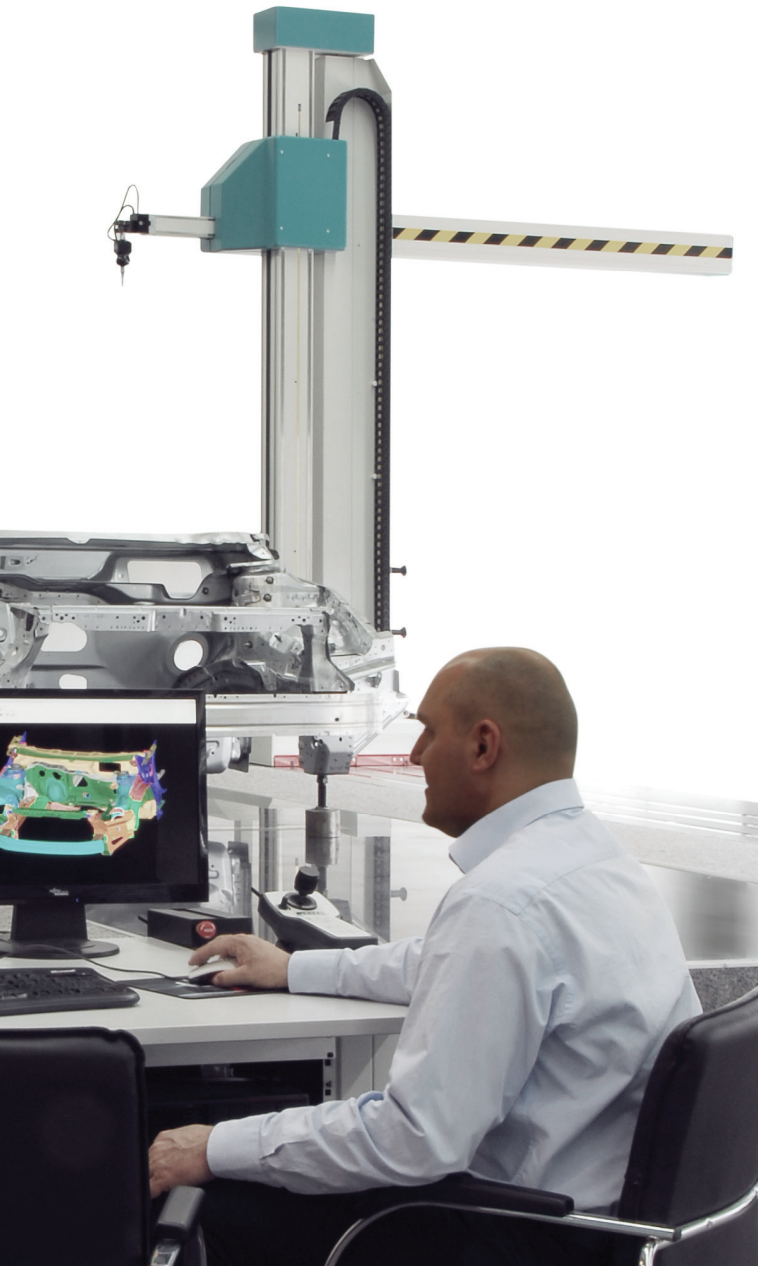
Measurement of Geometric Elements and Surface Analysis with Only One Sensor

Accurate results for different materials, colours and finishes

- The sensor enables the detection and measurement of mixed materials such as carbon fiber reinforced plastics combined with aluminum and sheet metal.
- The sensor parameters can be adjusted to suit the material.
- The Phoenix has the ability to recognize different textured surfaces, to diagnose defects such as scratches and even to collect barcodes for process control.
- The sensor is relatively insensitive to extraneous light and delivers reliable results almost independently of the ambient lighting conditions.
- The Phoenix can record data from work pieces with different colors and with different surface texture.
- Multi-colored components and small, rough and flexible work pieces can be easily measured.







High measuring productivity and multi-sensor operation

- Information from gray scale images and 3D point clouds are determined, saved and analyzed in one common coordinate system with high resolution.
- Within a very short time all the necessary data of the measurement object can be recorded.
- The new Phoenix is fully integrated into WENZEL software packages. Due to its light weight it can be fitted to the PH10 motorized indexing head and the PHS servo positioning head from Renishaw.
- All system components integrate perfectly because CMM, sensor and software are developed, produced and maintained by WENZEL.

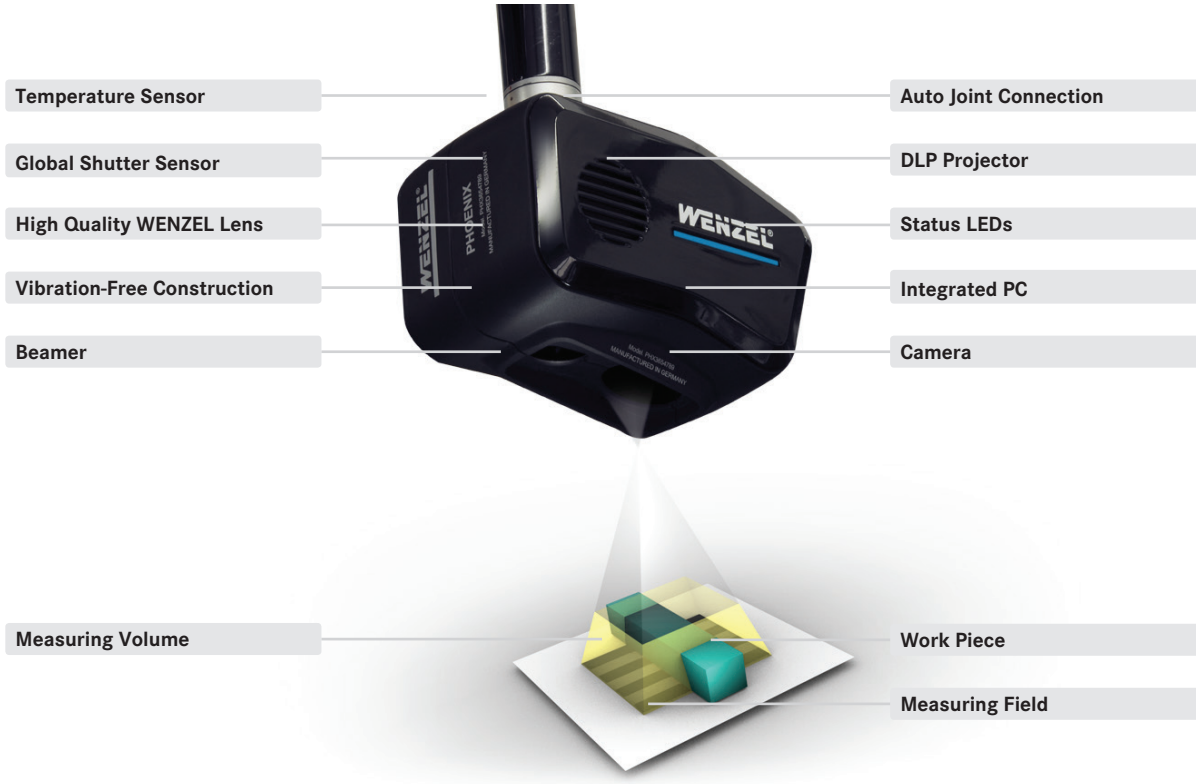
Multi-Sensor operation and automatic exchange

- In multi-sensor operation, the advantages of the optical sensor Phoenix can be combined with the advantages of tactile measuring systems. Both technologies can be used independently or together. With Renishaw ACR1, ACR2 and ACR3 probe changers the sensors can be automatically exchanged. Existing CMM systems can easily be retrofitted with Phoenix.

UNIQUE FUNCTIONALITY

The Combined Solution

The Phoenix uses a unique combination of methods for evaluating the measurement data. Firstly, the phase-shift method using structured light projection and secondly, an image processing method is used for 3D measurement of features, for example circles. By simultaneous use of both of these methods the measurement of very thin-walled component features as in sheet metal and stamped parts, as well as the complete capture of surfaces is possible. Due to the digital light projector and the explicit projection of red, green or blue light, the true color of components can be analyzed and reproduced in 3D. Reflections on surfaces can mostly be avoided by texture projection so the system dynamics can be greatly increased.



Technical Data

Weight (g)	315
Dimensions (LxWxH) [mm]	120 x 78 x 74
Working Distance [mm]	~70 (+/-15)
Measuring Field [mm]	40 x 30
Intensity [mm]	+/- 15
Resolution	754 x 480 (0,050 mm) Pixel
Accuracy [µm]	+/- 8 according to DIN ISO 10360-2 Probing Error
Reproducibility [µm]	+/- 5
Scan Capacity [points/second]	350.000
Live-Images per second	Max. 30
Measuring Time	ca. 1,0 sec
Calibration Time	< 1 min.

Innovation for Success

WENZEL Group GmbH & Co. KG is one of the leading manufacturers of industrial metrology solutions. The wide range of WENZEL products includes solutions in the fields of coordinate measuring machines, gear metrology, computed tomography and optical high speed scanning systems. Founded in 1968 as a family business, WENZEL Group combines tradition with innovation, relies on values such as reliability, trust and respect for the environment. Subsidiaries as well as sales and service partners worldwide represent the company in more than 50 countries. The WENZEL Group employs more than 630 people worldwide.

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