INNOVATIONS IN METROLOGY

WENZEL CORE

Our solutions for your measuring tasks

WENZEL

GENERAL CATALOG

OVERVIEW
WENZEL CORE

OPTICAL HIGH SPEED SCANNING
MEASUREMENT OF BLADES, BLISKS AND IMPLANTS

Hollywood, for example, used it for the film "The Core". In sports, "core training" means the training of the central body part, in physics "core" is the most important part of a nuclear reactor in which the chain reaction takes place. No matter what we have looked at so far, they all have one thing in common: it is about the innermost, the central part.

In addition to measurements in the measuring room, it is now important to move metrology into the production area close to the processing machines in order to be able to react quickly to deviations. With this in mind, WENZEL's CORE product range was developed for the central part of a production plant - the quality of the products. No matter whether the measurement is carried out directly after production or during post-processing within the maintenance cycle at a later point in time, the CORE is the appropriate coordinate measuring machine for this. The measuring machine can be used directly in the production area and measure the relevant characteristics. It is possible to measure on almost all surfaces, whether shot peened, lacquered, polished or matt. Due to the unique optical sensors of the CORE product line it is possible to measure all these surfaces. Some may now think that optical sensors cannot measure everything. That's right, every technology has its limits. For this reason, WENZEL has developed a hybrid sensor that combines the characteristics of optics and tactile sensors and is outstanding in this regard, but not only are the sensors to be emphasized here, also the machine itself impresses with its small space requirement in comparison to similar measuring machines. The CORE product range is also characterized by its incredible flexibility. Depending on the model, the CORE can be equipped with 6 axes and a measuring turntable. This combination allows almost unrestricted access to the components in order to measure as many features as possible in a single operation without re-clamping. This measurement is not done in hours, days or weeks, no, the development of the CORE product line has been designed to measure within the cycle time of production. Fast measurements can be achieved as a result of

high acceleration of the individual axes. yet the accuracy is not overlooked, resulting in the best possible relationship between measurement time and accuracy. In addition, the CORE product range can also be integrated into a fully automated production line. Whether using a robot or an automatic feeding system - with the CORE, WENZEL can make real almost any automation.

What would a measuring machine be today without the right software? It would probably only function in a limited way. For this reason the CORE is now available with the well-known WM | Quartis software from WENZEL. The areas of application for CORE are wide. For example, turbine blades from the aerospace industry or industrial gas turbines can be inspected. In medical technology, joints and prostheses can also be measured, as can components from other diverse markets. Small, medium and large components with a length of more than 2m can be measured with the CORE product range. No matter whether you want to check the quality of your products directly after manufacture or at a later point in time, CORE will not let you down. Do not leave the quality of your products to chance, but entrust this important central part of the CORE to WENZEL.

WENZEL CORE D

OPTICAL MEASUREMENT AT PRODUCTION CYCLE SPEED

Designed to increase the speed of the production process, the CORE Optical High Speed Scanning System offers a highly flexible 3D inspection solution for demanding measurement requirements in global manufacturing. The CORE is based on a proven mechanical structure, developed and manufactured in WENZEL's renowned production facility in Germany. This forms the cornerstone for its accuracy, reliability and quality. With a scanning speed of up to 400 mm/s, the CORE provides time savings by a factor of about 4 compared to tactile coordinate measuring machines.

FEATURES

- The CORE is the optimal solution **for automated measurement** of components in-line or at-line
- **Robust construction** ensures its use in production environment
- **Fully integrated optical sensors** measure complex workpiece geometries in a reasonable time
- **Possibility of tactile measurement** when optical methods reach their physical limits
- **Automatic change between tactile and optical measurement** by the WM | HS hybrid sensor

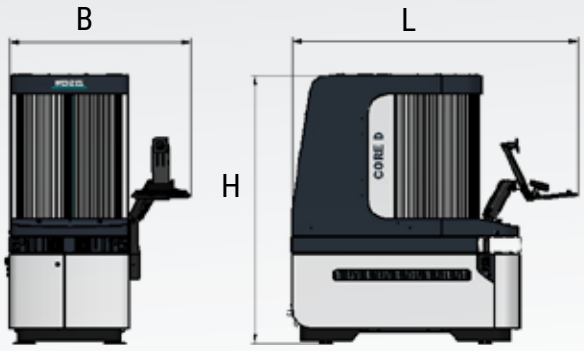
FIELDS OF APPLICATION

Typical applications of CORE can be found in a wide variety of industries, for example in tool and mold making, prototype construction, the automotive industry, reverse engineering and above all in medical technology and aviation. CORE is used to measure turbine blades, joints, implants and vehicle parts.

Knee and hip prostheses

Turbine blades

Pump



MACHINE PROFILE

Space Requirements (L x B x H)	**2255 x 1500 x 2100 mm**
Machine weight	**1500 kg**
Acceleration	**> 3000 mm/s²**
Measurement system resolution	**0,1 µm**

YOUR ADVANTAGES AT A GLANCE

- **Fast and efficient**
  Fast point detection | Minimization of machine movement | Repositioning during measurement
- **Easy integration**
  Compact design with a small footprint | Controller and computer integrated in the unit | Accessible work area | No compressed air required | Portable machine type
- **Unique sensors**
  Simple measurement of critical areas | Direct measurement of polished and highly reflective surfaces | Large working distance and measuring range
- **Latest technology**
  Can be automated | Connection of robots for assembly | Temperature stability from 18°C - 30°C | Dirt-resistant due to protected guides | Vibration-resistant | Use of precision scales | 6-axis measuring system | 5-axis angle acceptance of the sensors of 90° ±85°

WENZEL CORE M

OPTICAL MEASUREMENT AT PRODUCTION CYCLE SPEED

The CORE M High Speed Optical Scanning System is a device that was developed to meet the increasing demand for 100 % inspections. It works quickly and efficiently directly in production. Designed to increase the speed of the production process, the CORE M offers a highly flexible 3D optical inspection solution for large components and demanding measurement requirements in global manufacturing. The CORE is based on a proven mechani cal structure, developed and manufactured in WENZEL's renowned production facility in Germany. This forms the cornerstone for its accuracy, reliability and quality.

FEATURES

- **High-speed measuring operation** using dynamic linear motors in a 6-axis measuring system
- **Fully integrated optical sensors** measure complex workpiece geometries in a reasonable time
- The CORE M offers the optimal solution for **the measurement of components in-line or at-line with** its sensors
- **Large measuring volume** (up to 500 mm x 500 mm x 2500 mm) for measuring large components
- **Small footprint** and compact design in relation to measuring volume

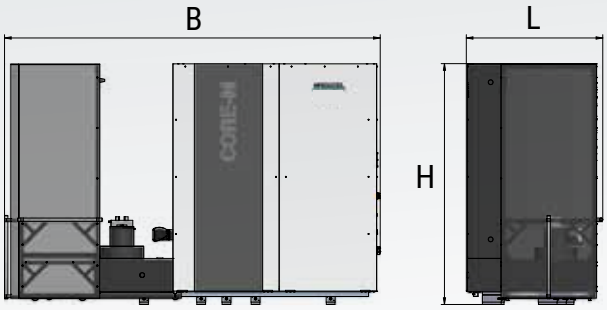
FIELDS OF APPLICATION

The CORE M is the optimal solution for the measurement of turbine blades, shafts, various vehicle parts and much more. The optical high-speed measuring system is used in a wide variety of industries, such as tool and mold making, prototype construction, the automotive industry, reverse engineering and aviation.

Vane blade segment

Turbine blade

Common Rail



MACHINE PROFILE

Space Requirements (L x B x H)	**1440 x 3970 x 2530 mm**
Machine weight	**6300 kg**
Acceleration	**10.000 mm/s**
Measurement system resolution	**0,1 µm**

YOUR ADVANTAGES AT A GLANCE

- **Dynamic and effective**
  Acceleration up to 10,000 mm/s | Travel speed of 800 mm/s | Minimization of machine movement | Repositioning during measurement
- **Compact design**
  Small footprint with large measuring volume | Working range accessible from 3 sides | Integration of controller and PC in the device | Protective hood for unfavorable lighting conditions | No compressed air required
- **Unique sensors**
  Simple measurement of critical areas | Direct measurement of polished and highly reflective surfaces | Large working distance and measuring range
- **State-of-the-art technology**
  Can be automated | Robotic integration capability | Temperature stable in a range from 18°C - 30°C | Dirt resistant due to protected guides | Earthquake proof up to 6.5 on the Richter scale | Use of precision scales | 6-axis measuring system | Angle acceptance of the sensors of 90° ±85°

INNOVATION MEETS TRADITION

The WENZEL Group is a market leader in innovative Metrology. WENZEL offers a comprehensive product portfolio in the fields of Coordinate Metrology, Computed Tomography and Optical High Speed Scanning. The technology of WENZEL is used in all industries, including the automotive sector, aeronautics, power generation and medicine. WENZEL looks at today on an installed base of more than 10,000 machines worldwide. Subsidiaries and agencies in more than 50 countries support sales and provide after-sales service for our customers. The WENZEL Group today employs more than 600 people.

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