WENZEL®
ScanTec

More Light and Speed in the Production Control

CORE

CORE

The Centre for Production Metrology

Developed to pace production CORE provides the ultimate in flexible 3D inspection solutions for the advanced part measurement process of today's global manufacturing industries.

CORE is based upon a new concept mechanical structure. Designed and manufactured at the renowned WENZEL CMM production facility in Wiesthal, Germany CORE has an inbred pedigree for accuracy, reliability and quality.

The fully integrated optical sensor provides the dexterity and measurement to inspect today's complex geometry parts rapidly.

CORE is focussed as a production gage to be placed on the manufacturing floor allowing short inspection cycle times and making it the ideal replacement for bespoke production gaging solutions.

CORE...
Stability

The CORE construction has been FEM optimized and minimizes any thermal impact due to its low coefficient of expansion. Oversized Linear Guide-Ways with wide bearing spreads ensure long-life and stable operation even in the harshest production environments.

0.1 Micron high resolution scales; mounted on inert carbon fibre substrates, provide accurate measurement over an extended temperature range.

The CORE structure is purposely designed as a production gage with compact footprint, no air supply and is also mobile allowing rapid re-deployment as production gaging needs change.

An integral, high resolution, direct drive Rotary Table provides synchronous part positioning to the measuring sensor further optimizing inspection cycle times. Parts can be clamped either into bespoke fixtures, secured to the rotary table platen, or simply secured using a machine vice.

The 5 axes motion controller and PC are housed in the machine base with easy access for maintenance as required.

Measurement of a highly reflective and polished knee joint

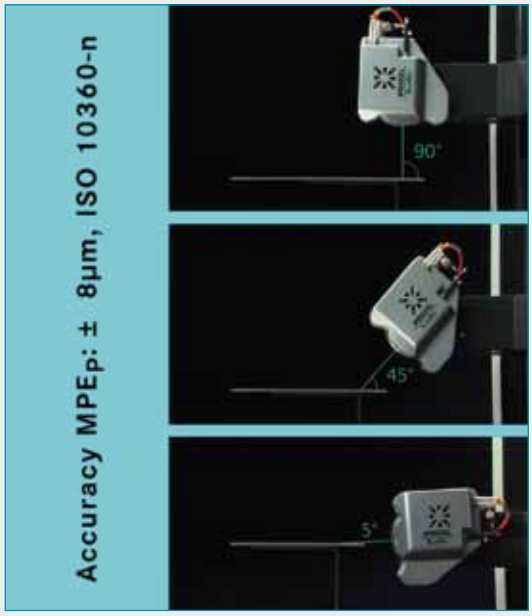
CORE...
is fast, accurate and compact

CORE has a travel range of 300 x 200 x 450mm and is optimized for the measurement of turbine blades, orthopaedic implants and other small high volume quality critical manufactured parts. Utilizing center-drive linear motors the CORE measuring sensor accelerates up to 4500mm/s^2 as it motions swiftly and smoothly at speeds up to 750mm/sec.

CORE...
5 Axis Motion

The servo controlled CNC swivel wrist, with integral high resolution rotary encoders, offers a full 180 degree rotation providing full dexterity when combined with rotary table motion. This allows a full 5 axes simultaneous motion for measurement of the most complex geometry parts. Maximum scanning speed is up to 750mm/sec across the surface of the part.

Range of travel



High angle acceptance

CORE...
Your Inspection Eyes

The double eye, innovative, scanning sensor of CORE has the unique capability of measuring highly reflective and polished surfaces. Its large stand-off and measuring range minimizes machine motion during measurement optimizing cycle times.

Together with its angle of approach down to an amazing 85 degrees from the surface normal the large stand-off and measurement range provides excellent conditions for measuring parts with difficult accessibilities.

The traditional CMM cosine probing errors, caused by measuring complex surfaces away from their surface nominal's, are completely eliminated by CORE providing the optimum in system accuracy.

CORE can scan complex part geometry or measure features by the recording of individual point data; similar in convention to a touch-probe CMM only much faster.


Measurement of a turbine blade

CORE...
The most important features

- High accurate: system accuracy of ±8µm (MPEp)
- Full-automatic
- Shop hardened
- Complete simultaneous 5 axes motion for high-speed measurement
- 5 axes system allows measurement of the most complex geometry parts
- Extreme fast calibration time of less than two minutes
- Mobile
- Rapid Return of Investment

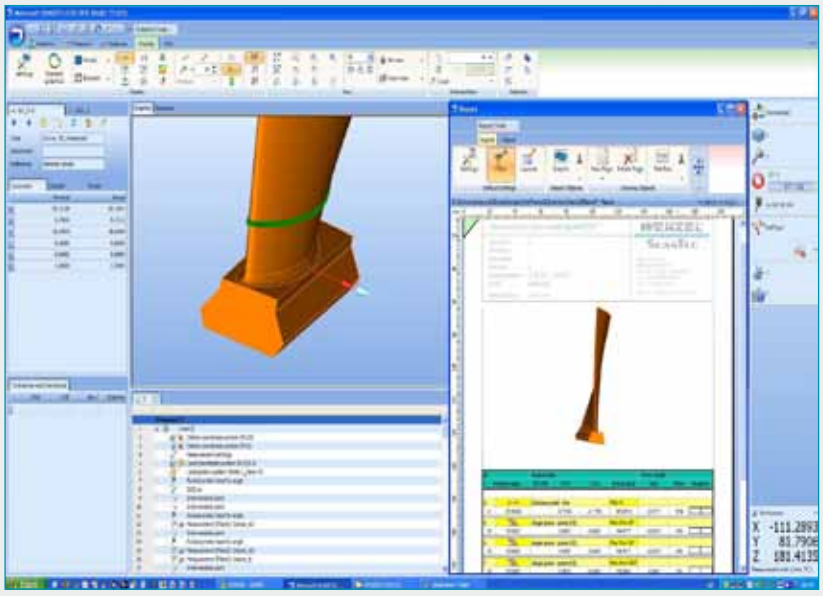
CORE

Software

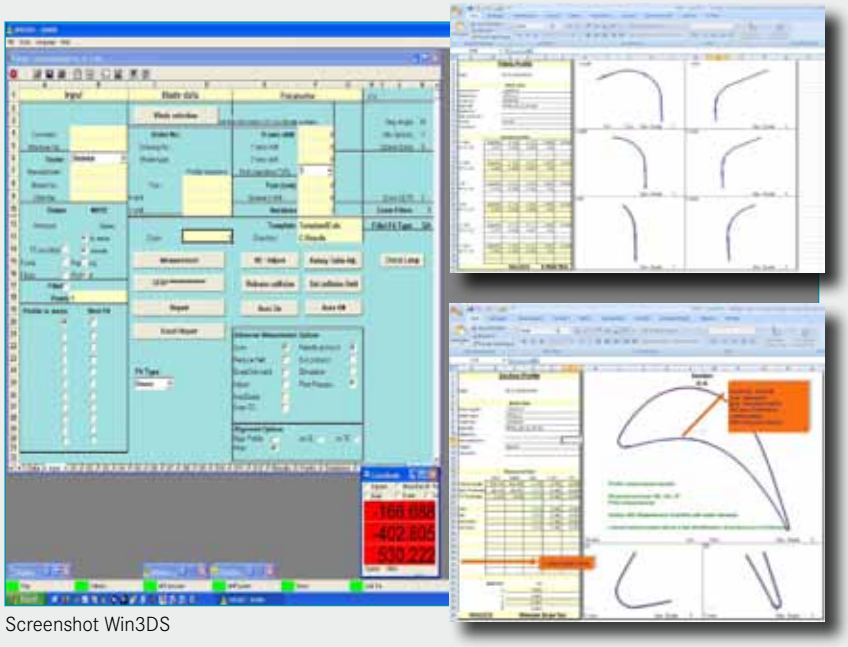
CORE utilizes the I++ DME interface allowing operation with your choice of software. Standard offerings include the benchmark Metrosoft QUARTIS® from WENZEL Metromec, the native DMIS OpenDMIS® software as well other I++ clients. Both Metrosoft QUARTIS® and OpenDMIS® offer a shop floor Program Launch Interface allowing machine operation by personnel without specific qualification or training. In addition Win3DS from WENZEL ScanTec, a comprehensive inspection and analysis software dedicated to the measurement of turbine blades, can be supplied.

Metrosoft QUARTIS®

Standard offerings include the benchmark measuring software Metrosoft QUARTIS® which is one of the only CMM software that has implemented the Microsoft® Office Fluent™ User Interface resulting in an uncluttered, flexible and result orientated workspace that reduces distraction for users so they can spend more time and energy focused on their work. Measurement results can now be generated even faster and easier.



Screenshot Metrosoft QUARTIS®



Screenshot Win3DS

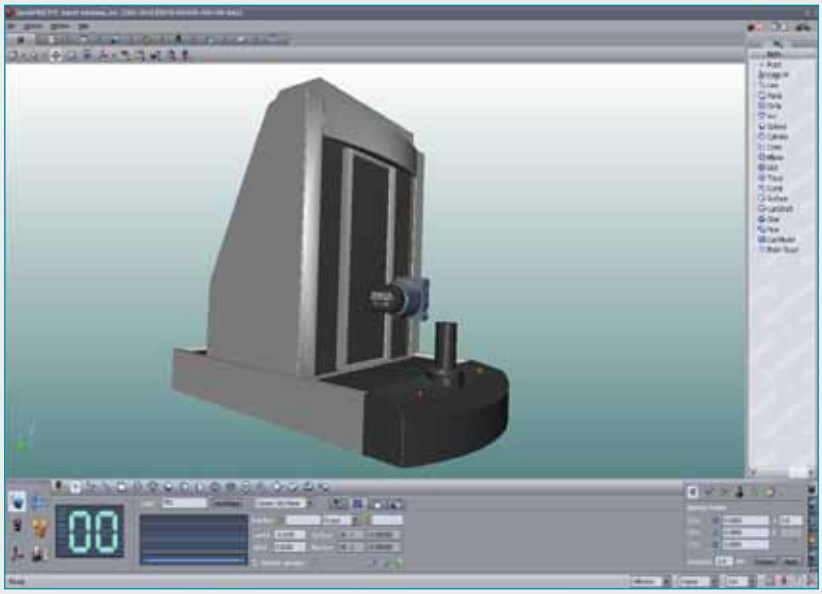
Win3DS

In addition Win3DS from WENZEL ScanTec, a comprehensive inspection and analysis software dedicated to the measurement of turbine blades, can be supplied.

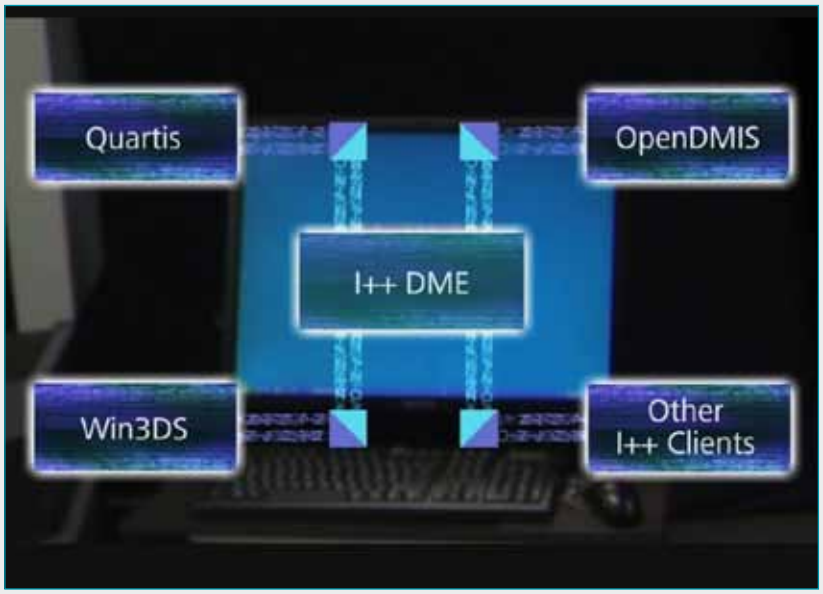
Win3DS allows full automatic measurement by using nominal and parameterized data. A powerful library with over 500 functions including many different alignments is available.

Open DMIS®

CORE is also supported by the measuring software OpenDMIS®, which has an intuitive user-interface with seamless CAD integration and features native DMIS as its programming language.



Screenshot OpenDMIS®



I++ Clients

I++ DME Server

I++ DME is a vendor neutral interface between CMM and inspection software. Thanks to the universal interface it is easy to exchange (plug and play) CMMs and inspection software, respectively purchased independently. Standard inspection software in your company, for different CMMs and brands, decreases the costs for training and increases the flexibility deployment of the staff. Inspection programs are portable and can be used on CMMs from different vendors. I++ DME Server is delivered with CORE.

CORE

Two Versions; Two Performances

CORE is available in two versions:

DG Optical Multi-Gaging System
for single point inspection
As a quick, accurate and especially flexible solution the CORE DG is the ideal replacement for the traditional fixed tactile gaging systems.

DS Optical 5 axes scanning solution
CORE DS with its fast scanning functionalities is highly suited for profile measurement of turbine blades and other complex geometry applications.

Dynamics

- All cast iron cast structure
- Outstanding Kinematics
- FEA designed
- Fabricated steel base with covers
- Protective Bellow Covers
- Mobile
- Up to 4500mm/sec2 Acceleration
  Up to 750mm/sec Velocity
  Up to 400mm/sec Measurement speed

Controller & PC

- Compact Design
- Located in base enclosure

Machine Tool Precision

- Long life
- Low maintenance
- Wide bearing spreads
- No air required

Precise Scales

- 0.1 micron resolution
- Carbon Fibre mounts
- Accurate over extended temperature range

Rotary Table

- Direct drive
- High resolution encoder

Part Clamping

- Standard supplied Bench Vice
- Bespoke part fixturing clamped to table using M8 threaded holes in rotary table plate (Option)

Certification

- Based on ISO 10360-n standards

Servo Wrist

- Infinite positioning of sensor
- Fine angular positioning
- Minimization of machine motion
- Repositioning during measurement

Open Workspace

- Open access to 3 sides
- Easy to autoload

Ergonomic

- Small Footprint
- Integrated Controller
- Integrated Workstation
- Single Electrical Outlet

Protected and Covered Ways

- Machine Tool Bellow

Software & Results

- Automatic and interactive measurement
- Comprehensive blade analysis software Win3DS
- Rapid feedback of results to production machining
- Immediate visual presentation of out of tolerance data
- I++ DME server allowing compatibility with traditional CMMs
- Shop-floor interface for part program launch

Innovative Optical Technology

- Elimination of 3D Ball compensation
- Easy measurement of all critical areas:
  - Thin leading and trailing edges
  - Small radii 0.075mm, Filet radii
- Direct measurement of polished and reflective surfaces
- Large stand-off distance and measurement range

CORE

Measuring with the Speed of Light

Technical Data

Mechanics			
Range of Travel	X / Y / Z	mm	300 / 200 / 450
Swivel head motion range		continuous	180°
Weight		kg	< 1000
Dimensions	L x B x H (without Monitor)	mm	1300 x 700 x 1900
Rotary table motion range		continuous	360°

Dynamics	
Acceleration	up to 4500mm/s^2
Velocity	up to 750mm/sec
Measurement speed	up to 400 mm/sec
Rotational speed	360°/s

Connected Values	
Electrical	Single phase alternating current 1P+N+PE, 100 - 240V, 50/60 Hz, max. 1500 VA, gem. EN 60204/1

System Accuracy			
Probing Error MPE_P		µm	± 8

Sensor			
Type	BTR technology (blue-to-red)		
Method	Triangulation		
Spot Diameter		µm	35
Measurement Range		mm	± 3
Stand-Off		mm	80
Angle Acceptance	90° ± 85°		

Software
I++ DME Interface, Win3DS

We are there for you

WENZEL worldwide

WENZEL ScanTec GmbH is located in Greding in Bavaria, Germany, and was founded in 1989 under the name of Steintek. Steintek was one of the first companies offering optical coordinate measuring machines. Since then WENZEL ScanTec has cooperated with many customers, especially in the aerospace and power generation sector, and has implemented optical technologies in the quality inspection departments. The high level of specialized skills and extensive experience in the field of optical metrology led to the acquisition of Steintek GmbH by the WENZEL Group. The WENZEL Group GmbH & Co. KG is one of the leading manufacturers of metrology solutions. The wide range of WENZEL products include solutions in the fields of coordinate measuring machines, gear metrology, computed tomography, high speed measuring and digitizing-systems and reverse engineering. The company serves customers in various industries mainly in the automotive and aerospace industries, mechanical engineering, and electrical motor manufacturing, as well as subcontractors operating in those sectors. The company has subsidiaries worldwide and sales and service partners in more than 50 countries. The WENZEL Group employs approximately 600 people globally.

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