Carl Zeiss Group

Carl Zeiss is a leading group of companies in the optical and optoelectronic industries.

Carl Zeiss AG is not publicly listed and is wholly owned by the Carl Zeiss Foundation.

Carl Zeiss focuses on the future markets of

- Industrial Solutions
- Research Solutions
- Medical Technology
- Consumer Optics
Carl Zeiss Group
Locations

- production sites: 30
- sales and service organizations: 50
- representatives: more than 30
- employees: 24,000
Carl Zeiss Group
Overview of the business groups (2010/11)

### Semiconductor Manufacturing Technology
- €1,378 million revenue
- 2,872 employees

### Industrial Metrology
- €394 million revenue
- 1,996 employees

### Microscopy
- €423 million revenue
- 1,864 employees

### Medical Technology
- €854 million revenue
- 3,190 employees

### Vision Care
- €849 million revenue
- 9,941 employees

### Consumer Optics/Optronics
- €316 million revenue
- 1,525 employees
Carl Zeiss Group
Products

made by Carl Zeiss

Carl Zeiss cinemizer®

Nokia N95 Smartphone with Carl Zeiss optics
Carl Zeiss Group Products

Planetarius:
Jena, Stuttgart, Valencia, Saint Luis, Vienna, Budapest,...

Transmission Electron Microscopes LIBRA® 200 MC
Peripheral nerve of a rat

Semiconductor Manufacturing Technology
2009: Celebrating 90 years of IMT

Revolution in Precision Measuring

New fields of business for Carl Zeiss

The success story of what is now Carl Zeiss Industrial Metrology (IMT) began in 1919 at the Leipzig Exhibition where a few measuring machines were displayed on a small table. Back then, 90 years ago, Carl Zeiss presented its production measuring technology for the first time. Numerous customers from all over the world came to Leipzig and were absolutely amazed.

They were looking for a new "measure of accuracy" to achieve their ambitious goals. At that time the measuring process was far from what we know today.

Today, Carl Zeiss Industrial Metrology is a world leader in industrial metrology, providing comprehensive solutions and services for the complete life cycle of a product. From design, manufacturing, assembly, and inspection to quality control, Carl Zeiss Industrial Metrology offers a wide range of products and services that meet the needs of customers in various industries.

In 1944, mechanical engineer Carl Zeiss (1856–1945) founded a workshop for the production of microscopes, which laid the foundation for the later growth and success of the company. Carl Zeiss was a visionary in the world of optical technology, and his legacy continues to inspire innovation and excellence in measurement technology.

Left: The Gagebus, IMT's production measuring center marked the full establishment of coordinate measuring machines in production. The enclosed measuring systems allow Gagebus to be set up directly in production where it delivers measuring results as if it were in a protected measuring lab.

Center: MERA 300 is a 3D computer tomograph that visualizes the workpiece. During this process, the part virtually "stands to image" forming an image of the entire volume of the workpiece. This makes it possible to measure very complex and small interior and exterior geometries. MERA 300 was developed for the automotive industry and is used for the measurement of castings, injection molding, and forging parts.

Right: The P70 was developed for measuring rotor parts in the aeronautic range. Introduced in 2004, this coordinate measuring machine enables the measurement of very complex geometrical parts with fine form surfaces, small radii and radii or pinned parts with small and deep bores.

In 1964, the first manual measuring instrument was built and then the first fully automatic measuring system. With the introduction of the first fully automatic measuring system in 1978, Zeiss Industrial Metrology revolutionized the field of precision measurement. The machine-made measurements in 1978 were carried out with 21 axes. Precise measurement of the most complex structures was possible. The vision of Carl Zeiss was thus achieved.

Thanks to over 100 years of experience in measurement technology, Zeiss Industrial Metrology continues to innovate and set new standards in the industry.

Carl Zeiss Industrial Metrology
IMT is has four different business areas ...
... and IMT is serving a wide variety of customer applications

Application areas

Focus

large

Size of the object measured

small

Carl Zeiss Industrial Metrology

2012-3

9
CARFIT® Fixturing technology

For serial measurements

CARFIT® CMF
Frame Design

CARFIT® CMX
Matching Equipment

CARFIT® CMS
Support and Clamping System

CARFIT® CMG
Grid Plates

Technology on modular basis

CARFIT® CMP
Fixture Kit with a Bar Design

CARFIT® CMB
Fixture Kit with Grid Plate

CARFIT® CME
Universal Measuring Fixture Unit

CARFIT® CMK
Fixture Kit for small parts
The Sequel of the Scanning Story
Scanning – consequent refined by Carl Zeiss

Milestones of the Scanning Technology

1974 UMM
1991 MT, HSS
1995 VAST
2003
2005 VAST XXT with RDS

2010 VAST Performance

1st Generation
2nd Generation
3rd Generation
4th Generation
5th Generation
Optical probes from Carl Zeiss

Camera sensor ViScan

Laser-Line-Scanner LineScan

... for bridge-type CMMs with RDS
Fast SPC inspection of press parts and all assemblies up to body in white
Decrease of response time of our customers when detecting deficiencies of their components
Time savings (up to 30%)
Increased measuring performance
Eliminating measuring devices like sphere adapters
Improved analysis possibilities
Measuring of Flush & Gap
IMT Overview: Software

- **High-End Messsoftware**
  - Prismatic parts curves
  - Special geometries gear wheels blades

- **Freiformflächen**
  - Automation

- **Karosserie-messtechnik**
  - Freeform surfaces Car body measurement

- **Statistik**
  - CMMReporter PiWeb (Q-DAS products)

- **CALYPSO®**
  - GEAR PRO BLADE PRO CALYPSO® PCM

- **FACS Autorun**
  - HOLOS CALIGO
CALYPSO – The Standard of Powertrain
The Most Productive Software for Car-body Measurements
Pure Productivity for your ZEISS CMM
Styli & Accessories

Largest range of original Carl Zeiss accessories

As a manufacturer of coordinate measuring machines, we know exactly what is needed for accurate and efficient measurements. Our team supplies you fast and worldwide with our original accessories for your CMM.
Pure Productivity for your ZEISS CMM
Fixtures & Automation

Fixtures, robot automation, custom-made styli – we assist you with our know-how in every individual measuring project. Benefit from our extensive experience.
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Stuff – Slovakia

2 sales managers
3 assistants
3 application engineers
4 service engineers
Measuring and training center Trnava

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917 01 Trnava

messhaus@zeiss.sk
Measuring and training center Trnava

**PRISMO 10**
- Scanning stable head VAST
- Measuring range (XYZ): 1200/2400/1000 mm

**DURAMAX**
- Scanning stable head VAST XXT TL3
- Measuring range (XYZ): 500/500/500 mm

**CONTURA G2**
- Articulating scanning probe RDS VAST XXT
- Measuring range (XYZ): 1000/1200/650 mm

**Contourecord 1700**
- contour measurement
Measuring services
The solution for each measuring task

• Demo measurement
• Commercial measurement
• Software Course Training
• On-site support
• Contract Programming
• Digitization/Reverse Engineering
Computed tomography technology center
at Department of Biomedical engineering, automation and measurement
Faculty of mechanical engineering, Technical university of Kosice
Computed tomography technology center
new application range – measurement principle

Measured parts ...

... inserted into the Metrotom ...

... and evaluated in Calypso
Computed tomography technology center
reverse engineering

Volume model
Point cloud
Splines
CAD model

Real part

3D CAD model
„Results you can trust“ – our core promise to our customers
ACCURA - The answer to your requests.

CARAT® – bridge elements
Larger measuring range with the same accuracy
Mass – multi application sensor system
Passive vibration damping and new base
Laser scanner for high-speed measuring operations
New control panel with more functions

New quattro air bearings for more performance and higher accuracy
Foam Insulating Technology for a large temperature range
20-26°C (68-78.8°F)
New drive technology for more performance
Glass ceramic linear measuring system with $\alpha_k \approx 0 \, \mu m/K$ length change
PRISMO navigator: The Reference Machine with Unique Scanning Methods
DuraMax.
Measuring can be that simple.

DuraMax as a replacement for complex gages:

- Made for the shopfloor and production
- Measure where you manufacture
- No measuring lab required
- Temperature stability up to +30°C
- Can be seamlessly integrated into the production environment
- Scanning is standard
- Faster, more accurate, more reliable measuring

DuraMax as a replacement for gages and manual inspection equipment:

- Replacement for fixed, expensive gages
- Flexibility for workpiece changes and different measuring tasks
- Pays for itself in a very short time
- More effective and economical than gages
- Object-oriented programming allows flexible measurement plans
Inline Solutions: CenterMax – The “Flexible Gage“ in Production
From the Lab

to direct InLine installation
The ideal, CT-based coordinate measuring machine for a wide variety of applications regarding the size and material density.
PRO und PRO T: Platform for Productivity in Car Body Measurement
CARMET II
The new entry-class CMM for everyone

- Low initial costs and life-cycle-costs
- RDS-C-CAA – the benchmark at articulating probe holders
- F.I. technology for optimal temperature stability and attractive design
- CARMET and the new measuring software CALIGO – the productive package leads simple and fast to results
CARFIT® Fixturing technology at its best

- Manufacture of customized inspection fixtures based on a modular and standardized CARFIT® system design
- Combines the advantages of fixed fixtures with the flexibility of a modular work piece clamping system
- Versatile and inexpensive standard fixture components
- Robust technology that has been proven for many years
- Design of measuring fixtures with a CARFIT® component library (Catia, UG)
We make it visible.