

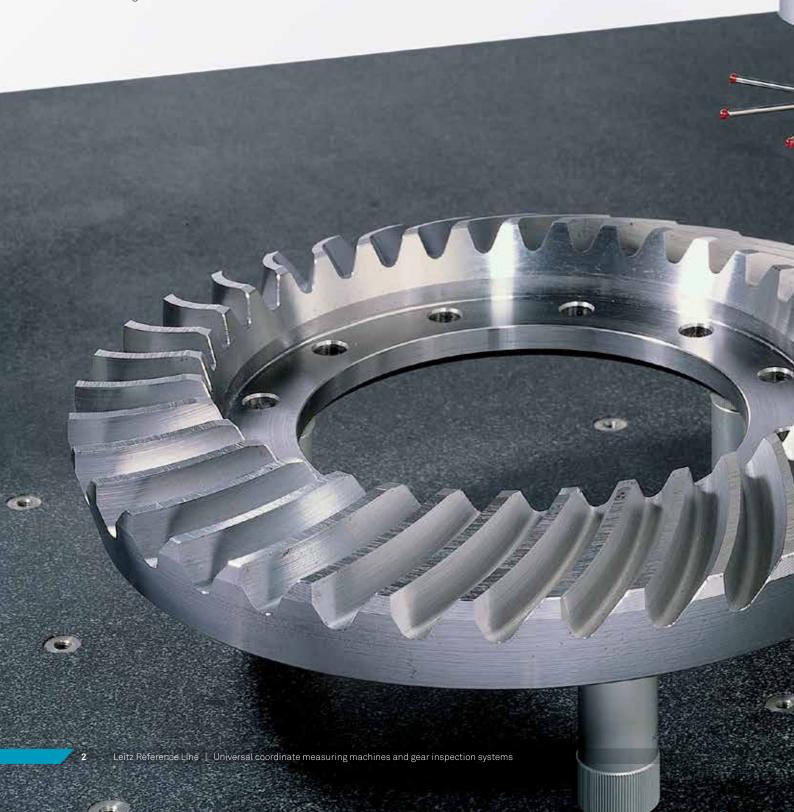
LEITZ REFERENCE LINE

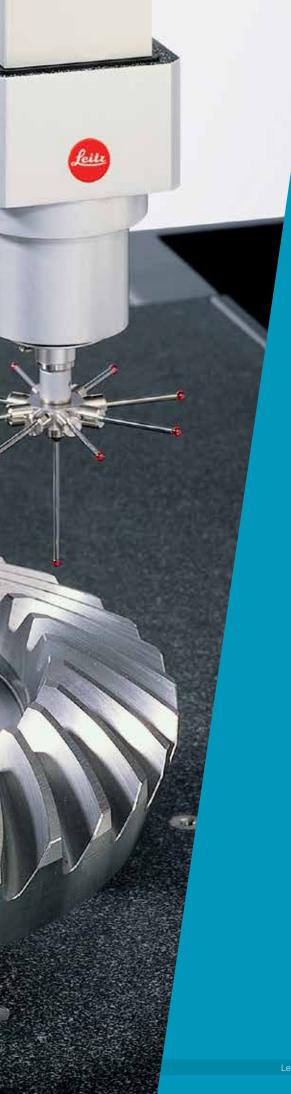
Universal coordinate measuring machines and gear inspection systems



DECISIONS CAN BE SO SIMPLE

It is good to know that even in a complicated world, things can be simple. Irrespective of whether you are aiming for accuracy, efficiency or suitability for production – all roads lead to Leitz Reference coordinate measuring machines. These all-rounders offer maximum accuracy and throughput in the measuring room as well as in a production environment. They are perfect for small budgets too.







Leitz Reference HP

optimum measuring throughput. This is substantially influenced by the LSP-S2 probe head. This high-tech probe head



Leitz Reference Xi



Option XT

HP series this range is 15 to 30° C. For the



High-speed option

With the high-speed option travel speed is increased to up to 800 mm/s. In addition, option is available for machines of the Leitz



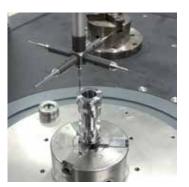












It is versatility that makes metrology so interesting and challenging. Leitz Reference has been tried-and-tested in practice for many years - in a wide range of industries and in inumerable measuring applications. It is a universal genius.

Industrial examples

Automotive Aerospace Machinery Research & Development Precision industry

Examples of measuring applications

Powertrain components Gears and spiral bevel gears Blisks and blades Engine blocks Cylinder heads Camshafts Crankshafts Connection rods

Our customers say:

"We decided in favour of a Leitz Reference Xi because this coordinate measuring machine offers the best price-performace ratio."

Florian Huber, Bosch Siemens Hausgeräte (BSH)

"We have found the Leitz Reference to be a very attractive alternative and in my view the only coordinate measuring machine on the market that offers this high accuracy in such a compact format."

Felix Zacharias, Bosch Rexroth

"We were looking for a measuring machine that makes our handling easier and gives us flexibility in our work because we have to measure many different highly complex parts to customerspecific requirements." Markus Grünewald, Grünewald Feinmaschinenbau, about

the requirements placed on his Leitz Reference

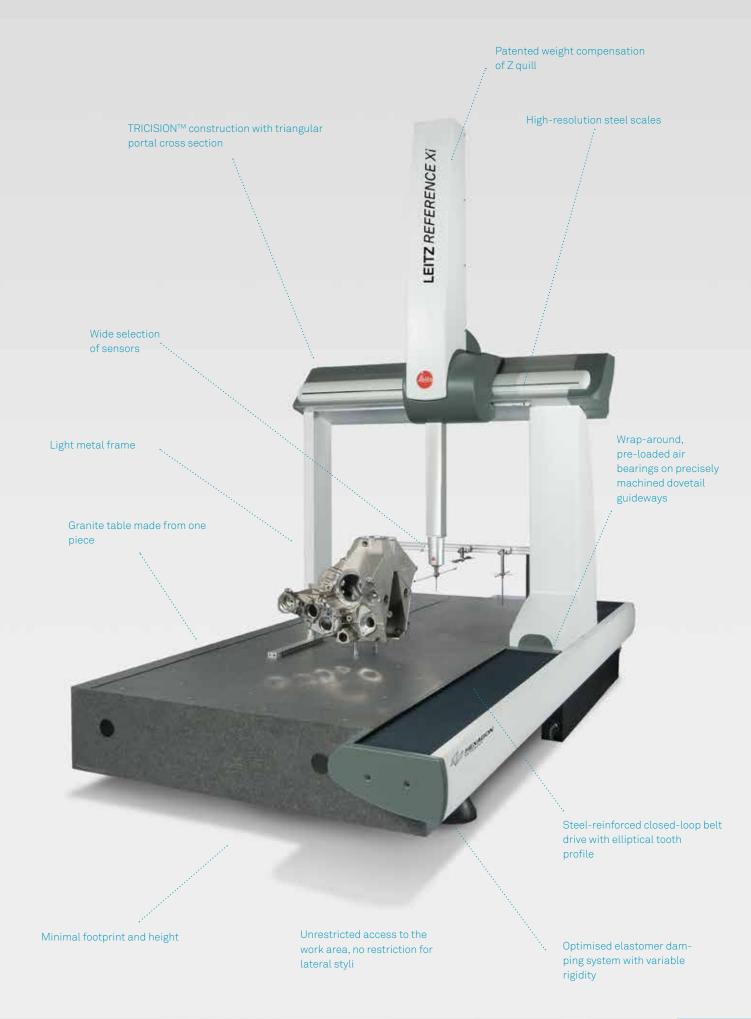
"The Leitz Reference convinced us because of its accuracy, its dynamics, its robustness and the QUINDOS measuring software, which has proven itself to us over the years."

Kohán Zoltán, AUDI HUNGARIA MOTOR Kft

CLEVER DESIGN GREAT ADVANTAGES

The Leitz Reference family features technical characteristics which have been tried-and-tested over several generations of coordinate measuring machines.

Features	Advantages
Lightweight metal frame	Low weight but very rigid
• TRICISION™ construction with triangular portal cross section	Reduced mass, low centre of gravityHighly dynamic
Wide selection of sensors	The right sensor for each application
Wrap-around, pre-loaded air bearings on precisely machined dovetail guideways	 Top system stability Precise portal movement throughout the entire machine travel
Granite table made from one piece	StableVibration resistant
Optimised elastomer damping system with variable rigidity	Protection against ambient vibration
High-resolution steel scales	Optimum reproducibility
Patented weight compensation of Z quill	Safe position of the Z quill even in the case of air supply failure
Minimal footprint and height	Installation also possible where space is restricted
Unrestricted access to the working area	 Perfect work ergonomics and functionality No limitation of the measuring range when using lateral styli
Tried-and-tested design with 20% less components compared to conventional measuring machines	Greater reliability and longer service lifeLow maintenance requirement
Steel-reinforced belt drives with elliptic tooth profile	Reduced machine vibration at high scanning speeds



SENSORS FROM A TO Z LEITZ PATHFINDER TECHNOLOGY

Leitz Reference coordinate measuring machines are fitted with 3D probe systems, developed and produced by Hexagon Metrology in Wetzlar, Germany. With the help of the Leitz Pathfinder technology the probe heads offer both fast single-point probing and Variable High-Speed-Scanning (VHSS) for high-precision form and profile measurements.



LSP-S2

The extremely low Single Stylus Form Error P_{FTU} of the LSP-S2 makes it possible to measure complex geometries to very tight tolerances. The LSP-S2 probe system is suitable for High-Speed-Scanning of known and unknown contours. It can cope with very long extensions of up to 800mm and up to 1000g. Accuracy specifications are valid for the full range of styli.



ISP-X3c

This 3D scanning probe head is compact, fast and extremely accurate. It can carry up to 360mm long probes and extensions as well as a variety of styli configurations up to a total weight of 150g.



LSP-X5

This analogue probe head for demanding requirements offers accuracy also with probe extensions and heavy styli configurations of up to 500mm in length and 500g in weight. The LSP-X5 features a sophisticated anti-collision system which provides additional protection for the probe head. It is ideally suited for measuring high-precision mechanical parts and complex geometries. Accuracy specifications are valid for a full range of styli.



LSP-X1h/LSP-X1s at TESASTAR-m indexable head

In combination with the TESASTAR-m indexable head, the LSP-X1 probe heads fulfil all demands. The LSP-X1h has been designed for probes measuring 20 to 225mm in length in the axial direction. In the vertical direction, it can accommodate probes measuring up to 50mm in length.



CMS laser line sensor

The CMS 106 is a high-precision laser line sensor. Highlights:

- Different line lengths: 24, 60 or 124mm
- Automatic laser performance control

The CMS 106 is suitable for measuring almost any material, including machined, semi-machined, punched, forged, cast, paint-coated metals, sand cores, carbon fibre components, plastic parts, clay, rubber, wood and ceramics.



TravelRack

A styli changer with a completely new concept: the TravelRack travels with the portal. Compared to conventional styli changers, the distances are reduced because the TravelRack is always exactly where it is needed. In addition, the TravelRack increases the available measurement volume. It is available for all Leitz Reference models with LSP-X1 sensor, from a Z-range of 600mm.



COMPREHENSIVE SOFTWARE

Irrespective of how complex the application is, you want to evaluate your measured data quickly, simply and reliably. The two software solutions offered by Hexagon Metrology – PC-DMIS and QUINDOS – ensure efficient programming and evaluation.

PC-DMIS

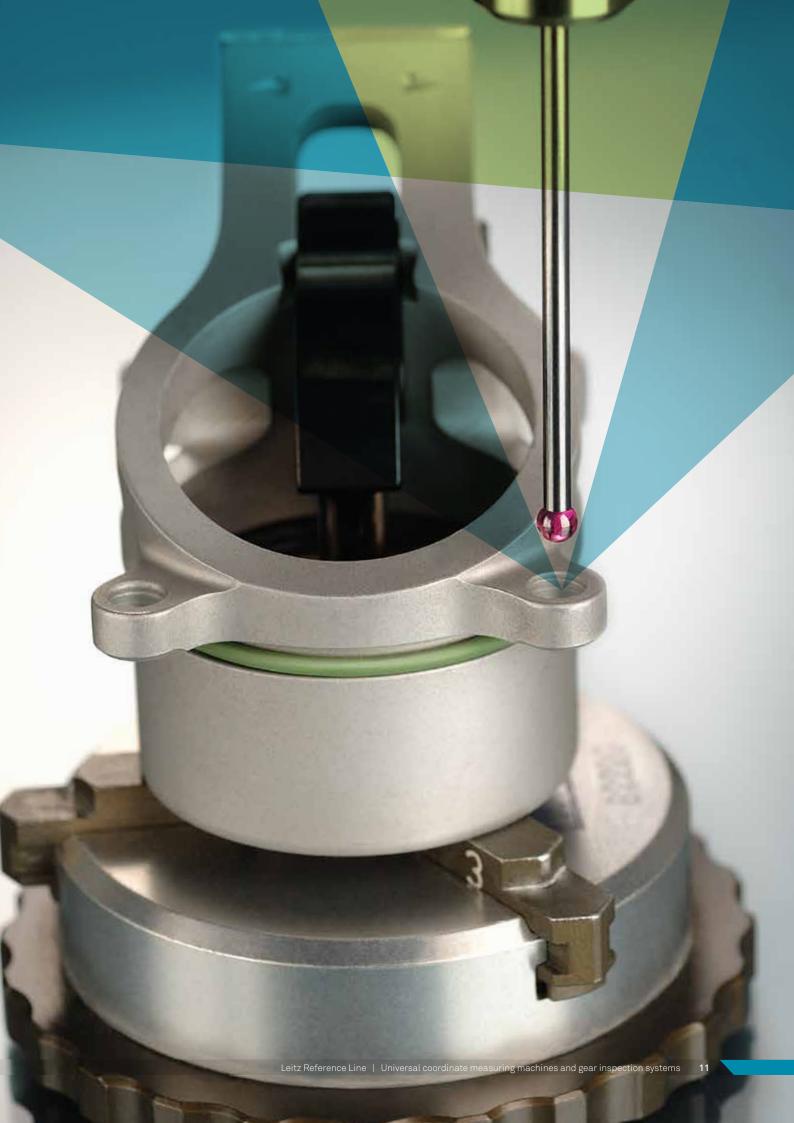
- Software for easy CAD-based, computer-simulated programming
- Graphics-focused, operator-friendly user interface
- Efficient tools to display the results
- Measurement of regular shapes and free-form surfaces



QUINDOS

- Software for virtually all industrial metrology applications – from simple parts through to complex special geometries
- Unlimited repertoire thanks to over 50 options
- With QUINDOS, Leitz coordinate measuring machines can also be used as gear inspection systems. Over 15 program packages are available for measuring gears and gear cutting tools, e.g. straight and spiral bevel gears, cylindrical worms, worm wheels for cylindrical worms, step gears, hob cutters etc.
- Integral CAD core for 3D presentation of all geometries and easy CAD-supported programming, e.g. presentation of special target points, probe points, calculated elements







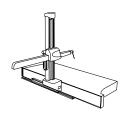
LASER TRACKERS & STATIONS



PORTABLE MEASURING ARMS



BRIDGE CMMS



HORIZONTAL ARM CMMS



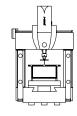
GANTRY CMMS



MULTISENSOR & OPTICAL SYSTEMS



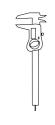
WHITE LIGHT SCANNERS



ULTRA HIGH ACCURACY CMMS



SENSORS



PRECISION MEASURING INSTRUMENTS



SOFTWARE SOLUTIONS



Hexagon Metrology offers a comprehensive range of products and services for all industrial metrology applications in sectors such as automotive, aerospace, energy and medical. We support our customers with actionable measurement information along the complete life cycle of a product – from development and design to production, assembly and final inspection.

With more than 20 production facilities and 70 Precision Centers for service and demonstrations, and a network of over 100 distribution partners on five continents, we empower our customers to fully control their manufacturing processes, enhancing the quality of products and increasing efficiency in manufacturing plants around the world.

For more information, visit www.hexagonmetrology.com

Hexagon Metrology is part of Hexagon (Nordic exchange: HEXA B). Hexagon is a leading global provider of design, measurement and visualisation technologies that enable customers to design, measure and position objects, and process and present data.

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