



Leitz SIRIO SX  
The new standard in process control.

High speed coordinate measuring machines

www.leitz-metrology.com



SIRIO SX 6·8·9

 **HEXAGON**  
METROLOGY

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## HIGH EFFICIENCY IN THE MIDDLE OF PRODUCTION.

WHAT MATTERS IN QUALITY ASSURANCE AND PRODUCTION IS THE EFFICIENCY OF THE MACHINES. THE LEITZ SIRIO SX IS SETTING NEW STANDARDS IN THIS RESPECT. IT ENSURES RELIABILITY, HIGH THROUGHPUT AND ACCURACY – RIGHT IN THE MIDDLE OF THE PRODUCTION FLOOR.



The Leitz SIRIO has made a name for itself in quality assurance on the shop floor for almost 20 years. Now we are introducing the next generation of the Leitz SIRIO SX, with new features and fundamental improvements. Our engineers have developed the new PrimeTechnologies for the Leitz SIRIO SX to make it even more efficient. The package of innovations includes new materials and a new design concept to offer increased performance and reduced inspection costs at the same time.

Close cooperation with our customers and years of experience in hardware and software development make us the specialists for complete solutions. The Leitz SIRIO SX is offered as a turnkey system including:

- Automatic and manual pallet system
- Part fixtures
- Application-specific stylus sets and
- Programming of your parts.

And if you are already an owner of a Leitz SIRIO: your existing fixtures, pallet systems and measuring programs will be able to work without problem with the next generation Leitz SIRIO SX.



THE NEW LEITZ SIRIO SX

- + More robust
- + Faster
- + More accurate
- = More efficient

## PRIMETECHNOLOGIES. PROGRESSIVE TECHNOLOGY.

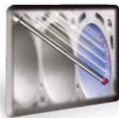
PRIMETECHNOLOGIES INCREASE THE PERFORMANCE OF THE LEITZ SIRIO SX. THANKS TO PRIMETHERM TECHNOLOGY, THE MACHINE IS EVEN MORE ROBUST. HIGH-SPEED-SCANNING IS ENSURED WITH PRIMESCAN TECHNOLOGY. AND WITH PRIMECARE TECHNOLOGY YOU CAN MEASURE WITH ABSOLUTE SAFETY. THE FEATURES ARE AVAILABLE EXCLUSIVELY WITH THE LEITZ SIRIO SX.



### PrimeTherm Technology: Robustness. Temperature stability.

**Your advantage:** In particular when you are measuring close to production activities, it is important to ensure that fluctuations in the ambient temperature do not affect the accuracy of your measurements. With PrimeTherm Technology, the Leitz SIRIO SX is thermally stable. Within a temperature range of 15 to 40 degrees Celsius you can dispense with a climate control system – and save on costs.

**Our technology:** PrimeTherm uses innovative concepts and materials: the machine body of the Leitz SIRIO SX is made from the special temperature-stable PrimeTherm material which gives the CMM its high long-term stability. A medium circulates through the machine body to even out the temperatures. PrimeTherm minimises temperature gradients and enhances the metrological stability.



### PrimeScan Technology: Accuracy. Speed.

**Your advantage:** The PrimeScan probe head offers standard High-Speed-Scanning and high-precision measurement results. It can also accept stylus assemblies even for difficult-to-reach features on your components. An intelligent collision protection system keeps the probe head free of damage during every-day operations. The probe head is replaced within minutes thanks to an improved head changing system.

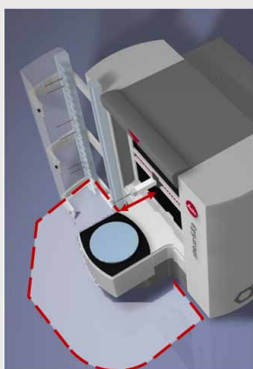
**Our technology:** The machine captures 1,000 points per second in High-Speed-Scanning mode. The PrimeScan probe head accepts styli up to 500 mm and 500 g. Your Leitz SIRIO SX can therefore measure every feature of your component. Very quick and highly precise.



### PrimeCare Technology: Safety. Throughput.

**Your advantage:** Safety has a favourable effect on efficiency in quality assurance. For safety goes hand-in-hand with higher availability of your measuring machine and low maintenance costs. PrimeCare Technology takes good care of your Leitz SIRIO SX and the cost effectiveness of your quality assurance. It protects man and machine.

**Our technology:** PrimeCare Technology consists of a package of safety measures: the key feature is the collision-avoiding axes. Whenever excessive forces are detected, which could lead to a collision, the Leitz SIRIO SX stops. Thus, effectively preventing any damage.



#### *PrimeCare Technology*

*If an operator enters the safety zone surrounding the Leitz SIRIO SX, the system automatically reduces the speed of the machine down to set-up speed. When the intruder leaves the zone, the Leitz SIRIO SX automatically switches back into full-speed mode. If a person enters further*

*into the safety zone, the machine stops so as to avoid damage.*

*If a crash is about to occur, the axes take avoiding action, thus offering the highest possible level of protection against costly damage.*



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**HIGH AVAILABILITY.** RELIABILITY AND AVAILABILITY ARE KEY CRITERIA FOR METROLOGY ON THE SHOP FLOOR. NEW CONCEPTS INCORPORATED INTO THE LEITZ SIRIO SX INCREASE YOUR MACHINE AVAILABILITY FOR EVERYDAY OPERATIONS.

### Rapid relocation

The Leitz SIRIO SX is designed to be compact and capable of being lifted by a single hook. Force application points directly on the machine bed allow the CMM to be moved to another place on the shop floor or transported to a different factory.

### Long maintenance interval

All four scanning axes of the Leitz SIRIO SX have air bearings and are properly protected against dust and dirt. Lubrication is not necessary. Low-maintenance high-quality drives controlled by state-of-the-art electronics also contribute for a long lifetime.

### Short maintenance times

The PrimeScan probe head can easily be changed by the customer. The whole machine is fine-tuned for accessibility during servicing. All covers are easily unlocked and effortlessly opened. In a very short time the whole machine is ready for servicing – without having to dismantle the pallet system.



**THROUGHPUT, THROUGHPUT, THROUGHPUT.** DIRT, TEMPERATURE EFFECTS AND VIBRATIONS – THE LEITZ SIRIO SX IS FACED BY REAL TOUGH CONDITIONS ON THE SHOP FLOOR. IN THE LEITZ SIRIO SX THE HEXAGON METROLOGY ENGINEERS HAVE CREATED A MACHINE COMBINING HIGH SPEEDS WITH HIGH ACCURACY IN A HARSH ENVIRONMENT.

### Four-axis scanning

The Leitz SIRIO SX is a true four-axis measuring machine. A horizontal arm with an infinitely positionable rotary table as the fourth scanning axis leads to considerably reduced measurement times per part. Fewer styli changes are necessary. In conjunction with the high overall dynamics of the machine, the Leitz SIRIO SX sets new standards here.

### Clever distribution of mass

Dynamic mass is light, static mass is heavy. We have consistently implemented this principle. The high static overall mass with low centre of gravity gives the measuring machine stability as well as resistance to forces and vibrations.

### Technical ceramics for moving components

This high-quality material combines dynamic, metrological and thermal properties. The X axis and Y traverse consist of technical ceramics and represent a new dimension with respect to dynamics and accuracy in the production environment.

SAFETY COUNTS.  
SPEED WINS.  
PRECISION SCORES.





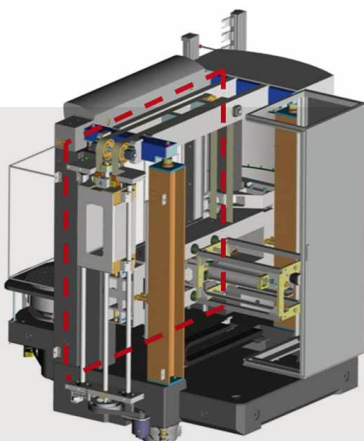
**PERSISTENTLY PRECISE.** THE NEW PRIMESCAN SENSOR IS ONLY ONE OF THE REASONS WHY THE LEITZ SIRIO SX IS SUPERIOR TO OTHER PRODUCTION-FLOOR MEASURING MACHINES IN MATTERS OF ACCURACY. FURTHER FEATURES ALSO HAVE BENEFICIAL EFFECTS ON THE ACCURACY OF THE MEASURING MACHINE.

## Decoupling philosophy

The drive introduces no unwanted transverse forces into the machines frame. The loadbearing structure is decoupled from the metrological frame – a new concept that guarantees long-term accurate measurement results.

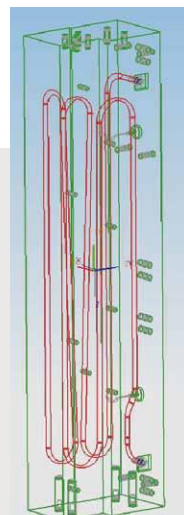
## Temperature concept

Local temperature fluctuations are the enemy of metrology. We use high-quality materials in the development of the Leitz SIRIO SX. Technical ceramics offer excellent thermal conductivity combined with high stiffness. PrimeTherm Technology minimises temperature gradients throughout the whole machine. Every single day.



### *Leitz decoupling philosophy*

*Specially designed mechanics decouple the loadbearing structure from the metrological frame. The metrological frame provides the accuracy, the structural frame provides the stability of the machine.*



### *PrimeTherm Technology*

*An artificially aged special concrete mix with a through-flow liquid ventilation system increases the thermal conductivity.*





**A TURNKEY SOLUTION, READY FOR THE PRODUCTION ENVIRONMENT.** HARDWARE AND SOFTWARE COME FROM THE SAME SUPPLIER. WITH A COMPREHENSIVE RANGE OF ACCESSORIES, WE CAN EQUIP THE LEITZ SIRIO SX FOR YOUR APPLICATIONS AND MAKE SURE THAT IT INTEGRATES SEAMLESSLY INTO YOUR PRODUCTION PROCESSES.

### Part transport

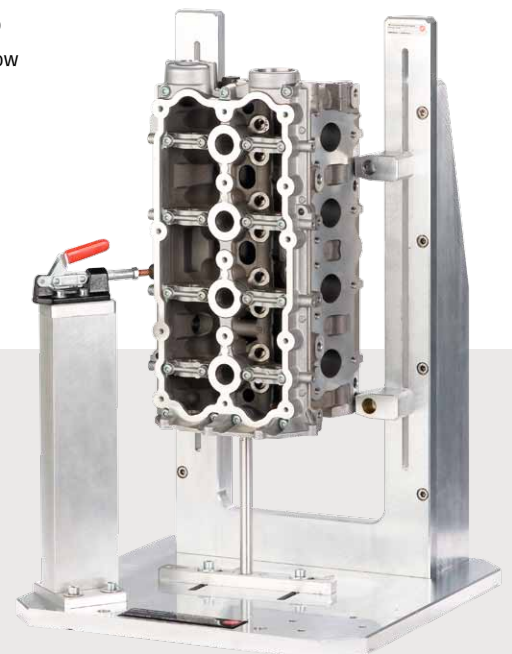
Whether you wish to inspect parts manually, semi- or fully automatically – the Leitz SIRIO SX is compatible with every type of pallet system. This means reduced set-up times and increased part throughput. Fully automatic systems are ideal for inspection productivity around the clock.

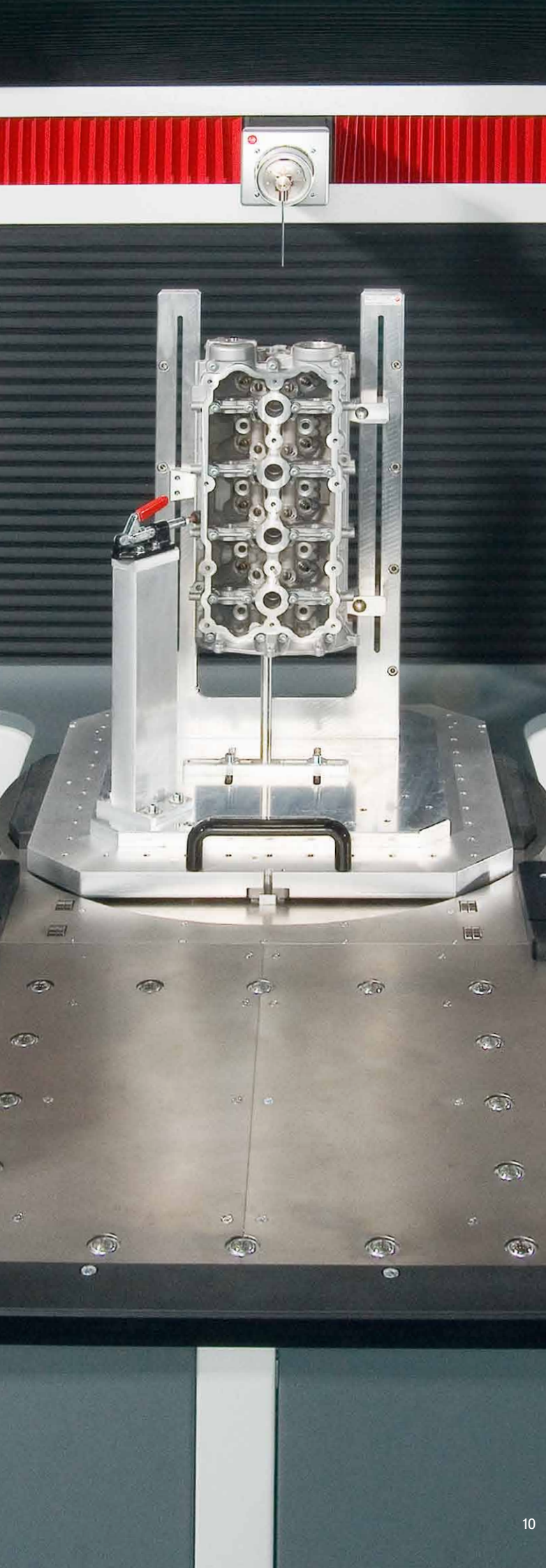
### Fixtures

Working closely with you our experts can analyse your specific requirements. Based on their analyses, we can offer stylus sets and fixtures designed to provide optimum long-term process stability.

### Measuring programs

In addition to hardware, part measuring programs, operator training and start up support are integral parts of your turnkey solution. Years of applications know-how go into providing the optimum measuring concept for your process control.





**POWER CMM FOR POWERTRAIN.** THROUGH ITS UNIQUE AXES ARRANGEMENT WITH HORIZONTAL ARM AND INFINITELY POSITIONABLE ROTARY TABLE, THE LEITZ SIRIO SX ACHIEVES OUTSTANDING INSPECTION THROUGHPUTS.

Reliable and easy system integration make the Leitz SIRIO SX the ideal measuring machine for production processes. The majority of measurement tasks in powertrain applications are concerned with distance, position and contour measurements. The Leitz SIRIO SX measures all the required features in the broad field of powertrain manufacture. For example:

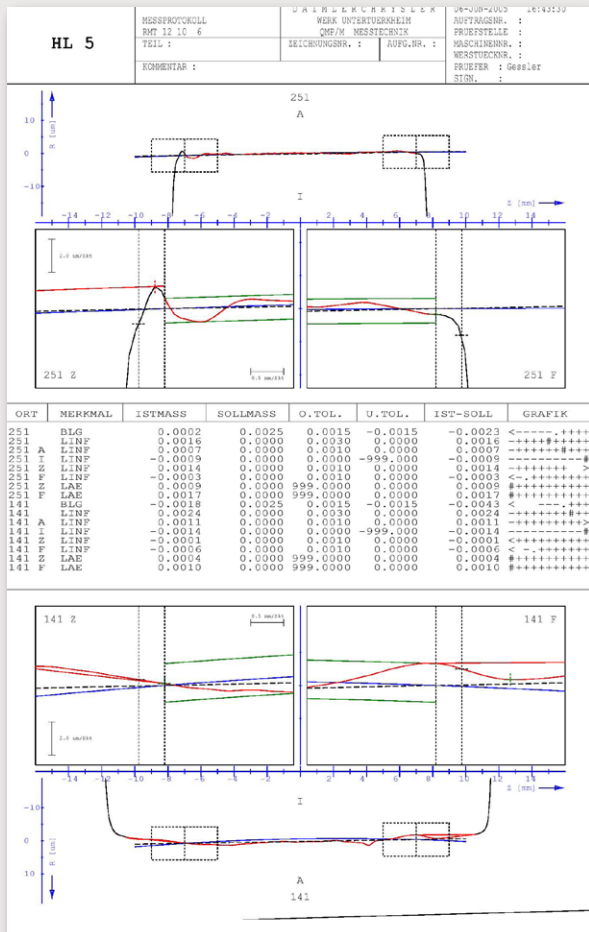
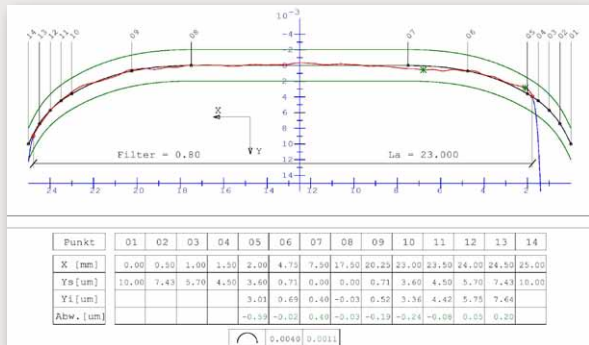
- Engine blocks
- Cylinder heads
- Pistons
- Crankshafts
- Conrods
- Gearbox housings
- Gearbox components
- Screw-type compressors
- Gears
- Injection pumps
- Blisks
- Disks
- Turbine blades

The Leitz SIRIO SX provides you with the required information for a stable manufacturing process – for example when introducing a new series or changing tools. Its characteristics make the machine a strong partner in achieving reliable process control.



## SOFTWARE FOR EFFICIENT MEASURING AND SPECIAL APPLICATIONS.

QUINDOS IS THE PERFECT COUNTERPART FOR LEITZ SIRIO SX. YOU CAN MEASURE ALL KINDS OF PARTS WITH THIS SOFTWARE – RANGING FROM SIMPLE CASING COMPONENTS, SUCH AS GEARBOX HOUSINGS AND CRANKCASES THROUGH CYLINDER HEADS, CRANKSHAFTS, CONRODS AND CAMSHAFTS. NO OTHER SOFTWARE OFFERS SO MANY SOLUTIONS FOR EFFICIENT INSPECTION AND SPECIAL MEASURING TASKS. THE STRENGTHS OF QUINDOS LIE IN THE EFFICIENT MEASURING OF COMPLEX GEOMETRIES. IT GOES WITHOUT SAYING THAT QUINDOS HAS NATIVE INTERFACES TO ALL MAJOR CAD SYSTEMS.



The basic QUINDOS program contains many tools for optimising measurement processes and their analysis. Options such as feature-controlled or pallet measurement increase the degree of automation in your measuring process. Communication with relational databases, PLC controls, statistical evaluations as well as packages for statistical process control make for perfect integration into production.

Specially developed powertrain applications extend the field of application of the Leitz SIRIO SX:

## Powertrain in Automobile Manufacture

Practically all parts in a vehicle's drive train belong to the repertoire of the Leitz SIRIO SX:

- Crankcases, with their critical features of cylinder bores
- Cylinder heads, with the critical features of valve stem guides and seats
- Crankshafts, with the critical features of main and piston bearings
- Camshafts, with the critical features of cams and bearings
- Conrods, with the critical features of little and big ends, special shapes
- Constant velocity joints (CVJ)

## Powertrain in Aerospace

- Turbine blades
- Blisks
- Couplings
- Housings

## Powertrain in Machine Construction

QUINDOS has further options for machine construction applications, e.g.:

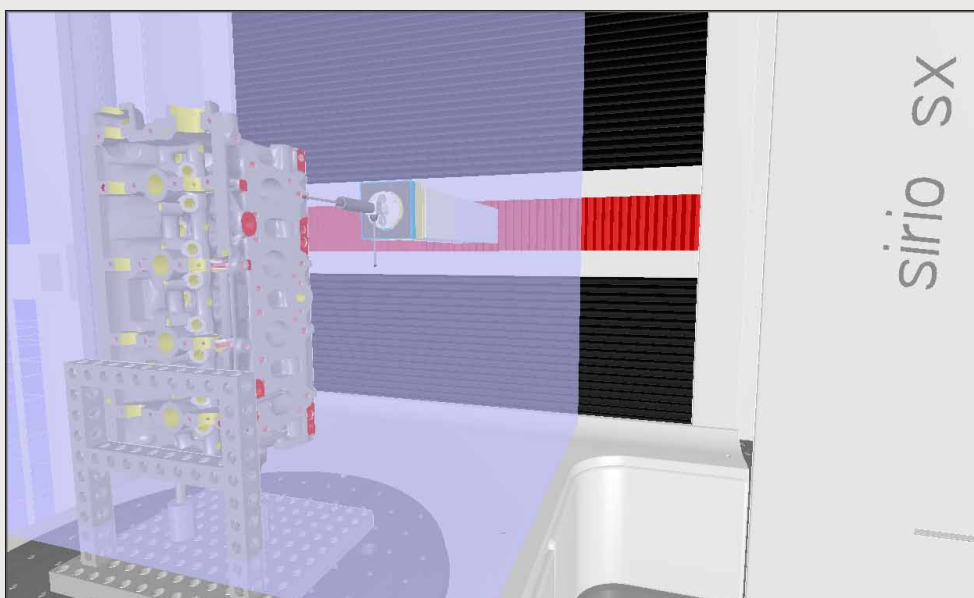
**QUINDOS Screw Compressor** – Inspection of male and female rotors, transverse or axial sections, actual-nominal comparisons, evaluation of lead, pitch, root and tip circle etc. with gap calculation of rotor pairs.

**QUINDOS Step Gear** – Inspection of the profiles of three-dimensional step gears (roller gears) with cylindrical or globoid shaped carriers. The surface geometry is calculated from the transmission law.

**QUINDOS Polygon** – Measurement and evaluation of type P3G polygons according to DIN 32711 and of type P4C polygons according to DIN 32712.

## CAD-based Offline-Programming and I++ Simulator

The Leitz SIRIO SX is used as a measuring machine in production mainly in multishift operations. With offline programming QUINDOS offers the best prerequisites for avoiding downtime. Offline programming allows you to simply modify existing measuring programs. CAD models can be used to generate precisely positioned measuring points. In combination with the I++ Simulator you can run through all the measurement processes and analyses remote from the actual machine.





### Leitz

The Leitz brand as part of Hexagon Metrology stands for high accuracy coordinate measuring machines, gear inspection centers and probes. Leitz measurement systems master quality assurance tasks equally well both in metrology labs as well as on the shop floor. The development and production are located in Wetzlar, Germany. For more than 30 years Leitz has been offering its customers the best innovative measurement technology available. The primary goal remains offering modern solutions for demanding measurement tasks.

### Hexagon Metrology

Hexagon Metrology is part of the Hexagon group and brings leading brands from the field of industrial metrology under one roof.

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Printed in Germany. May 2011.

