LEITZ PATHFINDER

Technology from the inventor of the 3D-scanning probe head

With over 35 years experience in the development and production of coordinate measuring machines (CMMs) for tactile scanning, Hexagon Metrology continues to produce impressive and innovative technical solutions with extraordinary capabilities. The first unclamped 3D-scanning probe head originated from Leitz in Wetzlar, Germany (today Hexagon Metrology GmbH) and was followed by countless further developments in the area of coordinate measuring technology.

Leitz measuring machines achieve outstanding THP values, in other words: minimal form deviations during scanning. That proofs our outstanding position in the field of scanning technology. With a data rate of up to 1000 points per second our scanning probe heads achieve extremely reliable measurement results. Our CMMs always provide non-manipulated measured deviations because the deviations from the specified values are passed unfiltered to the software. This even allows a Flick standard to be evaluated using Leitz Pathfinder Technology.

Engineering, quality assurance and production profit from Leitz Pathfinder Technology – all around the globe. The technology is based on the interaction between high accuracy CMMs, sensors and the measurement software QUINDOS. High-precision optical scanning is now also available.

Leitz Pathfinder Technology offers perfect solutions for standard applications and highly complex tasks. It comprises:
MAXIMUM EFFICIENCY
through optimum scan performance

VHSS – Variable High-Speed-Scanning

When scanning parts with complex geometries – such as scroll compressors – traditionally the scanning speed had to be adjusted manually to avoid losing contact. Using VHSS as part of Leitz Pathfinder Technology this is no longer necessary.

As quick as possible, as slow as necessary

With VHSS, our measuring machines continuously regulate themselves on known geometries and adjust their speed automatically in real-time. Straights are travelled quickly, while the scanning speed is slowed down along complex paths such as curvatures and curves. The automatic speed adjustment saves time and improves measuring accuracy. The result: maximum throughput and optimum measuring accuracy.

Evaluation of a Flick standard with QUINDOS
Leitz 4-Axis Scan

Parts such as crankshafts, blisks and impellers present a real challenge for CMMs: if a part is measured from all sides without a rotary table then numerous stylus configurations and therefore a large measurement volume is necessary. Usually the rotary table is only used to position the part, which is then scanned section by section (3 axis scan) - neither an elegant nor a fast way of measuring. The Leitz 4-Axis Scan from Hexagon Metrology is the solution: the state of the art controller allows continuous scanning in all 4 axis, thus measuring in the optimum sequence with maximum throughput.

Features:
- Continuous 4-axis scan with an integrated rotary table
- Measuring of complex parts in small measurement volumes
- Due to a special technology the features of the rotary table adjust themselves automatically to the weight and moment of inertia of the workpiece
- Continuous and dense capture of the measured points for efficient quality control without compromise
PURE PERFORMANCE ON COMPLEX SURFACES

Leitz Tag Scan

With Leitz Tag Scan, parts with surfaces punctuated by recesses, holes or grooves can be scanned continuously.

Leitz Tag Scan controls the scanning automatically with the help of a safety distance so that the stylus does not enter the depth of the feature. The workpiece surface is reached again from a safety-optimised angle (>35°). This prevents collisions in grooves and holes. The subsequent calculations take into account only the measured points relevant to the geometry.

Time is saved in two ways: the programming effort is reduced considerably and the measurement process runs quicker.
Leitz Scan Catch

Scanning known shapes is done at high scanning speeds. Contact with the part can be lost if the deviations become too large or the part is defective.

With Leitz Scan Catch the measurement continues. After loss of contact the controller positions the stylus at the last correct measured point and continues measuring at reduced speed. When the problem area is passed, the system increases the scanning speed automatically.

Leitz Scan Catch ensures that measuring programs always run until the end, even at defective parts and without any action from the operator. This allows overnight measurement i.e. of pallets with turbine blades during unmanned shifts, without the measuring process being interrupted by defective blades.

Leitz 3D Self-Centering

Measuring a non-linear groove is quite complex. With Leitz 3D Self-Centering, the measuring machine searches independently for the deepest point in the groove and follows it automatically. Control curves on camera lenses can be captured just as efficiently and reliably. Leitz 3D Self-Centering is also available for measurements with a rotary table.
Leitz Optical Scan

The latest innovation of Leitz Pathfinder Technology is optical scanning using the Leitz Precitec LR and CMS 106 sensors on high-precision Leitz coordinate measuring machines. The technology allows non-contact scanning of all kinds of surfaces at accuracies in the submicron range (Leitz Precitec LR) or with high throughputs (CMS 106).

Leitz Precitec LR:
• Extremely high axial resolution
• Small spot diameter
• Automatically interchangeable
• Unmatched non-contact precision
Applications:
• Glass or plastic lenses
• Delicate, sloping, reflective, transparent, refractive, shiny, mat or coated surfaces
• Highly polished parts and profiles

CMS 106:
• Fully automatic, no parameters to worry about
• Selectable laser line lengths
• Real time automatic laser power control
Applications:
• Feature inspection to CAD (thin walled/sheet metal parts)
• Free form surface inspection to CAD and reverse engineering
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

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