HEXAGON

Brochure

HxGN Stationary Solution Suite

Empowering makers with precision measurement and inspection data to drive smart manufacturing

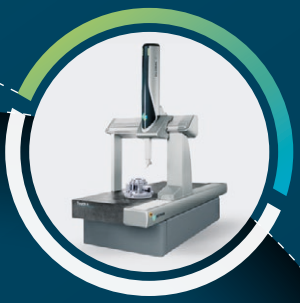
HxGN Stationary Solution

World leading metrology technology for quality data you can trust

A world-class portfolio of metrology software and devices, providing highest accuracy measurement to verify parts meet design specification across automotive, aerospace, medical, electronics and general manufacturing.

Stationary CMM devices

Inspect workpieces of any size in quality labs or the shop floor with a wide range of CMMs. Racks and rotary tables can also be integrated for additional inspection flexibility.



Metrology Software

Smart software for stationary CMMs enabling analysis and evaluation of all types of prismatic, complex and freeform parts.

Probes, sensors and accessories

Increase flexibility, accuracy and maximise inspection efficiency with the industry's largest range of probe heads, tactile probes, non-contact sensors and accessories.

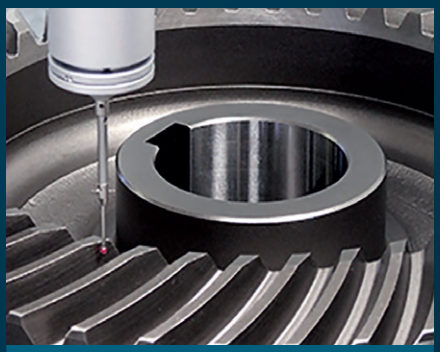
Inspection capabilities for demanding industries

Prismatic parts

- Engine blocks
- Housings & Enclosures
- Brackets
- Manifolds

Freeform components

- Sheet metal
- Body in White (BiW)
- Lenses
- Prosthetics & Implants



Special geometries

- Gears
- Blades & Blisks
- Impellers
- Camshafts

Automotive

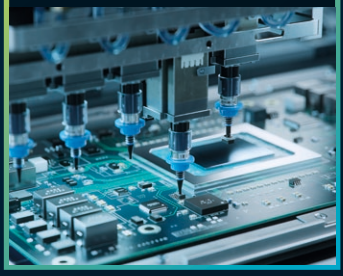
Defence

Energy

Aerospace

Medical

Electronics



Inspection of prismatic parts

Hexagon offer a wide range of solutions for inspecting prismatic parts manufactured across automotive, aerospace, electronics and medical industries.

Cutting edge, easy to use features enable users to tackle standard geometry part inspection with confidence. This improves process efficiency, reduces waste and cuts cycle times while ensuring reliable product delivery.

Combining hardware and software for maximum flexibility

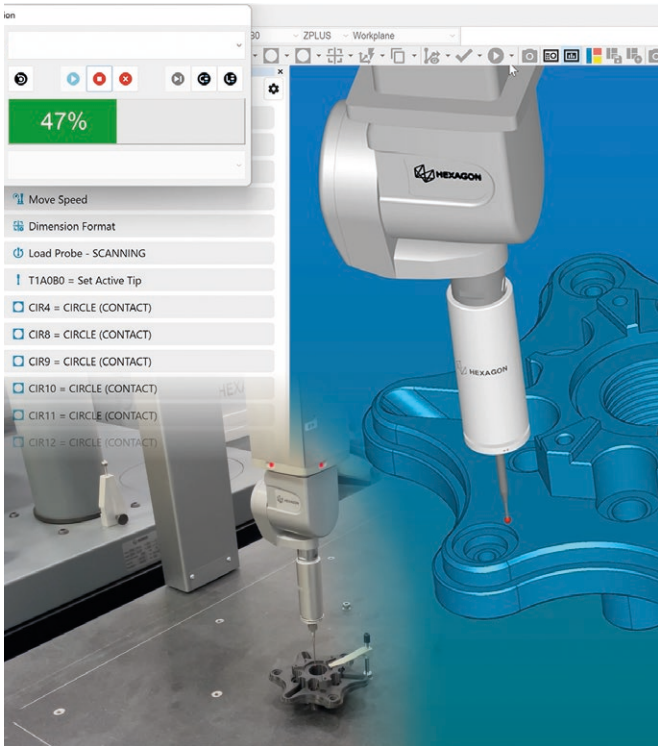
Our solutions support fully automated measurement and process control. Features of prismatic parts can be analysed using a stationary CMM device controlled by a compatible software application. The solution can also be extended to integrate with larger robotic solutions and part loading systems for increased throughput.

A wide range of sensor technologies can be attached to the stationary CMM for greater flexibility in measurement strategy. Compatible sensors for CMMs include touch-trigger, scanning probes and non-contact sensors with innovative technologies (vision, white-light & optical sensors).

Programmable measurement routines and inspection planning

Measurements can be taken manually or automated routines can be programmed using Hexagon's leading metrology software applications. This enables quality engineers to automate and infinitely repeat any QA process.

Programmers can create measurement plans with or without a CAD model of the prismatic part, or upload 2D drawings which can be converted into nominal part data using OCR. Inspection routines can be prepared, simulated and perfected in a fully realized virtual environment without occupying the CMM.



Inspection of freeform components

Hexagon's Stationary Solution offers a comprehensive application for the precise evaluation of freeform surfaces, non-standard shapes and contours such as those found in sheet metal, body-in-white (BIW) components, lenses, prosthetics and implants.

Sensor flexibility

Hexagon's metrology software supports a wide range of optical or laser-based scanning devices to capture the 3D geometry of the surface. These devices create a point cloud or mesh data representation of complex freeform surfaces, which can be processed and analysed to extract key features and characteristics.

Microgeometry and sensitive surface measurements

Capture optical high-resolution measurements of miniature size and form features on challenging surfaces.

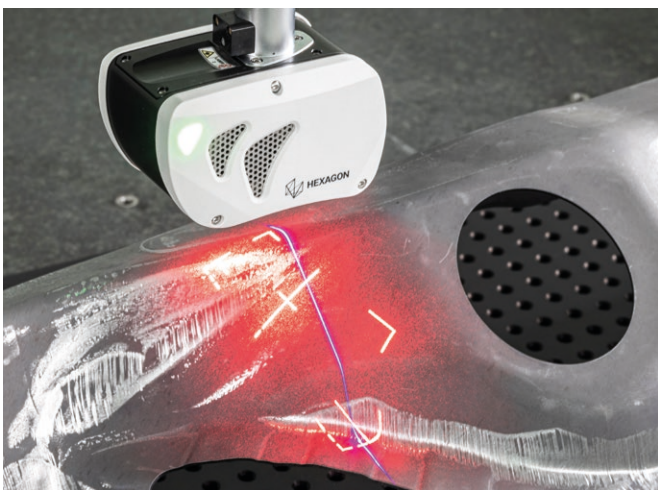
Typical part and feature characteristics:

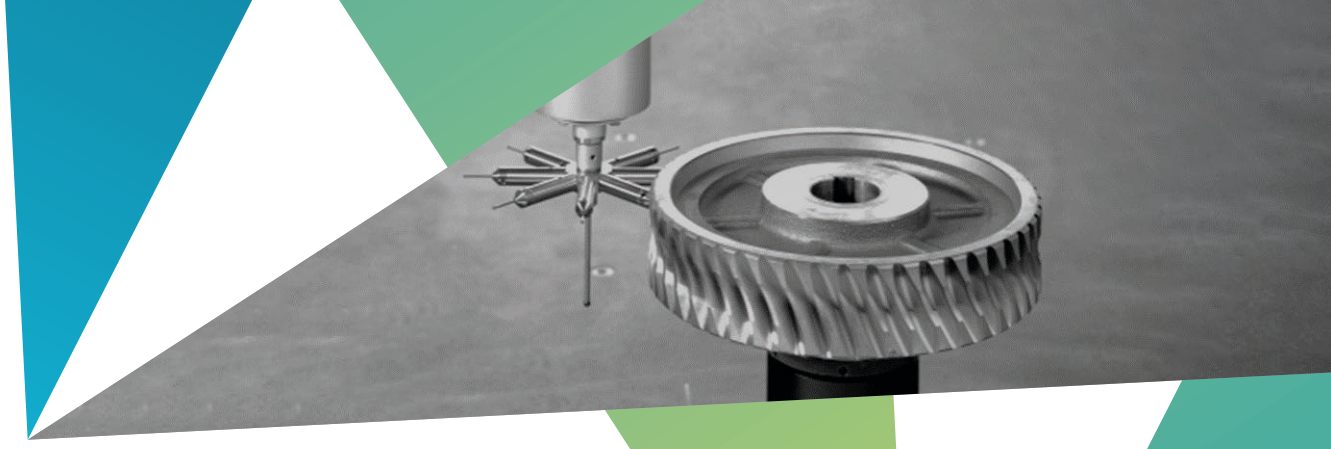
- 3D microgeometries
- Functional surfaces, freeform surfaces
- Varied materials: rigid/soft, matte/transparent/reflective
- Varied surface finishes: microstructured, coated

Creating efficient measurement routines

Measurement routines can be programmed and simulated in a visually rich, CAD enabled user interface. The software provides a comprehensive geometric dimensioning and tolerancing (GD&T) toolset, complying to the latest industry standards.

The solution can capture a point cloud with variable point density that is valid for both surface and detailed feature inspection. When executing is complete, comprehensive reports are offered for detailed analysis of the scan data.





Inspection of special geometries

Offering the highest accuracy, repeatability and flexibility, Hexagon's Stationary Solution offers industry leading applications for analysing parts with special geometries that deviate from more straightforward prismatic shapes or cylindrical forms such as:

Gears

Including spur gears, helical gears, bevel gears, worm gears, hirth and curvic couplings.

Impellers

Impellers have curved blades or vanes and are often found in pumps and compressors.

Turbine blades

Turbine blades used in jet engines, gas turbines, and steam turbines.

Camshafts

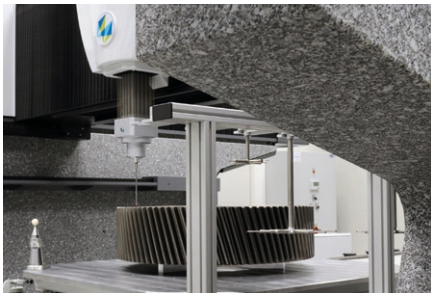
Non-uniform profiles designed to control the opening and closing of engine valves.

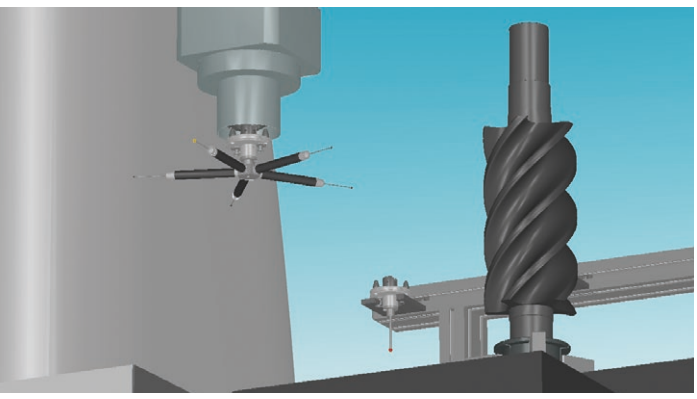
Turbofan engine blisks and blisk components

Bladed disks or integrally bladed rotors.

Turbomachinery blades

Components used in turbomachinery, such as aircraft engine compressor, impeller and fan blades.





Creating measurement routines

Measurement routines can be quickly built in intuitive CAD based user interfaces with a digital twin – making simulation possible away from the CMM.

Our software connects with a wide range of ultra-high accuracy CMMs and sensors to deliver effective measurement solutions. We also offer an unrivalled portfolio of add-on modules for demanding components. Reporting is also available in accordance with international standards & industry guidelines.

Technology empowering innovation

Digital twin

- Prepare and test inspection routines offline with a virtual CMM
- Support for a wide range of CAD formats
- Reverse Engineering – create a digital model from a physical part

Standards compliant

- Full support for GD&T within the ISO/ASME standard
- Add-on modules for specific gear industry standards
- Interface standards for GDE, AQDEF, I++ DME and DMIS

Digital thread

- Model Based Definition enables automated inspection planning
- Create routines using embedded PMI (GD&T) info in CAD model
- Export inspection data to SPC software for production monitoring

Automation

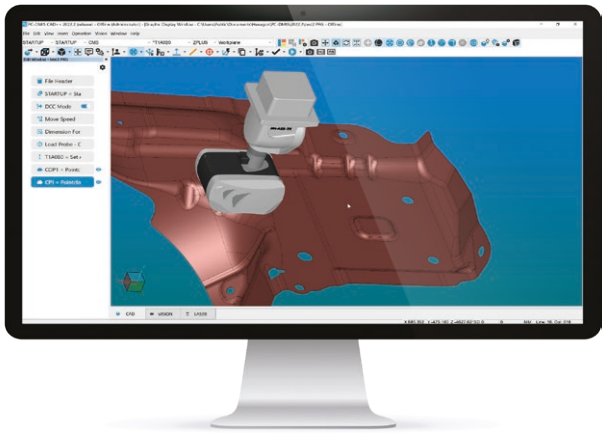
- Increase throughput with part loading robots
- Quick features in software create inspection plans faster
- Embed the system in a robotic cell for fully automated inspection
- Real-time performance data on CMM activity and utilisation

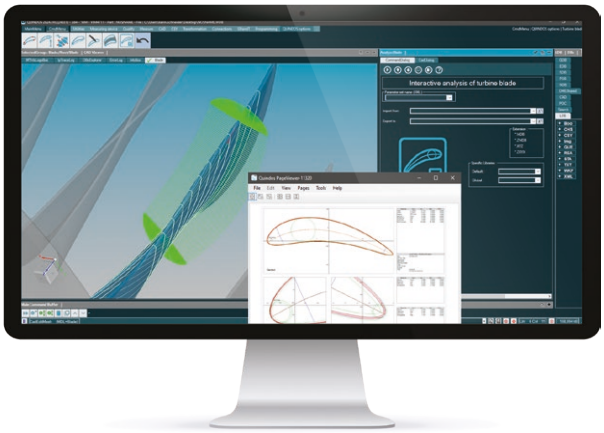
Flexibility

- Multi-sensory capability - swap sensors mid-routine
- Integrated with many other applications in the Hexagon portfolio
- System connects to Nexus for enhanced, collaborative workflows
- Full compatibility across range of software and device technology to support any industry solution

Metrology software

Developed to work seamlessly with Hexagon's Stationary CMMs, our metrology software delivers critical measurement data for faster inspection and analysis, leading to efficiency gains across the entire manufacturing process.





PC-DMIS

PC-DMIS is a universal metrology software, providing a complete suite of programming capabilities for the creation and execution of measurement routines.

Cutting edge features enable users to tackle a wide range of inspection challenges with a comprehensive geometric dimensioning and tolerancing (GD&T) toolset. With the largest user base of any CMM metrology software in the world, PC-DMIS makes it easy to access and analyse inspection data.

PC-DMIS meets the latest ISO and ASME standards, produces customisable reports and enables online integrations with SPC software for production monitoring.

QUINDOS

QUINDOS is the expert metrology software for regular, free-form and special geometries including gears, gear tools, blades and other challenging applications.

With a comprehensive selection of modules and programming capabilities, QUINDOS is CAD enabled and makes full use of embedded PMI data. With full support for GD&T and ISO standards, QUINDOS delivers a highly visual environment for managing complex inspection tasks.

The core application can be used as a standalone solution, extended with additional modules or delivered as a tailored solution for a specific application.

Key features

PC-DMIS

- Programme offline in a virtual environment featuring CMM and CAD model
- Streamline measurement routine creation with embedded PMI data
- OCR tools read dimensional data from 2D drawings and blueprints
- One-click execution with Inspect shop-floor user interface
- Full security and auditing using the Protect add on module

QUINDOS

- Modules comply with international standards and industry guidelines
- Automated generation of measurement routines using PMI data
- Connect to statistical reporting packages for monitoring and evaluation
- Open interfaces enable integration with in house processes and databases
- GDE (Gear Data Exchange) interface – transfer gear data seamlessly

Stationary Coordinate Measurement Machines (CMM)

High accuracy inspection in the quality lab or shop floor

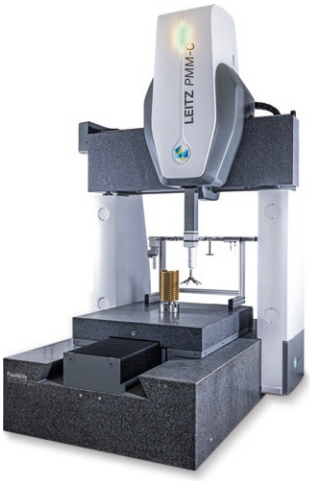
Hexagon's CMMs are premium metrology devices that ensure product quality remains at the highest level, for even the most complex parts.

Bridge CMMs

Extensive range of solutions in every industry where accuracy, repeatability and automated dimensional inspectionis required.

Shop-floor CMMs

Compact, robust and ergonomic measurement designed to operate directly on the shop floor.



Ultra-high accuracy CMMs

Premium metrology devices that ensure product quality remains consistently at the highest level, for even the most complex parts.

Multisensor and optical CMMs

Precision of tactile probing and the high-speed measuring point capture of non-contact measurement on a single system.

Gantry CMMs

The largest stationary gantry- and bridge-type 3D CMMs with large-scale performance.

Horizontal arm CMMs

Large-volume component inspection across manufacturing spaces, including sheet metal in automotive.

Probes, sensors and accessories

Plug and play connectivity with Hexagon's leading CMM sensor technology

Probe heads, sensors and accessories connect to the CMM and can be changed to suit the inspection task at hand. This modularity and range offers great flexibility.

Probes heads

- Manual probe heads
- Automatic indexing probe heads
- Continuous probe heads
- Heavy duty probe heads

Tactile probes

- Scanning probes
- Touch trigger probes

Non-contact sensors

- Laser scanning sensors
- Vision sensors
- White-light sensors
- Optical sensors

Accessories

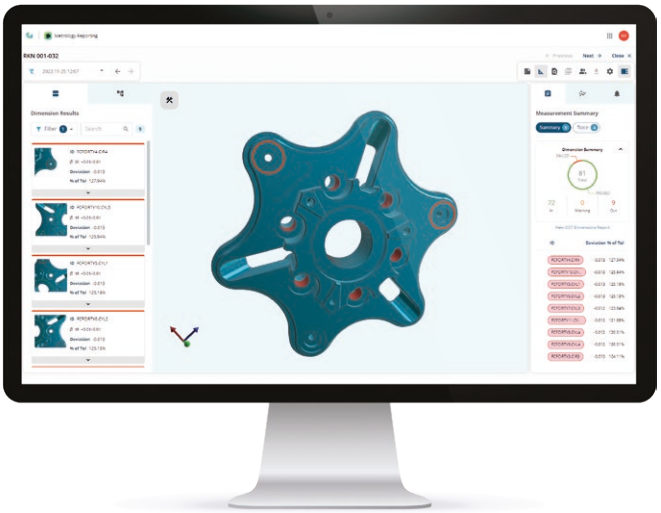
- Styli, shafts and adaptors
- Probe changer racks
- Calibration kits
- Temperature sensors

Complementary software applications

Additional software to drive efficiency, quality and productivity in your Q&A workflow

Leading manufacturing performers are characterised by high levels of integration across processes and systems. Hexagon's Stationary Solution connects with a range of complementary applications and dimensional data packages within the Hexagon ecosystem to deliver a continuous digital thread.

Together they provide a continuous flow of data - to enable data-driven decision-making, improve process efficiency, reduce waste and cut cycle times while ensuring reliable product delivery.



Metrology Reporting

Simple, intelligent, accessible software for accessing report data

Metrology Reporting provides real-time information and insights, enabling increased productivity based on data-driven decision making.

Cloud-based, its centralised reporting functionality is simple to use, provides intelligent insight, and is accessible on any internet connected device. Metrology Reporting is part of Nexus and is integrated with PC-DMIS and QUINDOS.

Visual Detection

Add surface inspection to your metrology workflows

Visual Detection is an automated surface inspection application capable of detecting defects across a wide range of materials such as glass, metal, plastics, ceramics and textiles. It uses artificial intelligence to quickly learn from sample images in order to identify production defects.

Q-DAS - Statistical Process Control (SPC) software

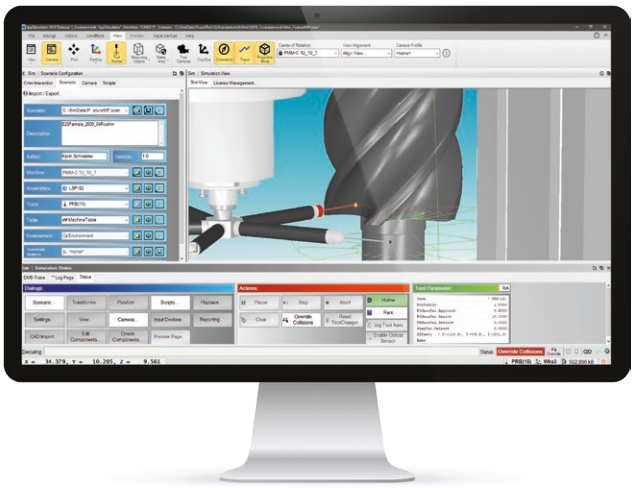
Data driven decisions, powered by AI

The Q-DAS application suite supports quality-assurance, capability evaluations and parameter-based statistical process controls. It enables OEMs and their suppliers to plan, collect and analyse dimensional information from various stages of the product lifecycle.

I++ Simulator

Offline QUINDOS programming with a complete digital twin

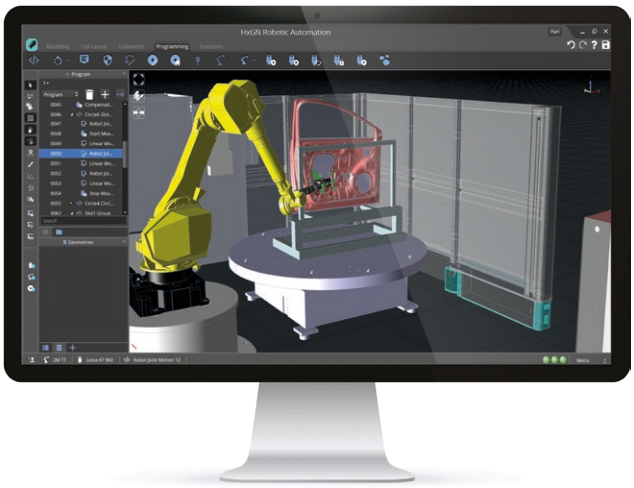
I++ Simulator enables you to simulate QUINDOS measurement programs and test new applications, with complete visualisation of the coordinate measuring machine (CMM), sensors, fixtures, parts, loading systems, and more. The digital part is measured virtually. A comparison with the CAD model or the conventional nominal data provided in your analysis software gives real results including deviations.



Robotic Automation

Accessible and efficient robot-based inspection

Robotic Automation is an intuitive, flexible and scalable control software designed to simplify programming for robotic inspection cells. PC-DMIS is fully integrated with Robotic Automation and can be used as the primary metrology software for inspection, analysis and reporting within automated cells to significantly increase measurement capacity, repeatability and quality.



Metrology Asset Manager

Remote monitoring and machine analytics

Metrology Asset Manager is a Nexus native application which allows operators and quality managers to monitor CMM performance via a centralised dashboard, enabling real-time decision-making and greater visibility into sources of downtime and capacity.

nexus®

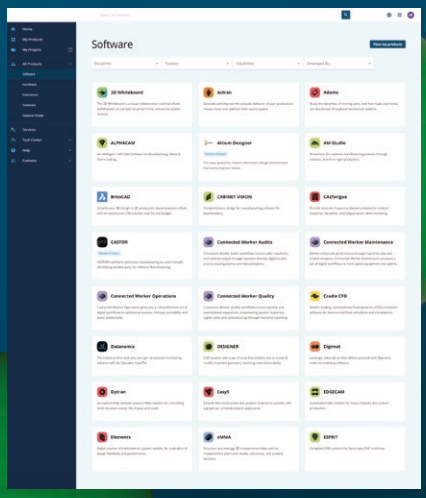
Open platform giving you freedom to innovate

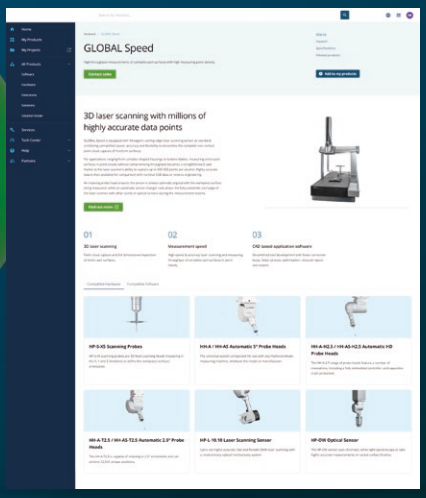
Stationary Solution Suite is Nexus ready. Nexus is Hexagon's next generation platform, providing access to a complete portfolio of manufacturing technology.

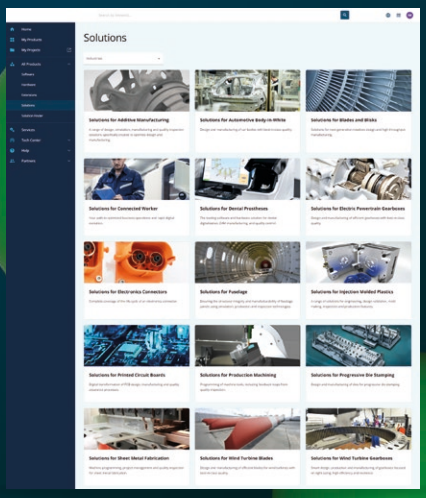
Through streamlined, collaborative workflows, Nexus helps connect people with data from across the enterprise to make processes smarter.

Our vision is to support the product lifecycle from ideation to maintenance by leveraging the data sources from simulation, production, metrology and quality.

Find out more at **nexus.hexagon.com**







Supporting you every step of the way

Hexagon's Stationary Solution products are available with a maintenance agreement offering you access to the latest versions of the software at every release as well as comprehensive technical support for metrology devices and much more.

Hexagon's metrology experts are equipped with extensive experience of both software and hardware devices and can provide additional offline programming through to tailored measuring system solutions.

Hexagon's global presence extends to over 70 Solutions Centres globally. Our service and support network is strategically placed to ensure you have access to responsive technical assistance and experience minimal disruption to your operations.

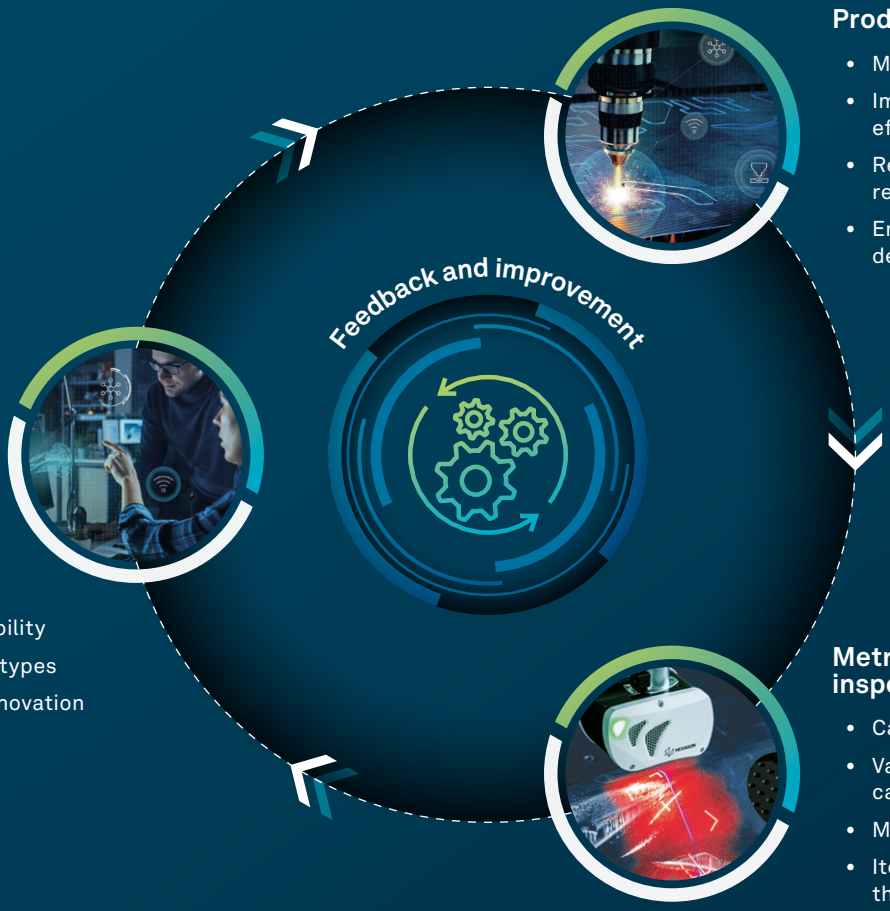
Global manufacturing runs on Hexagon

Hexagon's Manufacturing Intelligence division empowers makers to innovate and create without limit. Our solutions support optimisation throughout the product lifecycle, freeing creators to make better products in new innovative ways, for people and planet.

Bringing together the physical and digital worlds through hardware and software, we give makers the freedom to ideate, explore, get it right first time, and to scale production.

Through a unique portfolio spanning design and engineering, production, inspection and quality management technology, Hexagon is redefining the notion of what's real. Our sensors, software and real-time data solutions support innovation and optimisation at every stage from concept to customer, allowing makers to redefine the made world.

From first concept to final product



Production

- Maintain design intent
- Improve process efficiency
- Reduce waste and rework
- Ensure reliable product delivery

Design and engineering

- Optimise designs
- Ensure manufacturability
- Reduce prototypes
- Accelerate innovation

Metrology and inspection

- Capture real-world data
- Validate process capability
- Manage product quality
- Iterate and improve for the future

What our customers say

> **We obviously work to some really tight tolerances. The fact that it's easy to use the PC-DMIS software with the Global CMM and train our teams on it helps us get the most out of the CMM."**
>
> **Mark Foden,**
> External Quality Assurance Group Leader, Red Bull Racing

> **There can only be one brand that you really trust the most and for me its Hexagon. The math behind the scenes, the program controls, ease of use and accuracy are best in class."**
>
> **Matt Price**
> Quality Supervisor,
> Max Aerostructures, Kansas, US

> **We needed measurement technology we could rely on even at incredibly fine tolerances. Hexagon was the right supplier to offer the best in this high-precision market."**
>
> **Andreas Zöttl**
> Managing Director,
> YOUR-TOOL GmbH

> **It was important to me that our employees would only have to learn one system. QUINDOS controls all the components: The CMM and the automatic pallet system."**
>
> **Mangnus Schumacher,**
> Mechanical Engineering Quality Assurance Manager,
> Fette Compacting GmbH,
> Schwarzenbek, Germany

> **The system delivers excellent measurement performance and guaranteed quality control on any job our customers entrust to us."**
>
> **Srinivas G.**
> Deputy Plant Manager, Ace Inotec, Bangalore, India

HEXAGON

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter.

Learn more about Hexagon (Nasdaq Stockholm: HEXA B) at hexagon.com and follow us @HexagonAB.