

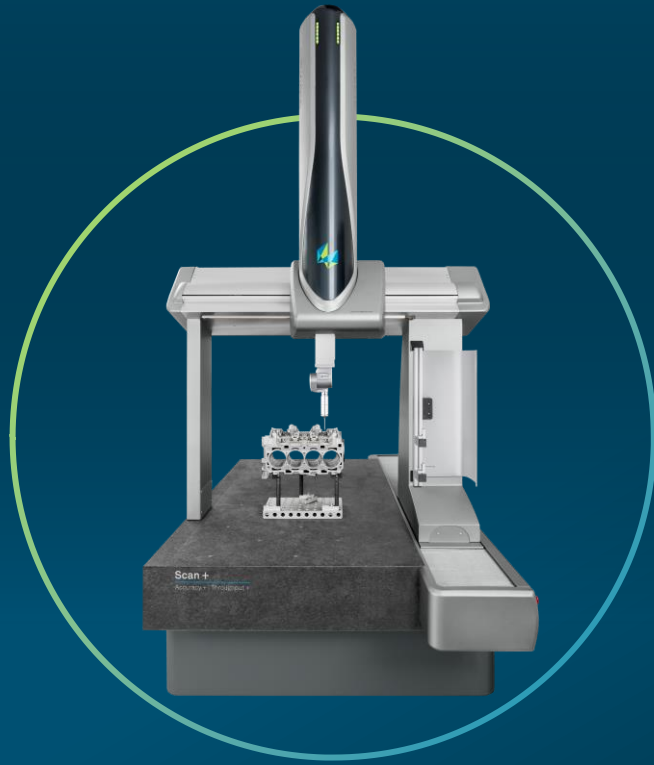


HEXAGON

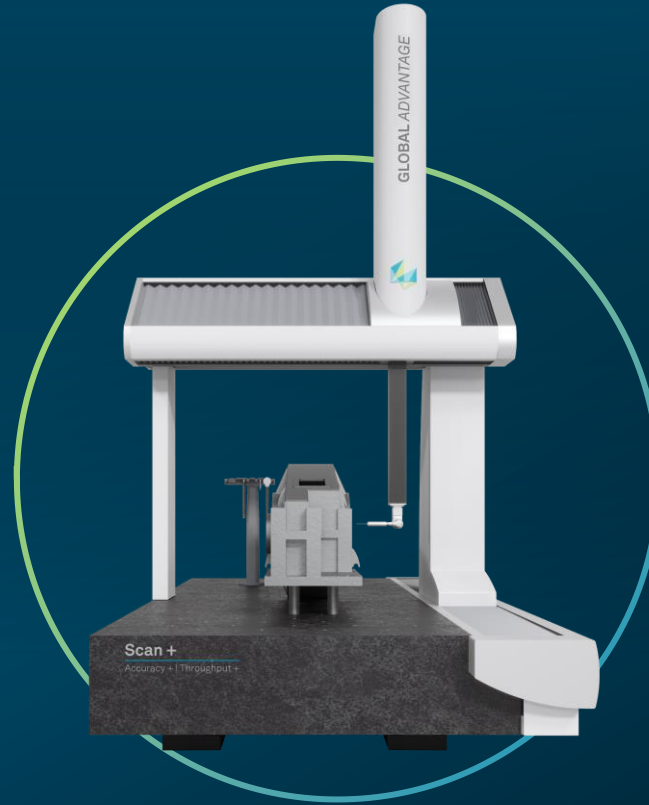
Bridge CMM line Product presentation

February 2023

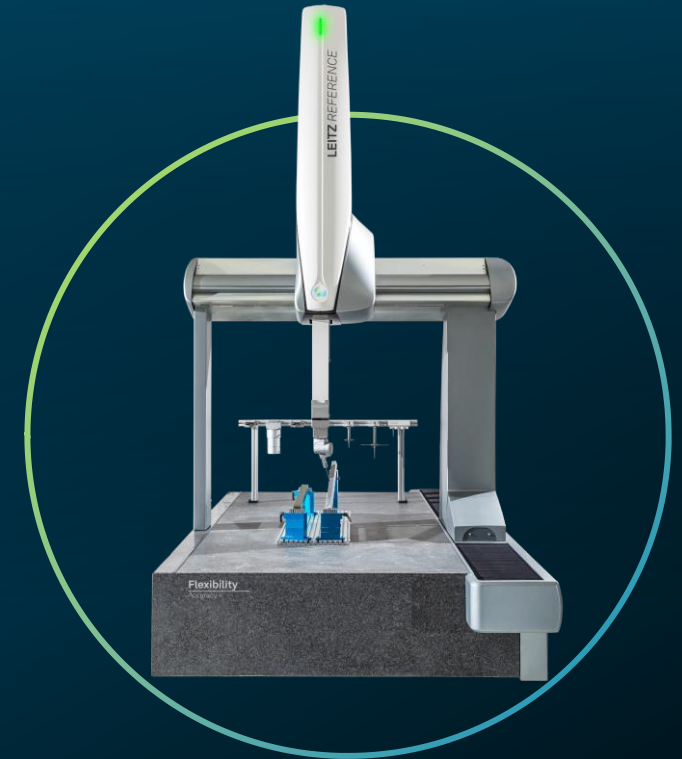
Bridge CMMs



GLOBAL S



GLOBAL Advantage

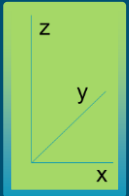
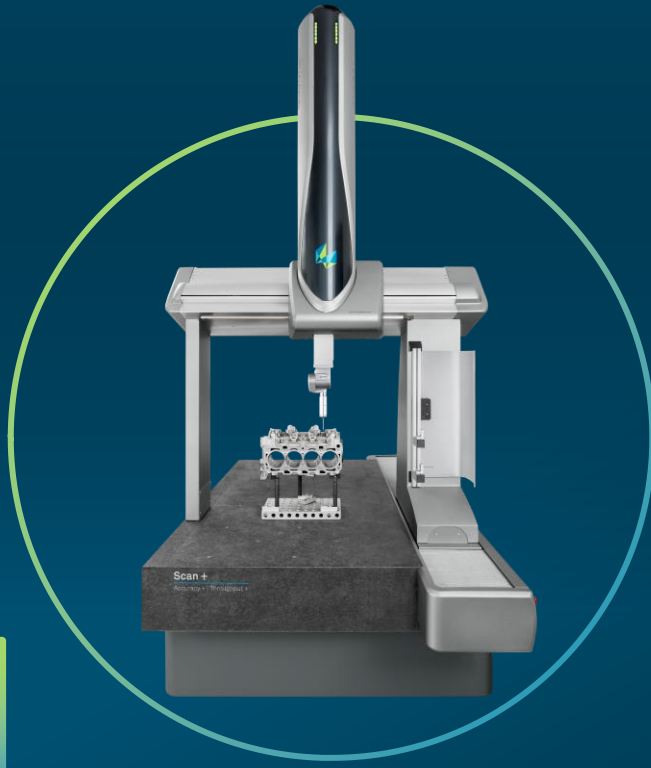


Leitz Reference

Bridge CMMs are commonly used for geometric and free-form inspection of manufactured components. Used for single part, sample or batch inspection, their automated measurement processes and high repeatability also make them ideal for 100% inspection and serial measurement.

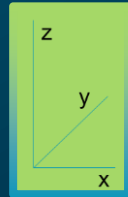
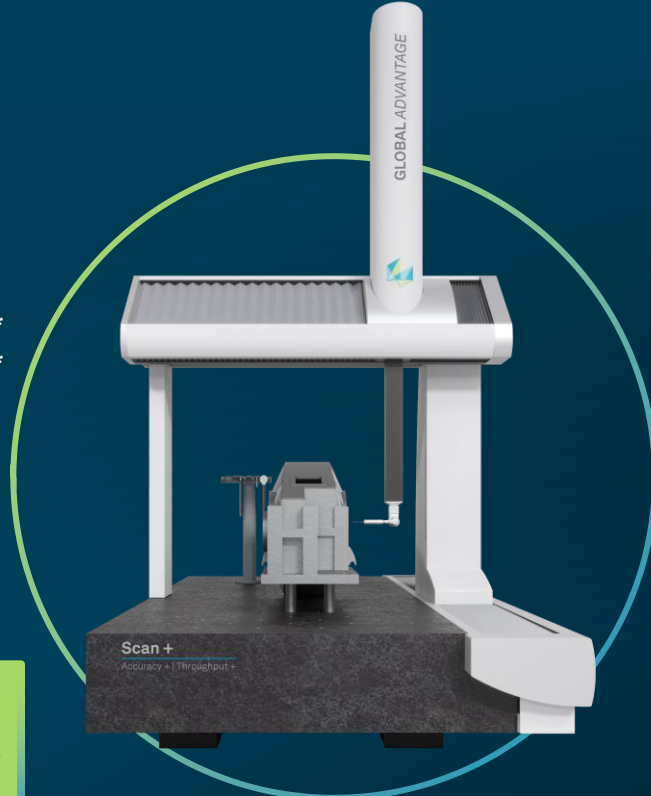
Bridge CMMs: Size range

05.05.05
05.07.05
07.07.05
07.10.07
09.12.08
09.15.08
09.20.08
12.15.10
12.22.10
12.30.10
15.22.10
15.30.10



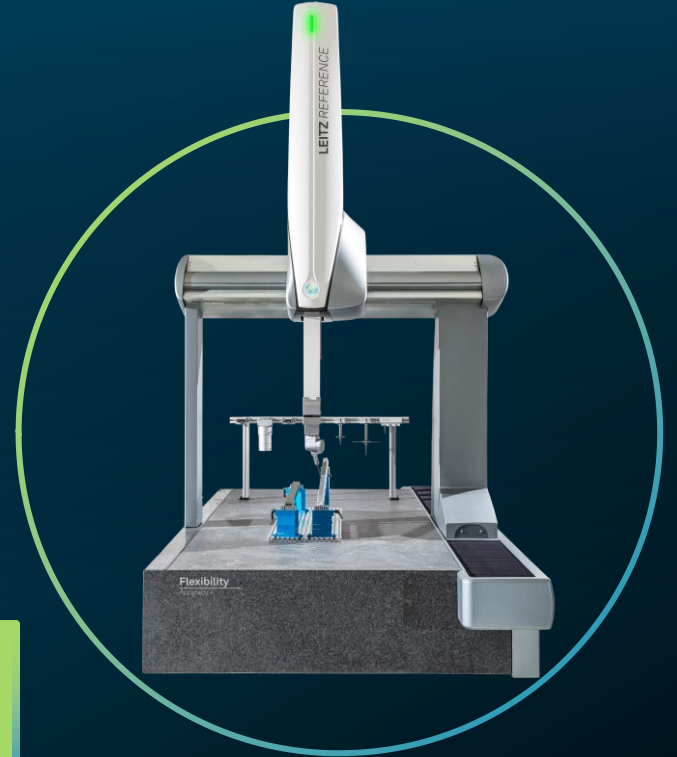
GLOBAL S

15.20.14
15.26.14
15.33.14
20.33.15
20.40.15
20.33.18*
20.40.18*



GLOBAL Advantage

05.04.03
07.07.05
10.07.06
12.09.07
15.09.07
20.09.07
15.12.09
22.12.09
30.12.09
40.12.09

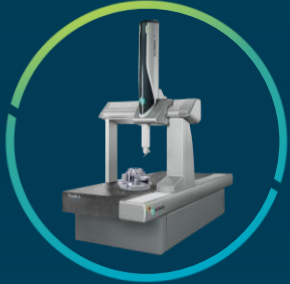


Leitz Reference

*special on request

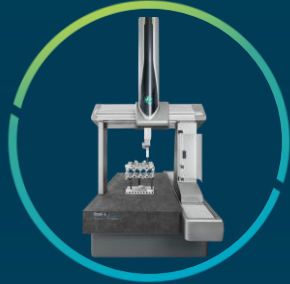
Sizes are expressed in [dm], i.e. 05.07.05 means X = 500 mm; Y = 700 mm; Z = 500 mm.

Bridge CMM models: Application-driven product range



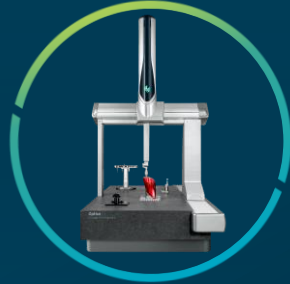
GLOBAL*
Touch+

Universal **size** measurement



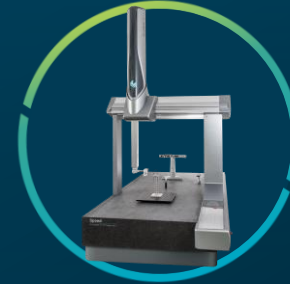
GLOBAL**
Scan+

Universal size and **form features** measurement



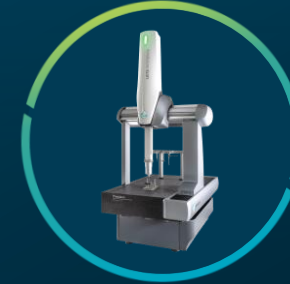
GLOBAL**
Optics

Universal size and form features measurement, on standard and **sensitive surfaces**



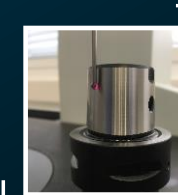
GLOBAL**
Speed

Universal size and form features measurement, on standard and sensitive surfaces, including **high-throughput** full surface measurement



Leitz Reference Precision

High accuracy size and form measurement



Leitz Reference Flexibility

High accuracy **multi-purpose** size and form measurement



* GLOBAL S only

** GLOBAL S and GLOBAL Advantage

Bridge CMMs

Measurement challenges,
features and benefits

Bridge CMMs: Challenges and how they are met

Accuracy

- Length measurement accuracy from $E_0 = 0.7 + L/400 \mu\text{m}$ (ISO 10360-2)
- Extremely rigid structure
- ISO 10360 verified in on-site acceptance tests



Challenging parts

- Broad probe and sensor portfolio for any application
- Complex geometries, sensitive surfaces, transparent materials and features in a low micron range



Productivity

- Future-ready options to be prepared for the latest technology even in a second moment
- Solutions for integration with the production line are available



Throughput

- Different dynamics according to the model
- Multiple sensors can run without interruption
- Laser scanning sensors may be added to dramatically increase throughput



Varied applications

- Almost any kind of material can be measured, from the traditional metal parts to even transparent deformable parts



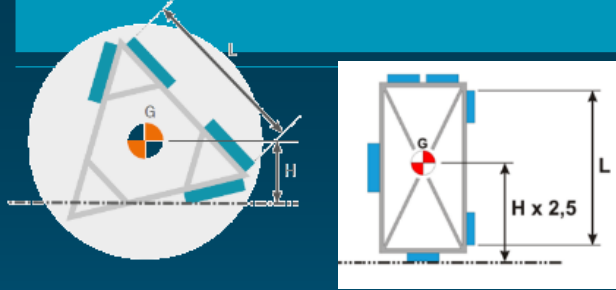
Service and support

- Sliding system based on air bearings on all axes, for minimum maintenance
- Metrology Asset Manager allows you to monitor the health of your machine wherever it is
- Hexagon technical support network is strategically located worldwide and is ever expanding

Features and benefits: **Frame design**

TRICISION™ design on the X beam

The triangular cross section of the X beam provides the best conditions for high dynamics, thanks to low centre of gravity and reduced mass.



Solid base

Stable granite table with a low centre of gravity.

Granite table with integrated dovetail guide and preloaded air bearings in all axes.

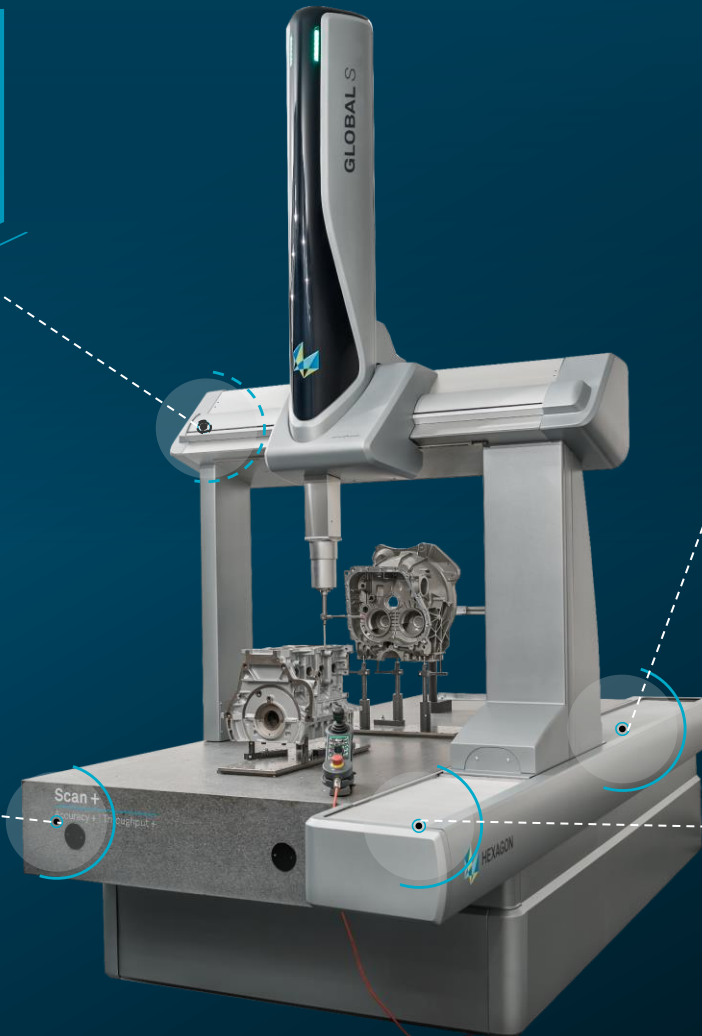
Air bearings on precisely machined dovetail guides ensure optimum reproducibility and long system stability.



Ergonomics

The rail is at the same level of the granite.

The integrated Y guide is ideal if the CMM is integrated with a loading/unloading system.



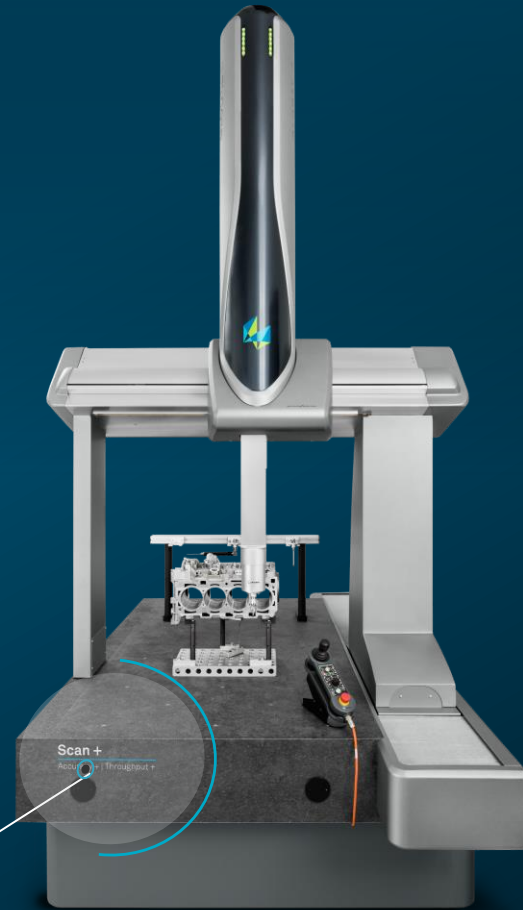
Elevate your system performance

High accuracy and throughput levels

Name of the base model
Add-on for optional performance level

Scan+

**Accuracy+
Throughput+**



Precision

Accuracy+

Precision

Accuracy++

**Accuracy+
Accuracy++**



Features and benefits: Accuracy options

- Base configurations can be enhanced with an accuracy option. This increases the basic specification to a higher level.
- With **Accuracy+ / ++** validate tighter tolerated features and increase repeatability.

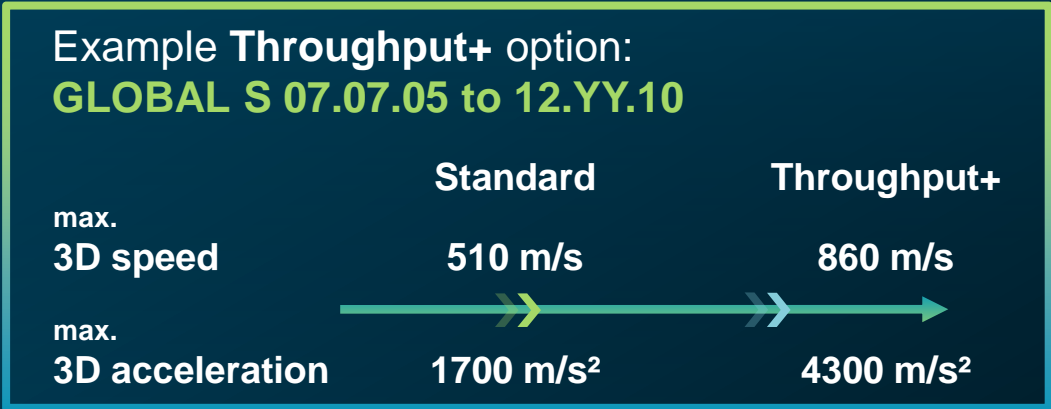
Example **Accuracy+ / ++** option:
Leitz Reference Precision 15.9.7

↓	1.2 + L/350	Standard
↓	0.9 + L/400	Accuracy+
↓	0.7 + L/400	Accuracy++

	Bridge Touch+ GLOBAL	Bridge Scan+ GLOBAL	Bridge Optics GLOBAL	Bridge Speed GLOBAL	Bridge Flexibility Leitz Reference	Bridge Precision Leitz Reference
Accuracy+		available	available	available	available	available
Accuracy++					available	available

Features and benefits: **Throughput option**

- The throughput option enables productivity gains through the combination of intelligent measurement system technology with dynamics booster.
- **Throughput+** reduces measurement cycle time and measures more parts faster.



	Bridge Touch+ GLOBAL	Bridge Scan+ GLOBAL	Bridge Optics GLOBAL	Bridge Speed GLOBAL	Bridge Flexibility Leitz Reference	Bridge Precision Leitz Reference
Throughput+		available	available	available	included	included

Features and benefits: Head exchange interfaces

MAC manual head exchange

Manual change between versatile indexable probe head and high precision fixed probe head



- Choose the most suitable sensor for an application.
- Increased machine flexibility at an affordable price and without affecting CMM performance.

SENMATION sensor exchange interface



Automatically switch between different probe heads (fixed and indexing) and optical sensors

- Users can easily choose the most suitable sensors not only for a certain application, but also for different features within a measurement routine.
- The measurement routine is carried out fully automatically without any interruption, as no recalibration is needed.

Features and benefits: **Broad probe head and sensor portfolio**

What's the feature and its benefit?

- Bridge CMMs support a broad range of probe heads and non-contact sensors to cover a wide range of different, individual applications.
- This includes:
 - **Fixed probe heads** for highest accuracy
 - **Indexing heads** for more flexibility
 - **Vision sensor** for the measurement of soft and easily deformed parts, machined or 3D printed structures
 - **Laser scanners** for the quick capturing of complete part surfaces
 - **Chromatic white light sensors** for non-contact measurement of highly reflective, shiny, transparent and other challenging materials
 - **Interferometric distance sensor** for fast measurement of metallic surfaces
 - **Roughness sensor** for the inspection of surface parameters



Future-ready kits

Be ready for the future

On **GLOBAL S** and **Advantage**, HP-OW white light sensor, HP-C-TS5.10 camera and HP-S-X5HD fixed head require specific items that are arduous to install later.

That's why we set up your CMMs for the future, according to the current configuration.

	HP-OW white light sensor + HP-C-TS5.10 camera + HP-S-X5HD fixed head	HP-OW white light sensor + HP-C-TS5.10 camera	HP-C-TS5.10 camera	HP-OW white light sensor
Touch+		available		
Scan+	available	available		
Optics			available	available
Speed	available	available	available	available

Frame size limitations apply

Features and benefits: **Rotary table**

- Rotary tables on **GLOBAL*** CMMs are used to measure the part after it is rotated at any desired angle with a fine positioning.

*n/a on GLOBAL Touch+

- Rotary tables on **Leitz Reference** CMMs can be used not only for positioning of the component but also as an active measurement axis for 4-axis scanning.

The use of the rotary table has various advantages:

- More effective use of less required styli configurations
- Shortening of measurement cycle times
- Increasing workpiece accessibility



Features and benefits: Environment stability

- Shop Floor (SF) kit

Optional on all bridge models



- Active dampers

Optional on all bridge models

Active damping systems are pneumatic devices which stabilise the machine in case of vibrations.

- The CMM can be installed in a **shop floor environment**.
- Additional bellows and covers **protect from dust and oil**.
- Thermal sensors allow the machine to work in a **15°C - 30°C operating temperature range**.
- The enhanced Fast Part Temperature kit quickly detects the **part temperature**.
- Vibrations can be caused by machinery, transportation and many other factors. To ensure **stability during measurement**, even when stronger periodic vibrations occur, active damping systems are used.

Features and benefits: Accessories and components for CMMs



- Styli and probe change racks



- Styli and accessories
- Gauges and fixtures



- Interim testing artefact Swift-Check
- Fixturing system Swift-Fix



- Increased productivity through fully automatic measurement programs, incl. styli and probe change.
- Flexible and individual probing configurations to suit the measuring task, part and application.
- Swift-Check gives operators confidence in the reliability of their measurements by performing quick and simple checks and delivering clear results.
- Swift-Fix modular fixturing system makes it simple to build and use metrology fixtures that facilitate fast, accurate part measurement.

Features and benefits: **Automation ready**

- Pre-configured integration kits.
- Bridge machines can be extended with automation solutions, ranging from half-automated part loading to fully automated solutions.
- Integration kits facilitate the integration of a CMM into the production environment to ensure **seamless interfaces with the production equipment** within the cell.
- Integrated solutions, from half to fully automated, offer **increased throughput** with efficient machine utilisation.
- Fully automated solutions support machine utilisation even during **unmanned shifts**.



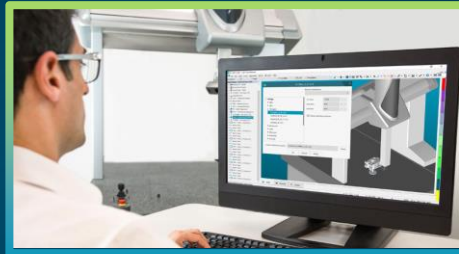
Features and benefits: Metrology software

PC-DMIS is the world's leading measurement software.

It's the measurement software solution for metrology professionals and shop-floor operators.

The powerful capabilities of PC-DMIS include:

- Selection of probe tips
- Importing CAD files
- Feature sensor mapping
- Pre-defined routines



Thanks to its easy-to-use interface INSPECT, users do not need to be experts to measure almost every part, from simple prismatic to the most complex aerospace and automotive components.

QUINDOS is the most powerful control metrology software for complex geometries.

More than 50 options are available for handling special parts, such as:

- Gears
- Gear cutting tools
- Worm gears and worm wheels
- Miscellaneous powertrain parts
- Functional extensions









The QUINDOS modular structure of special packages for specific geometries makes it the ideal software for advanced users.

It handles the most complex applications with a wide range of flexible programming features as well as classic measurement tasks with simple intuitive workflows.

Model enhancement packages for GLOBAL

Smart features for targeted productivity enhancements

Auto Create 	Cycle Time 	Traceability 	Reporting 	Industrial Integration 	Automation 
Automated measuring routine creation	Maximise inspection throughput	Comply with requirements of highly regulated industries	Informed and timely decision making	Measure near the production line	Intelligent workpiece feeding and loading
by extracting information right from CAD online and offline.	by reducing the setup and execution time of a measurement part program.	and have confidence in the integrity and reliability of your measurement results.	by extracting actionable information from your measurement data.	to detect process variations earlier and apply corrective actions faster.	to maintain high levels of measurement automation and CMM utilisation.

Features and benefits: **Service and support**

Services:

- System maintenance services
- Maintenance contracts
- System upgrades
- Training
- Measurement services



- A full range of services allowing your equipment to work at its best, thus enhancing speed and accuracy in your manufacturing process.
- Maintenance contracts not only ensure your peace of mind, but also make sure your production downtime stays at a minimum level, helping you keep up with the speed of your manufacturing process.
- We offer a number of system upgrade options to ensure your organisation operates at peak performance.
- We have built a comprehensive picture of training needs and have created a training program that fills the dimensional measurement skills gap.
- Through a range of contract and consultative services, Hexagon offers the expertise and equipment you need to maintain productivity in uncertain times.
- Every GLOBAL and Leitz Reference CMM comes bundled with a one-year Metrology Asset Manager Advanced subscription.

Bridge line: Summary

GLOBAL S

The GLOBAL S models cover **almost any application** in terms of universal size and form features, on standard and sensitive surfaces, including high-throughput, full surface measurements.

GLOBAL Advantage

Designed for **large-sized parts**, keeps most of the options available with the GLOBAL S.

Leitz Reference

Technology to enter the world of the **high accuracy** CMMs and enables **multi-purpose high accuracy** measurements.

The bridge line coordinate measuring machines cover a wide range of applications, allowing customers to find the best solution for their needs.



THANK YOU



HEXAGON

empowering an autonomous future