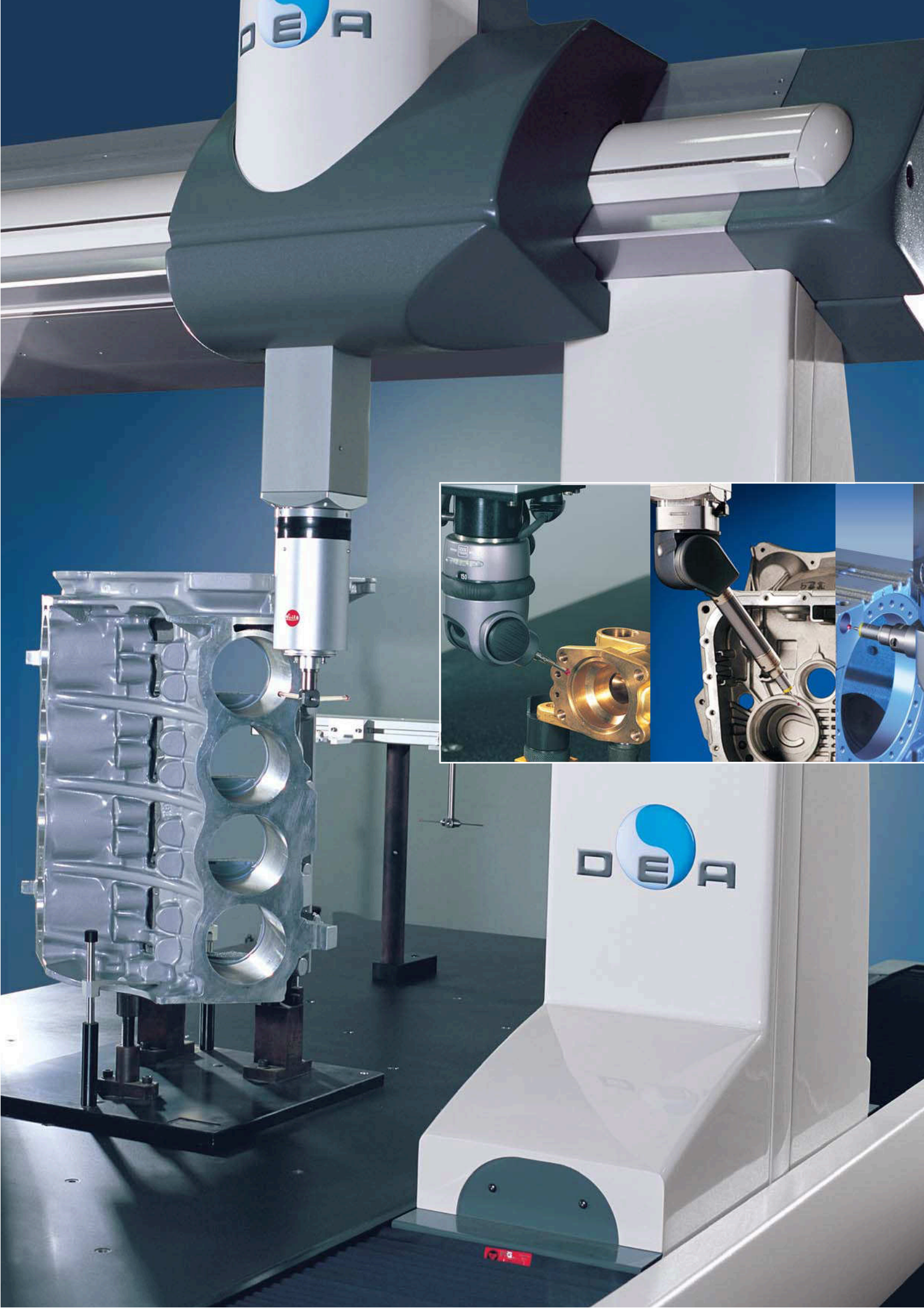




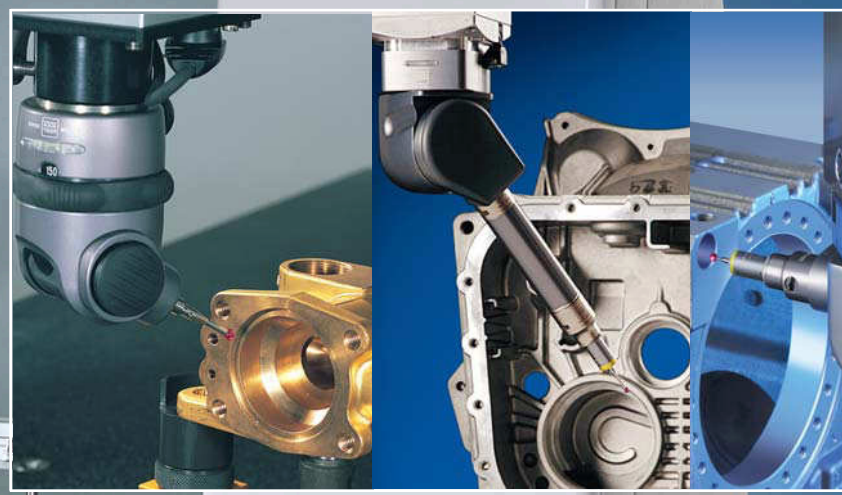
Global  
Global





DEA

DEA



## Global ... made to measure

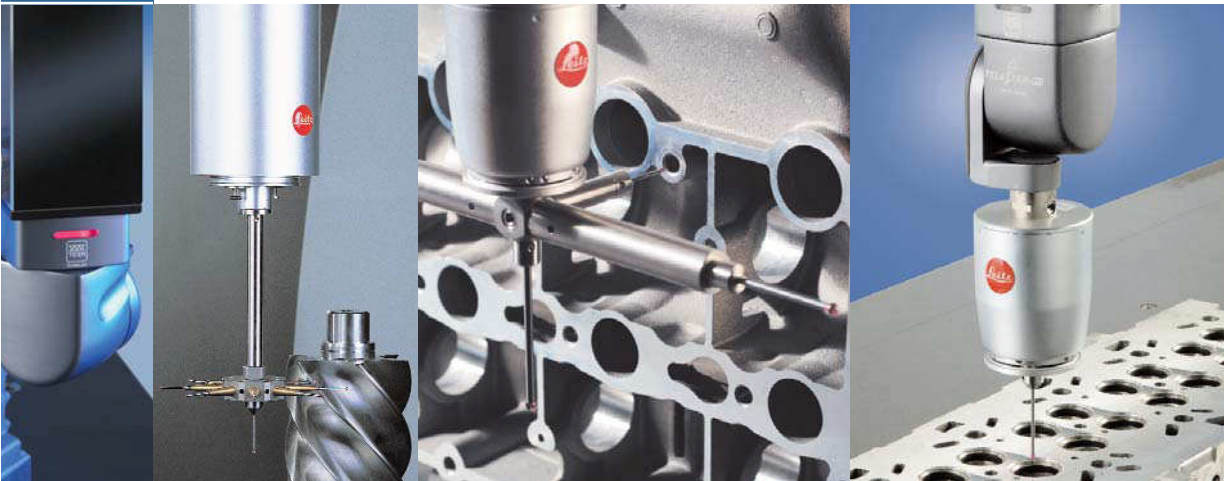
Global coordinate measuring machines are a successful product line so revolutionary and innovative as to be a momentous turning point in 3D technology.

This success is marked by the constant development of the product line to include new fields of application and sensor systems.

Global are not only accurate, reliable, fast and affordable CMMs, they offer another precious quality: flexibility. The flexibility to solve your measuring needs today, the flexibility to stay with you tomorrow.

## Functional capabilities for any requirement

Scanning and point-to-point, touch-trigger and optical sensor, fixed and articulated probe head, on the shop-floor and in the lab, Global does it all; thanks to its flexible, modular concept Global CMMs can be configured to suit all kinds of dimensional control requirements, exactly as you need it.



## A standard of Quality second to none

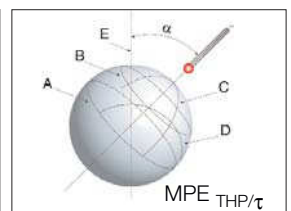
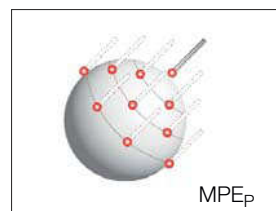
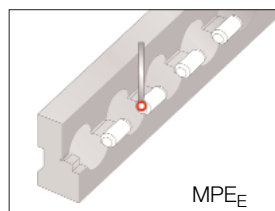
The quality and reliability of Global CMMs result from the accuracy of the manufacturing techniques and total quality control procedures adopted and the rational interaction of skilled workers with high technology production equipment.

## Full Machine Performance Certification

The performance of all Global CMMs is checked and certified through the most rigorous application of the test procedures specified by the ISO standards for CMMs.

The tests include:

- The verification of the maximum permissible error of indication for size measurements  $MPE_E$
- The verification of the maximum permissible probing error  $MPE_P$
- The verification of the maximum permissible scanning probing error  $MPE_{THP/\tau}$



All aspects of our business, from product design and manufacturing to delivery and customer service have been reviewed and found to meet internationally accepted quality standards (ISO 9001, VDA 6.4 and ISO 14001)



ISO 9001



VDA 6.4



ISO 14001

## Technology of Versatility

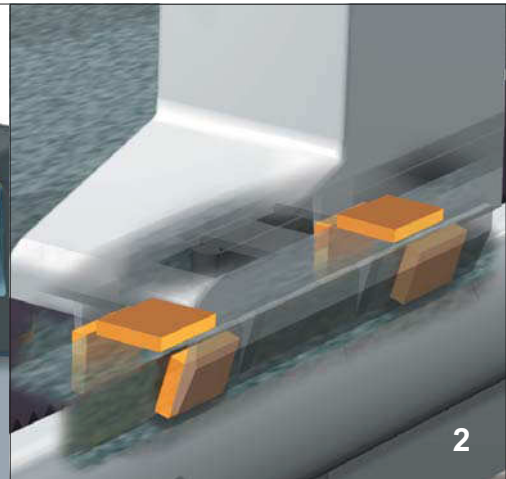
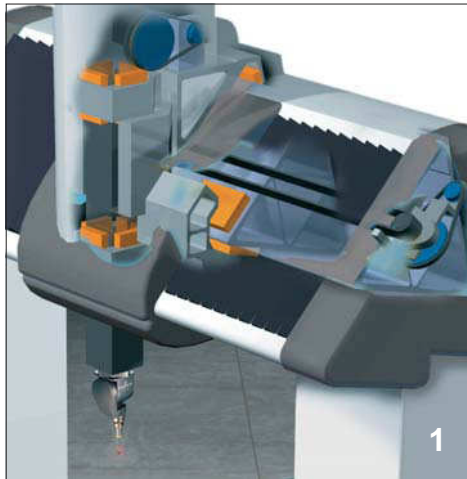
Global technology combines cutting-edge mechanical solutions, state-of-the-art motion controllers, advanced temperature compensation systems.

### Precision in the details

- All-aluminium ultra-rigid frame
- Exclusive triangular cross-section, bridge beam design provides optimum stiff-to-mass ratio for unquestioned precision and long-term stability.

- High-rigidity large-section Z spindle – aluminium alloy on 05.xx.05 to 15.xx.14 models, sintered aluminium oxide on 20.xx.15 models – optimises the use of vertically extended tooling.
- Heavy, stable granite table resists vibrations.
- One-piece table construction. Patented dovetail guideways are precision-machined in granite to improve accuracy and repeatability.
- Tuned elastometric “variable stiffness” damping system provides high external vibration isolation.

- Remotely mounted drive motors reduce moving mass for faster setting, dissipate heat away from the machine frame.
- High resolution Aurodur® scales with officially certified thermal expansion coefficient.
- Patented counterbalance design improves measuring performance.
- Small footprint makes it easy to fit in tight spaces.
- “No step” access to working area from all sides.



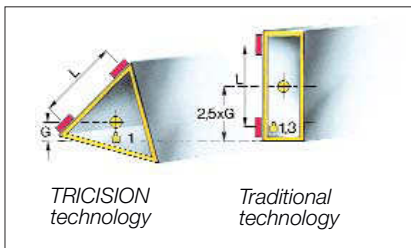
1) Steel reinforced closed-loop belt drive is precision engineered with elliptical tooth profile to reduce machine vibration at high scanning speeds

2) Wrap-around air bearings on precisely machined dovetail guideways provide optimum measuring repeatability and long term system stability. Easy-maintenance pre-loaded Belleville springs assure constant force over the machine's entire travel distance.

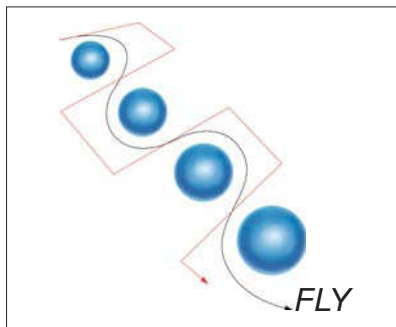
ACTIV version shown

## Precision in motion

- Continuous axis motion interpolation and true 3D vector capability (FLY) integrates axes movements eliminating unnecessary stops and corners. The result is:
  - up to 40% increased machine throughput
  - smooth, continuous path movements between points
  - more efficient data calculation
- When scanning a predefined path, the OBSERVER function inside the controller provides a feedback loop from the probe head that reduces measuring uncertainty and cycle time by keeping the head closer to the part's nominal dimensions.
- Exclusive 3D VECTOR FORCE OPTIMIZATION (3D-VFO™) assures accurate probe compensation and improved data analysis in scanning applications. Probing data is automatically compensated, in real time, for all force, drag, styli and weight changes. Precise data, all the time, in all conditions, with all probe configurations.



GLOBAL distinctive triangular cross section bridge beam enhances dimensional stability and metrology performance



FLY: optimized motion control, more efficient data collection, and unmatched throughput (available with most CNC controls)

## Flexibility of environment

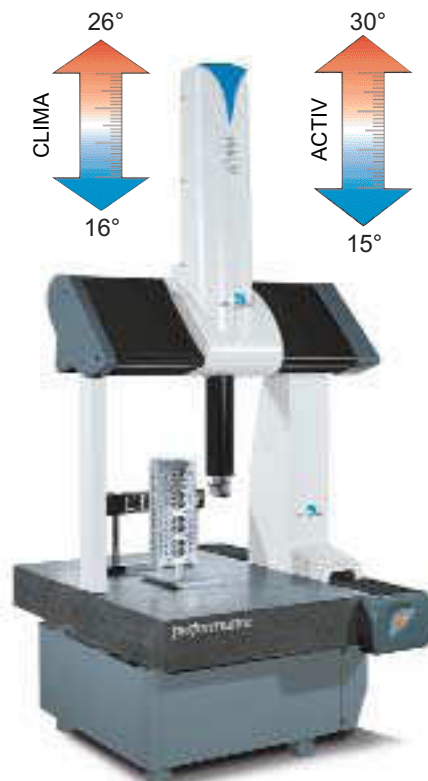
The Global line of CMMs brings superior measuring technology to the shop-floor.

### CLIMA

This innovative thermal compensation system offering the advantages of a wide measuring temperature range (16 – 26 °C) is available on the whole Global line.

CLIMA uses a mathematical model of the mechanical structure to add structural corrections and it takes into account not only the natural linear expansions of materials, but also the deformations they induce in a geometrically complex structure like a measuring machine.

Thanks to CLIMA, Global CMMs are able to operate at temperatures varying between 16 and 26 °C, with time and space gradients of 1°C/h, 1°C/m, 5°C/24h.



### ACTIV

Globals equipped with ACTIV® Technology (Adaptive Compensation of Temperature Induced Variations) are the ideal solution for all needs of dimensional inspection in production environment with temperatures ranging from 15 to 30 °C and daily gradients up to 10 °C.

Part dimensional data are corrected, based on the readings from a network of sensors placed in critical structural areas of the machine and on the part.

Measuring results are corrected in real time by compensating the effects of the structural deformations on the CMM caused by changing environmental thermal conditions. The CMM is protected by additional bellows and guards on the X and Y axes.

*global*

the Freedom  
to Choose

The range of Global measuring machines is getting wider and wider: now available in Classic, Performance and Advantage versions to offer the solution that best satisfies your requirements.



performance



## Global Classic

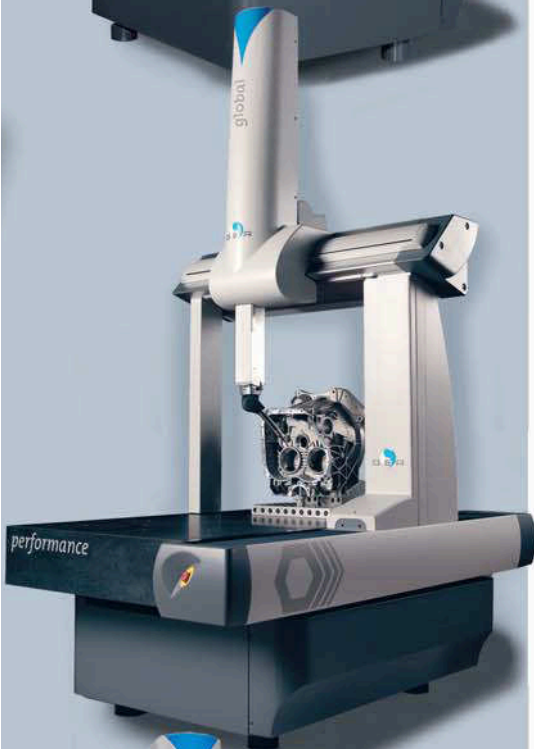
### Your Classic way to Unquestioned Quality

A cost-effective solution to common shop measurement and inspection applications.

Global Classic, equipped with a variety of touch-trigger probe configurations, combines throughput and accuracy with operating reliability and reduced maintenance.

Global Classic CMMs are used in a number of industries for first and final part inspection, fixture qualification and process control.

Global Classic is the ideal measurement system for handling with good accuracy and productivity a wide variety of dimensional inspection tasks on general mechanic and prismatic components.



## Global Performance

### Enhance your Metrological Performance

Single point measurement or scanning, touch probe or optical probe... everything in one system. Performance brings affordability to multisensor technology.

Based on modularity, Global Performance models can be configured according to measurements needs.

Global Performance is the best tool for the user who needs to perform a wide variety of metrology operations on a single, flexible, accurate and affordable CMM.

The machine can be equipped with touch-trigger probes, for efficient single-point measurements on prismatic elements, and analog scanning probes that support high accuracy scanning operations on complex contoured shapes. A fixed scanning head, ideal for high-accuracy form error measurements, even with long extensions, is available as an option.

CLIMA structural thermal compensation extends Global Performance excellent accuracy to a wider temperature range.



## Global Advantage

### Take the Advantage of Speed

Global Advantage is a fast and accurate CMM that can handle any measurement and inspection task quickly and efficiently.

Driven by high-speed, smooth and accurate motion devices, Global Advantage measurements are fast, easy and precise.

The outstanding dynamics and first-class accuracy makes it the ideal tool to keep manufacturing process under close and permanent control.

For the dimensional control of high-accuracy prismatic workpieces and the inspection of complex geometries such as blades, gears and screw compressors, Global Advantage models can be equipped with a high-speed, fixed scanning head which features very high and repeatable accuracy even with extra-long probe extensions.

Standard on all Advantage models, CLIMA thermal compensation allows first-rate measuring accuracy also in the 16-26 °C range.





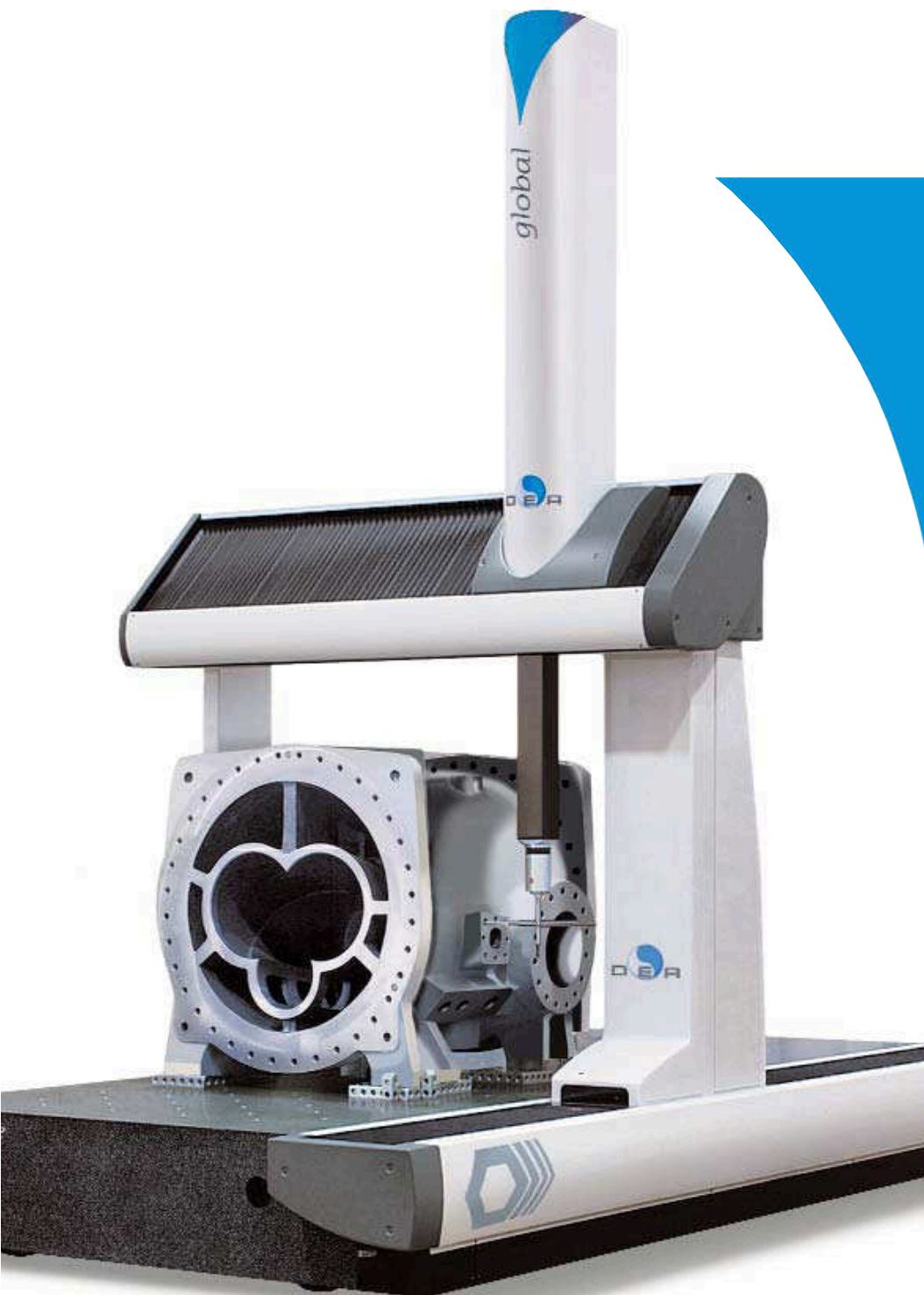
## Global

### ...also for big sizes

The spacious work envelope of models 15.xx.14 and 20.xx.15, accommodates large and heavy workpieces without the need for special foundations.

Despite their generous measuring volume, these large Globals feature excellent volumetric accuracy and outstanding dynamic performance.

For unlimited access to hard-to-reach features, bigger Global models can be equipped with DEA exclusive CW43L servo wrist that supports probe extensions up to 570 mm of length.








Probe  
Heads



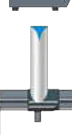
Probes

# Sensing Technology





**CLASSIC**

standard	TESASTAR-i			Series 05.xx.05
optional	TESASTAR-m	TESASTAR-p TP200		
standard	TESASTAR-i			Series 07.xx.05 07.xx.07
optional	TESASTAR-m	TESASTAR-p TP200		
standard	TESASTAR-i			Series 09.xx.08
optional	TESASTAR-m	TESASTAR-p TP200		

**PERFORMANCE**

standard	TESASTAR-m	TP200		Series 05.xx.05
optional	TESASTAR-m LSP-X3	TESASTAR-p LSP-X3t SP25		
standard	TESASTAR-m	TP200		Series 07.xx.05 07.xx.07
optional	TESASTAR-m LSP-X3	TESASTAR-p LSP-X3t SP25		
standard	TESASTAR-m	TP200		Series 09.xx.08 12.xx.10
optional	TESASTAR-m LSP-X3	TESASTAR-p LSP-X3t SP25		

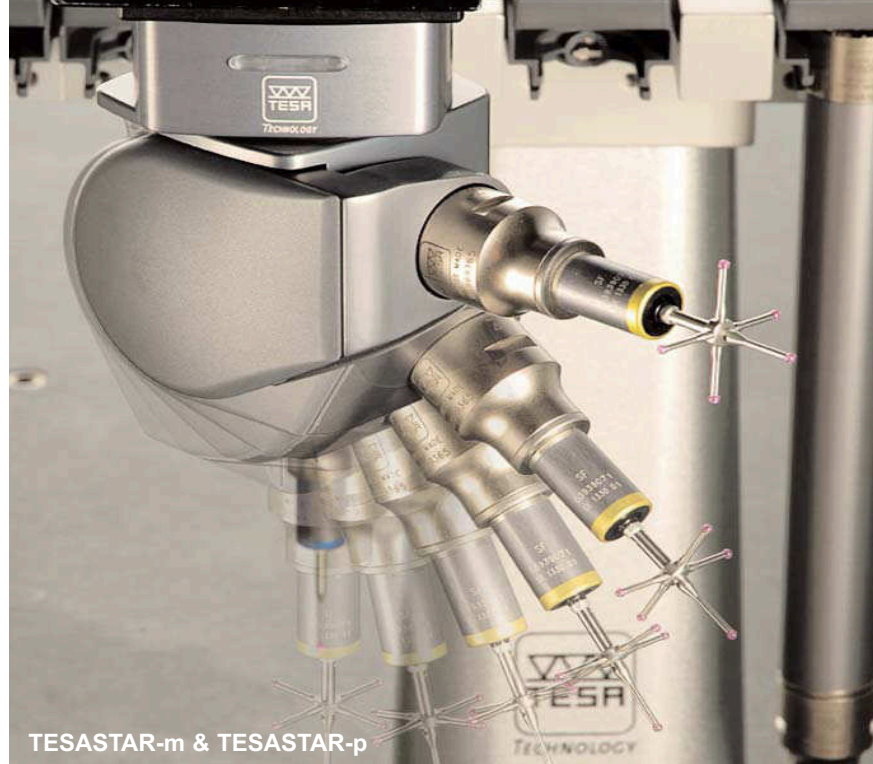
**ADVANTAGE**

standard	LSP-X3			Series 05.xx.05
optional	TESASTAR-m	TESASTAR-p TP200 LSP-X3t SP25		
standard	LSP-X3			Series 07.xx.05 07.xx.07
optional	TESASTAR-m	TESASTAR-p TP200 LSP-X3t SP25		
standard	LSP-X5			Series 09.xx.08 12.xx.10
optional	TESASTAR-m LSP-X3	TESASTAR-p TP200 LSP-X3t SP25		
standard	LSP-X5			Series 15.xx.14 20.xx.15
optional	TESASTAR-m LSP-X3 CW43L	TESASTAR-p TP200 LSP-X3t SP25		

## Probing The Difference

*The Hexagon Metrology Probing System line provides the performance, productivity, and reliability that only the producer and supplier of world's widest and most comprehensive range of CMMs can ensure.*

*All key components are engineered, manufactured and assembled by Hexagon Metrology and are designed to work together as an integrated product line for maximum application flexibility and enhanced CMM performance.*



TESASTAR-m & TESASTAR-p

## Multiprobe Flexible System

### TESASTAR-m

TESASTAR-m is a motorized articulating probe head capable of indexing in 5° increments, +180° to -180° in revolution, and +90° to -115° in pitch. This translates to a total of 2,952 possible positions, including a unique "table-hugging" 90° horizontal position possible due to the indexing arm's asymmetrical shape. The head also features high speed indexing, with faster index changes than similar products. TESASTAR-m accepts multi-wired probes, or, coupled with an M8 adaptor, can be used with TESA touch trigger probes as well as other probe brands.

### TESASTAR-p

A comprehensive family of high accuracy omni directional touch-trigger probes.

Fitted with a common M8 threaded connection they are available in 4 choices of trigger force (low, standard, medium, extended).

### LSP-X3t

High accuracy 3D scanning probe system featuring very high and repeatable accuracy. It can rapidly and automatically collect thousands of data points for the complete and precise evaluation of all part features, including form, location and size.

### TESASTAR-r

Modular, upgradeable, automatic tool changer. Available in 3, 5, or 9 modules, allows probe/stylus combinations and other probing accessories to be exchanged automatically from probe heads, without the need for requalification.

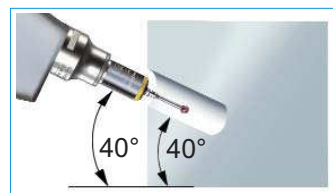
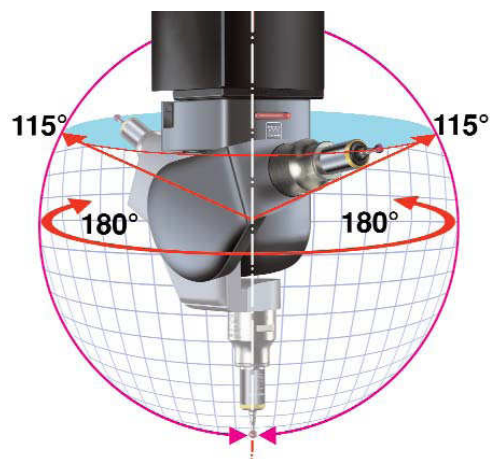


TESASTAR-m & LSP-X3t



TESASTAR-r

### TESASTAR-m: Always the Right Attitude!

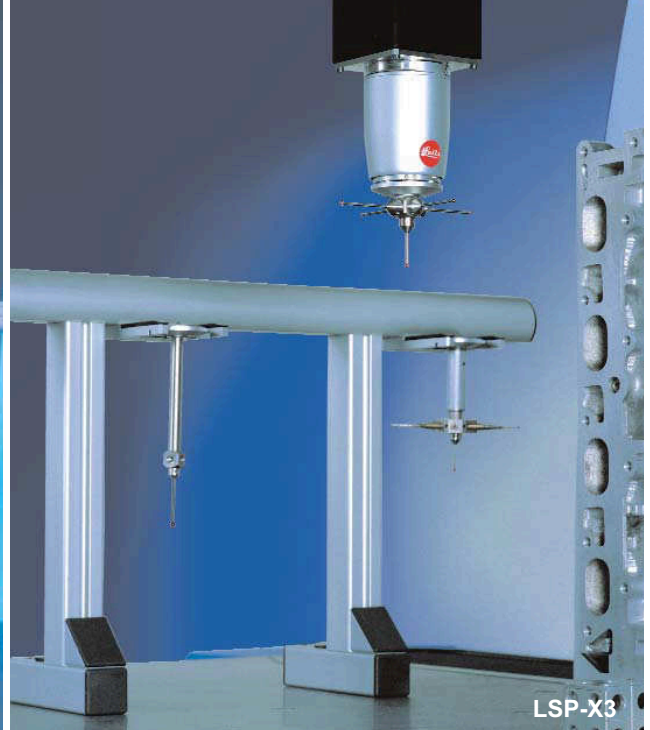


Deep access to slanted features without shaft contact!

- 5° step angular rotation
- 2952 positions
- Rotation speed: 90° in 2 seconds
- Position repeatability: 0.5 µm



LSP-X5



LSP-X3

## High Performance 3D Scanning Heads

### LSP-X3

A compact, cost-effective but extremely accurate, 3D fixed scanning probe head which can carry up to 360 mm long probing extensions and styli clusters. The LSP-X3 offers fast single-point probing for all standard measuring tasks as well as high-speed scanning for form and profile inspection and is ideally suited for dimensional control of small-to-medium high-accuracy prismatic parts and complex geometries.

An automatic tool changing capability allows styli change within a measuring program without the need for probe requalification. Magnetic clamping of styli on the head permits fast and reliable changes.

### LSP-X5

Ultra-precise, full 3D, fixed scanning head capable of simultaneously measuring in the X, Y, and Z directions to precisely define the orientation of the work piece surface.

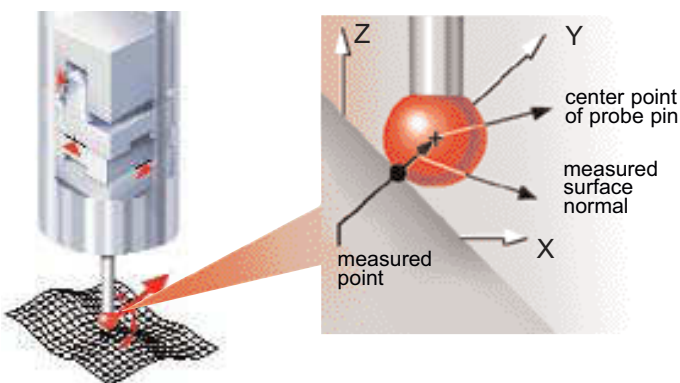
This heavy-duty analog probe features very high and repeatable accuracy even with extra-long probe extensions and heavy styli clusters (up to 500 mm of length and 500 g of weight).

It features a proprietary anti-collision system for extra protection of the head.

The LSP-X5 is the ideal tool to verify high accuracy mechanical parts and complex geometries.

An automatic tool changing capability allows styli change within a measuring program without the need for probe requalification. Pneumatic clamping of styli on the head permits fast and reliable changes.

### LSP-X Series: True to Form!



#### □ True 3D Probing:

On contact with the part surface, the probe automatically measures in the normal direction of the surface. Probing deflections are measured via high-resolution Linear Variable Differential Transducers (LVDT), allowing an accurate compensation of the probe bending, even when using long extensions.

This capability reduces cosine errors and is vital when inspecting complex geometries such as gears, rotors and blades, since it ensures a higher measuring accuracy and throughput.

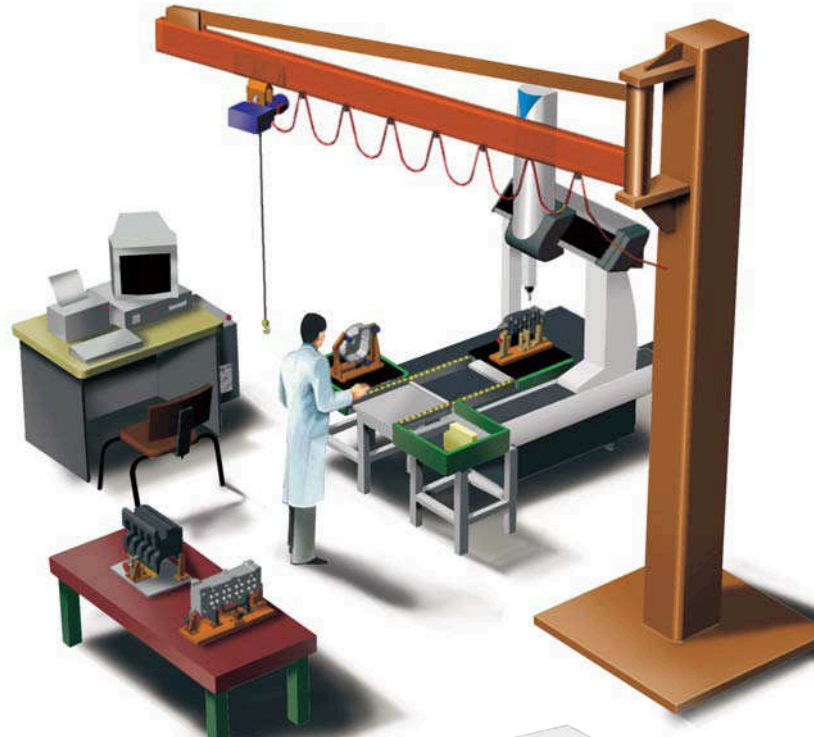
□ **No Motors** = no heat sources

□ **Rugged Construction** = maintenance free

## How flexible can a Global be?

Improved functionality and performance provided by automated production have increased quality engineering challenges.

One of the primary demands that are now made on a coordinate measuring machine is to be used like a production device on the shop-floor. It must be resistant to temperature, vibration and other environmental influences and perfectly integrated in the production flow.



Thanks to their robustness and high throughput Global can be easily integrated in the production process to offer real-time information to quality management.

Global models can be equipped with manual and automatic loading and unloading system, handling robots and safety devices. Measuring systems can be managed by a remote supervising computer system and part program can be loaded and executed automatically through part and pallet recognition devices.

For very harsh and difficult environments Global can be easily integrated into environmental enclosures offering full protection to the measuring system.

These protections can be cost-effective ventilated cabins able to offer protection and a metrological environment to measuring machines, or air-conditioned, pressurized cells for the CMM (FDG Cells).

Thanks to their air conditioning systems and to the automatic temperature compensation for both machine and part, Global CMMs integrated into FDG Cells retain top measuring accuracy performance regardless of the ambient temperature, in a range of 15 to 40° C.

A conveniently located control panel allows untrained operators to use the cell as a turn-key system. Part programs can be selected and launched directly from the outer panel without further interface with the system computer.

A team of our highly skilled engineers is focused on the design and making of special systems integrated in a shop-floor environment.

Every project is handled by a single project manager in all stages from the initial study to the starting of the system.

## podmis Inspection Software

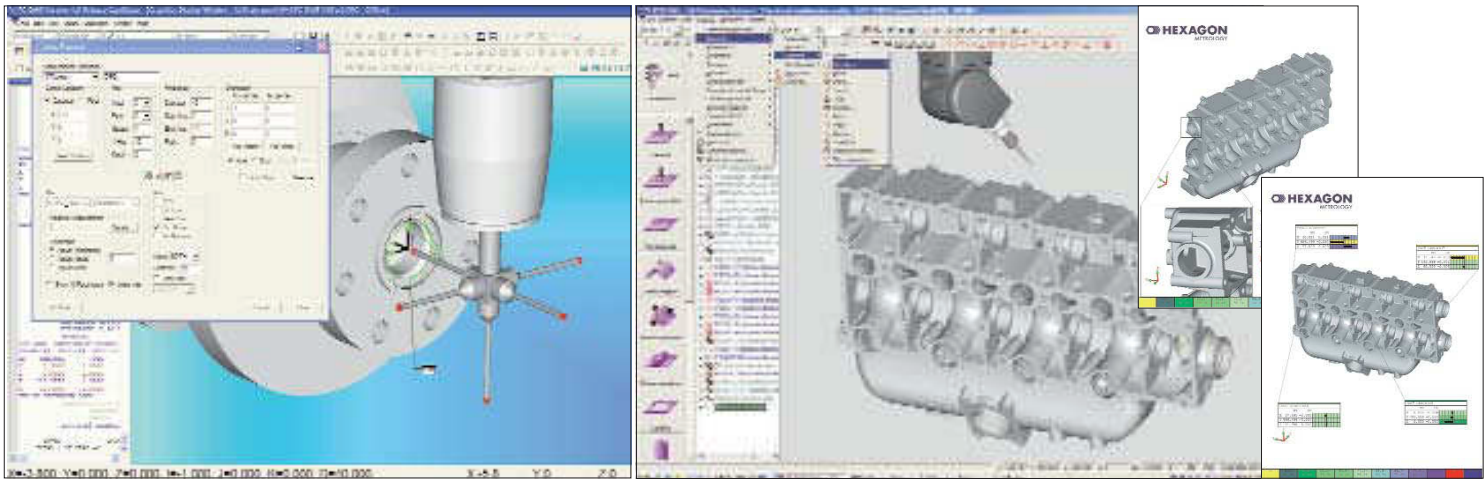
Available in three different versions and with a number of options packages, PC DMIS measurement and inspection software provides the most comprehensive solution to any kind of metrology applications.

## podmis<sup>pro</sup> Full-Featured Metrology Software

PC-DMIS PRO™ provides the basic intuitive graphic user interface (without CAD), including a suite of wizards to help operators quickly learn and manipulate key inspection functions.

Features include:

- A full programming environment including high level programming functions.
- Customisable menus.
- Quick Start™ routines for probe qualifications, part alignments and hyper reporting functions.
- A full suite of customisable reporting and advanced Hyper Reporting tools.
- Intuitive Probe and Go™ to automatically recognize feature types and create interactive graphical part representations.



## podmis<sup>cad</sup> Adds The Ability To Import CAD Files

PC-DMIS CAD™ includes all PC-DMIS PRO functionalities, plus:

- Full 3D animation capability including digitised images of parts and fixtures on the machine so operators can visually verify the set-up and program prior to actual part inspection.
- Unknown part documentation to generate computer models for reverse engineering applications.
- Native download of VDAFS, IGES, DXF, DWG, STEP, XYZIJK, STL, DES, and DMIS formats.
- A Direct CAD Interface™ (DCI) option to create part programs directly from CAD models utilizing the native CAD system algorithms and tools.
- A Direct CAD Translator™ (DCT) option allows the use of a native CAD model even when the specific CAD system is not owned by the user.

## podmis<sup>cad++</sup> Adds Scanning And Thin-Walled Parts

In addition to all PC-DMIS PRO and PC-DMIS CAD functionalities, PC-DMIS CAD++™ incorporates scanning and digitising functions that allow fast and efficient measurement of complex shapes such as turbine blades, dies, models, sheet metal components and other curved shapes.

Features include:

- Rotary, patch, linear open and closed loop scanning.
- Perimeter, section, UV and edge point scanning.
- Complete probe simulation.
- Full thin-wall feature measurement suite.

# A *global* approach to quality

VERSION	MODELS	STROKES (mm)		
		X	Y	Z
CLASSIC	5.05.05	500	500	500
	5.07.05	500	700	500
	7.07.05	700	700	500
	7.10.05	700	1000	500
	7.10.07	700	1000	660
	9.12.08	900	1200	800
	9.15.08	900	1500	800
	9.20.08	900	2000	800

VERSION	MODELS	STROKES (mm)		
		X	Y	Z
PERFORMANCE	5.05.05	500	500	500
	5.07.05	500	700	500
	7.07.05	700	700	500
	7.10.05	700	1000	500
	7.10.07	700	1000	660
	9.12.08	900	1200	800
	9.15.08	900	1500	800
	9.20.08	900	2000	800
	12.15.10	1200	1500	1000
	12.22.10	1200	2200	1000
12.30.10	1200	3000	1000	



VERSION	MODELS	STROKES (mm)		
		X	Y	Z
ADVANTAGE	5.07.05	500	700	500
	7.07.05	700	700	500
	7.10.05	700	1000	500
	7.10.07	700	1000	660
	9.12.08	900	1200	800
	9.15.08	900	1500	800
	9.20.08	900	2000	800
	12.15.10	1200	1500	1000
	12.22.10	1200	2200	1000
	12.30.10	1200	3000	1000
	15.20.14	1500	2000	1350
	15.26.14	1500	2600	1350
	15.33.14	1500	3300	1350
	20.33.15	2000	3300	1500
	20.40.15	2000	4000	1500

## DEA products are available at all HEXAGON METROLOGY centers in the world.



www.dea.it



ISO 14001 Certified



www.hexagonmetrology.com

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Fax: 05 34517944

Germany, Wetzlar  
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Fax: 06441 207 122

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Fax: 089 149810-59

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Fax: 05066 9899-21

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Fax: 011 7803254

Italy, Milan  
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Fax: 02 6150473

Lithuania, Vilnius  
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Fax: 052 775 963

Spain, Barcelona  
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Fax: 93 5946921

Sweden, Eskilstuna  
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Fax: 016 160890

Sweden, Spånga  
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Fax: 08 56475751

Sweden, Trollhättan  
Tel: 0520 15161  
Fax: 016 170639

Sweden, Göteborg  
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Fax: 016 160890

Switzerland, Crissier  
Tel: 021 6335033  
Fax: 021 6335034

Switzerland, Unterentfelden  
Tel: 062 7376767  
Fax: 062 7376868

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Turkey, Ankara  
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Fax: (920) 906-7701

Huntersville, NC  
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Miamisburg, OH  
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Nashville, TN  
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Fax: (615) 331-0875

North Kingstown, RI  
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Wixom, MI  
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Brazil, Sao Paulo  
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Fax: 011 5687-2101

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Fax: 20 8363 4553

China, Qingdao  
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Fax: 0532 8870 28 30

China, Shanghai  
Tel: 21 6353 1000  
Fax: 21 6353 5159

China, Shenyang  
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Fax: 24 2334 1685

India, Noida  
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Fax: 120 2515 772

India, Bangalore  
Tel: 80 41130 539  
Fax: 80 41130 489

India, Pune  
Tel: 20 27290 113/4  
Fax: 20 27290 116

Japan, Sagami-hara-shi  
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Fax: 42 700 3511

Korea, Seoul  
Tel: 31 777 3477  
Fax: 31 777 3478

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