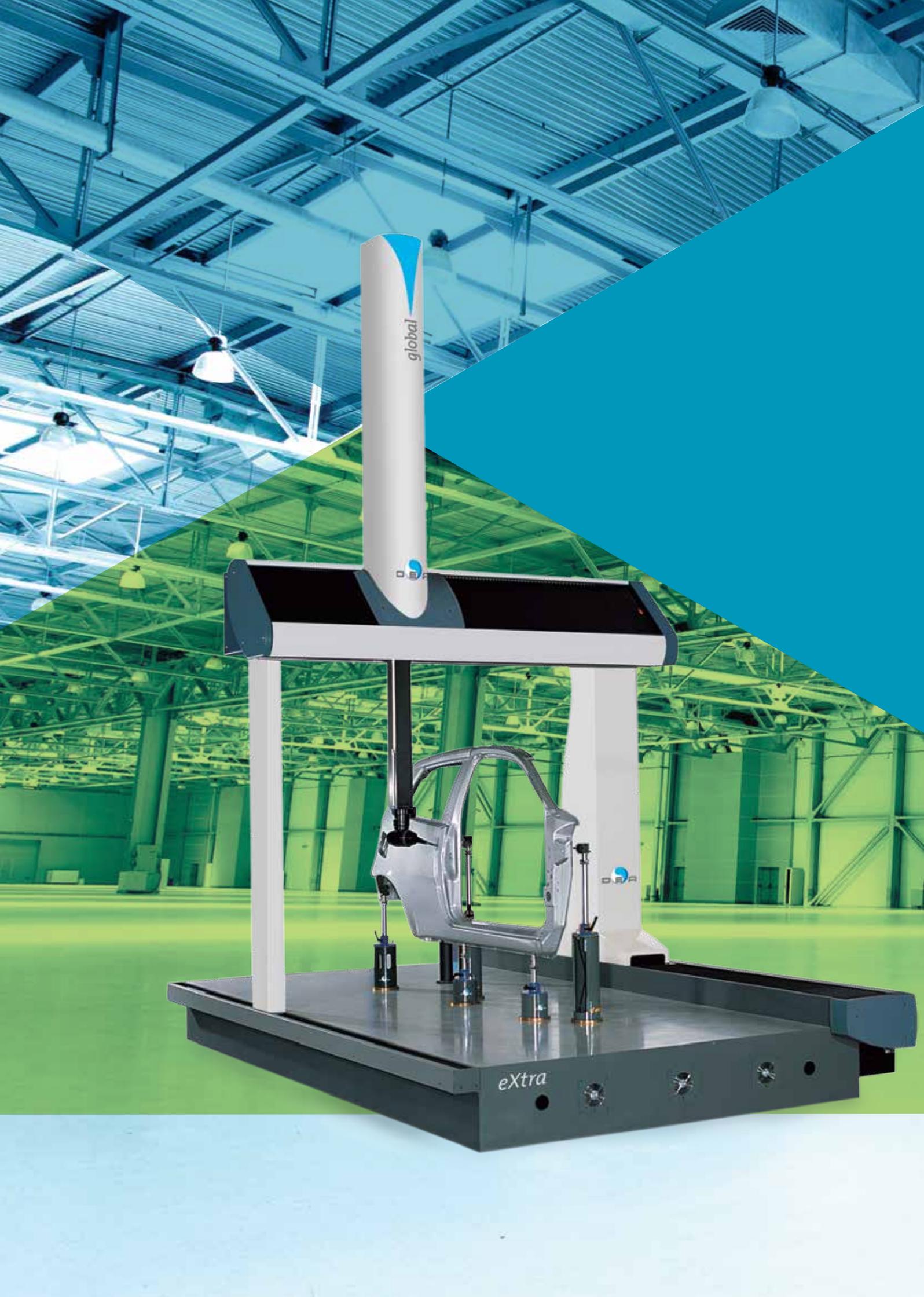




GLOBAL EXTRA

Coordinate Measuring Machines





global



eXtra

MANUFACTURING AND MEASURING IN THE SAME ENVIRONMENT

Process control in the automotive industry and in particular in the sectors related to the car body, car windows and inside panels, involves dimensional inspection both on the individual components and assemblies. Intermediate inspection on subassemblies plays an essential role for a better process performance at the assembly stage. It needs to be performed with measurement tools that are more accurate than those generally used for inspection at the end of the line.

Machining and inspection procedures depend almost entirely on the mathematical definition of components in production. That requires that the machine tools and measuring systems are fully compatible with the CAD systems used in design. In addition, the information exchange needs to be free of translators wherever possible as they might impair quality and integrity of data.

Inspection of car body components, and in general all components that have low rigidity, require suitable supporting fixtures ensuring that their shape characteristics are those they will take on once they are assembled.

The measuring machine plays an active role in the manufacturing process. As a result, it must be capable of being integrated in a shop environment, both as to loading/unloading operations of the components to be measured, as well as to the ambient conditions, which are not always suitable for a precision instrument.

DEA GLOBAL eXtra has been designed using the vast experience gained by Hexagon Metrology in dimensional inspection applied to the automotive industry, and with careful consideration of all these requirements. This measuring system is capable of ensuring immediate return on investment, accuracy, application flexibility, easy logistics and software integration in the process organization.



GLOBAL EXTRA

Sensors and Accessories for Every Application

The shape characteristics of the car body components require the use of many types and configurations of measurement tools. From the traditional point to point contact probes to laser sensors for continuous scanning, from single point laser sensors and laser light-stripe sensors to the most sophisticated vision systems for optical measurements of geometric elements.

Tool changing systems optimize the measurement cycles by automatically loading the sensor most suited to the measurement under way.

Operation Environment

- Operating temperature 15–30 °C, daily gradient extended to 10 °C.
- Structural temperature compensation
- Temperature stabilization of the surface plate by forced air circulation.
- Protection bellows of the air bearing guideways on the X and Y axes.

Design Technology and Materials

- Bridge structure – metrologic performance is higher than horizontal-arm measuring machines.
- Slant Bridge®, Hexagon Metrology's exclusive patent for better stability of the mobile assembly.
- Vertical ram having a large section, made from sintered silicon carbide. This material offers higher rigidity at the same section and better temperature behaviour compared to traditional materials.
- Isostatic surface plate made from steel. No foundations required.

Volumes and Access

- Surface plates up to 4000 mm and cross-sections up to 2000 x 1800 mm.
- Better access to the surface plate due to reduced height from the floor (500 mm) and opening on three sides.
- Can be installed with surface plate flush to the floor.
- Greater head light (308 mm) for the use of part fixturing systems.

Model	Strokes (mm)			Overall Dimensions (mm)			Weight (kg)
	X	Y	Z	Length	Width	Height	
20.33.15	2000	3300	1500	4580	2888	4696	8000
20.40.15	2000	4000	1500	5288	2888	4696	9150
20.33.18	2000	3300	1800	4580	2888	5294	8050
20.40.18	2000	4000	1800	5288	2888	5294	9200



THE MEASUREMENT SOFTWARE

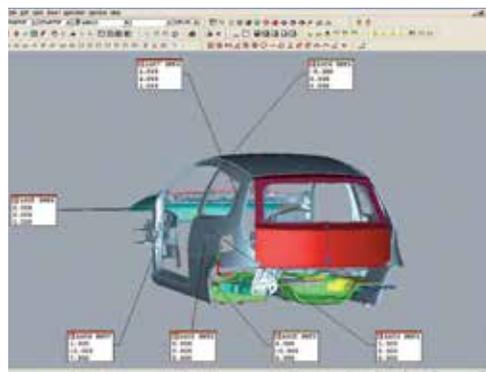
PC-DMIS

PC-DMIS® is the measurement software for the analysis and inspection of simple prismatic parts, complex geometric features and 3D surfaces. Available in three versions (PRO, CAD, CAD++), PC-DMIS performs most application tasks required by the modern industry.

PC-DMIS allows the user to create customized, intuitive inspection reports. With its CAD and CAD++ modules, PC-DMIS can import directly the CAD model of the part, thus simplifying the programming task. In addition, the CAD++ module offers several useful functions for measuring form errors of complex contoured components, like turbine blades, dies, models, sheetmetal components and other curved shapes.

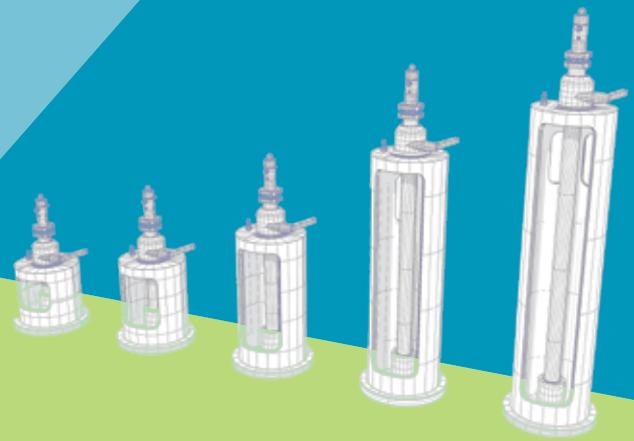
[Automatic Procedures for Measuring Sheetmetal Components](#)

The CAD++ module of PC-DMIS includes a series of automatic procedures for measuring the characteristic features of sheetmetal components. These procedures improve the efficiency of the measurement system, and they simplify and speed up programming tasks. The operator only needs to enter key data. The system will automatically generate the measurement program, complete with positional moves and measurement instructions. While the cycle is being executed, automatic feature search functions prevent part positional errors or the lack of the characteristics required from causing system collisions or accidental program blocks.





The locator of the FIVE U-nique columns



FIVE U-NIQUE THE FLEXIBLE FIXTURING

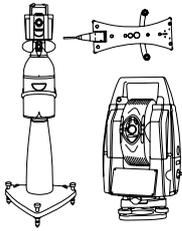
The systems commonly used for fixturing half-rigid components, both fixed and modular ones, are effective systems but they are definitely costly – from the building of fixtures to their maintenance and handling, and all that by the high number of elements required to fixture whole product lines.

FIVE U-nique – Hexagon Metrology exclusive patent – offers the users of GLOBAL eXtra a revolutionary alternative to the fixturing systems, characterized by an extremely flexible use and reasonable costs. A set of columns can be positioned on the CMM plate and the rod raised to the height. The fixture is then completed with supporting, clamping or reference modules for the part to be measured.

The columns' position is determined based on the design data of the part. By means of a specific software and a locator fitted on the arm top section, the measuring machine will position the locator where the operator will fix each column, completing the fixture point by placing modules and grippers, according to the fixturing plan.

Advantages

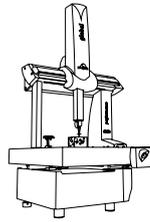
- Great system flexibility: a single set of columns and accessories to configure virtually any fixturing for any component.
- Extremely fast fixture re-configuration. Any change to the configuration – both a change of the individual supporting points or a completely new and different fixturing only – requires a change to the column positioning program. No physical intervention on the fixture is required.
- Minimum logistics costs. No need to store and handle fixtures. The whole fixture set consists of the columns and their accessories requiring only limited space.
- Immediate return on investment and elimination of costs for building new fixtures.



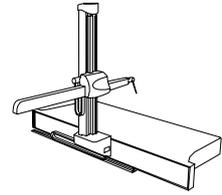
LASER TRACKERS & STATIONS



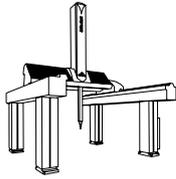
PORTABLE MEASURING ARMS



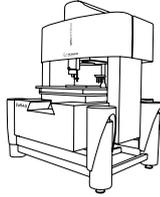
BRIDGE CMMs



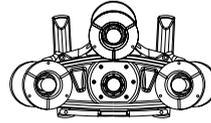
HORIZONTAL ARM CMMs



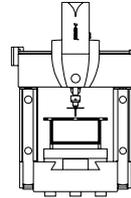
GANTRY CMMs



MULTISENSOR & OPTICAL SYSTEMS



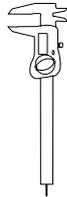
WHITE LIGHT SCANNERS



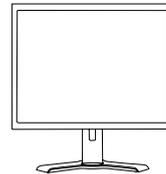
ULTRA HIGH ACCURACY CMMs



SENSORS



PRECISION MEASURING INSTRUMENTS



SOFTWARE SOLUTIONS



HEXAGON
METROLOGY

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.

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