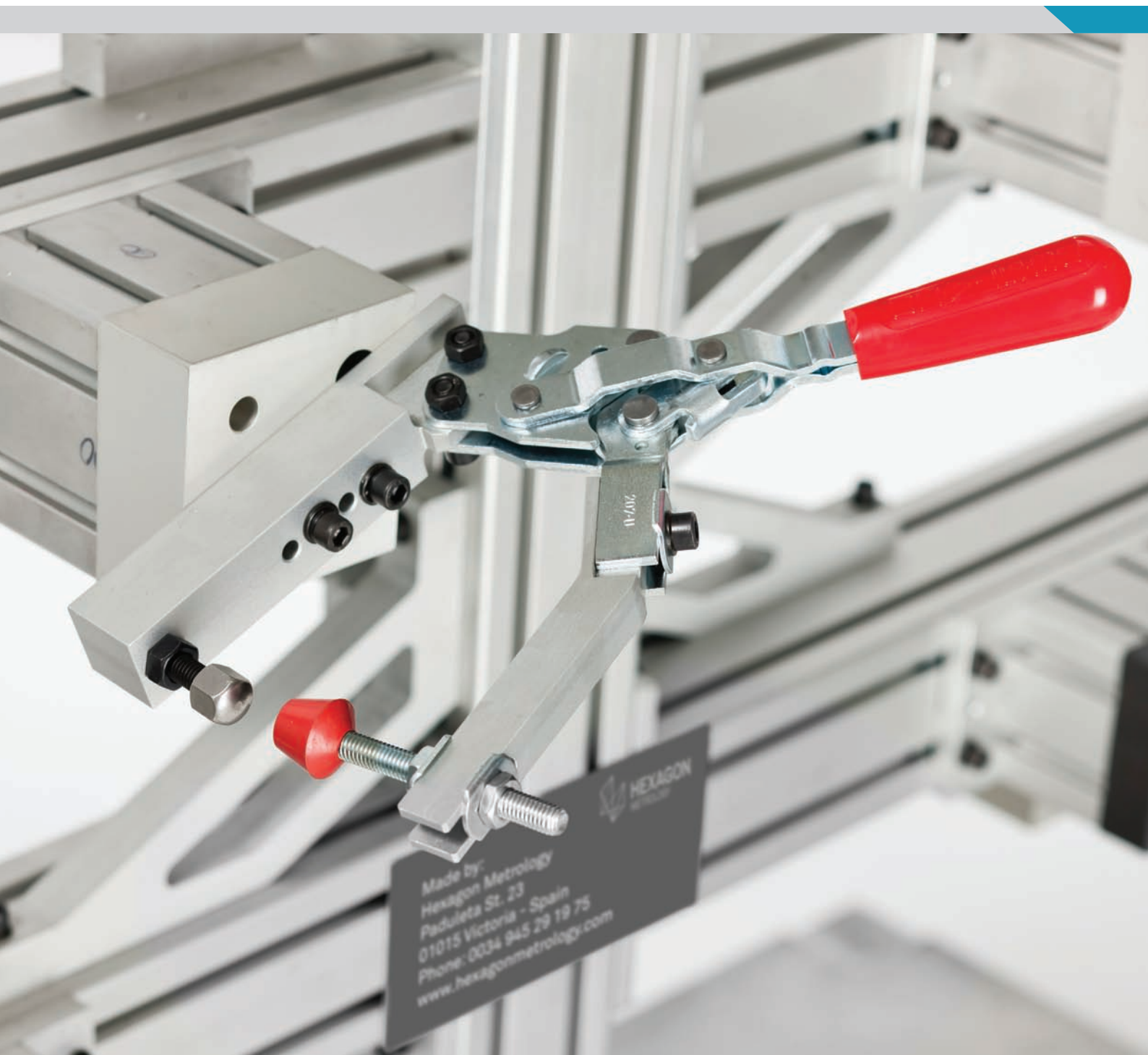




# FIXTURING SOLUTIONS

Hexagon Metrology



HEXAGON  
METROLOGY

Made by:  
Hexagon Metrology  
Paduleta St. 23  
01015 Victoria - Spain  
Phone: 0034 945 29 19 75  
[www.hexagonmetrology.com](http://www.hexagonmetrology.com)

Hexagon Metrology has a division in Spain dedicated to the design, construction and refinement of all kinds of tools for the metrology sector, including: fixed tools for positioning parts for subsequent measurement and control; flexible tools for measurement and control; control gauges; structures such as Meisterbock and Cubing; tools for fixturing on a calibrated wall and automatic or semi-automatic loading and unloading systems.

Hexagon Metrology Fixturing Solutions boasts modern facilities at our Vitoria technical centre, including our own technical office for designing and adapting tools to the specific needs of each customer, and a machining and assembly shop in which we manufacture and build the tools.

We use precision extruded profiles and quality materials to manufacture these tools.

An extensive range of accessories provides us with solutions for all possible requirements of tooling manufacture. We use high-strength aluminium modular systems that are ideal for creating all types of fixturing systems for measuring parts on three-dimensional machines.



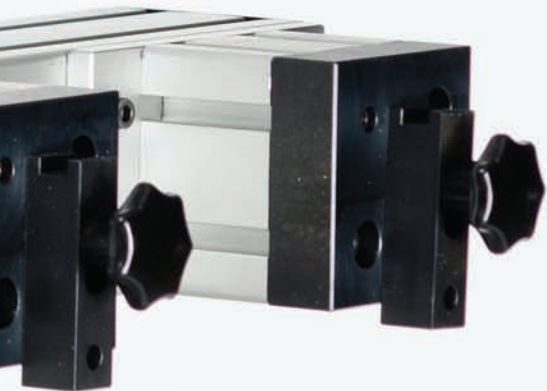
# HIGH-LEVEL ORGANISATION AND RESOURCES



## HEXAGON METROLOGY VITORIA: DESIGN AND MANUFACTURING CENTRE

At the Hexagon Metrology technical centre in Vitoria we have modern facilities that were opened in March 2011 and are equipped with the appropriate technologies for designing, manufacturing and developing metrology fixturing solutions.

Our Technical Office, which houses the engineering and project development department, is particularly noteworthy. It is here that our team of engineers and technicians work with the most advanced design and CAM software on the market to achieve excellence in the design and subsequent manufacture of all types of fixturing solutions.



We also have a production hall in which the manufacturing, assembly and adjustment activities are performed. This is the area in which we build the DEA MERCURY horizontal-arm measuring machines and the special loading and unloading tools and systems, which are designed by the Technical Office. These systems perfectly complement the three-dimensional measurement systems, especially with their application in the automotive and aeronautics sectors. We use CATIA software, among other resources, to design the tools and TEBIS machining software for machining parts.

## HIGH-QUALITY PARTNERS

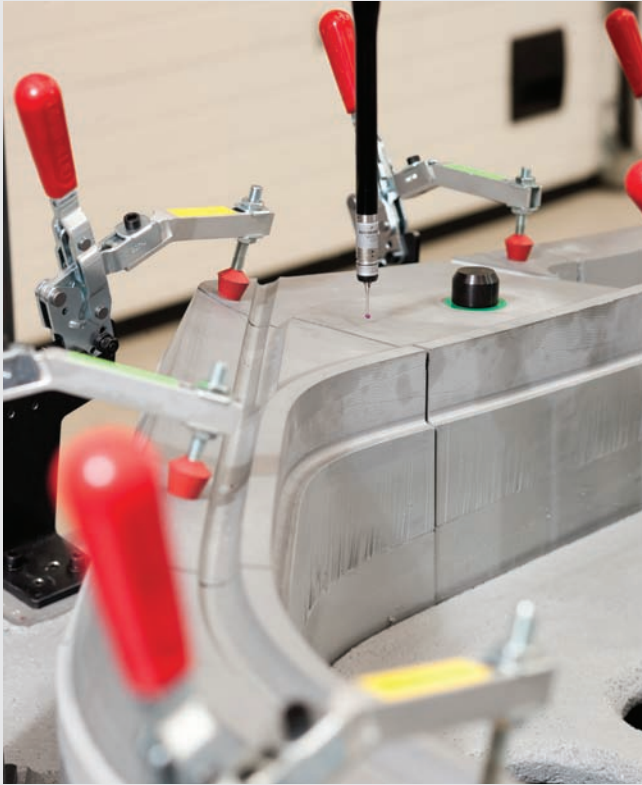
Hexagon Metrology has established agreements with world class partner companies for exclusive use in the Iberian Peninsula of their precision extruded profiles, notable for the following characteristics:

- Aluminium extruded profiles according to DIN EN 12020 T Part 2
- Al Mg Si alloy 0.5 F 25 material-no.: 3.3206.72
- High-strength 15µm thick anodised aluminium with a hardness value of 250-350 HV.
- Available as E6/EV1 (natural) or E6/EV6 (black), and in other colours on request.
- Manufacturing tolerances in terms of flatness, straightness and machining according to DIN EN 12020:2001 Part 2

The range of precision extruded profiles used by Hexagon Metrology is approved by the Volkswagen Group for building its measurement tools.

## HUMAN RESOURCES

This new division comprises of designers, machining specialists, fitters and installers. A highly skilled working team backed up by experts recruited from sectors that are regular users of these services, such as the automotive sector.



## WE MANUFACTURE THE TOOLS YOU NEED FOR YOUR ACTIVITY

We manufacture all kinds of tools at Hexagon Metrology. Our aim is to adapt fully to the particular needs of your business.

### Our broad range of capabilities includes:

- a) Tools for holding parts for measurement:  
providing the correct positioning of the parts for subsequent measurement on a CMM.
  - a. Structure tools: self-supporting structure, with or without removable transport wheels.
  - b. Tools on an aluminium plate: All the elements comprising the tool are secured to the plate.
- b) Control gauges: can be made of resin or aluminium. These control instruments can be used to perform measurements that do not entail numerical information, requiring only one dimensional validation by positioning the part. These are used normally at the end of the stamping press line to check visually for an error deviation requiring a more precise inspection using other means.
- c) Meisterbock - Cubing:
  - a. MEISTERBOCK: this is an application for the automotive sector, where assembled bodies are built with many metal parts. The Meisterbock is used to build a large tool on which to position the various parts of the assembly, in order to perform a three-dimensional control using the CMM.
  - b. CUBING: this tool is similar to the Meisterbock but is used to build an aluminium master part used to check the fit of the other parts or components of the assembly (seals, car windows, etc.). We can manufacture cubing for both the inside and the outside of the car.
- d) Tools for fixturing on a calibrated wall:  
A structure of poles fixed onto a calibrated wall on which different parts of the tool are positioned. The part is placed on the tool for checking.



- e) Loading and unloading systems:  
Hexagon Metrology has a department for special systems for Europe comprising a team of more than ten people whose job is to seek turnkey solutions that go beyond the measuring machine itself. This enables us to provide customer solutions that ensure optimisation of all auxiliary systems for measuring machines, such as designing and building manual or automatic loading and unloading systems.
  
- f) Flexible fixturing tools:
  - a. Swift-Fix: A system of flexible tools for securing parts that is oriented essentially towards positioning for measuring on an CMM. Swift-Fix consists of a plate and a wide range of accessories designed with a view to fixing different types of parts.
  - b. Five-u-nique: A flexible tool system enabling significant cost savings in tool manufacture. It comprises of columns of varying heights. These columns are the base for all supports. The CMM indicates the position in which they should be assembled. Once these have been set up, an adaptation module is placed on each of the columns to hold the part.

## SECTORS

These types of tools are especially integrated into automotive factories, and specifically in all suppliers of sheet metal stampings. However, they are now being introduced progressively into new areas such as aerospace, wind energy, solar energy, plastic injection moulding, casting, etc.

At Hexagon Metrology Fixturing Solutions we are developing ambitious projects in major automotive companies, and such projects also involve companies supplying stamped parts..

The fact that the stamping factory receives parts from various sources lends it a high value in terms of measurement support. This tool will always be validated by the parent company and means that the results will always be comparable, no matter how many times the part is measured or whether the measurement is performed by the manufacturer or the supplier, since the part has been positioned in exactly the same conditions.

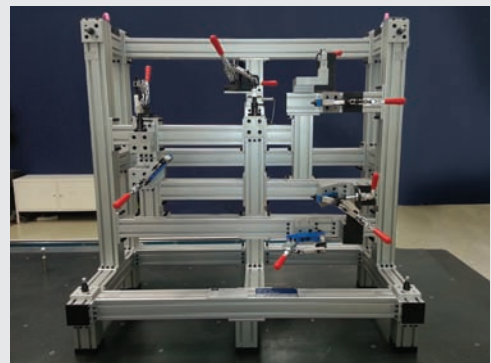
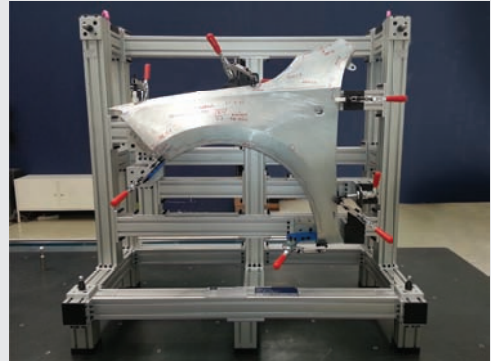
It is vital to have fixturing tools that provide the maximum guarantee and are tailored to the needs of each project to achieve traceability and reliability in measurements.

Proper alignment is essential for quality measurement. It is increasingly common to see reference points indicated on the plans from the biggest manufacturers of all sectors, which serve as a starting point for us as measurement technicians, and increasingly often they also indicate the specifications for the contact surfaces with the measuring tool.

# A QUALITY SERVICE DISTINGUISHES OUR TOOLS

## THE MAJOR CHARACTERISTICS THAT DISTINGUISH US ARE:

- We are the manufacturers therefore we have overall control of the process in our Vitoria factory.
- We manufacture only tools with the highest guarantee of the repeatability of measurements.
- Dimensional control: we measure our tools with CMMs, Laser Trackers, photogrammetry systems and measuring arms. The most advanced proprietary technologies on the market from Hexagon Metrology, achieving a very high level of precision. Including:
  - DEA GLOBAL.
  - Leitz Reference.
  - Leica Absolute Tracker AT901.
  - COGNITENS WLS400.
  - ROMER Absolute Arm.
- Full dimensional report of all manufactured tools.
- Ability to meet the quality standards of the VW group, using a connection from KVS (VW group's database).
- Advanced users of VW software: KVS, HyperMona, Validat, AUDI-MESS, AUDIPLAN, AUDIDRAW.

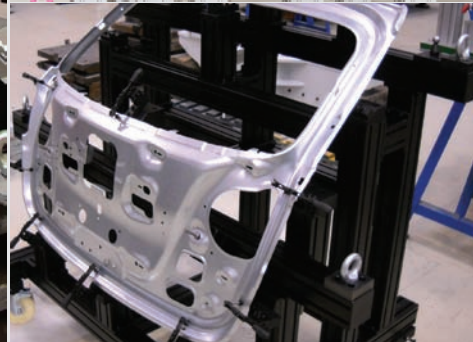
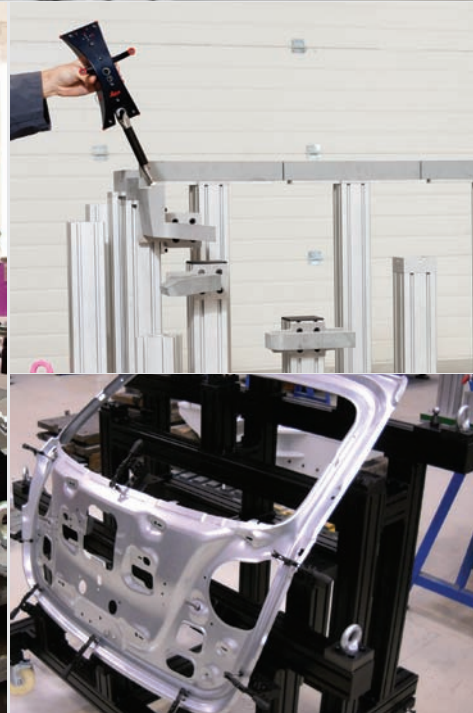
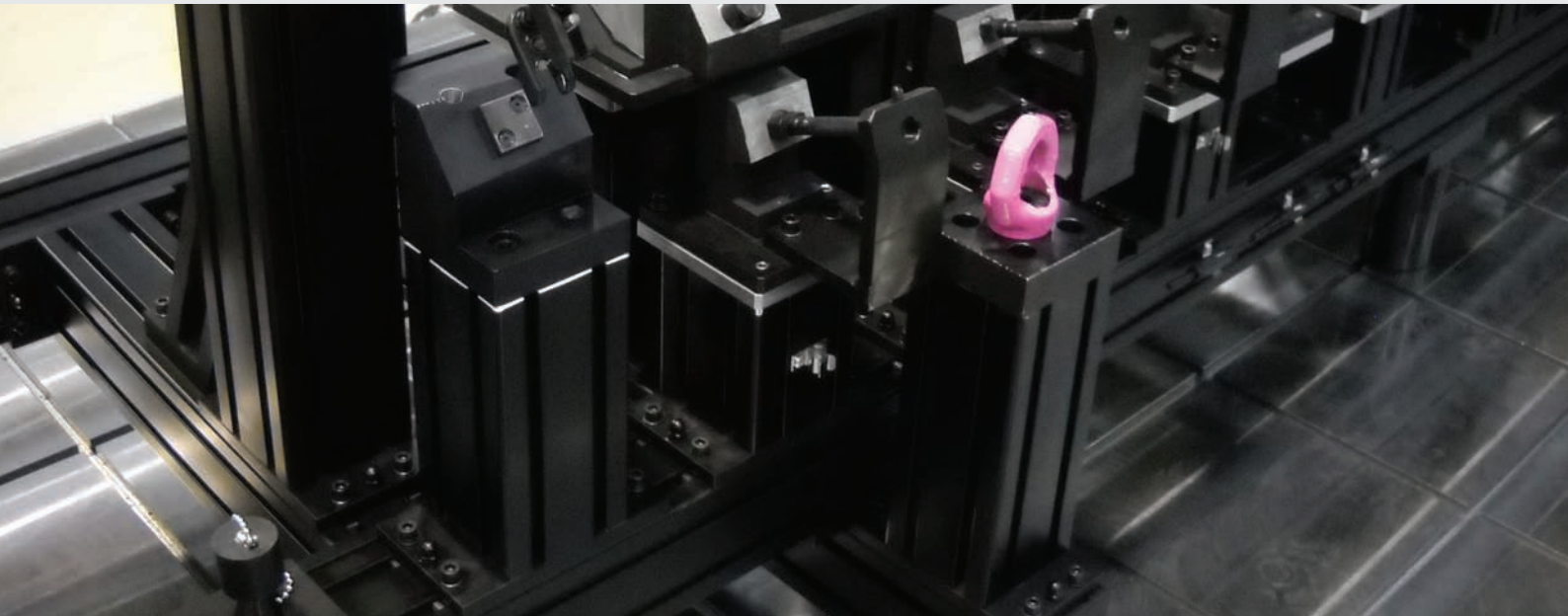


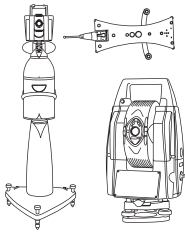
## MAIN ADVANTAGES OF TRUSTING IN HEXAGON METROLOGY FIXTURING SOLUTIONS:

- Premium extruded profiling materials (approved by the VW Group for manufacturing tools).
- Proximity to the customer: direct and simple communication, a single contact point during the entire process.
- Tools adapted and customised to the needs of each customer: "Turnkey" process.
- Speed of manufacture: design typically takes 2 weeks and manufacture takes 4 weeks.
- Availability of supply worldwide thanks to Hexagon Metrology's commercial organisation.
- Competitive pricing: lower costs and fast payback.

## SOME CUSTOMER REFERENCES:

VW AUTOEUROPA – SEAT – GESTAMP – AUDI TOOLING – VOLVO –  
GENERAL MOTORS – RENAULT GROUP – PSA GROUP

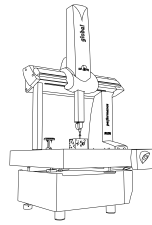




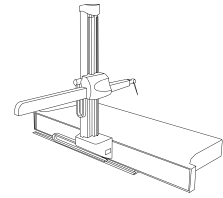
LASER TRACKERS & STATIONS



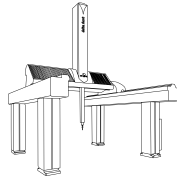
PORTABLE MEASURING ARMS



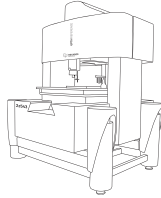
BRIDGE CMMS



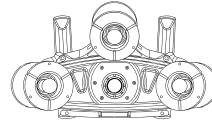
HORIZONTAL ARM CMMS



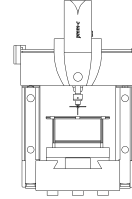
GANTRY CMMS



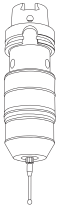
MULTISENSOR & OPTICAL SYSTEMS



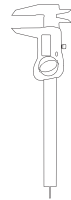
WHITE LIGHT SCANNERS



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.

For more information, visit [www.hexagonmetrology.com](http://www.hexagonmetrology.com)

Hexagon Metrology is part of Hexagon (Nordic exchange: HEXA B). Hexagon is a leading global provider of design, measurement and visualisation technologies that enable customers to design, measure and position objects, and process and present data.

Learn more at [www.hexagon.com](http://www.hexagon.com)

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