



THE PORTABLE AND ACCURATE SOLUTION FOR ON-SITE SERVICING OF COORDINATE MEASURING MACHINES WITH TESA TWIN-T10

HEXAGON MANUFACTURING INTELLIGENCE, TELFORD, UK



TESA TWIN-T10 display together with the GT 31 lever probe enable to check and adjust the CMM with sub-micron accuracy according to specifications during installation, calibration and maintenance







Mechanically aligning the ZX squareness of a GLOBAL CMM with the TESA TWIN-T10.

Hexagon Manufacturing Intelligence service departments worldwide are dedicated to providing outstanding levels of service on every installation and calibration task they come across. Having access to the right tools is a major factor in their ability to deliver such service, and Hexagon engineers are fortunate to have their choice of equipment from inside the company's own extensive portfolio of equipment, including the TESA range of handheld measurement equipment.

Like their counterparts around the globe, the Telford service team has clear objectives when installing or calibrating a coordinate measuring machine (CMM): accuracy, reliability and time savings.

To make the geometric assessments required to complete the task, the service engineers need a mobile, compact and autonomous solution.

The TESA TWIN-T10 display together with the GT 31 lever probe provide just such a system. They enable the team **to check and adjust the CMM with submicron accuracy according to specifications during installation, calibration and maintenance.** The advantages of the TESA TWIN-T10 portable display coupled with GT 31 lever probe for this application include **portability, ease of setup, compact size, accuracy, repeatability and stability across various measuring ranges**, which combine to speed up the measurements and give confidence in the accuracy of the results achieved.

The portable display has been carefully designed for efficiency and provides effortless reading thanks to the detailed segmentation and the numbering across the scale. The clear tactile feedback of the keypad prevents operating errors, while the TESA TWIN-T10 is also powered by standard AA batteries to offer complete autonomy in use.

> No training from TESA was required as the TWIN-T10 display is so logical to use and handle.



The 200 segments scale of the TWIN-T10 enables a micron visualisation during geometrical measurements.

John Gallon, Service Team Leader in Telford, explains why the device is so useful for his team: "Prior to using the TESA TWIN-T10 we used long-range plunger dial test indicators and lever type dial test indicators with their inherent drawbacks.

Now, rather than counting revolutions on the plunger dial test indicators and resetting position regularly, we can accurately read the display from a distance. This is very important as the GT 31 probe is mounted on the CMM carriage at a significant height above your head, whereas the TESA TWIN-T10 remains within reach in such a way you can monitor the readings. "Also, the adjustable lever of the GT 31 enables measurement in hard to reach areas of the CMM where a straight pencil-type probe or a plunger of a traditional dial test indicator would not fit or reach." adds Mr. Gallon. "The time saved with this instrument is based mainly on ease of setup and not having to keep resetting or misreading a plunger style clock. We are very satisfied with TESA instruments and the quality of these products, which enable our Service Team to complete their work on time and to the high standards that are expected by our customers. No training from TESA was required as the TWIN-T10 display is so logical to use and handle."

We thank the Hexagon Manufacturing Service Team in Telford for their friendly support and for their good collaboration.

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TESA TWIN-T10 IN ACTION: THREE APPLICATIONS IN CMM CALIBRATION



Application 1:

Checking Air Bearing Lift and Air Bearing Ways

"We have to **measure within two microns when checking air bearing lift** to avoid the risk of damage to the air bearing way," explains Gallon. "We use the TESA TWIN-T10 during all CMM installs, service and calibration and any service intervention relating to air bearing functionality. This instrument is ensuring that the accuracy of the CMMs complies with the manufacturer's accuracy statement so that the customer can have confidence in the reported results produced on their CMM."





Checking air bearing lift on a Hexagon CMM to a tolerance of 10.0 microns +2/-0.

Application 2:

Aligning of Bridge CMM Beams and Bearing Ways

"As you can imagine, hoisting two heavy steel fabricated beams on top of fabricated legs which are two metres high and then **aligning the beams parallel and true over five metres or more requires a capable and accurate instrument**," says Gallon. "The time we used to take using a dial test indicator for this alignment has decreased and we can align CMMs with micron accuracy. "The TESA TWIN-T10 gives us the ability to mount a GT 31 probe on a CMM carriage and measure accurately along the full axis of travel, reducing alignment issues from hundreds of microns down to a few, which enables us to maintain our accuracy statement when installing large CMMs."





Alignment is made easy with the scale feature of the TESA TWIN-T10 display

Application 3:

Mechanical Alignment of Axis Squareness

The **ZX, ZY and XY axes squareness is also checked** with TESA TWIN-T10 and GT 31 lever probe.

This measurement is done by mounting the GT 31 lever probe on the Z axis and traversing the probe in X, Y and Z axes along a granite square reference mounted both vertically and horizontally (depending on the plane to be adjusted) and perpendicular to the Z axis.







Hexagon Manufacturing Intelligence helps industrial manufacturers develop the disruptive technologies of today and the life-changing products of tomorrow. As a leading metrology and manufacturing solution specialist, our expertise in sensing, thinking and acting – the collection, analysis and active use of measurement data – gives our customers the confidence to increase production speed and accelerate productivity while enhancing product quality.

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4	SERVICES
	LASER TRACKERS & STATIONS
	MULTISENSOR & OPTICAL SYSTEMS
° o	WHITE LIGHT SCANNERS
	METROLOGY SOFTWARE SOLUTIONS
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٢,	AUTOMATED APPLICATIONS
7	MICROMETERS, CALIPERS AND GAUGES
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Established in 1941 and headquartered in Renens, Switzerland, TESA SA manufactures and markets precision measuring instruments that stand for quality, reliability and longevity.

For more than 75 years, TESA has distinguished itself in the market through its excellent products, its unique expertise in micromechanics and precision machining as well as its proven experience in dimensional metrology.

The TESA brand is the global market leader in the field of height gauges and a pioneer thanks to its wide range of instruments, including callipers, micrometers, dial gauges, lever-type dial test indicators and inductive probes. TESA is a true benchmark for the inspection of incoming goods, as well as for production workshops and quality assurance laboratories.

Through its worldwide distribution network the company focuses on the mechanical engineering, micromechanical, automotive, aerospace, watchmaking and medical industries.

In 2001, TESA became part of Hexagon, a leading global provider of information technologies.

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