

# TESA HITE - TESA MICRO HITE

Meggitt – Villars-sur-Glâne – Switzerland



Meggitt plays the Ace for quality assurance

## A winning combination of speed and precision

TESA HITE and TESA MICRO HITE are tried and tested height gauges that are easy to use and extremely versatile. These tools play an essential role in the quality process implemented by Meggitt, where they are used on a daily basis.

The aerospace industry is setting increasingly high performance requirements for its products and, as a result, the standards of precision and safety must be correspondingly high. At Meggitt SA, several thousand parts are regularly measured and tested using a variety of TESA measuring devices before making their way into an aircraft, a ship, a power plant or another destination.





A member of staff at Meggitt measuring several small parts using MICRO-HITE.

TESA was given the opportunity to find out how its instruments are used by Meggitt SA in its measurement laboratory. Meggitt SA, also known as Vibro-Meter SA, has been based in Villars-sur-Glâne in the canton of Fribourg in western Switzerland since 1952. The British-owned company specialises in components for the aerospace industry and primarily manufactures vibration monitoring systems and sensors in Villars-sur-Glâne.

## TESA represents a quality feature for Meggitt

Giovanni Gallucci, team leader in the mechanical inspection department, works with members of his seven-person team at several measuring stations to ensure that Meggitt's products meet the required standards of precision. "We have 12 TESA-HITE and MICRO-HITE machines: 8 in the test lab and 4 in the production department. We also have 1 VISIO 300 and 2 three-dimensional measuring machines, together with a large number of hand-held measuring devices, such as callipers and micrometers," says Giovanni Gallucci. "All the parts are measured and checked here in the lab. If we were to miss even one small fault, then we could no longer guarantee the quality of the end product. Measuring our products with TESA equipment is one

indication of Meggitt's quality, which makes it all the more important for us to be able to rely completely on TESA," he explains. The measurement device used by Meggitt in any given situation depends on the component and the environment, because some devices cannot be exposed to certain environmental conditions. "Because we have to measure a lot of small and medium-sized parts in a short time, either in the laboratory or in the workshop, the TESA MICRO-HITE vertical height gauges best meet our needs. Their very high speed and precision and their ease of use make them extremely versatile and give us the necessary efficiency," says Giovanni Gallucci.

### Very high speed – its asset

Is a calliper gauge too imprecise or slow? Are 3D coordinate-measuring machines too small or expensive? Is their programming too time-consuming? This is where the TESA HITE and MICRO-HITE machines come into their own. Each team member can easily become an expert in using the height gauge. When TESA MICRO-HITE is switched on, the reference mark is displayed on the screen. The constants must then be defined with the help of the 20 mm radius template piece, and users then access bi-directional mode. The starting point is defined with the workpiece. The object intervals are then measured and checked from this point. TESA height gauges are easy to use and are widely appreciated both by beginners and experienced users. The measurement results can be read in just a few seconds. This all makes for quick, easy and reliable measurements of complete part series, which is a significant advantage for businesses. Different series of parts can be tested without compromising on measurement, precision or price.

The TESA HITE and MICRO-HITE models are height gauges that operate along one or two coordinate axes. Our range is sufficiently broad for clients to be able to choose the instrument best suited to their needs, from a simple device that measures height and lines, to motorised instruments for high-precision measurements along two coordinate axes. For TESA HITE magna models, the electronics are fully protected from any form of solid or liquid contamination (dust, metal particles, water or oil spray). This model is the ideal measurement instrument for use in workshops and laboratories. The perpendicular deviation of the vibration sensors can be measured using a digital sensor, by entering the angle of the adjustment line. The TESA HITE and TESA MICRO-HITE models can also measure height, level, diameter and deviations.

One of Meggitt's main products is a range of vibration sensors. Piezoelectric accelerometers in particular are ideally suited for recording vibration in aircraft. In addition to having no moving parts, the unit is also perfectly watertight. Built with strong materials such as Inconel or titanium, the vibration sensors are so robust that no routine checks are necessary. Meggitt's team uses the TESA MICRO-HITE to measure the height and diameter of these sensors. The measuring processes can be completed in just a few seconds, which allows entire batches of sensors to be measured quickly, easily and reliably.



Piezoelectric accelerometer

In a press release, Meggitt announced a contract for the manufacture of the EMU Engine-mounted Monitoring System for the Rolls Royce Trent 900 engines on the Airbus A390. This device comes in the form of a unit which records and processes engine data. The data analysed includes rotation speed vibration signals, pressure, temperatures and data on aircraft icing and oil deposits. MICRO-HITE is commonly used to measure the EMU connectors and check for any deviations. The unit dimensions must also precisely match up. “The most delicate parts of this EMU unit are any inaccuracies and irregularities due to the welds. We generally work to a tolerance level lower than one hundredth of a millimetre. However, due to the working method for this part, the tolerance threshold must be increased. This is no problem for TESA height gauges. The measurements taken with MICRO-HITE enable us to determine whether the deviations recorded are within the tolerance range”, explains Giovanni Gallucci. The diameter of the connectors, the external dimensions and the orthogonality of the unit are also measured. Meggitt clients greatly value the fact that only one supplier can offer these centred sensors within a single solution. The data is guaranteed to be processed simply and efficiently, since Meggitt sensors can resist extreme climate and thermal conditions. In this way, they can meet the tough requirements of the aeronautical industry.



MICRO-HITE 350 in use. Even apprentices are perfectly capable of using the machine.





Markus Zurkinden explains the measurements results on the computer to team leader, Giovanni Gallucci.

## « With the VISIO 300, we have a winning combination »

However, how can areas of a component which are difficult to access, such as complex channels or grooves, be inspected? Giovanni Gallucci has the answer: "When the TESA MICRO-HITE reaches the limits of its abilities, this is where the TESA VISIO 300 comes in. The two machines are the perfect complement for one another and make the ideal team. The MICRO-HITE can measure very quickly, while the VISIO can make non-contact measurements in the areas that are hard to get at. The results can be displayed on the screen and then printed out. Being able to provide written evidence is increasingly important nowadays, because our customers often require proof that the measurements have been made. This is why we value the TESA VISIO 300 so highly, because we have measurement logs and screen captures to document our activities and can show the customer in black and white which measurements we have made. This is particularly useful in the event of discrepancies," explains Gallucci.



TESA VISIO 300 - an ideal addition.

Meggitt supplies technical products to various aeroplane manufacturers: "Meggitt parts are found on practically all aircraft, making Meggitt an ever-present player in the aeronautical sector". Ever since its establishment in 1952, Vibrometer, also known as Meggitt, has been the world's number 1 supplier of systems for aircraft, shipbuilding and industrial construction. By extension, TESA is also found throughout the aeronautical industry and in many other fields.

When answering the question of why Meggitt uses TESA machines and devices, the team leader takes only a brief pause for thought: "When I began working in this area 13 years ago, we already had TESA devices. Our oldest TESA MICRO-HITE must be around 20 years old, which is a clear indication of its quality. Also TESA is a Swiss brand and the company provides excellent technical support. Our customers are setting increasingly high standards and, therefore, the requirements we place on our partners are growing. That is the reason why we use TESA products."

We would like to thank Meggitt for their friendly cooperation.



# MEGGITT

## About Meggitt

Since its foundation 60 years ago in Fribourg, Switzerland, Meggitt SA (formerly known as Vibro-Meter SA) has been supplying reliable, high quality instrumentation systems to aerospace and energy customers worldwide.

Specializing in vibration monitoring systems and sensors, Meggitt SA was established in Fribourg, Switzerland, in 1952. Today, the modern factory occupies 15,000 m<sup>2</sup> of working area including development laboratories, production workshops, extensive quality assurance facilities, field service, and administrative offices, and employs over 550 people.

Meggitt Fribourg offers a wide range of sensor technologies, special expertise in piezo-electric transducers for harsh and extreme environments and advanced analog and digital electronics



TECHNOLOGY

## About TESA

Established in 1941, TESA SA manufactures and markets today more than 5,000 dimensional metrology products, ranging from high-precision hand-held tools to sophisticated measuring systems. CMM products and vision systems for non-contact measurement are now also included. Most of them are produced under the SWISS MADE Label.

A worldwide direct sales and distribution network is one of the major assets of the Swiss company whose primary markets are the automotive, aerospace, watch-making, medical and metal processing.

[www.tesagroup.com](http://www.tesagroup.com)



## About Hexagon Metrology

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