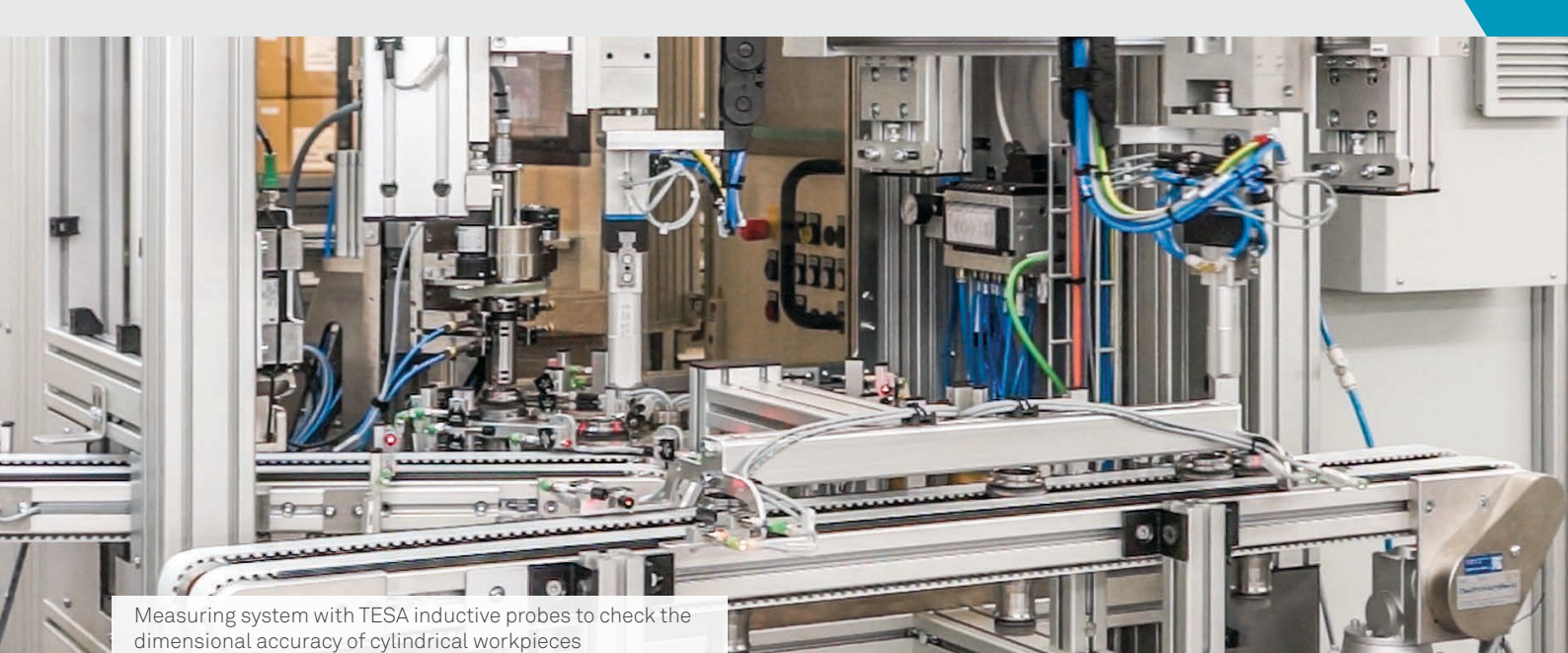


TESA INDUCTIVE PROBES

Messtechnik AG – Liechtenstein



Measuring system with TESA inductive probes to check the dimensional accuracy of cylindrical workpieces

Efficient quality control with
TESA probes



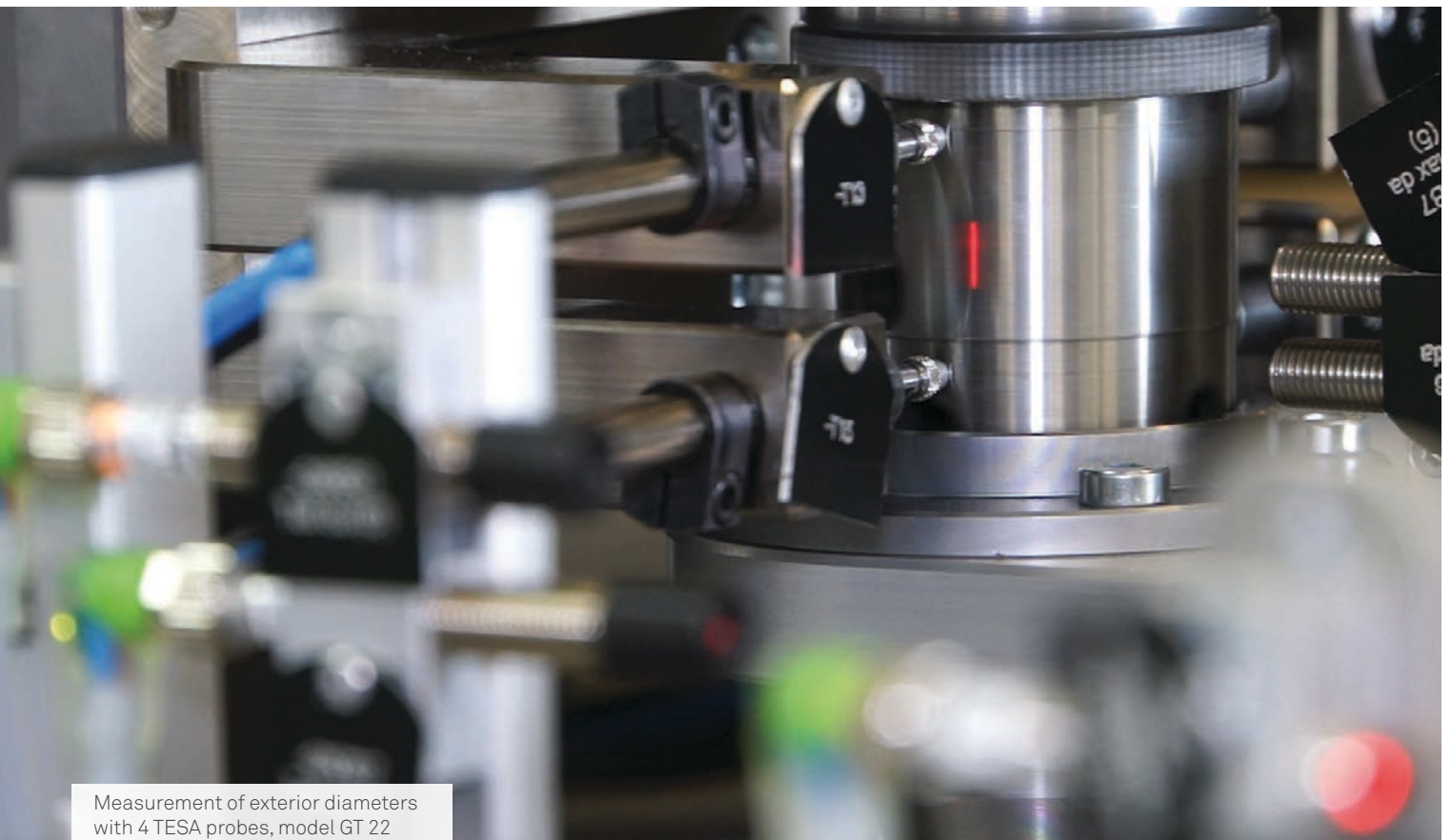
Good collaboration and high precision instruments are the keys to success

Messtechnik AG, a company based in Liechtenstein, relies not only on the creativity and the commitment of its employees for innovation when developing its complete solutions in the field of production metrology, but also on good collaboration with its clients and suppliers. TESA is one of those suppliers, providing the company with electronic probes used in their systems.

Application of GT 22 probes with axial movement for multidimensional measurements

For almost 30 years, Messtechnik has been developing and producing measuring systems and stations with different degrees of automation for absolute and comparative measurement in dimensional production metrology. The systems developed by the company range from simple measuring machines and SPC measuring stations to automatic measuring systems integrated into the production process. These systems are often equipped with TESA probes, which are highly appreciated for their excellent repeatability and their longevity. TESA had the opportunity to visit Messtechnik to take a closer look on one of these systems.

This measuring system has been developed at the request of a client and consists of a rotary table with different stations. The handling of the workpieces and all of the measurements are carried out automatically, so no manual handling is necessary. The system is in use seven days a week in three shifts and monitors the dimensional accuracy of cylindrical workpieces.



Measurement of exterior diameters with 4 TESA probes, model GT 22

Different probes are used for measuring the interior and exterior diameters as well as the run-out deviation, including 4 TESA type GT 22 standard probes. These probes are designed with axial movement, activated by pneumatic pressure and are all mounted on a ball bearing. The ball-bearing guidance system is insensitive

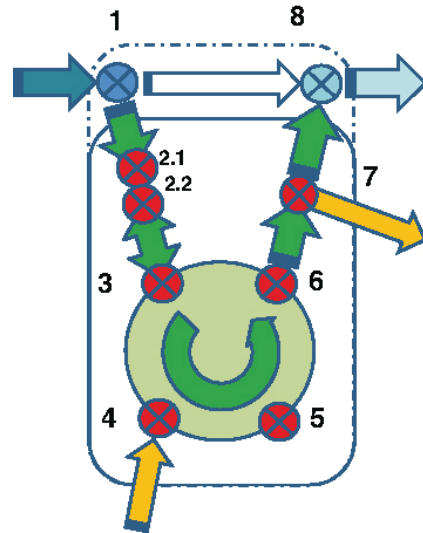
to any radial force exerted on the probe housing, and therefore guarantees excellent repeatability and precision. Furthermore, the probes are protected against the penetration of liquids and solid contaminants such as oil and dust by an elastomer sealing bellow (IP54 protection).

Process optimisation for precise and quick quality control

The different stations have been designed to provide highly-efficient quality control: the full cycle time is just 12 seconds.

First, the workpiece to be measured is taken from a conveyor belt (station 1) and loaded on to the rotary table (3). After an intermediate position (4), which shortens the rotation time between loading and measurement, the workpiece reaches the measuring position (5). After the measurement with the GT 22 probes and another rotation, the workpiece is unloaded (6) and returned to the conveyor belt (8), provided that they fall within permissible limits. Workpieces that do not meet the requirements are classified as “No Go” and removed (7).

The minimum and maximum setting standards placed on stations 2.1 and 2.2 are used to automatically calibrate and check the measuring system according to certain criteria.



Overview of the system:

1. Workpiece is selected
- 2.1. Minimum setting standard
- 2.2. Maximum setting standard
3. Loading
4. Manual loading
5. Measurement
6. Unloading
7. “No Go” workpieces rejected
8. Approved workpiece is returned



Rotary table with stations 3 to 6: loading, intermediate position, measurement and unloading



Station 5: Measuring the workpiece

As there are different stations on the rotary table, several processes take place at the same time: one workpiece is loaded, another is in the intermediate position, a third is measured and a fourth is unloaded. TESA inductive probes offer numerous advantages for such applications in an industrial setting where efficient, fast and

reliable quality control is essential, most notably speed and high precision. "The main strength of TESA probes lies in their precision," confirms Magnus Tuor, managing director of Messtechnik. "Moreover, TESA offers a complete range with different models, so we always find the perfect probe for each application."

We thank Messtechnik for their friendly support and for the authorization to publish this case study.



[Click here to watch the video](#)



About Messtechnik

The systems developed by Messtechnik range from simple measuring machines and SPC measuring stations to automatic measuring systems integrated into the production process. The complete solutions offered by the company are based on setting pieces and other components as well as software for data acquisition, control and analysis. Its systems are used in the automotive industry for the measurement of transmission, engine and chassis components and for the inspection of workpieces of the machine, equipment manufacturing, aerospace and medical engineering industries.

The company offers services such as consulting, engineering, development, implementation and training. Through its preventive maintenance and professional service, Messtechnik guarantees a high functional reliability and availability of the measuring systems.



TECHNOLOGY

About TESA

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 70 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.

www.tesagroup.com



About 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. By empowering our customers to fully control their manufacturing processes, we enhance the quality of products and increase efficiency in manufacturing plants around the world. For more information, visit www.hexagonmetrology.com.

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