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Product brochure

TIGO SF

The compact shop-floor coordinate measuring machine

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An easy fit into production

TIGO SF is an innovative coordinate measuring machine (CMM) designed to operate on the shop floor. This compact, robust and ergonomic CMM allows quality assurance to be seamlessly integrated where it's needed most, right where workpieces are manufactured. Intuitive to operate, TIGO SF opens the world of metrology to new users whilst retaining the flexibility and versatile measurement functionality demanded by the most proficient technicians.

A small footprint combined with a highly-accessible measurement volume makes the TIGO SF perfect for close-to-production measurement and cell integration even in the tightest of spaces. Offering a sophisticated yet simple alternative to manual gauging, TIGO SF's open structure and purpose-built accessories and options mean it can also be easily integrated into automated manufacturing cells. Designed for challenging environments, this air-free CMM is fully protected against the effects of dust and dirt, vibrations and humidity in shop-floor environments. Its advanced thermal compensation technology enables users to measure accurately in temperatures ranging from 15 °C up to 40 °C with the XT option.

Combining precision, scanning performance and throughput in one compact machine package, TIGO SF is perfectly suited to a wide range of applications while an innovative range of hardware and software tools ensure easy machine operability. The INSPECT software module makes part program execution and data analysis easy for operators at every skill level, offering a simple graphical interface with a clear overview of the results.

With accessories including the PULSE environmental monitoring system, messaging lights for visual machine status indication, and Q-DAS statistical process control (SPC) software for enhanced process monitoring, TIGO SF helps manufacturers embrace Industry 4.0 principles.

Expertly designed for operability

The TIGO SF CMM was developed by experts to provide an extremely robust measurement solution that is simple to use, highly flexible and cost effective.

Open measurement volume

The TIGO SF's 500 x 580 x 500 mm measurement volume is open on three sides for easy accessibility and integrability.

Protective bellows and covers

Bellows and covers fully protect the machine structure from dust and airborne contaminants.

15 °C to 30 °C temperature range

Optimised for precision measurement in a temperature range of 15 °C to 30 °C, TIGO SF can operate in production areas without air conditioning.

Passive dampeners

Built-in passive dampeners insulate TIGO SF against effects of vibration in ranges common to industrial areas.

Granite measuring table

A wide granite table with a tight net of fixture holes makes part placement simple and efficient.

Linear guideways for air-free operation

As an air-free machine, TIGO SF offers a low total cost of ownership, and has intrinsic robustness in harsh environments.

All-in-one design

The compact cantilever-type TIGO SF CMM houses the PC and controller within the machine stand so the system requires minimum floor space and is easy to relocate.

Ergonomic workstation and jogbox

The monitor and keyboard are conveniently located on an adjustable mount for ease of use, while the user-friendly jogbox is light and comfortable to hold.

Probing and scanning sensors

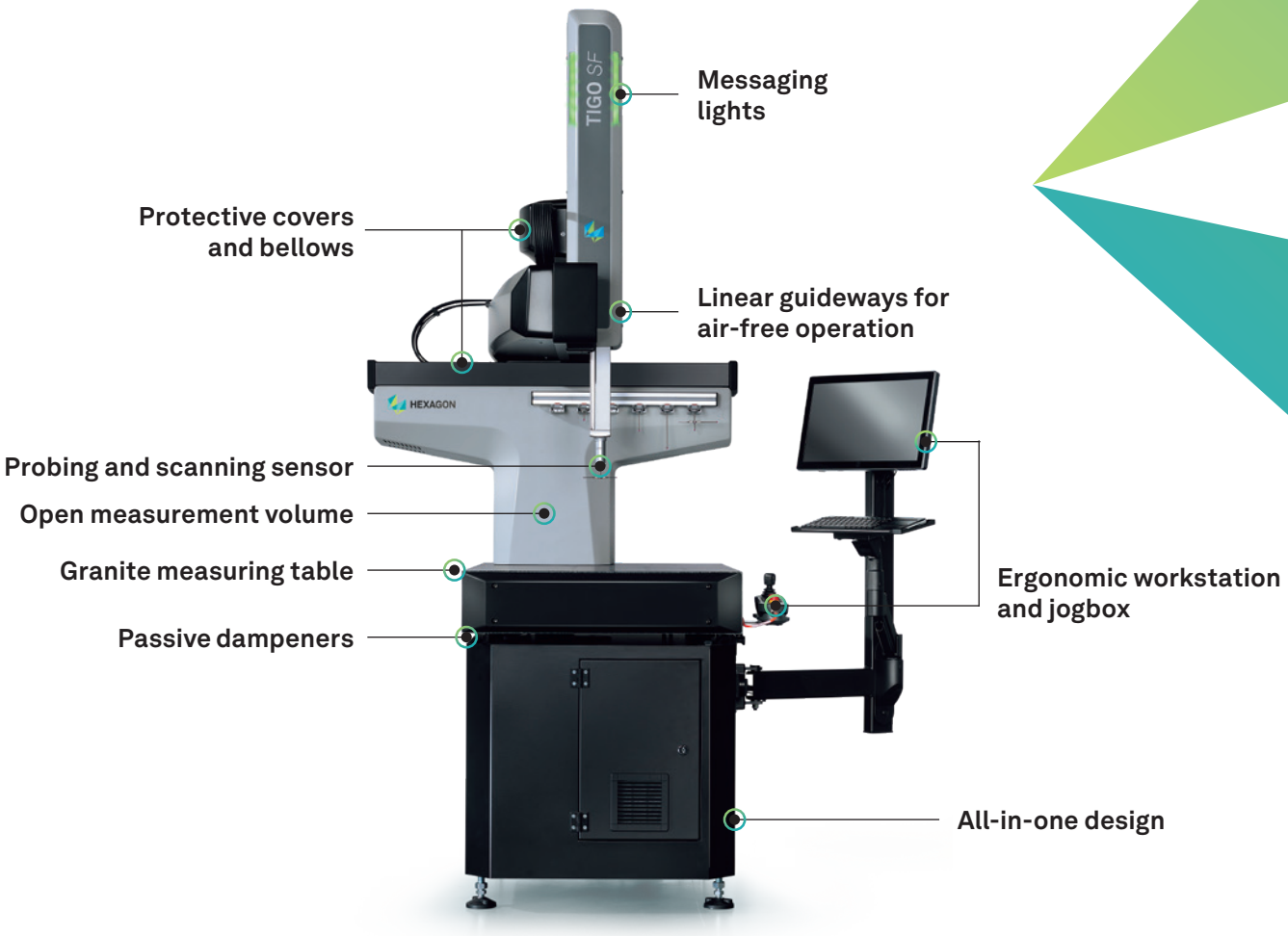
High-speed scanning or touch-trigger probing techniques are both available to maximise flexibility and application potential.

Fly2 Mode

The Fly2 Mode trajectory optimisation function keeps part program execution time to a minimum.

Eco Mode

Eco Mode automatically powers down the machine to save energy and money while also contributing to environmental sustainability.



TIGO SF's additional options enable the machine to perform in the most hostile environments, as well as helping to configure the CMM for specific applications or production-integrated measurement:

Messaging lights

Optional messaging lights integrated into the machine allow a clear visual indication of the CMM status even from a distance, helping operators to optimise machine utilisation.

PULSE

The PULSE environmental monitoring system is an optional accessory which records occurrences that could influence the quality of measured data, including vibration, temperature and humidity, as well as alerting users to unexpected machine stoppages.

Q-DAS software

The Q-DAS statistical process control (SPC) software portfolio is an option that enables machine and process capability studies and offers enhanced statistical analysis tools to help keep production quality under control and reduce the number of scrap parts produced.

Extended temperature

The XT option uses a network of thermal sensors combined with enhanced structural thermal compensation and an air-conditioned machine stand to give TIGO SF an extended temperature range of 15 °C to 40 °C. This option is also available as a retrofit.

Active dampeners

Optional active dampeners provide TIGO SF with extra protection in workshops where strong vibrations are likely.

IP54 Stand

TIGO SF's IP54-certified machine stand option complies with the tightest protection requirements for guaranteed performance.

TIBOX

The TIBOX CMM enclosure protects the machine from contaminants such as dust and oil suspension particles, making it the ideal option for measurement in extreme conditions.

Simplify daily measurement operations

The versatile TIGO SF is the 360° solution for manufacturers who need a compact, fast and flexible way to analyse their workpieces with reliably high-accuracy results. TIGO SF can be equipped with either fixed or indexable probe heads to tackle a wide range of application requirements.

The HP-S-X1 fixed probe head ensures the highest accuracy in continuous scanning and point-to-point measurement. TIGO SF's built-in Scan Pilot firmware algorithm and motion-control parameters enable the fast and accurate scanning of non-predefined path profiles to improve the CMM's throughput. The tool changer is mounted on the machine frame to leave the measuring table completely free, while the garage ports are covered to protect styli from dust and dirt.

The indexing probe head configuration maximises application flexibility. It allows the measurement of features however they are oriented on the workpiece without the need for complex star styli configurations or use of a rotary table. Both manual and automatic 5° index heads are available for the TIGO SF.

An efficient alternative for fixed gauges

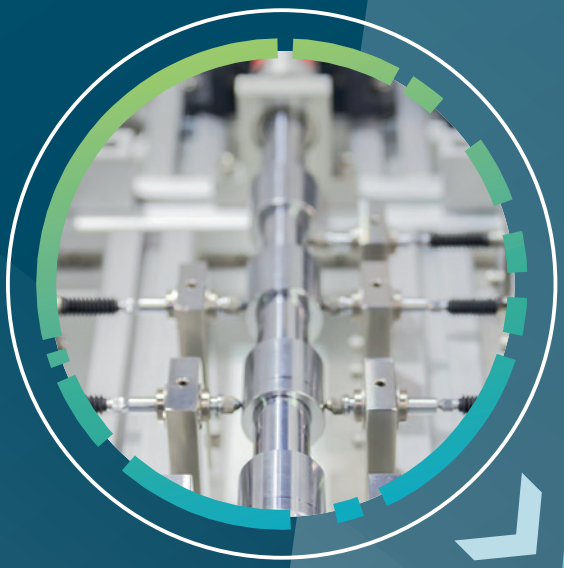
Using an automatic CMM instead of dedicated gauges can offer production and quality technicians an efficient measurement process with more traceable results. Selecting a solution that can handle a variety of workpieces not only provides a cost benefit by reducing spend on tooling creation, maintenance and calibration, but also saves workshop space and allows the manufacturer to react quickly to changes in production or measurement requirements.

The development concept of TIGO SF was to create a smooth workflow for the operator and meet the requirements of the process, so this CMM can be as easy to use as manual gauges. The INSPECT software module allows operators from novice to expert to execute any measurement routine created in PC-DMIS software with a simple click in a graphical user interface, ensuring traceable, reliable results without the risk of human error.

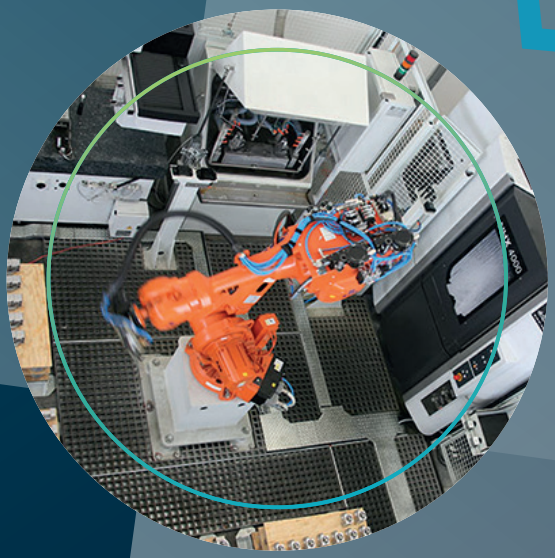
TIGO SF offers low cost of ownership: no air is required to operate the machine and the Eco Mode function limits the energy consumption for a more sustainable process.

Switching from manual gauging to TIGO SF offers:

- Improved flexibility – changes to the workpieces being produced or the measurement requirements associated with them can be tackled without additional investment in tooling
- Increased reliability – subjective evaluations can be replaced by measuring results that are repeatable and traceable
- Optimisation of space and reduction in maintenance – instead of multiple devices, measurement requirements are handled by one machine
- Efficient troubleshooting for quality – comprehensive part analysis can be rapidly performed onsite
- Fast return on investment – with reduced tooling and maintenance costs, the CMM soon begins to pay for itself



T100 SF

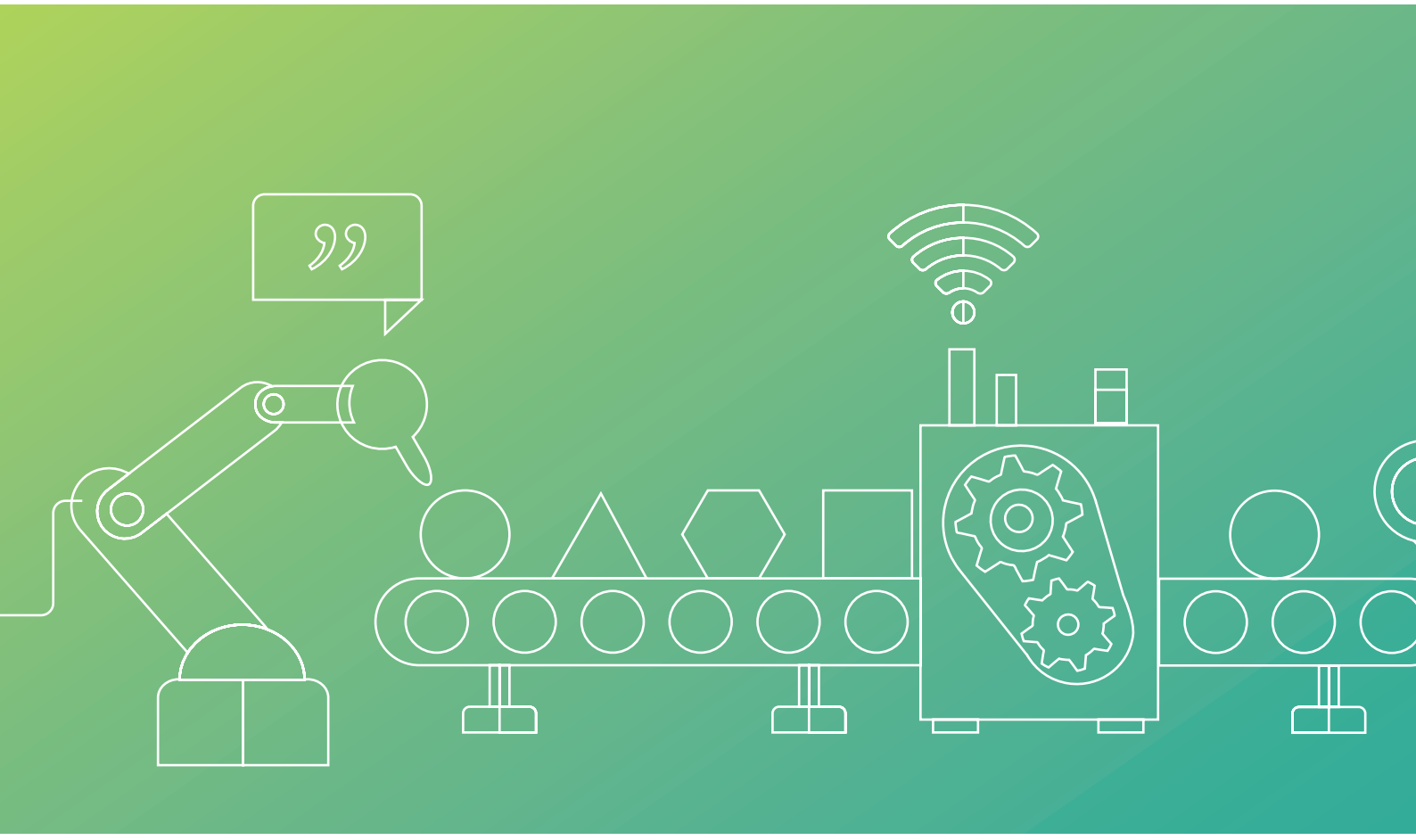


Ideal for in-production measurement

As manufacturers aim to maximise process efficiency and reliability, there is an increasing need for measurement of workpieces near to the point of production. With its compact, all-in-one design and ability to cope with the working conditions of production environments, TIGO SF is an ideal choice for inline or near-the-line measurement integration.

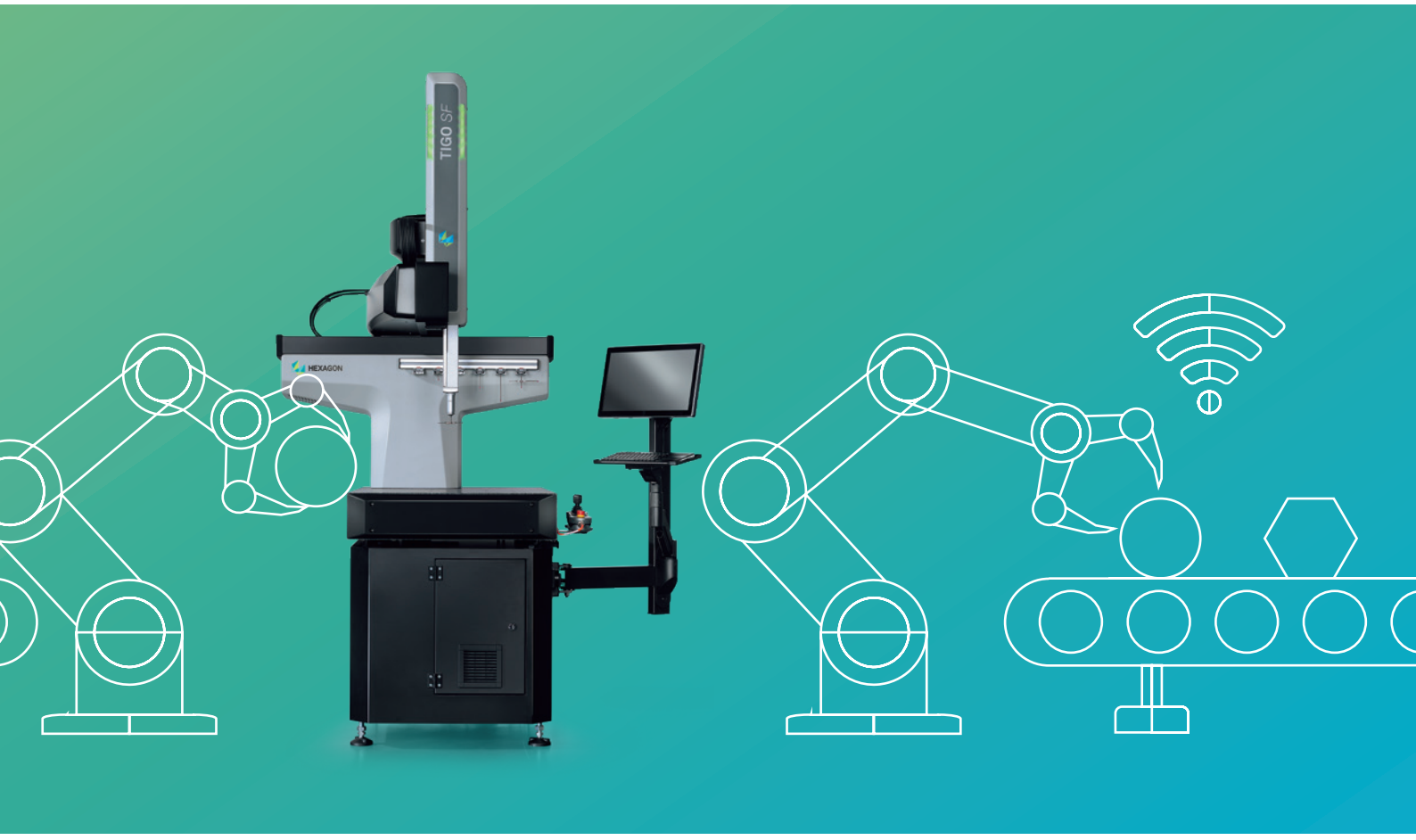
The optional PULSE and Q-DAS statistical software technologies provide traceability through environment monitoring and statistical analysis. These advanced insights are invaluable in the fluctuating conditions of the production environment, ensuring data integrity and facilitating fast remedial responses to problems.

TIGO SF also perfectly fits closed-loop production cells based on Industry 4.0 principles. The collected data can be recorded and processed by Q-DAS software or HxGN SMART Quality to see statistical trends in production. Such software provides insights about the condition of the tools used and offers the ability to automatically adjust the computer numerical control (CNC) machine parameters to ensure the highest quality in the manufacturing process. Measurement resources can also be managed directly in HxGN SMART Quality.



Through a range of state-of-the-art optional hardware and software modules, TIGO SF can:

- Interact with a variety of part-loading systems, including manual and semi-automatic pallet systems as well as fully-automated robots, giving manufacturers the flexibility to choose the right solution for their requirements
- Interface with barcode and radio-frequency identification (RFID) readers for automated part recognition, allowing the automatic selection and execution of the correct part program and eliminating the risk of human error
- Create a local workflow manager that handles and supervises measuring cell activities and interactions with the production process
- Exchange data and information with the production cell or line, either through local programmable logic controller (PLC) or line PLC, for a seamless integration



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Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter.

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