



SmartGauge



SmartGauge

Check component quality within seconds Collect data to improve the processes

SmartGauge is a digital inspection tool that enables you to measure components very quickly. It then provides a comprehensive level of information to enable you to make improvements to components and processes.

Conventional physical-inspection methods in manufacturing require you to set up a fixture and then secure the part that needs to be measured. Measurements then need to be taken from all dimensions by a skilled technician. The process is time consuming and can be costly.

Now, you can reduce time and increase the accuracy of measurement with SmartGauge, a new digital inspection tool that enables you to measure components very quickly reducing dimensional inspection process times from hours to seconds, allowing almost instant, in-line inspection of components during manufacture.

It's also faster and far less costly than relying on a technically skilled operator to laser scan the component. The data gathered by SmartGauge during this process is automatically analysed and instantly actionable, which in turn improves process stability.

For example, if over a large production run the process were to deviate even slightly, then the measurement cycles undertaken by SmartGauge would pick up any issues. The manufacturer would be alerted, enabling them to take immediate action and maintain the customer's specified tolerance band. As a result, SmartGauge enables you to reduce and almost eliminate scrap.

The way to improve agility and adaptability while minimising costs is the digital solution SmartGauge.



MetLase
A JOINT VENTURE BETWEEN ROLLS-ROYCE AND UNIPART

Speed, accuracy, flexibility: that's SmartGauge

All manufactured products must be inspected and assessed to meet the required levels of quality.

SmartGauge is a digital, in-line process measurement tool. It automates the quality-assurance inspection process, not only qualifying component accuracy, but speeding up the process:

- Traditional techniques can take 40 minutes or more to inspect a component
- SmartGauge reduces that time to three seconds whilst also collecting data for automated process monitoring and improvements

SmartGauge is designed and manufactured by MetLase, a joint venture between Rolls Royce and Unipart. The mechanical and digital engineering consultancy's technology-based approach and patented tooling techniques enable the design and manufacture of bespoke engineering solutions with speed and precision.

At a glance: why SmartGauge?

- Identifying faults more quickly not only reduces waste and stops revenue leakage, it also increases productivity.
- SmartGauge's sensors collect data, which it analyses and uses to monitor the manufacturing processes stability – enabling you to take action immediately to ensure the process produces compliant parts.

A closer look

Consider a linear manufacturing process. Manual, CMM and laser scanning inspection systems take significant amounts of time to conduct a quality check, and require highly skilled operators.



While the inspection is being undertaken, an online error can duplicate faults across more products



By the time the fault is found in the component being inspected, how many more products have been produced?



Those products are now scrap. This waste in time, money and materials could have been avoided had the fault been found right away



Traditional processes often cause bottlenecks in production, and typically require highly skilled people



Traditional processes either generate little quantitative data, or huge amounts of data that's filed away, never to be acted upon to improve a process



How it works

SmartGauge determines a component's actual size in specific predetermined positions. This digital metrology system measures the characteristics that you specify, using an unlimited number of digital sensors.

Digital sensors measure:



Length, width and height



Circularity, flatness, concentricity and geometric coordinate position



Shape profiles



Uniformity



Thickness

Data collection only takes a few seconds

Different types of digital sensors do the work, measuring and collecting data.



The data is saved in the cloud, or stand-alone with data stored on the gauge



Automated analysis software evaluates the data, looking for process deviation



Issues are flagged, alerting a manufacturing engineer that their process is not stable



Action can be immediately taken, preventing more defective parts from being produced, and thus, more waste from being generated



From the data held internally, behind the Firewall, you can better predict what the process parameters should be for your components



This data can be used for machine learning, giving you deeper insight into what you're manufacturing



SmartGauge features

You can quickly implement SmartGauge into the production process to automate your inspections, while at the same time harvest valuable and actionable data, accelerating process improvement beyond convention. This is due to MetLase's patented and proven digital technologies, along with rapid mechanical skills and digital capabilities.



Standard Base Unit

The standard base unit with parametrically designed sensors enables the SmartGauge to be supplied in very short lead times



Sensor

IIoT system allows unlimited number of sensors



Dashboard

Measurement database access for insights into Statistical Process Control (SPC)



Machine Vision

Automatic reading of part ID for database cross-reference



Smart Button

Instant Go-No-Go feedback to operators

The smarter way of working



The data collected can be used to continuously improve the process, either through a manual feedback loop or Machine Learning



The time it takes to perform a dimensional inspection is significantly reduced – from 40 minutes to three seconds



Removes the need for a skilled Quality Inspection Engineer



Significantly reduces scrap – potentially as low as 0% – thanks to real-time monitoring of the manufacturing process. Any deviations are identified as they happen



A user-friendly Manufacturing Engineers' software interface can be used over the internet, or locally



Efficient, with smart button providing instant Go-No-Go feedback to operators



Automatic reading of part ID ensures full component-level traceability

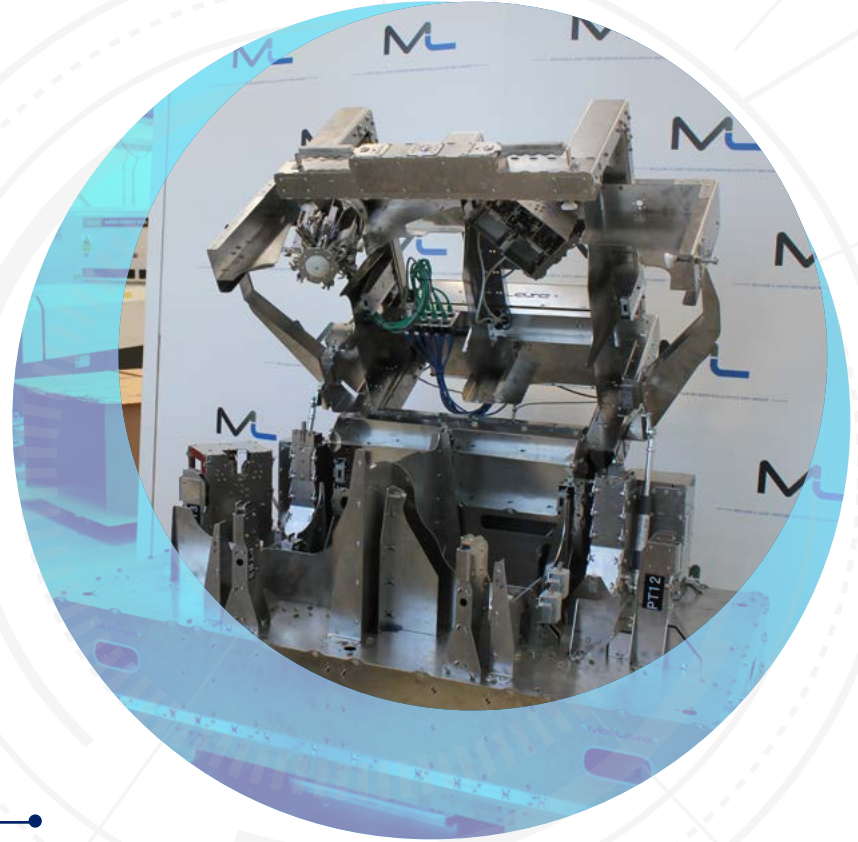


Cost effective

Many other systems use high cost laser sensors, which often exceed requirements. SmartGauge, however, uses multiple lower cost, highly efficient sensors which makes SmartGauge far more cost effective.

“ Based on this initial concept we predict this could be rolled out to all 34 of the Kautex production facilities. Each facility has at least 5-6 different variants of tanks, and at least two lines of production. So, improving the efficiency of the process from 40 minutes to one minute on each of these lines, per day, will lead to a huge saving over the lifetime of production. ”

Srikanth Varadarajan, Manager, Engineering KAUTEX UNIPART LTD



Let's talk

To learn more, contact

Richard Gould, Business Development Manager

☎ +44(0)7827 663 898, +44(0)114 383 0610 ✉ richard.gould@metlase.com

Steve Dunn, Managing Director

☎ +44(0)7815 871 007 ✉ steve.dunn@metlase.com