

CALIPRI FLUSH & GAP MEASUREMENT

Solutions for the automotive industry

CALIPRI non-contact profile measurement devices give the automotive industry a simple, accurate and reproducible way to measure flush and gap. All our devices feature sophisticated laser light section technology with the patented CALIPRI Principle, delivering accurate, consistent results at all stages of vehicle manufacturing. Whether you want to measure flush and gap in-line, near-line or off-line, automatically or manually, Hexagon has a dedicated automotive solution to exactly fit your needs.



CROSS-PLATFORM TECHNOLOGY

A complete production solution

CALIPRI C14



CALIPRI C14 & C15



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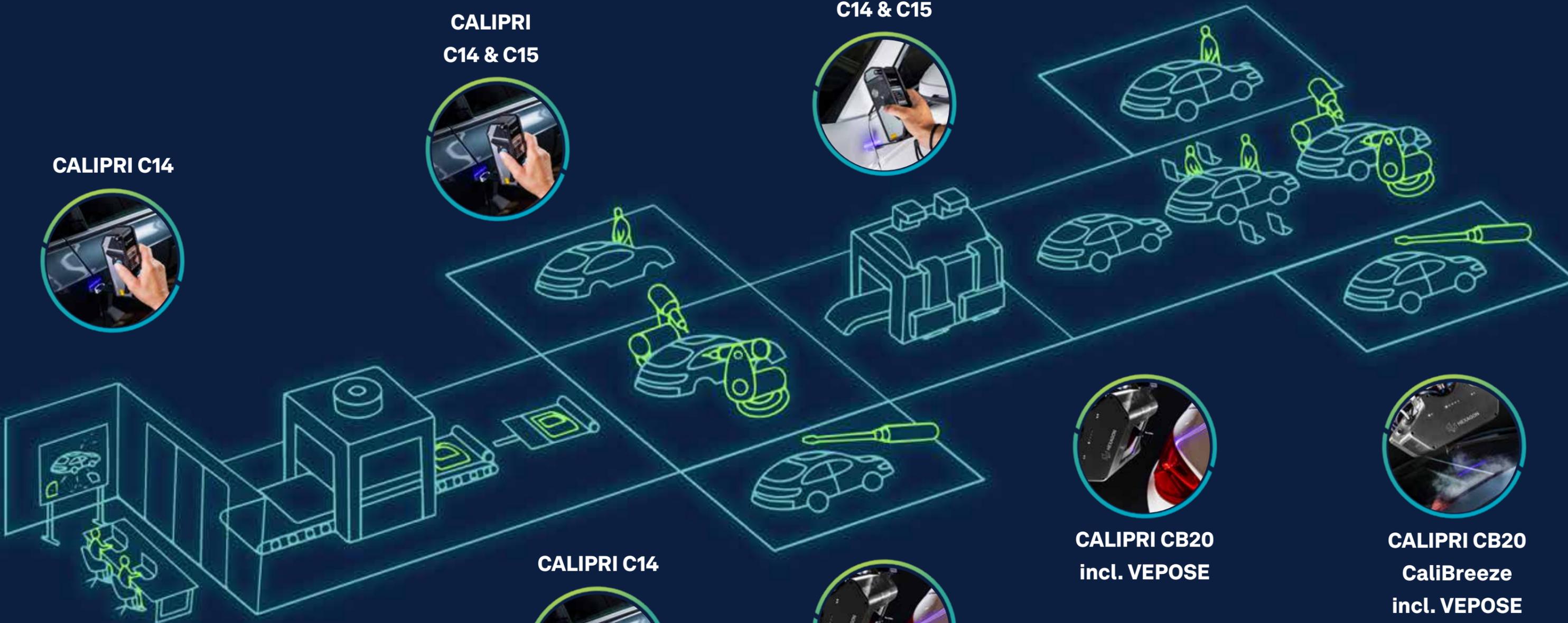
CALIPRI CB20
incl. VEPOSE



CALIPRI CB20
incl. VEPOSE



CALIPRI CB20
CaliBreeze
incl. VEPOSE



CALIPRI flush & gap solutions

Specialised solutions for automotive flush and gap measurement

Measuring with CALIPRI devices gives you the highest accuracy and reliability across the vehicle manufacturing process, from product development to serial production. Our unique CALIPRI technology is ideal for your automotive Flush and gap measurements, whether fully-automated, in-line or manual in-line, near-line or off-line. In flush and gap measurement, the CALIPRI sensor captures the profile's 2D contour from different perspectives, looking both deeply into the gap and along the complete folded edge to exactly capture the gap geometry. That's why measuring with CALIPRI systems guarantees reliable and repeatable results. By applying the CALIPRI Principle, gap evaluation is based on real data. Even with complex contours, no mathematical assumptions are necessary. CALIPRI's flexible evaluation strategies let you create test plans straight from the CAD design that can then be used with all products in the CALIPRI series. That means you can directly compare results between devices at all production stages – and base process control decisions on dependable data.



CALIPRI C14

- » Handheld off-line
- » Portable, ergonomic design
- » Continuous work in off-line handheld mode
- » Suitable for shop floor or lab operations
- » Flexibility enables the coverage of a variety of different applications



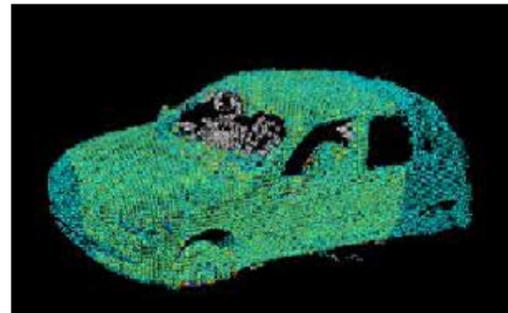
CALIPRI C15

- » Handheld in-line
- » Integrated with line PLC or barcode reader
- » Automatic program loading
- » Efficient and very fast manual measurements
- » Near line or in-line measurements



CALIPRI CB20

- » Automated solution
- » BiW, paint shop & final assembly
- » Measure translucent surfaces reliably with CaliBreeze technology
- » Industrial or collaborative robots
- » Near line or 100% in-line measurement
- » Add ons: CaliBreeze and VEPOSE



VEPOSE

- » Detection of vehicle position/ orientation while the vehicle is moving or stopped
- » Determination of the position in six dimensions
- » Accurate detection on every vehicle colour
- » Minimal space requirement
- » BiW, paint shop & final assembly

CALIPRI C14



Accurate, consistent and easy-to-use handheld flush and gap measurement

Simple, quick and user-friendly, the compact, handheld CALIPRI C14 measuring system helps you inspect the most complex assembly geometries, as well as other elements like design and character lines on the body shell. With just a small hand motion, the CALIPRI C14 measurement device captures the most challenging profile shapes in a matter of seconds. Numerous inspection methods make it possible to evaluate each gap, folded edge and design line individually. The battery-powered, wireless CALIPRI C14 features advanced laser light section technology, with our patented CALIPRI Principle built-in. As the user guides the sensor over the profile to be measured, the software records the gap or edge from different directions. Automatic error correction means any sensor tilt or rotation does not affect results. After measuring, results are displayed on the CALIPRI C14 device screen and also as a profile curve on the connected tablet PC where they can be compared with reference values. A traffic light system makes limit violations easily to spot, with any deviations from target values highlighted in colour. Results can be presented in a printed report or exported into your own database.

USP's about CALIPRI C14?



Reliability and repeatability
CALIPRI solutions have demonstrated higher reliability in measurement results than other regular, conventional digital gauges.



CALIPRI Principle inside
Achieve a complete profile scan without assumptions, powered by patented CALIPRI technology for unmatched accuracy and reliability in every measurement.



Utilization from prototyping to final assembly
CALIPRI C14 fits to multiple process/quality control flows at your facility. Flexibility enables the coverage of a variety of different applications.



CALIPRI CB20

Automated solution for flush and gap measurement

CALIPRI CB20 is a completely automatic, flush and gap measurement system that can be fully integrated into the production line and used for 100% inspection of car bodies. The system can be fitted to standard industrial robots and cobots, making it the perfect solution for body-in-white production lines, paint shops as well as final assembly. This non-contact system automatically is production-ready and measures gap profiles and body contours completely and precisely, with all relevant flush and gap dimensions evaluated too.

Add CaliBreeze to the CALIPRI CB20 – and you get the very latest patented technology that enables measurement on every surface. That includes completely transparent materials like glass or plastic, highly reflective chrome or very light-absorbing deep black finishes.

Connect our VEPOSE add-on and now the CALIPRI CB20 can detect a vehicle's position, whether on a moving belt or static. It captures a vehicle's pose in an instant and hands the data over to the robot control system to inform its arm movements.



CALIPRI CB20 ADD-ON: CALIBREEZE

Precise measurements on all surfaces

Our patented CaliBreeze technology permits complete flush and gap measurements on any surface, no matter how dull or dark. With CaliBreeze fitted, CALIPRI CB20 captures reliable and precise data on flush and gap dimensions around windows, mirrors, panoramic roofs, head- and taillights and other important body components. Where other systems completely fail to measure surfaces with poor reflectivity, the CALIPRI CB20 CaliBreeze quickly delivers very accurate results by creating optical contrast. It does this by "breathing" onto the surface – applying an ultra-thin layer of microscopic water droplets. These evaporate within seconds and leave no residue.



CALIPRI CB20 ADD-ON: VEPOSE

Determination of the position in six dimensions

With VEPOSE, you can reliably, accurately and repeatably determine each individual vehicle's exact position in all six dimensions. You can apply VEPOSE in continuous conveyor operations, with the vehicle on a skid, in stop-and-go operations or even in a static setup. During conveyor operations, the conveyor system passes reference data for the next body type to the VEPOSE control unit. VEPOSE measures the position of the car body using overhead high-resolution stereo cameras then, based on the body reference data, superimposes the resulting point cloud on the reference car body's external contours. Next, VEPOSE calculates position correction data and passes it to subsequent robots, so that they can adapt their movement paths to exactly match with the vehicle's actual position and therefore also with the taught-in measuring points. As a result, even when vehicle positions vary significantly, you have very accurate measuring point positions for Flush and gap measurements on all following car bodies.

Benefits in a nutshell

- » Reliable measurement results at every production step
- » Vehicle colour independent measurements
- » Determination of the position in six dimensions
- » Quick and easy installation
- » Minimal space requirements
- » Maintenance-free operation



CALIPRI C15

[Watch here the CALIPRI C15 video](#)

Handheld measurement systems for in-line and near-line flush and gap inspection

CALIPRI measurement systems are designed and built for years of shopfloor use. Extra-robust and very simple to operate, they require minimal training for pinpoint accuracy. Perfect for handheld in-line and near-line manual measurement, these wireless non-contact devices are the most flexible way to capture precise, reliable results on both production and assembly lines.

CALIPRI C15 systems help enhance perceived quality throughout the automotive production cycle. OEMs commonly deploy them in in-line flush and gap, seal-gap and design-line inspection stations in the body shop, as well as fit-and-finish inspection stations on assembly lines.

Their role is particularly important in rework verification stations, whether in-line or end-of-line. Here, CALIPRI C15 ensures that any adjusted components meet the highest quality standards before final approval. Many automotive suppliers also rely on CALIPRI C15 to check critical metrics like hemming and seaming quality before shipping to OEMs. The CALIPRI C15 is available in two versions: the C15 Fix for use at a single workstation and the mobile C15 Flex. Designed for versatility, the C15 Flex can be moved easily from one production line to another.



Utilization and potential applications

In-line

Integrated with production line. Allowing takt optimized measurement.



Rework | Fitting

Measurement incorporated into the production process stages.



Audit

For regular checks of the production quality with direct feedback to the process.



References



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Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

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. For more information, visit hexagon.com.

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