QUALITY CONTROL
FOR CONSUMER ELECTRONICS

MARPOSS
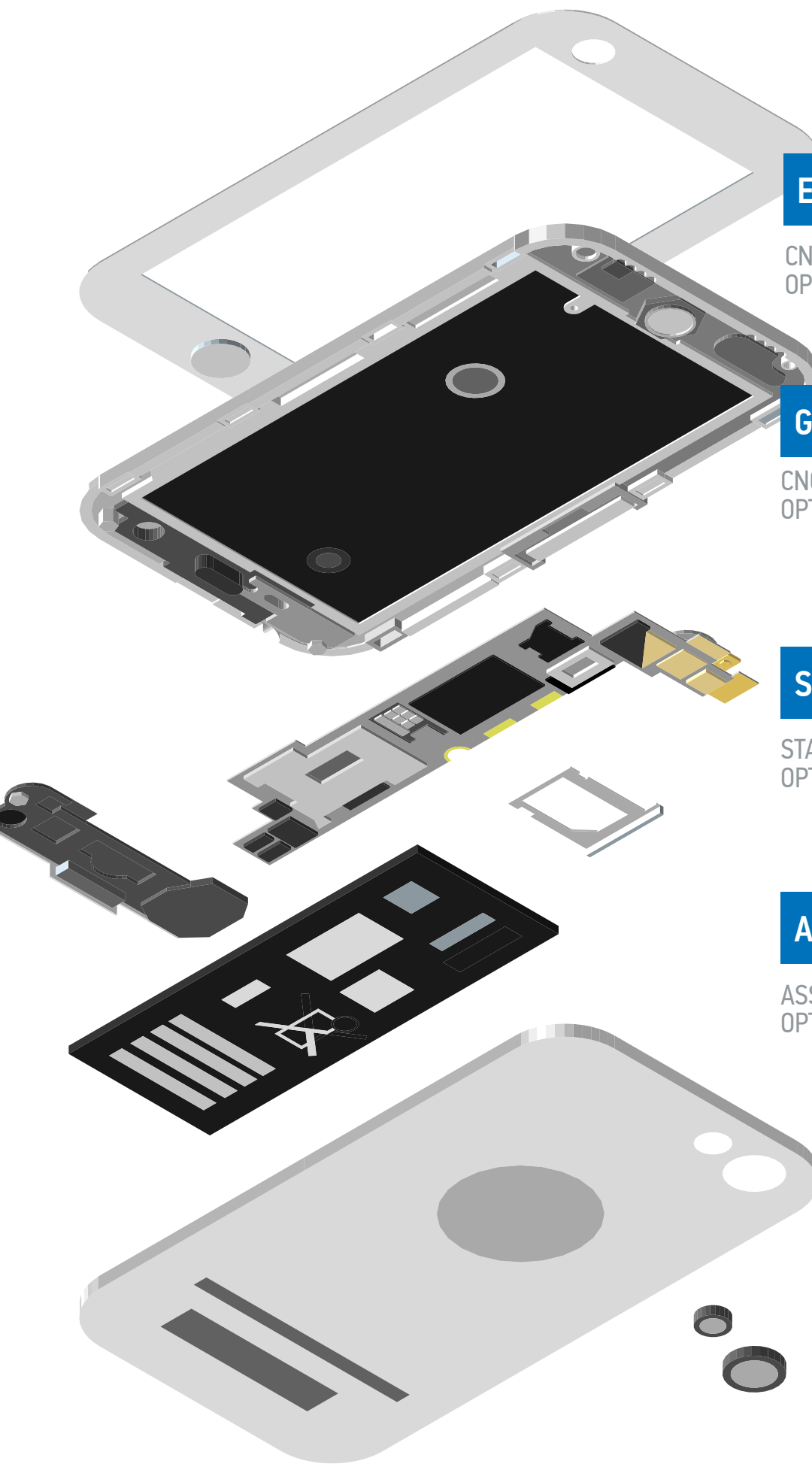
ENCLOSURE

GLASS COVER

SMALL PARTS

ASSEMBLY

YOUR QUALITY PARTNER
FOR CONSUMER ELECTRONICS PRODUCTION

For more than 70 years, our mission has been to work side by side with customers to ensure quality control throughout the production process. Our wide range of technologies and products, along with a global presence, have made Marposs the ideal partner for machine makers and EMSs operating in the consumer electronics industry.

Marposs sensors are easy to integrate and reliable. They can be profitably used inside machining centers; sheet metal stamping machines and presses to ensure a final product without producing scrap parts. Metal enclosures, front and back glass covers as well as small part manufacturing processes can be kept under strict control using our sensors.

Once a component is produced, it is necessary to guarantee quality control. Marposs measurement sensors can be integrated into AOI machines to check the shape, flatness and thickness of glass, lenses, camera modules and to certify the complete product after its final assembly.

To help ensure water resistance, we are able to provide a turnkey solution for leakage testing which is an essential check to guarantee the tightness of assembled products. With Marposs' air leakage sensor and extensive design experience, our Polaris machine offers a flexible solution to meet different customer needs.

Marposs products are designed to improve the final product quality before, during and after any critical manufacturing operation.

ENCLOSURE

CNC METAL CUTTING

WORK-PIECE SETUP

Marposs touch probes are used to find the correct position of the workpiece. This is essential to meet the tight tolerances of CNC manufacturing, especially in working sidewall thickness and enclosure flatness. Usually, we probe 5 points along the sidewall to find the right position and 4 points on top surface to assess flatness to ensure compliance with specifications.
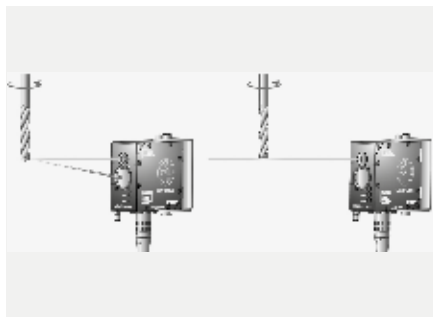

CONTACT TOOL SETTING

Marposs TLS technology allows you to measure the tool's length. This is a crucial parameter to ensure correct machining, for hole depth or chamfering operation for example. It is a cost-effective solution for mass production.

NON-CONTACT TOOL BREAKAGE

Tool Breakage Detector by Marposs ensures tool integrity in CNC manufacturing for high-quality products, quickly identifying breakages in solid-body tools using contactless laser technology, all in less than 1 second.
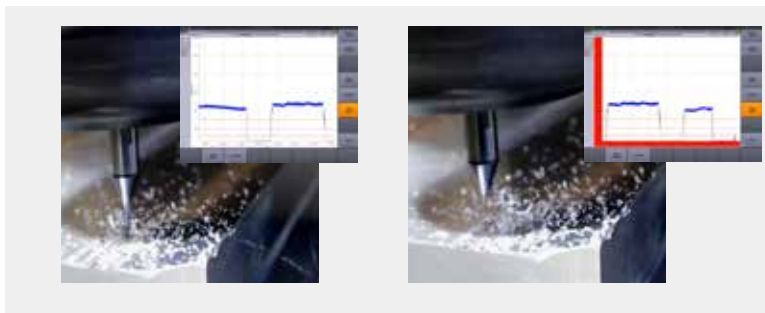
IN PROCESS TOOL BREAKAGE

Marposs' unique GEMBR technology allows the detection of the tool breakage during part manufacturing, without losing cycle time.
In the pictures at left, Marposs' GEMBR is detecting the breakage of 1 mm end milling tool with a cutting depth of 0.01 mm.
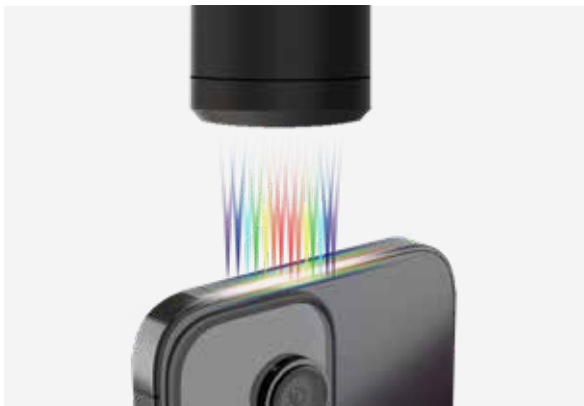
TOOL RUN OUT DETECTION

When mass-producing aluminum enclosures, there is a risk of chips piling up in the tool holder. The resulting runout can leave chatter marks on the part that, at the end, will be scrapped. Our tool runout detection system can stop the process even when chips as small as 10 µm are detected.

OPTICAL INSPECTION

IN LINE ROUGHNESS MEASUREMENT

Surface finish control is extremely important to ensure the cosmetic requirements of consumer electronics products. With the chromatic confocal point or line sensor, we can measure the in-line roughness of anodized parts and detect scratches.

### DIMENSION OR VOLUME OF MICRO HOLE OR SCRATCH

Thanks to the extremely high accuracy of our chromatic confocal sensors, micro holes on anodized surfaces can be measured too.

LEAK TEST INSPECTION

ENCLOSURE AND SIDE HOLE JUNCTION LEAK TEST

Ensuring water proofness is a critical requirement for smartphones and other portable devices, necessitating proper testing in the manufacturing process.
Thanks to its modular design, Polaris is Marposs solution to meet all customer needs, addressing potential leakage sources such as plastic-to metal junctions inside holes and complete enclosures.

LEAK DETECTION

INPUT AIR FLOW

SECTION CONTROL
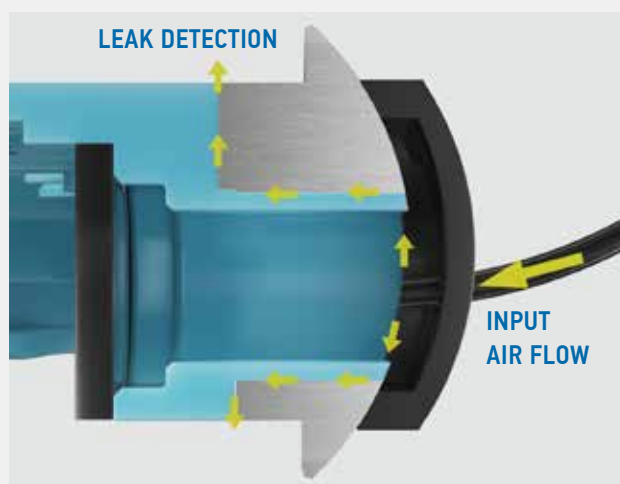
# GLASS COVER

CNC GLASS MANUFACTURING

THE MOLD

CAMERA TOOL SETTING FOR GRAPHITE MOLD CNC MANUFACTURING

Visual Tool Setter (VTS) is the most accurate tool setter on the market. When it comes to tools of different shapes and sizes, as it is in the production of graphite molds, VTS is the right solution to avoid steps on the final part.

Having an accuracy of 1.2 μm, VTS makes it possible to minimize the manufacturing step between different tools. In addition, VTS can check the tool's real condition, controlling its dimension change in real time.
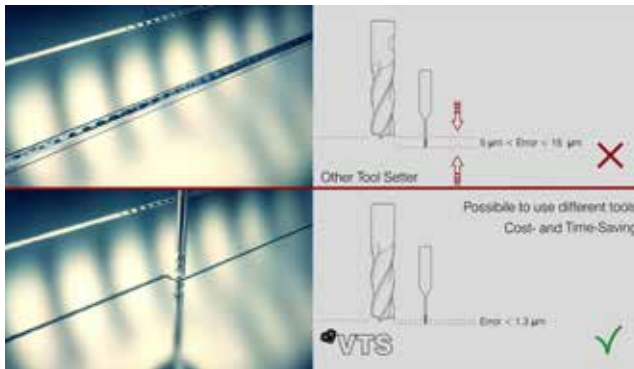
MACHINE PROTECTION

When different types of parts are produced on the same machine, such as D&M production, the risk of collision increases. Our machine protection sensor stops the movement of the machine within 1 ms, preventing costly repairs.
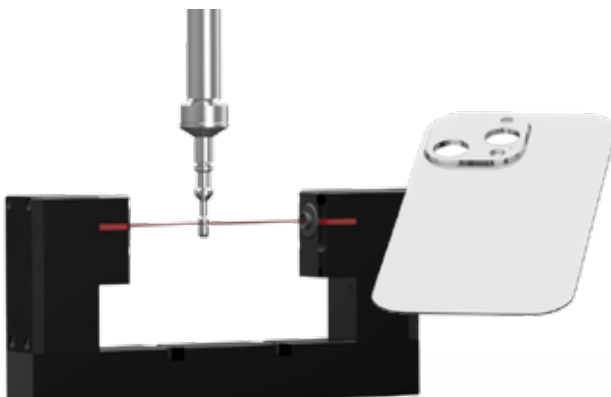
GLASS GRINDING

Using Marposs laser line, the tool can be measured in diameter and length before the machining in order to assess its real position.

For high precision machines, VTS (Visual Tool Setter) can measure the working diameter and length of the tool with higher accuracy than a laser tool setter. Thanks to its fast image processing it is easy to warn the machine on the tool wear.

Both Laser and Visual tool setters can be used in mold, glass processing and other fields that have high precision requirements.

OPTICAL INSPECTION
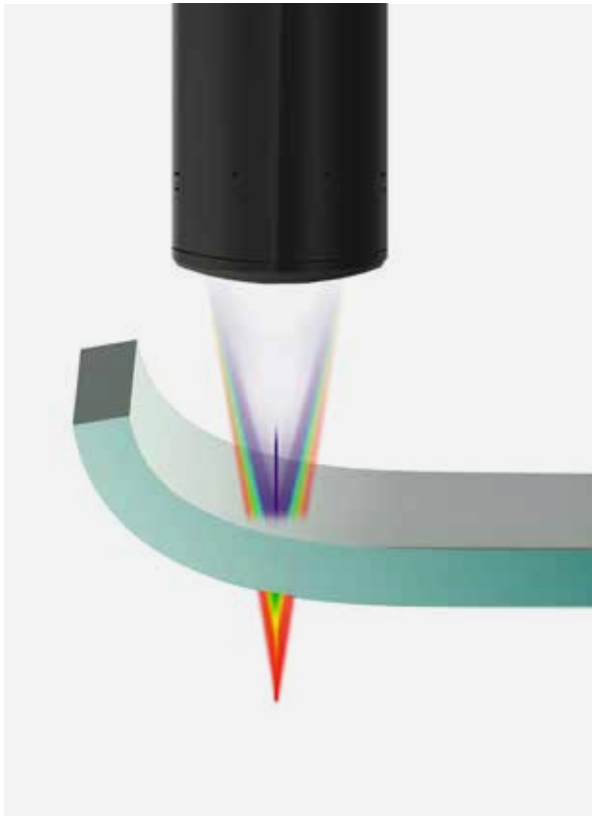
POINT SENSOR EDGE THICKNESS AND HEIGHT

A perfect assembly between the enclosure and the glass cover is essential to ensure a high level of aesthetics and functionality. Optical inspection of glass thickness, height and profile is important to detect any problems before the assembly process. Thickness measurement of multiple layers of glass is also feasible.

LINE SENSOR: GLASS PROFILE AND SCRATCHES INSPECTION

Image quality is a very demanding function of today's smartphones. That is why camera performances are increasing together with lens specifications. Our optical confocal system allows to scan the lens profile to guarantee accurate quality control both on profile and surface finishing.
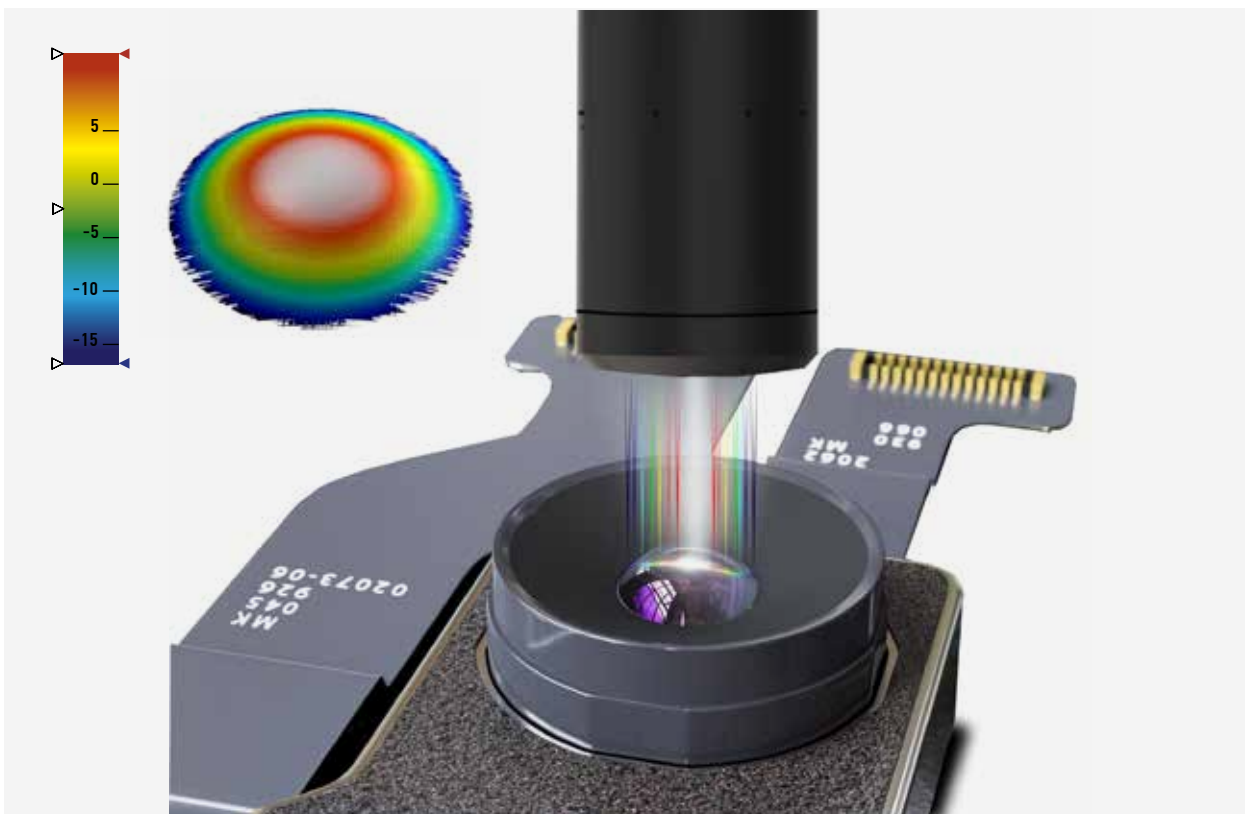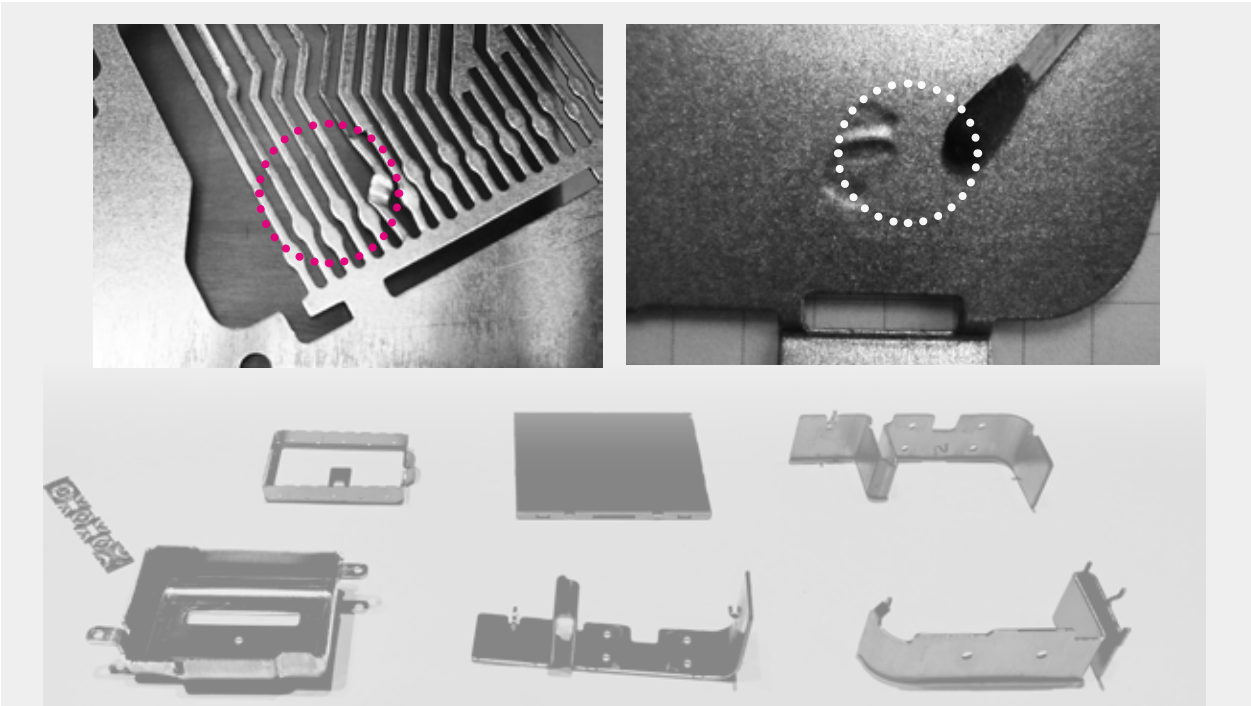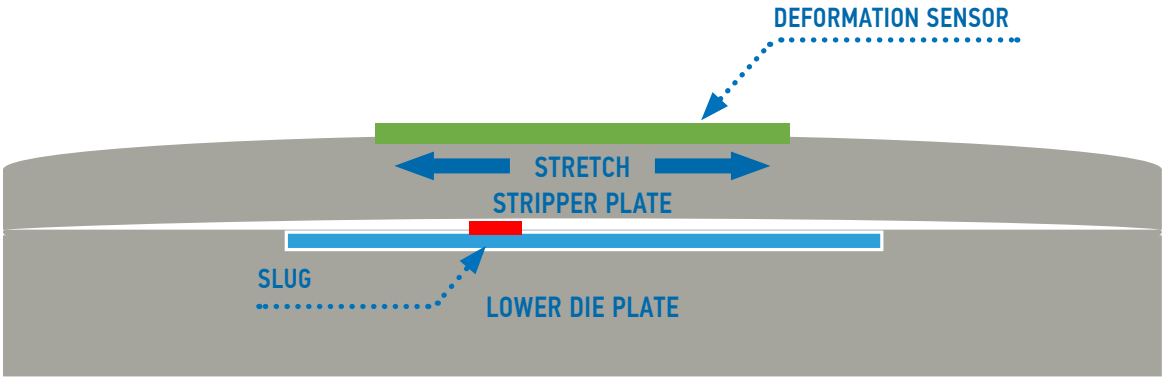
SMALL PARTS

STAMPING PROCESS

SLUG DETECTION

Metal slugs and burrs during the stamping process cause scratches and dents on the parts. Monitoring pressure and acoustic waves of high-speed stamping process, avoids scrap of small parts like keyboards and connectors.

PROCESS DATA COLLECTION

Process data in forming and stamping technology are becoming more and more important for high quality parts for consumer industries. Those data can be stored automatically and are available for immediate analysis and assessment in case of customer complaints, internal analysis and improvement measures. By regularly storing the process data with date, time and product number, they can easily be found and evaluated.
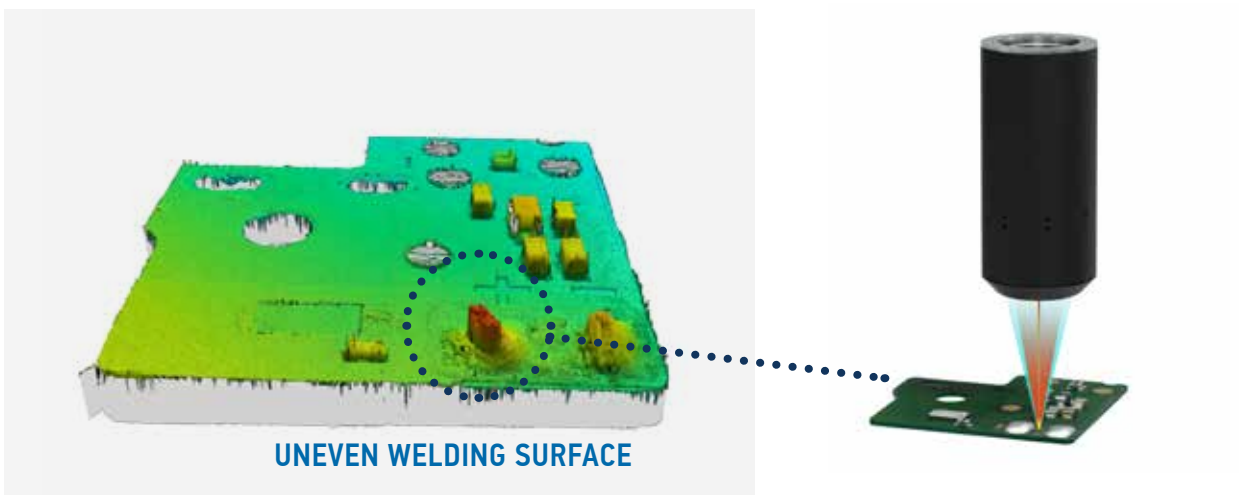
OPTICAL INSPECTION

COSMETIC AND DEFECT INSPECTION SOLUTION (WELDING SPOT)

Solder joints can cause mechanical failures or out-of-spec PCB assembly dimensions. Confocal optical inspection allows to avoid NG parts before the final assembly.

UNEVEN WELDING SURFACE

Using an advanced artificial intelligence software, our vision machine detects bursts and cosmetic defects of laser welding spots.

In the process of assembling small parts, the joining of components is accomplished using spot welding techniques. Following this welding process, it is essential to carefully control the quality of the micro-welding points. Common imperfections, such as overlapping welding spots, bursts, slag, or incomplete welding points, must be avoided. Our optical design expertise and artificial intelligence techniques can be customized to identify these flaws that may impact production quality.


SPOT OUT OF FLANGE

LESS SPOT

SPOT OVERLAP

MORE SPOT
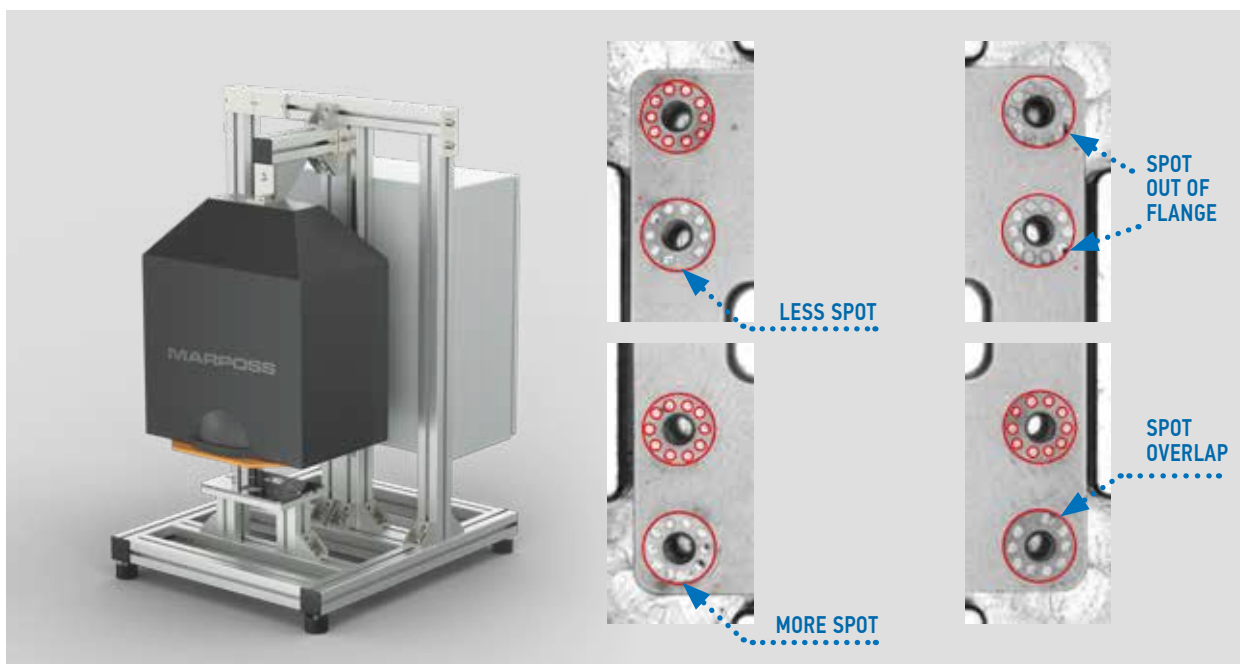
ASSEMBLY

GLUE DISPENSING

Glass and enclosure assembly is a critical operation that requires precise glue dispensing. Our low-force and high-precision touch probe can accurately detect the position of the enclosure edge for a precise assembly process.

Marposs probe

Glue dispenser

Probe the inner edge of enclosure to find its correct position
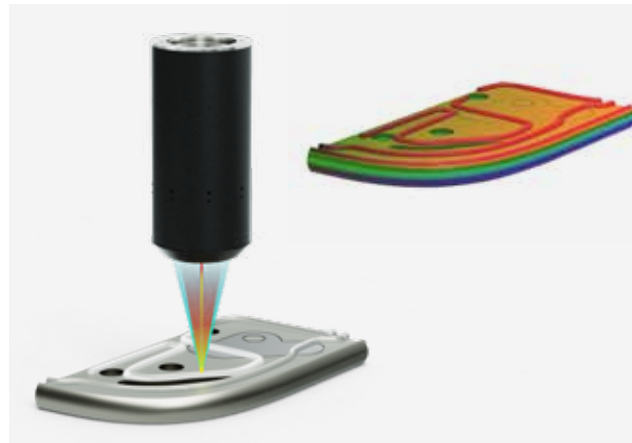
Glue dispenser
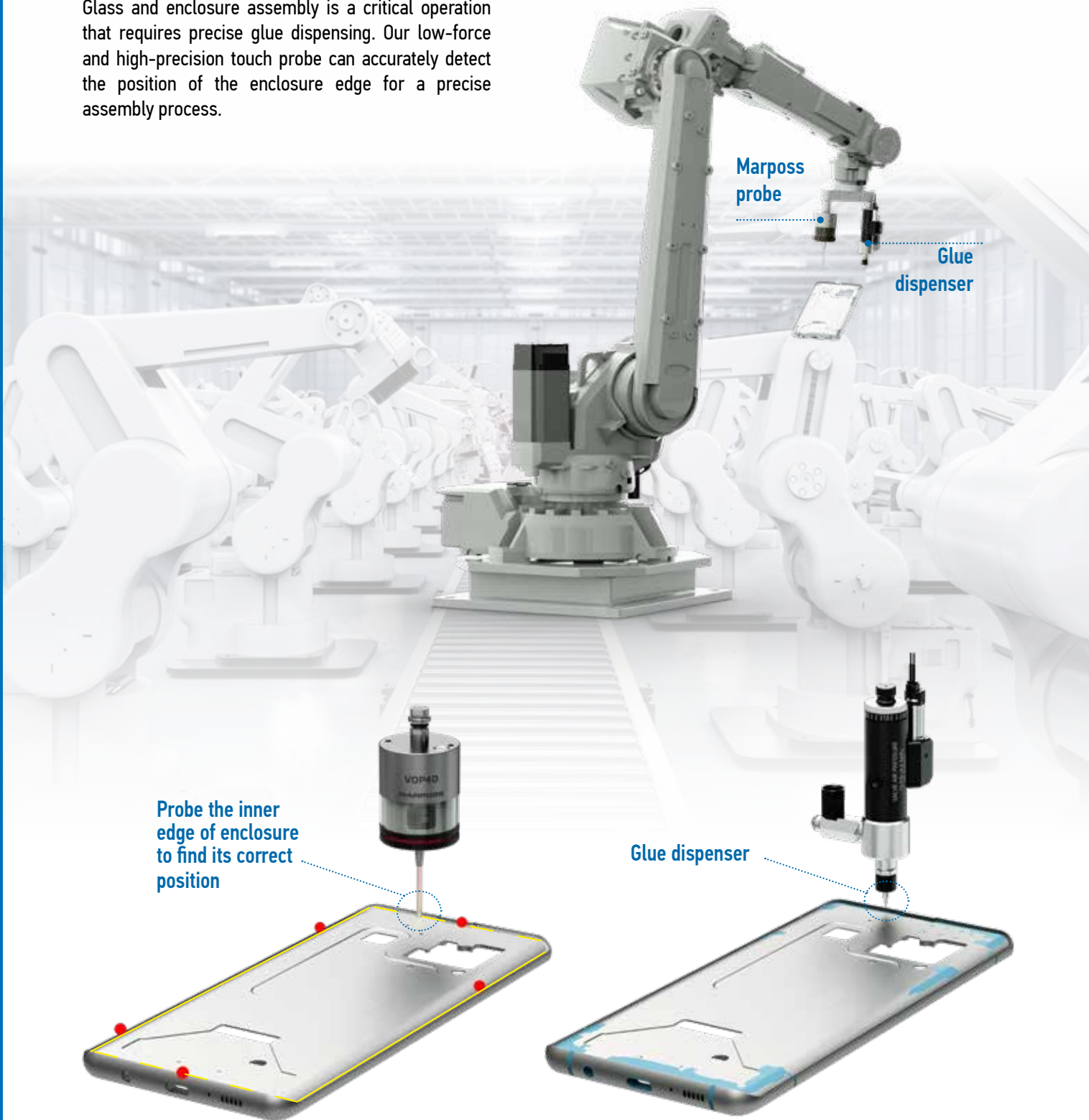
OPTICAL INSPECTION

GLUE DIMENSION MEASUREMENT

In addition to the position, the path of the glue also must be checked. The thickness of the glue in particular is a strict requirement for an effective and efficient assembly process. Chromatic confocal technology is the only inspection technology that can measure transparent glue.

IN LINE 3D MEASUREMENT: GAP AND STEP BETWEEN GLASS AND METAL

The final gap between the glass and the enclosure or the step between the camera and the glass are standard quality controls of assembled products. Thanks to its exceptional resolution, confocal optical inspection can satisfy increasingly tighter requirements.
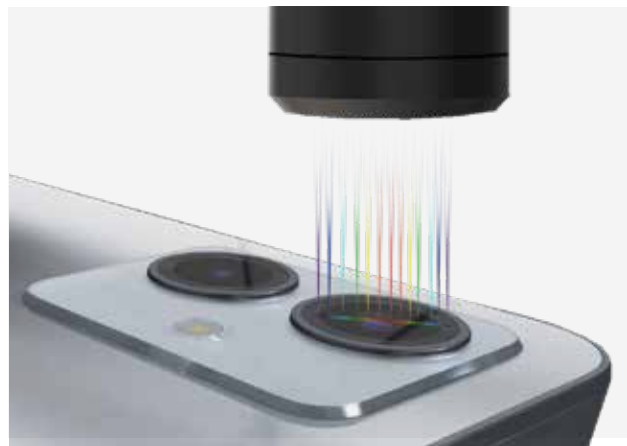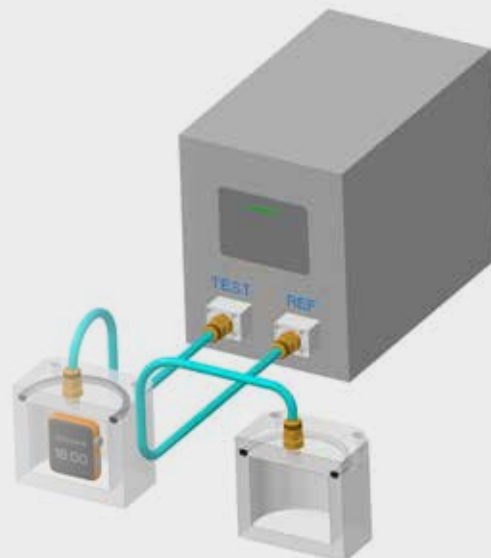
LEAK TEST INSPECTION

LEAK TEST ON ASSEMBLED PRODUCT

Leakage testing is an essential control to ensure the tightness of assembled and sealed products thus guaranteeing water resistance. With Marposs' air leakage sensor and extensive design experience, on Polaris machine, we offer:
- flexible solution to meet different customer needs fast cycle time (~ 20 sec)
- minimium leak detection (0,05 sccm/min)
- automatic loading / unloading fixture

MEASUREMENT, INSPECTION AND TEST FOR QUALITY AND PROCESS CONTROL

www.marposs.com

worldwide present in
34
countries

offices worldwide
80

exports
94%

approx.
3,500
employees

1,240 Italy
1,110 Asia
810 Rest of Europe
340 Americas

30
key acquisitions since 2000

8%
resources invested in R&D

Marposs was founded in 1952 and since then has provided shop-floor solutions for the quality control in the production environment. Marposs' solutions include gauging equipment of mechanical components, before, during, and after the production process, monitoring solutions on machine tools, assembly, and testing systems, automatic machines, and checking stations for production lines.

Marposs is one of the main suppliers of the top automotive manufacturers, but operates as well in the aerospace, biomedical, hi-tech, and glass industries.

Marposs Group's employees are more than 3500, located around the world, with presence in thirty-four countries with more than eighty sales offices.

MARPOSS

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