OPTICAL MEASUREMENT ON THE SHOPFLOOR

metrios
THE PAST. PROFILE PROJECTOR.

DIGITAL OPTICAL MEASUREMENT.
THE FUTURE. DIGITAL OPTICAL MEASUREMENT.

PRODUCTION METHODS HAVE CHANGED. CHANGE YOUR WAY OF MEASURING.

metriQs
INDUSTRY 4.0
DIGITAL MEASUREMENT IS ESSENTIAL.

Smart, automated, digitalized factories optimizing production processes. Objective and digital measurements during the process eliminate human error and reduce rejects.

METRIOS is a state of the art, automatic and digital optical measuring machine designed for shopfloor inspection. It performs accurate and objective quality tests directly in production, when parts are incoming or during final inspection prior to shipment, thus increasing productivity and reducing costs.

SPEED
Takes even complex measurements in a matter of seconds. Distances, radii, diameters, angles, straightness, roundness, as well as elements constructed on virtual lines.

INTUITIVE
A simple, intuitive click provides all the measurements required.

VERSATILITY
Designed to measure anything from metal components to deformable materials.

OBJECTIVITY
Consistent results unconditioned by the operator.

CUSTOMIZED
In-house software development to meet the users’ requirements.
1. PLACE

2. PRESS

3. ACQUIRE
AUTOMATIC MEASUREMENT SYSTEM.

Place, press and acquire.

With an innovative system and a METRIOS in-house software, all the necessary dimensional information is acquired with absolute precision, as simply as possible.

AUTOMATIC POSITION DETECTION
Free hand rapid positioning, no need for accurate placement.

LIMITLESS MEASUREMENTS FOR EACH PIECE
Complex parts with countless details: METRIOS acquires all the measurements in just a few seconds.

MULTIPLE PIECE MEASUREMENTS
METRIOS inspects multiple parts at the same time.

MEASUREMENT SOFTWARE
Highly practical and intuitive, it does not require specialized operators.

The histogram display provides an immediate good/reject result.

The operator sees the live image of the part directly on the screen and has the same practical sensation as when using the profile projector.

The measurements highlighted by the histogram are indicated on the live image of the element. This function provides the operator with immediate control.

Within tolerance Limit of tolerance Out of tolerance
THE MOST COMPLETE LIGHTING SYSTEM IN ITS CATEGORY.

OPTICAL MEASURING UNIT:
METRIOS acquires measurements with a non-contact optical system. The system consists of a high-resolution sensor and three different lighting systems.
TELECENTRIC BACKLIGHTING
For maximum accuracy and repeatability on profiles.

COAXIAL EPISCOPIC ILLUMINATOR
The integrated coaxial episcopic illuminator is ideal for illuminating surfaces uniformly, making it possible to measure every single detail on the surface, such as blind holes or writings and markings. Unlike other measuring systems, the coaxial episcopic illuminator is a standard METRIOS feature so no extra bulky and costly optionals are required.

UP TO 640 LED ANNULAR ILLUMINATOR
Programmable up to 16 sectors. Arranged on two rings at different tilt angles, the annular illuminator lights up the part from any angle. It is adjustable in height and can detect bevels or other elements on the surface. The powerful illumination solution, unique in its category, is stronger than the ambient light conditions.

ILLUMINATOR SECTORS
One or more sectors of the annular illuminator may be selected independently, as well as the intensity of each individual sector. The configuration of the selected sectors adjusts to the orientation of the part each time it is repositioned.
THE ILLUMINATION ANGLE CHANGES: WHAT YOU SEE CHANGES.

WRITING WITH LIGHT

METRIOS can change the illumination angle of incidence on the part. The motorized annular illuminator provides various angles of the light source within the same measurement cycle. Each illumination program saved can be used to carry out subsequent measurements.
THE NEW MOTORIZED RING LIGHT:

- moves towards and away from the stage and is fitted with an automatic adjustment system;
- changes the illumination angle of each surface;
- highlights a number of features on the element.
EASY AS A TABLET, POWERFUL AS A SHOPFLOOR MEASURING TOOL.

ACCESS - DIALOG - INTERACTION
Discovering every day the value of a cutting edge tool for your shopfloor.

IMMEDIATE ACCESS
Multi-touch industrial 17-inch screen designed for clear visibility, and a user-friendly interface with intuitive programming to facilitate daily use.

STRUCTURE
Innovative construction techniques have resulted in a tool capable of operating outside the metrology lab. Its sturdy steel alloy frame with reinforcing ribs houses and protects the delicate parts of the machine.

ERGONOMICS
• The loading area provides a great access space for the operator’s hands.
• METRIOS has the ideal size for operating from the typical standing position in production.

MULTI-GESTURE TECHNOLOGY

Line  Radius
100 mm VERTICAL STROKE.

The measuring stage moves vertically with a 100 mm stroke, moving downwards during loading and unloading phases. The vertical stroke of the stage is useful for:

- measuring parts with significant thickness;
- using supports and jigs when necessary;
- automatically focusing on multi-level elements.

The greatest distance between stage and optics in its category.
“S” LIKE SLIDING. EXTEND THE MEASURING AREA UP TO 280 mm ALONG THE X AXIS.

Models: MT75S - MT100S
MAGNIFICATION, RESOLUTION, QUALITY. NO LIMITATION OF USE.

METRIOS CAN ZOOM UP TO 100X

Various versions available with a range of fields of view and resolutions. With just one picture METRIOS can capture even the most minute detail.

The software displays a high resolution image of the entire element revealing the level of cleanliness and the presence of any burrs and scratches.

The machine’s lens reduces distortion to a minimum at any point on the field of view, ensuring maximum accuracy.

Not just a fast measuring tool, but also a powerful magnifier.
Shopfloor environments are not always temperature controlled, so METRIOS is equipped with an on-board Step Master (gage) that gives measurement feedback during the cycle.

In addition, 3 temperature sensors ensure all measurements are taken correctly. These sensors make the instrument immune to the typical varying environmental conditions of the shopfloor.

Designed for practical use on the shopfloor, by using the on board step-master to its full advantage, METRIOS allows operators to replace any damaged glass without having to recalibrate with an external master, saving on the typical maintenance costs of optical measuring devices.

METRIOS is designed to operate outside the quality room.
MAXIMUM BENEFIT ON THE SHOPFLOOR.

TEMPERATURE SENSORS

TEMPERATURE SENSORS

TEMPERATURE SENSORS

ON-BOARD STEP MASTER
DATA COLLECTION

METRIOS automatically collects data, eliminating the risk of human error, saving time and providing an analytical assessment of the production trend.

AUTOMATIC MEASUREMENT TREND
A graph shows the trend of each single measurement, providing the following information: average trend, maximum deviation, mean deviation, CP, CPK.

INSTANT MEASUREMENT REPORT
The software can print a complete and customizable report or export it in PDF format. The histogram immediately shows if each single measurement is within tolerance and if there is any deviation from the nominal value.

CONNECTABLE EXTERNAL DEVICES
METRIOS can collect data from external devices connected via USB. In this way, measurements that are not typically acquired by an optical measuring tool can be added to the report. For instance, weight, roughness or depth of blind holes.

USB CONNECTION
ACCESSORIES

METRIOS may be supplied with an accessory kit to clamp even the most complex elements. The large Z stroke does not set any limits to any type of positioning.

Example of fixing with tailstock.

Example of fixing using pliers mounted on rotary table with angular divider.
TECHNICAL DATA

<table>
<thead>
<tr>
<th>MODEL</th>
<th>METRIOS MT7560</th>
<th>METRIOS MT7575</th>
<th>METRIOS MT11080</th>
<th>METRIOS MT75S</th>
<th>METRIOS MT100S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum piece size on X-Y axis</td>
<td>75x60 mm</td>
<td>75x75 mm</td>
<td>110x80 mm</td>
<td>75x260 mm</td>
<td>100x280 mm</td>
</tr>
<tr>
<td>Maximum piece size on Z axis</td>
<td>100 mm</td>
<td>100 mm</td>
<td>100 mm</td>
<td>70 mm</td>
<td>70 mm</td>
</tr>
<tr>
<td>Maximum weight load</td>
<td>0.8 Kg</td>
<td>0.8 Kg</td>
<td>0.8 Kg</td>
<td>2 Kg</td>
<td>2 Kg</td>
</tr>
<tr>
<td>Measurement accuracy*</td>
<td>5 µm</td>
<td>4 µm</td>
<td>5 µm</td>
<td>5/7 µm**</td>
<td>5/7 µm**</td>
</tr>
<tr>
<td>Measurement repeatability*</td>
<td>2 µm</td>
<td>2 µm</td>
<td>2 µm</td>
<td>2/3 µm***</td>
<td>2/3 µm***</td>
</tr>
<tr>
<td>Machine weight</td>
<td>95 Kg</td>
<td>95 Kg</td>
<td>95 Kg</td>
<td>100 Kg</td>
<td>100 Kg</td>
</tr>
<tr>
<td>WxDxH</td>
<td>400x800x900 mm</td>
<td>400x800x900 mm</td>
<td>400x800x900 mm</td>
<td>400x800x900 mm</td>
<td>400x800x900 mm</td>
</tr>
</tbody>
</table>

* ±2a at temperatures of +20 ± 1.0°C on clean and rectified surfaces.
** 5 µm in acquisition on a fixed stage / 7 µm in acquisition on a mobile stage (acquisition of several images).
*** 2 µm in acquisition on a fixed stage / 3 µm in acquisition on a mobile stage (acquisition of several images).

THE METRIOS RANGE

<table>
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<tr>
<th>MODEL</th>
<th>Description</th>
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<tbody>
<tr>
<td>MT7560</td>
<td>For versatile uses with the best quality-price ratio.</td>
</tr>
<tr>
<td>MT7575</td>
<td>Capture the details of even the smallest components.</td>
</tr>
<tr>
<td>MT11080</td>
<td>Ideal for large pieces up to 100 mm.</td>
</tr>
<tr>
<td>MT75S</td>
<td>Fitted with a sliding stage along the X axis, it provides a wide working area at the right price.</td>
</tr>
<tr>
<td>MT100S</td>
<td>Fitted with a sliding stage along the X axis, it combines a great working area with high resolution.</td>
</tr>
</tbody>
</table>

All models can be fitted with a motorized annular illumination system.
METRIOS is available as a stand-alone solution, or can be integrated into a workstation to provide operational support.
WORKSTATION

Industrial multi-touch screen provides maximum comfort when standing.

Practical work surface for placing drawings, pieces and extra tools.

Second monitor (optional)
The convenience of programming while seated, having full access to the machine.

WORKSTATION SIZE

2900 mm

1400 mm

950 mm
CHECK OUT METRIOS IN ACTION
WATCH THE VIDEO

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