

**OPTICAL MEASUREMENT ON THE SHOPFLOOR**

**metriOS**

**THE PAST.** PROFILE PROJECTOR.



**THE FUTURE.** DIGITAL OPTICAL MEASUREMENT.



**PRODUCTION METHODS HAVE CHANGED.  
CHANGE YOUR WAY OF MEASURING.**

metriOS

# 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.







3. ACQUIRE



1. PLACE

2. PRESS

# AUTOMATIC MEASUREMENT SYSTEM.

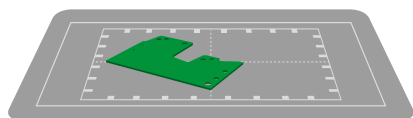
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## Place, press and acquire.

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

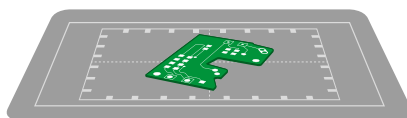
### AUTOMATIC POSITION DETECTION

Free hand rapid positioning, no need for accurate placement.



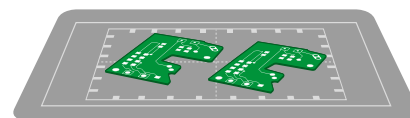
### LIMITLESS MEASUREMENTS FOR EACH PIECE

Complex parts with countless details: METRIOS acquires all the measurements in just a few seconds.



### MULTIPIECE 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



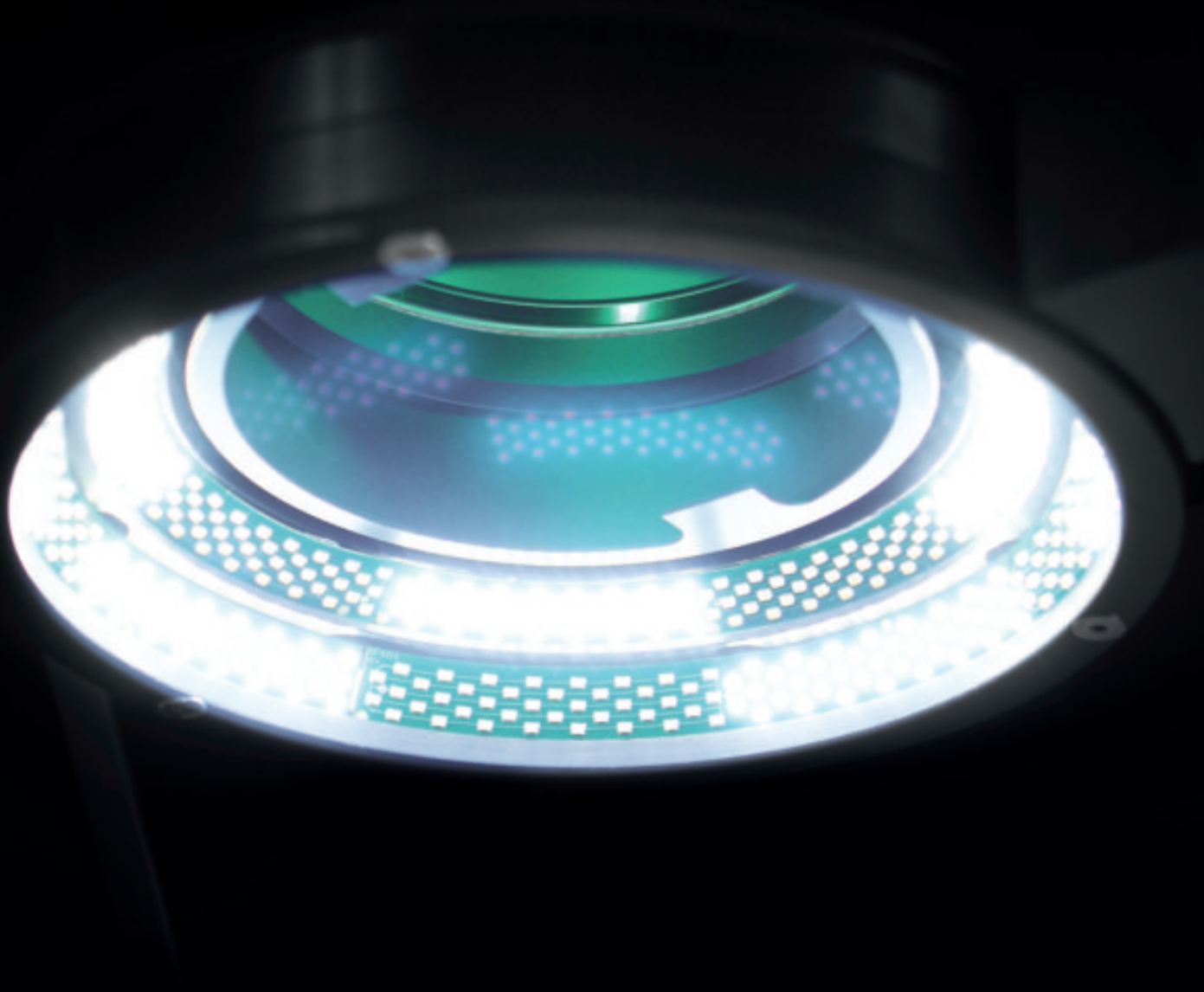
Limit of tolerance



Out of tolerance



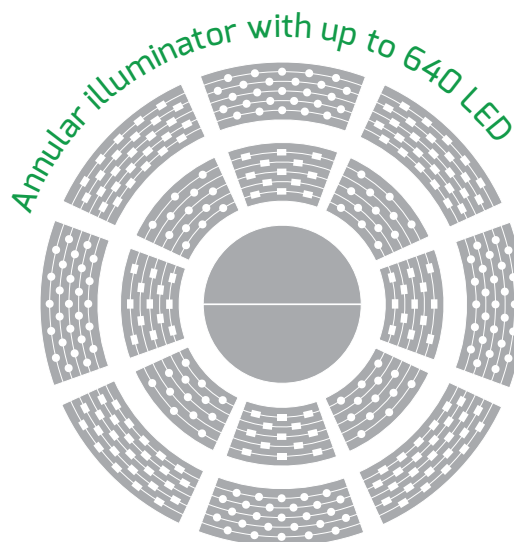
# THE MOST COMPLETE LIGHTING SYSTEM IN ITS CATEGORY.



## **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.



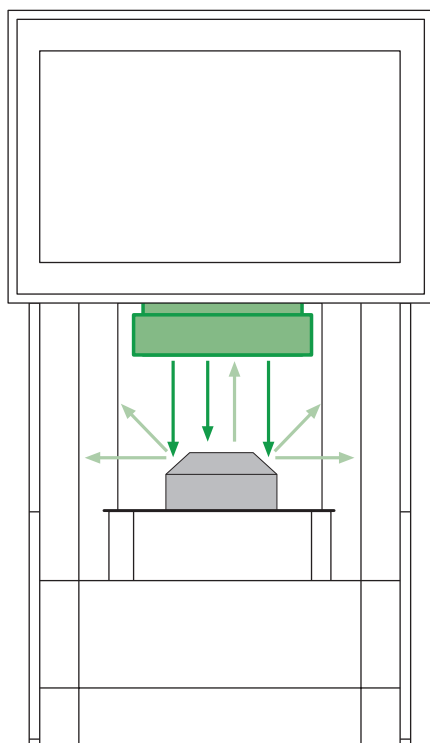
## WRITING WITH LIGHT

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.

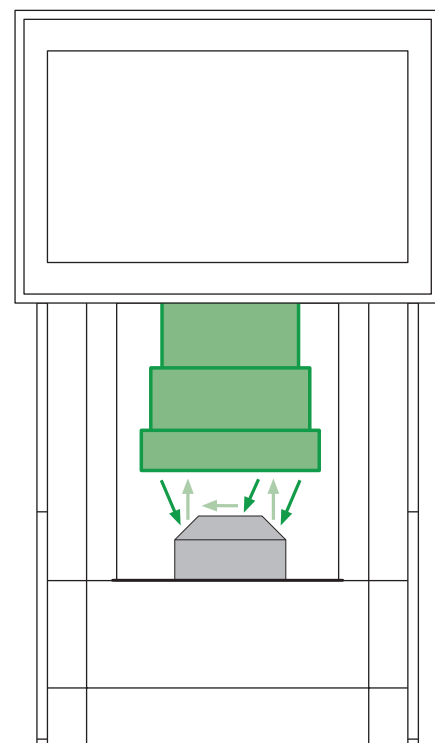
### THE NEW MOTORIZED RING LIGHT:

- 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.

#### RING LIGHT UP



#### RING LIGHT DOWN



↓  
PROJECTED  
LIGHT

↑  
REFLECTED  
LIGHT



# 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.

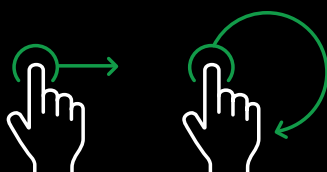
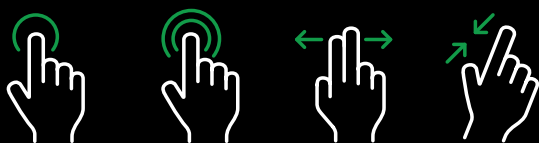
## STRUCTURE

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





Sandbox model

metrios

Px Py  
1345.70 2744.77

World Px World Py  
28.933 mm 59.013 mm

Color Zoom  
255 3.04x

ID	Value	OT
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9	Line - line distance 85.853	
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10	Line - line angle 89° 57' 25"	
----	----------------------------------	--

12	Line - line distance 175.979	
----	---------------------------------	--

15	Line - line distance 11.571	
----	--------------------------------	--

18	Line - line angle 91° 52' 05"	
----	----------------------------------	--

19	Line - line distance 20.543	
----	--------------------------------	--

22	Line - line angle 90° 14' 26"	
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24	Distance 20.692	
----	--------------------	--

25	Point-Line distance 10.277	
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26	Distance 93.041	0.259
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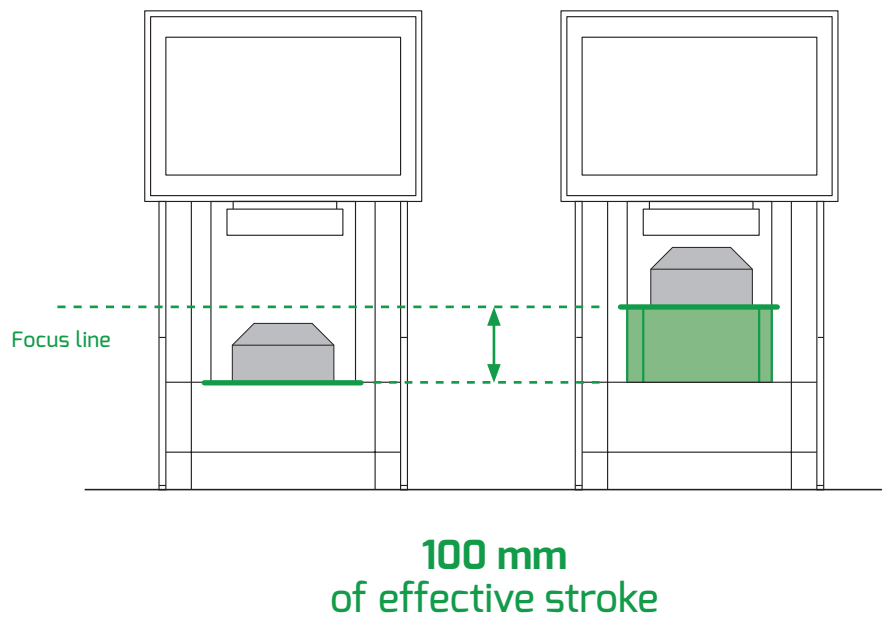
27	Distance 37.755	4.005
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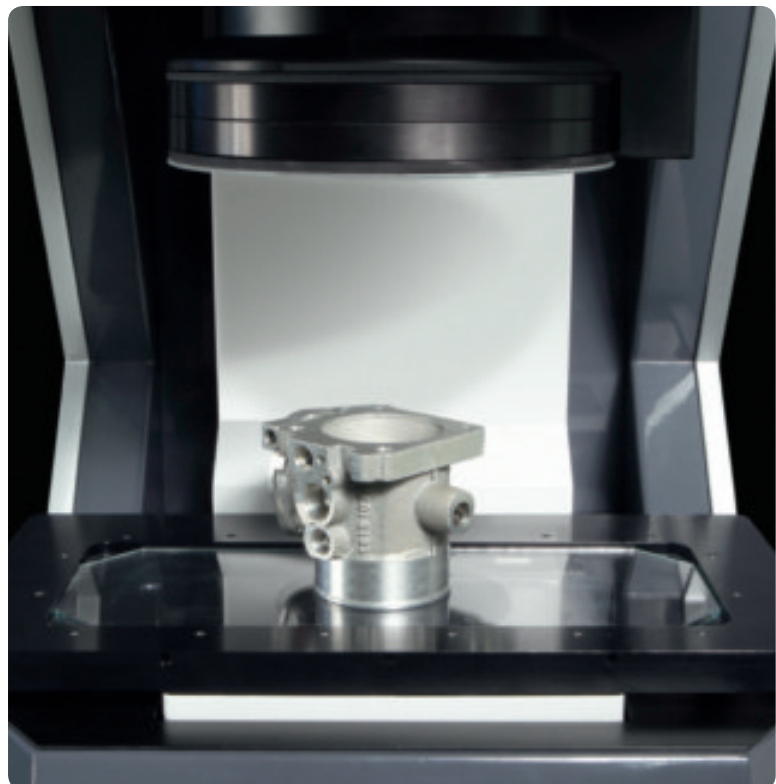
# 100 mm VERTICAL STROKE.

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.

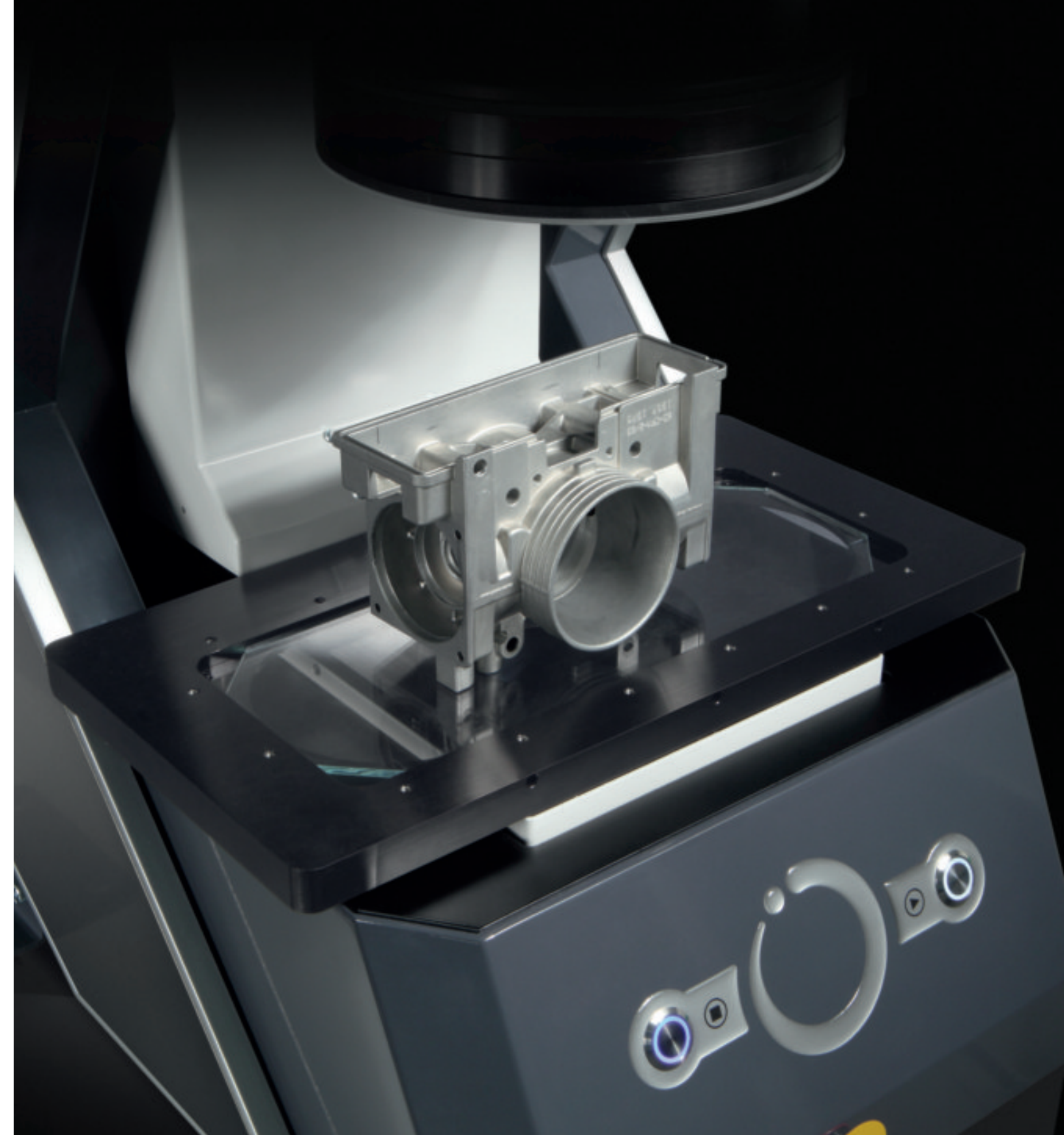


**The greatest distance between stage and optics in its category.**



**“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

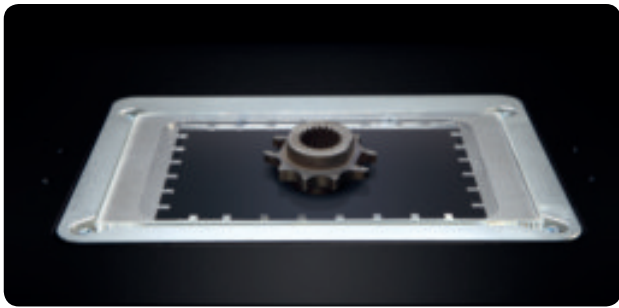
Various versions available with a range of fields of view and resolutions. With just one picture METRIOS can capture even the most minute detail.

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

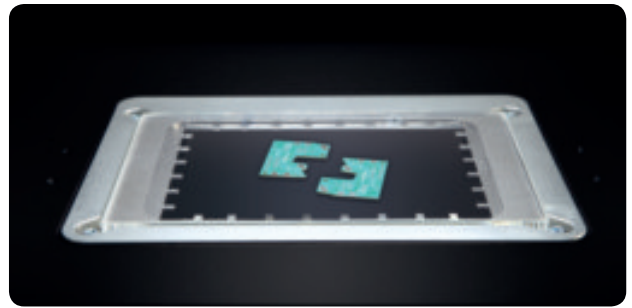
The machine's lens reduces distortion to a minimum at any point on the field of view, ensuring maximum accuracy.

**Not just a fast measuring tool, but also a powerful magnifier.**

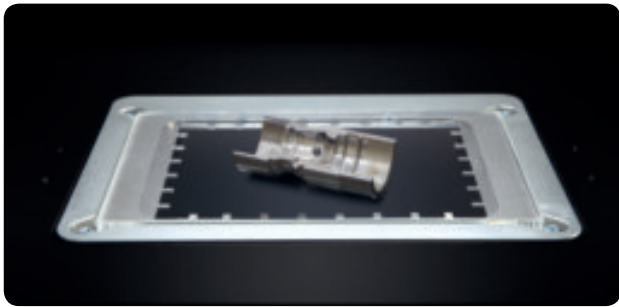




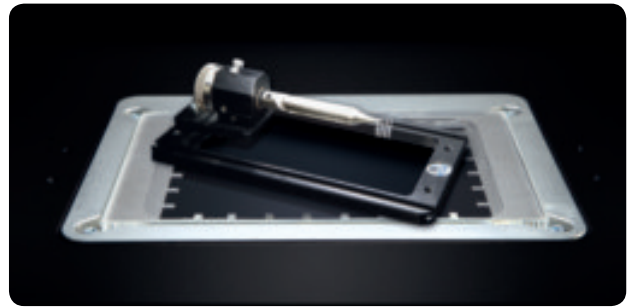
Mechanical parts



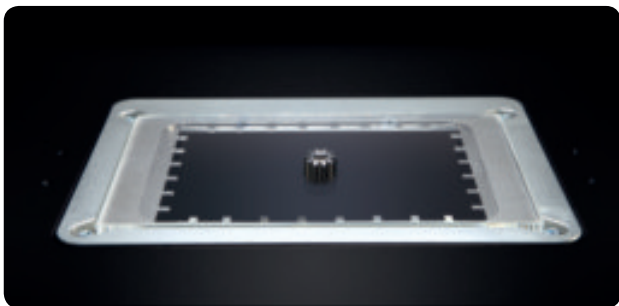
Circuit boards



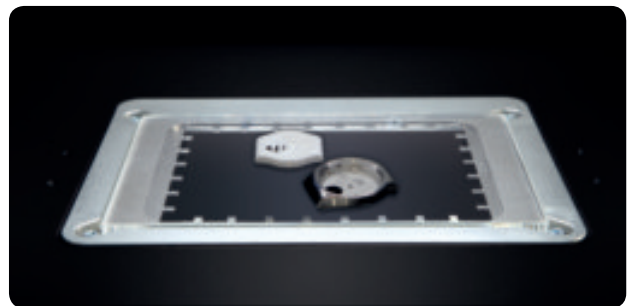
Hydraulic and pneumatic fittings



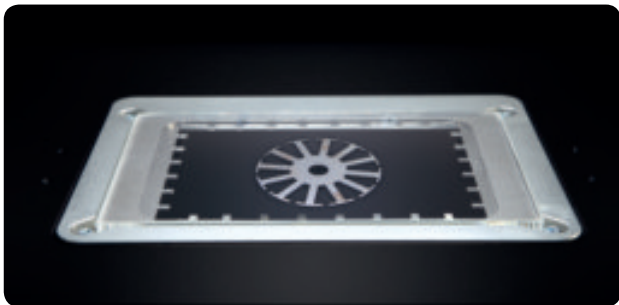
Connectors



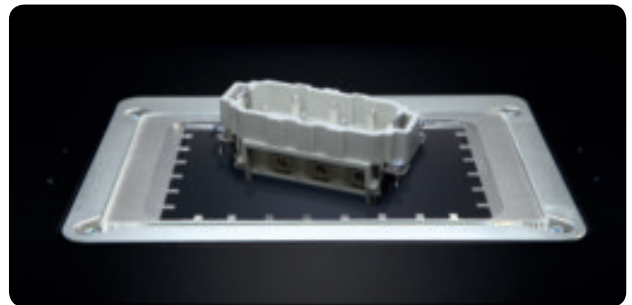
Gearwheels



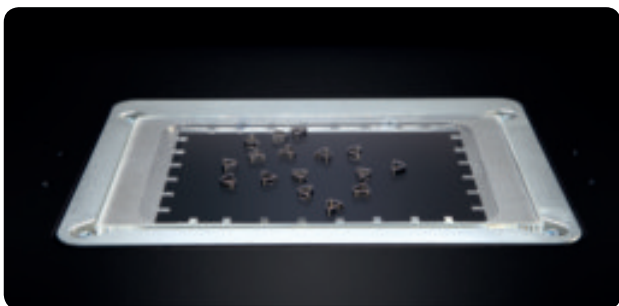
Watch components



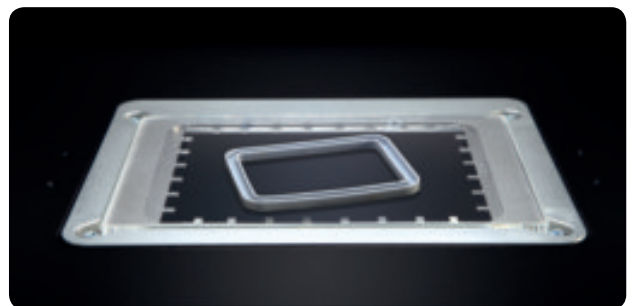
Rotors



Assembled parts



Springs



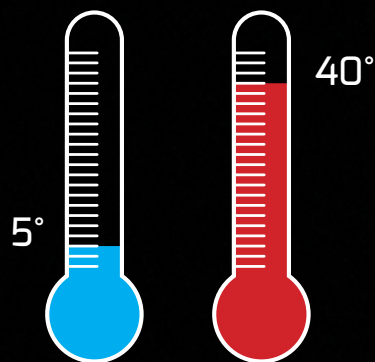
Seals

# ON-BOARD STEP MASTER AND TEMPERATURE SENSORS.

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.

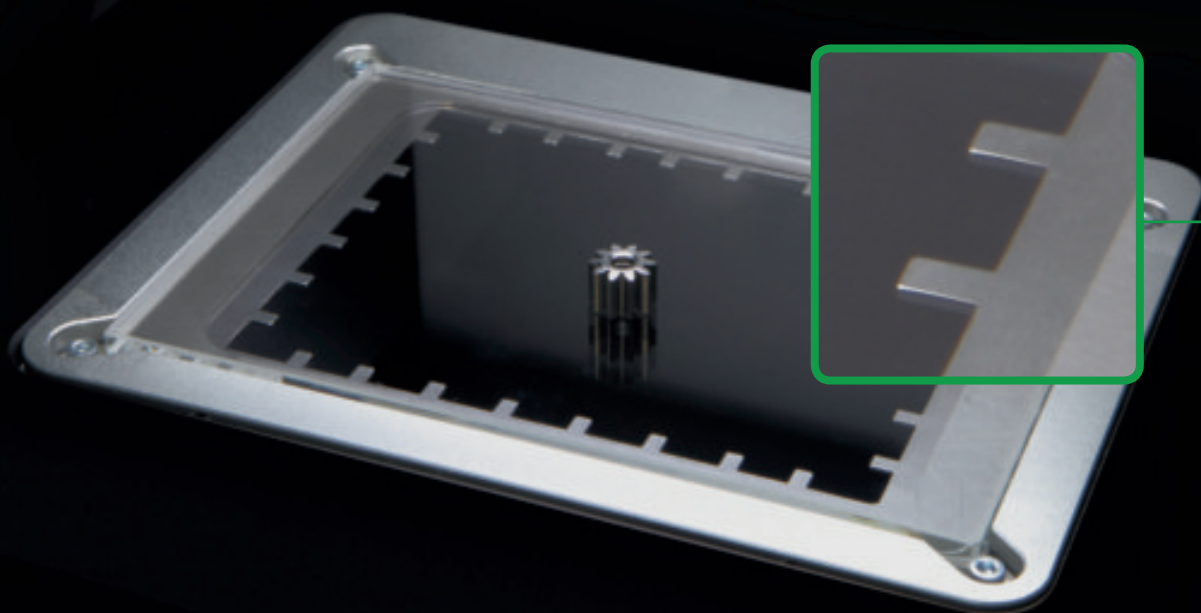
In addition, **3 temperature sensors** ensure all measurements are taken correctly. These sensors make the instrument immune to the typical varying environmental conditions of the shopfloor.

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.



Minimum and maximum temperatures  
on the shopfloor

**METRIOS is designed  
to operate outside the  
quality room.**



# MAXIMUM BENEFIT ON THE SHOPFLOOR.

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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.

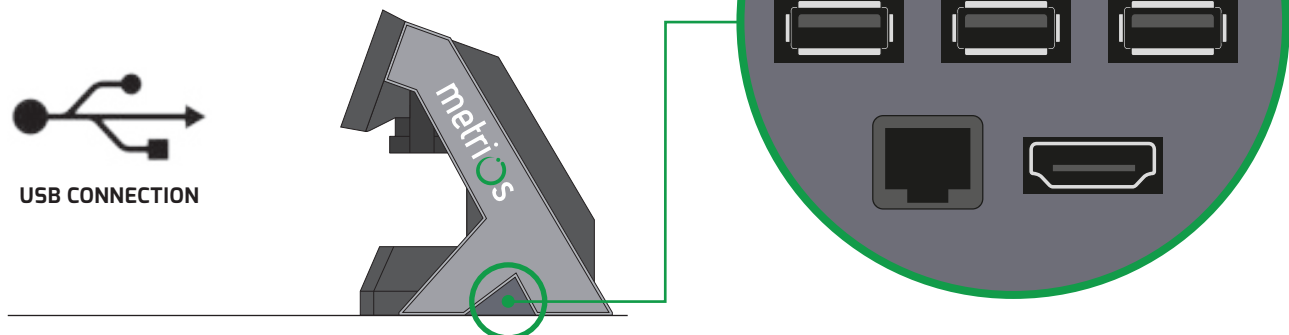


## INSTANT MEASUREMENT REPORT

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

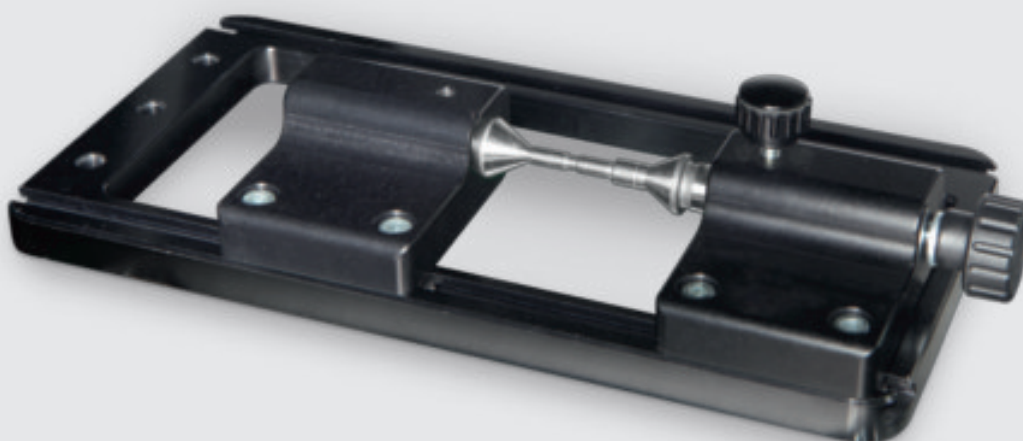
METRIOS can collect data from external devices connected via USB. In this way, measurements that are not typically acquired by an optical measuring tool can be added to the report. For instance, weight, roughness or depth of blind holes.





# 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

MODEL	Field of view	Maximum piece size on Z axis	Maximum weight load	Measurement accuracy <sup>(1)</sup>	Measurement repeatability <sup>(1)</sup>	Machine weight
<b>METRIOS MT7560</b>	75 x 60 mm	100 mm	0,8 Kg	(5+0.01L [mm]) (μm)	(2+0.01L [mm]) (μm)	105 Kg
<b>METRIOS MT7575</b>	72 x 72 mm	100 mm	0,8 Kg	(4+0.01L [mm]) (μm)	(2+0.01L [mm]) (μm)	105 Kg
<b>METRIOS MT11080</b>	100 x 75 mm <sup>(2)</sup>	100 mm	0,8 Kg	(5+0.01L [mm]) (μm)	(2+0.01L [mm]) (μm)	105 Kg
<b>METRIOS MT75S</b>	260 x 75 mm	70 mm	2 Kg	(5+0.01L [mm]) (μm) <sup>(5)</sup> (7+0.01L [mm]) (μm) <sup>(6)</sup>	(2+0.01L [mm]) (μm) <sup>(5)</sup> (3+0.01L [mm]) (μm) <sup>(6)</sup>	110 Kg
<b>METRIOS MT100S</b>	280 x 100 mm <sup>(3)</sup>	70 mm	2 Kg	(5+0.01L [mm]) (μm) <sup>(5)</sup> (7+0.01L [mm]) (μm) <sup>(6)</sup>	(2+0.01L [mm]) (μm) <sup>(5)</sup> (3+0.01L [mm]) (μm) <sup>(6)</sup>	110 Kg
<b>METRIOS MT2525</b>	23 x 23 mm	100 mm	0,5 Kg	(2.5+0.01L [mm]) (μm)	(1.5+0.01L [mm]) (μm)	105 Kg
<b>METRIOS MT25CROSS</b>	75 x 75 mm	50 mm	0,5 Kg	(2.5+0.01L [mm]) (μm) <sup>(5)</sup> (3.5+0.01L [mm]) (μm) <sup>(6)</sup>	(1.5+0.01L [mm]) (μm) <sup>(5)</sup> (2.5+0.01L [mm]) (μm) <sup>(6)</sup>	115 Kg
<b>METRIOS MT100CROSS</b>	280 x 200 mm <sup>(4)</sup>	50 mm	3 Kg	(5+0.01L [mm]) (μm) <sup>(5)</sup> (7+0.01L [mm]) (μm) <sup>(6)</sup>	(2+0.01L [mm]) (μm) <sup>(5)</sup> (3+0.01L [mm]) (μm) <sup>(6)</sup>	130 Kg

(1) ±2σ at temperatures of +20 ± 1,0°C on clean and rectified surfaces. L = measured length

(2) Maximum fields of view: 80x75 mm or 100x45 mm, intersected with Ø 110 mm

(3) Maximum fields of view: 280x70 mm or 245x100 mm, intersected with Ø 290 mm

(4) Maximum fields of view: 280x170 mm or 245x200 mm, intersected with Ø 300 mm

(5) Accuracy without moving table

(6) Accuracy with moving table

# THE METRIOS RANGE

<b>MT7560</b>	For versatile uses with the quality-price ratio.
<b>MT7575</b>	High resolution for small components.
<b>MT11080</b>	Ideal for large parts up to 100 mm.
<b>MT75S</b>	Sliding stage, wide working area.
<b>MT100S</b>	Sliding stage, wide working area and high resolution.
<b>MT2525</b>	Capture the smallest detail on micro-components.
<b>MT25CROSS</b>	Fitted with sliding stage along X and Y axis.
<b>MT100CROSS</b>	Sliding stage along the X and Y axis, wide working area and high resolution.



All Metrios models are fitted with panel pc 17-inch (power supply 230 Volt 50/60 Hz).

METRIOS is available as a stand-alone solution, or can be integrated into a workstation to provide operational support.

WORKSTATION

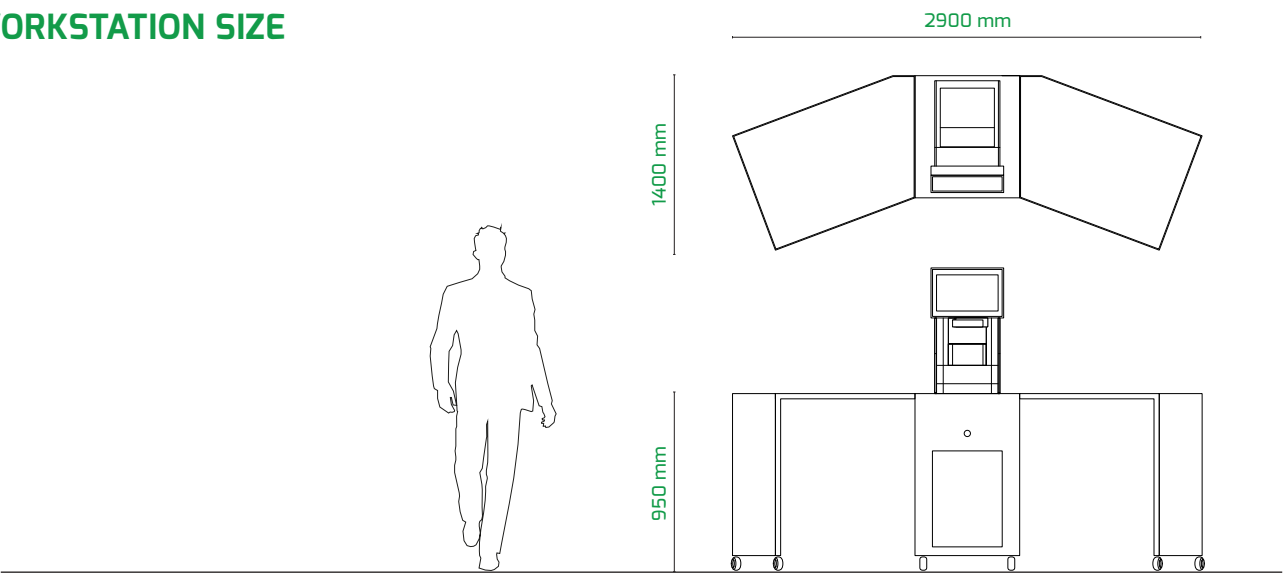
Industrial multi-touch screen  
provides maximum comfort when standing.

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

Workstation

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

WORKSTATION SIZE





# metrios

CHECK OUT METRIOS  
IN ACTION  
WATCH THE VIDEO



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