

**MEASUREMENT
IS SO SIMPLE**

ADVANCED 4D METROLOGY
AYONIS[®]
ALTIMET

Ayonis, your expert in dimensional metrology



AYONIS



➤ 30 YEARS OF EXPERIENCE

AYONIS range: over 30 years of experience in the field of high precision metrology.

We offer a range of high-tech machines perfectly suited to current industry requirements.

Equipped with powerful software suites, our machines perform in laboratories as well as in production environments «on the line edge».

Innovation and reactivity are the real competitive advantages of AYONIS.

#RELIABILITY #TIME SAVING

OUR SERVICES



Training

Our training courses allow you to work with our metrology machines by optimizing the use of dedicated software.



Maintenance

Our maintenance contracts include an annual visit and online support. They are available for all models and provide serenity and confidence.



Durability

The retrofit proposed by our company offers the opportunity to upgrade your measuring equipment, whether it is a 2D or 3D machine. Our team will work on your measuring tool and send you an updated and efficient machine.



**Your partner to meet
your metrological
requirements!**

Ayonis is a French brand specialized in the design, production and marketing of contactless automatic measuring equipment, ranging from 2D digital profile projectors to multi-sensor 3D measurement machines.

We also develop software for metrology and data processing.

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Preamble

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2D/3D hybrid digital profile projector



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GALAXY ds331

3D measurement system with chromatic confocal technology



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DELTEC LEOS

3D multisensor measurement machines



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Visionis

The smart inspection system

Our instruments allow you to check the dimensional conformity of your industrial products, in many sectors of activity such as:



Medtech



Watchmaking



Electronics



Automotive



Aeronautics



Cosmetic

CONTACTLESS MEASUREMENT: FROM MANUAL PROFILE PROJECTOR TO DIGITAL PROJECTOR

Manual profile projector.



The manual profile projector is an optical measurement device. Based on the shadow puppet principle, the part profile is projected on a screen.

The optical chain ensures a magnification determined between the size of the projected image and the actual size of the part (ex. x10, x50, x100). This instrument is used for the control by superimposing a layer on the screen, or the measurement of simple 2D geometric elements, such as a distance, an angle, a diameter ...

Despite a great number of machines installed, the manual profile projector presents 3 major drawbacks and cannot meet the increasing requests of the users.



Lack of objectivity of the measures. Manual point capture, eyestrain, and eyesight difference can affect performance.



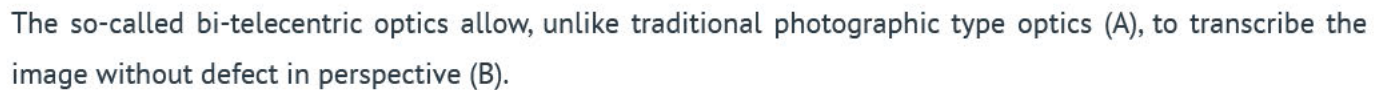
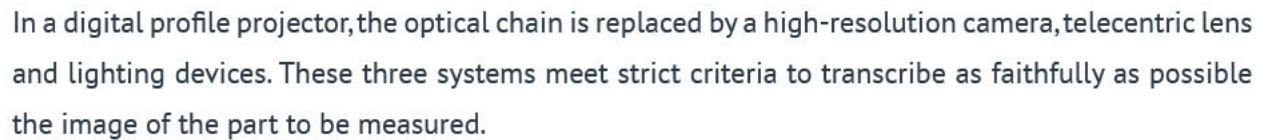
Control time is very slow.



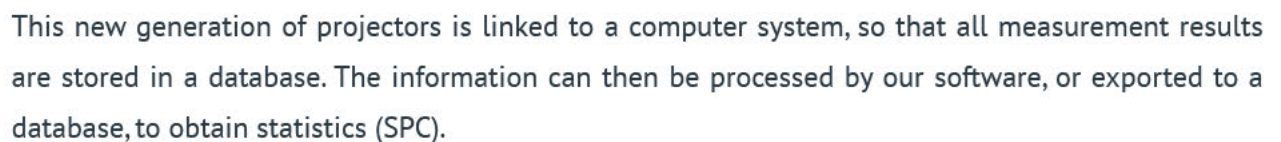
Lack of traceability: the reading of values remains mostly manual.

The AYONIS digital profile projector allows the correction of these drawbacks, while increasing the performances of this kind of measuring means.





The diagram illustrates the optical setup for laser Doppler velocimetry. It shows a sequence of components from left to right: a laser source (A) labeled 'Éclairage', a rotating piece (B) labeled 'Pièce', an optical system (C) labeled 'Optique', and a camera (D) labeled 'Caméra'. Green arrows represent the light path: from the laser source, through the piece, and then through the optical system to the camera.

[illegible]

ICM D2P

2D digital profile projector



You drop it, you measure it!

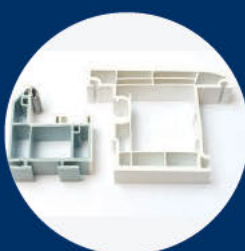
Parts recognition and automatic selection of the corresponding program.

Control of parts regardless of their position and orientation in the field of view.

Increased accuracy, reproducibility and objectivity of the measurements while reducing control time.

Recording and statistical analysis of measurements to optimize traceability and quality control.

Within one second





Machine structure:

- Robust aluminum structure allowing "line edge" use
- Bi-telecentric optics for extremely accurate full field measurements
- Optional X motorized axis
- Embedded computer



Measurement ranges:

	Zoom position			
	1	2	3	4
Field of view	67.6 x 56.5mm	33.8 x 28.3mm	16.9 x 14.1mm	8.4 x 7.1mm
«P» uncertainties in the field (2σ)	±5 μm	±2.5 μm	± 1.3μm	±0.7 μm
Maximum measuring range with axes	ICM D2P			
	200	400	600	
	200 x 67.6 mm	400 x 67.6 mm	600 x 67.6 mm	
XY uncertainties (2σ)	$P + (2.5 + L/200) \mu m$ (L in mm)			



Vision:

- 5 MPX high definition digital color camera
- Motorized bi-telecentric zoom (4 indexed positions)
- Programmable lighting devices:
 - Episcopic white LED
 - Diascopic collimated LED
- Optional motorized 3-in-1 lighting device (episcopic, low angle, dark field)



Computer:

- CPU INTEL Core i5, 8 Go, HDD 250 Go mini (embedded computer)
- 24" touch screen
- Windows 10 / 64 bits



ICM suite software:

The ICM D2P machine is provided with the "ICM suite™" software, that enables control of parts, exploitation of measurement results, and reporting of equipment use. It includes a powerful library of tools perfectly suited to your profession (watchmaking, micromechanics, cables, seals, electronics ...).



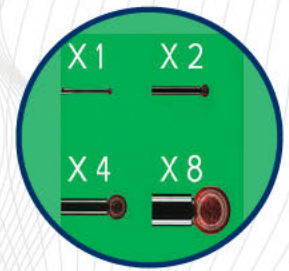
Optional configurations & accessories:

- 5 MPX camera with single field up to 67 x 56 mm
- 20 MPX camera with single field up to 120 x 80 mm
- 71 MPX camera with single field up to 67 x 47 mm
- Workstation
- Motorized rotary axis (W)
- Mounting with integrated lighting for the control of profiles or long tubes



Terms of use:

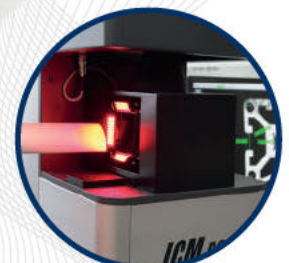
- Power supply: 220 V or 110 V, 50 or 60Hz, 500VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ C$ (θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C



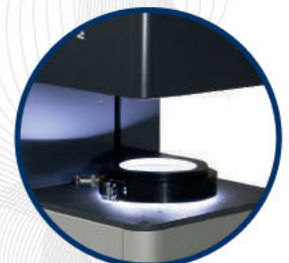
4 magnifications



Rotary axis



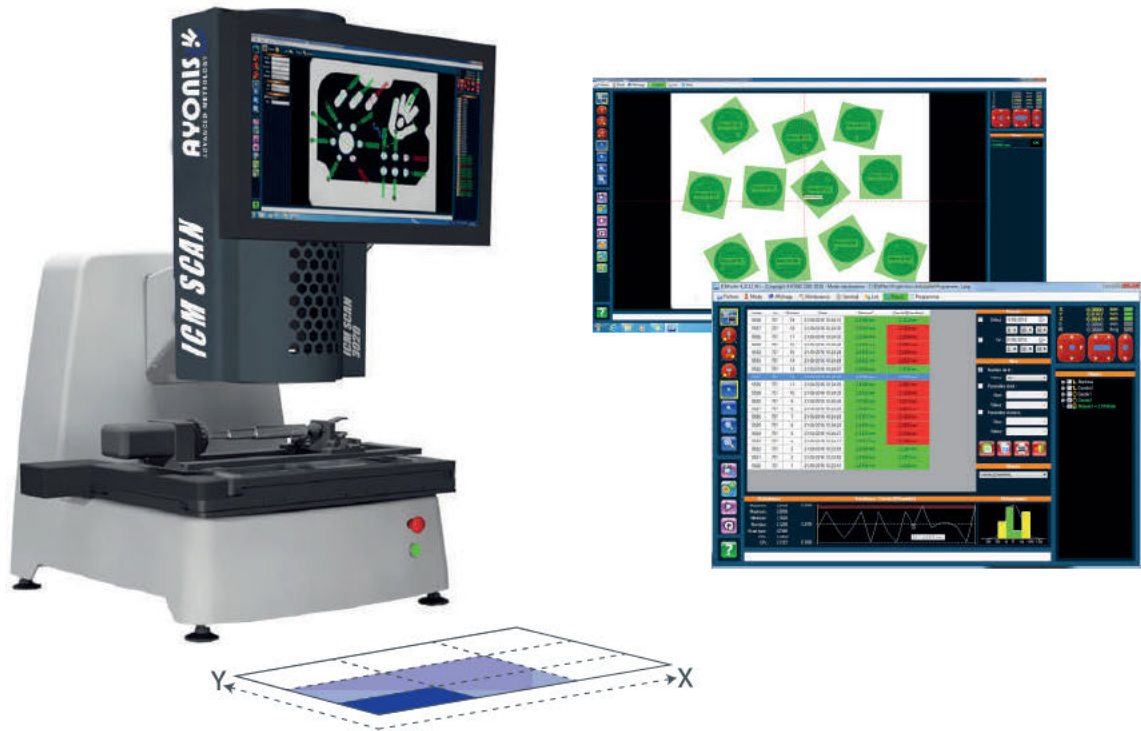
Profiles measurement



3 in 1 lighting device

ICM Scan

2D digital profile projector

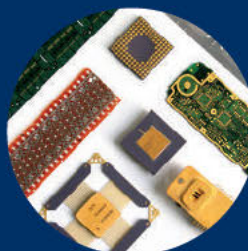


You drop it, you measure it!

Control of parts regardless of their position and orientation in a field of view up to 300x200 mm.

Increased accuracy, reproducibility and objectivity of the measurements while reducing the control time.

Recording and statistical analysis of measurements to optimize traceability and quality control.





Machine structure:

- Structure in cast aluminum alloy
- XY stroke: 150 x 150 or 250 x 150 mm
- Maximum XY measuring capacities: 200 x 200 mm or 300 x 300 mm (zoom 1)
- Load capacity: 10 kg.
- Cross roller guide
- Encoder resolution: 0.1 μ m.
- X, Y, Z speed: 100 mm/s max
- Bi-telecentric optics for extremely precise full field measurements.



Measurement ranges:

	Zoom position			
	1	2	3	4
Field of view	67.6 x 56.5mm	33.8 x 28.3mm	16.9 x 14.1mm	8.4 x 7.1mm
«P» uncertainties in the field (2σ)	±5 μm	±2.5 μm	± 1.3μm	±0.7 μm

	ICM SCAN 2020	ICM SCAN 3020
Maximum measuring range / zoom 1	200 x 200 mm	300 x 200 mm
XY uncertainties (2σ)	P + (2.5 + 5L/1000) μm (L en mm)	



Image Stitching:

- The advanced stitching function allows optimization of the reconstruction of a global image from the acquisition of a multitude of images.



Vision:

- 5 MPX high definition digital color camera
- Motorized bi-telecentric zoom (4 indexed positions)
- Programmable lighting devices:
 - Episcopic white LED
 - Diascopic collimated LED
 - Optional motorized 3-in-1 lighting device (episcopic, low angle, dark field)
- Magnification x14 to x112 (as an indication in full-field display on 24" screen)



Computer:

- CPU INTEL Core I5, 8 Go, HDD 250 Go mini
- 24" touch screen
- Windows 10 / 64 bits



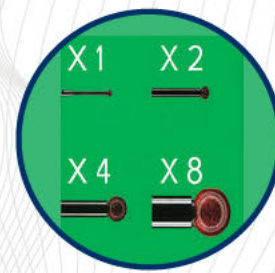
ICM suite software:

The ICM D2P machine is provided with the "ICM suite™" software, that enables control of parts, exploitation of measurements results, and reporting of equipment use. It includes a powerful library of tools perfectly suited to your profession (watchmaking, micromechanics, cables, seals, electronics...).

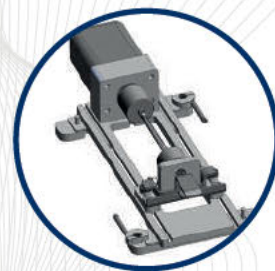


Terms of use:

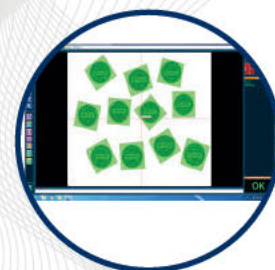
- Power supply: 220 V or 110 V, 50 or 60Hz, 600VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ\text{C}$ (θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C



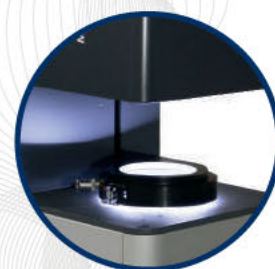
4 magnifications



Rotary axis



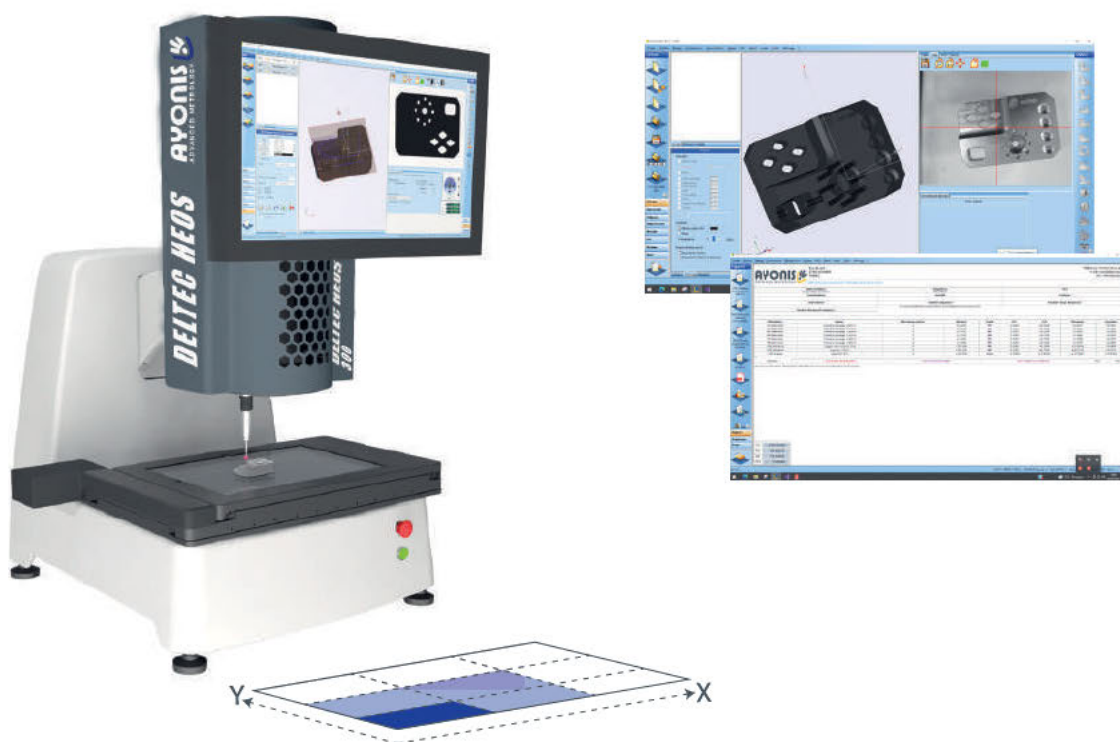
Multi-parts control



3 in 1 lighting device

DELTEC Heos

2D/3D hybrid digital profile projector



You drop it, you measure it!

Control of parts regardless of their position and orientation in a field of view up to 300x200 mm.

Vision measure of 2D elements (circle, line, radius...)

Touch measurement of 3D elements (plane, sphere, cylinder...), as well as dimensions inaccessible in vision (inner dimensions).





Machine structure:

- Structure in cast aluminum alloy
- XY stroke: 150 x 150 or 250 x 150 mm
- Maximum XY measuring capacities: 200 x 200 mm or 300 x 300 mm (zoom 1)
- Load capacity: 10 kg.
- Cross roller guide
- Encoder resolution: 0.1 μm .
- X, Y, Z speed: 100 mm/s max
- Bi-telecentric optics for extremely precise full field measurements.



Measurement ranges:

	Zoom position			
	1	2	3	4
Field of view	67.6 x 56.5mm	33.7 x 28.2mm	16.8 x 14.1mm	8.4 x 7.1mm
«P» uncertainties in the field (2σ)	$\pm 5 \mu\text{m}$	$\pm 3.0 \mu\text{m}$	$\pm 1.9 \mu\text{m}$	$\pm 1.1 \mu\text{m}$

- XY E2 : à partir de $(3.1 + 5 L / 1000) \mu\text{m}$ (vision, zoom n°4)
- XY E2: $(2.5 + 5 L / 1000) \mu\text{m}$ (touch probe)
- Z E1: $(2.5 + 5 L / 1000) \mu\text{m}$ (touch probe)



Touch probe

- Renishaw ® TP200
- Renishaw ® TP20



Vision:

- High definition 5 MPX color camera
- Bi-telecentric motorized zoom with 4 indexed positions
- Programmable lighting devices:
 - Episcopic white LED
 - Diascopic collimated LED
 - Optional motorized 3-in-1 lighting device (episcopic, low angle, dark field)
- Magnification x14 to x112 (as an indication in full-field display on 24" screen)



Computer:

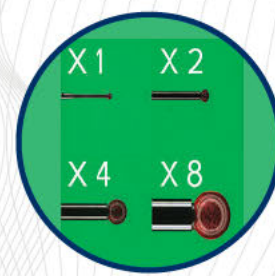
- CPU INTEL Core I5, 8 Go, HDD 250 Go mini
- 24" LCD screen
- Windows 10 / 64 bits



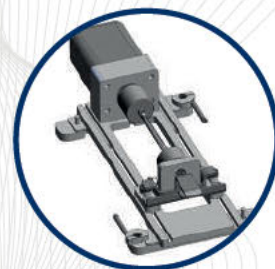
DELTEC suite software:

The DELTEC HEOS machine is provided with the «DELTEC » software, including multiple tools to optimize and make dimensional control more reliable:

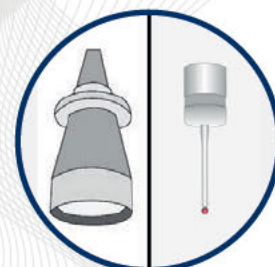
- 2 sensors (vision + touch probe) managed in a single program.
- Parameters are controlled by the software (magnifications, lights...).
- Powerful library of tools (mathematical, geometrical, 2D and 3D).
- Automatic storage and export of the results into database.



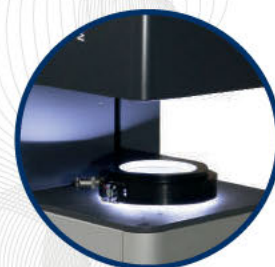
4 magnifications



Rotary axis



Vision + touch probe



3 in 1 lighting device

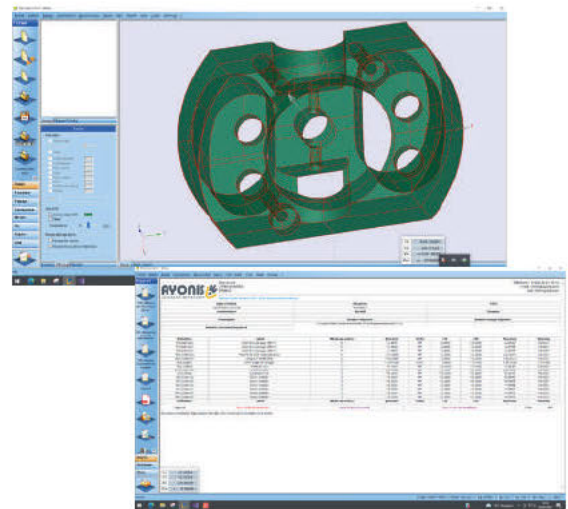


Terms of use:

- Power supply: 220 V or 110 V, 50 or 60Hz, 600VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ\text{C}$ (θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C

DELTEC LEOS

3D automated measuring system
multisensor



LEOS 200/300

DPM: a unique system for multi-parts detecting by shape learning

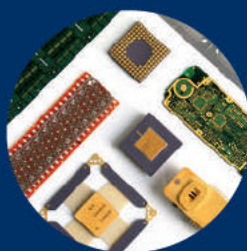
This machine brings together all the tools for your dimensional metrology (software suite and 3D structure).

Suitable for all controls: first part, process, laboratory, at entrance, at exit, during production...

Programming by self-learning.

Automatic control of parts (single or multiple), by matrix execution.

Ergonomic workstation with one or two screen(s).





Machine structure:

- Structure in cast aluminum alloys
- Measuring capacities (X, Y, Z): 200 x 200 x 150 mm / 200 x 300 x 150 mm
- Load capacity: 10 kg
- Cross rollers guides
- Encoders resolution: 0.5 μm
- X, Y, Z speeds: 75 mm/s maximum



Uncertainties of measurement (2σ):

- XY E2: ($\pm 2.5 + 5L/1000$) μm (vision, probe)
- Z E1: ($\pm 4 + 5L/1000$) μm (vision)
- Z E1: ($\pm 2.4 + 5L/1000$) μm (probe)



Vision:

- High definition 1.3 MPX B&W digital camera
- Programmable lighting devices:
 - Episcopic white LED 8 sectors
 - Coaxial LED
 - Diascopic collimated green LED
- Motorized zoom with 6 indexed positions
- Magnifications x30 to x200 (as an indication in full field display on 24" screen)
- Second camera with wide field for an automatic control of multi parts
- Positioning eased thanks to laser pointing



Touch probe (option):

- Renishaw® TP200
- Stylus charger (3 or 5 positions)



Confocal (option):

- "Confocal Chromatic" measurement sensor (white light)
- Measuring pencils (1.4, 4 and 12 mm)



Computer:

- CPU INTEL Core I5, 8 Go, HDD 250 Go minimum
- Screens 2 x 22"
- Windows 10 / 64 bits
- Software: Deltec Suite™

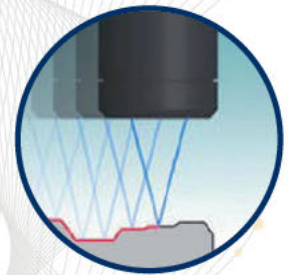


Terms of use:

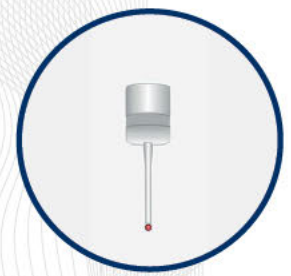
- Power supply: 110 or 220V, 50 or 60Hz, 600VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ\text{C}$
(θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C



Multi-sensor head



Confocal sensor



Touch



Multi-parts control



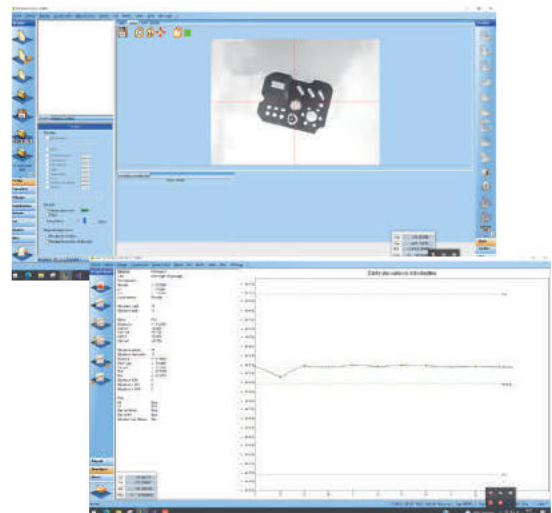
Dual screen workstation

DELTEC TEOS

3D automated measuring system
multisensor



TEOS 400



Your made to measure 3D metrology machine

This machine brings together all the tools for your dimensional metrology (software suite and 3D structure).

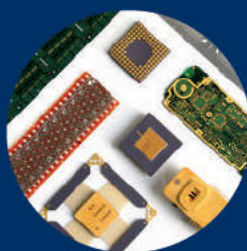
Compatible with all types of parts (automotive, mechanical, electronic, pharmaceutical, and so on) and materials (metallic, plastic, rubber, glass, and so on).

Suitable for all controls: first part, process, laboratory, at entrance, at exit, during production...

Ability to manage multiple sensors: vision, probe (Renishaw®), confocal.

Programming by self-learning.

Automatic control of parts (single or multiple).





Machine structure:

- Column type structure in solid granite
- XY stage with crossed movements and open frame
- Cross roller guide
- Measuring capacities (X, Y, Z): 400 x 400 x 200 mm
- Load capacity: 20 kg
- Encoders resolution: 0.5 μm
- X, Y, Z speeds: 75 mm/s maximum



Uncertainties of measurement (2σ):

- XY E2: ($\pm 2.5 + 5L/1000$) μm (vision, probe)
- Z E1: ($\pm 4 + 5L/1000$) μm (vision)
- Z E1: ($\pm 2.4 + 5L/1000$) μm (probe)



Vision:

- High definition 1.3 MPX B&W digital camera
- Programmable lighting devices:
 - Episcopic white LED 8 sectors
 - Coaxial LED
 - Diascopic collimated green LED
- Motorized zoom with 6 indexed positions
- Magnifications x30 to x200 (as an indication in full field display on 22" screen)
- Second camera with wide field for an automatic control of multi parts
- Positioning eased thanks to laser pointing



Touch probe (option):

- Renishaw® TP200
- Stylus charger (3 or 5 positions)



Confocal (option):

- "Confocal Chromatic" measurement sensor (white light)
- Measuring pencils (1.4, 4 and 12 mm)



Computer:

- CPU INTEL Core I5, 8 Go, HDD 250 Go minimum
- LCD screens 2 x 22"
- Windows 10 / 64 bits
- Software: Deltec Suite™



Terms of use:

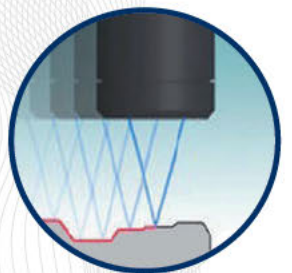
- Power supply: 110 or 220V, 50 or 60Hz, 1400VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ\text{C}$
(θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C



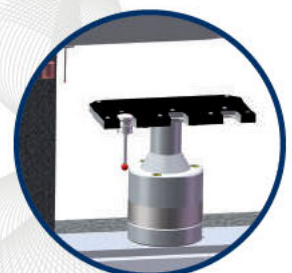
Granite structure



Multi-sensor head



Confocal sensor



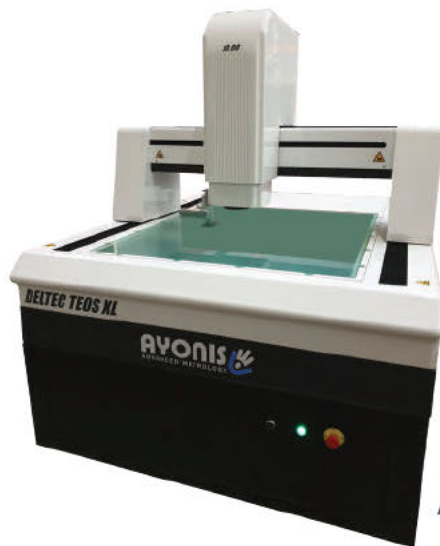
Stylus charger



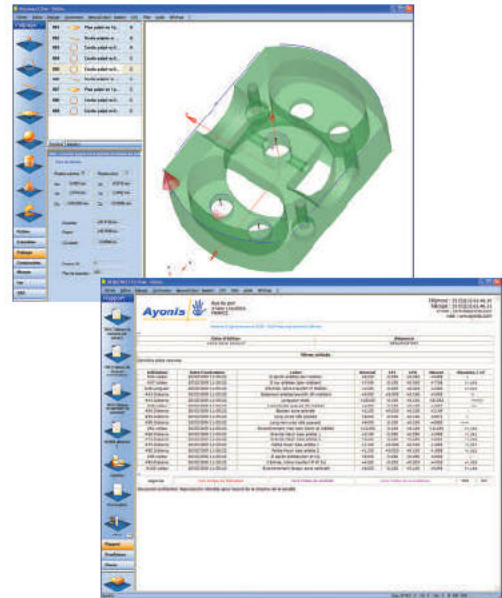
Dual screen workstation

DELTEC TEOS XL

3D automated measuring system
multisensor



TEOS XL



Your made to measure 3D metrology machine

This machine brings together all the tools for your dimensional metrology (software suite and 3D structure).

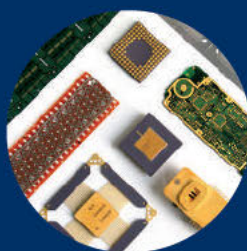
Compatible with all types of parts (automotive, mechanical, electronic, pharmaceutical, and so on) and materials (metallic, plastic, rubber, glass, and so on).

Suitable for all controls: first part, process, laboratory, at entrance, at exit, during production...

Ability to manage multiple sensors: vision, probe (Renishaw®), confocal.

Programming by self-learning.

Automatic control of parts (single or multiple).





Machine structure:

- Structure with mobile gantry
- Base and gantry in solid granite
- Linear roller guides
- Ball screws and DC motors
- Measuring capacities (X, Y, Z):
 - 600 x 800 x 200
 - 800 x 1000 x 200
 - 1200 x 1000 x 200
- Load capacity: 20 kg
- Encoders resolution: 0.5 μm
- X, Y, Z speed: 200 mm/s maximum



Uncertainties of measurement (2σ):

- XY E2: ($\pm 4.0 + 5L/1000$) μm (vision, probe)
- Z E1: ($\pm 4 + 5L/1000$) μm (vision)
- Z E1: ($\pm 2.4 + 5L/1000$) μm (probe)



Vision:

- High definition 1.3 MPX B&W digital camera
- Programmable lighting devices:
 - Episcopic white LED 8 sectors
 - Coaxial LED
 - Diascopic collimated green LED
- Motorized zoom with 6 indexed positions
- Magnifications x30 to x200 (as an indication in full field display on 24" screen)
- Positioning eased thanks to laser pointing



Touch probe (option):

- Renishaw® TP200
- Stylus charger (3 or 5 positions)



Confocal (option):

- "Confocal Chromatic" measurement sensor (white light)
- Measuring pencils (1.4, 4 and 12 mm)



Computer:

- CPU INTEL Core I5, 8 Go, HDD 250 Go minimum
- Screens 2 x 22"
- Windows 10 / 64 bits
- Software: Deltec Suite™



Terms of use:

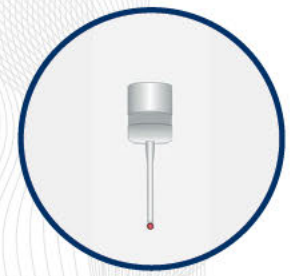
- Power supply: 110 or 220V, 50 or 60Hz, 3500VA
- Temperature range ensuring accuracy: $\theta_0 \pm 1^\circ\text{C}$
(θ_0 = ambient and calibration temperature, standard temperature $\theta_0 = 20^\circ$)
- Operating temperature: 15 to 35°C



Multi-sensor head



Confocal sensor



Touch



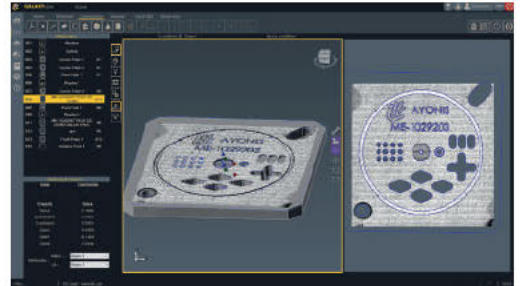
Stylus charger



Dual screen workstation

OS 211

3D metrology scanner



High performance 3D scanner
Enter another dimension!

2D and 3D metrology of small parts.

Different measuring means gathered into an automated one.

Designed for control in production environment.

Offline programming (from CAD files).

Recording and statistical analysis of measurements to optimize traceability and quality control.





Machine structure:

- Structure in cast aluminum alloy
- High precision cross-motion XY table.
- XYZ stroke: 250 x 150 x 150 mm.
- Load capacity: 10 kg.
- Encoder resolution: 0.1 μ m.
- X, Y speed: up to 100 mm/s.



Main measuring sensor:

- Line sensor based on Confocal Chromatic technology (white light sensor).
- Up to 384 000 measuring points per second and per side.
- 2 types of sensors to fit your needs (high accuracy / high capacity).

Configuration	Line width	Pitch	Axial resolution	Z range
High accuracy	1.98 mm	10 μ m	80 nm	1 mm
High capacity	4.80 mm	25 μ m	320 nm	4 mm



Secondary measuring sensor:

- High resolution digital camera 5, 20 or 71 MPX
- Configurations: Mono vision range or 300 mm motorized, 4 magnifications
- Programmable lighting devices:
 - Episcopic red sectored LED
 - Diascopic LED collimated green
- Motorized zoom with 6 indexed positions



Uncertainties of measurement (2σ):

- XY: from 2.5 μ m
- Z height (1 side): from 0.5 μ m



Computer:

- CPU INTEL Core I7, 32 Go, HDD 250 Go mini
- 24" touch screen
- OS Windows 10 / 64 bits



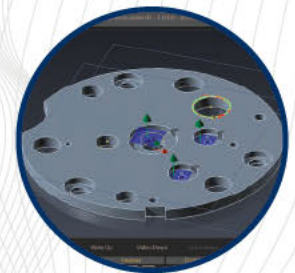
GALAXY suite software:

The new "GALAXY Suite™" software enables offline programming, parts control, data record, processing of measurement results and reporting.

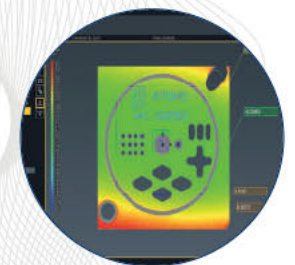


Terms of use:

- Power supply: 220V, 50 or 60Hz, 600VA
- Temperature range ensuring accuracy: 20°±1°C



Offline programming



2D & 3D comparison



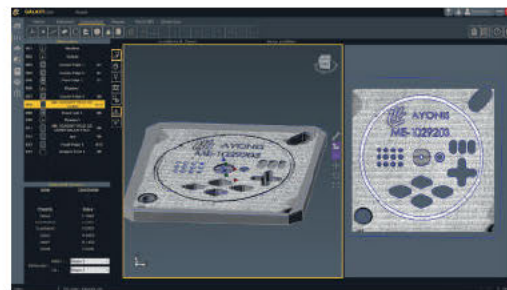
Report



Dashboard

GALAXY DS 331

3D metrology scanner



High performance 3D scanner
Enter another dimension!

2D and 3D metrology for small parts.

Different measuring means gathered into an automated one.

Designed for control in production environment.

Offline programming (from CAD files).

Recording and statistical analysis of measurements to optimize traceability and quality control.





Machine structure:

- Solid granite structure.
- High precision cross-motion XY table with linear motors.
- XYZ (upper / lower) measuring range: 300 x 300 x 100 / 50 mm.
- Metrological structure isolated by antivibration pads.
- Structure compatible with a production environment.
- Load capacity: 20 kg.
- Encoder resolution: 3 nm.
- X, Y speed: up to 200 mm/s (depending on configuration).



Main measurement sensor:

- Line sensor based on Confocal Chromatic technology (white light sensor).
- Single or double sided.
- Up to 350 000 measuring points per second and per side.
- 2 types of sensors to fit your needs (high accuracy / high capacity).

Configuration	Line width	Pitch	Axial resolution	Z range
High accuracy	1.98 mm	10 μ m	80 nm	1 mm
High capacity	4.80 mm	25 μ m	320 nm	4 mm



Secondary measuring sensor:

- High resolution digital camera 5, 20 or 71 MPX
- Mono or multi-field configuration
- Programmable lighting devices:
 - Episcopic red sectored LED
 - Diascopic LED collimated green



Uncertainties of measurement (2σ):

- XY: from 2.5 μ m
- Z height (1 side): from 0.5 μ m
- Z thickness (2 sides): from 1.0 μ m



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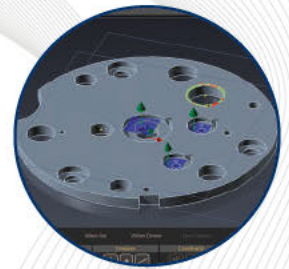
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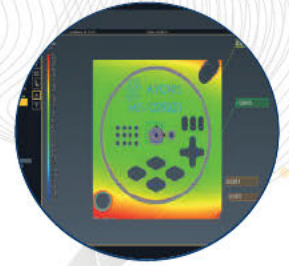


Terms of use:

- Power supply: 220V, 50 or 60Hz, 3500VA
- Temperature range ensuring accuracy: 20°±1°C



Offline programming



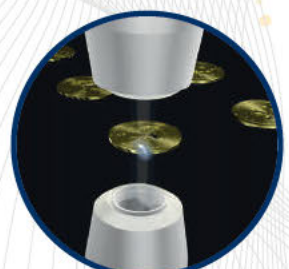
2D & 3D comparison



Report



Dashboard



Double sided scan

VISIONIS

The smart inspection system



Simplified visual control!

Analysis and observation device for the visual control of your parts.

Autofocus provides great simplicity and comfortable use.

A high-resolution camera, combined with a manual zoom, thus makes it possible to detect even the smallest defects.

Images and videos may be saved on a USB stick, for further analysis and future discussions.



Machine:

- Dimensions: 320 x 308.5 x 417.5 mm
- Weight: 5kg
- Maximum height of the parts to be inspected: 50 mm



Optical lens:

- Magnification (6 positions) from x 45 to x 230
- Resolution: from 3.9µm (4.5 x) to 11.2 µm (0.7 x)
- Working distance: 88 mm +/- 2mm
- Video distortion: <0.02%
- Optional x 0.5 lens to double the field of view



Camera:

- Image sensor: CMOS color
- Resolution: 2 MPX
- Episcopic lighting device
- White balance: auto / manual
- Exposure: auto / manual
- Image refresh rate: 1080P (60 images / s)
- Working temperature: 0°C ~ 50°C



Visionis:

- User control via mouse
- Direct connection to the screen via HDMI
- Backup on USB key
- Supplied with a 24" screen



Visionis+:

- Connection to the PC via USB
- Supplied with viewing and backup software
- PC and screen not supplied

