XACTUM Laser Systems

SUPER-MECLAB+.X

Bench-top Laser Micrometer

The SUPER-MECLAB+.X Bench Top Laser Micrometer is a high precision instrument for ultra-high accuracy diameter measurements. It is ideal for the off-line, manual measurements of a wide range of ground or turned parts with different shapes and sizes, such as:

- electric motor shafts
- ground or turned parts
- gage pins
- piston pins
- hydraulic components

It measures diameter and ovality, run-out, edge position, taper, grooves or peak diameter, gap between parts and more.

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PRECISION LASER SYSTEMS

GUARANTEE 3 YEARS GUARENTEE

System composition

The basic system (S version) consists of:

- XLS40 or XLS80 Xactum Intelligent Laser Sensor
- Flat granite baseplate with precision linear slide (400, 640 or 820 mm long)
- Embedded Aeroel PC with 10.4" LCD monitor
- Super-Meclab.X software pre-installed in the system
- NO-VAR option: compensation of measuring drift due to changing room temperature
- Power supplies, connecting cables, keyboard and mouse
- Calibration report (available on request)
- Ready for external monitor (not supplied)

The **SR version** includes a motor driven device to rotate the part, with friction driving wheel and stepper motor.

Optional fixtures and accessories

Universal V block in hardened steel or insulated material

Pair of fixed V blocks (various heights) to be mounted along the slide

Pair of centers to be mounted on the slide, at adjustable positions

Set of two pairs of hollow cones, to be used with dead centers

Pair of free rolls (various heights) to be mounted along the slide

Device for the fine tuning of the slide position, with micrometric head, 0.5 mm/rev pitch, ± 6.5 mm range

Magnetic scale to read the slide position, resolution 0.005 mm

Set of 4 calibration pins for XLS40 micrometer, with supporting V block.

The Xactum Tecnology

The Xactum XLS40 and XLS80 Laser Micrometers are extremely accurate and repeatable measuring instruments.

- Wide measuring field: 40 or 80 mm
- Excellent linearity: ± 0.5 µm at best (*)
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- Outstanding repeatability ± 0.05 µm (*)
- Permanent self-calibration
- NO-VAR technology: no measuring drift due to changing room temperature by programming the coefficient of thermal expansion of the part

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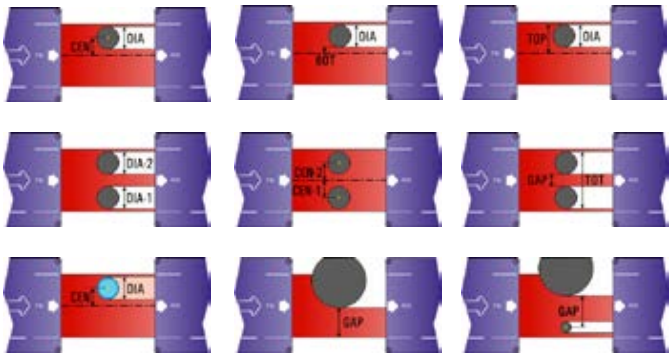
Gauging flexibility

Multiple dimensions can be checked
The user can choose among several different types of measurements, each one corresponding to a pre-set combination of light/shadow segments. Diameters, edge positions, center position, gap between two parts, etc. can be measured. Multiple dimensions can also be measured at the same time (i.e. diameter and center position).
The parts being checked can be either **opaque or transparent** (glass logic) and can be also **round or sharp edged** (i.e. fluted tools).



The Super-Meclab.X Software

The Super-Meclab.X software has been designed to be extremely user friendly and very flexible.
3 measuring modes are available: **single shot**, **in-sequence** (repeated single shot) and **continuous** (from a Start to a Stop command). All are triggered on command, using a button or an optional foot-switch. An additional Auto-start mode is included to trigger automatically the shot measurements (single and repeated) when a part is detected by the laser.

The measuring time and the display resolution can be set by the user.
During the continuous or in-sequence modes, for every measured variable, the maximum, minimum and average values are retained, as well as the Range value = Max – Min. The user can also enable and display only the desired values. In this way, by selecting the appropriate type and mode of measurement and moving the part into the laser beam, it is also possible to check run-out, ovality, peak or groove diameter, etc.

Multiple measurements on the same part

Multiple-point user re-mastering capability AEROEL EXCLUSIVE

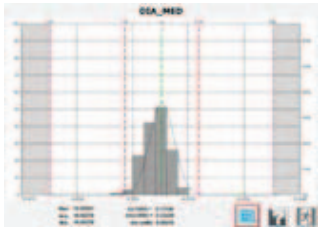
Quick tolerance check

Zero-Set function

Part library for easy programming

Data recording, printing and exporting

On line statistics and charts



AEROEL EXCLUSIVE **Digital oscilloscope**

Help on line

NO-VAR technology: no measuring drift due to changing room temperature AEROEL EXCLUSIVE

Benefits

No error due to the hysteresis (inversion error) which is typical of all dial indicator gauges (see QR-code video).

Contactless measurement: no part damage or scratches.

Objective and highly reproducible results: no matter about the operator's skill.

Extremely easy and quick to use: reduces inspection time and improves measurement capability.

Highly flexible: different components and sizes can be measured without gauge re-mastering.

Ultra accurate: it measures to an accuracy that before you had only in a metrology room, using time consuming, expensive equipment and specialized personnel.

Fine measuring spot: you can measure details that would be otherwise impossible to detect.

(*) Values referred to XLS40/1500 Laser Sensor. The value is inclusive of the Aeroel's masters uncertainty (± 0.3 µm)

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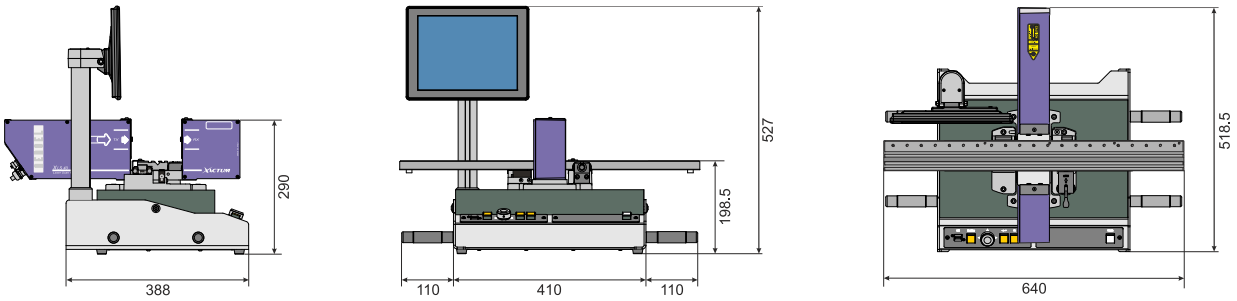
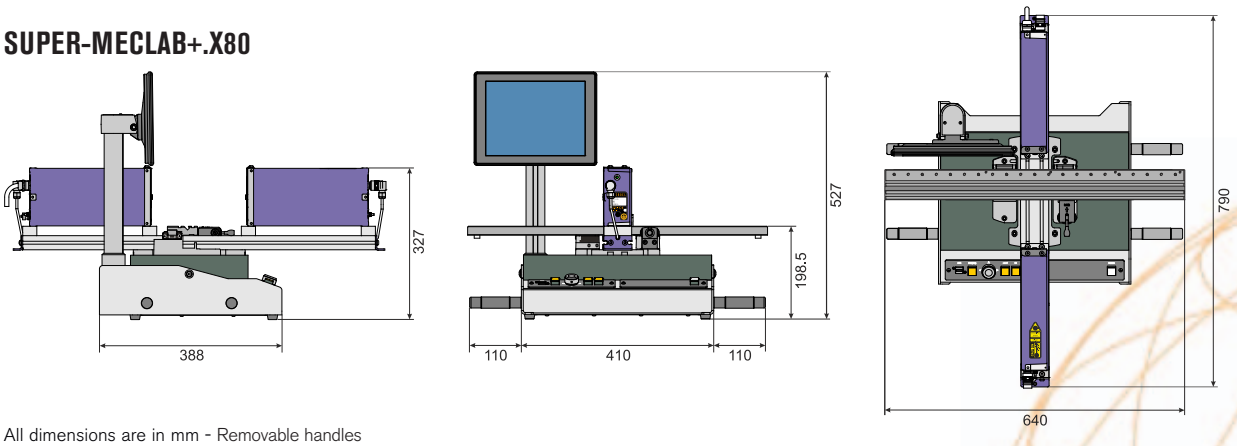
Specifications

SUPER-MECLAB+.X40



SUPER-MECLAB+.X80



All dimensions are in mm - Removable handles

Type of gauge		XLS40/1500/B	XLS80/1500/B
Measuring Field	(mm)	40	80
Measurable Diameters	(mm)	0.06 - 38	0.75 - 78
Resolution (Selectable)	(µm)	10 / 1 / 0.1 / 0.01	
Linearity (Centred Product)	(µm)	± 0.5 (1)	± 1 (2)
Linearity (in the Measuring Plane) (3)	(µm)	± 0.5	± 1
Repeatability (T=1s, ±2σ)	(µm)	± 0.07	± 0.2
Single Shot Repeatability (±2σ)	(µm)	± 1.5	± 3.5
Beam Spot Size (s,l) (4)	(mm)	0.06 x 0.1	0.4 x 0.2
Side Dither of the Scanning Plane	(mm)	± 0.02	± 0.05
Scanning Frequency	(Hz)	1500	
Scanning Speed	(m/s)	300	588
Gauge Thermal Coefficient (5)	(µm/m°C)	- 11.5	
Laser Source		VLD (Visible Laser Diode); λ = 650 nm	
Power Supply		24 VDC; 50 W max	
System Dimensions (6)	(mm)	640 x 527 x 518.5	640 x 527 x 790
System Weight (6)	(kg)	46	49
Operating Temperature Range	(°C)	0 - 50	

Note

For each model also is available the /A version with a larger spot width: 2 mm for XLS40/*/A and 3.5 mm for XLS80/*/A.

(1) For Ø ≤ 25 mm. For Ø > 25 mm the linearity is ± 0.75 µm. The value is inclusive of the Aeroel's masters uncertainty (± 0.3 µm)

(2) For Ø ≤ 40 mm. For Ø > 40 mm the linearity is ± 1.5 µm. The value is inclusive of the Aeroel's masters uncertainty (± 0.3 µm)

(3) Maximum error, when a master is moved in the measuring plane, checked with Ø=8 mm (XLS40) or Ø=20 mm (XLS80). The measuring plane is located halfway between transmitter and receiver.

(4) Elliptical spot: "s" is the thickness and "l" is the width.

(5) This is the measuring error due to a change in the ambient temperature when measuring a part with zero thermal expansion coefficient (INVAR). This is specified for gauges using a software PRESET for the NO-VAR option and when the rate of change of the ambient temperature is lower than 3°/h. When the NO-VAR option is ENABLED, the gauge thermal expansion coefficient is programmable by the user.

(6) Referred to the laser sensor, the basement and the linear slide (640 mm)

Specifications subject to change without notice. For additional details and complete specifications please see the gauge data sheet.

www.aeroel.it

Visit us in Internet; you will find all the latest information about Aeroel's products and service

www.youtube.com/aeroelsystems

It is the channel with the video of Aeroel measurement system and application

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ISO 9001:2008

D00117_E rev. 1,0 - 12.05.2014