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

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

**Through-feed measurement:**
multi-diameter measurement simple and instantaneous

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[Image of the SUPER-MECLAB+.X Bench Top Laser Micrometer]
**System composition**

The basic system 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
- Keyboard, mouse, power supplies and connecting cables
- Calibration report (available on request)

**Optional fixtures and accessories**

- Universal V block in hardened steel or insulated material
- Pair of centers to be mounted on the slide, at adjustable positions
- Pair of free rolls (various heights) to be mounted along the slide
- Motor driven device to rotate the part, with friction driving wheel and stepper motor.
- Pair of motorized centers.
- Magnetic scale to read the slide position, resolution 0.005 mm
- Set of two pairs of hollow cones, to be used with dead centers
- Pair of fixed V blocks (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
- Vertically adjustable V block to be mounted on the gauge or along the slide (Super-Meclab+X40)
- 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 (*)
- 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
**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.

The parts being checked can be either **opaque** or **transparent** (glass logic) and can be also **round** or **sharp edged** (i.e. fluted tools).

**Available functions**

The Super-Meclab.X software has been designed to be extremely user friendly and very flexible.

- **3 measuring modes**
- **Auto-start measurement mode**
- **Set-up of Measuring time and display resolution**
- **Multiple measurements on the same part**
- **Quick tolerance check**
- **Multiple-point user re-mastering capability**
- **Zero-Set function**
- **Part library for easy programming**
- **Data recording, printing and exporting**
- **On line statistics and charts**

**Digital oscilloscope**

**Help on line**

**No measuring drift due to changing room temperature!**

The NO-VAR (NO-VARiation) technology allows to get simply perfect diameter measurements even in non thermally controlled environments, automatically compensating the thermal expansion of any part.

**Automatic seeking of the “zero point”**

A special guided procedure is available to reset the position reading at the part starting point.

**Through-feed measurement**

Measures up to 9 diameters on the same piece, simply by moving the linear slide.

**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.

(*) For Ø ≤ 10 mm.

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

**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.
Specifications

SUPER-MECLAB+.X40

SUPER-MECLAB+.X80

All dimensions are in mm - Removable handles

<table>
<thead>
<tr>
<th>Type of gauge</th>
<th>XLS40/1500/B</th>
<th>XLS80/1500/B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring Field</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Measurable Diameters</td>
<td>0.06 - 38</td>
<td>0.75 - 78</td>
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<tr>
<td>Resolution (Select)</td>
<td>10 / 1 / 0.1 / 0.01</td>
<td></td>
</tr>
<tr>
<td>Linearity (Centred)</td>
<td>± 0.5 (1)</td>
<td>± 1 (1)</td>
</tr>
<tr>
<td>Linearity (in the Measuring Plane) (2)</td>
<td>± 0.5</td>
<td>± 1</td>
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<tr>
<td>Repeatability (T=1s, ±2σ) (1)</td>
<td>± 0.07</td>
<td>± 0.2</td>
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<tr>
<td>Beam Spot Size (s,l) (2)</td>
<td>0.06 x 0.1</td>
<td>0.4 x 0.2</td>
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<tr>
<td>Side Dither of the Scanning Plane</td>
<td>± 0.02</td>
<td>± 0.06</td>
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<tr>
<td>Scanning Frequency</td>
<td>1500</td>
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<tr>
<td>Scanning Speed</td>
<td>300</td>
<td>588</td>
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<tr>
<td>Laser Source</td>
<td>VLD (Visible Laser Diode); λ = 650 nm</td>
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<tr>
<td>Power Supply</td>
<td>24 VDC; 50 W max</td>
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<tr>
<td>System Dimensions (1)</td>
<td>640 x 535 x 526</td>
<td>640 x 790 x 526</td>
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<tr>
<td>System Weight (1)</td>
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<td>36</td>
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<tr>
<td>Operating Temperature Range (1)</td>
<td>0 - 50</td>
<td></td>
</tr>
</tbody>
</table>

Note

For each model also is available the /A version with a larger spot width: 2 mm for XLS40/1/A and 3.5 mm for XLS80/1/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) Single shot repeatability (± 2σ) is ± 1.5 μm (XLS40) and ± 3.5 μm (XLS80)
(5) Elliptical spot: “s” is the thickness and “l” is the width.
(6) Elliptical spot: “s” is the thickness and “l” is the width.
(7) Elliptical spot: “s” is the thickness and “l” is the width.
(8) Elliptical spot: “s” is the thickness and “l” is the width.
(9) Elliptical spot: “s” is the thickness and “l” is the width.
(10) Elliptical spot: “s” is the thickness and “l” is the width.

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

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

www.aeroel.it

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

www.youtube.com/aeroelsystems

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