M2/M3

OPTICAL MEASURING MACHINE FOR CYLINDRICAL ELEMENTS.

Measuring big shafts as easily as small ones.
**M2/M3** is an optical measuring machine for shafts, designed to perform quick and reliable measurements. Every part produced by your CNC Lathe or Grinding center can be easily measured by operators, in just seconds, directly on the shop floor. By saving time, you can increase productivity, improve efficiency and reduce the reject rate. This results in a quick return on investment.

**M2/M3 UNIQUE FEATURES**
The integrated software provides all measurements displaying the live image of the part. Displaying the live image gives the feeling of the level of finishing and cleaning of the element under inspection. The operator can identify any dirt present, intervening quickly and efficiently.

The LED illuminated loading area provides excellent visibility for the purpose of cleaning, as well as loading. Its "Open Top" design allows the use of loading devices. Its unique wide open front facilitates manual operations. Measuring sensors are retractable, protected during loading and unloading.

Triple protective bumpers on sensors.

The full metal housing provides protection from oil in the working environment, and the photoelectric cells make the measuring process safer. The upper tailstock slides on prismatic guides with ball bearings, guaranteeing maximum precision and sliding over time.

**SPEED UP OPERATION, COST REDUCTION:**
- Inspections in a matter of seconds
- Programs in just minutes

**GREATER EFFICIENCY ON SMALLER BATCHES:**
- Helps operators in batch changeover
- Allows rapid batch changing
- Can be used by more than one operator at the same time.

**IMPROVES PRODUCTION:**
- Operators are more independent during inspection.
- Measurement is not influenced by manual intervention.
- Allows to set tool offset before values are out of tolerance.
- Assess product quality without extra costs

The upper tailstock is equipped with a new and more practical load lever. It is activated by a rack and pinion, providing maximum accuracy as the piece to be clamped approaches. A counter-weight makes the entire system run smoothly.

The machine is equipped with a double temperature compensation system (both on diameters and on lengths), making it ideal for direct use on the shop floor. Its unique “Air Flow” cooling system means it can withstand even the toughest environments.

Self-programming and step-by-step programming features facilitate operations. Measuring programs can be loaded manually, by bar-code (not included in the supply of the machine) or by self-recognition of the piece image.

Among the possible measurements:
- Diameters (static, dynamic, interrupted, etc.)
- Lengths (distance between points or other general geometric elements)
- Angles and Radii
- Cylindrical and conical threads and nut measurements
- Geometric measurements (parallelisms and orthogonalities)
- Shape measurements (circularities, coaxialities, run-outs, cylindricities)
- DXF comparison*, camshaft and turbine measurements* (*optionals)

**Technical Data**

<table>
<thead>
<tr>
<th></th>
<th>M2</th>
<th>M3</th>
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</thead>
<tbody>
<tr>
<td>Max. measurable piece</td>
<td>600x140 mm</td>
<td>900x140 mm</td>
</tr>
<tr>
<td>Max. piece to be loaded</td>
<td>650x240 mm</td>
<td>950x240 mm</td>
</tr>
<tr>
<td>Max. weight to be loaded</td>
<td>30 kg</td>
<td>30 kg</td>
</tr>
<tr>
<td>Measurement accuracy on diam. (average diam.)</td>
<td>(2+D[mm] / 100) µm*</td>
<td>(2+D[mm] / 100) µm*</td>
</tr>
<tr>
<td>Measurement accuracy on length</td>
<td>(5+L[mm] / 100) µm*</td>
<td>(5+L[mm] / 100) µm*</td>
</tr>
<tr>
<td>Measurement repeatability on diam. (average diam.)</td>
<td>0,4 µm*</td>
<td>0,4 µm*</td>
</tr>
<tr>
<td>Measurement repeatability on length</td>
<td>3 µm*</td>
<td>3 µm*</td>
</tr>
<tr>
<td>Vertical scanning speed</td>
<td>100 mm/s</td>
<td>100 mm/s</td>
</tr>
<tr>
<td>Rotational scanning speed</td>
<td>1080 °/s **</td>
<td>1080 °/s **</td>
</tr>
<tr>
<td>Machine’s weight</td>
<td>395 kg</td>
<td>400 kg</td>
</tr>
<tr>
<td>Power supply</td>
<td>230V – 50/60 Hz</td>
<td>230V – 50/60 Hz</td>
</tr>
<tr>
<td>Dimensions LxWxH</td>
<td>920x1029x2000 mm</td>
<td>920x1029x2000 mm</td>
</tr>
</tbody>
</table>

* Data indicated refers to measurements taken with a temperature of 20°C on clean and rectified surfaces. Data may vary according to shape and surface condition of the pieces.

** The maximum rotation speed depends on security conditions and on fixing conditions.