OPTICAL MEASURING MACHINE FOR CYLINDRICAL ELEMENTS.

Keep production in tolerance, reduce rejects and produce more.
M1 offers top of the range performance in a practical and compact optical measuring machine for turned parts.
Its unique design gives direct access to the piece, ensuring practical loading for both small and large components. The enlightened LED loading area provides excellent visibility in every situation.
The full metal housing provides protection from oil in the working environment and the new photoelectric cells make the measuring process safer.
Vertical positioning of the piece facilitates loading, even with pieces up to 300 mm in length, by using either cone tailstocks, clamping chucks or negative cone cusps for blocking pieces without centers.
The upper tailstock slides on prismatic guides with ball bearings guaranteeing maximum precision and sliding over time. The upper tailstock is equipped with a new and more practical load lever.
It is activated by a rack and pinion which provide 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.
The integrated software allows operators to work on the real image of the piece.
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’s 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* (optional)

**Increased Production, Cost Reduction:**
- Inspections in a matter of seconds
- Programs in just minutes

**Greater Efficiency on Smaller Batches:**
- It helps operators in batch changeover
- It allows rapid batch changing
- It can be used by more than one operator at the same time

**Improve 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

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### Technical Data

<table>
<thead>
<tr>
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<th>M1</th>
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</thead>
<tbody>
<tr>
<td>Max. measurable piece</td>
<td>300x60 mm</td>
</tr>
<tr>
<td>Max. piece to be loaded</td>
<td>315x120mm</td>
</tr>
<tr>
<td>Max. weight to be loaded</td>
<td>10 kg</td>
</tr>
<tr>
<td>Measurement accuracy on diameter (average diam.)</td>
<td>(2+D[mm] / 100) µm*</td>
</tr>
<tr>
<td>Measurement accuracy on length</td>
<td>(5+L[mm] / 100) µm*</td>
</tr>
<tr>
<td>Measurement repeatability on diameter (average diam.)</td>
<td>0.4 µm*</td>
</tr>
<tr>
<td>Measurement repeatability on length</td>
<td>3 µm*</td>
</tr>
<tr>
<td>Vertical scanning speed</td>
<td>100 mm/s</td>
</tr>
<tr>
<td>Rotational scanning speed</td>
<td>1080 °/s **</td>
</tr>
<tr>
<td>Machine’s weight</td>
<td>160 kg</td>
</tr>
<tr>
<td>Power supply</td>
<td>230V – 50/60 Hz</td>
</tr>
<tr>
<td>Dimensions LxWxH</td>
<td>650 x 860 x 1041 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.