Robotic Comparators

Fully Automatic Mass Determination

Benefit from over 10 years robotic weighing expertise and worldwide installed references.
Nano Accuracy
Macro Productivity

Save time and increase your efficiency with METTLER TOLEDO’s highly flexible robotic weighing systems.

The Robotic Comparators provide extremely fast results with an outstanding measurement performance approaching nano-accuracy. These unique products have a weighing range from 1 µg to 20 kg and can determine the mass of single weights, or a combination of up to three weights, by downward/upward calibration.

The robotic weighing systems have large magazines and incorporate state-of-the-art weighing technology for fast weight determination up to OIML E1 weight class. The fully automatic process is controlled by Windows® based software which also ensures your measurement data is securely stored. Several models can be used in combination to provide a highly flexible high speed system.

METTLER TOLEDO Robotic Comparators - your turnkey solutions!

Product Range:

a5 / a100 / a107 / a1000
Compact robot systems for ultimate flexibility and performance up to 1 kg.

a5XL / a100XL
XL robot systems for maximum throughput, usability and performance with up to 100 positions.

AX32004-M10
High load comparators for automatic mass determination from 1 kg to 20 kg including block weights.
The Robotic a Line offers:

**Nano-Accuracy**
The specially designed detached weighing frame eliminates robot vibrations on the balance. This allows outstanding measurement performance with a resolution of up to 110 million points.

**Maximum Efficiency**
With the capability to combine robots you can have up to 4 robot arms working simultaneously. With up to 100 positions per system, this maximizes productivity and minimizes human error.

**Proven Technology**
Our robots offer highly sophisticated 3-axis ball bearing technology. Ultra precise centering and smooth vibration-free handling of weights within seconds is assured year after year.

**Secure Operations**
The Windows® based software controls all your weighing jobs which can be imported directly from LIMS. Autostart several jobs in row and calculate air buoyancy. Data can be exported to a database giving you full traceability at a keystroke.
### Technical data

**a5 / a5XL / a107 / a100 / a100XL / a1000 / AX32004-M10 Comparators**

<table>
<thead>
<tr>
<th>Comparator</th>
<th>a5 Comparator</th>
<th>a5XL Comparator</th>
<th>a107 Comparator</th>
<th>a100 Comparator</th>
<th>a100XL Comparator</th>
<th>AX32004-M10 Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum load</strong></td>
<td>6.1 g</td>
<td>111 g</td>
<td>111 g</td>
<td>1109 g</td>
<td>21260 g</td>
<td></td>
</tr>
<tr>
<td><strong>Readability</strong></td>
<td>0.1 μg</td>
<td>0.1 μg</td>
<td>1 μg</td>
<td>10 μg</td>
<td>0.1 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Repeatability at nominal load</strong> (5x ABA, measured at)</td>
<td>0–1 g: 0.15 μg</td>
<td>1–2 g: 0.25 μg</td>
<td>2–5 g: 0.4 μg</td>
<td>1 μg</td>
<td>1.6 μg</td>
<td>10 μg</td>
</tr>
<tr>
<td><strong>Repeatability typical ABA</strong></td>
<td>0–1 g: 0.05 μg</td>
<td>1–2 g: 0.15 μg</td>
<td>2–5 g: 0.35 μg</td>
<td>0.9 μg</td>
<td>1.3 μg</td>
<td>5 μg</td>
</tr>
<tr>
<td><strong>Electrical weighing range</strong></td>
<td>0–61 g</td>
<td>0–111 g</td>
<td>0–111 g</td>
<td>0–109 g</td>
<td>0–260 g</td>
<td></td>
</tr>
<tr>
<td><strong>Diel weights</strong></td>
<td>–</td>
<td>50, 30, 10, 10 g</td>
<td>50, 30, 10, 10 g</td>
<td>500, 300, 100, 100 g</td>
<td>500, 300, 100, 100 g</td>
<td></td>
</tr>
<tr>
<td><strong>Linearity (electrical weighing range)</strong></td>
<td>±4 μg</td>
<td>±8 μg</td>
<td>±8 μg</td>
<td>±12 μg</td>
<td>±0.5 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Eccentric load deviation</strong> (at test load)</td>
<td>0.0 ng (5 g)</td>
<td>0.0 ng (10 g)</td>
<td>0.0 μg (10 g)</td>
<td>0.0 mg (100 g)</td>
<td>0.0 mg (260 g)</td>
<td></td>
</tr>
<tr>
<td><strong>Setting time</strong></td>
<td>20 s</td>
<td>30 s</td>
<td>20 s</td>
<td>20 s</td>
<td>20 s</td>
<td></td>
</tr>
<tr>
<td><strong>Adjustment built-in</strong></td>
<td>Motorized</td>
<td>Motorized</td>
<td>Motorized</td>
<td>Motorized</td>
<td>Motorized</td>
<td></td>
</tr>
<tr>
<td><strong>Adjustment with external weight</strong></td>
<td>5 g</td>
<td>10 g</td>
<td>10 g</td>
<td>100 g</td>
<td>200 g</td>
<td></td>
</tr>
</tbody>
</table>

#### Standard equipment

- **Weight handler:** 3-axis robot
- **Weight magazine:** 100 positions
- **Software and controller:** Windows®, standard
- **Draft shield:** Motorized
- **Weighing pan:** Fork-shaped
- **SmartScreen:** Touch Screen
- **SmartSens:** Standard
- **Separate display:** Standard
- **Admissible environmental conditions**
  - Temperature (°C): 17 - 27
  - Max. temperature change (°C 12 h): 0.5
  - Relative Humidity (%): 45 - 60
- **Dimensions**
  - Balance (W x D x H, mm): 1430 x 890 x 1730
  - Display unit (W x D x H, mm): 224 x 366 x 94
  - Balance weight (kg): 290
  - Object Diameter (D, mm): cylindrical: 4–14
  - Object Height (H, mm): cylindrical: 16
  - Accessories
    - Reference weight certified
    - Klimet A30 certified
    - Temperature sensor for Klimet A30 (5 m) 00222014
    - Professional software for weight dissemination
    - Efficiency Pack 11116875

For more information, visit [www.mt.com/lab-robotic](http://www.mt.com/lab-robotic)

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