Technical Data
### Short description

- CNC-bridge design measuring machine capable for touch-trigger and scanning probes; for optical or continuous and indexing probe systems
- Dynamic and high precision series with air bearings in all axis
- All granite guideways accurately hand-lapped
- Compact design. Operator workstation with integrated controller and computer
- CMM available in multiple sizes for the optimal selection of the required measurement volume

### Application areas

- In production, quality control, process and production control; in reverse engineering and model making
- Both series and individual measurements
- Palletized operation possible

### Features

- The Y-axis guideway is machined directly in the base plate, providing optimal long-term stability
- Pre-stressed, encompassing air bearings in all axes
- Passive vibration dampers
- Active pneumatic vibration damping optionally available and field retrofittable
- Compact control panel with central, logarithmic joystick, "mouse function" and context-sensitive function buttons. Selectable joystick’s axis assignment. Wireless version optionally available.
- The X- and Y-guide-ways feature bellows protections against contamination
- High-speed-dynamic servo drives with position monitoring, combined friction power transmission
- Three-axis contouring controller with intelligent "lookahead" function for application-optimized trajectory
- Manual temperature compensation in Standard version
- Premium- and Premium-Select version with automatic temperature compensation on all axes and work piece
- Two-stage speed selection and variable speed adjustment (override 0-100%) in all operation modes, resulting in sensitive movement via joystick or in CNC mode

### Probe systems

- PH10M / PH10T motorized indexing head
- TP200 touch-trigger probe, highly precise and suitable for stylus up to 100 mm in length. Styli can be changed via optional tool changer
- Touch-trigger probe TP20, Stylus module changeable via optional tool changer
- PH10M motorized indexing head
- SP25M scanning and single-point probe, precise and flexible for stylus lengths of up to 400 mm. Probe module and stylus can be changed via optional tool changer.
- Shapetracer: 3D Line Scanner to report and handle point clouds
- SP80 scanning probe head, highly precise for larger probe lengths. For scanning and single-point probing. Stylus combinations can be changed via optional tool changer
- PH20™: Continuous 5-axis touch-trigger system with "head touch"
- REVO: 5-axis head and probe system for scanning of complex contours and high throughput
Technical Data LH 87 STANDARD / PREMIUM / PREMIUM-SELECT

### Measuring Ranges, Weights

<table>
<thead>
<tr>
<th>Measuring ranges</th>
<th>LH 87 Standard</th>
<th>LH 87 Premium</th>
<th>LH 87 Premium-Select</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X [mm]</strong></td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td><strong>Y [mm]</strong></td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Z [mm]</strong></td>
<td>700</td>
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<table>
<thead>
<tr>
<th>Machine weight [kg]</th>
<th>2275</th>
<th>3210</th>
<th>4340</th>
</tr>
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<tbody>
<tr>
<td>Permissible part weight [kg]</td>
<td>800</td>
<td>1000</td>
<td>1200</td>
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</tbody>
</table>

### General Requirements

**Electric**
- Single-phase AC 1P+N+PE, 115/230 V ± 10 %, 50/60 Hz, max. 1000 VA, acc. to EN 60204-1

**Compressed air**
- Supply pressure 6-10 bar, pre-filtered, quality according to ISO 8573-1: Class 4 or better

**Air consumption**
- Passive \( \frac{m^3}{min} \): \( \phi 52 \) (max.)
- Active \( \frac{m^3}{min} \): \( \phi 76 \) (max.)

### Measuring Accuracy

**Measurement system**
- Photoelectric scale system, optical division 20 \( \mu m \)

**Resolution [\( \mu m \)]**
- 0.1
- 0.05
- 0.05

**Probing uncertainty**
1. \( MPE_{x} \) [\( \mu m \)]

2. **Volumetric length measuring uncertainty**

3. **Scanning probe uncertainty**

4. **Total measuring time for THP**
- \( MPT_{THP} [sec] \) = 72

### Operating Environment

**Operating temperature [°C]**
- 15-30

**Temperature range for MPE**
- (Standard/Premium) \( 18-22 \degree C, \Delta T: 1 \frac{K}{h}, 1 \frac{K}{m}, 2 \frac{K}{d} \)
- (Premium-Select) \( 19-21 \degree C, \Delta T: 0.5 \frac{K}{h}, 0.5 \frac{K}{m}, 1 \frac{K}{d} \)

**Relative humidity [%]**
- 40-70

### Dynamics

**Joystick operation**
- \( v_{max} [m/s] \) = 0-20 (creep mode), 0-100 (normal)

**CNC mode**
- \( v_{max} [m/s] \) = 400 axial, 690 volumetric

**CNC mode**
- \( a_{max} [m/s^2] \) = 1200 axial, 2000 volumetric

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1. According to DIN EN ISO 10360-2 / Maximum Permissible Error MPE
   - SP25A with Module SM25-1 and Styli Ø 4 x 21 mm
   - SP80 and Styli Ø 5 x 50 mm
   - TP200 with Standard Force Module and Styli Ø 4 x 21 mm
   - REVO with RSP3 3 and Styli Ø 4 x 21 mm

2. According to DIN EN ISO 10360-4 / Maximum Permissible Error MPE
   - SP25A with Module SM25-1 and Styli Ø 4 x 21 mm
   - SP80 and Styli Ø 5 x 50 mm
   - TP200 with Standard Force Module and Styli Ø 4 x 21 mm
   - REVO with RSP3 3 and Styli Ø 4 x 21 mm

3. More Y-measuring ranges on request

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Overall Dimensions [mm]

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Y*</th>
<th>Z</th>
<th>W</th>
<th>L</th>
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<tbody>
<tr>
<td>Measuring ranges</td>
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<td>Overall dimensions</td>
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<td>H3 (PH10M)</td>
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<td>H4</td>
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<td>W1</td>
<td>1040</td>
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<tr>
<td>Inspection room dimension</td>
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<td>H5</td>
<td>80 (min.)</td>
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</tbody>
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* More Y-measuring ranges on request