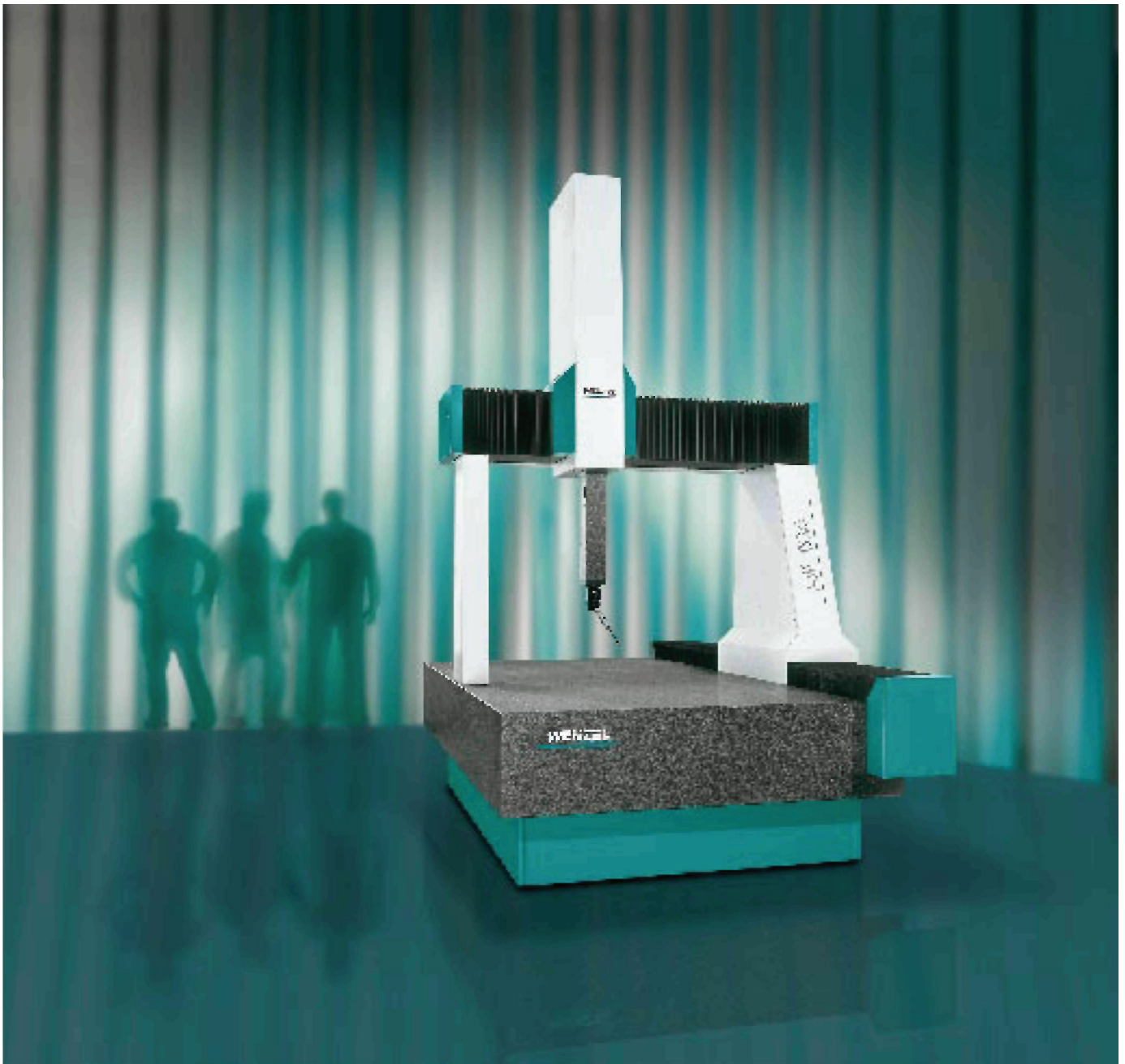


Co-ordinate Measuring Machines LH 108, LH 1010 STANDARD Models

Technical Data



Technical Data LH 108, LH 1010 STANDARD

Short description

- CNC-bridge design measuring machine with touch-trigger or scanning probe systems
- All granite guide-ways are 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, incoming inspection and quality assurance
- Measurement of prismatic and free-form components
- Both series and individual measurements
- Palletised operation possible

Standard Features

- The Y-axis guide-way 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 HT 400 control panel with central, logarithmic joystick, "mouse function" and context-sensitive function buttons. Selectable joystick's axis assignment
- 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 "look-ahead" function for application-optimised trajectory
- Manual temperature compensation
- Optional automatic temperature compensation with sensors 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 debugging

Probe systems

- Renishaw PH6, fixed probe head
- Renishaw PH10M/PH10MQ/PH10T, indexable probe heads featuring 720 repeatable positions in 7.5° steps
- TP20 touch-trigger probe. Stylus module, changeable via optional tool changer
- SP25 scanning and single-point probe, ultra-precise and flexible for stylus lengths of up to 200 mm, optionally up to 400 mm. Probe module and stylus can be changed via optional tool changer. Use with PH10M or PH6M.
- Renishaw PH6M, fixed probe head with the possibility of using complex probes like SP25, SP600
- TP200 touch-trigger probe, highly precise and suitable for styli up to 100 mm in length. Styli can be changed via optional tool changer
- SP80 scanning probe head, ultra-precise for probe lengths up to 500 mm
For scanning and single-point probing. Stylus combinations can be changed via optional tool changer

Software

- User-friendly Windows software Metrossoft CM for measuring and evaluating geometry and free-form elements (option)
- Graphic user interface featuring extensive automatisms to support the User
- User dialog and reporting can be selected and switched on-line independently between 12 languages
- Graphically interactive on- and offline programming system "Grips" for measurement program creation based on CAD data.
- Numeric and graphic reporting of the measured results
- Workpiece-oriented database, SQL-capable, with multi-user access, network-capabilities
- Integrated statistic functions, frequency distribution, trend diagram, machine-capability Cm and Cmk, SPC control charts, process capability Cp and Cpk. Interface to QS-Stat
- Shape- and location tolerances according to ISO 1101 / ASME Y14.5M
- Context-sensitive on-line help in all 12 User languages

Options:

- Software package CM-Surf for measuring free-form surfaces
- CAD direct interfaces (e.g. CATIA V4/V5, Pro-E, Unigraphics, Parasolid)
- I++DME Server
- DMIS Import, DMIS Export, DMIS Reporting, DMIS Native Interpreter

| Machine Type | | LH 108 | | | | LH 1010 | | | |
|--|--|---|--------------------|----------------------|-------------|-------------------|--------------------|----------------------|-------------|
| Measuring Ranges, Dimensions, Weights | | | | | | | | | |
| Measuring ranges | x | [mm] | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| | y | [mm] | 1200 | 1600 | 2000 | 2500 | 1200 | 1600 | 2000 |
| | z | [mm] | 800 | 800 | 800 | 800 | 1000 | 1000 | 1000 |
| Useable table surface | | [mm] | 1310 x 2250 | 1310x2650 | 1310x3050 | 1310x3550 | 1310 x 2250 | 1310x2650 | 1310x3050 |
| Machine weight | | [kg] | 4350 | 5350 | 6500 | 8150 | 4450 | 5450 | 6600 |
| Permissible part weight | | [kg] | 2000 | 2250 | 2400 | 2750 | 2000 | 2250 | 2400 |
| Required Services | | | | | | | | | |
| Electric | Single-phase AC 1P+N+PE, 115/230V +/- 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 | (Nl/min) | Min. 80, higher consumption possible, depending on application (pneum. dampers) | | | | | | | |
| Measuring Accuracy | | | | | | | | | |
| Measurement system | Photoelectric scale set-up system, optical division 20µm, resolution 0,1 µm | | | | | | | | |
| Probing uncertainty ¹ | MPE _P [µm] | TP20 2.8 | TP200 2.4 | SP25 2.1 | SP80 2.1 | TP20 2.9 | TP200 2.5 | SP25 2.2 | SP80 2.2 |
| Volumetric length measuring uncertainty ² | MPE _E [µm] | TP20 2.8+L/300 | TP200 2.4+L/300 | SP25/80 2.1+L/300 | | TP20 2.9+L/300 | TP200 2.5+L/300 | SP25/80 2.2+L/300 | |
| Scanning probe uncertainty ³ | MPE _{T+P} [µm] | SP25/SP80 2.7 | | | | SP25/SP80 2.8 | | | |
| Total measuring time for THP | MPT _{THP} [sec] | 72 | | | | 72 | | | |
| Operating Environment | | | | | | | | | |
| Operating temperature | 15°C - 30°C | | | | | | | | |
| Temperature range for MPE _E | 18°C - 22°C, ΔT 1K/h, 1K/m, 2K/d | | | | | | | | |
| Relative humidity | 40% - 70% | | | | | | | | |
| Dynamics | | | | | | | | | |
| Joystick operation | V _{max} | 0-20mm/s [creep mode], 0-100mm/s [normal] | | | | | | | |
| CNC mode | V _{max} | 300mm/s axial, 520mm/s volumetric | | | | | | | |
| CNC mode | a _{max} | 600mm/s axis-related, 1,000mm/s ² volumetric | | | | | | | |

1: According to DIN EN ISO 10360-2 / Maximum Permissible Error MPE_P

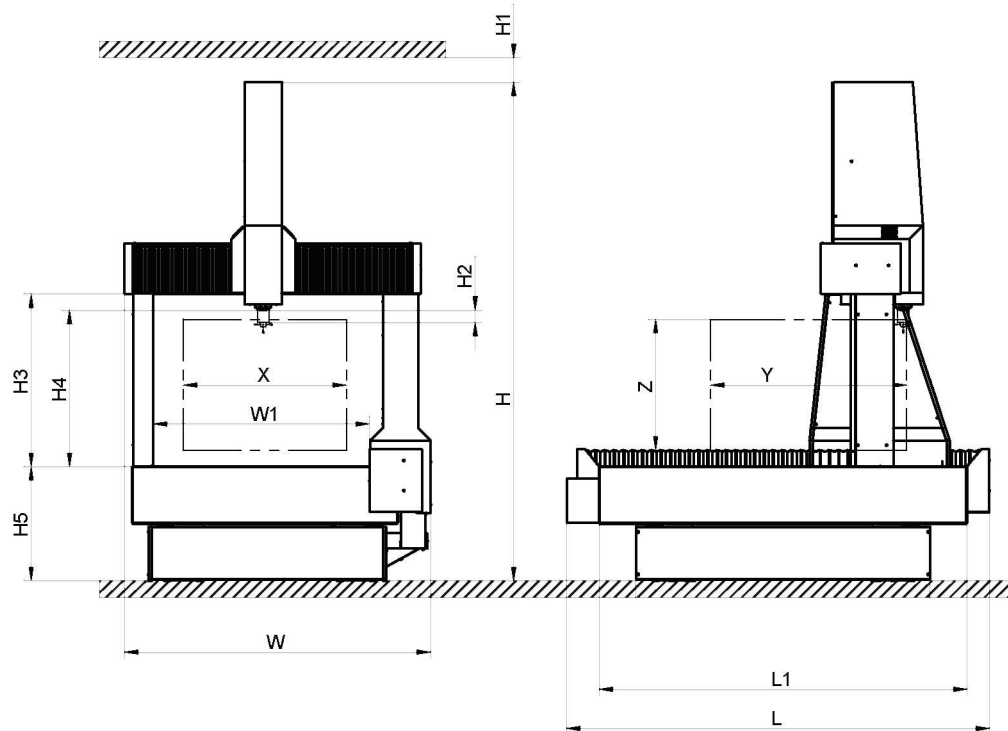
- SP25M with Module SM25-1 and Styli Ø 4 x 21 mm
- SP80 and Styli Ø 5 x 50 mm
- TP200 with Standard Force Module and Styli Ø 4 x 21 mm
- TP20 with Standard Force Module and Styli Ø 4 x 10 mm

2: According to DIN EN ISO 10360-2 / Maximum Permissible Error MPE_E

- SP25M 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
- TP20 with Standard Force Module and Styli Ø 4 x 10 mm

3: According to DIN EN ISO 10360-4 / Maximum Permissible Error MPE_{T+P}

- SP25M with Module SM 25-1 and Styli Ø 4 x 21 mm
- SP80 and Styli Ø 5 x 50 mm



| Overall Dimensions | | |
|--------------------|---------------------------|---------------------------|
| | LH 108 | LH 1010 |
| H | 3060 | 3460 |
| W | 1875 | 1875 |
| L | 2600 / 3000 / 3600 / 4100 | 2600 / 3000 / 3600 / 4100 |
| X | 1000 | 1000 |
| Y | 1200 / 1600 / 2000 / 2500 | 1200 / 1600 / 2000 / 2500 |
| Z | 800 | 1000 |
| H1 | 50 | 50 |
| H2 (PH 10M) | 90 | 90 |
| H2 (SP 80) | 145 | 145 |
| H3 | 1055 | 1255 |
| H4 | 955 | 1155 |
| H5 | 700 | 700 |
| W1 | 1325 | 1325 |
| L1 | 2250 / 2650 / 3050 / 3550 | 2250 / 2650 / 3050 / 3550 |

All dimensions are millimetres