



**Xspect**  
SOLUTIONS

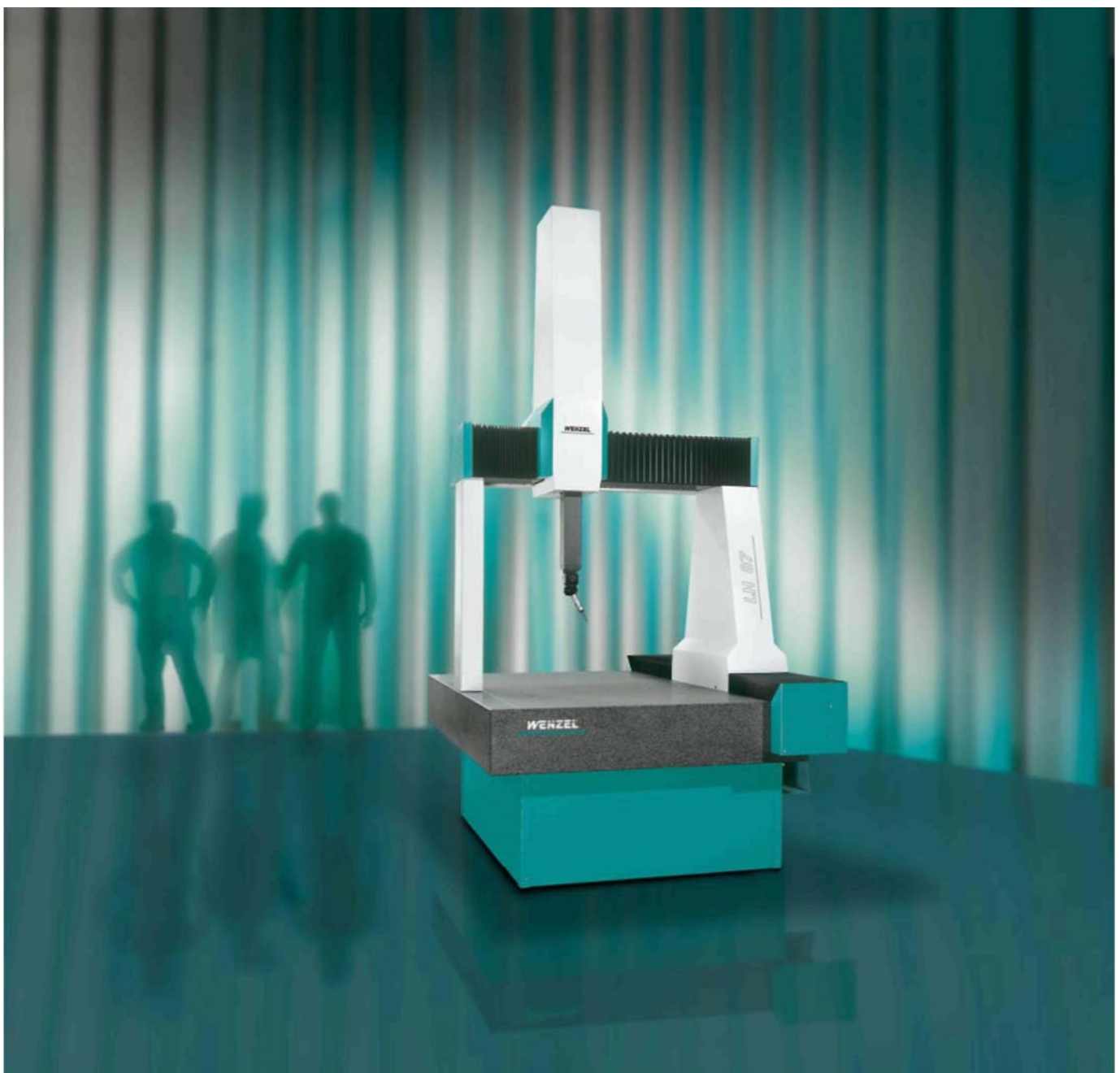
**WENZEL**<sup>®</sup>

The company of  $\mu$

# Coordinate Measuring Machines

## LH 54, LH 65 and LH 87

### Technical Data Sheet – Standard Accuracy



# Technical Data LH 54, LH 65, LH 87 Standard Accuracy Models

## Description

- CNC-bridge design of measuring machine with Renishaw touch-trigger or scanning probe systems
- All granite guide-ways accurately hand-lapped
- Ergonomically designed operator workstation, with integrated controller and Renishaw components
- CMM available in multiple sizes for the optimal selection of measuring volume

## Application areas

- Production, incoming inspection and quality assurance
- Measurement of prismatic and free-form components
- Repetitive or individual measurements
- Automated part loading solutions available

## Standard Features

- The Y-axis guide-way is machined directly into the granite base plate, providing optimal long-term accuracy and stability
- Pre-stressed, encompassing air bearings in all axes
- Passive vibration dampers
- Active pneumatic vibration damping available as option and field retrofittable
- Compact HT 400 joystick with single logarithmic joystick, "mouse function" and context-sensitive function buttons. Selectable joystick's axis assignment
- The X and Y axis guide-ways feature industrial bellows protection to protect 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 for CNC programming debugging

## Probe systems

- Renishaw PH6, fixed probe head
- Renishaw PH10M/PH10T, indexable probe heads featuring 720 repeatable positions in 7.5° steps
- TP20 robust and economic 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.
- Renishaw PH6M, fixed probe head allows the possibility of Using scanning probes 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 fixed 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

## DMIS Software

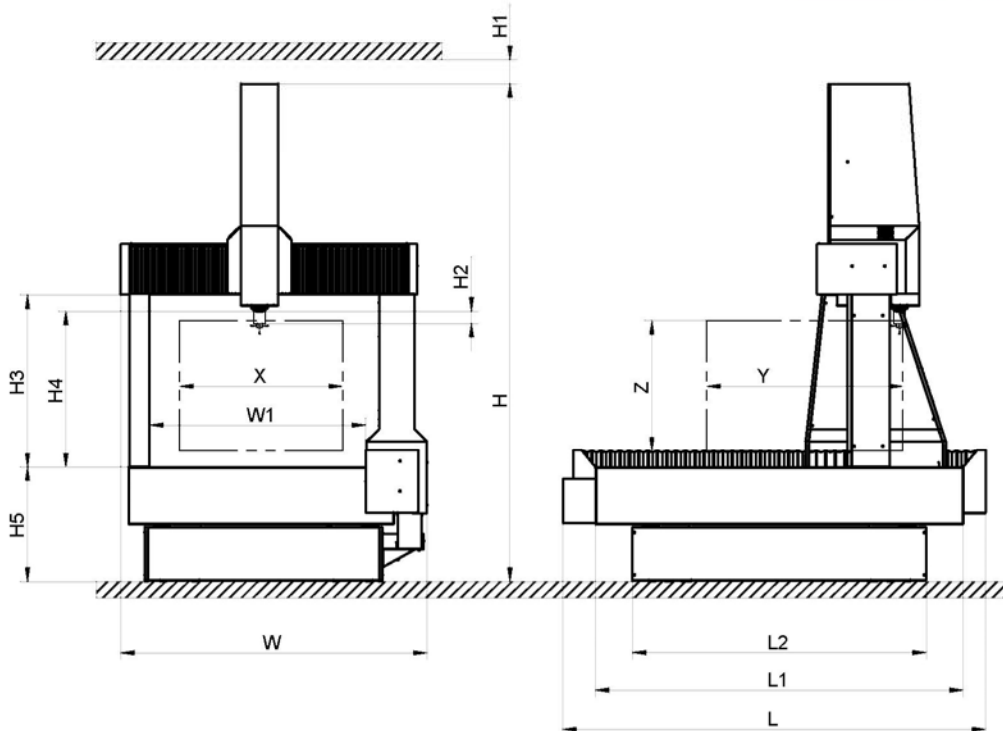
- Benchmark fully CAD integrated OpenDMIS software for measuring and evaluating geometry and free-form elements
- Graphic user interface featuring extensive automation to aid the User. Full Drag and Drop
- Seamless export of measured data and SPC Charts to Microsoft Excel
- Graphically interactive on and offline programming system for measurement program creation based on CAD data.
- Numeric and graphical reporting of the measured results in HTML format
- CAD import in IGES, STEP and DXF
- Integrated statistic functions, frequency distribution, trend diagram, machine-capability Cm and Cmk, SPC control charts, process capability Cp and Cpk.
- Shape and location tolerances according to ASME Y14.5M
- Context-sensitive on-line help
- Native DMIS 5.0 programming language
- PTB Certified Algorithms

## Options:

- Parasolid direct interface
- CATIA V4/V5 CAD direct interfaces
- I++DME Server

Machine Type		LH 54		LH 65		LH 87							
<b>Measuring Ranges, Dimensions, Weights</b>													
Measuring ranges x	[mm]	500	500	650	650	800	800	800					
y	[mm]	600	1000	750	1200	1000	1500	2000					
z	[mm]	400	400	500	500	700	700	700					
Useable table surface	[mm]	1180x715	1580x715	1450x850	1900x850	1780x1040	2280x1040	2780x1040					
Machine weight	[kg]	770	1150	1270	1780	2200	3100	4250					
Permissible part weight	[kg]	200	250	500	700	800	1000	1200					
<b>General Requirements</b>													
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	(NI/min)	Min. 70, higher consumption possible, depending on application (option pneum. dampers)											
<b>Measuring Accuracy</b>													
Measurement system	Photoelectric scale system, optical division 20µm, resolution 0.5µm (probe system TP20/TP200) / resolution 0,1 µm (probe system SP25/SP80)												
Probing uncertainty <sup>1</sup>	MPE <sub>P</sub> [µm]	TP20 2.8	TP200 2.5	SP25 1.8	SP80 1.8	TP20 2.9	TP200 2.6	SP25 1.9	SP80 1.9	TP20 3.0	TP200 2.7	SP25 2.0	SP80 2.0
Volumetric length measuring uncertainty <sup>1</sup>	MPE <sub>E</sub> [µm]	TP20 2.8+L/350	TP200 2.5+L/350	SP25/80 1.8+L/350		TP20 2.9+L/350	TP200 2.6+L/350	SP25/80 1.9+L/350		TP20 3.0+L/350	TP200 2.7+L/350	SP25/SP80 2.0+L/350	
Scanning probe uncertainty <sup>2</sup>	MPE <sub>T+P</sub> [µm]	SP25/SP80 2.4			SP25/SP80 2.5			SP25/SP80 2.6					
<b>Operating Environment</b>													
Operating temperature	15°C - 30°C												
Temperature range for MPE <sub>E</sub>	18°C - 22°C, ΔT 1K/h, 1K /m, 2K/d												
Relative humidity	40% - 70%												
<b>Dynamics</b>													
Joystick operation	V <sub>max</sub>	0-20mm/s (creep mode), 0-100mm/s (normal)											
CNC mode	V <sub>max</sub>	400mm/s axial, 690mm/s volumetric											
CNC mode	a <sub>max</sub>	1200mm/s axis-related, 2000mm/s <sup>2</sup> volumetric											

1: in accordance with DIN EN ISO 10360-2 2: in accordance with DIN EN ISO 10360-4



Overall Dimensions			
	LH 54	LH 65	LH 87
H	2280	2500	2950
W	1050	1230	1470
L	1320 / 1810	1560 / 2085	1975 / 2550 / 3145
X	500	650	800
Y	600 / 1000	750 / 1200	1000 / 1500 / 2000
Z	400	500	700
H1	50	50	50
H2 (PH 10M)	75	75	90
H2 (SP 80)	145	145	145
H3	575	755	940
H4	570	665	860
H5	850	800	750
W1	720	860	1050
L1	1180 / 1580	1450 / 1900	1780 / 2280 / 2780
L2	1155 / 1555	1100 / 1270	1460 / 1950 / 2460

All dimensions are millimetres

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