

# GLORY

A new generation of universal CMMs

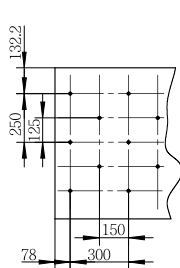
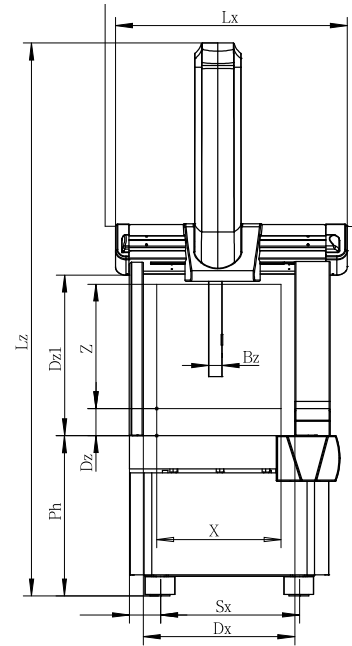
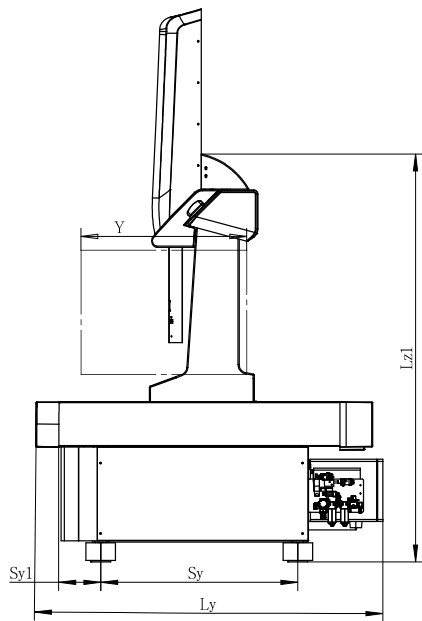
## Meeting diverse user needs

The GLORY bridge coordinate measuring machine (CMM) is a new generation of universal measuring machine built upon Hexagon's innovative and advanced technologies,

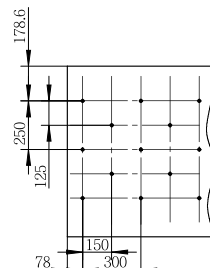
user research and close customer collaboration. Its flexible design platform ensures that it can be configured to meet a wide variety of user requirements.



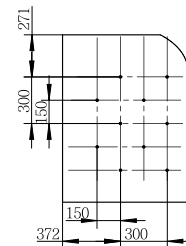
# Dimensions and design



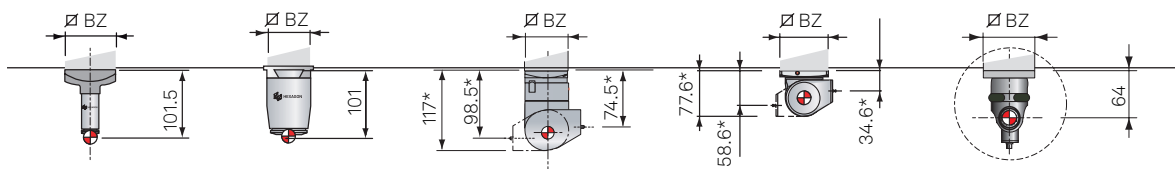
05.06.05



06.yy.06



08.yy.06



HP-S-X1C

HP-S-X3

HH-A-T5

HH-AS

HH-MI

Model	Stroke			External dimensions (mm)				Space (mm)	Z axis width (mm)	Worktable dimensions (mm)		Support (mm)		Max. part weight (kg)	CMM weight (kg)		
	X	Y	Z	Scan LX	Touch LY	LY	LZ			DX	DZ	DZ1	BZ			PH	PY
05.06.05	500	600	500	1020	1425	1475	2449	626	134	675	65×65	774	1155	751	212	227	620
06.08.06	600	800	600	1120	1624	1674	2669	732	134	775	65×65	774	1355	951	202	300	795
06.10.06	600	1000	600	1120	1824	1874	2669	732	134	775	65×65	774	1555	1151	202	300	861
08.10.06	800	1000	600	1364	1918	1918	2839	931	142	811	80×80	792	1650	1097	247	500	1203
08.15.06	800	1500	600	1364	2418	2418	2839	931	142	811	80×80	792	2150	1597	247	500	1740

\* dimensions are changing between 5°, 2.5° and 7.5° models

# Minimum door opening requirements

Model	Width (mm)	Height (mm)
05.06.05	1120	1870
06.08.06	1220	1970
06.10.06	1220	1970
08.10.06	1464	2049
08.15.06	1464	2049

## Technical specifications

Mechanical frame		X: Extruded hard alloy aluminum processed with precision and anodised Y: Integral granite platform Z: Extruded hard alloy aluminum processed with precision and anodised
Surface plate	Material	Granite
	Workpiece fixation	M8X1.25 threaded inserts
	Flatness	According to DIN 876/II
Sliding system		Preloaded air bearings are used on each axis
Measurement system		METALLUR® linear grating. System resolution: Touch 0.078µm; Scan 0.005µm
Temperature compensation		Linear temperature compensation Scan : standard Touch: optional
Ram counterbalance		Pneumatic balance, adjustable
Electrical requirements	Power supply	220V - 50Hz
	Air supply	Minimum pressure 0.6MPa, air quality meets ISO 8573/1 standard level 4
Power consumption	Power	Touch: 1500VA / Scan: 2000VA
	Air supply	90 NI/min
Operating environment		Temperature : 10°C - 45°C Relative humidity : 90% non-condensing

Touch: measurement system configuration with HH-MI, HP-TMe, and HP-THDe sensors  
Scan: measurement system configuration with HP-S-X1/X3, HP-C-TS5.10 sensors

# GLORY Touch performance specifications

The performance indicators are based on ISO 10360-2:2009 and ISO 10360-5:2010 standards [E0/E150, PFTU, R0; L (mm)].

Model	Maximum Permissible Error MPE (μm), Maximum Permissible Repeatability Error MPL(μm)								
	HH-MI			HP-TMe			HP-THDe		
	E0/E150	PFTU	R0	E0/E150	PFTU	R0	E0/E150	PFTU	R0
05.06.05	2.3 + 3.3L/1000	2.3	2.3	2.1 + 3.3L/1000	2.1	2.1	1.9 + 3.3L/1000	1.9	1.9
06.yy.06	2.5 + 3.3L/1000	2.8	2.5	2.4 + 3.3L/1000	2.5	2.4	2.2 + 3.3L/1000	2.3	2.2
08.yy.06	2.7 + 3.3L/1000	2.9	2.7	2.5 + 3.3L/1000	2.6	2.5	2.3 + 3.3L/1000	2.4	2.3

Dynamic performance	05.06.05	06.yy.06	08.yy.06
Maximum 3D speed	520 mm/s		520 mm/s
Maximum 3D acceleration	1730 mm/s <sup>2</sup>		1470 mm/s <sup>2</sup>

Probe configuration for performance testing	
HH-MI	Probe length 21 mm, stylus tip diameter 4 mm
HP-TMe	Standard probe, probe length 10 mm, probe diameter 4 mm.
HP-THDe	Medium force, probe length 10 mm, probe diameter 4 mm.

Performance specifications are valid under the following conditions	
Ambient temperature	18°C - 22°C
Maximum temperature variation	1°C/h - 2°C/24h
Maximum temperature gradient	1°C/m

# Probing specifications



Technical characteristics	HH-MI-M	HH-A/AS8-M/T7.5°	HH-A/AS-M/T5°	HH-A/AS8-T2.5°
Angular rotation	A axe: -90°/ 0° B axe: ±180°	A axe: +105°/ 0° B axe: ±180°	A axe: +90°/ -115° B axe: ± 180°	A axe: ±105° B axe: ±180°
Angular rotation step	15°	7.5°	5°	2.5°
Rotation speed	-	90°/ 2 s	90°/ 2 s	90°/ 2.5 s
Positioning repeatability	1.5 µm	0.5 µm	0.5 µm	0.5 µm
Maximum torque	-	0.6 Nm	0.6 Nm	1.4 Nm
Maximum extension rod	50 mm	300 mm	300 mm	450 mm



Technical characteristics	HH-MI	HP-TMe	HP-THDe
Measurement direction	±X, ±Y, +Z	±X, ±Y, +Z	±X, ±Y, +Z
Unidirectional repeatability 2σ	0.35 µm	0.35 µm (LF,SF) / 0.5 µm(MF,EF)	0.3 µm
Overtravel	X/Y: ±20°, Z: 6 mm	X/Y: ±16°, Z: 5 mm	X/Y: ±14°, Z: 5 mm (EF 3.5 mm)
Measuring probe thread	M3	M2	M2
Maximum measuring probe length	100 mm	60 mm	100 mm

# GLORY Scan Performance specifications

Performance indicators based on ISO 10360-2:2009, ISO 10360-5:2010, and ISO 10360-4:2000  
 [E0/E150, PFTU, R0, THP ( $\mu\text{m}$ ); L (mm);  $\tau$  (s)]

Model	Maximum permissible errorMPE( $\mu\text{m}$ ); maximum permissible repeatability errorMPL( $\mu\text{m}$ )							
	HP-S-X1/HP-S-X3				HP-S-X1/HP-S-X3 + X. $\mu$ kit			
	E0/E150/E60*	PFTU	THP/ $\tau$	R0	E0/E150/E60*	PFTU	THP/ $\tau$	R0
05.06.05	1.8+3.3L/1000	1.8	2.8/45	1.7	1.7+3.3L/1000	1.7	2.8/45	1.6
06.yy.06	1.8+3.3L/1000	1.8	2.8/45	1.8	1.7+3.3L/1000	1.7	2.8/45	1.7
08.yy.06	1.9+3.3L/1000	1.9	3.1/49	1.9	1.7+3.3L/1000	1.7	3.1/49	1.7

\*E60: applicable to HP-S-X1C

Dynamic performance	05.06.05 06.yy.06 08.yy.06
Maximal 3D speed	520 mm/s
Maximal 3D acceleration	1730 mm/s <sup>2</sup>

Configuration of measuring probe during performance testing	
HP-S-X1: HP-S-X1S / HP-S-X1H / HP-S-X1C	Probe length 50 mm, tip diameter 5 mm
HP-S-X3	Probe length 60 mm, tip diameter 5mm

Performance indicators are valid under the following conditions	
Ambient temperature	18°C - 22°C
Maximum temperature variation	1°C/h - 2°C/24h
Maximum temperature gradient	1°C/m

## Performance evaluation criteria

**MPE(E0) : maximum permissible error for length measurement**

In the working space of the coordinate measuring machine, seven orientations are arbitrarily selected, and five length gauges are measured in each orientation. Each length gauge is measured point-to-point three times. The measurement results should not exceed the given MPE (E0) value.

**MPE(E150) : maximum permissible error for length measurement**

In the XZ or YZ plane of the coordinate measuring machine, select 2 diagonal directions, measure 5 length gauge blocks in each direction, and measure each length gauge block three times with the probe perpendicular to the Z axis and a bias length of 150 mm. The measurement results should not exceed the given MPE (E150) value.

**MPL(R0) : maximum permissible limit of the repeatability range**

Evaluate the repeatability (R0) by assessing the three-repeat precision of length measurement error (E0). For 35 measurements, each length measurement result of three repetitions should not exceed the given MPL(R0) value.

**MPE(PFTU): Maximum Permissible Error for Probe Form - Tip Unit**

On the test sphere, 25 points are probed, and the maximum allowable shape error (PFTU) for a single probe is the range of variation in all radii, which should not exceed the given MPE (PFTU) value.

**MPE(THP) / MPT ( $\tau$ ): maximum permissible error for scanning**

Perform high-density scanning measurements on a calibration sphere along four predetermined paths. The variation range of all scanning radii should not exceed the given MPE. The time required for the scanning measurement should also not exceed the given limit.

Note: The accuracy testing under maximum load according to ISO 10360-2 standard is only an option, and the performance evaluation of non-contact sensors should be carried out according to the corresponding ISO standards.

# Probing specifications



	HH-A/AS8-T7.5°	HH-A/AS-T5°	HH-A/AS8-T2.5°
Angular rotation	A axis: +105°/ 0° B axis: ±180°	A axis: +90°/ -115° B axis: ±180°	A axis: ±105° B axis: ±180°
Angular rotation step	7.5°	5°	2.5°
Rotation speed	90°/ 2 s	90°/ 2 s	90°/ 2.5 s
Positioning repeatability	0.5 μm	0.5 μm	0.5 μm
Maximum torque	0.6 Nm	0.6 Nm	1.4 Nm
Maximum extension rod	300 mm	300 mm	450 mm



	HP-S-X1S	HP-S-X1H/HP-S-X1C	HP-S-X3
Resolution	<0.1 μm	<0.1 μm	<0.1 μm
Overtravel	All axes: ±2 mm	All axes: ±2 mm	All axes: ±1.25 mm
Spring constant	1.2N/mm	1.2N/mm	6N/mm
Probe adapter	M3	M3	M5
Max. stylus weight	20 g (with suction cups)	33 g (with suction cups)	150 g (with suction cups)
Max. stylus length	Horizontal: 20 mm Vertical: 115 mm	Horizontal: 20 mm Vertical: 115 mm	360 mm



HP-C- TS5.10	
Field of view	11.7 × 8.7 mm (Specifications 1) 15.9 × 4.4 mm (Specifications 2)
Pixel size	11.4 μm (Model 1) 5.7 μm (Model 2)
Frame rate	15 fps (Model 1) 19 fps (Model 2)
Detection error ( $P_{FV2D}$ )	5.0 μm
Working distance	110 mm
Dimensions	125 × 80 × 80 mm
Weight	300 g



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Industrial

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Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter.

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