

## LK V XX.20.15

LK V ceramic bridge and spindle components coupled with proven air-bearing design provide the ultimate in stiffness and stability, altogether delivering significantly improved repeatability.

Designed and manufactured using only the highest quality materials, they carry a heritage of over 45 years experience and expertise. LK CMMs deliver the ability to perform dimensional, positional and surface measurement in a single system. Combined with a complete range of contact and non-contact sensors, Nikon Metrology CMM s provide true multi-sensor capability.

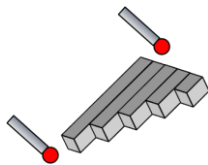


### KEY BENEFITS

- Premium performance
- High velocities/accelerations for low cycle times
- Excellent accuracy and repeatability
- Total solution for probing, scanning and digital inspection

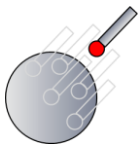
### MACHINE PERFORMANCE

#### Accuracy Verification and Acceptance Tests



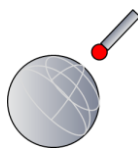
#### ISO 10360-2:2001 $MPE_L$ : maximum permissible length error

- Five different length gauges are measured three times in seven different locations on the CMM, 105 measurements in total.
- The shortest gauge is less than 30mm and longest at least 66% of the longest diagonal of the CMM, up to a maximum of 2m.
- The difference between the measured length and calibrated length, traceable to National Standards, is taken as the error.
- The error of all 105 measurements must not exceed the  $MPE_L$  value quoted by the CMM manufacture.



#### ISO 10360-2:2001 $MPE_p$ : maximum permissible probing error

- A test sphere is measured using 25 touch points while in a single location on the CMM.
- The nominal diameter of the test sphere must be between 10mm and 50mm.
- All 25 touch points are used to calculate a best-fit sphere and the radial distance of each touch point to that sphere centre.
- The difference, between the minimum radial distance and maximum radial distance, must not exceed the  $MPE_p$  value quoted by the CMM manufacture.



#### ISO 10360-4:2000 $MPE_{THP}$ and $MPE_{time}$ : maximum permissible scanning error, and time taken to perform the test

- A test sphere is measured using 4 scans while in a single location on the CMM.
- The nominal diameter of the test sphere must be 25mm and calibrated sphere radius traceable to National Standards.
- All 4 scans are used to calculate a best-fit sphere and the radial distance of each measured point to that sphere centre.
- The maximum absolute difference, between the individual radial distances and calibrated sphere radius, must not exceed the  $MPE_{THP}$  value quoted by the CMM manufacture.
- The time taken  $MPE_{THP}$  to complete the test must be stated if the test results are to be considered valid.

## MACHINE PERFORMANCE : LK V 25.20.15, 30.20.15 AND 35.20.15

Tactile Probes	Probing		MPE <sub>p</sub> (μm) according to ISO 10360-2:2001				Max. 3D Speed (mm/s)	Max. 3D Acc (mm/s <sup>2</sup> )
	Length Measurement		MPE <sub>E</sub> (μm, L/mm) according to ISO 10360-2:2001					
	Scanning		MPE <sub>THP/time</sub> (μm/s) according to ISO 10360-4:2000					
Probe System	<sup>1</sup> Standard Temperature Range 18-22°C			<sup>2</sup> Extended Temperature Range 16-26°C				
	MPE <sub>p</sub>	MPE <sub>E</sub>	MPE <sub>THP/time</sub>	MPE <sub>p</sub>	MPE <sub>E</sub>	MPE <sub>THP/time</sub>		
<sup>3</sup> PH10MQ PLUS / TP20	4.2	3.0+L/400	-	4.2	3.0+3L/400	-	600	1014
<sup>3</sup> PH10MQ PLUS / TP200	2.5	3.0+L/400	-	2.5	3.0+3L/400	-		
<sup>3</sup> PH20	tbc	tbc	-	tbc	tbc	-		
<sup>4</sup> PH10MQ PLUS / SP25M	2.3	3.0+L/400	2.8/53	2.3	3.0+3L/400	2.8/53		
<sup>5</sup> SP80	tbc	tbc	tbc	-	-	-		
<sup>6</sup> REVO / RSP2	3.75	3.0+L/400	3.0/9	-	-	-		
<sup>7</sup> REVO / RSP3	3.1	3.0+L/400	3.0/53	-	-	-		

<sup>1</sup> Standard environment temperature variation 1°C/hour, 2°C/8 hours, gradient 1°C/metre (vertically and horizontally)

<sup>2</sup> Extended environment temperature variation 2°C/hour, 5°C/24 hours, gradient 1°C/metre

<sup>3</sup> Stylus assembly with standard force module, maximum length 20mm or maximum of 1g weight

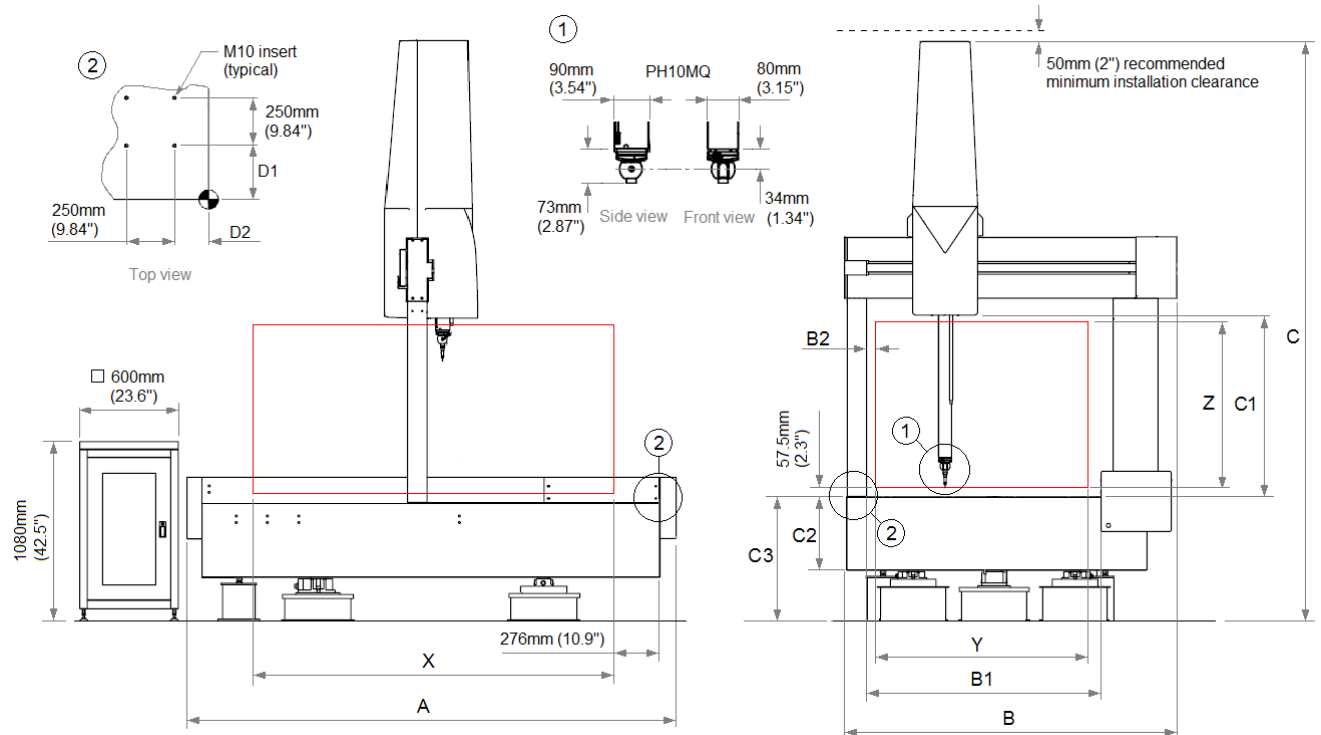
<sup>4</sup> Stylus assembly with SM25-2/SH25-2, maximum length 50mm

<sup>5</sup> Stylus assembly for MPE<sub>E</sub> and MPE<sub>p</sub> length 150mm and diameter 8mm, for MPE<sub>THP/time</sub> length 80mm and diameter 3mm.

<sup>6</sup> REVO tested with RSP250 module. DIN EN ISO 10360-4 derived test with helix scan at probe head angle A45B45, filtered to 30 UPR

<sup>7</sup> REVO tested with RSP3-3 probe. DIN EN ISO 10360-4 test with standard ISO scan path at probe head angle A45B45, filtered to 30 UPR

## WEIGHTS AND DIMENSIONS: LK V 25.20.15, 35.20.15, 40.20.15 AND 65.20.15



### Metric units

Models	Strokes (mm)			Overall dimensions (mm)			Daylights (mm)			Table (mm)		Inserts (mm)		Max. part weight (kg)	Machine weight (kg)
	X	Y	<sup>1</sup> Z	A	B	C	B1	B2	C1	C2	C3	D1	D2		
25.20.15	2540	2032	1525	3735	2855	4525	2174	146	1629	400	710	285	177	3222	9096
30.20.15	3048	2032	1525	4435	2855	4525	2174	146	1629	500	710	285	182	3897	13148
35.20.15	3556	2032	1525	4942	2855	4525	2174	146	1629	500	710	285	185	4568	14987
40.20.15	4064	2032	1525	5450	2855	4575	2174	146	1629	550	760	285	190	5242	18483
65.20.15	6604	2032	1525	8340	2945	4775	2174	146	1629	750	960	285	241	8617	40119

<sup>1</sup> For REVO, reduce the given stroke by 120mm and for PH20, reduce the given stroke by 60mm