



Datasheet

MAXIMA R

Coordinate Measuring Machine - bridge on rails

30.20.20

40.20.20

50.20.20

60.20.20



TECHNICAL DATA | Dimensions

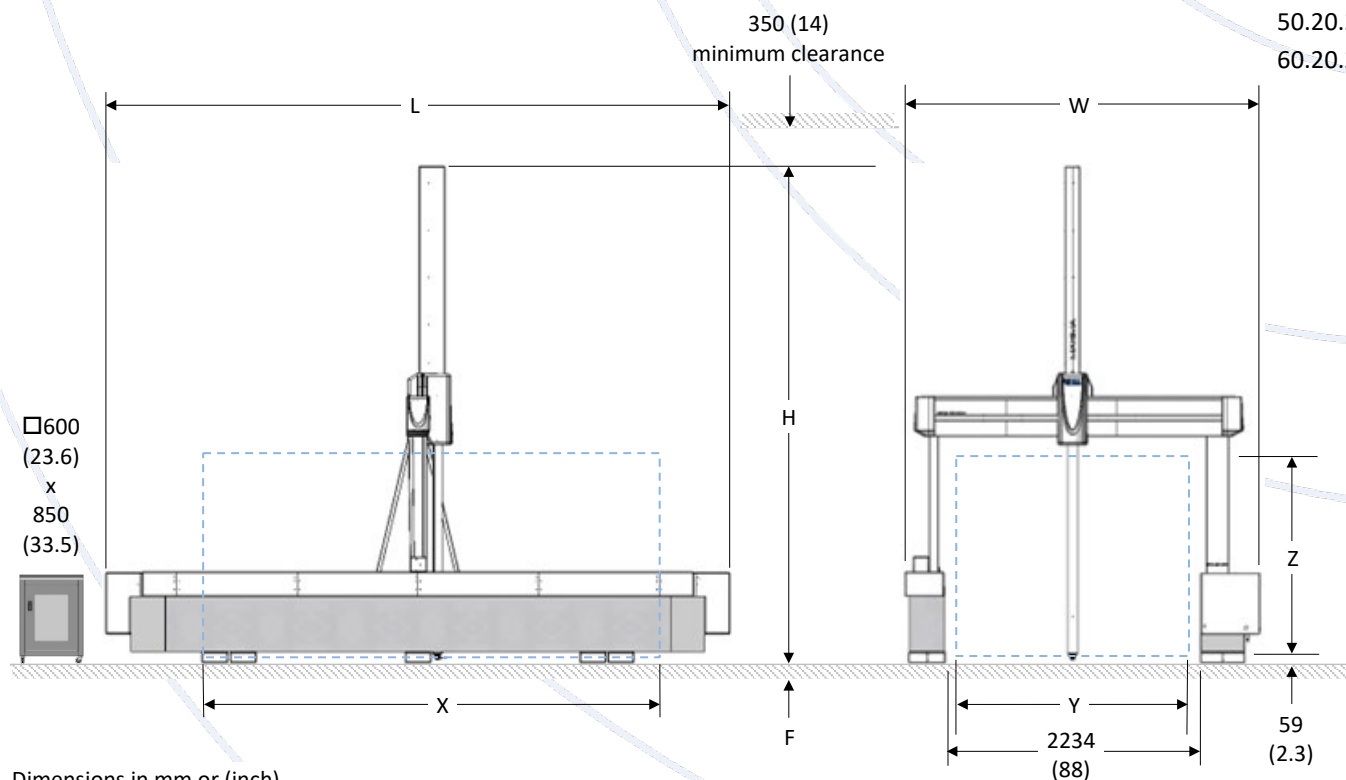
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Dimensions in mm or (inch)
Mass in kg or [lbs]

	Travel ¹			Overall			Floor	CMM
	X	Y	Z ²	L	W	H	F ³	Weight
30.20.20	3048 (120)	2032 (80)	2032 (80)	5018 (197.6)	3480 (137.0)	5065 (199.4)	100 (3.9)	6984 [15397]
40.20.20	4064 (160)	2032 (80)	2032 (80)	6035 (237.6)	3480 (137.0)	5065 (199.4)	100 (3.9)	8564 [18880]
50.20.20	5080 (200)	2032 (80)	2032 (80)	7148 (281.4)	3480 (137.0)	5065 (199.4)	125 (4.9)	12703 [28005]
60.20.20	6096 (240)	2032 (80)	2032 (80)	8172 (321.7)	3480 (137.0)	5065 (199.4)	125 (4.9)	14735 [32485]

¹Maximum travel of probe head reference centre point.

²Z travel for PH10MQ PLUS only, reduce for SP80 by 100mm (4").

³Minimum thickness of homogeneous concrete floor with minimum shear strength of 0.4 N/mm² (58 psi).

TECHNICAL DATA | Specification

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TOUCH PROBE ACCURACY ¹			TP20 ² PH10MQ PLUS	TP200 ³ PH10MQ PLUS	SP25M ⁴ PH10MQ PLUS	SP80 ⁵
ISO 10360 -2:2009						
Length measurement at 18°C to 22°C	E0 MPE E150 MPE		4.6+L/350	3.1+L/350	3.1+L/350	2.9+L/350
Length measurement at 16°C to 26°C	E0 MPE E150 MPE		4.9+L/230	3.4+L/230	3.4+L/230	3.2+L/230
Repeatability	R0 MPL		3.1	3.1	3.1	3.1

ISO 10360 -3:2000⁶

Rotary table	radial	MPE FR	7.9	6.4	6.4	6.2
	tangent	MPE FT	9.4	7.9	7.9	7.7
	axial	MPE FA	7.7	6.2	6.2	6.0

ISO 10360 -4:2001

			Accuracy		Efficiency	
Probing accuracy	form	MPE TiJ	3.6	6.1	3.4	5.9
scanning mode	time	MPE t	65 sec	55 sec	68 sec	58 sec

ISO 10360 -5:2010

Probing accuracy touch mode	form	PFTU MPE	5.0	3.0	2.8	2.6
Multi stylus fixed head position	form	PFTM MPE	-	-	-	-
	size	PSTM MPE	-	-	-	-
	location	PLTM MPE	-	-	-	-
Multi stylus articulating head	form	PFTE MPE	-	-	-	-
	size	PSTE MPE	-	-	-	-
	location	PLTE MPE	-	-	-	-

ISO 12181-2:2011

Roundness	form	R0nt MZCI			3.3	3.1
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DYNAMICS

Maximum Acceleration	802 mm/sec ²
Maximum Velocity	462 mm/sec

Conformance is proven when all errors of indication lie within or on the accuracy specification limits MPE/MPL.

Conformance is unproven when one or more errors of indication lie outside the accuracy specification limits MPE/MPL.

¹ Touch probe accuracy specifications using manufacturer specified test length and test sphere artifacts with empirical probe qualification.

E0 MPE E150 MPE Maximum volumetric length measurement error in microns, where L is the measured length in millimetres.

R0 MPL Maximum repeatability value in microns using E0 values.

MPE FR MPE FT MPE FA Maximum radial, tangential and axial errors respectively in microns.

MPE TiJ MPT t Maximum single stylus form error in microns using scanning mode with time taken in seconds, artifact in centre of measuring volume, vertical position defined by holding device.

PFTU MPE Maximum single stylus form error in microns using touch point mode, artifact in centre of measuring volume, vertical position defined by holding device.

PSTM MPE Maximum multi stylus fixed head form error in microns using touch point mode, artifact in centre of measuring volume, vertical position defined by holding device.

PFTE MPE Maximum multi stylus articulating head form error in microns using touch point mode, artifact in centre of measuring volume, vertical position defined by holding device.

R0nt MZCI Maximum roundness form error in microns using touch point mode, artifact in centre of measuring volume, vertical position defined by holding device.

² TP20 standard force module, EM2 module (PH20 En MPE only), Ø4x10 mm stainless steel shaft stylus, Ø4x30 mm tungsten carbide shaft stylus (En MPE only), Ø5x20 mm star tungsten carbide shaft stylus (P*TM MPE only), touch velocity 0.1 m/min, approach 10 mm (En MPE only), 7 mm (PFTU MPE only).

³ TP200 standard force module, Ø4x10 mm stainless steel shaft stylus, Ø4x30 mm tungsten carbide shaft stylus (En MPE only), Ø5x20 mm star tungsten carbide shaft stylus (P*TM MPE only), touch velocity 0.1 m/min, approach 10 mm (En MPE only), 7 mm (PFTU MPE only).

⁴ SP25M SM25-1 module, SH25-1 stylus holder, Ø4x50 mm tungsten carbide shaft stylus, Ø3x21 mm stainless steel shaft stylus (P*TM MPE only), touch velocity 0.1 m/min, scanning velocity 0.5 m/min, approach 10 mm (En MPE only), 7 mm (PFTU MPE only), 50 UPR 2σ filter. Use of a FCR25 TC temperature-controlled change rack is recommended for optimum performance when changing the SP25M scanning modules.

⁵ SP80 stylus holder, Ø8x100 mm carbon fibre shaft stylus, Ø8x150 mm carbon fibre shaft stylus and stainless-steel stylus extension (En MPE only), touch vel. 0.1 m/min, scanning vel. 0.5 m/min, approach 10 mm (En MPE only), 7 mm (PFTU MPE only), 50 UPR 2σ filter.

⁶ Rotary table accuracy specifications using manufacturer-specified, surface mounted Grade 1 rotary table, Δh=200mm and r=200mm.

TECHNICAL DATA | Probing

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PROBE HEADS

PH10MQ PLUS



SP80



Head type	Indexing head	Fixed head
Head positions	720	-
Angular tilt	0° to +105° in 7.5° steps	-
Angular rotation	0° to ±180° in 7.5° steps	-
Probe change rack	TSR/MRS2	MRS2

TOUCH PROBES

	TP20	TP200	SP25M	SP80
Probe type	Touch trigger	Touch trigger	Scanning	Scanning
Min. stylus diameter	0.3 (0.012)	0.3 (0.012)	0.5 (0.02)	0.3 (0.012)
Max. stylus length	60 (2.4)	100 (3.9)	400 (15.7)	1000 (39.4)
Max. probe extension	300 (11.8)	300 (11.8)	100 (3.9)	-
Min. probing force	0.055 N	0.02 N	0.1 N	2.2 N
Stylus change rack	SSR20/MCR20	SSR200/SCR200	SSR25/FCR25	SCP80

PERIPHERALS

Controller	NMC300	NMC300
Controller mounting	Cabinet	Cabinet
Handbox	SOLO	SOLO
Rotary Table	●	●
Automation	●	●

● Optional

– Not available

mm (inch)

TECHNICAL FEATURES

X axis guideway	Granite dovetail guideway with bellows covers on primary leg Granite guideway with bellows covers on secondary leg
Y axis guideway	Mono-crystalline alumina ceramic guideway 450 mm x 120 mm (17.7 x 4.7) with bellows covers A steel cover protects the Y-axis scale from airborne contaminants
Z axis guideway	Mono-crystalline alumina ceramic guideway 127 mm x 127 mm (5.0 x 5.0) with top-hat cover
X axis friction drive	Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor on primary leg Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor on secondary leg
Y axis friction drive	Stainless steel drive belt with preloaded rollers and DC servomotor
Z axis friction drive	Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor
Linear encoders	0.05 µm stainless steel ribbon scale and optical readhead system
Counterbalance	Fully adjustable pneumatic Z axis counterbalance
Air bearings	Single orifice multi-groove air bearings with 5 µm air cushion on all axes
Temperature compensation	Automatic temperature compensation for workpiece and all axes

ENVIRONMENTAL REQUIREMENTS

Ambient temperature	Standard temperature range: 18°C to 22°C Extended temperature range: 16°C to 26°C
Temperature gradient	Standard temperature range: 1°C/h 2°C/24h 1°C/m Extended temperature range: 1°C/h 5°C/24h 1°C/m
Operating temperature	15°C to 30°C
Relative humidity	20% to 80% non-condensing
Floor vibration	Specification on request
Noise level	A-weighted sound level does not exceed 70 dB(A), in compliance with Directive 2006/42/EC

SUPPLY REQUIREMENTS

Power supply	115 V/20 A or 230 V/13 A 50 to 60 Hz single phase regulated to within -5% to +10%				
Power cable	Region	Overall dia.	Stranding	CSA/Gauge	Conductor Colours
	Rest of world	6.9 mm	32/02	1 mm ²	blue, brown, green/yellow
	USA (115 V)	0.26 inch	41/34	18 AWG	Black, white, green
Air consumption	8.3 SCFM (235 NLPM) inc. rotary table: 23.3 SCFM (660 NLPM)				
Air pressure	Min. air supply pressure 6.2 bar (90 psi)				
Air temperature	Ambient temperature ± 2°C				
Air quality	In accordance with ISO 8573-1:2010 [1:4:2]				

WARRANTY



12 months' warranty as standard, extended warranty available on request
Unique 10-year original accuracy guarantee as standard
Terms and conditions apply see LK Metrology website for full details

CONFORMITY



Full UKCA and CE certification in accordance with the following directives:
Machinery directive 2006/42/EC
Low voltage directive 2014/35/EU
Electromagnetic directive 2014/30/EU