



Datasheet

MAXIMA

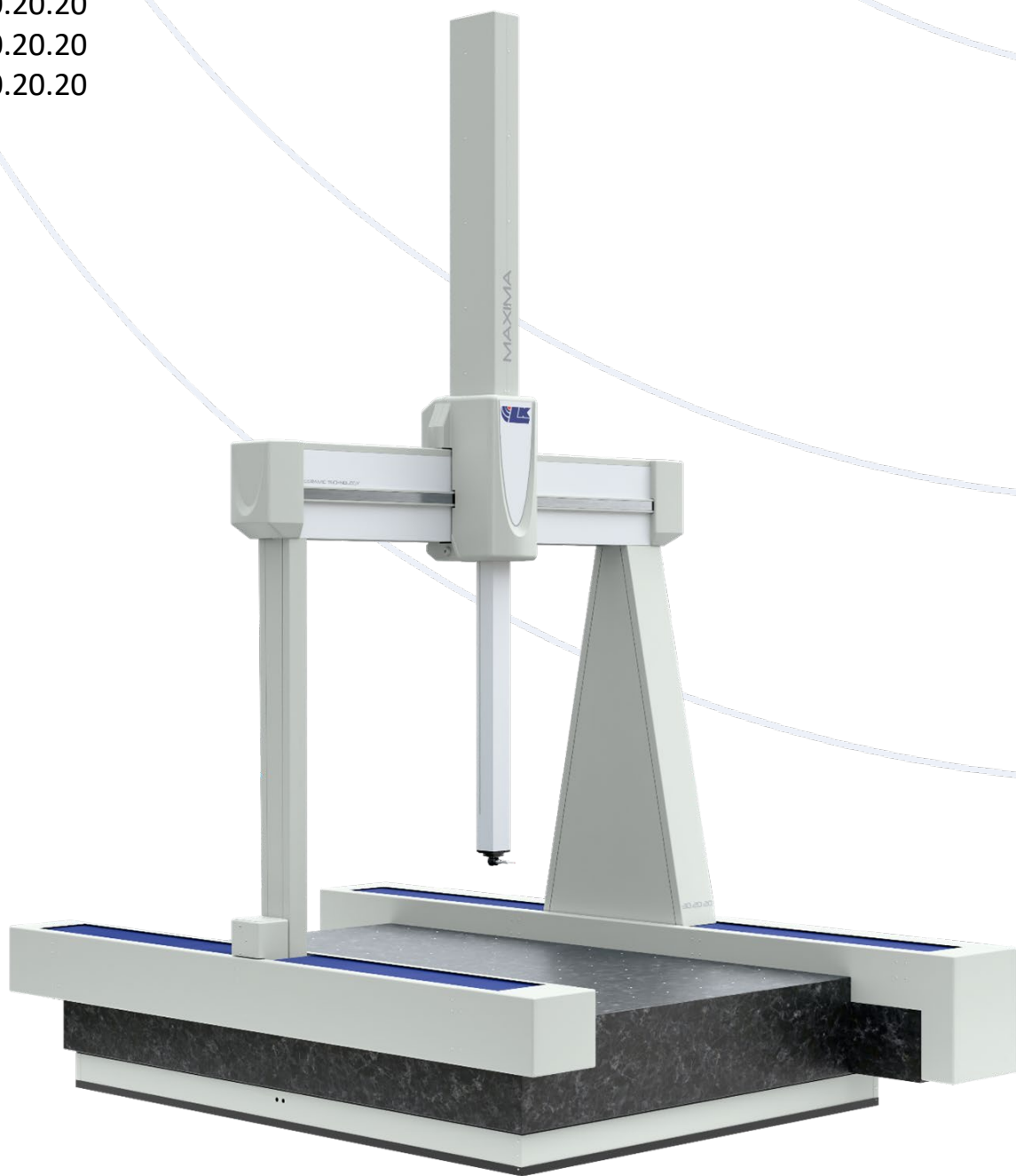
Coordinate Measuring Machine

30.20.20

40.20.20

50.20.20

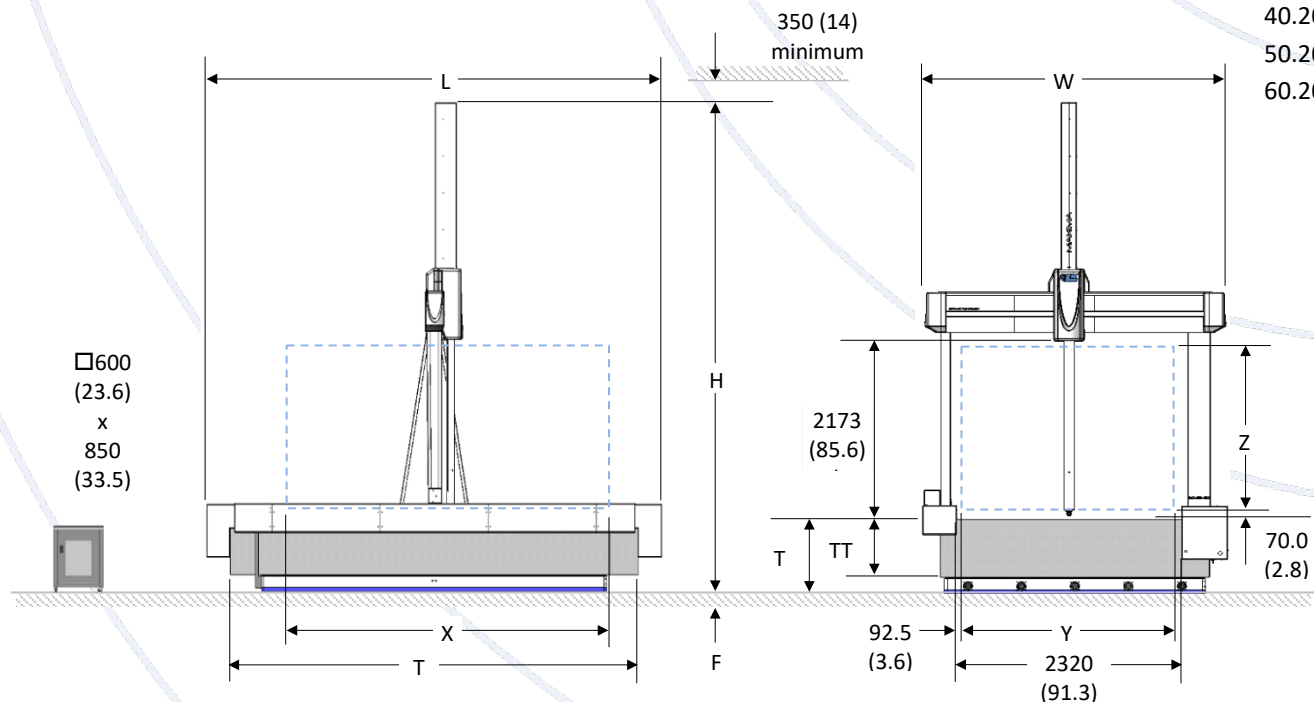
60.20.20



TECHNICAL DATA | Dimensions

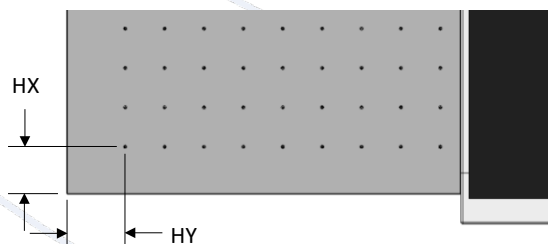
MAXIMA

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

M10 inserts on
250 (9.8) centres



	Travel ¹			Overall			Granite Table					Floor	Part Weight	CMM
	X	Y	Z ²	L	W	H	TX	TT	TH	HX	HY	F ³	Combined ⁴	Weight
30.20.20	3048 (120)	2032 (80)	1932 (76)	4878 (192.0)	3210 (126.4)	5787 (227.8)	4465 (175.8)	500 (19.7)	710 (28.0)	283 (11.1)	318 (12.5)	215 (8.5)	3587 [7908]	14848 [32734]
40.20.20	4064 (160)	2032 (80)	1932 (76)	5895 (232.1)	3210 (126.4)	5887 (231.8)	5480 (215.7)	600 (23.6)	810 (31.9)	290 (11.4)	318 (12.5)	279 (11.0)	4752 [10476]	22337 [49245]
50.20.20	5080 (200)	2032 (80)	1932 (76)	7248 (285.4)	3210 (126.4)	5987 (235.7)	6496 (255.7)	700 (27.6)	910 (35.8)	298 (11.7)	318 (12.5)	347 (13.7)	6129 [13512]	31407 [69241]
60.20.20	6096 (240)	2032 (80)	1932 (76)	8272 (325.7)	3210 (126.4)	6087 (239.6)	7520 (296.1)	800 (31.5)	1010 (39.8)	310 (12.2)	318 (12.5)	418 (16.5)	7735 [17053]	42098 [92810]

¹Maximum travel of probe head reference centre point.

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

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

⁴Combined recommended metrological part weight and recommended maximum part weight, positioned within the measurement volume.

TECHNICAL DATA | Specification

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TOUCH PROBE ACCURACY¹

ISO 10360 -2:2009			TP20 ² PH10MQ PLUS	TP200 ³ PH10MQ PLUS	SP25M ⁴ PH10MQ PLUS	SP80 ⁵
Length measurement at 18°C to 22°C	E0 MPE E150 MPE		4.4+L/375	2.9+L/375	2.9+L/375	2.7+L/375
Length measurement at 16°C to 26°C	E0 MPE E150 MPE		4.7+L/230	3.2+L/230	3.2+L/230	3.0+L/230
Repeatability	R0 MPL		2.9	2.9	2.9	2.9

ISO 10360 -3:2000⁶

Rotary table	radial	MPE FR	7.6	6.1	6.1	5.9
	tangent	MPE FT	9.1	7.6	7.6	7.4
	axial	MPE FA	7.4	5.9	5.9	5.7

ISO 10360 -4:2001

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

ISO 10360 -5:2010

Probing accuracy touch mode	form	PFTU MPE	4.8	2.8	2.6	2.4
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	RONT MZCI			3.1	2.9
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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 R0 MPL	E150 MPE	Maximum volumetric length measurement error in microns, where L is the measured length in millimetres.
MPE FR MPE FT MPE FA	MPE FT MPE FA	Maximum repeatability value in microns using E0 values.
MPE Tij MPT t		Maximum radial, tangential and axial errors respectively in microns.
PFTU MPE		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.
PSTM MPE		Maximum single stylus 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 fixed head form error in microns using touch point mode, artifact in centre of measuring volume, vertical position defined by holding device.
RONT MZCI		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.

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

³ TP200 standard force module, Ø4x10 mm stainless steel shaft stylus, Ø4x30 mm tungsten carbide shaft stylus (E_n MPE only), Ø5x20 mm star tungsten carbide shaft stylus (P*TM MPE only), touch velocity 0.1 m/min, approach 10 mm (E_n 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 (E_n 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 (E_n MPE only), touch vel. 0.1 m/min, scanning vel. 0.5 m/min, approach 10 mm (E_n 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
Granite table	Granite table flatness according to DIN 876/III: Grade 0
Table inserts	Grid pattern of M10 x 1.5 threaded table inserts on 250 mm (9.8 inch) centre spacing
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
Anti-vibration	Active pneumatic anti-vibration as standard

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	Active anti-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 mm²	blue, brown, green/yellow
	USA (115 V)	0.26 inch	41/34	18 AWG	Black, white, green
Air consumption	Active anti-vibration: 15.2 SCFM (430 NLPM) inc. rotary table: 30.2 SCFM (855 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