



Datasheet

ALTO 6.5.5

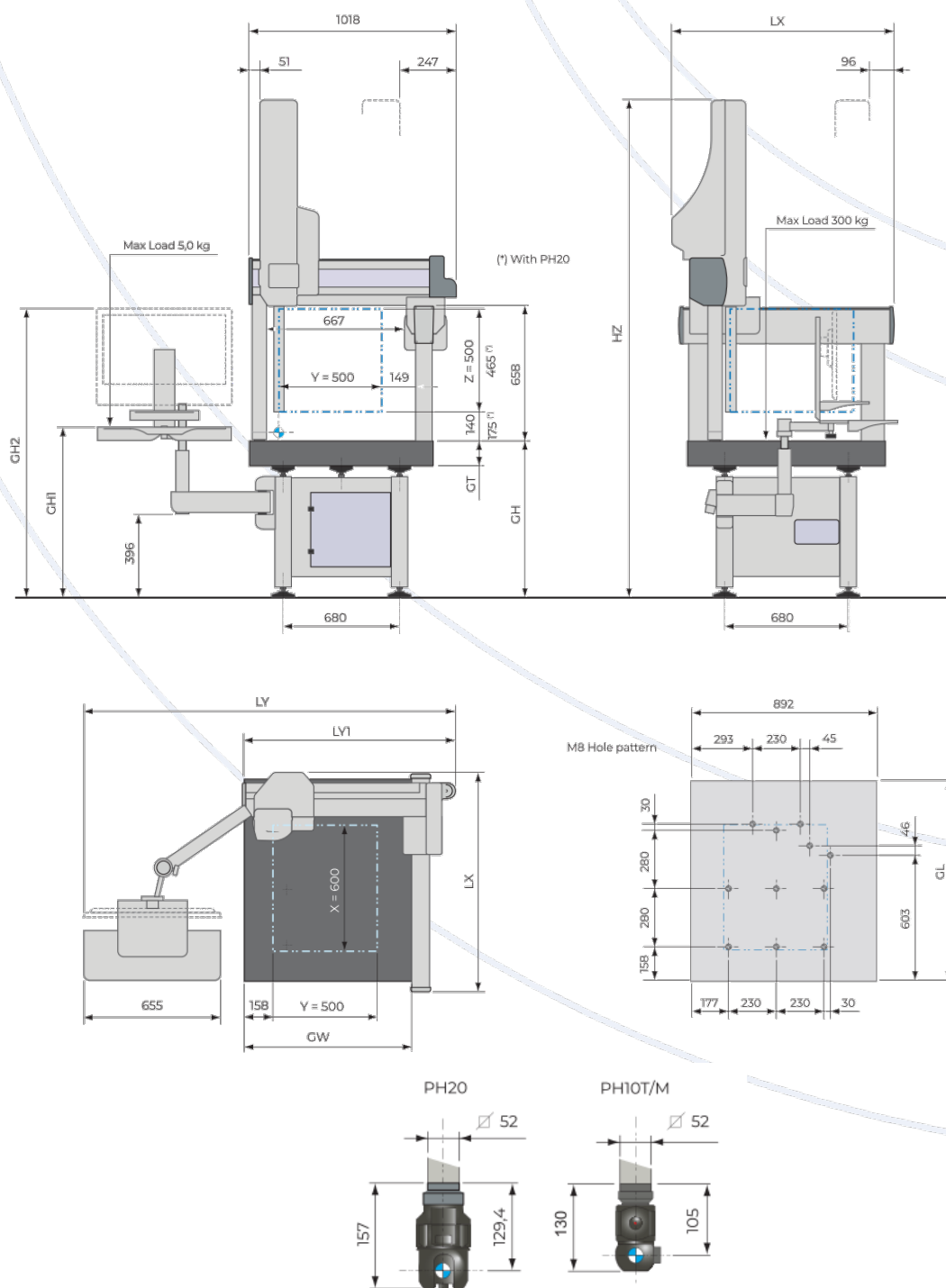
Coordinate Measuring Machine



TECHNICAL DATA | Dimensions

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	Travels			Overall				Granite Table				Heights		Max Part Weight	CMM Weight ²
	X	Y	Z ¹	LX	LY	LY1	HZ	GH	GT	GL	GW	GH1	GH2		
6.5.5	600 (23.6)	500 (19.7)	500 (19.7)	1066 (42.0)	1800-1930 (70.9-76.0)	1018 (40.1)	2392 (94.2)	750 (29.5)	100 (3.9)	960 (37.8)	803 (31.6)	800-1200 (31.5-47.2)	1395-1825 (54.9-71.9)	300 [661]	435 [959]

¹Reduce by 30 mm for PH20 probe head.²Excluding controller, PC, keyboard and display.

TECHNICAL DATA | Performance

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TOUCH PROBE ACCURACY ¹		TP20 PH10T/M PLUS	TP200 PH10T/M PLUS	SP25M PH6M/PH10M PLUS	PH20
ISO 10360 -2:2010					
Length measurement at 18°C to 22°C	E0 MPE ² E150 MPE ³	2.7 + 3.0 L/1000	2.5 + 3.0 L/1000	TBC	2.7 + 3.0 L/1000
Repeatability	R0 MPL ²	2.5	2.3	TBC	2.5
ISO 10360 -4:2005⁴					
Probing accuracy	form MPE T _{ij}	-	-	TBC	-
scanning mode	time MPT t				
ISO 10360 -5:2010²					
Probing accuracy touch mode	form FFTU MPE ²	2.7	2.5	TBC	2.7

DYNAMICS

Acceleration	1500 mm/sec ²
Velocity	500 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 lengths and test sphere with empirical qualification.

E0 MPE E150 MPE
R0 MPL
PFTU MPE
Maximum volumetric length measurement error in microns where L is the measured length in millimetres.
Maximum repeatability value in microns using E0 values.

² E0 MPE R0 MPL PFTU MPE
Maximum single stylus form error in microns using touch point mode.
PH10T / PH10M / PH20 – TP20 / TP200: tip diameter Ø 4 mm, stylus length 10 mm.

³ E150 MPE
PH10M – SP25M: SM25-2, tip diameter Ø 5 mm, stylus length 21 mm.
PH10T: PEL2, tip diameter Ø 4 mm, stylus length 10 mm.

PH10M – TP20 / TP200: tip diameter Ø 4 mm, stylus length 40 mm.
PH10M – SP25M: SM25-2, tip diameter Ø 5 mm, stylus length 21 mm.

⁴ MPE T_{ij} MPT t
PH20: EM1 STDF, tip diameter Ø 4 mm, stylus length 20 mm.
PH10M – SP25M: sphere diameter Ø 25 mm.

TECHNICAL DATA | Probing

PROBE HEAD	MH20i	PH6M	PH10T PLUS	PH10M PLUS	PH20
					
Head type	Manual Indexing	Fixed	Motorised Indexing		Motorised 5-axis
Head positions	168	-	720		Infinite
Angular tilt	0° to +90° in 15° steps		0° to +105° in 7.5° steps		±115°
Angular rotation	±180° in 15° steps		0° to ±180° in 7.5° steps		Continuous
PROBES	Integral	TP20	TP200	SP25M	Integral
Probe type	Touch trigger	Touch trigger	Touch trigger	Scanning	Touch trigger
Min. stylus diameter	0.3 (0.012)	0.3 (0.012)	0.3 (0.012)	0.5 (0.02)	0.3 (0.012)
Max. stylus length	60 (2.4)	60 (2.4)	100 (3.9)	400 (15.7)	60 (2.4)
Max. probe extension	300 (11.8)	300 (11.8)	300 (11.8)	100 (3.9)	75 (3.0)
Min. probing force	0.055 N	0.055 N	0.02 N	0.1 N	0.055 N
Stylus change rack	MCR20	MCR20	SCR200	FCR25	TCR20
PERIPHERALS					
Controller	NMC100	NMC300			UCC T5
Handbox	SOLO	SOLO			MCU 5
Automation	–	●			–

● Optional – Not available

mm (inch)

TECHNICAL DATA | Design

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TECHNICAL FEATURES

Measuring Scales	0.1 μ m resolution free-floating mounted in carriers RSF system
Counterbalance	Adjustable pneumatic on Z axis
Guideways	X axis: granite on leg, micro-machined and hard-anodized alloy on half-gantry Y and Z axis: micro-machined and hard-anodized alloy
Drive systems	Zero hysteresis friction drives on steel bars using D.C. servo motors
Air bearings	All axes
Surface Plate	Granite table to DIN876/III with M8 threaded inserts and integrated guideways
Thermal Compensation	4-sensor system
Anti-vibration	Standard: passive, Optional: active (pneumatic)

ENVIRONMENTAL REQUIREMENTS

Metrological temperature	18°C to 22°C
Temperature gradient	0.5°C/h 2°C/24h 0.5°C/m
Operating temperature range	15°C to 35°C
Relative humidity	40% to 80% non-condensing
Acceptable Vibration (acceleration between peaks)	30 mm/s ² from 1 and 10 Hz 15 mm/s ² from 10 and 20 Hz 50 mm/s ² from 20 and 100 Hz

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	18AWG	black, white, green
Air consumption	90 NLPM (3 SCFM)				
Air supply	Minimum pressure 0.5 MPa / 5 bar / 71 psi				

WARRANTY

	12 months warranty as standard Terms and conditions apply see LK Metrology website for full details
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