



Datasheet

ALTERA SL x.10.8 HA

Coordinate Measuring Machine

10.10.8 HA

15.10.8 HA

20.10.8 HA

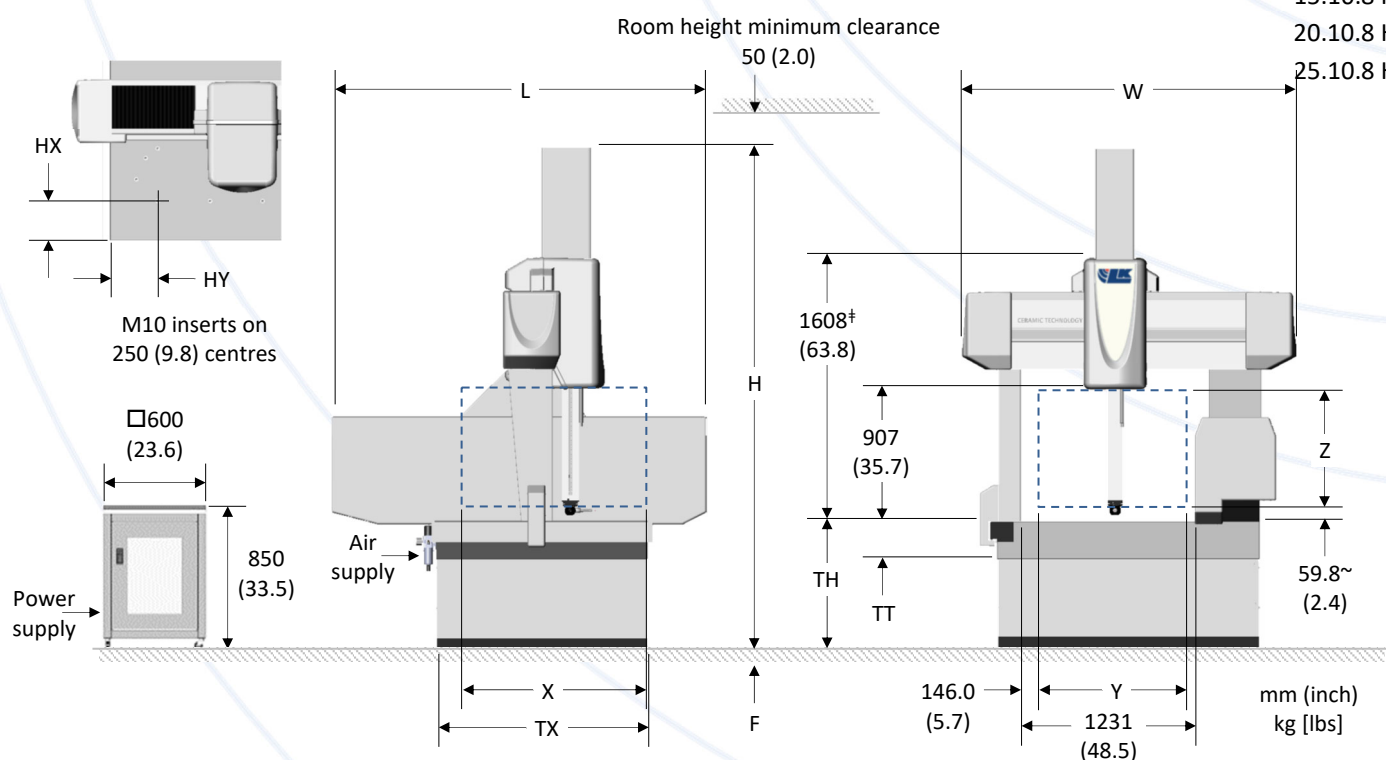
25.10.8 HA



TECHNICAL DATA | Dimensions

ALTERA SL

10.10.8 HA
15.10.8 HA
20.10.8 HA
25.10.8 HA



	Travels			Overall Dimensions			Granite Table					Floor	Table Loading		CMM
	X	Y	Z ¹	L	W	H	TX	TT	TH	HX	HY	F ²	Std.	Max. ³	Weight
10.10.8	1016 (40)	1016 (40)	813 (32)	2240 (88.2)	2091 (82.3)	3108 (122.4)	1330 (52.4)	250 (9.8)	710 (28.0)	165 (6.5)	281 (11.1)	50 (2.0)	780 [1720]	975 [2150]	2639 [5818]
15.10.8	1524 (60)	1016 (40)	813 (32)	2738 (107.8)	2091 (82.3)	3108 (122.4)	1838 (72.4)	250 (9.8)	710 (28.0)	169 (6.7)	281 (11.1)	75 (3.0)	1020 [2249]	1280 [2822]	3452 [7610]
20.10.8	2032 (80)	1016 (40)	813 (32)	3245 (127.8)	2091 (82.3)	3108 (122.4)	2345 (92.3)	300 (11.8)	710 (28.0)	172.5 (6.8)	281 (11.1)	100 (3.9)	1300 [2866]	1635 [3605]	4861 [10717]
25.10.8	2540 (100)	1016 (40)	813 (32)	3753 (147.8)	2091 (82.3)	3108 (122.4)	2853 (112.3)	400 (15.7)	710 (28.0)	176.5 (6.9)	281 (11.1)	125 (4.9)	1720 [3792]	2160 [4762]	6809 [15011]

¹Maximum Z travel with PH10MQ probe head only, for REVO2 probe head reduce by 120.0mm (4.7"), for SP80 probe head reduce by 120mm (4.7").

²Minimum thickness of homogeneous concrete floor with a minimum shear strength of 0.4 N/mm² (58 psi).

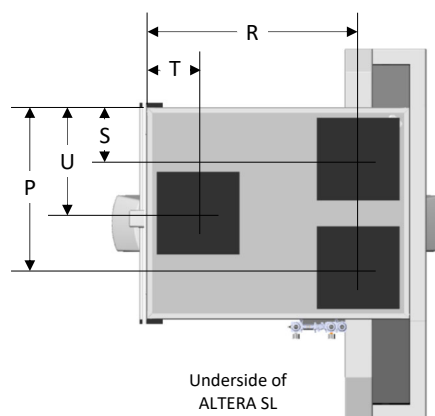
³Maximum table loading only permissible with work piece centred inside triangular area defined by table support centres.

~Z travel limit with PH10MQ probe head only, for REVO2 probe head increase by 35.6mm (1.4"), for SP80 probe head increase by 20mm (0.8").

[†]Bridge-off-table access height for installation purposes only, excluding lifting equipment and clearances.

TABLE SUPPORT CENTRES

	P	R	S	T	U
10.10.8	1135 (44.7)	1510 (59.4)	195 (7.7)	195 (7.7)	665 (26.2)
15.10.8	1643 (64.7)	1430 (56.3)	195 (7.7)	275 (10.8)	919 (36.2)
20.10.8	2030 (79.9)	1390 (54.7)	315 (12.4)	315 (12.4)	1173 (46.2)
25.10.8	2353 (92.6)	1390 (54.7)	500 (19.7)	315 (12.4)	1427 (56.2)



TECHNICAL DATA | Specification

ALTERA SL

10.10.8 HA

15.10.8 HA

20.10.8 HA

25.10.8 HA

TOUCH PROBE ACCURACY ¹			T200 ² PH10MQ PLUS	SP25M ³ PH10MQ PLUS	SP80 ⁴
ISO 10360 -2:2009					
Length measurement at 19°C to 21°C	E0 MPE E150 MPE		0.8+L/600	0.8+L/600	0.8+L/600
Repeatability	R0 MPL		0.6	0.6	0.6
ISO 10360 -3:2001 ⁵					
Rotary table	radial	MPE FR	6.2	6.2	6.2
	tangent	MPE FT	6.2	6.2	6.2
	axial	MPE FA	6.2	6.2	6.2
ISO 10360 -4:2001					
Probing accuracy scanning mode	form MPE T _{ij} time MPT t		-	2.2 48 sec	1.7 53 sec
ISO 10360 -5:2010					
Probing accuracy touch mode	form PFTU MPE		1.2	1.1	1.1
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				

LASER SCANNER ACCURACY ⁶		LC15Dx	LC60Dx	L100	XC65Dx	XC65Dx-LS
ISO 10360 -8:2013						
Probing form	PForm.Sph.1x25 :Tr:ODS,MPE	7	20	15	25	35
Probing dispersion	PForm.Sph.D95% :Tr:ODS,MPL	7.6	36	26	48	60
Probing size All	PSize.Sph.All :Tr:ODS,MPE	15	30	20	45	80
Cone angle		100	125	125	115	125

SPEEDS

Acceleration	566 mm/sec ²
Velocity	318 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

MPE FR MPE FT MPE FA

MPE T_{ij} MPT t

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.

Maximum radial, tangential and axial errors respectively in microns.

Maximum single stylus form error in microns using scanning mode with time taken in seconds.

Maximum single stylus form error in microns using touch point mode.

² TP200 standard force module, Ø4x10mm stainless steel shaft stylus, Ø4x30mm tungsten carbide shaft stylus (En MPE only), Ø5x20mm star tungsten carbide shaft stylus (P*TM MPE only), touch velocity 0.1m/min, approach 10mm (En MPE only), 7mm (PFTU MPE only).

³ SP25M SM25-1 module, SH25-1 stylus holder, Ø4x50mm tungsten carbide shaft stylus, Ø3x21mm stainless steel shaft stylus (P*TM MPE only), touch velocity 0.1m/min, scanning velocity 0.7m/min, approach 10mm (En MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

⁴ SP80 stylus holder, Ø8x100mm carbon fibre shaft stylus, 50mm stainless steel stylus extension (En MPE only), touch vel. 0.1m/min, scanning vel. 0.7m/min, approach 10mm (En MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

⁵ Rotary table accuracy specifications using manufacturer specified rotary table with Ø600mm (23.6inch) face plate.

⁶ Laser scanner accuracy specifications for CMM with an accuracy of 2+L/350 or better using manufacturer specified test sphere with empirical qualification.

PForm.Sph.1x25:Tr:ODS,MPE

PForm.Sph.D95%:Tr:ODS,MPL

PSize.Sph.All:Tr:ODS,MPE

Cone angle

Maximum probing form error in microns using 25 representative points in translatory scanning mode.

Maximum probing dispersion value in microns using 95% of the measured points in translatory scanning mode.

Maximum probing size error All in microns using all measured points in translatory scanning mode.

Region of sphere on which the measured points are selected.

TECHNICAL DATA | Probing

ALTERA SL

10.10.8 HA
15.10.8 HA
20.10.8 HA
25.10.8 HA

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	MRS2				MRS2
TOUCH PROBES	TP200	SP25M		SP80	
Probe type	Touch trigger	Scanning		Scanning	
Min. stylus diameter	0.3 (0.012)	0.5 (0.02)		0.3 (0.012)	
Max. stylus length	100 (3.9)	400 (15.7)		1000 (39.4)	
Max. probe extension	300 (11.8)	100 (3.9)		-	
Min. probing force	0.02 N	0.1 N		2.2 N	
Stylus change rack	SCR200	FCR25		SCP80	
LASER SCANNERS	LC15Dx	LC60Dx	L100	XC65Dx/LS	-
Scanner type	Line	Line	Line	Cross	
Laser line width	15 (0.6)	60 (2.4)	100 (3.9)	3x 6 (3x 2.6)	
Points/second	70k	75k	200k	75k	
Resolution	22 µm	60 µm	42 µm	65 µm	
Standoff	68	125	135	107/202	
PERIPHERALS					
Controller	NMC300				NMC300
Controller mounting	Cabinet				Cabinet
Handbox	SOLO				SOLO
Rotary Table	●				●
Automation	●				●

● Optional

- Not available

TECHNICAL FEATURES

X axis guideway	Granite raised dovetail guideway with bellows covers on primary bridge leg Granite guideway with S-axis scale labyrinth cover on secondary bridge leg
Y axis guideway	Mono-crystalline alumina ceramic guideway 375 x 120mm (14.8 x 7.7inch) with bellows covers
Z axis guideway	Mono-crystalline alumina ceramic guideway 90 x 80mm (3.5 x 3.1inch) with top-hat cover
X axis friction drive	Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor
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	0.05µm stainless steel ribbon scale and optical read-head Renishaw TONiC™ system
Counterbalance	Fully adjustable pneumatic Z axis counter balance
Granite table	Granite table flatness according to DIN 876
Table inserts	Grid pattern of M10 x 1.5 threaded table inserts on 250 (9.8) centre spacing
Air bearings	Single orifice multi-groove air bearings with 5µm air cushion on all axes
Temperature compensation	Automatic temperature compensation for work piece 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

SUPPLY REQUIREMENTS

Power supply	115V/20A or 230V/13A 50 to 60Hz single phase regulated to within -5% to +10%				
Power cable	Region	Overall dia.	Stranding	CSA/Gauge	Conductor Colours
	Rest of world	6.9mm	32/02	1mm²	blue, brown, green/yellow
	USA (115V)	0.26 inch	41/34	18AWG	black, white, green
Air supply	Min. air supply pressure 6.2 bar (90 psi)				
Air consumption	CMM with active anti-vibration: 6.5 SCFM (185 NI/min)				
	CMM with active anti-vibration and rotary table: 16.5 SCFM (470 NI/min) with REVO-2: up to an additional 35 l/min (5 bar to 8.5 bar)				
Air quality	Temperature:	Max. 2°C deviation from ambient temperature			
	Dew point:	2°C			
	Solids:	Max. particle size 1.0µm and max. concentration 1mg/cu.m			
	Oil/hydrocarbons:	Max. concentration 0.1mg/cu.m			

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