Datasheet

ALTERA SL x.10.8 HA

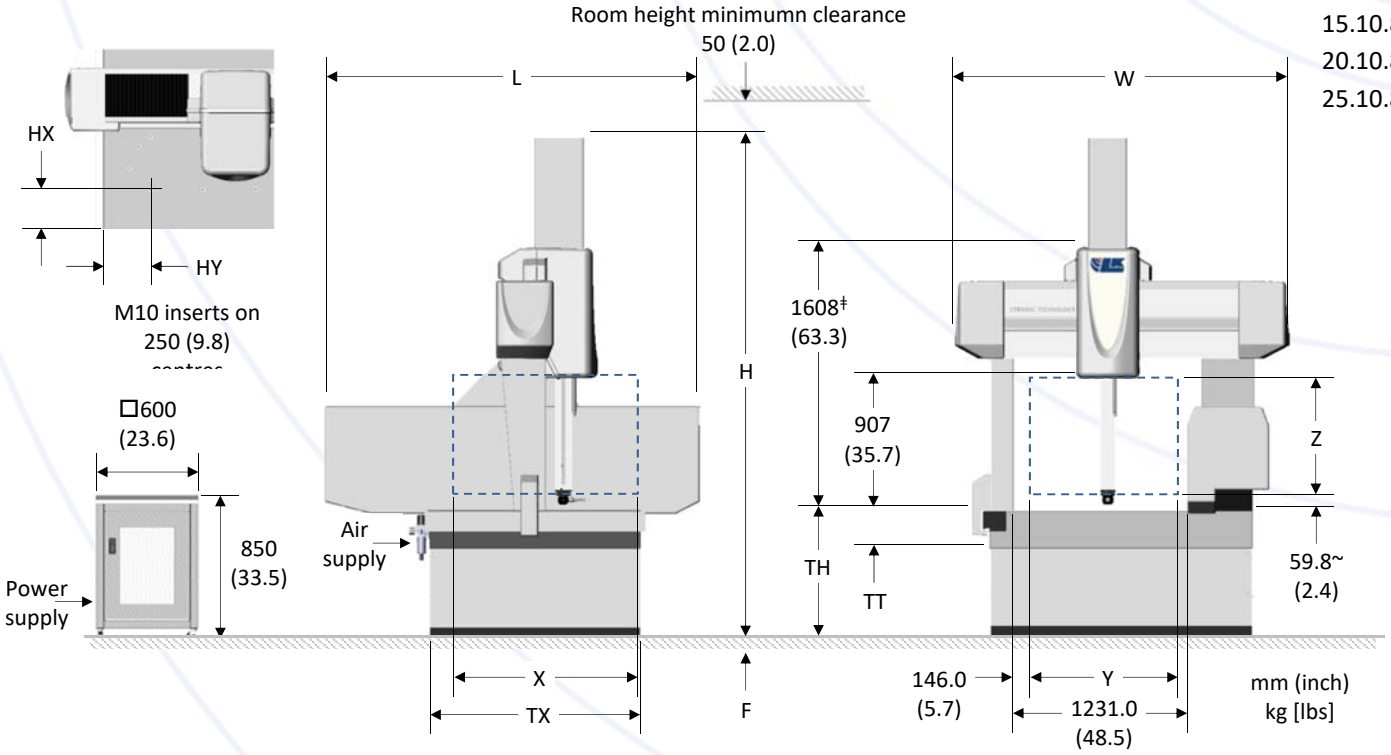
Coordinate Measuring Machine

10.10.8

15.10.8

20.10.8

25.10.8

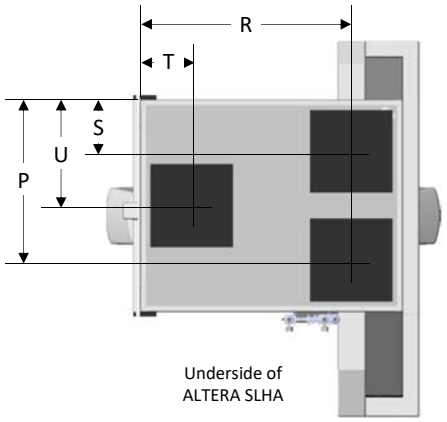


	Travels			Overall Dimensions			Granite Table					Floor	Table Loading		CMM
	X	Y	Z[1]	L	W	H	TX	TT	TH	HX	HY	F[2]	Std.	Max.[3]	Weight
10.10.8	1016	1016	813	2240	2091	3108	1330	250	710	165	281	50	780	975	2639
	(40)	(40)	(32)	(88.2)	(82.3)	(122.4)	(52.4)	(9.8)	(28.0)	(6.5)	(11.1)	(2.0)	[1720]	[2150]	[5818]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

[1]Maxmium Z travel with PH10MQ probe head only, with SP80 probe head reduce by 20mm (0.8").
[2]Minimum thickness of homogeneous concrete floor with a minimum shear strength of 0.4 N/mm2 (58 psi).
[3]Maximum table loading only permissible with work piece centred inside triangular area defined by table support centres.
~Z travel limit with PH10MQ probe head only, with SP80 probe head increase by 20mm (0.8").
‡Bridge-off-table access height for installation purposes only, excluding lifting equipment and clearances..

TABLE SUPPORT CENTERS

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



TOUCH PROBE ACCURACY[1] **ISO 10360 -2:2009**			**T200**[2] **PH10MQ PLUS**	**SP25M**[3] **PH10MQ PLUS**	**SP80**[4]
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 Tij	-	2.2	1.7
	time	MPT t		48 sec	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] **ISO 10360 -8:2013**		**LC15Dx**	**LC60Dx**	**L100**	**XC65Dx**	**XC65Dx-LS**
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/sec²
Velocity	317 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 — 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.
- PFTU MPE — 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 0.5m/min, approach 10mm (En MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

[4] SP80 stylus holder, Ø8x100mm carbon fibre shaft stylus, Ø8x150mm carbon fibre shaft stylus and stainless-steel stylus extension (En MPE only), touch vel. 0.1m/min, scanning vel. 0.5m/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 — Maximum probing form error in microns using 25 representative points in translatory scanning mode.
- PForm.Sph.D95%:Tr:ODS,MPL — Maximum probing dispersion value in microns using 95% of the measured points in translatory scanning mode.
- PSize.Sph.All:Tr:ODS,MPE — Maximum probing size error All in microns using all measured points in translatory scanning mode.
- Cone angle — Region of sphere on which the measured points are selected.

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/III : Grade 0
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: 19^{O}C to 21^{O}C
Temperature gradient	Standard temperature range: 1˚C/h 2˚C/24h 1˚C/m
Operating temperature	16^{O}C to 30^{O}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%
Air supply	Min. air supply pressure 6.2 bar (90 psi)
Air consumption	Active anti-vibration: 6.5 SCFM (185 Nl/min) inc. rotary table: 16.5 SCFM (470 Nl/min)
Air quality	Temperature: Max. 2˚C deviation from ambient temperature Dew point: 2˚C Solids: Max. particle size 1.0um 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