



Datasheet

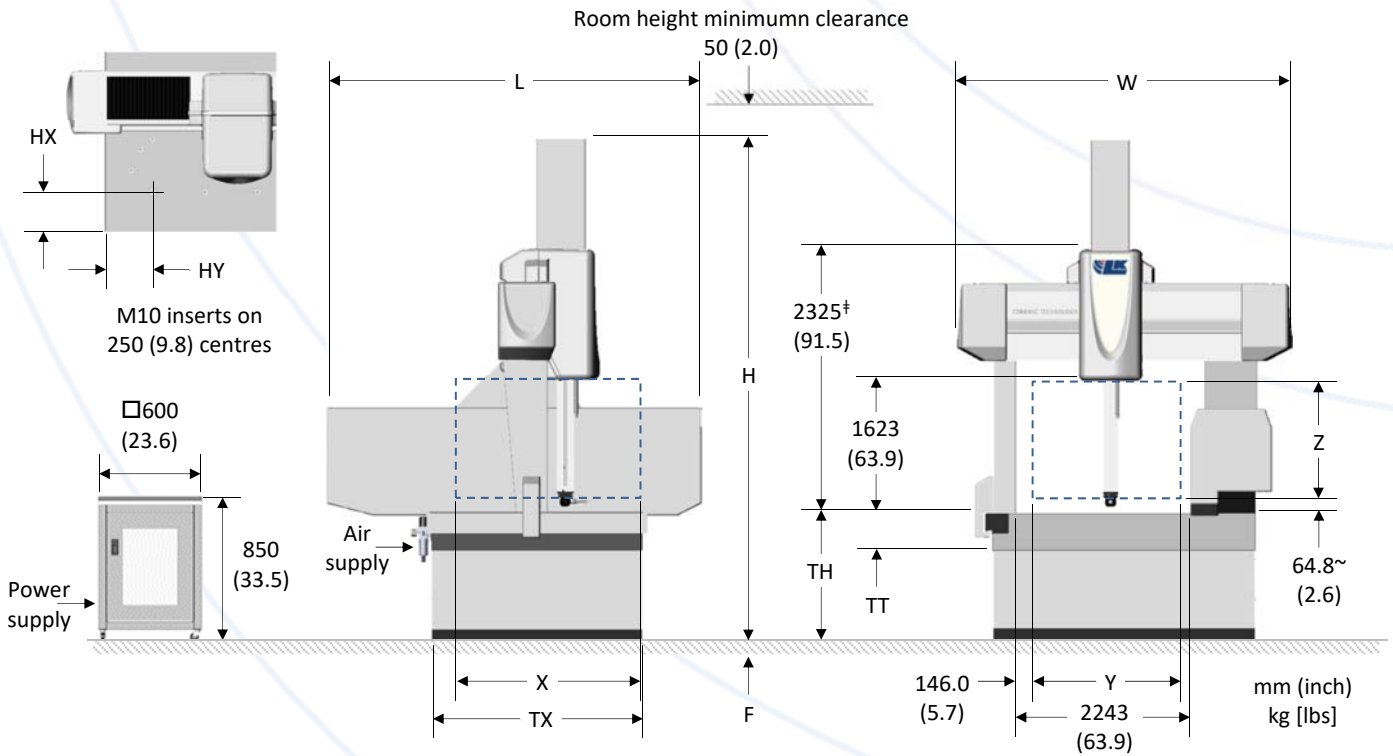
ALTERA SL x 20.15

Coordinate Measuring Machine

25.20.15

30.20.15



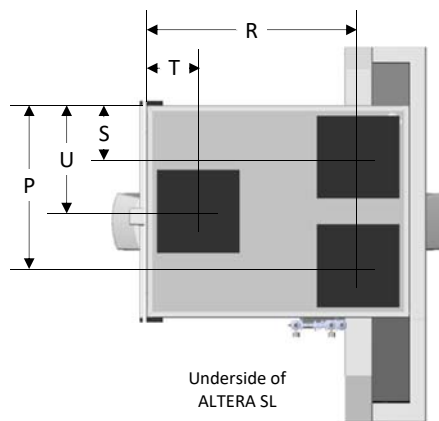


	Travels			Overall Dimensions			Granite Table					Floor	Table Loading		CMM
	X	Y	Z ¹	L	W	H	TX	TT	TH	HX	HY	F ²	Std.	Max. ³	Weight
25.20.15	2540 (100)	2032 (80)	1524 (60)	3753 (147.8)	3103 (122.2)	4525 (178.1)	2853 (112.3)	400 (15.7)	710 (28.0)	176.5 (6.9)	293 (11.5)	175 (6.9)	3225 [7110]	4040 [8907]	11415 [25166]
30.20.15	3048 (120)	2032 (80)	1524 (60)	4271 (168.1)	2964 (116.7)	4525 (178.1)	3361 (132.3)	500 (19.7)	710 (28.0)	177 (6.9)	293 (11.5)	205 (8.1)	4382 [9661]	3300 [7275]	16923 [37309]

¹Maximum Z travel with PH10MQ probe head only, with REVO probe head reduce by 35.6mm (1.4"), with SP80 probe head reduce by 20mm (0.8").
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, with REVO probe head increase by 35.6mm (1.4"), with SP80 probe head increase by 20mm (0.8").
⁴Bridge-off-table access height for installation purposes only, excluding lifting equipment and clearances.

TABLE SUPPORT CENTERS

	P	R	S	T	U
25.20.15	2353 (92.6)	2281 (89.8)	500 (19.7)	436 (17.2)	1427 (56.2)
30.20.15	2640 (103.9)	2384 (93.8)	720 (28.3)	334 (13.1)	1680 (66.1)



TECHNICAL DATA | Specification

ALTERA SL
25.20.15
30.20.15

TOUCH PROBE ACCURACY ¹		T200 ² PH10MQ PLUS	SP25M ³ PH10MQ PLUS	RSP2 ⁴ REVO2	RSP3 ⁵ REVO2	SP80 ⁶
ISO 10360 -2:2009						
Length measurement at 18°C to 22°C	E0 MPE E150 MPE	2.5+L/400	2.5+L/400	3.5+L/400	2.5+L/400	2.5+L/400
Length measurement 16°C to 26°C	E0 MPE E150 MPE	2.5+3L/400	2.5+3L/400	-	-	
Repeatability	R0 MPL	2.5	2.5	2.5	2.5	2.5
ISO 10360 -3:2001⁷						
Rotary table	radial MPE FR	12.2	12.2			12.2
	tangent MPE FT	12.2	12.2			12.2
	axial MPE FA	12.2	12.2			12.2
ISO 10360 -4:2001						
Probing accuracy scanning mode	form MPE T _{ij} time MPT t	-	2.6 48 sec.	3.0 9 sec.	3.0 48 sec.	2.4 53 sec.
ISO 10360 -5:2010						
Probing accuracy touch mode	form PFTU MPE	2.3	2.1	3.8	3.8	2.1
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 ACCURACY⁸						
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	1317 mm/sec ²
Velocity	617 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 T_{ij} 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 (E_n MPE only), Ø5x20mm star tungsten carbide shaft stylus (P*TM MPE only), touch velocity 0.1m/min, approach 10mm (E_n 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 (E_n MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

⁴ REVO2 RSP2 module, RSH250 holder, Ø6x10mm stainless steel shaft stylus, touch velocity 0.1m/min, scanning velocity 5.0m/min, approach 10mm (E_n MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter, helix scan path.

⁵ REVO2 RSP3 module, RSH3-3 holder, Ø5x21mm stainless steel shaft stylus, touch velocity 0.1m/min, scanning velocity 0.5m/min, approach 10mm (E_n MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

⁶ SP80 stylus holder, Ø8x100mm carbon fibre shaft stylus, Ø8x150mm carbon fibre shaft stylus and stainless steel stylus extension (E_n MPE only), touch vel. 0.1m/min, scanning vel. 0.5m/min, approach 10mm (E_n MPE only), 7mm (PFTU MPE only), 50 UPR 2σ filter.

⁷ Rotary table accuracy specifications using manufacturer specified rotary table with Ø1000mm (39.4inch) face plate.

⁸ 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.



Head type	Indexing head	5-axis head	Fixed head
Head positions	720	Infinite	-
Angular tilt	0° to +105° in 7.5° steps	-100° to +120°	-
Angular rotation	0° to ±180° in 7.5° steps	Continuous	-
Probe change rack	MRS2	MRS2	MRS2

TOUCH PROBES	TP200	SP25M	RSP2	RSP3	SP80
Probe type	Touch trigger	Scanning	Scanning (2D)	Scanning (3D)	Scanning
Min. stylus diameter	0.3 (0.012)	0.5 (0.02)	0.3 (0.012)	0.5 (0.02)	0.3 (0.012)
Max. stylus length	100 (3.9)	400 (15.7)	400 (15.7)	800 (31.5)	1000 (39.4)
Max. probe extension	300 (11.8)	100 (3.9)	-	-	-
Min. probing force	0.02 N	0.1 N	0.05 N	0.1 N	2.2 N
Stylus change rack	SCR200	FCR25	RCP2	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				UCC S5	NMC300	
Controller mounting	Cabinet				Cabinet	Cabinet	
Handbox	SOLO				MCU 5	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: 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	16°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%
Air supply	Min. air supply pressure 6.2 bar (90 psi)
Air consumption	Active anti-vibration: 7.0 SCFM (200 NI/min) inc. rotary table: 22.0 SCFM (626 NI/min)
Air quality	Temperature: Max. 20C deviation from ambient temperature Dew point: 20C 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