



Datasheet

ALTERA M x 15.10

Coordinate Measuring Machine

20.15.10

25.15.10

30.15.10

35.15.10



TECHNICAL DATA | Dimensions

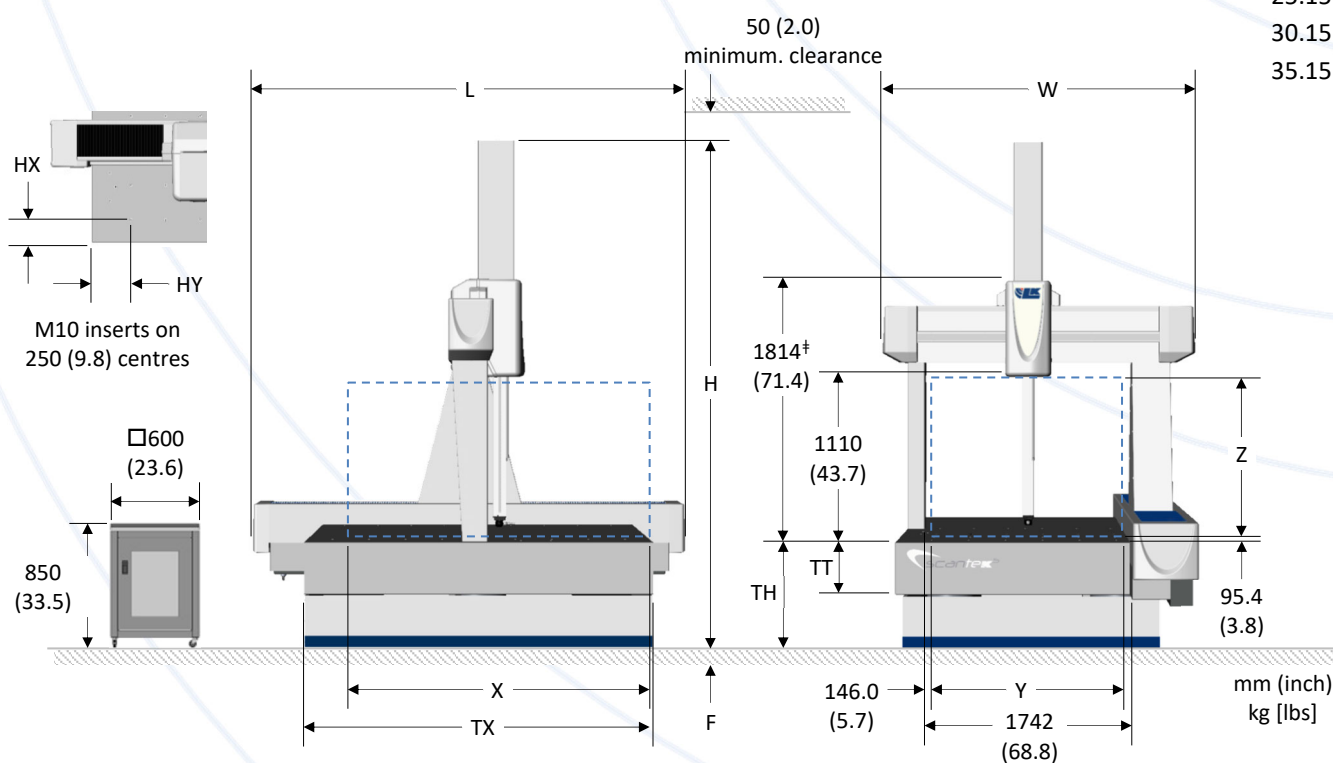
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	Travels ¹			Overall			Granite Table					Floor	Table Loading		CMM
	X	Y	Z	L	W	H	TX	TT	TH	HX	HY	F ²	Std.	Max. ³	Weight
20.15.10	2032 (80)	1525 (60)	896 (35)	3301 (130.0)	2595 (102.2)	3514 (138.3)	2345 (92.3)	350 (13.8)	710 (28.0)	173 (6.8)	285 (11.2)	105 (4.1)	1654 [3646]	2500 [5512]	5484 [12090]
25.15.10	2540 (100)	1525 (60)	896 (35)	3811 (150.0)	2595 (102.2)	3514 (138.3)	2855 (112.4)	400 (15.7)	710 (28.0)	178 (7.0)	285 (11.2)	130 (5.1)	2406 [5304]	2900 [6393]	7392 [16297]
30.15.10	3048 (120)	1525 (60)	896 (35)	4435 (174.6)	2595 (102.2)	3514 (138.3)	3365 (132.5)	500 (19.7)	710 (28.0)	182 (7.2)	285 (11.2)	180 (7.1)	3099 [6832]	3500 [7716]	10621 [23415]
35.15.10	3556 (140)	1525 (60)	896 (35)	4942 (194.6)	2595 (102.2)	3514 (138.3)	3871 (152.4)	500 (19.7)	710 (28.0)	186 (7.3)	285 (11.2)	200 (7.9)	3645 [8036]	4000 [8818]	12103 [26683]

¹Maximum travel of probe head index point.

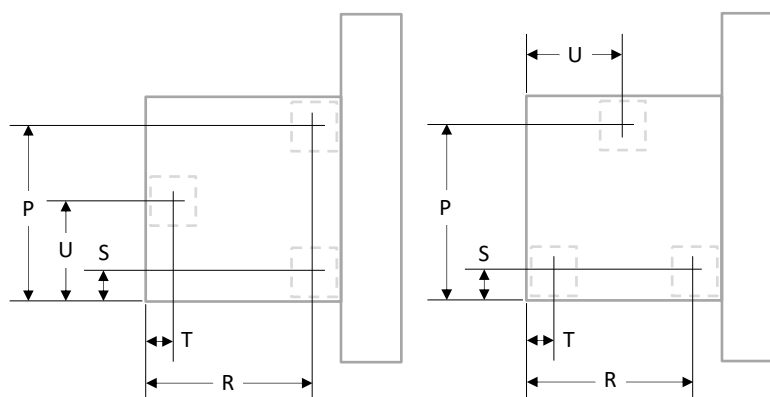
²Minimum thickness of homogeneous concrete floor with minimum shear strength of 0.4 N/mm² (58 psi).

³Maximum table loading only permissible with workpiece positioned inside triangular area defined by table support centres.

⁴Bridge off table access height excluding lifting equipment and clearances.

TABLE SUPPORT CENTRES

	P	R	S	T	U
20.15.10	2093 (82.4)	1752 (69.0)	253 (9.9)	367 (14.4)	1173 (46.2)
25.15.10	2598 (102.3)	1752 (69.0)	258 (10.1)	367 (14.4)	1428 (56.2)
30.15.10	2760 (108.7)	1802 (70.9)	605 (23.8)	317 (12.5)	1060 (41.7)
35.15.10	3171 (124.8)	1802 (70.9)	700 (27.6)	317 (12.5)	1060 (41.7)



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ALTERA M 25.15.10

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TECHNICAL DATA | Specifications

ALTERA M

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REVO-2 MULTI-SENSOR 5-AXIS PROBE SYSTEM



PROBE HEAD

Head type	5-axis head
Head positions	Infinite
Angular tilt (A-axis)	-100° to +120°
Angular rotation (B-axis)	Continuous
Probe change rack	MRS / MRS2

TOUCH PROBES

	RSP2	RSP3
Technology	Internal laser & photodetector	Pivoting motion & optical sensor
Applications	2D scanning 3D touch trigger	2D scanning 3D touch trigger
Stylus types	Straight only	Straight & cranked
Max. stylus reach	500 (19.7)	800 (31.5)
Stylus change port	RCP2	FCR25/RCP2
Probe change port	RCP TC-2	RCP TC-2/3

PERIPHERALS

Controller	UCC S5
Controller mounting	Cabinet
Handbox	MCU 5
Rotary Table	optional
Automation	optional

TOUCH PROBE ACCURACY¹

ISO 10360 -2:2009			RSP2 ²	RSP3 ³
Length measurement at 18°C to 22°C	E0 MPE E150 MPE		3.0+L/375	2.0+L/375
Length measurement 16°C to 26°C	E0 MPE E150 MPE		-	-
Repeatability	R0 MPL		2.0	2.0
ISO 10360 -3:2001 ⁴				
Rotary table	radial MPE FR tangent MPE FT axial MPE FA			12.3
ISO 10360 -4:2001				
Probing accuracy	form MPE T _{ij}		3.0	3.0
scanning mode	time MPT t		9 sec	59 sec
ISO 10360 -5:2010				
Probing accuracy touch mode	form PFTU MPE		3.0	2.2
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			

SPEEDS

Acceleration	1971 mm/sec ²
Velocity	817 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 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.

³ 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.

⁴ Rotary table accuracy specifications using manufacturer specified rotary table with Ø1000mm (39.4") table top.

TECHNICAL FEATURES

X axis guideway	Granite dovetail guideway with bellows covers on primary bridge leg
Y axis guideway	Mono-crystalline alumina ceramic guideway 375 x 120 (14.8 x 4.7) with bellows covers
Z axis guideway	Mono-crystalline alumina ceramic guideway 92 x 80 (3.6 x 3.1) 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	Passive elastomer anti-vibration as standard, active pneumatic anti-vibration optional

ENVIRONMENTAL REQUIREMENTS

Ambient temperature	Standard temperature range: 18°C to 22°C
Temperature gradient	Standard temperature range: 1°C/h 2°C/24h 1°C/m
Operating temperature	15°C to 30°C
Relative humidity	20% to 80% non-condensing
Floor vibration	Passive anti-vibration: Max. 1.27µm peak-to-peak over 3.5 to 90Hz range 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 consumption	Passive anti-vibration: 4.3 SCFM (125 NI/min) inc. rotary table: 19.3 SCFM (550 NI/min) Active anti-vibration: 6.1 SCFM (175 NI/min) inc. rotary table: 21.1 SCFM (600 NI/min) REVO-2 probe head: up to 35 l/min 5 bar to 8.5 bar - refer to Renishaw user guide				
Air supply	Min. air supply pressure 6.2 bar (90 psi)				
Air quality	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