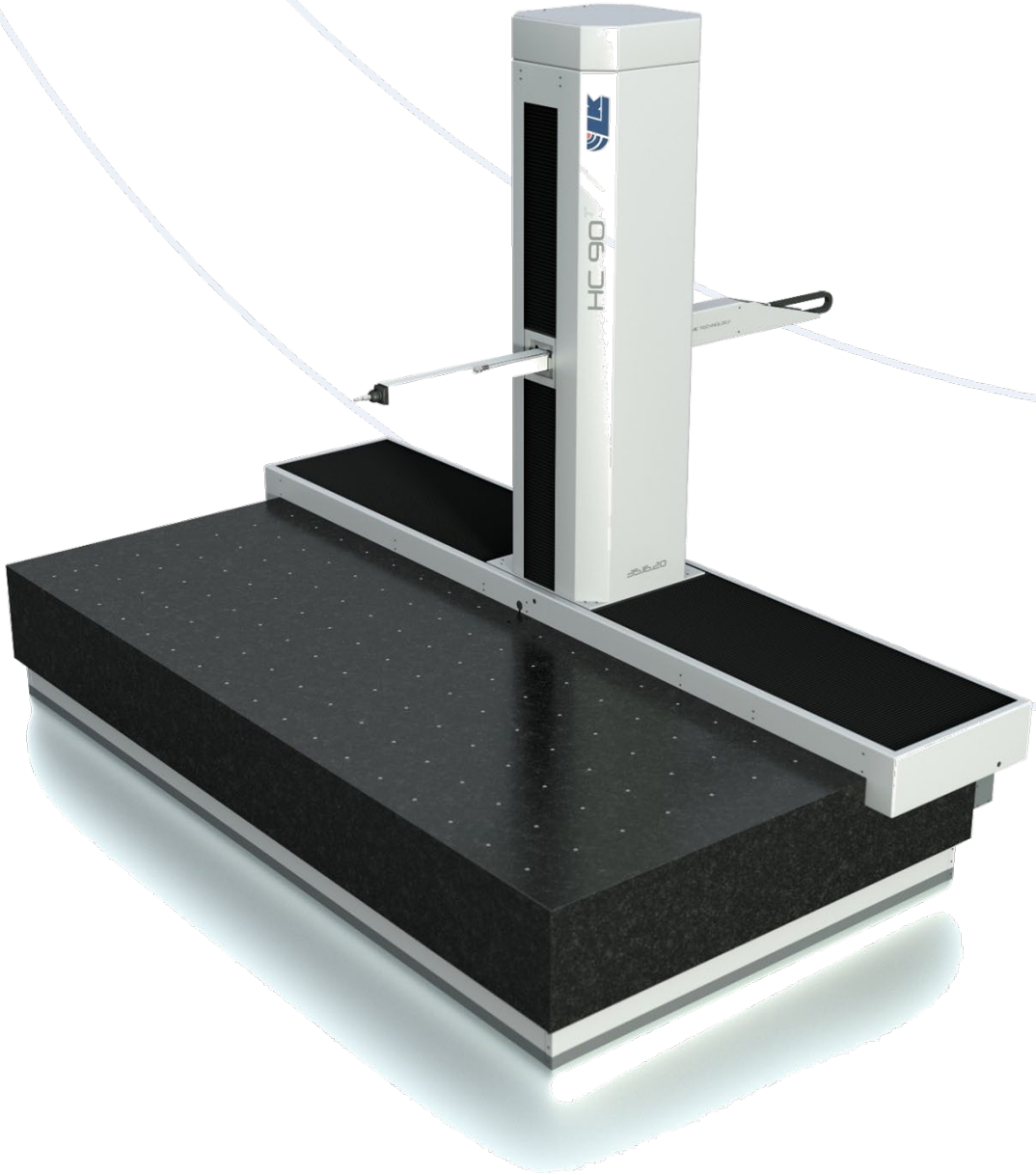
Datasheet

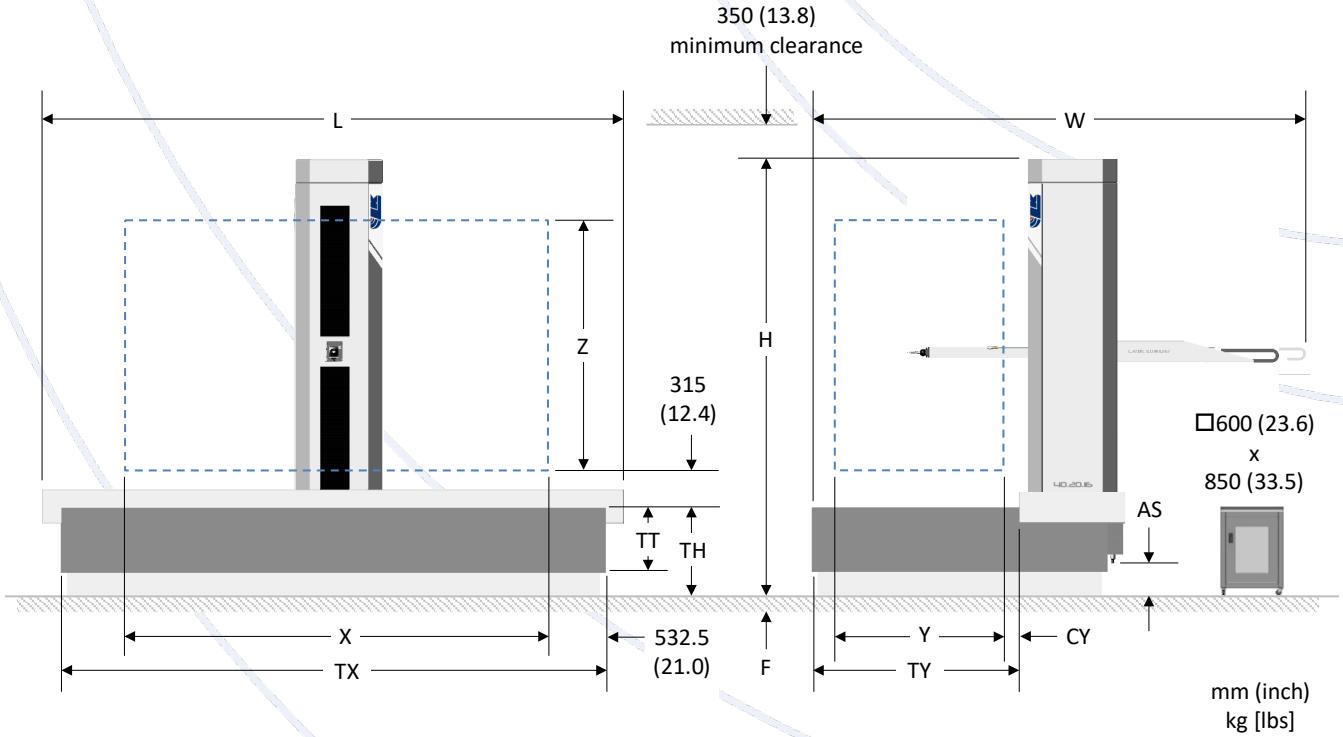
HC90 T

Coordinate Measuring Machine – horizontal arm on table

15.8.16

40.8.16





	Travel[1]			Overall			Granite Table					Air[2]	Floor[3]	Table	CMM
	X	Y	Z	L	W	H	TX	TY	CY	TT	TH	AS	F	**Loading**	**Weight**
15.8.16	1524 (60)	813 (32)	1625 (64)	2770 (109.1)	2823 (111.1)	3257 (128.2)	2590 (102.0)	1025 (40.4)	84 (3.3)	400 (15.7)	710 (28.0)	406 (16.0)	125 (4.9)	1710 [3770]	6052 [13342]
40.8.16	4064 (160)	813 (32)	1625 (64)	5447 (214.4)	2823 (111.1)	3307 (130.2)	5130 (202.0)	1025 (40.4)	84 (3.3)	600 (23.6)	760 (29.9)	440 (17.3)	250 (9.8)	3911 [8622]	16925 [37313]

[1]Maximum travel of PH10MQ PLUS probe head reference centre point (maximum travel of PHS-2 probe head available on request).
[2]Position of compressed air supply connection.
[3]Minimum thickness of homogeneous concrete floor with minimum shear strength of 0.4 N/mm^2 (58 psi).

TOUCH PROBE ACCURACY[1]		**TP20**[2] **PH10MQ PLUS**	**T200**[3] **PH10MQ PLUS**	**SP25M**[4] **PH10MQ PLUS**	**TP20**[2] **PHS**	**T200**[3] **PHS**
ISO 10360 -2:2009						
Length measurement 18°C to 22°C	E0 MPE E150 MPE	3.0+L/250	3.0+L/250	3.0+L/250	3.0+L/250	
Length measurement 16°C to 26°C	E0 MPE E150 MPE	3.0+3L/250	3.0+3L/250	3.0+3L/250	3.0+3L/250	
Repeatability	R0 MPL	3.0	3.0	3.0	3.0	
ISO 10360 -3:2001[5]						
Rotary table	radial MPE FR tangent MPE FT axial MPE FA	15.1	15.1	15.1	15.1	
ISO 10360 -4:2001						
Probing accuracy scanning mode	form MPE Tij time MPT t	-	-	4.0 58 sec	-	
ISO 10360 -5:2010						
Probing accuracy touch mode	form PFTU MPE	6.0	3.5	3.2	6.0	
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		**PH10MQ PLUS**	**PHS-2**
Acceleration	mm/sec²	2965	2965
Velocity	mm/sec	783	750

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] TP20 standard force module, HA-8 adaptor (PHS2 only), PEL1 extension bar (PHS2 En MPE only), 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] TP200 standard force module, HA-8 adaptor (PHS2 only), PEL1 extension bar (PHS2 En MPE only), 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).

[4] 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.

[5] Rotary table accuracy specifications using manufacturer specified rotary table with Ø600mm (23.6") table top.

[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**	**PHS-2**
		
Head type	Indexing head	5-axis wrist
Head positions	720	Infinite
Angular tilt	0° to +105° in 7.5° steps	-184° to +184° in 1µm steps at 100mm radius
Angular rotation	0° to ±180° in 7.5° steps	-184° to +184° in 1µm steps at 100mm radius
Probe change rack	MRS2	MRS2

TOUCH PROBES	**TP20**	**TP200**	**SP25M**	**TP20**	**TP200**
Probe type	Touch trigger	Touch trigger	Scanning	Touch trigger	Touch trigger
Min. stylus diameter	0.3 (0.012)	0.3 (0.012)	0.5 (0.02)	0.3 (0.012)	0.3 (0.012)
Max. stylus length	60 (2.4)	100 (3.9)	400 (15.7)	60 (2.4)	100 (3.9)
Max. probe extension	300 (11.8)	300 (11.8)	100 (3.9)	750 (29.5)	750 (29.5)
Min. probing force	0.055 N	0.02 N	0.1 N	0.055 N	0.02 N
Stylus change rack	MCR20	SCR200	FCR25	MCR20	SCR200

LASER SCANNERS	**LC15Dx**	**LC60Dx**	**L100**	**XC65Dx/-LS**	**LC15Dx**	**LC60Dx**	**L100**	**XC65Dx/-LS**
Laser line width	15 (0.6)	60 (2.4)	100 (3.9)	3x 65 (2.6)	15 (0.6)	60 (2.4)	100 (3.9)	3x 65 (2.6)
Points/sec	70k	75k	200k	75k	70k	75k	200k	75k
Resolution	22 µm	60 µm	42 µm	65 µm	22 µm	60 µm	42 µm	65 µm
Standoff	68	125	135	107/202	68	125	135	107/202

PERIPHERALS		
Controller	NMC300	NMC300
Controller mounting	Cabinet	Cabinet
Handbox	SOLO	SOLO
Rotary Table	●	●
Automation	●	●

● Optional

– Not available

mm (inch)

TECHNICAL FEATURES

X axis guideway	Granite dovetail guideway with bellows covers
Y axis guideway	Mono-crystalline alumina ceramic guideway 90 x 80 (3.5 x 3.1)
Z axis guideway	Mono-crystalline alumina ceramic guideway 350 x 100 (13.8 x 3.9) with bellows covers
X axis friction drive	Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor
Y axis friction drive	Chrome-plated hardened steel drive bar with preloaded V roller and DC servomotor
Z axis friction drive	Stainless steel drive belt with preloaded rollers and DC servomotor
Linear encoders	0.5µm stainless steel ribbon scale and optical read-head Renishaw system
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	Passive elastomer anti-vibration as standard, active pneumatic anti-vibration optional

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: 0.5˚C/h 2˚C/8h 0.5˚C/m Extended temperature range: 1.0˚C/h 1.0˚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

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	Passive anti-vibration: 3.0 SCFM (85 Nl/min) inc. rotary table: 18.0 SCFM (510 Nl/min) Active anti-vibration: on request inc. rotary table: on request				
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