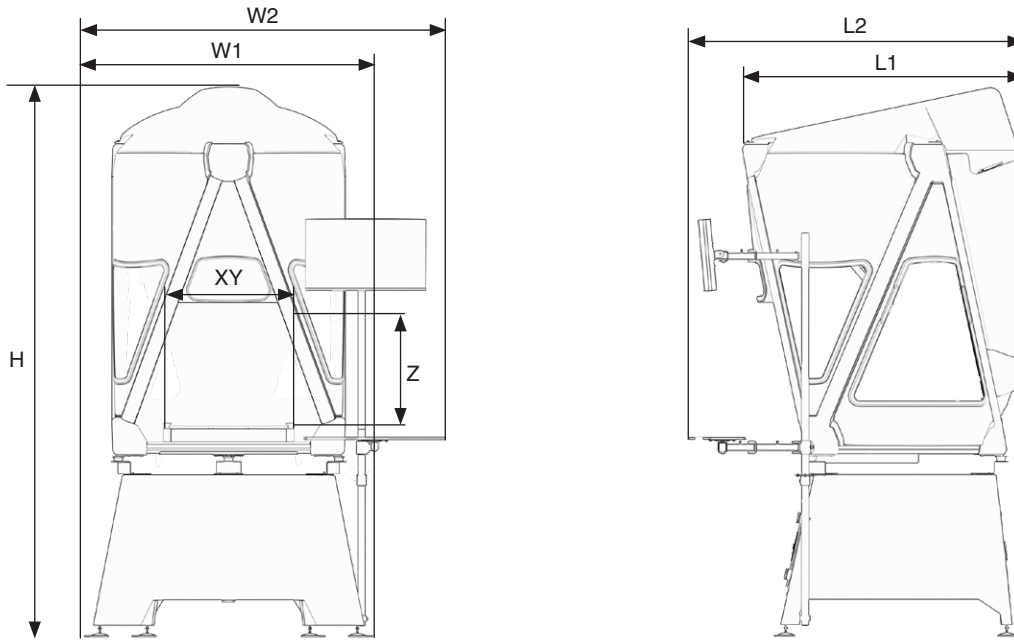


Equator-X™ 500



Dimensions (mm)

XY	Z	W1	W2	L1	L2	H
Ø 500	250	1188	1250	1228	1452	2390

Environmental specifications

Indoor use	Machine: IPX0 IEC 60529 (indoor use only) Base: IPx2* (sealed against liquid coming from parts on the transfer system)
Operating temperature	+5 °C to +50 °C
Storage temperature	-25 °C to +70 °C
Humidity	Maximum 80% RH at 40 °C, non-condensing

Specifications

Weight of machine	140 kg
Weight of base	50 kg
Fixture plate	510 mm × 510 mm
Maximum part weight including fixturing - MTS locked static or no MTS	100 kg
Maximum part weight including fixturing - with MTS operating	25 kg
Thread size	Bed inserts are M8 (M6 and 1/4" fixture plates are available)
Supported probe	SP25M with SM25-2 (scanning and touch points)
Stop circuit	Safety category: CAT 2-PL-b ISO 13849-1: B ISO 13850: 1 - controlled stop and power removed
Joystick	MCU lite-2
Control system	Equator motion controller (MC)
Position measurement	Renishaw RESOLUTE absolute optical encoder system

Absolute measurement performance

Criteria	Performance	Temperature range
Length measurement error E0 (1) & E60 (2) ISO 10360-2:2009	$\pm (2.1 + L/300) \mu\text{m}$ ⁽³⁾	18 - 22 °C
	$\pm (2.5 + L/250) \mu\text{m}$ ⁽³⁾	18 - 26 °C
	$\pm (2.7 + L/200) \mu\text{m}$ ⁽³⁾	18 - 30 °C
	$\pm (3.9 + L/100) \mu\text{m}$ ⁽³⁾	10 - 45 °C

Criteria	Performance	Details
Repeatability range of the length measurement error ISO 10360-2:2009	1.2 μm	Repeatability of E0 MPL (maximum limit)
Scanning mode test ISO 10360-5:2020	Form: 2.9 μm Size: 1.2 μm Time: 40 seconds ⁽⁴⁾	MPE(P[Form.Sph.Scan:NPP:Tact]) MPE(P[Size.Sph.Scan:NPP:Tact]) MPE(t[Sph.Scan:NPP:Tact])
Single stylus probing test ISO 10360-5:2020	Form: 2.4 μm Size: 1.2 μm	MPE(P[Form.Sph.1x25:SS:Tact]) MPE(P[Size.Sph.1x25:SS:Tact])
Multi stylus test ISO 10360-5:2020	Form: 3.9 μm Size: 1.2 μm Location: 2.7 μm	MPE(P[Form.Sph.5x25:MS:Tact]) MPE(P[Size.Sph.5x25:MS:Tact]) MPE(L[Dia.5x25:MS:Tact])
Ring gauge scanning form ⁽⁷⁾ ISO 10360-5:2020 Annex A.6	Up to 50 mm/s: 2.4 μm Up to 250 mm/s ⁽⁵⁾ : 5 μm	MPE(P[Form.Cir.Scan:NPP:0:Tact]) 50 mm/s – 250 mm/s ⁽⁵⁾ : 0.013v + 1.75 μm ⁽⁶⁾
Ring gauge scanning size ⁽⁷⁾ ISO 10360-5:2020 Annex A.6	Up to 50 mm/s: 1.2 μm Up to 250 mm/s ⁽⁵⁾ : 2.16 μm	MPE(P[Size.Cir.Scan:NPP:0:Tact]) 50 mm/s – 250 mm/s ⁽⁵⁾ : 0.0048v + 0.96 μm ⁽⁶⁾

- (1) - E0: Acceptance test with SM25-2 module; stylus length of 26 mm and stylus tip diameter of 8 mm
 (2) - E60: Acceptance test with SM25-2 module; stylus length of 60 mm and stylus tip diameter of 8 mm
 (3) - Where L is distance measured in mm
 (4) - Completed at scan speed of 75 mm/s
 (5) - Scan velocity limited to 250 mm/s or 1 rev/s, whichever is lower
 (6) - Where v is the scan velocity in mm/s.
 (7) - Using a 50 mm ring gauge, 50 UPR filter, SM25-2 with 5x21 stylus, near to calibration location in the centre of the machine volume.

Specifications	
Travel speed (maximum)	1000 mm/s vector velocity
Acceleration (maximum)	6000 mm/s ² vector acceleration
Scan speed (maximum)	250 mm/s or 1 rev/s - Max speed dependant on feature size
Warm up time	2 hours (until absolute specification applies)
Temperature gradient	2 °C per hour 8 °C per day
Temperature compensation	Compensation for steady state and varying temperature up to 2 °C/hour.

Comparator performance

Specifications	
Travel speed (maximum)	1000 mm/s vector velocity
Acceleration (maximum)	6000 mm/s ² vector acceleration
Scan speed (maximum)	500 mm/s or 2 rev/s - Max speed dependant on feature size
Comparison uncertainty*	$\pm 2 \mu\text{m}$

* The process of comparator measurement on an Equator-X system involves defining a series of gauge points on the component surface. Periodic calibration of a master part either using the absolute measurement method on the Equator-X system or on a separate CMM establishes datum values for each gauge point. The same gauge points on the same master part are measured on the Equator-X system, – 'mastering' –, to establish a correlation with the certified accuracy of the Equator-X system or separate CMM. Subsequently, a regular 're-mastering' process is used to account for changing environmental conditions. Size and position measurements made immediately following re-mastering will have a comparison uncertainty of $\pm 0.002 \text{ mm}$ relative to the certified measurements of the master part. This specification applies where each part is fixtured to within 1 mm relative to the master part.

www.renishaw.com/contact



#renishaw

+44 (0) 1453 524524

uk@renishaw.com

© 2025 Renishaw plc. All rights reserved. This document may not be copied or reproduced in whole or in part, or transferred to any other media or language by any means, without the prior written permission of Renishaw.

RENISHAW® and the probe symbol are registered trade marks of Renishaw plc. Renishaw product names, designations and the mark 'apply innovation' are trade marks of Renishaw plc or its subsidiaries. Other brand, product or company names are trade marks of their respective owners.

WHILE CONSIDERABLE EFFORT WAS MADE TO VERIFY THE ACCURACY OF THIS DOCUMENT AT PUBLICATION, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS AND LIABILITY, HOWSOEVER ARISING, ARE EXCLUDED TO THE EXTENT PERMITTED BY LAW. RENISHAW RESERVES THE RIGHT TO MAKE CHANGES TO THIS DOCUMENT AND TO THE EQUIPMENT, AND/OR SOFTWARE AND THE SPECIFICATION DESCRIBED HEREIN WITHOUT OBLIGATION TO PROVIDE NOTICE OF SUCH CHANGES.

Renishaw plc. Registered in England and Wales. Company no: 1106260. Registered office: New Mills, Wotton-under-Edge, Glos, GL12 8JR, UK.

Part no.: H-6620-8560-03-A

Issued: 09.2025