

U.S. Office
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Accredited
 Calibration Lab Certificate # 1791.01

Certificate of Calibration

Customer:	Omni-Tech Corp			W.O.#	08-2550
Street:	1490 Torrey Rd. Suite A			Date:	4-Jul-08
City:	Fenton	State:	Mich	Contact:	Brian A. Curtis
Zip/Postal:	48430	Phone:	810-750-6474	Engineer:	Steve Vanloon

Certificate Number
08-9746

Machine	Manufacturer:	Mitutoyo	Model:	Bright Apex 710	Serial Number:	N/A
Equipment Condition	Machine is in good working condition.					

Linear Positional Accuracy (as per Omni-Tech Work Instruction WI-038)							
	Specification	Equipment	Number of Positions	As Found		Post Calibration	
				Result	Uncertainty	Result	Uncertainty
X Axis	U1 = 2.9 +3L/1000	Laser	10	0.009 mm	U=0.5+1.26L um, L in meters.	0.003 mm	U=0.5+1.26L um, L in meters.
Y Axis	U1 = 2.9 +3L/1000	Laser	10	0.009 mm	U=0.5+1.37L um, L in meters.	0.002 mm	U=0.5+1.16L um, L in meters.
Z Axis	U1 = 2.9 +3L/1000	Laser	10	0.005 mm	U=0.5+1.26L um, L in meters.	0.002 mm	U=0.5+1.26L um, L in meters.

Environmental Temperature °C	Maximum = 21.57	Minimum = 19.95	Average = 20.75	Range = 1.62	
Scale Temperature °C	Maximum = 21.89	Minimum = 19.14	Average = 21.07	Range = 2.74	Scale Compensation: Yes

Measurement Repeatability (as per Omni-Tech Work Instruction WI-036)							
	Specification	Equipment	Number of Measures	As Found		Post Calibration	
				Result	Uncertainty	Result	Uncertainty
Y Axis	0.000 mm	Cal' Sphere	10	0.001 mm	0.0006 mm	0.0009 mm	0.0006 mm
X Axis	0.000 mm	Cal' Sphere	10	0.0011 mm	0.0006 mm	0.001 mm	0.0006 mm
Y Axis	0.000 mm	Cal' Sphere	10	0.0015 mm	0.0006 mm	0.0012 mm	0.0006 mm
Z Axis	0.000 mm	Cal' Sphere	10	0.0015 mm	0.0006 mm	0.0012 mm	0.0006 mm

Volumetric Performance (as per Omni-Tech Work Instruction WI-040)							
	Specification	Equipment	Number of Positions	As Found		Post Calibration	
				Result	Uncertainty	Result	Uncertainty
Accuracy	0.0138 mm	Ballbar	28	0.012 mm	0.001 mm	0.005 mm	0.001 mm

Calibration Equipment					
Equipment Description	Serial Number	N.I.S.T. Number	OTC ID#	Calibration Due Date	
ML 10 Laser head	G08907	NPL 0101/0516	308	15-Feb-10	
EC 10 Comp Station	G31320	NPL 0101/0211	309	28-Aug-08	
Ref Sphere	25.4-000421	821-270-467-04	428	8-Oct-09	
Ballbar	435 / 473	821/270003-04	134	15-Nov-08	

This certifies that your instrument has been tested in accordance with applicable national, international and Omni-Tech specifications and standards. All referenced equipment used in this test is calibrated and traceable to national and/or international standards. All elements of the calibration procedure performed and stated on this certification are recognized national, international and/or validated test methods by Omni-Tech. The stated expanded uncertainties are given at a coverage factor of k=2, representing a confidence level of approximately 95%. In all cases, the stated uncertainty is that of the calibration method used and not the uncertainty of results obtained when measuring items with the CMM. All actual test data collected during this test are on file and available upon request. These recorded results relate only to this equipment, environmental conditions and instrument condition at the time of calibration. The stated results apply only to the calibrated equipment specified above. This certificate may be reproduced only in its entirety, with written permission from Omni-Tech.

Signature: _____

CMM Calibration Due Date: July 4, 2009 [As defined by customer]