



MTS Systems Corporation

14000 Technology Drive
Eden Prairie, MN 55344-2290

Certificate of Calibration

Page: 1 of 2

Certificate Number: ACT3-492

Site: 50000

MTS Systems

System: US2.43227

Location: Eden Prairie

Country Code: USA

Customer Name: EUCENTRE

Equipment

Device Type: Length
Controller/Conditioner Model: 493.25
Readout Device Model: 493.02

Model: 244.41
Serial No.: 02011575
Serial No.: 1453236

Serial No.: 10356315A
Channel: Displacement

Defined and documented measurement assurance techniques or uncertainty analyses are used to verify the adequacy of the measurement processes.

Calibrations are performed with standards whose values and measurements are traceable to the National Institute of Standards and Technology.

When parameter(s) are certified to be within specified tolerance(s), the measured value(s) shall fall within the appropriate specification limit and the uncertainty of the measured value(s) shall be stated and provided to the customer for evaluation.

CALIBRATION INFORMATION

As Found: In Tolerance Max. Error As Found: 0.87 % Calibration Date: 27-Oct-11
As Left: In Tolerance Max. Error As Left: 0.87 % Calibration Due: 27-Oct-12
Tolerance: +/-1.0% of Range
Calibration Procedure: Integration Calibration
Full Scale Ranges: 260 mm
Note:

STANDARDS USED FOR CALIBRATION

MTS Asset Number	Manufacturer	Model Number	Description	Cal. Date	Cal. Due
20269	Fluke	189	DMM	10-Jun-11	8-Jun-12
20276	Fluke	80T-150UA	Temp Probe	24-May-11	24-May-12
18830A	Optodyne (19200)	p1083	Laser	14-Jul-11	13-Jul-12

Certified by:

Issued on: 27-Oct-11

ACS Version: 8.1

ACSRepRevW-Checkout
DBH 10-Feb-10



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Calibration Report

Page: 2 of 2
Report Number: ACT3-492
Site: 50000
Country Code: USA

MTS Systems

Customer Name: EUCENTRE

System: US2.43227
Location: Eden Prairie

Equipment

Device Type: Length Model: 244.41 Serial No.: 10356315A
Controller/Conditioner Model: 493.25 Serial No.: 02011575
Readout Device Model: 493.02 Serial No.: 1453236 Channel: Displacement

Procedure

MTS Procedure: Integration Calibration ACS Version: 8.1
Calibration has been performed in accordance with: (none)
Method of Verification:

Calibration Equipment Asset No.

Dead Weight Set: HighLevel Board: LowLevel Board: Standard Asset No.: 18830A
DW Compensation: DMM: 20269 Digital Indicator: Lower Limit:
Temperature Readout: 20276 Additional Equipment: Standardizer:

Conditions

Ambient Temperature: 76.30 °F Polarity(+): Extension Bidirectional: Cable Length: 150 Feet

In Tolerance
Out of Tolerance

X

As Found: X
As Adjusted:

Tolerance: +/-1.0% of Range
As Found System Condition: Good

Conditioner Parameters

Excitation: 10.0000 Delta K: Zero Offset: 0.0000 Multiplier: Phase: 8.83838
Cal Factor: Positive: Negative: Range Gain: PreAmp Gain: 2 Post Amp/FineGain: 1.53861 Polarity: Inverted

Calibration Data

Range: 1
Extension Resolution: 0.001 Full Scale: 260
Report Units: mm 0.0000

Applied Percent of Full Scale Length	Series 1		Series 1 Errors				Series 2		Series 2 Errors				Repeatability Percent Error	
	Indicated Reading	Indicated Reading	Units Error	Percent Error	Units Error	Percent Error	Indicated Reading	Indicated Reading	Units Error	Percent Error	Units Error	Percent Error	Asc	Desc
	Ascending	Descending	Asc	Asc	Desc	Desc	Ascending	Descending	Asc	Asc	Desc	Desc		
0	0.000	0.014	0.000	0.00	0.014	0.01								
10	26.226		0.226	0.09										
20	52.276		0.276	0.11										
40	104.560		0.560	0.22										
50	130.550		0.550	0.21										
60	156.670		0.670	0.26										
70	182.440		0.440	0.17										
80	208.010		0.010	0.00										
90	233.900		0.100	-0.04										
100	259.700		0.300	-0.12										

Retraction

Range: 1
Report Units: mm

Applied Percent of Full Scale Length	Series 1		Series 1 Errors				Series 2		Series 2 Errors				Repeatability Percent Error	
	Indicated Reading	Indicated Reading	Units Error	Percent Error	Units Error	Percent Error	Indicated Reading	Indicated Reading	Units Error	Percent Error	Units Error	Percent Error	Asc	Desc
	Ascending	Descending	Asc	Asc	Desc	Desc	Ascending	Descending	Asc	Asc	Desc	Desc		
0	0.000	-0.016	0.000	0.00	0.016	-0.01								
-10	-26.309		0.309	0.12										
-20	-52.519		0.519	0.20										
-40	-105.190		1.190	0.46										
-50	-130.790		0.790	0.30										
-60	-156.600		0.600	0.23										
-70	-184.170		2.170	0.83										
-80	-210.250		2.250	0.87										
-90	-233.340		0.660	-0.25										
-100	-258.410		1.590	-0.61										

Errors at Zero are computed in % of Range

Uncertainty of the calibration data supplied is equal to or less than the greater of, $\pm 0.25\%$ of reading or $\pm 50\mu$ inches, for a confidence level of 95%

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Out of Tolerance in % column

Notes: Non-Linearized data.

Performed By: Ben Baird

Test Technician

Date: 27-Oct-11

Signature:

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