MTS Systems Corporation

14000 Technology Drive
Eden Prairie, MN 55344-2290

Certificate of Calibration

MTS Systems

Certificate Number: ACT3-495

System: US2.43227 Site: 50000

Customer Name: EUCENTRE Location: Eden Prarie Country Code: USA

Equipment

Device Type: Length Model: 244.41 Serial No.: 10356315B

Controller/Conditioner Model: 493.25 Serial No.: 02011575

Readout Device Model: 493.02 Serial No.: 1453236 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: -0.18 % Calibration Date: 28-Oct-11

As Left: In Tolerance Max. Error As Left: -0.18 % Calibration Due: 28-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: 28-Oct-11

ACS Version: 8.1

ACSRepRevW-Checkout

DBH 10-Feb-10

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Calibration Report

MTS Systems

Report Number: ACT3-495

System: US2.43227 Site: 50000

Customer Name: EUCENTRE Location: Eden Prarie Country Code: USA

Equipment

Device Type: Length Model: 244.41 Serial No.: 10356315B

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: 76.20 °F Polarity(+): Extension Bidirectional: Cable Length: 150 Feet

In Tolerance	X	**As Found:**	X	**Tolerance: +/-1.0% of Range**
Out of Tolerance		**As Adjusted:**		**As Found System Condition:** **Good**

Conditioner Parameters

Excitation: 10.0000 Delta K: Zero Offset: 0.0000 Multiplier: Phase: 7.03838

Cal Factor: Positive: Negative: Range Gain: PreAmp Gain: 2 Post Amp/FineGain: 1.53387 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 Indicated Reading Ascending	Series 1 Indicated Reading Descending	Series 1 Errors Units Error Asc	Series 1 Errors Percent Error Asc	Series 1 Errors Units Error Desc	Series 1 Errors Percent Error Desc	Series 2 Indicated Reading Ascending	Series 2 Indicated Reading Descending	Series 2 Errors Units Error Asc	Series 2 Errors Percent Error Asc	Series 2 Errors Units Error Desc	Series 2 Errors Percent Error Desc	Repeatability Percent Error Asc	Repeatability Percent Error Desc
0	0.000	0.019	0.000	0.00	0.019	0.01								
2	5.164		0.036	-0.01										
4	10.316		0.084	-0.03										
6	15.491		0.109	-0.04										
8	20.686		0.114	-0.04										
10	25.909		0.091	-0.03										
20	52.074		0.074	0.03										
40	104.130		0.130	0.05										
70	182.170		0.170	0.07										
100	260.120		0.120	0.05										

Retraction **Range:** 1

Report Units: mm

Applied Percent of Full Scale Length	Series 1 Indicated Reading Ascending	Series 1 Indicated Reading Descending	Series 1 Errors Units Error Asc	Series 1 Errors Percent Error Asc	Series 1 Errors Units Error Desc	Series 1 Errors Percent Error Desc	Series 2 Indicated Reading Ascending	Series 2 Indicated Reading Descending	Series 2 Errors Units Error Asc	Series 2 Errors Percent Error Asc	Series 2 Errors Units Error Desc	Series 2 Errors Percent Error Desc	Repeatability Percent Error Asc	Repeatability Percent Error Desc
0	0.000	0.001	0.000	0.00	0.001	0.00								
-2	-5.152		0.048	-0.02										
-4	-10.266		0.134	-0.05										
-6	-15.378		0.222	-0.09										
-8	-20.505		0.295	-0.11										
-10	-25.663		0.337	-0.13										
-20	-51.523		0.477	-0.18										
-40	-103.810		0.190	-0.07										
-70	-181.810		0.190	-0.07										
-100	-259.720		0.280	-0.11										

Errors at Zero are computed in % of Range

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

Out of Tolerance in % column

This report shall not be reproduced except in full, without the written approval of the laborator

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Notes: Linearized data

Performed By: Ben Baird Test Technician Date: 28-Oct-11

Signature:

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