Scope of Accreditation
For
C.S.C. Force Measurement, Inc.

84 Ramah Circle North, P. O. Box 887
Agawam, MA 01001
Matthew Bard
413-789-3086

In recognition of a successful assessment to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1:1994 (R2002) to the following Calibration and Measurement Capabilities, accreditation has been granted to **C.S.C. Force Measurement, Inc.** for the following:

Accreditation granted through: **March 5, 2020**

Calibration

Electrical – Voltage

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) [2]	Remarks
DC Voltage – Measure	(0.001 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1 000) V	4.7 µV 90 µV 0.56 mV 9.2 mV 0.11 V	DMM

Length – Hand Tools and Precision Gages 1D

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) [2]	Remarks
Crosshead Displacement (0.000 1 in resolution) (0.001 in resolution)	0 in to 30 in	(330 + 114.5*L*) µin (2 100 + 73.2*L*) µin	ASTM 2309

Mass – Force

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) [2]	Remarks
Force Verification of Testing Machines	(0.1 to 2 000) lbf	(0.000 21 + 0.000 1*F*) lbf	ASTM E4 Method A using Class 6 Masses
	(2 000 to 10 000) lbf (10 000 to 50 000) lbf (50 000 to 100 000) lbf	2.6 lbf 4.7 lbf 49 lbf	ASTM E4 Method C Using Load Cells
Force Measuring Devices	(0.2 to 2 000) lbf	(0.000 21 + 0.000 1*F*) lbf	ASTM E74 using Masses
Force Measuring Devices	(2 000 to 10 000) lbf (10 000 to 50 000) lbf (50 000 to 100 000) lbf	2.6 lbf 4.7 lbf 49 lbf	ASTM E74 using Load Cells

Mass – Scale and Balances

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) [2]	Remarks
Scales	(0 to 5 000) kg	(21 + 102.1*M*) mg	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the Weighing System
Laboratory Balance	(0 to 12) kg	(0.42 + 10.26*M*) mg	

Mass – Torque

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Remarks
Torque-Source	(1 to 50) ozf·in (50 to 100) ozf·in (6 to 50) lbf·in (50 to 1 200) lbf·in (100 to 600) lbf·ft (600 to 2 000) lbf·ft	0.021 ozf·in 0.042 ozf·in 0.022 lbf·in 0.94 lbf·in 0.33 lbf·ft 1.2 lbf·ft	Direct Comparison made with ASTM Class F Weights and/or Load Cells
Torque-Measure	(1 to 48) ozf·in (3 to 50) lbf·in (50 to 1 000) lbf·in (80 to 250) lbf·ft (250 to 600) lbf·ft (600 to 2 000) lbf·ft	1.3 ozf·in 0.85 lbf·in 3.7 lbf·in 0.97 lbf·ft 2.3 lbf·ft 8.2 lbf·ft	Digital Torque Analyzer

Time and Frequency – Frequency / Period

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Remarks
Crosshead Speed	(0 to 80) in/min	0.004 in/min + 1.75% of rdg	ASTM 2658

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and remarks. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 (k=2), corresponding to a confidence level of approximately 95%.
Notes:

1) Laboratory offers calibration services at the laboratory's own facilities and at the client or other agreed upon facilities.
2) *F* = force in pounds-force, *L* = length in inches, *M* = mass in kilograms, X = voltage in volts

Approved by: _____ Date: March 28, 2017

R. Douglas Leonard
Chief Technical Officer

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