



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
AND ANSI/NCSL Z540-1-1994 (R2002)**

System Scale Corporation

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CALIBRATION

Valid to: February 1, 2019

Certificate Number: AC-1756

Chemical Quantities

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
pH Meters ¹	(4.0, 7.0, 10.0) pH	0.03 pH	pH Standards
Conductivity ¹	10 μ S (10 to 1 000) μ S (1 000 to 100 000) μ S	0.62 μ S 4.2 μ S 0.03 mS	Conductivity Standards

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
DC Voltage – Measure ¹	(10 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV	15 μ V/V + 3 μ V 16 μ V/V + 0.3 μ V 16 μ V/V + 0.05 μ V 16 μ V/V + 0.3 μ V 17 μ V/V + 0.1 μ V	HP 3458A opt 002 Multimeter
DC Voltage - Source ¹	(0 to 329.9) mV (0 to 3.299) V (0 to 32.999) V (30 to 329.999) V 100 V to 1.02 kV	6.6 μ V/V + 1 μ V 35 μ V/V + 2 μ V 0.4 mV/V + 20 μ V 5.9 mV/V + 0.15 mV 19 mV/V + 1.5 mV	Fluke 5522A/SC600 Multi Product Calibrator
DC Current - Measure ¹	(10 to 100) μ A 100 μ A to 10 mA (10 to 100) mA 100 mA to 1 A	28 μ A/A + 8 μ A 25 μ A/A + 5 μ A 45 μ A/A + 5 μ A 0.18 mA/A + 10 μ A	HP 3458A Opt 002 Multimeter



Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
DC Current - Source ¹	(0 to 329.9) μ A (0 to 3.299 9) mA (0 to 32.999) mA (0 to 329.99) mA (0 to 1.099 9) A (1.1 to 2.999) A (0 to 10.99) A (11 to 20.5) A	50 nA/A + 20 nA 0.33 μ A/A + 50 nA 3.3 μ A/A + 0.25 μ A 33 μ A/A + 2.5 μ A 0.22 mA/A + 40 μ A 1.1 mA/A + 40 μ A 5.5 mA/A + 0.5 mA 21 mA/A + 0.75 mA	Fluke 5522A/SC600 Multi Product Calibrator
AC Voltage – Measure	(10 to 100) mV (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 100 mV to 10 V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz (1 to 2) MHz (10 to 100) V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz 100 V to 1 kV (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.3 mV/V + 30 μ V 0.2 mV/V + 11 μ V 0.3 mV/V + 11 μ V 1 mV/V + 11 μ V 5 mV/V + 11 μ V 40 mV/V + 20 μ V 0.7 mV/V + 0.4 mV 0.7 mV/V + 0.2 mV 1.4 mV/V + 0.2 mV 3 mV/V + 0.2 mV 8 mV/V + 0.3 mV 30 mV/V + 1 mV 0.1 V/V + 1mV 0.1 V/V + 1 mV 20 mV/V + 4 mV 20 mV/V + 2 mV 20 mV/V + 2 mV 35 mV/V + 2 mV 0.1 V/V + 2 mV 0.4 V/V + 10 mV 1.5 V/V + 10 mV 0.4 V/V + 40 mV 0.4 V/V + 20 mV 0.6 V/V + 20 mV 1 V/V + 20 mV 3 V/V + 20 mV	HP 3458A opt 002 Multimeter

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
AC Voltage - Source ¹	(1 to 32.99) mV		Fluke 5522A/SC600 Multi Product Calibrator
	(10 to 40) Hz	26 $\mu\text{V/V} + 6 \mu\text{V}$	
	45 Hz to 10 kHz	5 $\mu\text{V/V} + 6 \mu\text{V}$	
	(10 to 20) kHz	6.6 $\mu\text{V/V} + 6\text{V}$	
	(20 to 50) kHz	33 $\mu\text{V/V} + 6 \mu\text{V}$	
	(50 to 100) kHz	0.11 mV/V + 12 μV	
	(100 to 500) kHz	0.26 mV/V + 50 μV	
	(33 to 329.99) mV		
	(10 to 45) Hz	99 $\mu\text{V/V} + 8 \mu\text{V}$	
	45 Hz to 10 kHz	48 $\mu\text{V/V} + 8 \mu\text{V}$	
	(10 to 20) kHz	53 $\mu\text{V/V} + 8 \mu\text{V}$	
	(20 to 50) kHz	0.12 mV/V + 8 μV	
	(50 to 100) kHz	0.26 mV/V + 32 μV	
	(100 to 500) kHz	0.66 mV/V + 70 μV	
	(0.33 to 3.299) V		
	(10 to 45) Hz	0.99 mV/V + 50 μV	
	45 Hz to 10 kHz	0.5 mV/V + 60 μV	
	(20 to 50) kHz	0.63 mV/V + 60 μV	
	(50 to 100) kHz	23 mV/V + 0.13 mV	
	(100 to 500) kHz	7.9 mV/V + 0.6 mV	
	(3.3 to 32.99) V		
	(10 to 45) Hz	9.9 mV/V + 0.65 mV	
	45 Hz to 10 kHz	5 mV/V + 0.6 mV	
	(10 to 20) kHz	7.9 mV/V + 0.6 mV	
20 to 50 kHz	12 mV/V + 0.6 mV		
50 to 100 kHz	30 mV/V + 1.6 mV		
(33 to 329.99) V			
45 Hz to 1 kHz	63 mV/V + 2 mV		
(1 to 10) kHz	66 mV/V + 6 mV		
(10 to 20) kHz	83 mV/V + 6 mV		
(20 to 50) kHz	99 mV/V + 6 mV		
(50 to 100) kHz	660 V/V + 6 mV		
(330 to 1 020) V			
45 Hz to 1 kHz	0.31 V/V + 10 mV		
(1 to 5) kHz	0.26 V/V + 10 mV		
(5 to 10) kHz	0.31 V/V + 10 mV		



Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
AC Voltage - Source ¹ (AUX output)	(10 to 329.99) mV		Fluke 5522A/SC600 Multi Product Calibrator
	(10 to 20) Hz	0.66 mV/V + 0.37 mV	
	(20 to 45) Hz	0.66 mV/V + 0.37 mV	
	45 Hz to 1 kHz	0.66 mV/V + 0.37 mV	
	(1 to 5) kHz	0.66 mV/V + 0.45 mV	
	(5 to 10) kHz	1.32 mV/V + 0.45 mV	
	(10 to 30) kHz	16.5 mV/V + 0.9 mV	
	(0.33 to 3.299) V		
	(10 to 20) Hz	6.6 mV/V + 0.45 mV	
	(20 to 45) Hz	6.6 mV/V + 0.45 mV	
	45 Hz to 1 kHz	3 mV/V + 0.45 mV	
	(1 to 5) kHz	6.6 mV/V + 1.4 mV	
	(5 to 10) kHz	13 mV/V + 1.4 mV	
	(10 to 30) kHz	0.165 V/V + 2.8 mV	
	(3.3 to 5) V		
(10 to 20) Hz	0.01 V/V + 0.45 mV		
(20 to 45) Hz	5 mV/V + 450 μV		
45 Hz to 1 kHz	4.5 mV/V + 450 μV		
(1 to 5) kHz	0.01 V/V + 1.4 mV		
(5 to 10) kHz	0.02 V/V + 1.4 mV		
Resistance - Measure ¹	(1 to 10) Ω	23 μΩ/Ω + 0.1 mΩ	HP 3458A Opt 002 Multimeter
	(10 to 100) Ω	23 μΩ/Ω + 0.1 mΩ	
	100 Ω to 100 kΩ	11 μΩ/Ω + 0.1 Ω	
	100 kΩ to 1 MΩ	63 μΩ/Ω + 4 Ω	
	(1 to 10) MΩ	0.83 Ω/Ω + 100 Ω	
	(10 to 100) MΩ	0.1 mΩ/Ω + 10 kΩ	
	100 MΩ to 1 GΩ	10 mΩ/Ω + 10 kΩ	

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Resistance - Source ¹	(0 to 10.9) Ω (11 to 32.9) Ω (33 to 109.99) Ω (110 to 329.99) Ω (0.33 to 1.09) kΩ (1.1 to 3.299) kΩ (3.3 to 10.99) kΩ (11 to 32.999) kΩ (33 to 109.99) kΩ (110 to 329.9) kΩ (33 to 1.09) MΩ (1.1 to 3.29) MΩ (3.3 to 10.9) MΩ (11 to 32.99) MΩ (33 to 109.99) MΩ (110 to 329.99) MΩ (330 to 1 100) MΩ	0.4 mΩ/Ω + 10 mΩ 1 mΩ/Ω + 15 mΩ 3 mΩ/Ω + 15 mΩ 9.2 mΩ/Ω + 20 mΩ 31 mΩ/Ω + 20 mΩ 92 mΩ/Ω + 0.2 Ω 0.31 Ω/Ω + 0.1 Ω 0.92 Ω/Ω + 1 Ω 3.1 Ω/Ω + 1 Ω 11 Ω/Ω + 10 Ω 35 Ω/Ω + 10 Ω 0.2 kΩ/Ω + 0.15 kΩ 1.4 kΩ/Ω + 0.25 kΩ 8.3 kΩ/Ω + 2.5 kΩ 55 kΩ/Ω + 3 kΩ 0.99 MΩ/Ω + 0.1 MΩ 17 MΩ/Ω + 0.5 MΩ	Fluke 5522A/SC600 Multi Product Calibrator
AC Current - Measure ¹	(10 to 100) μA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz 100 μA to 100 mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 100 Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz 100 mA to 1 A (10 to 20) Hz (20 to 45) Hz 45 Hz to 100 Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz	0.4 μA/A + 0.03 μA 0.2 μA/A + 0.03 μA 0.1 μA/A + 0.03 μA 0.4 mA/A + 20 μA 0.2 mA/A + 20 μA 0.1 mA/A + 20 μA 0.1 mA/A + 20 μA 0.1 mA/A + 20 μA 0.4 mA/A + 40 μA 0.6 mA/A + 0.15 mA 4 mA/A + 0.2 mA 2 mA/A + 0.2 mA 1 mA/A + 0.2 mA 1 mA/A + 0.2 mA 3 mA/A + 0.2 mA 10 mA/A + 0.4 mA	HP 3458A Opt 002 Multimeter



Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
AC Current - Source ¹	(29 to 329.99) μ A		Fluke 5522A/SC600 Multi Product Calibrator
	(10 to 20) Hz	0.66 μ A + 0.1 μ A	
	(20 to 45) Hz	0.5 μ A + 0.1 μ A	
	45 Hz to 1 kHz	0.41 μ A + 0.1 μ A	
	(1 to 5) kHz	0.99 μ A + 0.15 μ A	
	(5 to 10) kHz	2.6 μ A + 0.2 μ A	
	(10 to 30) kHz	5.3 μ A + 0.4 μ A	
	(0.33 to 3.299) mA		
	(10 to 20) Hz	6.6 μ A + 0.15 μ A	
	(20 to 45) Hz	4.1 μ A + 0.15 μ A	
	45 Hz to 1 kHz	3.3 μ A + 0.15 μ A	
	(1 to 5) kHz	6.6 μ A + 0.2 μ A	
	(5 to 10) kHz	17 μ A + 0.3 μ A	
	(10 to 30) kHz	33 μ A + 0.6 μ A	
	(3.3 to 32.99) mA		
	(10 to 20) Hz	59 μ A + 2 μ A	
	(20 to 45) Hz	30 μ A + 2 μ A	
	45 Hz to 1 kHz	13 μ A + 2 μ A	
	(1 to 5) kHz	26 μ A + 2 μ A	
	(5 to 10) kHz	66 μ A + 2 μ A	
	(33 to 329.99) mA		
	(10 to 20) Hz	0.59 mA + 20 μ A	
	(20 to 45) Hz	0.3 mA + 20 μ A	
	45 Hz to 1 kHz	0.13 mA + 20 μ A	
(1 to 5) kHz	0.33 mA + 50 μ A		
(5 to 10) kHz	0.66 mA + 0.1 mA		
(10 to 30) kHz	1.3 mA + 0.2 mA		
(0.33 to 1.099 9) A			
(10 to 45) Hz	2 mA + 0.1 mA		
45 Hz to 1 kHz	0.55 mA + 0.1mA		
(1 to 5) kHz	6.6 mA + 1 mA		
(5 to 10) kHz	28 mA + 5 mA		
(1.1 to 2.999) A			
(10 to 45) Hz	5.4 mA + 100 μ A		
45 Hz to 1 kHz	1.8 mA + 100 μ A		
(1 to 5) kHz	18 mA + 1 mA		
(5 to 10) kHz	75 mA + 5 mA		



Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
AC Current - Source ¹	(3 to 10.99) A (45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz (11 to 20.5) A (45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	6.6 mA + 2 mA 11 mA + 2 mA 0.33 A + 2 mA 25 mA + 5 mA 31 mA + 5 mA 0.62 A + 5 mA	Fluke 5522A/SC600 Multi Product Calibrator
Electrical Calibration of Thermocouple Indicators ¹	Type K -200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °C Type J (-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1 200) °C Type T (-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C Type E (-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1 000) °C Type R (0 to 250) °C (250 to 400) °C (400 to 1 000) °C (1 000 to 1 767) °C	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.4 °C 0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C 0.63 °C 0.24 °C 0.16 °C 0.14 °C 0.5 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C 0.57 °C 0.35 °C 0.33 °C 0.4 °C	

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Electrical Calibration of Thermocouple Indicators ¹	Type S (0 to 250) °C	0.47 °C	Fluke 5522A/SC600 Multi Product Calibrator
	(250 to 1 000) °C	0.36 °C	
	(1 000 to 1 400) °C	0.37 °C	
	(1 400 to 1 767) °C	0.46 °C	
	Type N (-200 to -100) °C	0.4 °C	
	(-100 to -25) °C	0.22 °C	
	(-25 to 120) °C	0.19 °C	
	(120 to 410) °C	0.18 °C	
	(410 to 1 300) °C	0.27 °C	
	Capacitance Source	(220 to 399.9) pF	
(0.4 to 1.099) nF		5.5 pF + 0.01 nF	
(1.1 to 3.299 9) nF		17 pF + 0.01 nF	
(3.3 to 10.999) nF		28 pF + 0.01 nF	
(11 to 32.999) nF		83 pF + 0.1 nF	
(33 to 109.99) nF		0.28 nF + 0.1 nF	
(110 to 329.99) nF		0.83 nF + 0.3 nF	
(0.33 to 1.099 9) μF		2.8 nF + 1 nF	
(1.1 to 3.299) μF		8.3 nF + 3 nF	
(3.3 to 10.999) μF		28 nF + 10 nF	
(11 to 32.999) μF		0.13 μF + 30 nF	
(33 to 109.99) μF		0.5 μF + 0.1 μF	
(110 to 329.99) μF		1.5 μF + 0.3 μF	
(0.33 to 1.099 9) mF		5 μF + 1 μF	
(1.1 to 3.299 9) mF		15 μF + 3 μF	
(3.3 to 10.999) mF		50 μF + 10 μF	
(11 to 32.999) mF	0.25 mF + 30 μF		
(33 to 110) mF	1.1 mF + 0.1 mF		

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Oscilloscope ¹ DC Function Into 50 Ω Into 1 MΩ	(0 to 6.6) V (0 to 130) V	± 0.25 % of output + 40 μV ± 0.05 % of output + 40 μV	Fluke 5522A/SC600 Multi Product Calibrator
Square Wave Into 50 Ω Into 1 MΩ	± 1 mV to ± 6.6 V p-p ± 1mV to ± 130 V p-p	± 0.25 % of output + 40 μV ± 0.1 % of output + 40 μV	
Edge Into 50 Ω	(2.5 to 5) V	± 2% of output + 200 μV	
Leveled Sine Wave	50 kHz 50 kHz to 100 MHz (100 to 300) MHz (300 to 600) MHz	± 2% of output + 300 μV ± 3.5% of output + 300 μV ± 4% of output + 300 μV ± 6% of output + 300 μV	
Time marker	50 ms to 5 s 20 ms to 100 ns (20 to 50) ns 10 ns (2 to 5) ns	± 2.5 ns ± 2.5 ps ± 0.5 ps ± 0.25 ps ±0.05 ps	

Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Gage Blocks ³	Up to 4 in	(4.6 + 0.23L) μin	Master Gage Blocks
Plain Ring Gages ³	(0.04 to 12) in	(34 + 0.59L) μin	LabMaster Laser Measuring System
Plug Gages ³	Up to 14 in	(11.7 + 3.5L) μin	LabMaster Laser Measuring System
Reference Spheres	Up to 2 in	22 μin	LabMaster Laser Measuring System
Pin Gages	Up to 1 in	14 μin	LabMaster Laser Measuring System
Indicators	Up to 1 in	48 μin	Gage Blocks, Indicator Calibrator

Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Indicators ¹	Over 1 to 5 in	290 μin	Gage Blocks
Micrometers and Depth Micrometers ³	Up to 12 in	(30 + 1.1L) μin	Gage Blocks
Micrometers and Depth Micrometers ^{1,3}	Up to 12 in	(210 + 0.85L) μin	Gage Blocks
Calipers ³	Up to 40 in	(290 + 2L) μin	Gage Blocks
Calipers ^{1,3}	Up to 40 in	(290 + 6.5L) μin	Gage Blocks
Height Gages ³	Up to 40 in	(4.1 + 6.1L) μin	Gage Blocks
Height Gages ^{1,3}	Up to 40 in	(4.6 + 11.7L) μin	Gage Blocks
Optical Comparators ¹ Linearity Squareness Angle Magnification	Up to 16 in (0 to 180) Deg (10 to 100) X	270 μin 240 μin 5 arcsec 0.002 in	Inspection Master Angle Master
Optical Comparators ¹ Linearity Squareness Angularity Magnification	Up to 16 in	530 μin 290 μin 5 arcsec 0.0021 in	Inspection Master
Microscopes ¹	Up to 0.1 in	680 μin	Stage Micrometer I1110
Precision Rules	(6 to 72) in	0.0074 in	Precision Rule and microscope
Surface Plate Overall Flatness ^{1,3}	Up to (72 x 144) in	4.7√(D/4) in	Electronic Leveling System
60 Degree Thread Plugs - Pitch Diameter	Up to 2 in	27 μin	3 wire
Thread Wires	Up to 0.3 in	13 μin	LabMaster Laser Measuring System
Angle	Up to 90 deg	1.9 arcmin	Optical Comparator
Protractors	Up to 360 deg	0.37 arcmin	Angle Blocks, Height Gage
Protractors ¹	Up to 360 deg	35 arcmin	Angle Blocks

Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Electronic Levels	Up to 400 s	4.3 s	Sine Plate, Gage Blocks SSCLD-12-01
Length	0 to 100 in	(290 + 6.5L) μ in	Gage blocks

Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Vacuum ¹	Up to 27 in Hg	0.006 inHg	Transducer
Balances ²	Up to 20 g (20 to 200) g 200g to 1 kg (1 to 2) kg (2 to 5) kg (5 to 10) kg	0.66 mg 0.77 mg 2 mg 12 mg 0.064 g 0.23 g	Class F1 Weights to NIST Handbook 44
Scales ²	(0 to 10) lb (10 to 20) lb (20 to 50) lb (50 to 100) lb (100 to 200) lb (200 to 500) lb (500 to 1 000) lb (1 000 to 2 000) lb (2 000 to 5 000) lb (5 000 to 10 000) (10 000 to 20 000) lb (20 000 to 50 000) lb (50 000 to 100 000) lb (100 000 to 200 000) lb (200 000 to 300 000) lb (300 000 to 400 000) lb	0.0013 lb 0.0024 lb 0.0059 lb 0.012 lb 0.024 lb 0.059 lb 0.23 lb 0.58 lb 1.2 lb 2.3 lb 5.8 lb 12 lb 23 lb 23 lb 58 lb 58 lb	Class F1 and F Weights to NIST Handbook 44
Torque Transducers	(0 to 100) lbf-in (0 to 100) lbf-ft (0 to 250) lbf-ft (0 to 1 000) lbf-ft	0.0058 lbf-in 0.0058 lbf-ft 0.058 lbf-ft 0.058 lbf-ft	Weights, Torque Arm

Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Torque Wrenches	Up to 100 lbf-in Up to 100 lbf-ft (100 to 250) lbf-ft (250 to 1 000) lbf-ft	0.58 lbf-in 0.58 lbf-ft 0.58 lbf-ft 0.58 lbf-ft	Torque Transducer
Torque Transducers ¹	(0 to 1 000) lbf-ft	0.091 lbf-ft	Weights, Torque Arm
Torque Wrenches ¹	(0 to 1 000) lbf-ft	2.9 lbf-ft	Torque Transducer
Force ¹ - Compression & Tension	(0 to 100) lbf (100 to 500) lbf (500 to 1 000) lbf (1 000 to 10 000) lbf (10 to 100) klb	0.058 lbf 0.058 lbf 0.058 lbf 0.58 lbf 13 lbf	Load Cells
Force - Compression & Tension	(0 to 1 000) lbf (0 to 10 000) lbf (10 to 100) klb	0.022 lbf 0.19 lbf 13 lbf	Ultra Precision Load Cells
Pressure Gages ¹ Oil	Up to 10 000 psi	3.1 psi	Deadweight Tester
Pressure Gages Air	Up to 300 psi Up to 50 inH ₂ O Up to 100 psi Up to 1 000 psi	0.04 psi 0.004 in H ₂ O 0.02 psi 0.08 psi	Transducer
	(5.8 to 1 000) psi	0.007 psi	Deadweight Tester
Pressure Gages ¹ Oil	Up to 10 000 psi	3.1 psi	Deadweight Tester
Pressure Gages ¹ Air	Up to 300 psi Up to 50 in H ₂ O Up to 100 psi Up to 1 000 psi	0.06 psi 0.02 in H ₂ O 0.09 psi 0.16 psi	Transducer
Mass	Up to 210 g	0.3 mg	Balance, Class E2 Weights
Indirect Verification to ASTM E10 of Brinell Hardness Testers ¹	(72 to 277) HBW	3.4 HBW	Hardness Blocks



Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Indirect Verification to ASTM E18 of Rockwell Hardness Testers ¹	HRA Low Middle High	0.37 HRA	Hardness Blocks
		0.37 HRA	
		0.27 HRA	
	HRBW Low Middle High	0.53 HRBW	
		0.32 HRBW	
		0.32 HRBW	
	HRC Low Middle High	0.38 HRC	
		0.38 HRC	
		0.29 HRC	
	HREW Low Middle High	0.53 HRE	
		0.53 HRE	
		0.53 HRE	
Indirect Verification to ASTM E18 of Rockwell Superficial Hardness Testers ¹	HR15N Low Middle High	0.57 HR15N	Hardness Blocks
		0.57 HR15N	
		0.27 HR15N	
	HR30N Low Middle High	0.41 HR30N	
		0.41 HR30N	
		0.41 HR30N	
	HR45N Low Middle High	0.51 HR45N	
		0.51 HR45N	
		0.51 HR45N	
	HR15TW Low Middle High	0.49 HR15TW	
		0.41 HR15TW	
		0.41 HR15TW	
	HR30TW Low Middle High	0.43 HR30TW	
		0.37 HR30TW	
		0.37 HR30TW	



Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Durometers			Direct Verification to ASTM D2240
Indenter Dimensions			Optical Projection
Extension	(0 to 0.1) in	0.000 28 in	
Diameter/Length	(0 to 0.15) in	0.000 28 in	
Indenter Radius	(0 to 0.05) in	0.000 28 in	
Indenter Angle	(25 to 40) °	0.001 4°	
Spring Force			Weights
Type A, B, E, O, D, C, DO	(0 to 4.54) kgf	0.76 grf	

Thermodynamic

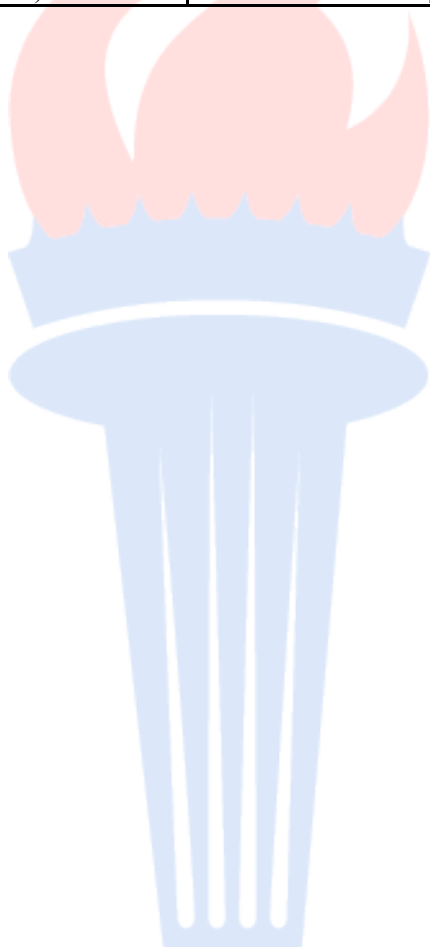
Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Temperature - Infrared ²	Up to 500 °C Up to 1 200 °C	1.2 °C 1.7 °C	Black Body, Dry Well
Relative Humidity ¹ - Fixed Points			Salt Solutions ASTM E104
NaCl	75.5 % RH	0.76 % RH	
LiCl	11.3 % RH	0.76 % RH	
Chart Recorders			Environmental Chamber, Datalogger
Relative Humidity	(20 to 90) % RH	3 % RH	
Temperature	(-17 to 177) °C	0.21 °C	
Temperature ¹	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °C	0.26 °C	Thermo calibrator, Data logger, Temperature probe
Temperature probes	(-15 to 1 200) °C	0.49 °C	Dry well, PRT thermocouple, Type S thermocouple, Environmental Chamber

Time and Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
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Time and Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Stop Watches	0.001 s to 24 h	38 ms	NIST SP 960-12 GPS receiver
Optical Tachometers (1 to 10 000) rpm	0.5 Hz to 16.6 kHz	0.25 parts in 10 ⁶ Hz	Fluke 5522A/SC600 Multi Product Calibrator
Frequency Source	(0.01 to 119.99) Hz (120 to 1 199.9) Hz (1.1 to 11.99) kHz (12 to 119.99) kHz (120 to 1 199.9) kHz (1.2 to 2) MHz	0.3 mHz + 5 μHz 3 mHz + 5 μHz 30 mHz + 5 μHz 300 mHz + 5 μHz 3 Hz + 5 μHz 5 Hz + 5 μHz	





Work performed from satellite locations in

4808 Alma Highway, Van Buren, AR 72956
 2212 N. Yellowood Avenue, Broken Arrow, OK 74012
 2325 Jonesboro Road, West Monroe, LA 71292
 6579 Reese Road, Memphis, TN 38133
 1420 Donelson Pike, Suite B7, Nashville, TN 37217
 595 Pearl Park Plaza, Jackson, MS 39208
 6215-120 Rangeline Road, Theodore, AL 36582
 4393 West 96th Street, Indianapolis, IN 46268
 34624 LA-16, Baton Rouge, LA 70706
 Sean Rainey 501-562-2900
 srainey@system-scale.com

Mass

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty (±)]	Reference Standard or Equipment
Balances ²	Up to 20 g	0.66 mg	Class F1 Weights to NIST Handbook 44
	(20 to 200) g	0.77 mg	
	200g to 1 kg	2 mg	
	(1 to 2) kg	12 mg	
	(2 to 5) kg	0.064 g	
Scales ²	(5 to 10) kg	0.23 g	Class F1 and F Weights to NIST Handbook 44
	(0 to 10) lb	0.0013 lb	
	(10 to 20) lb	0.0024 lb	
	(20 to 50) lb	0.0059 lb	
	(50 to 100) lb	0.012 lb	
	(100 to 200) lb	0.024 lb	
	(200 to 500) lb	0.059 lb	
	(500 to 1 000) lb	0.23 lb	
	(1 000 to 2 000) lb	0.58 lb	
	(2 000 to 5 000) lb	1.2 lb	
	(5 000 to 10 000) lb	2.3 lb	
	(10 000 to 20 000) lb	5.8 lb	
	(20 000 to 50 000) lb	12 lb	
	(50 000 to 100 000) lb	23 lb	
(100 000 to 200 000) lb	23 lb		
(200 000 to 300 000) lb	58 lb		
(300 000 to 400 000) lb	58 lb		

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. 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. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope
2. Scale calibrations performed on-site only.
3. The use of (L) signifies an expression of applied Length in inches, the use of (D) signifies an expression of applied Diagonal Length in inches.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.



Vice President

