



CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Cornerstone Metrology Service Inc.

7625 Hayvenhurst Ave. #20

Van Nuys, CA 91406

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

and national standard

ANSI/NCSL Z540-1-1994

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations to which this accreditation applies.

AC-1376

Certificate Number


ANAB Approval

Certificate Valid: 01/26/2017-02/13/2019
Version No. 002 Issued: 01/26/2017



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).



ANSI-ASQ National Accreditation Board

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005 & ANSI/NCSL Z540-1-1994

Cornerstone Metrology Service Inc.

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CALIBRATION

Valid to: February 13, 2019

Certificate Number: AC - 1376

I. Electromagnetic – DC/LF

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
DC Voltage – Source*	0 to 330 mV 330 mV to 3.3 V (3.3 to 33) V (33 to 330) V (330 to 1 020) V	5 μV/V + 1 μV 4 μV/V + 3 μV 4 μV/V + 30 μV 4.5 μV/V + 300 μV 4.5 μV/V + 900 μV	Fluke 5500A	CMSCP-032, GIDEP or OEM
DC Current – Source*	0 to 3.3 mA (3.3 to 33) mA (33 to 330) mA 330 mA to 2.2 A (2.2 to 11) A	130 μA/A + 50 nA 100 μA/A + 250 nA 100 μA/A + 3.3 μA 300 μA/A + 44 μA 600 μA/A + 330 μA		
AC Voltage – Source*	(1 to 33) mV (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz (33 to 330) mV (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	3.5 mA/A + 20 μV 1.5 mA/A + 20 μV 2 mA/A + 20 μV 2.5 mA/A + 20 μV 3.5 mA/A + 33 μV 10 mA/A + 60 μV 2.5 mV/V + 50 μV 500 μV/V + 20 μV 1 mV/V + 20 μV 1.6 mV/V + 40 μV 2.4 mV/V + 170 μV 7 mV/V + 330 μV		



Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(\pm)]	Reference Standard or Equipment	Methods
AC Voltage – Source* (cont.)	330 mV to 3.3 V (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz (3.3 to 33) V (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (33 to 330) V 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (330 to 1 020) V 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	1.5 mV/V + 250 μ V 300 μ V/V + 60 μ V 800 μ V/V + 60 μ V 1.4 mV/V + 300 μ V 2.4 mV/V + 1.7 mV 5 mV/V + 3.3 mV 1.5 mV/V + 2.5 mV 400 μ V/V + 600 μ V 800 μ V/V + 2.6 mV 1.9 mV/V + 5 mV 2.4 mV/V + 17 mV 500 μ V/V + 6.6 mV 800 μ V/V + 15 mV 900 μ V/V + 33 mV 500 μ V/V + 80 mV 2 mV/V + 100 mV 2 mV/V + 500 mV		
AC Current – Source*	(30 to 330) μA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz 330 μA to 3.3 mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (3.3 to 33) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (33 to 330) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	2.5 mA/A + 150 nA 1.3 mA/A + 150 nA 1.3 mA/A + 250 nA 4 mA/A + 150 nA 12.5 mA/A + 150 nA 2 mA/A + 300 nA 1 mA/A + 300 nA 1 mA/A + 300 nA 2 mA/A + 300 nA 6 mA/A + 300 nA 2 mA/A + 3 μ A 1 mA/A + 3 μ A 900 μ A/A + 3 μ A 2 mA/A + 3 μ A 6 mA/A + 3 μ A 2 mA/A + 20 μ A 1 mA/A + 20 μ A 900 μ A/A + 20 μ A 2 mA/A + 50 μ A 6 mA/A + 100 μ A	Fluke 5500A	CMSCP-032, GIDEP or OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
AC Current – Source* (Cont.)	330 mA to 2.2 A (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (2.2 to 11) A (45 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz	2 mA/A + 300 µA 1 mA/A + 300 µA 7.5 mA/A + 300 µA 600 µA/A + 2 mA 1 mA/A + 2 mA 3.3 mA/A + 2 mA	Fluke 5500A	CMSCP-032, GIDEP or OEM
DC Power – Source* 33 mV to 1 020 V	(3.3 to 9) mA (9 to 33) mA (33 to 90) mA (90 to 330) mA (330 to 900) mA 900 mA to 2.2 A (2.2 to 4.5) A (4.5 to 11) A	0.04 % of Watts output 0.03 % of Watts output 0.04 % of Watts output 0.03 % of Watts output 0.08 % of Watts output 0.06 % of Watts output 0.12 % of Watts output 0.09 % of Watts output		
AC Power – Source* (45 to 65) Hz	(3.3 to 9) mA (33 to 330) mV 330 mV to 1 020 V (9 to 33) mA (33 to 330) mV 330 mV to 1 020 V (33 to 90) mA (33 to 330) mV 330 mV to 1 020 V (90 to 330) mA (33 to 330) mV 330 mV to 1 020 V (330 to 900) mA (33 to 330) mV 330 mV to 1 020 V 900 mA to 1.5 A (33 to 330) mV 330 mV to 1 020 V (1.5 to 4.5) A (33 to 330) mV 330 mV to 1 020 V (4.5 to 11) A (33 to 330) mV 330 mV to 1 020 V	0.4 % of Watts output 0.25 % of Watts output 0.25 % of Watts output 0.15 % of Watts output 0.35 % of Watts output 0.25 % of Watts output 0.25 % of Watts output 0.15 % of Watts output 0.35 % of Watts output 0.25 % of Watts output 0.25 % of Watts output 0.15 % of Watts output 0.35 % of Watts output 0.2 % of Watts output 0.25 % of Watts output 0.15 % of Watts output		

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Resistance – Source*	0 to 11 Ω (11 to 33) Ω (33 to 330) Ω 330 Ω to 3.3 kΩ (3.3 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ 330 kΩ to 3.3 MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ	120 μΩ/Ω + 8 mΩ 120 μΩ/Ω + 15 mΩ 90 μΩ/Ω + 15 mΩ 90 μΩ/Ω + 60 mΩ 90 μΩ/Ω + 600 mΩ 110 μΩ/Ω + 6 Ω 120 μΩ/Ω + 6 Ω 150 μΩ/Ω + 55 Ω 600 μΩ/Ω + 550 Ω 1 mΩ/Ω + 550 Ω 5 mΩ/Ω + 5.5 kΩ 5 mΩ/Ω + 16.5 kΩ	Fluke 5500A	CMSCP-032, GIDEP or OEM
Capacitance – Source*	330 pF to 11 nF (11 to 110) nF (110 to 330) nF 330 nF to 1.1 μF (1.1 to 3.3) μF (3.3 to 11) μF (11 to 33) μF (33 to 110) μF (110 to 330) μF 330 μF to 1.1 mF	5 mF/F + 10 pF 2.5 mF/F + 100 pF 2.5 mF/F + 300 pF 2.5 mF/F + 1 nF 3.5 mF/F + 3 nF 3.5 mF/F + 10 nF 4 mF/F + 30 nF 5 mF/F + 100 nF 7 mF/F + 300 nF 10 mF/F + 300 nF		
Electrical Simulation of Thermocouple Indicators *			Fluke 5500A	CMSCP-033, GIDEP or OEM
Type B	(600 to 800) °C (800 to 1 000) °C (1 000 to 1 550) °C (1 550 to 1 820) °C	0.44 °C 0.34 °C 0.3 °C 0.33 °C		
Type C	(0 to 150) °C 9150 TO 650) °C (650 TO 1 000) °C (1 000 TO 1 800) °C (1 800 TO 2 316) °C	0.3 °C 0.26 °C 0.31 °C 0.5 °C 0.84 °C		
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1 000) °C	0.5 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C		
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1 200) °C	0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C		

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Electrical Simulation of Thermocouple Indicators * (cont.)				
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	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.4 °C		
Type L	(-200 to -100) °C (-100 to 800) °C (800 to 900) °C	0.37 °C 0.26 °C 0.17 °C		
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1 300) °C	0.4 °C 0.22 °C 0.19 °C 0.18 °C 0.27 °C		
Type R	(0 to 250) °C (250 to 400) °C (400 to 1 000) °C (1 000 to 1 767) °C	0.57 °C 0.36 °C 0.34 °C 0.40 °C		
Type S	(0 to 250) °C (250 to 1 000) °C (1 000 to 1 400) °C (1 400 to 1 767) °C	0.47 °C 0.36 °C 0.37 °C 0.46 °C	Fluke 5500A	CMSCP-033, GIDEP or OEM
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.63 °C 0.25 °C 0.17 °C 0.15 °C		
Type U	(0 to 600) °C	0.27 °C		
Electrical Simulation of RTDs*				
Pt 395, 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °C 0.23 °C		
Pt 3926, 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °C		

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Electrical Simulation of RTDs* (cont.)				
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.25 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.08 °C 0.09 °C 0.1 °C 0.23 °C	Fluke 5500A	CMSCP-033, GIDEP or OEM
Pt 385, 200 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.04 °C 0.04 °C 0.04 °C 0.05 °C 0.12 °C 0.13 °C 0.14 °C 0.16 °C		
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.04 °C 0.05 °C 0.05 °C 0.06 °C 0.08 °C 0.08 °C 0.09 °C 0.11 °C		
Pt 385, 1 kΩ	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.03 °C 0.03 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.07 °C 0.23 °C		
PtNi 385, 120 Ω	(-80 to 0) °C (0 to 100) °C (100 to 260) °C	0.08 °C 0.08 °C 0.14 °C		
Cu 427, 10 Ω	(-100 to 260) °C	0.3 °C		

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Oscilloscopes*				
Amplitude – DC 50 Ω 1 MΩ	(0 to 2.2) V (0 to 33) V	0.25 % + 100 μV 0.25 % + 100 μV		
Amplitude – Square Wave 50 Ω 1 MΩ	1.8 mV to 2.2 V p-p 1.8 mV to 105 V p-p	0.25 % + 100 μV 0.25 % + 100 μV		
Leveled Sine Wave (ref 50 kHz)	50 kHz reference	2 % + 200 μV	Fluke 5500A - SC300	
Amplitude	50 kHz to 100 MHz (100 to 300) MHz	3.5 % + 300 μV 4 % + 300 μV		
Flatness	50 kHz to 100 MHz (100 to 300) MHz	1.5 % + 100 μV 2 % + 100 μV		CMSCP-032, GIDEP or OEM
Time Marker	5 s to 100 μs 50 ms to 2 μs 1 μs to 2 ns	(25 + 1 000t) μs/s (25 + 15 000t) μs/s 25 μs/s		
Rise Time	≤ 300 ps	+0/-100 ps		
Flatness	100 kHz to 1.04 GHz	0.05 dB	HP 8657A	
Phase – Source*	(10 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.4 ° 1.5 ° 5 ° 6 ° 10 °	Fluke 5500A - SC300	
Frequency – Source*	0.01 Hz to 1.2 kHz (1.2 to 10) kHz 10 kHz to 2 MHz	25 μHz/Hz + 1 mHz 25 μHz/Hz + 1 mHz 25 μHz/Hz + 15 mHz	Fluke 5500A - SC300	
Insulation Tester* DC and AC @ 60 Hz	Up to 40 kV and 1 000A	1.1 % of reading	Fluke 45 with HV Probe and Decade Resistors	CMSCP-065, GIDEP or OEM
Power Supplies, Hypot Testers, Welders DC and AC @ 60 Hz *	Up to 40 kV and 1 000A	1 % of reading	Fluke 45 or HP 34401 With Shunts and Decade Resistors	CMSCP-040, GIDEP or OEM
Conductivity*	All	1 % of reading	Conductivity Standards	CMSCP-060, GIDEP or OEM
ESD Mats and Tables*	All	±25% of Ω Reading	OHM-STAT RT 1000	CMSCP-032

II. Time & Frequency

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Stopwatches & Timers * Analog and Digital	Stopwatches Timers	0.86 sec/day = 0.001 % of reading 5.2 sec/day = 0.006 % of reading	Quartz Standard Stop Watch	CMSCP-049 GIDEP or OEM
Tachometers Photo Type Mechanical Type	Up to 100 000 RPM 10-1000 RPM 1001-6000 RPM	0.0035 % of reading 0.05% Reading +2 RPM 0.05% Reading +1 RPM	HP34401A, Wavetek 171 Signal Generator, Digital Photo Tachometer	CMSCP-038 GIDEP or OEM

III. Thermodynamic

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Ovens Environmental Chambers Freezers Temperature Bath *	(0 to 2 501) °F (5 to 95) %RH (0 to 100) °C	2.9 °F 4 %RH 0.40 °F / 0.22 °C	Data Logger Thermocouple Calibrator Digital Psychrometer Lab THERMometer	CMSCP-013 AMS 2750D GIDEP or OEM
Temperature Controllers Thermometers IR Thermometers	(32 to 752) °F (0 to 400) °C Ambient to 1000°F Ambient to 538°C	0.43 °F 0.24 °C 1.3 °F 0.73 °C	Lab Oven Thermocouple Calibrator Hart Fluke 1502A Omega Ice point (Dry Block)	CMSCP-033 GIDEP or OEM
Thermocouples	(32 to 752) °F (0 to 400) °C Ambient to 1000°F Ambient to 538°C	0.43 °F 0.24 °C 1.3 °F 0.73 °C	Lab Oven Thermocouple Calibrator Hart Fluke 1502A Omega Ice point (Dry Block)	CMSCP-033 GIDEP or OEM
Hygrometers Hygrothermographs	11.3 %RH@25°C 32.8 %RH@25°C 75.3 %RH@25°C 97.3 %RH@25°C	2 % of reading 2 % of reading 2 % of reading 3 % of reading	Environmental Chamber and Salt Solutions	CMSCP-033.1 NBS Technical Note Vol 81A No. 1 ASTM E104-02 GIDEP or OEM

IV. Mechanical

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(\pm)]	Reference Standard or Equipment	Methods
Rockwell Hardness Testers *	Standard Superficial and All Scale	1 point	Hardness Standards A,B,C,E,N,T and Digital Load Checker	CMSCP-004 ASTM E-18
Micro Hardness Testers *	Vickers and Knoop	2 μ m	Vickers and Knoop Hardness Standards Glass Scale	CMSCP-004 ASTM E-384
Brinell Hardness Testers *	Brinell	0.05 mm	Hardness Standards Brinell Load Cell Measure Scope	CMSCP-004 ASTM E-10
Durometer and Shore Hardness Tester *	Types A, D, M	0.72 point	Gage Blocks Digital Force Gage Fixture	CMSCP-043 ASTM D2240
Force Gages *	Up to 100 g 100 to 500 g 500 g to 5 kg (5 to 25) kg	2.9 mg 2.9 mg 16 mg 240 mg	Class F Weights Load Cells	CMSCP-015 NIST Handbook 44 GIDEP or OEM
Load Cells	Up to 500 lb (500 to 10 000) lb	1.7 g 0.20 % of reading		
Scales and Balances *	Up to 100 g 100 to 500 g 500 g to 5 kg (5 to 25) kg Up to 500 lb	2.9 mg 2.9 mg 16 mg 240 mg 1.7 g	Class F Weights OIML M1	CMSCP-015 NIST Handbook 44 GIDEP or OEM
Surface Roughness Gages *	(10 to 120) μ in	5.9 μ in	Calibrated Specimens	CMSCP-021 GIDEP or OEM
Specimens	(10 to 120) μ in	3.1 μ in	Hommel Surface Tester	
Mass	Up to 100 g >100 to 1000 g / 1-2 lb >1 kg to 2 kg >2 kg to 5 kg / 5-10 lb >5 kg to 10 kg / 20 lb >10 kg to 20 kg / - 50lb	1.3 mg 2.6 mg 3.6 mg 17 mg 120 mg 120 mg	Class F Weights OIML M1	CMSCP-056 NIST Handbook 105-1 OIML or OEM
Torque Tools *	0.1 in-oz to 1 200 ft-lb	1% of reading	Waters Torque Watch Calibrator Digital Torque Calibrator Load Cells	CMSCP-025 ASME B107.14M GGG-W-686e GIDEP or OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(\pm)]	Reference Standard or Equipment	Methods
Torque Calibrators Torque Ratio Arms & Wheels	0.1 in-oz to 1 200 ft-lb 1-60"	0.5% of reading (9.6 + 15.5L) μ in	Torque Arms Class F Weights Surface Plate, Gage Blocks, Amp & Probe	CMSCP-025 ASME B107.14M GGG-W-686e GIDEP or OEM
Pressure and Vacuum Gages *	Up to 20 psi Up to 10 000 psi Up to 10 000 psi Up to 25 in Hg	0.03 % of reading 0.054 % of reading 0.11 % of reading 0.03 % of reading	Smart Manometer Omega DRO/ Transducer Dead Weight Tester Smart Manometer	CMSCP-035 GIDEP or OEM

V. Dimensional

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(\pm)]	Reference Standard or Equipment	Methods
Surface Plates *	Up to 144 x 144 in Flatness Repeat	(12 + 0.5D) μ in 12 μ in	Autocollimator Repeat-o-meter	CMSCP-001 and GGG-P-463C
Bench Micrometers *	Up to 72"	(9.2 + 3.0L) μ in	Grade 1 Gage Blocks Optical Parallels Laser	CMSCP-002 GIDEP or OEM
Linear Measuring Machines *	Up to 72"	(9.0 + 3.0L) μ in	Grade 1 Gage Blocks Optical Parallels Laser	CMSCP-002 GIDEP or OEM
Optical Comparators Profile Projectors * 0.00005 in Resolution 0.0001 in Resolution	(5 to 60) in Screen X & Y Travel to 12 in	(16 + 6.4L) μ in (14 + 7.5L) μ in	Glass Scales Magnification Scales Magnification Pins Precision Balls	CMSCP-003 GIDEP or OEM
Indicators * 0.00001 in Resolution 0.00005 in Resolution 0.0001 in Resolution 0.0005 in Resolution 0.001 in Resolution	Up to 6 in	(12 + 1.0R) μ in (12 + 1.0R) μ in (12 + 1.0R) μ in (12 + 1.0R) μ in (12 + 1.0R) μ in	Calibration Tester MAC-10 Calibrator Grade 2 Gage Blocks Surface Plate	CMSCP-005 A-A-2348 GIDEP or OEM
Calipers *	Up to 72 in 0.0002 Resolution 0.0005 Resolution 0.0010 Resolution	(220 + 10L) μ in (540 + 10L) μ in (540 + 10L) μ in	Grade 2 Gage Blocks Ring Gages Surface Plate	CMSCP-006 GGG-C-111c GIDEP or OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Micrometers *				
OD ID Bore (Intramic) Depth Point Ball Blade V Anvil Pitch Dial Head	Up to 60 in Up to 60 in Up to 8 in Up to 18 in Up to 12 in Up to 12 in Up to 12 in Up to 4 in Up to 6 in Up to 6 in Up to 2 in	(48 + 6.4L) μin (38 + 10L) μin (30 + 3.6L) μin (59 + 12.0L) μin (58 + 6.4L) μin (58 + 6.4L) μin (58 + 6.4L) μin 120 + 10L μin 120 + 10L μin (48 + 6.4L) μin 61 μin	Grade 2 Gage Blocks Ring Gages Surface Plate Optical Parallels Ball Gages Heidenhein MT25	CMSCP-007 GGG-C-105c OEM
Cylindrical Squares Steel Blade Magnetic Combination	(2 to 12) in	(24 + 12L) μin (17 + 12L) μin (17 + 12L) μin (24 + 12L) μin	Surface Plate Test Indicator Angle Plate Cylindrical Square	CMSCP-008 GGG-S-656e' OEM
Levels Digital Protractors Inclinometers	Up to 360 °	0.28 arc sec	Grade 2 Gage Blocks Surface Plate Sine Bar Autocollimator Angle Blocks	CMSCP-009 GIDEP or OEM
Optical Flats and Optical Parallels				
Flatness Parallelism	(1 to 6) in Up to 1 in	2.1 μin 3.5 μin	6" Master Flat Optical Vernier Gage Block Comparator	CMSCP-010 GIDEP or OEM
Height Gages Analog * 0.0005 in Resolution 0.001 in Resolution Height Gages Digital * 0.00005 in Resolution 0.0001 in Resolution	Up to 60 in	290 μin 580 μin (18 + 7.8L) μin (28 + 7.8L) μin	Grade 2 Gage Blocks Surface Plate	CMSCP-011 GIDEP or OEM
Height Master * 0.00001 in Resolution 0.0001 in Resolution Riser Blocks Block Stacks	Up to 60 in 10 in and 12 in Up to 48 in	(16 + 7.8L) μin (18 + 7.8L) μin 21 μin (14 + 7.8L) μin	Grade 2 Gage Blocks Surface Plate Electronic Amplifier with Probe	CMSCP-012 GIDEP or OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Electronic Gage Dimensional Comparator *	Up to 6 in	0.000001 in Resolution	Grade 2 Gage Blocks Surface Plate	CMSCP-014 GIDEP or OEM
0.000005 in Resolution		5.3 μin		
0.00001 in Resolution		6 μin 7.8 μin		
Toolmaker's Microscope Video Scope *	Up to 12 in Travel X, Y, and Z	0.00005 in Resolution	Glass Scales Laser	CMSCP-016 GIDEP and OEM
0.000010 in Resolution		25 + 6.2L) μin (5.5 + 2.0L) μin		
Glass Scales Stage micrometers Steel Rules	.001to12 in	(26 + 2.2L) μin (3100 + 10L) μin	Mahr Measurement Machine /CCT Microscope	CMSCP-048 GIDEP or OEM
Autocollimator	Up to 60 arc min	0.21 arc sec	Autocollimator Calibrator Optical Wedge	CMSCP-022 GIDEP and OEM
Rotary Table Dividing Heads Ultradex *	(0 to 360) ° (0 to 90) °	Rotary	Autocollimator 12 Sided Polygon (30 degree)	CMSCP-024 GIDEP and OEM
Tilt		0.5 arc sec 1 arc sec		
Coordinate Measuring Machines *	Up to 72 in	(48 + 28L) μin	Granite Square Grade 2 Gage Blocks Ball Bar Laser	CMSCP-026 ASME B89.4.1 OEM
	Up to 30 ft	(29 + 16L) μin		
Thread Wires	Up to 1 in	7.6 μin	Light Wave Micrometer Microkator Master Wires	CMSCP-027 GGG-W-366b ASME B89.1.17 OEM
Ring Gages	(0.062 to 12) in	(7.1 + 5.2L) μin	I.D. Comparator	CMSCP-028 ASME B89.1.6M OEM
Bore Gage Rings	(0.062 to 4) in	(6.5 + 4.8L) μin	Mahr Measuring Machine	
Plug Gages	(0.005 to 8) in	(9.4 + 3.8L) μin	Bench Micrometer Mahr Measurement Machine	CMSCP-030 AGD Standard OEM
Gear Wires	(0.005 to 1) in	7.6 μin	Bench Micrometer Mahr Measurement Machine Grade 2 Gage Blocks	CMSCP-041 GGG-W-366b OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Thread Ring Gages	Up to 1 in	51 μin	Master Thread Setting Plugs	CMSCP-042 ASME B1.2 OEM
Polygons	Up to 360 °	0.30 arc sec	Autocollimator Ultradex	CMSCP-051 GIDEP or OEM
Thread Plug Gages	Up to 10 in	12 μin	Bench Micrometer Mahr Measurement Machine Grade 2 Gage Blocks Grade A Thread Wire Set	CMSCP-045 ASME B1.2 OEM
Thread Ring Setting Master	Up to 10 in	12 μin	Bench Micrometer Mahr Measurement Machine Grade 2 Gage Blocks	CMSCP-046 ASME B1.2 OEM4
Calibration Testers	Up to 0.200 in	(6.1 + 3.1L) μin	Laser Grade 2 Gage Blocks Electronic Amplifier	CMSCP-047 GIDEP or OEM
Indicator Calibrators	Up to 2 in	(29 + 5.0L) μin	Laser Grade 2 Gage Blocks Electronic Amplifier	CMSCP-047 GIDEP or OEM
Gage Blocks	(0.01 to 0.1) in (0.1 to 4) in (4 to 20) in	(3.5 + 1.1L) μin (2.5 + 1.1L) μin (10 + 0.5L) μin	Laser Comparator Grades 1 and 2 Gage Blocks Optical Flat	CMSCP-050 GGG-G-15c ASME B89.1.2M OEM
Crimp Tools	All	58 μin	Pin Gages Point Micrometer	CMSCP-054 GIDEP or OEM
Repeat Reading Gages	All	14 μin	Grade 2 Gage Blocks Surface Plate	CMSCP-057 OEM
Sunnen Gage Setting Fixtures *	Up to 4 in	58 μin	Grade 2 Gage Blocks Optical Parallels	CMSCP-058 GIDEP or OEM
Sunnen Gages *	(0.375 to 4) in	(30 + 3.6L) μin	Ring Gages	CMSCP-059 GIDEP or OEM
Granite and Ceramic Squares	(2 to 24) in	(14.0 + 0.38L) μin	Autocollimator Parallel Mirror Surface Plate Optical Square	CMSCP-061 GIDEP or OEM

Parameter/ Equipment	Range	Calibration and Measurement Capability [Expressed as Uncertainty(±)]	Reference Standard or Equipment	Methods
Straight Edges	(6 to 60) in	(14 + 0.38L) μin	Autocollimator Parallel Mirror Surface Plate Electronic Amplifier with Probe	CMSCP-071 GIDEP or OEM
Parallels	(6 to 60) in	(14 + 0.38L) μin		
Penta Prism Optical Square	90 °	0.37 arc sec	Autocollimator Parallel Mirror Surface Plate	CMSCP-077 GIDEP or OEM

Notes:

1. Calibration and Measurement Capabilities (Expanded Uncertainties) are based on approximately a 95% confidence interval, using a coverage of k=2.
2. This laboratory's capabilities include in-laboratory and (field) on-site calibration services. Since field conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected in the field (on-site) than what is reported on the accredited scope.
3. Parameters identified with an asterisk (*) are available for field (on-site) calibration.
4. Calibration and Measurement Capabilities displayed as percentage (%) are percent of reading unless indicated otherwise.
5. The use of (t) signifies an expression of Time in seconds.
6. The use of (L) signifies an expression of Length in inches.
7. The use of (D) signifies an expression of Diagonal length in inches.
8. This scope is part of and must be included with the Certificate of Accreditation No AC - 1376.



 Vice President