



INTERNATIONAL
ACCREDITATION
SERVICE®

CERTIFICATE OF ACCREDITATION

This is to attest that

UNITED CALIBRATION CORPORATION

5802 ENGINEER DRIVE
HUNTINGTON BEACH, CALIFORNIA 92649

Calibration Laboratory CL-128

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with the ISO/IEC Standard 17025:2005, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to July 1, 2018.

(See laboratory's scope of accreditation for fields of calibration and accredited calibration.)



This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.



C.P. Ramani, P.E., C.B.O
President



SCOPE OF ACCREDITATION

IAS Accreditation Number	CL-128
Accredited Entity	United Calibration Corporation
Address	5802 Engineer Drive Huntington Beach, California 92649
Contact Name	Don Hamric, Quality Manager
Telephone	+1 (714) 638-2322
Effective Date of Scope	October 6, 2016
Accreditation Standard	ISO/IEC 17025:2005

CALIBRATION AREA	RANGE & RESOLUTION	CALIBRATION & MEASUREMENT CAPABILITY ¹ (CMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
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Mechanical			
Force – Compression and Tension	Up to 5,115 lb.-ft. Up to 500,000 lb.-ft.	0.01% IR 0.05% IR	Dead Weight Tester, ASTM E 74 Master Load Cells, ASTM E 74 Procedure 100
Machine and Specimen Alignment	Up to 100% Bending	2.1% Bending	30,000 lbf Alignment Bar, Data Acquisition System, ASTM E 1012 Procedure 290
Crosshead Speed	Up to 40 in. per min	0.001 in per 0.12 minute	Stopwatch, Dial Indicator, UCC Procedure 315
Crosshead Displacement	Up to 2 in. Up to 20 in.	0.001 in. 0.003 in.	Dial Indicator, UCC Procedure 315 Height Gage, UCC Procedure 315
Pressure Gages	Up to 5 PSI 5 PSI to 500 PSI 500 PSI to 10,000 PSI	0.15% IR 0.05% IR 0.06% IR	Pressure Transducer, UCC Procedure 320
Brinnell Hardness	95 HBW to 200 HBW 200 HBW to 300 HBW 300 HBW to 400 HBW 400 HBW to 500 HBW 500 HBW to 600 HBW 600 HBW to 650 HBW	1 HBW 2 HBW 3 HBW 4 HBW 5 HBW 6 HBW	Direct Verification of Force, ASTM E 10 Procedure 180-175
Rockwell Hardness	HRA Scale HRBW Scale HRC Scale HRD Scale HREW Scale HRFW Scale HRGW Scale	0.6 HRA 0.7 HRBW 0.4 HRC 0.2 HRD 0.6 HREW 0.5 HRFW 0.3 HRGW	ASTM Standard E 18, Indirect Verification, Hardness Blocks Procedure 165



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	HRHW Scale HRKW Scale HRRW Scale HRVW Scale HR45N Scale HR15WW Scale HR15XW Scale HR30YW Scale HR30N Scale HR30TW Scale HR30WW Scale HR30XW Scale HR30YW Scale HR45TW Scale HR45WW Scale HR45XW Scale	0.5 HRHW 0.7 HRKW 0.3 HRRW 0.5 HRVW 0.5 HR45N 0.37 HR15WW 0.51 HR15XW 0.8 HR30YW 0.3 HR30N 0.46 HR30TW 0.56 HR30WW 0.71 HR30XW 0.6 HR30YW 0.58 HR45TW 0.71 HR45WW 0.6 HR45XW	
Depth	Up to 0.5 µm	0.1 µm	ASTM Standard E18, Direct Verification, Hardness Blocks Procedure 280
Extensometers	Up to 2 in./ 0.0001 in. 2 in. to 10 in./ 0.0001 in.	0.00001 in. 0.002 in.	Heidenhain MT 25, ASTM E83 Height Gage, Gage Blocks, ASTM E83, Procedure 115-125
Micrometer	Up to 1 in./ 0.00005 in.	0.00015 in.	UCC proc.210, Gage blocks, Temp. recorder
Height Gage	Up to 36 in./ 0.0015 in.	0.0011 in.	UCC proc.381, Gage Blocks, setting standards, Temp recorder
Calipers	Up to 6 in./ 0.0005 in.	0.00073 in.	UCC Proc. 211, Caliper checker, Ring gage, Temp recorder
Scales	Up to 100 kg	3 g	Class F1 Weights, UCC Procedure 200
Indirect Verification of Hardness -Vickers	100 HV to 249 HV 250 HV to 600 HV 600 HV	12.0 HV 5.3 HV 29 HV	Indirect Verification per ASTM E384/UCC Procedure 380
Indirect Verification of Hardness -Knoop	100 HV to 600 HV/1 HV Unit 600 HV/1 HV Unit	7.0 HV 17 HV	Indirect Verification per ASTM E384/UCC Procedure 380
Optical Comparators	Various ranges up to 50X/0.0001 in.	Linear: 0.0002 in. or Manufacturer's	Per Manufacturer's Specification / UCC



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		Specification Angularity: 8 minutes or Manufacturer's Specification Magnification: ± 1 Division Squareness: ± 0.001°	Procedure 185
Electrical/DC/Low Frequency			
DC Current - Measure	Up to 20 mA 20 mA to 100 mA	0.05% IR + 2 µA RNG 0.05% IR + 0.08 mA RNG	Keithley 2700 Martel, Procedure 345
Resistance - Measure	100 mA to 1 A 1 A to 3 A	0.08% IR + 80 µA RNG 0.12% IR + 120 µA RNG	Keithley 2182 Procedure 355
DC Voltage - Measure	100 Ω 1000 Ω 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ Up to 10 mV Up to 100 mV Up to 1 V Up to 10 V Up to 100 V	0.01% IR + 0.002 Ω 0.01% IR + 0.006 Ω 0.01% IR + 0.06 Ω 0.01% IR + 1 Ω 0.01% IR + 10 Ω 0.04% IR + 100 Ω 0.04% IR + 3000 Ω 0.006% IR + 40 nV 0.004% IR + 0.5 µV 0.0032% IR + 3 µV 0.0032% IR + 30 µV 0.0052% IR + 500 µV	Keithley 2182 Procedure 345
Thermal			
Laboratory Thermometers	10°C to 50°C	0.3°C	Dry Block Standard UCC Procedure 295
Resistance Thermometry	-100°C to 600°C	0.1°C	PT 100 RTD, UCC Procedure 355 Martel, Dry Block
Ovens, Furnaces, Presses	-100°C to 1800°C	1.4°C	Keithley Martel Procedure 140-145
Relative	40% to 80%	2.5% R.H.	Digital Hygrometer, UCC



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CALIBRATION AREA	RANGE & RESOLUTION	CALIBRATION & MEASUREMENT CAPABILITY ¹ (CMC) (±)	REFERENCE STANDARD/ EQUIPMENT
Humidity – Measure	10% to 90%	5% R.H.	Procedure 340
Torque	Up to 250 lb.-ft.	2.053 lb.-ft.	250 lb.-ft. Torque cell, UCC Proc. 240

¹“Calibration and Measurement Capability” is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or of nearly ideal measuring instruments. Calibration and Measurement Capabilities are expressed as uncertainties at approximately the 95% level of confidence, usually using a coverage factor of $k=2$. The measurement uncertainty of a specific calibration performed by the laboratory may be greater than the least uncertainty due to the behavior of the customer’s device, to the environment (if the calibration is performed in the field), and to influences from the circumstances of the specific calibration.