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CERTIFICATE OF ACCREDITATION

This is to attest that

UNIVERSAL LABORATORIES COMPANY W L L

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STREET:830, DOHA, 5966, STATE OF QATAR.
LABORATORY: BUILDING NO.21, ZONE 74, STREET 27
AL KHOR, 5966, STATE OF QATAR

Calibration Laboratory CL-280

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date November 21, 2023

Expiration Date December 1, 2024

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Accredited to ISO/IEC 17025:2017 *Effective Date November 21, 2023*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Calipers	0 mm to 300 mm	5.9 µm	Direct method by using Reference gauge blocks. EN ISO 13385-1:2019
Micrometers (External)	0 mm to 25 mm	0.61 µm	Direct method by using Reference gauge blocks. BS 870:2008
Dial Gauges	0 mm to 25 mm	2.4 µm	Direct method by using Dial Gauge Calibrator BS EN ISO 9493:2010/11
Feeler Gauges	0.04 mm to 5 mm	5.1 µm	Direct method by using Digital micrometer. IS 3179:2004
Tapes and Scales	Up to 1000 mm	6.9 µm	Direct method by using Measuring Tape & Scale Calibrator BS 4484-1:1969
Ultrasonic Thickness Gauge	2 mm to 20 mm	58 µm	Direct method by using Ultrasonic Test Samples BS EN 15317:2013
Standard Foils	0 µm to 5500 µm	5.1 µm	Direct method by using Digital micrometer IS 3179:1990
Linear Measurement – Cube Mould	150 mm X 150 mm X 150 mm	36 µm	Gauge Block set, Micrometer, Caliper and Steel Rules BS EN 12390-1:2021
Mechanical			
Pressure Measuring Equipment[5]	-0.9 bar to 0.03 bar 0.03 bar to 2 bar 1 bar to 140 bar 20 bar to 1400 bar	0.02% 0.02% 0.02% 0.02%	Direct method by using Dead Weight Tester EURAMET CG-17:2022

** If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Weighing Balances[5]	0 g to 320 g 0 g to 10000 g 0 g to 30 kg	5.9 mg 20 mg 0.07 g	Comparison method by using weighing balance & OIML E2 Class Weight set OIML R 111-1:2004 ASTM E617:2008
Torque Generating devices[5] (Torque wrench, Torque screw drivers)	10 N m to 350 N m	1.8 N m	Direct Method by using Torque Tool Tester ISO 6789-2:2017
Measuring Cylinder and Volumetric Glassware[5]	10 mL to 100 mL 100 mL to 2000 mL	0.06 mL 0.67 mL	Comparison Method by using Class E2 Weights and Weighing Instrument NIST Handbook 105-3, OIML R 120, EURAMET CG-19:2011
Thermal			
Calibration Bath, Dry Block Calibrator, Oven, Incubator, Chiller / Freezer/Furnace[5]	-35 °C to 150 °C 150 °C to 600 °C 600 °C to 1200 °C	0.02 °C 0.06 °C 1.9 °C	Reference PRT Probe with Readout & Type R Thermocouple with DMM in comparison method (Single sensor method) EURAMET CG-11:2011
Temperature Controller / Indicator/ Recorder / with Sensor & Digital Thermometers, RTD/TC Sensors, Temperature Gauges and Temperature Transmitters[5]	50 °C to 150 °C 150 °C to 600 °C 600 °C to 1200 °C	0.02 °C 0.18 °C 1.9 °C	Reference PRT Probe with Readout & Type R Thermocouple with DMM in comparison method (Single sensor method) EURAMET CG-11:2011
Infrared Thermometer[5]	35 °C to 100 °C 100 °C to 500 °C	0.72 °C 2.3 °C	Comparison Method by using Portable Fluke 4180 IR Calibrator & Blackbody Source ASTM E 2847-2014
Electrical – DC/LF			
DC Voltage – Generate[3,5]	10 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V	0.02 % 0.005 % 0.002 % 0.004 % 0.003 %	Multifunction Calibrator 5522A EURAMET CG-15:2011
AC Voltage - Generate[3,5] (40 Hz to 1 kHz)	10 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V	0.10 % 0.086 % 0.091 % 0.036 % 0.066 %	Multifunction Calibrator 5522A EURAMET CG-15:2011

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Resistance - Generate[3,5]	1 Ω to 200 Ω 200 Ω to 2 kΩ 2 kΩ to 20 kΩ 20 kΩ to 200 kΩ 200 kΩ to 2 MΩ 2 MΩ to 100 MΩ	0.014 % 0.020 % 0.015 % 0.015 % 0.024 % 0.10 %	Multifunction Calibrator 5522A EURAMET CG-15:2011
Insulation DC Resistance - Generate[3,5]	100 kΩ to 1 MΩ 1 MΩ to 100 MΩ 100 MΩ to 10 GΩ 10 GΩ to 100 GΩ	0.62 % 0.52 % 1.2 % 3.1 %	Multifunction Electrical Tester Calibrator 5322A with HV Adaptor/ Resistance Multiplier EURAMET CG-15:2011
DC Current - Generate[3,5]	1 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 10 A	0.021 % 0.012 % 0.011 % 0.011 % 0.024 % 0.06 %	Multifunction Calibrator 5522A EURAMET CG-15:2011
AC Current - Generate[3,5]	(10 Hz to 1 kHz) 1 mA to 20 mA 20 mA to 200 mA 200 mA to 1 A (1 kHz to 10 kHz) 1 A to 10 A	 0.25 % 0.12 % 0.11 % 0.13 %	Multifunction Calibrator 5522A EURAMET CG-15:2011
DC Voltage – Measure[4,5]	1 mV to 300 mV 300 mV to 3 V 3 V to 10 V 10 V to 30 V 30 V to 100 V 100 V to 300 V 300 V to 1000 V	0.006 % 0.004 % 0.002 % 0.005 % 0.003 % 0.009 % 0.004 %	Comparison method by using 8½ digit Digital Multimeter
DC High Voltage - Measure[4,5]	2 kV to 40 kV	2.4 %	Direct measurement using HV Probe Fluke 80k-40 and Digital Multimeter
AC Voltage – Measure[4,5] (40 Hz to 20 kHz)	1 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 3 kV	0.09 % 0.19 % 0.19 % 0.23 % 0.10 %	Comparison method by using 8½ digit Digital Multimeter
AC High Voltage - Measure[4,5]	1 kV to 20 kV	6.3 %	Direct measurement using HV Probe Fluke 80k-40 and Digital Multimeter
DC Current – Measure[4,5]	10 µA to 100 mA 100 mA to 300 mA	0.013 % 0.023 %	Comparison method by using 8½ digit Digital Multimeter

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	300 mA to 1 A 1 A to 3 A 3 A to 10 A 10 A to 30 A	0.019 % 0.079 % 0.076 % 0.056 %	
AC Current - Measure[4,5]	(40 Hz to 1 kHz) 10 µA to 1A (1 kHz to 10 kHz) 1 A to 20 A	0.05 % 0.23%	Comparison method by using 8½ digit Digital Multimeter
DC Resistance - Measure[4,5]	0.1 Ω to 1 Ω 1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	0.007 % 0.005 % 0.004 % 0.004 % 0.004 % 0.005 % 0.009 % 0.015 % 0.10 %	Comparison method by using 8½ digit Digital Multimeter
DC Current Clamp[5]	20 A to 600 A 600 A to 1000 A	0.55 % 0.53 %	By Direct Method using Multifunction Calibrator + Current Coil
AC Current Clamp[5] (@ 50 Hz)	20 A to 600 A 600 A to 1000 A	0.7 % 0.69 %	By Direct Method using Multifunction Calibrator + Current Coil
Electrical Simulation of Thermocouples and RTDs Generate & Measure[5] Type-K Type-J Type-R Type-T RTD (PT-100)	 -190 °C to 1200 °C -180 °C to 1200 °C 0 °C to 1700 °C -180 °C to 350 °C -180 °C to 800 °C	 0.41 °C 0.28 °C 0.58 °C 0.63 °C 0.23 °C	By Direct method by using Multifunction Calibrator 5522A
Time and Frequency			
Tachometer[5] (Non-contact type)	600 rpm to 6000 rpm 6000 rpm to 30000 rpm 30000 rpm to 90000 rpm	0.60 rpm 0.83 rpm 2.5 rpm	Direct method by using Multifunction Calibrator 5522A ASTM F2046:2022

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Chemical/Gas			
Gas Monitors and Detectors[5] Hydrogen Sulfide (H2S) Carbon Monoxide (CO) Methane (CH4) Oxygen (O2)	 25 parts in 10^6 50 parts in 10^6 50 %LEL 18 %	 2.1 % 2.1 % 2.1 % 2.1 %	By Direct method by using Standard Reference Gases

[1]The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

[2]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

[3]Capability is suitable for the calibration of measuring devices in the stated ranges.

[4]Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.

[5]Also available as site calibration. Note that actual measurement uncertainties achievable at a customer's site can normally be expected to be larger than the uncertainties listed on this Scope of Accreditation.

Note:

LEL = Lower Explosive Limit