CERTIFICATE OF ACCREDITATION

This is to attest

ABJ ENGINEERING & CONTRACTING CO.

FACILITY NO. 82, STREET MA-5, BLOCK NO. 2, SHUAIBA INDUSTRIAL AREA
WEST SHUAIBA, 65454, KUWAIT

Calibration Laboratory CL-213

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.

Expiration Date March 1, 2026
Effective Date March 18, 2025

International Accreditation Service
Issued under the authority of IAS management

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SCOPE OF ACCREDITATION

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Accredited to ISO/IEC 17025:2017 *Effective Date March 18, 2025*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
External Micrometer	Up to 50 mm 50 mm to 100 mm	1.4 µm 1.7 µm	Slip Gauge Set by Direct Method
Internal Micrometer	Up to 300 mm	5.8 µm	Slip Gauge Set and Slip Gauge Accessories by Direct method
Calipers	Up to 300 mm	8 µm	Gauge Block Set and Depth Micro Checker by Direct Method
Dial Gauges	Up to 5 mm 5 mm to 25 mm	3 µm 6.5 µm	Dial Calibration Tester by Direct method
Feeler Gauge	0.001 mm to 5 mm	4.3 µm	Digital Micrometer by Direct Method
Mechanical			
Pressure Indicating Instruments both Analog & Digital (Pneumatic)[5] (Pressure Gauge/ Pressure Transmitters/ Pressure Switch)	-0.9 bar to 0 bar (Vacuum) 0.15 bar to 2 bar (Pressure) 2 bar to 25 bar (Pressure)	0.58 mbar 0.25 mbar 2 mbar	Dead Weight Tester by direct method
	0.5 bar to 200 bar	0.023 bar	Pressure Controller by Comparison method
Pressure Indicating Instruments both Analog & Digital (Hydraulic) [5] (Pressure Gauge/ Pressure Transmitters / Pressure Switch)	1 bar to 70 bar 70 bar to 200 bar 200 bar to 700 bar	0.014 bar 0.04 bar 0.13 bar	Dead Weight Tester by direct method
	100 bar to 200 bar 200 bar to 2800 bar	0.89 bar 2.3 bar	Hydraulic Pressure Comparator with Pressure Gauge by Comparison method

** 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)
Torque Wrenches	0.4 N·m to 10 N·m 10 N·m to 3000 N·m	1.3 % 0.80 %	Torque Wrench Calibrator by direct method
Mass Calibration (F1 or Lower class)	1 mg to 20 g 50 g 100 g 200 g	0.36 mg 0.44 mg 0.62 mg 1.1 mg	E2 Class Weights and Weighing Balance by ABBA method
Mass Calibration (F2 or Lower Class)	500 g, 1 kg 2 kg 5 kg, 10 kg 20 kg	0.03 g 0.29 g 0.35 g 0.53 g	F1 Class Weight Sets Weighing Balance by ABBA method
Weighing Balances[5]	1 mg to 220 g	0.38 mg	E2 Class Weights by direct method
	0.01 g to 3200 g 0.5 kg to 32 kg 100 g to 60 kg	16 mg 0.15 g 3.0 g	F1 Class Weights by direct method
Pipettes	20 µL to 100 µL 100 µL to 200 µL 200 µL to 1000 µL 1 mL to 10 mL	0.11 µL 0.97 µL 1.3 µL 7.0 µL	Weighing Balance and Distilled water by Direct method
Laboratory Glassware, Measuring Cylinder	1 mL to 5 mL 5 mL to 50 mL 50 mL to 100 mL 100 mL to 250 mL 250 mL to 500 mL 500 mL to 2 L	7.0 µL 1.0 µL 33 µL 39 µL 0.92 mL 1.1 mL	Weighing Balance and Distilled water by Direct ethod
Thermal			
Liquid in Glass Thermometer	-40 °C to 250 °C	0.07 °C	Digital Thermometer with SPRT Probe and Oil Bath by Comparison method
Digital Thermometer, Temp. Gauge, Thermocouple Probe, RTD Probe[5] Temperature Transmitter	-40 °C to 500 °C 500 °C to 660 °C	0.08 °C 0.16 °C	SPRT Probe with Dry Block/ Oil Bath by Comparison method
	660 °C to 1200 °C	4.5 °C	Thermocouple and Dry Block by Comparison method
Non-Contact thermometers, IR Thermometer	50 °C to 100 °C 100 °C to 200 °C 200 °C to 500 °C	0.75 °C 1.6 °C 2.1 °C	Infrared Calibrator by Direct method
Calibration Bath, Dry Block Calibrators, Furnace, Chillers, Ovens[5]	-40 °C to 140 °C 140 °C to 300 °C 300 °C to 660 °C 660 °C to 1200 °C	0.02 °C 0.09 °C 0.16 °C 4.5 °C	Digital Thermometer, SPRT Probe / Thermocouple by Single sensor method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Temperature & Humidity Indicating / Recording Instruments	10 %RH to 95 %RH 18 °C to 28 °C	1.3 %RH 0.25 °C	Humidity Generator by Direct method
Electrical – DC/LF			
DC Voltage – Generate[3]	0 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	1.6 µV 12 µV 0.13 mV 1.7 mV 17 mV	Multi Product Calibrator by Direct method
AC Voltage – Generate[3]	(50 Hz, 60 Hz) 1 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V (1 kHz) 1 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V (10 kHz) 1 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V (100 kHz) 1 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V	 11 µV 130 µV 1.7 mV 17 mV 250 mV 19 µV 290 µV 3 mV 36 mV 430 mV 19 µV 350 µV 4.1 mV 41 mV 430 mV 110 µV 1200 µV 15 mV 340 mV	Multi Product Calibrator by Direct method
DC Current - Generate[3]	0 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A 10 A to 20 A	46 nA 67 nA 1.3 µA 13 µA 330 µA 430 µA 3.9 mA 20 mA	Multi Product Calibrator by Direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
AC Current – Generate[3]	(50 Hz) 0 mA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A 10 A to 20 A (1 kHz) 0 mA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A (10 kHz) 0 mA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A	 0.47 µA 4.8 µA 46 µA 0.7 mA 1.3 mA 9 mA 0.29 A 0.48 µA 4.8 µA 57 µA 1.1 mA 1.2 mA 9 mA 0.51 µA 5.1 µA 88 µA 4 mA 4.1 mA	Multi Product Calibrator by Direct method
DC Resistance - Generate[3]	0 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 100 MΩ to 1000 MΩ	1.1 mΩ 3.4 mΩ 30 mΩ 300 mΩ 3 Ω 28 Ω 1.1 kΩ 53 kΩ 12 MΩ	Multi Product Calibrator by Direct method
Capacitance - Generate[3]	(50 Hz) 0 nF to 1 nF 1 nF to 10 nF 10 nF to 100 nF 100 nF to 1 µF 1 µF to 10 µF 10 µF to 100 µF 100 µF to 1 mF 1 mF to 10 mF 10 mF to 100 mF	 12 pF 36 pF 360 pF 3.6 nF 36 nF 550 nF 5.5 µF 55 µF 0.94 mF	Multi Product Calibrator by Direct method
DC Current Clamp	0 A to 10 A 0 A to 500 A 0 A to 1000 A	110 mA 2.3 A 4 A	Multi Product Calibrator by Direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
AC Current Clamp	(50 Hz) 0 A to 10 A 0 A to 500 A 0 A to 1000 A (440 Hz) 0 A to 300 A	 58 mA 1.8 A 2.9 A 1.3 A	Multi Product Calibrator by Direct method
DC Voltage – Measure[4]	0 mV to 330 mV 0 V to 3.3 V 0 V to 33 V 33 V to 1000 V	3.2 µV 33 µV 410 µV 8.5 mV	Digital Multimeter by Direct method
AC Voltage – Measure[4]	(50 Hz) 0 mV to 30 mV 30 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V (1 kHz) 0 mV to 30 mV 30 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V (10 kHz) 0 mV to 30 mV 30 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V	 39 µV 64 µV 640 µV 6.3 mV 93 mV 250 mV 7.4 µV 57 µV 570 µV 5.7 mV 120 mV 210 mV 9.8 µV 63 µV 630 µV 6.3 mV 93 mV 170 mV	Digital Multimeter by Direct method
DC Current - Measure[4]	0 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 2.2 A 2.2 A to 11 A 11 A to 20 A	0.61 µA 6.6 µA 110 µA 1.5 mA 5.5 mA 9.6 mA	Digital Multimeter by Direct method
AC Current – Measure[4]	(50 Hz) 0 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 2.2 A 2.2 A to 11 A	 8.9 µA 36 µA 490 µA 4.5 mA 12 mA	Digital Multimeter by Direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
AC Current – Measure[4] (continued)	11 A to 20 A (1 kHz) 0 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 2.2 A 2.2 A to 11 A 11 A to 20 A (5 kHz) 0 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 2.2 A	21 mA 6.8 µA 36 µA 490 µA 4.5 mA 12 mA 21 mA 6.8 µA 36 µA 530 µA 8 mA	Digital Multimeter by Direct method
High DC Voltage Measure[5]	1 kV to 4 kV 4 kV to 40 kV 40 kV to 150 kV	0.06 kV 0.29 kV 0.83 kV	High Voltage Divider, Digital Multimeter by Direct method
High AC Voltage Measure[5]	(50 Hz) 1 kV to 4 kV 4 kV to 28 kV 28 kV to 100 kV	 0.06 kV 0.29 kV 1.2 kV	High Voltage Divider, Digital Multimeter by Direct method
DC Resistance Measure[4]	0 Ω to 9 Ω 9 Ω to 90 Ω 90 Ω to 900 Ω 900 Ω to 9 kΩ 9 kΩ to 90 kΩ 90 kΩ to 900 kΩ 900 kΩ to 9 MΩ 9 MΩ to 90 MΩ	1.5 mΩ 6.7 mΩ 9.2 mΩ 200 mΩ 2 Ω 24 Ω 400 Ω 20 kΩ	Digital Multimeter by Direct method
Capacitance Measure[4]	0 pF to 900 pF 900 pF to 9 nF 9 nF to 90 nF 90 nF to 900 nF 900 nF to 9 µF	9.2 nF 0.59 nF 1.5 nF 9 nF 590 nF	Digital Multimeter by Direct method
Insulation Resistance	0 MΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 1 GΩ 10 GΩ 100 GΩ	0.006 MΩ 0.007 MΩ 0.059 MΩ 0.007 GΩ 0.058 GΩ 1.2 GΩ	Digital Multimeter VRS 100 High Resistance Standard / Fluke 5320A by Direct method
Temperature Generate by Electrical Simulation – PT-100 Type J Type T	 -200 °C to 800 °C -150 °C to 1200 °C -150 °C to 400 °C	 0.23 °C 0.28 °C 0.25 °C	LCM-T-003 Multi Product Calibrator by Direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Type K	-200 °C to 1300 °C	0.32°C	
Temperature Measure by Electrical Simulation PT-100 TC-K Type TC-J Type Type T	 -200 °C to 800 °C -200 °C to 1300 °C -150 °C to 1200 °C -150 °C to 400 °C	 0.23 °C 0.41 °C 0.28 °C 0.25 °C	Multi Product Calibrator/Digital Multimeter by Direct method
Time and Frequency			
Frequency Generate[3]	0 Hz to 10 Hz 10 Hz to 100 Hz 100 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 100 kHz 100 kHz to 1 MHz 1 MHz to 50 MHz 10 MHz to 100 MHz	15 mHz 18 mHz 0.038 Hz 0.95 Hz 13 Hz 42 Hz 130 Hz 250 Hz	Multi Product Calibrator by Direct-method
Frequency Measure[4]	1 Hz to 10 kHz 10 kHz to 1 MHz 1 MHz to 10 MHz	47 mHz 58 mHz 0.3 Hz	Universal Counter by Direct method
Tachometer - Non-Contact Type	60 rpm to 999.9 rpm 1000 rpm to 99999 rpm	0.006 rpm 0.58 rpm	Multi Product Calibrator by Direct method
Stopwatches, Timers	30 ms to 999 ms 999 ms to 36000 s	0.12 ms 37 ms	Universal Counter by Direct method
Chemical/Gas			
pH Meter[5]	4 pH 7 pH 10 pH	0.04 pH	Standard Reference Material by Direct method
Conductivity Meter[5]	1.413 mS/cm	0.04 mS/cm	Standard Reference Material by Direct method

[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.