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CERTIFICATE OF ACCREDITATION

This is to attest

TECHOIL CALIBRATION AND TESTING SERVICES SDN BHD

BLOCK 1, UNIT B5, GROUND FLOOR, PEKAN BELAIT INDUSTRIAL ESTATE
KUALA BELAIT KA 1131, BRUNEI DARUSSALAM

Calibration Laboratory CL-299

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 February 1, 2027
Effective Date January 22, 2026

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TECHOIL CALIBRATION AND TESTING SERVICES SDN BHD

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Accredited to ISO/IEC 17025:2017

Effective Date January 22, 2026

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Mechanical			
Vacuum[5] (Gauge / Transducer / Transmitter)	-0.95 bar to 0 bar	0.0027 bar	Using Digital Pressure Gauge & Comparator pump by Comparison Method as per DKD-R 6-1
Differential Pressure[5] (Gauge / Transducer / Transmitter / Recorder)	0 mbar to 350 mbar	1.3 mbar	Using Differential Pressure Manometer & Comparator pump by Comparison Method as per DKD-R 6-1
Pneumatic – Pressure[5] (Gauge / Transducer / Transmitter / Recorder / Switch)	0 bar to 2.5 bar	0.0023 bar	Using Digital Pressure Gauge & Comparator pump by Comparison Method as per DKD-R 6-1
Hydraulic Pressure[5] (Gauge / Transducer / Transmitter / Recorder / Switch)	0 bar to 7 bar 7 bar to 70 bar 70 bar to 700 bar 700 bar to 1250 bar 1250 bar to 2500 bar	5.4 mbar 0.04 bar 0.4 bar 1.7 bar 3.0 bar	Using Digital Pressure Gauge & Comparator pump by Comparison Method as per DKD-R 6-1
Pressure Relief Valve[5]	Vacuum -0.95 bar to 0 bar Pressure 0 bar to 7 bar 7 bar to 70 bar 70 bar to 700 bar 700 bar to 1250 bar 1250 bar to 2500 bar	 2.4 mbar 0.05 bar 0.20 bar 0.40 bar 2.0 bar 3.9 bar	Using Digital Pressure Gauge & Comparator pump 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	8 N·m to 12 N·m 12 N·m to 20 N·m 20 N·m to 80 N·m 80 N·m to 240 N·m 240 N·m to 400 N·m 400 N·m to 900 N·m 900 N·m to 1500 N·m	0.29 N·m 0.31 N·m 0.37 N·m 1.9 N·m 2.1 N·m 6.3 N·m 22 N·m	Using Torque Transducer by Direct method as per ISO 6789:2003 (old standard)
Thermal			
Temperature Measuring Devices[5] (Temp Sensor with/ Without Indicator / Temp. Transmitters / Temp. Recorders / Temp Switch / Thermometer / Capillary Thermometer)	-30 °C to 0 °C 0 °C to 100 °C 100 °C to 250 °C 250 °C to 400 °C 400 °C to 500 °C	0.32 °C 0.41 °C 0.27 °C 0.71 °C 1.1 °C	Using Dry Block Calibration and Temp Sensor with Indicator by comparison method as per EURAMET cg-8
Temperature Bath / Dry Block[5]	-30 °C to 0 °C 0 °C to 100 °C 100 °C to 250 °C 250 °C to 400 °C 400 °C to 500 °C	0.19 °C 0.33 °C 0.25 °C 0.70 °C 1.1 °C	Using Temp Sensor with Indicator by comparison method as per EURAMET cg-13
Temperature Enclosures[5] (Freezer / Refrigerator / Ovens / Furnaces)	-30 °C to 0 °C 0 °C to 100 °C 100 °C to 250 °C 250 °C to 500 °C	0.37 °C 0.63 °C 0.72 °C 1.2 °C	Using Temp Sensor with Indicator by Single sensor method
Electrical – DC/LF			
DC Voltage - Source[3,5]	1 mV to 100 mV 100 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1 kV 1 kV to 3 kV 3 kV to 12 kV	1.1 µV 1.4 µV 0.12 mV 0.09 mV 1.1 mV 5.3 mV 14 V 42 V	Direct Method using Electrical Multiproduct Calibrator & Electrical Test Equipment Calibrator
DC Voltage – Measure[4,5]	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	0.5 µV 4 µV 0.03 mV 0.3 mV 3.3 mV	Direct Method using 8½ Digital Multimeter
AC Voltage – Source[3,5]	(40 Hz to 1 kHz) 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V	 0.02 mV 0.043 mV 0.4 mV 7 mV 0.11 V	Direct Method using Electrical Multiproduct Calibrator

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	200 V to 700 V 700 V to 1000 V	0.35 V 0.49 V	
AC Voltage - Measure[4,5]	(10Hz to 1 kHz) 0.1 mV to 20 mV 20 mV to 100 mV 100 mV to 1 V 1 V to 10 V (30 Hz to 10 kHz) 10 V to 100 V 100 V to 700 V	 8 µV 0.03 mV 0.1 mV 2.5 mV 0.01 V 0.25 V	Direct Method using 8½ Digital Multimeter
Resistance – Source[3,5]	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 50 kΩ 50 kΩ to 600 kΩ 600 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	0.015 Ω 0.13 Ω 1.4 Ω 15 Ω 61 Ω 5.8 kΩ 5.8 kΩ 0.042 MΩ 0.35 MΩ	Direct Method using Electrical Multiproduct Calibrator
Resistance - Measure[4,5]	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	0.08 mΩ 0.48 mΩ 2.5 mΩ 0.02 Ω 0.4 Ω 0.01 kΩ 0.16 kΩ 9.8 kΩ	Direct Method using 8½ Digital Multimeter
DC Current – Source[3,5]	0 µA to 100 µA 100 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 1 A 1 A to 2 A 2 A to 10 A 10 A to 60 A 60 A to 300 A 300 A to 1000 A	0.0047 µA 0.006 µA 0.04 µA 0.3 µA 3.6 µA 0.02 mA 0.1 mA 0.7 mA 0.51 A 3 A 6.1 A	Direct Method using Electrical Multiproduct Calibrator Direct method using Electrical Multiproduct Calibrator and Current Clamp
DC Current – Measure[4,5]	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	0.003 µA 0.01 µA 0.1 µA 0.8 µA 0.02 mA	Direct Method using 8½ Digital Multimeter

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
AC Current – Source[3,5]	(40 Hz to 1 kHz) 25 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 (50 Hz) 10 A to 60 A 60 A to 300 A 300 A to 1500 A	 0.079 µA 0.9 µA 6.2 µA 0.018 mA 0.6 mA 6.6 mA 0.51 A 3 A 8.9 A	Direct Method using Electrical Multiproduct Calibrator Direct method using Electrical Multiproduct Calibrator and Current Clamp
AC Current – Measure[4,5]	(10 Hz to 10 kHz) 1 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A	 0.015 µA 0.2 µA 1.4 µA 0.04 mA 0.2 mA	Direct Method using 8½ Digital Multimeter
Capacitance – Source[3,5] (Discrete values)	(1 kHz) 1 nF 10 nF 20 nF 50 nF 100 nF 1 µF 10 µF	 0.0037 nF 0.035 nF 0.07 nF 0.17 nF 0.3 nF 4.6 nF 0.75 µF	Direct Method using Electrical Multiproduct Calibrator
Frequency – Source[3,5]	(At 2 V) 10 Hz to 100 Hz 100 Hz to 100 kHz	 0.0006 Hz 0.0006 kHz	Direct Method using Electrical Multiproduct Calibrator
Frequency – Measure[4,5]	1 Hz to 10 MHz	0.002 %	Direct Method using 8½ Digital Multimeter
Insulation Resistance – Source[3,5]	0.1 MΩ to 1 MΩ 1 MΩ to 5 MΩ 5 MΩ to 100 MΩ 100 MΩ to 300 MΩ 300 MΩ to 600 MΩ 600 MΩ to 1 GΩ 1 GΩ to 2 GΩ 2 GΩ to 4 GΩ 4 GΩ to 6 GΩ 6 GΩ to 10 GΩ	0.006 MΩ 0.19 MΩ 0.35 MΩ 3.7 MΩ 4.1 MΩ 9.6 MΩ 12 MΩ 0.029 GΩ 0.069 GΩ 0.052 GΩ	Direct Method using Electrical Test Equipment Calibrator
RCD Current[5]	10 mA to 30 mA 30 mA to 100 mA 100 mA to 300 mA 300 mA to 1000 mA	0.098 mA 0.21 mA 0.94 mA 2.1 mA	Direct Method using Electrical Test Equipment Calibrator

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
RCD Trip Time[5] Discrete Values	20 ms 50 ms 100 ms 200 ms 900 ms	0.51 ms 0.51 ms 0.51 ms 0.51 ms 0.51 ms	Direct Method using Electrical Test Equipment Calibrator
Earth Bond Resistance[5] Discrete Values	0.045 Ω 0.1037 Ω 0.1727 Ω 0.2776 Ω 0.3981 Ω 0.5395 Ω 1.0163 Ω 5.0383 Ω 9.0359 Ω 91.159 Ω 989.588 Ω	1.1 mΩ 1.1 mΩ 1.2 mΩ 1.3 mΩ 1.4 mΩ 1.5 mΩ 1.8 mΩ 4.9 mΩ 8.3 mΩ 57 mΩ 580 mΩ	Direct Method using Electrical Test Equipment Calibrator

[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.