CERTIFICATE OF ACCREDITATION

This is to attest that

CALTROLS MIDDLE EAST

OFFICE NO.: 101, BUILDING NO. 439, WAY NO: 4006, GHUBRA NORTH
MUSCAT, 391, SULTANATE OF OMAN

Calibration Laboratory CL-240

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 October 30, 2023

Expiration Date April 1, 2026

IAS ACCREDITED

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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CALTROLS MIDDLE EAST

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Accredited to ISO/IEC 17025:2017 *Effective Date October 30, 2023*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Vernier Caliper	Up to 100 mm 100 mm to 300 mm	7.8 µm 11 µm	Direct method by using Gauge Block (Based on BS EN ISO 13385-1:2019 and Procedures: CME/CP/M/01
Micrometer	Up to 25 mm	1.6 µm	Direct method by using Gauge Block (based on BS EN ISO 3611:2010 and Procedures: CME/CP/M/02)
Mechanical			
Hydraulic - Pressure Gauge	1 bar to 350 bar 350 bar to 500 bar 500 bar to 1400 bar	0.21 bar 1 bar 4 bar	Comparison method by using Reference Test Gauge (by using DKD-R-6-1:2014, BS EN 837-1:1998 and Procedures: CME/CP/P/01 & 02)
Hydraulic Pressure (Pressure Transducer & Pressure Transmitter)	1 bar to 20 bar 20 bar to 1400 bar	1.0 bar 1.9 bar	Calibration Method: DKD-R-6-1:2014, BS EN 837-1:1998 and Procedures: CME/CP/P/01 & 02
Hydraulic Pressure (Pressure Chart Recorder)	1 bar to 20 bar 20 bar to 350 bar 350 bar to 700 bar 700 bar to 1400 bar	0.32 bar 0.89 bar 4.1 bar 5.6 bar	Comparison method by using Reference Test Gauge (DKD-R-6-1:2014, BS EN 837-1:1998 and Procedures: CME/CP/P/01 & 02)
Torque Wrench	30 N·m to 500 N·m 500 N·m to 1200 N·m	1.5 N·m 2.2 N·m	Direct method by using Torque Meter (based on ISO 6789-1:2017 and Procedures: CME/CP/M/07)

** 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)
Weights Set	10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg	41 mg 41 mg 41 mg 41 mg 41 mg 0.41 g 0.41 g 0.41 g 0.41 g 0.41 g	Comparison Method (ABBA) by using Reference Standard weight F1 Class and Weighing Balance (based on OIML R 111-1 e04 and Procedures: CME/CP/M/06)
Thermal			
Digital Thermometers / RTD with Indicator / Thermocouple with indicators/Temperature transmitters, Temperature Gauge, Temperature Chart Recorder[4]	-10 °C to 550 °C	0.54 °C	Comparison Method by using Reference Temp sensor with indicator & Liquid Bath/ Dry Block Calibrator (based on DKD-R-5- 1:2009, Euramet CG-08 and Procedures: CME/CP/T/02/03/05 & 06
Dry Block Calibrator	50 ºC to 550 ºC	0.60 ºC	Direct method by using Temp Sensor with Indicator – Single sensor method (by using DKD-R-5-1:2009, Euramet CG-13 and Procedure: CME/CP/T/01)
Liquid Bath Calibrator	-10 ºC to 90 ºC	1.0 ºC	Direct method by using Temp Sensor with Indicator – Single sensor method (By using ASTM E2488 and Procedure: CME/CP/T/08)
Liquid in glass thermometer	-10 ºC to 90 ºC	0.78 ºC	Comparison Method by using Reference Temp sensor with indicator & Liquid Bath (based on ASTM OIML R133 and Procedure: CME/CP/T/04)
Electrical – DC/LF			
DC Voltage Source[3]	10 mV to 500 mV 500 mV to 1 V 1 V to 100 V 100 V to 500 V 500 V to 1000 V	0.25 mV 0.01 V 0.89 V 0.89 V 4.2 V	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)
AC Voltage Source [3]	**Frequency@50Hz** 10 mV to 190 mV 190 mV to 1 V 1 V to 250 V 250 V to 500 V 500 V to 1000 V	 0.49 mV 0.08 V 7.4 V 7.3 V 16 V	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Current Source[3]	100 µA to 300 µA 300 µA to 1 mA 1 mA to 50 mA 50 mA to 500 mA 500 mA to 2 A 2 A to 10 A	0.095 µA 10 µA 0.059 mA 0.07 mA 1 mA 14 mA	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)
AC Current Source [3]	**Frequency@50Hz** 100 µA to 300 µA 300 µA to 1 mA 1 mA to 50 mA 50 mA to 500 mA 500 mA to 2 A 2 A to 10 A	 0.55 µA 10 µA 0.05 mA 0.17 mA 1 mA 9 mA	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)
Resistance Source[3]	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ, 1 kΩ to 300 kΩ 300 kΩ to 1 MΩ 1 MΩ to 20 MΩ 20 MΩ to 40 MΩ	0.058 Ω 0.076 Ω 0.01 kΩ 0.083 kΩ 0.78 kΩ 0.024 MΩ 0.23 MΩ	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)
Frequency Source[3]	1 Hz to 100 Hz 100 Hz to 1000 Hz 1 kHz to 100 kHz	0.007 Hz 0.065 Hz 34 Hz	Direct Method by using Multiproduct Calibration (based on Euramet cg-15 v 3.0 & Procedure: CME/CP/E/01)
Temperature Simulation (Source) – RTD	-190 ºC to 850 ºC	0.6 ºC	Direct Method by using Multiproduct calibrator/ Temp Calibrator (based on Euramet cg-11 v 2.0 & Procedure: CME/CP/E/03)
Temperature Simulation (Source) - K-tpe thermocouple	-190 ºC to 1370 ºC	0.9 ºC	
Temperature Simulation (Measurement) – RTD	-190 ºC to 800 ºC	0.66 ºC	
Temperature Simulation (Measurement) K-type thermocouple	-190 ºC to 1370 ºC	0.86 ºC	

[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]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.