



CERTIFICATE OF ACCREDITATION

This is to attest that

FAHUD FIRST TRADING & SERVICES LLC

PLOT 80, KARSHA INDUSTRIAL AREA
NIZWA 611, SULTANATE OF OMAN

Calibration Laboratory CL-244

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 September 2, 2021

Expiration Date October 1, 2023



A handwritten signature in black ink that reads 'Raj Nathan'.

President

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

FAHUD FIRST TRADING & SERVICES LLC

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Accredited to ISO/IEC 17025:2017

Effective Date September 2, 2021

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
Dimensional			
All Types of Calipers (Digital, Vernier, Dial)	0 mm to 300 mm	10 µm	F1-OPS-SOP-04, Based on ASME B89.1.14.2018 by Gauge Block Set and Caliper Checker
External Micrometer	0 mm to 25 mm 0 mm to 100 mm	2 µm 10 µm	F1-OPS-SOP-15, Based on ISO 3611:2010 by Gauge Block Set
Dial Gauges/Thickness Gauges (Digital & Analogue)	0 mm to 10 mm	6.7 µm	F1-OPS-SOP-16, Based on ASME B89.1.10M by Gauge Block Set
Mechanical			
Hand Torque Tools/Torque Wrench/Torque Screw Drivers	1.5 N·m to 30 N·m	0.9 %	F1-OPS-SOP-10, Based on ISO 6789 by Torque Transducer
Hand Torque Tools/Torque Wrench	30 N·m to 1000 N·m	1.5 %	F1-OPS-SOP-10, Based on ISO 6789 by Torque Transducer
Hydraulic Pressure – Pressure Indicating Devices (Mechanical & Electronic)	1 bar to 1200 bar	0.12 %	F1-OPS-SOP-03, Based on BS 837-1/ EURAMET cg-17 v.2 / DKD-R 6-1 by Dead Weight Tester, Digital Pressure Gauge
Pneumatic Pressure – Pressure Indicating Devices (Mechanical & Electronic)	0 bar to 30 bar	80 mbar	F1-OPS-SOP-08, DKD-R 6-1 Digital Pressure Gauge and Pneumatic Hand Pump
Vacuum Pressure – Pressure Indicating Devices (Mechanical & Electronic)	-0.8 bar to 0 bar	67 mbar	F1-OPS-SOP-09, DKD-R 6-1 by Digital Vacuum Gauge and Pneumatic Hand Pump

* 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.

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MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
Thermal			
Freezer/Chiller (Single Sensor Method)	-20 °C to 20 °C	0.6 °C	F1-OPS-SOP-11, Based on DKD-R 5-7 by PRT Sensor with Digital Readout
Oven/Incubator/Chamber (Single Sensor Method)	Ambient to 250 °C	0.75 °C	F1-OPS-SOP-12, Based on DKD-R 5-7 by PRT Sensor with Digital Readout
Liquid Bath (Single Sensor Method)	Ambient to 100 °C	0.93 °C	F1-OPS-SOP-13 by PRT Sensor with Digital Readout
Furnace (Single Sensor Method)	50 °C to 600 °C 600 °C to 950 °C	0.75 °C 3.5 °C	F1-OPS-SOP-14, Based on DKD-R 5-7 by PRT and Thermocouple Sensor with Digital Readout
Temperature Indicator with PRT Sensor/ transmitters/ temperature chart recorders/temperature gauge	40 °C to 250 °C 250 °C to 500 °C	0.75 °C 0.76 °C	F1-OPS-SOP-05, DKD R-5-1 by PRT and Thermocouple Sensor with Digital Readout
Transmitters/temperature chart recorders/ temperature gauge/ thermocouples with temperature Indicator	40 °C to 250 °C 250 °C to 500 °C 500 °C to 950 °C	0.75 °C 0.75 °C 3.4 °C	F1-OPS-SOP-05, DKD R-5-1 by PRT and Thermocouple Sensor with Digital Readout
Electrical – DC/LF			
DC Voltage - Source ³	1.0 mV to 200.0 mV 200.0 mV to 2.0 V 2.0 V to 20.0 V 20.0 V to 200.0 V 200.0 V to 1000.0 V	0.58 % 0.005 % 0.004 % 0.004 % 0.006 %	Based on Euramet cg-15, By Multiproduct Calibrator
DC Current - Source ³	0.01 uA to 200.0 uA 200.0 uA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A 20 A to 1000 A	0.047 % 0.032 % 0.009 % 0.012 % 0.036 % 0.30 % 0.60 %	Based on Euramet cg-15, By Multiproduct Calibrator
AC Voltage - Source ³	1 mV to 100.0 mV (10 Hz to 1 kHz) (1 kHz to 20 kHz) 100 mV to 200 mV (10 Hz to 1 kHz) (1 kHz to 20 kHz)	3.0 % 2.5 % 0.1 % 0.26 %	Based on Euramet cg-15, By Multiproduct Calibrator

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AC Voltage - Source ³ Continued	200.0 mV to 2.0 V (10 Hz to 1 kHz) (1 kHz to 50 kHz)	0.09 % 0.54 %	Based on Euramet cg-15, By Multiproduct Calibrator	
	2.0 V to 20.0 V (10 Hz to 20 kHz)	0.12 %		
	20.0 V to 200.0 V (30 Hz to 20 kHz)	0.45 %		
	200.0 V to 1000.0V (30 Hz to 10 kHz)	0.21 %		
AC Current - Source ³	2.5 uA to 200.0 uA (10Hz to 1 kHz)	0.27 %	Based on Euramet cg-15, By Multiproduct Calibrator	
	200.0 uA to 2 mA (10 Hz to 1 kHz)	0.14 %		
	2 mA to 200 mA (10 Hz to 1 kHz)	0.13 %		
	200 mA to 2 A (10 Hz to 1 kHz)	0.34 %		
	2 A to 20.0 A (10 Hz to 1 kHz)	0.31%		
	20 A to 1000 A (50 Hz)	0.15 %		
DC Resistance - Source ³	0.2 Ω	6.0 mΩ	2-wire method, based on Euramet cg-15, By Multiproduct Calibrator	
	1 Ω	6.0 mΩ		
	10 Ω	7.0 mΩ		
	100 Ω	12 mΩ		
	1 kΩ	0.13 Ω		
	10 kΩ	0.94 Ω		
	100 kΩ	9.3 Ω		
	1 MΩ	0.10 kΩ		
	10 MΩ	4.0 kΩ		
	100 MΩ	0.60 MΩ		
	100 mΩ, 1 Ω	6.2 mΩ		4-wire method, based on Euramet cg-15, By Multiproduct Calibrator
	10 Ω	7.0 mΩ		
	100 Ω	14 mΩ		
	1 kΩ	0.63 Ω		
10 kΩ	0.94 Ω			
100 kΩ	9.4 Ω			
Capacitance - Source ³ (@ 1 kHz)	1 nF	6.0 pF	Based on Euramet cg-15, By Multiproduct Calibrator	
	10 nF	40 pF		
	20 nF	0.10 nF		

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Capacitance - Source ³ Continued	50 nF 100 nF 1 μ F 10 μ F	0.20 nF 0.30 nF 10 nF 0.10 μ F	Based on Euramet cg-15, By Multiproduct Calibrator
Frequency- Source ³	1 Hz up to 100 Hz 100 Hz up to 1 kHz 1 kHz up to 10 kHz 1 kHz up to 20 kHz 20 kHz up to 50 kHz 50 kHz up to 100 kHz 100 kHz up to 1 MHz 1 MHz up to 10 MHz	0.3 mHz 0.58 Hz 0.60 Hz 0.63 Hz 1.0 Hz 1.3 Hz 21 Hz 33 Hz	Based on Euramet cg-15, By Multiproduct Calibrator

¹The 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.

²When 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.

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