



# CERTIFICATE OF ACCREDITATION

*This is to attest that*

## **FAHUD FIRST TRADING & SERVICES LLC**

PLOT 90, 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 October 30, 2023

Expiration Date October 1, 2024



A handwritten signature in black ink, reading 'Raj Nathan'.

**President**

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

## FAHUD FIRST TRADING & SERVICES LLC

[www.f1oman.com](http://www.f1oman.com)

**Contact Name** Said Zerarka

**Contact Phone** +968-94968051

*Accredited to ISO/IEC 17025:2017*

*Effective Date October 30, 2023*

### CALIBRATION AND MEASUREMENT CAPABILITY (CMC)\*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<b>Dimensional</b>			
All Types of Calipers (Digital, Vernier, Dial)	0 mm to 600 mm	11 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 30 mm	0.8 µm	F1-OPS-SOP-16, Based on ASME B89.1.10M by Gauge Block Set
<b>Mechanical</b>			
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 1000 N·m to 1500 N·m	1.5 % 0.9 %	F1-OPS-SOP-10, Based on ISO 6789 by Torque Transducer
Balance (analogue and digital)	0 g to 200 g 0 kg to 1 kg  0 kg to 20 kg 0 kg to 100 kg 0 kg to 150 kg	0.5 mg 5.5 mg  1.2 g 15 g 55 g	Standard Weight (E2 & F1 Class) As per OIML R 76-1 &  Standard Weight (M1 Class) as per OIML R 47 Reference Procedure: F1-OPS-SOP-39

\* 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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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
Pressure relief valves			F1-OPS-SOP-07, Based on API RP 576 and comparison with Digital Pressure Gauge
Pneumatic	0.2 bar to 70 bar	0.85 %	
Hydraulic	1 bar to 700 bar	0.23 %	
Pneumatic Pressure – Pressure Indicating Devices (Mechanical & Electronic)	0 bar to 70 bar	30 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
<b>Thermal</b>			
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
Furnace (Multi Sensor Method)	50 °C to 600 °C 600 °C to 1000 °C	6.8 °C 6.8 °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 1.1 °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

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<b>Electrical – DC/LF</b>			
DC Voltage - Source <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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)  200.0 mV to 2.0 V (10 Hz to 1 kHz) (1 kHz to 50 kHz)  2.0 V to 20.0 V (10 Hz to 20 kHz)  20.0 V to 200.0 V (30 Hz to 20 kHz)  200.0 V to 1000.0 V (30 Hz to 10 kHz)	3.0 % 2.5 %  0.1 % 0.26 %  0.09 % 0.54 %  0.12 %  0.45 %  0.21 %	Based on Euramet cg-15, By Multiproduct Calibrator
AC Current - Source <sup>3</sup>	2.5 uA to 200.0 uA (10 Hz to 1 kHz)  200.0 uA to 2 mA (10 Hz to 1 kHz)  2 mA to 200 mA (10 Hz to 1 kHz)  200 mA to 2 A (10 Hz to 1 kHz)	0.27 %  0.14 %  0.13 %  0.34 %	Based on Euramet CG-15, By Multiproduct Calibrator

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AC Current - Source <sup>3</sup> (continued)	2 A to 20.0 A (10 Hz to 1 kHz)	0.31%	Based on Euramet cg-15, By Multiproduct Calibrator
	20 A to 1000 A (50 Hz)	0.15 %	
DC Resistance - Source <sup>3</sup>	0.2 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ	6.0 mΩ 6.0 mΩ 7.0 mΩ 12 mΩ 0.13 Ω 0.94 Ω 9.3 Ω 0.10 kΩ 4.0 kΩ 0.60 MΩ	2-wire method, based on Euramet cg-15, By Multiproduct Calibrator
	100 mΩ, 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ	6.2 mΩ 7.0 mΩ 14 mΩ 0.63 Ω 0.94 Ω 9.4 Ω	
Capacitance - Source <sup>3</sup> (@ 1 kHz)	1 nF 10 nF 20 nF 50 nF 100 nF 1 μF 10 μF	6.0 pF 40 pF 0.10 nF 0.20 nF 0.30 nF 10 nF 0.10 μF	Based on Euramet cg-15, By Multiproduct Calibrator
Frequency- Source <sup>3</sup>	1 Hz up to 100 Hz 100 Hz up to 1 kHz 1 kHz up to 10 kHz 10 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
High Voltage-Measure <sup>4</sup> AC High Voltage @ 50 Hz	1 kV to 5 kV 5 kV to 28 kV	12 % 6.0 %	Using HV Divider with Digital Multimeter by direct method. Reference Procedure: F1-OPS-SOP-23
High Voltage-Measure <sup>4</sup> DC High Voltage	1 kV to 5 kV 5 kV to 40 kV	6.1 % 3.6 %	Using HV Divider with Digital Multimeter by direct method. Reference Procedure: F1-OPS-SOP-23

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<b>Welding Machine</b>			
Voltage DC (Measure) <sup>4</sup>	1 V to 1000 V	0.05 %	Using Digital multimeter by direct method. Reference Procedure: F1-OPS-SOP-42
AC Current (Measure at 50 Hz) <sup>4</sup>	10 A to 100 A 100 A to 1000 A	5.6 % 2.3 %	Digital Clamp Meter by Direct Method Reference Procedure: F1-OPS-SOP-42
DC Current Measure <sup>4</sup>	10 A to 100 A 100 A to 1000 A	5.0 % 1.7 %	Digital Clamp Meter by Direct Method Reference Procedure: F1-OPS-SOP-42

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>Capability is suitable for the calibration of measuring devices in the stated ranges.

<sup>4</sup>Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.