



INTERNATIONAL
ACCREDITATION
SERVICE®

CERTIFICATE OF ACCREDITATION

This is to attest that

ALLIED OIL & GAS SERVICES LLC

P.O. BOX: 1524, P.C: 133, BUILDING NO. 705, OFFICE NO. 1, BLOCK NO.: 250, WAY NO: 5005
GHALA INDUSTRIAL AREA, 133, OMAN

Calibration Laboratory CL-156

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 11, 2024

Expiration Date June 1, 2025



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

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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ALLIED OIL & GAS SERVICES LLC

Contact Name Anil Kumar

Contact Phone + 968-95122751

Accredited to ISO/IEC 17025:2017

Effective Date September 11, 2024

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Dial Gauges	Up to 50 mm 50 mm to 100 mm	6 µm 0.06 mm	Gauge Blocks - Grade I GIS/CAL/CP – 010/Rev.05
Micrometers	Up to 100 mm	8 µm	
Calipers	Up to 550 mm	5 µm	
Mechanical			
Balances and scales	1 mg to 200 g 200 g to 700g Up to 300 kg	0.1 mg 1.6 mg 90 g	Using Standard weights GIS/CAL/CP – 011A/Rev.05
Mass/ Weights	1 mg to 50 mg 100 mg 200 mg 500 mg 1 g to 500 g 1 kg 2 kg 5 kg	0.13 mg 0.21 mg 0.21 mg 0.21 mg 0.082 g 2 g 2 g 2 g	OIML Class 'E1' Weights OIML Class 'F1' Weights with precision balances GIS/CAL/CP – 011/Rev.05
Force - Compression	0.01 kN to 500 kN 500 kN to 2500 kN	1.5 % 0.2 %	Load Cell GIS/CAL/CP – 027/Rev.02
Torque Wrenches	30 N·m to 1500 N·m	2 %	NORBAR Torque analyzer GIS/CAL/CP – 009/Rev.06
Pressure – Hydraulic Dead Weight Testers, Pressure Calibrators, Pressure Gauges	LP: 9 bar to 60 bar HP: 100 bar to 1200 bar	0.011 % 0.011 %	Dead Weight Tester DH-Budenberg CPB5800 GIS/CAL/CP – 007/Rev.05
Pressure – Hydraulic Gauges / Recorders	10 bar to 1200 bar	0.015 %	Dead Weight Tester CPB 5800 GIS/CAL/CP – 002/Rev.05
	1 bar to 700 bar	0.1 %	Dig. Press Gauge Crystal xp2i & Hydraulic pump GIS/CAL/CP – 002/Rev.05

* 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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Pressure - Pneumatic Gauges / Recorders Vacuum Gauges Pressure Relief Valves	-0.8 bar to -0.1 bar	0.25 %	Dead Weight Tester 554/551 GIS/CAL/CP – 002/Rev.05
	-0.1 bar to 0.1 bar	0.25 mbar	
		0.1 bar to 1 bar	0.25 %
	1 bar to 100 bar	0.25 % + 0.01 bar	Pressure Controller Wika CPC 8000 GIS/CAL/CP – 002/Rev.05
Volume Syringe, Micropipettes	100 µL to 1000 µL	0.36 µL	Using triple distilled water, Precision Weighing Balance and E-1 Class Weights Gravimetric Method GIS/CAL/CP – 012/Rev.05
Volume Pycnometer, Bottle Pipettes, Burettes, Measuring Flasks, Glass / Plastic / Metallic Wares, Volume Jars	10 mL to 100 mL	3.5 mL	
Thermal			
RTD, Digital Thermometer	-40 °C to 0 °C	0.03 °C	Dry Block Calibrator PT 100 with Readout Type S/K Thermocouple with Readout GIS/CAL/CP – 003/Rev.05
	0 °C to 100 °C	0.04 °C	
	100 °C to 260 °C	0.05 °C	
	260 °C to 300 °C	0.06 °C	
	300 °C to 400 °C	0.07 °C	
	400 °C to 600 °C	0.07 °C	
	600 °C to 630 °C	0.23 °C	
Thermocouples, Digital Thermometer	-40 °C to 155 °C	0.13 °C	Dry Block Calibrator PT 100 with Readout Type K Thermocouple with Readout GIS/CAL/CP – 003/Rev.05
	33 °C to 350 °C	0.01 °C	
	300 °C to 1200 °C	2 °C	
Mechanical (Dial) Thermometers	33 °C to 350 °C	0.6 °C	Dry Block Calibrator GIS/CAL/CP – 003/Rev.05
Temperature Installation – Furnaces, Ovens, Incubators, Stirred Water baths, Fridges and Freezers	-40 °C to 155 °C	0.13 °C	PT 100 with Readout Type K Thermocouple with Readout GIS/CAL/CP – 003/Rev.05
	33 °C to 350 °C	0.01 °C	
	300 °C to 1200 °C	2 °C	
Autoclave Temperature	20 °C to 140 °C	0.62 °C	Temperature Sensor
Pressure	1 bar to 5 bar	3.8 %	Pressure Sensor GIS/CAL/CP-036
Electrical – DC/LF			
DC Voltage Generate ³	0 mV to 10 mV	0.014 mV	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CP – 016/Rev.05
	10 mV to 330 mV	0.0032 %	
	330 mV to 30 V	0.0018 %	
	30 V to 1000 V	0.004 %	

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AC Voltage Generate ³	(45 Hz to 10 kHz) 33 mV to 330 mV 330 mV to 330 V 330 V to 1000 V	0.08 % 0.07 % 0.08 %	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CPS – 016/Rev.05
DC Current Generate ³	0 µA to 300 µA 0.3 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 3 A 3 A to 20 A	150 µA/A + 0.2 µA 100 µA/A + 0.5 µA 100 µA/A + 0.25 µA 100 µA/A + 2.5 µA 380 µA/A + 40 µA 500 µA/A + 0.5 mA	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CP – 016/Rev.05
	20 A to 1000 A	0.4 %	Using Multi Product Calibrator Fluke 5522A and 50 turn Fluke 5500A Coil GIS/CAL/CP – 016/Rev.05
AC Current Generate ³ (45 Hz to 1 kHz)	30 µA to 330 µA 0.33 µA to 330 µA 0.330 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 0.33 A to 1 A 1 A to 3 A 3 A to 20 A	0.13 % + 0.1 µA 0.13 % + 0.15 µA 0.04 % + 2 µA 0.04 % + 20 µA 0.05 % + 100 µA 0.06 % + 100 µA 0.08 % + 2 mA 0.33 % + 2 mA	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CP – 016/Rev.05
AC Current Generate ³ (45 Hz to 400 Hz)	20 A to 1000 A	0.4 %	Using Multi Product Fluke 5522A and 50 turn Fluke 5500A Coil GIS/CAL/CP – 016/Rev.05

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DC Resistance Generate ³	0 Ω to 10.999 Ω 11 Ω to 32.999 Ω 33 Ω to 109.999 Ω 110 Ω to 329.999 Ω 0.33 k Ω to 1.09999 k Ω 1.1 k Ω to 3.29999 k Ω 3.3 k Ω to 10.9999 k Ω 11 k Ω to 32.9999 k Ω 33 k Ω to 109.9999 k Ω 110 k Ω to 329.999 k Ω 0.33 M Ω to 1.09999 M Ω 1.1 M Ω to 3.29999 M Ω 3.3 M Ω to 10.9999 M Ω 11 M Ω to 32.9999 M Ω 33 M Ω to 109.999 M Ω 110 M Ω to 329.999 M Ω	40 $\mu\Omega/\Omega$ + 0.01 Ω 30 $\mu\Omega/\Omega$ + 0.015 Ω 28 $\mu\Omega/\Omega$ + 0.015 Ω 28 $\mu\Omega/\Omega$ + 0.02 Ω 28 $\mu\Omega/\Omega$ + 0.02 Ω 28 $\mu\Omega/\Omega$ + 0.2 Ω 28 $\mu\Omega/\Omega$ + 0.1 Ω 28 $\mu\Omega/\Omega$ + 1 Ω 28 $\mu\Omega/\Omega$ + 2 Ω 32 $\mu\Omega/\Omega$ + 10 Ω 32 $\mu\Omega/\Omega$ + 10 Ω 60 $\mu\Omega/\Omega$ + 150 Ω 130 $\mu\Omega/\Omega$ + 250 Ω 250 $\mu\Omega/\Omega$ + 2.5 Ω 500 $\mu\Omega/\Omega$ + 250 Ω 0.5 % + 100 k Ω	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CP – 016/Rev.05
Capacitance Generate ^{3,5}	0.33 nF to 0.4999 nF (50 Hz to 1000 Hz) 0.5 nF to 1.0999 nF (50 Hz to 1000 Hz) 1.1 nF to 3.2999 nF (50 Hz to 1000 Hz) 3.3 nF to 10.999 nF (50 Hz to 1000 Hz) 11 nF to 32.999 nF (50 Hz to 1000 Hz) 33 nF to 109.99 nF (50 Hz to 1000 Hz) 110 nF to 329.99 nF (50 Hz to 1000 Hz) 0.33 μ F to 1.0999 μ F (50 Hz to 1000 Hz) 1.1 μ F to 3.2999 μ F (50 Hz to 1000 Hz) 3.3 μ F to 10.999 μ F (50 Hz to 400 Hz) 11 μ F to 32.999 μ F (50 Hz to 400 Hz)	0.5 % + 0.01 nF 0.5 % + 0.01 nF 0.7 % + 0.01 nF 0.5 % + 0.01 nF 0.25 % + 0.1 nF 0.25 % + 0.1 nF 0.32 % + 0.3 nF 0.32 % + 1 nF 0.35 % + 3 nF 0.35 % + 10 nF 0.40 % + 30 nF	Using Multi Product Calibrator Fluke 5522A GIS/CAL/CP – 016/Rev.05

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Capacitance Generate ^{3,5} (continued)	33 μ F to 109.99 μ F (50 Hz to 200 Hz)	0.50 % + 100 nF	Using Multi Product Calibrator Fluke 5522A
	110 μ F to 329.99 μ F (50 Hz to 200 Hz)	0.70 % + 300 nF	GIS/CAL/CP – 016/Rev.05
	330 μ F to 1.1 mF (50 Hz to 100 Hz)	1 % + 300 nF	
DC Voltage Measure ⁴	0 mV to 600 mV 600 mV to 1000 V	0.1 % + 1 count 0.05 % + 1 count	Using Fluke 8846 DMM GIS/CAL/CP – 016/Rev.05
AC Voltage Measure ⁴ (45 Hz to 65 Hz)	600 mV to 1 V 6 V to 1000 V	0.7 % + 4 counts 0.7 % + 4 counts	Using Fluke 8846 DMM GIS/CAL/CP – 016/Rev.05
DC Current Measure ⁴	0 μ A to 600 μ A 600 μ A to 6000 μ A 0 mA to 60 mA 60 mA to 400 mA 6 A to 10 A	0.2 % + 4 counts 0.2 % + 2 counts 1.0 % + 2 counts 1.0 % + 2 counts 1.0 % + 2 counts	Using Fluke 8846 DMM GIS/CAL/CP – 016/Rev.05
AC Current Measure ⁴ (45 Hz to 2 kHz)	0 μ A to 600 μ A 600 μ A to 6000 μ A 0 mA to 60 mA 60 mA to 400 mA 6 A to 10 A	1.0 % + 2 counts 1.0 % + 2 counts 1.0 % + 2 counts 1.0 % + 2 counts 1.0 % + 2 counts	Using Fluke 8846 DMM GIS/CAL/CP – 016/Rev.05
Capacitance Measure ⁴	0 nF to 400 nF 0.4 nF to 3.3 nF 3.3 nF to 33 nF 33 nF to 330 nF 0.33 μ F to 3.30 μ F 3.3 μ F to 33 μ F 33 μ F to 330 μ F 0.33 mF to 3.3 mF 3.3 mF to 33 mF 33 mF to 110 mF	0.20 nF 0.10 nF 0.95 nF 0.01 nF 0.13 μ F 0.45 μ F 0.01 μ F 0.10 mF 1.9 mF 4.9 mF	Using Fluke 8846 DMM GIS/CAL/CP – 016/Rev.05
Power/Energy (Single and three phase active and reactive power and energy, $\cos \Phi$ or $\sin \Phi$ = 0.1 to 1, capacitive and inductive)	30 V to 300 V, 20 mA to 10 A @ 40 Hz to 100 Hz, UPF 30 V to 300 V, 10 A to 100 A @ 40 Hz to 100 Hz, UPF 30 V to 300 V, 20 mA to 10 A @ 40 Hz to 100 Hz, 0.2 (LEAD/LAG) 30 V to 300 V, 10 A to 100 A @ 40 Hz to 100 Hz, 0.2 (LEAD/LAG)	(relative to output in Watts) 0.20 % 0.013 % 0.013 % 0.013 %	Three Phase Comparator MTE-K2006 GIS/CAL/CP-029 GIS/CAL/CP-031

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Power/Energy (Single and three phase active and reactive power and energy, $\cos \Phi$ or $\sin \Phi =$ 0.1 to 1, capacitive and inductive) (continued)	30 V to 300 V, 20 mA to 10 A @ 40 Hz to 100 Hz, 0.5 (LEAD/LAG)	0.019 %	Three Phase Comparator MTE-K2006 GIS/CAL/CP-029 GIS/CAL/CP-031
	30 V to 300 V, 10 to 100 A @ 40 Hz to 100 Hz, 0.5 (LEAD/LAG)	0.014 %	
	30 V to 300 V, 20 mA to 10 A @ 40 Hz to 100 Hz, 0.8 (LEAD/LAG)	0.019 %	
	30 V to 300 V, 10 A to 100 A @ 40 Hz to 100 Hz, 0.8 (LEAD/LAG)	0.014 %	
Thermocouple Simulation - Generate/Measure Type B	600 °C to 800 °C 800 °C to 1000 °C 1000 °C to 1550 °C 1550 °C to 1820 °C	0.44 °C 0.34 °C 0.30 °C 0.33 °C	Using Multi product calibrator Fluke 5522A GIS/CAL/CP – 003/Rev.05
Type C	Up to 150 °C 150 °C to 650 °C 650 °C to 1000 °C 1000 °C to 1800 °C 1800 °C to 2316 °C	0.30 °C 0.26 °C 0.31 °C 0.50 °C 0.84 °C	
Type E	-250 °C to -100 °C -100 °C to -25 °C -25 °C to 350 °C 350 °C to 650 °C 650 °C to 1000 °C	0.50 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C	
Type J	-210 °C to -100 °C -100 °C to -30 °C -30 °C to 150 °C 150 °C to 760 °C 760 °C to 1200 °C	0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C	
Type K	-200 °C to -100 °C -100 °C to -25 °C -25 °C to 120 °C 120 °C to 1000 °C 1000 °C to 1372 °C	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.40 °C	
Type L	-200 °C to -100 °C -100 °C to 800 °C 800 °C to 900 °C	0.37 °C 0.26 °C 0.17 °C	

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Thermocouple Simulation - Generate/Measure (continued)			Using Multi product calibrator Fluke 5522A GIS/CAL/CP – 003/Rev.05
Type N	-200 °C to -100 °C -100 °C to -25 °C -25 °C to 120 °C 120 °C to 410 °C 410 °C to 1300 °C	0.40 °C 0.22 °C 0.19 °C 0.18 °C 0.27 °C	
Type R	0 °C to 250 °C 250 °C to 400 °C 400 °C to 1000 °C 1000 °C to 1767 °C	0.57 °C 0.35 °C 0.33 °C 0.40 °C	
Type S	0 °C to 250 °C 250 °C to 1000 °C 1000 °C to 1400 °C 1400 °C to 1767 °C	0.47 °C 0.36 °C 0.37 °C 0.46 °C	
Type T	-250 °C to -150 °C -150 °C to 0 °C	0.63 °C 0.24 °C	
Type U	0 °C to 120 °C 120 °C to 400 °C	0.16 °C 0.14 °C	
RTD Simulation -Measure PT-100	-200 °C to 0 °C 0 °C to 600 °C -200 °C to -80 °C -80 °C to 0 °C 0 °C to 100 °C 100 °C to 300 °C 300 °C to 400 °C 400 °C to 630 °C 630 °C to 800 °C	0.56 °C 0.27 °C 0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.10 °C 0.12 °C 0.23 °C	Using Multi product calibrator Fluke 5522A / Fluke 753A GIS/CAL/CP – 003/Rev.05
Time and Frequency			
Rotational Speed / Centrifuge	50 rpm to 15000 rpm	0.6 %	Digital Tachometer, Stroboscope GIS/CAL/CP-034 GIS/CAL/CP-035

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.

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

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

⁵Stated uncertainties are valid for the ranges of frequencies given, but the actual frequency applied by the calibrator may be dependent on the measurement device under calibration.

Notes:

LP= Low Pressure

HP= High Pressure

UPF= Unity Power Factor