CERTIFICATE OF ACCREDITATION

This is to attest

MARINE CITY COMPANY. LTD

P.O. BOX 7662
AL JUBAIL, 35521, SAUDI ARABIA

Calibration Laboratory CL-281

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 November 28, 2024

International Accreditation Service
Issued under the authority of IAS management

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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MARINE CITY COMPANY. LTD

www.metromac.com

Contact Name Jones Varughese **Contact Phone** +966-569055589

Accredited to ISO/IEC 17025:2017 *Effective Date November 28, 2024*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Caliper (Vernier, Dial, Digital)	Up to 600 mm	23 µm	Grade 0 Gauge Block set & Caliper Checker by Direct Method
Outside Micrometer	Up to 25 mm	2.8 µm	Grade 0 Gauge Block set & Caliper Checker by Direct Method
Digital/Dial Indicator (P)	Up to 100 mm	1.8 µm	Grade 0 Gauge Block set by Direct Method
Thickness Gauge (Digital / Dial)	Up to 25 mm	1.5 µm	Grade 0 Gauge Block set by Direct Method
Feeler Gauge	0.01 mm to 1 mm	3.1 µm	Digital Micrometer by Direct method
Height Gauge (Digital / Dial / Vernier)	Up to 600 mm	24 µm	Grade 0 Gauge Block set & Caliper Checker By Direct Method
Mechanical			
Vacuum Gauges	-0.8 bar to 0 bar	0.02 bar	Digital Pressure Gauge with Hand Pump by Comparison Method
Pressure Indicating Devices (Pneumatic) - - Pressure Gauge/ Pressure Chart Recorder/ Pressure Transmitters/ Pressure Transducer	0 bar to 24 bar 25 bar to 40 bar	0.2 bar 0.31 bar	Digital Pressure Gauge with Hand 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)
Pressure Indicating Devices (Hydraulic) - Pressure Gauge/ Pressure Chart Recorder/ Pressure Transmitters/ Pressure Transducer	2 bar to 140 bar 140 bar to 350 bar 350 bar to 700 bar 700 bar to 1200 bar	0.05 bar 0.06 bar 0.13 bar 0.27 bar	Dead Weight Tester by Direct method
Torque Wrenches	2.5 N m to 25 N m 25 N m to 400 N m 400 N m to 1500 N m	0.11 N m 2.9 N m 4.5 N m	Torque Wrench Tester by Direct Method
Thermal			
IR Thermometer	50 °C to 200 °C 200 °C to 600 °C	2 °C 3.1 °C	IR Calibrator by Direct Method
Digital Thermometer, Temperature Indicator with Sensor, Dial Temperature Gauge	50 °C to 100 °C 100 °C to 300 °C 300 °C to 500 °C 500 °C to 600 °C	0.23 °C 0.24 °C 0.26 °C 0.34 °C	Standard PRT and Dry block by comparison method
Electrical – DC/LF			
AC Voltage (Source) @ 45 Hz to 20 kHz	10 mV to 100 mV 100 mV to 1 V 1 V to 100 V 100 V to 1020 V	0.075 mV 0.75 mV 5.6 mV 0.31 V	Multi Product Electrical Calibrator by Direct Method
DC Voltage (Source)	0 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1020 V	4.2 µV 14 µV 0.15 mV 3.6 mV 0.021 V	Multi Product Electrical Calibrator by Direct Method
Resistance (Source)	0 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 50 kΩ 50 kΩ to 100 kΩ 100 kΩ to 500 kΩ 500 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 50 MΩ 50 MΩ to 100 MΩ	0.27 Ω 0.081 Ω 0.68 Ω 5.3 Ω 6.8 Ω 0.054 kΩ 0.072 kΩ 2 kΩ 39 kΩ 66 kΩ	Multi Product Electrical Calibrator by Direct Method
DC Current (Source)	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 1 A to 3 A 3 A to 10 A	0.12 µA 1.1 µA 1.8 µA 15 µA 0.37 mA 1.3 mA 6 mA	Multi Product Electrical Calibrator by Direct Method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Current (Source) (continued)	20 A to 100 A 100 A to 200 A 200 A to 500 A 500 A to 600 A 600 A to 1000 A	0.6 A 1.2 A 3.0 A 4.2 A 6.0 A	Multi Product Electrical Calibrator & Current Coil by Direct method Multi Product Electrical Calibrator & Current Coil by Direct method
AC Current (Source) @ 45 Hz to 1 kHz	50 µA to 100 µA 100 µA to 500 µA 500 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A	0.48 µA 1.4 µA 2.5 µA 12 µA 75 µA 0.91 mA 5.8 mA 14 mA	Multi Product Electrical Calibrator by Direct Method
AC Current (Source) @ 45 Hz to 100 Hz	20 A to 100 A 100 A to 200 A 200 A to 500 A 500 A to 600 A 600 A to 1000 A	0.7 A 1.4 A 3.4 A 4.2 A 6.0 A	Multi Product Electrical Calibrator & Current Coil by Direct method
Capacitance (Source) @ 1 kHz	0.22 nF to 1 nF 1 nF to 10 nF 10 nF to100 nF 100 nF to 1 µF 1 µF to 10 µF 10 µF to 100 µF	8 pF 0.04 nF 0.3 nF 5 nF 0.01 µF 0.14 µF	Multi Product Electrical Calibrator by Direct Method
Thermocouples Temperature Measurement by Electrical Simulation (Source) Type B Type C Type E Type J Type K Type L Type N Type R Type S Type T Type U RTD - PT100(385)	 610 °C to 1820 °C 0 °C to 2316 °C -250 °C to 1000 °C -210 °C to 1200 °C -200 °C to 1372 °C -200 °C to 900 °C -200 °C to 1300 °C 0 °C to 1767 °C 0 °C to 1767 °C -250 °C to 400 °C -200 °C to 600 °C -200 °C to 800 °C	 0.46 °C 1.0 °C 0.34 °C 0.27 °C 0.47 °C 0.34 °C 0.45 °C 0.55 °C 0.61 °C 0.76 °C 0.70 °C 0.18 °C	Multi Product Electrical Calibrator by Direct Method Advanced Field Temperature Calibrator by Direct Method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Insulation Resistance (Source) Fixed Value (up to 5 kV)	10 MΩ 100 MΩ 1 GΩ 10 GΩ	0.11 MΩ 0.8. MΩ 1 MΩ 0.11 GΩ	Megger Insulation Cal Box by Direct Method
AC Voltage (Measure[3]) @ 45 Hz to 1 kHz	0.1 V to 1 V 1 V to 10 V 10 V to 100 V 100 V to 750 V	1.4 mV 11 mV 0.14 V 1.1 V	6 ½ Digit Precision Multimeter by Direct Method
DC Voltage (Measure[3])	0 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	0.074 mV 0.65 mV 7.4 mV 78 mV	6 ½ Digit Precision Multimeter by Direct Method
AC Current (Measure[3]) @ 45 Hz & 1 kHz	100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	2.6 µA 0.018 mA 0.17 mA 1.8 mA 0.053 A	6 ½ Digit Precision Multimeter by Direct Method
DC Current (Measure[3])	0 mA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	0.0013 mA 0.0076 mA 0.058 mA 0.0016 A 0.044 A	6 ½ Digit Precision Multimeter by Direct Method
Resistance (Mesure[3])	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 to100 MΩ	0.9 Ω 1.3 Ω 13 Ω 0.14 kΩ 6.9 kΩ 0.85 MΩ	6 ½ Digit Precision Multimeter by Direct Method
Capacitance (Measure[3])	1 nF to 10 nF 10 nf to 100 nF 100 nF to 1 µF 1 µF to 10 µF 10 µF to 100 µF	0.12 nF 0.8 nF 5 nF 0.05 µF 0.5 µF	6 ½ Digit Precision Multimeter by Direct Method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Thermocouples Temperature Measurement by Electrical Simulation (Measure[3])			Advanced Field Temperature Calibrator by Direct Method
Type B	600 °C to 1820 °C	0.40 °C	
Type C	0 °C to 2316 °C	1.0 °C	
Type E	-250 °C to 1000 °C	0.43 °C	
Type J	-200 °C to 1200 °C	0.47 °C	
Type K	-200 °C to 1372 °C	0.47 °C	
Type L	-200 °C to 900 °C	0.50 °C	
Type N	-200 °C to 1300 °C	0.50 °C	
Type T	-250 °C to 400 °C	0.36 °C	
Type R	0 °C to 1767 °C	0.56 °C	
Type S	0 °C to 1767 °C	0.61 °C	
Type U	-200 °C to 600 °C	0.67 °C	
RTD - PT100(385)	-200 °C to 600 °C	0.23 °C	
Time and Frequency			
Frequency (Measure[3])	10 Hz to 45 Hz 45 Hz to 400 Hz 400 Hz to 100 kHz 100 kHz to 500 kHz 500 kHz to 1 MHz	0.01 Hz 0.012 Hz 0.06 kHz 0.1 kHz 1 kHz	6 ½ Digit Precision Multimeter by Direct Method
Frequency (Source)	10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 100 kHz 100 kHz to 1 MHz	0.1 mHz 3 mHz 3 Hz 3 kHz	Multi Product Electrical Calibrator by Direct Method
Tachometer (Non-Contact Type)	10 rpm to 1000 rpm 1000 rpm to 10000 rpm 10000 rpm to 50000 rpm 50000 rpm to 100000 rpm	0.07 rpm 0.70 rpm 0.77 rpm 0.79 rpm	Multi Product Electrical Calibrator by Direct Method
Sound Level Meter (Fixed Values)	94 dB & 114 dB @ 1 kHz	±0.6 dB	Sound Level Calibrator by Direct Method

[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.