



INTERNATIONAL
ACCREDITATION
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CERTIFICATE OF ACCREDITATION

This is to attest that

MAGNUM INDUSTRIAL LABORATORIES W.L.L

BLOCK NO 951, ROAD NO 5136, BUILDING NO 1284
ASKAR, BAHRAIN

Calibration Laboratory CL-144

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 April 13, 2024

Expiration Date September 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

MAGNUM INDUSTRIAL LABORATORIES W.L.L

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Contact Phone + 973-17832288

Accredited to ISO/IEC 17025:2017

Effective Date April 13, 2024

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<i>Dimensional</i>			
Calipers, Vernier Dial Digital	0 mm to 300 mm	9 µm	Using Slip Gauge Set & Slip Gauge Accessories as per IS: 3651-1-1982, IS: 3651 (Part 2)-1985, IS: 3651 (Part 3)-1988
Outside Micrometer	0 mm to 25 mm 25 mm to 300 mm	4.5 µm 12 µm	Using Slip Gauge Set & Slip Gauge Accessories as per IS:2967-1983
Inside Micrometer	0 mm to 300 mm	12 µm	Using Slip Gauge Set & Slip Gauge Accessories as per IS:2966-1964
Depth Micrometer	0 mm to 300 mm	12 µm	Using Slip Gauge Set & Slip Gauge Accessories as per BS 6468:2008
Depth gage Vernier Dial Digital	0 mm to 300 mm 0 mm to 300 mm 0 mm to 300 mm	12 µm 12 µm 9 µm	Using Gr '0' gage block set as per IS: 4213-1991
Height Gage Vernier Dial Digital	0 mm to 300 mm 0 mm to 300 mm 0 mm to 300 mm	12 µm 7.2 µm 7.2 µm	Using Gr '0' gage block set as per IS: 2921-1988
Dial Thickness Gauge	0.5 mm to 50 mm	1.5 µm	Using Gr '0' gage block set Based on IS: 2092-1983
Feeler gauge	0 mm to 2 mm	3.1 µm	Using Digital Micrometer as per IS: 3179-1990
Dial gauge (Dial Indicator)	0 mm to 25 mm	6.5 µm	Using Dial Calibration Tester, as per IS: 2092-1983

* 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 METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Mechanical			
Pressure (Gauges, Recorders, Safety Valves, Pressure Transmitters, Pressure Switches) ⁵	-0.85 bar to 60 bar 60 bar to 650 bar 650 bar to 1000 bar	0.03 bar 0.45 bar 6.2 bar	Using digital pressure indicator and comparator as per DKD-R 6-1, EURAMET-CG-17, API 576
	10 bar to 700 bar	0.62 %	Using Dead weight Tester as per DKD-R 6-1
Mass – Weighing Balance ⁵	0 g to 300 g	0.6 mg	Using E2 Class Weights as per OIML R76-1 & 2, OIML R 111-1 & 2, CP-M-01
	0 kg to 20 kg	25 mg	Using F1 Class Weights as per OIML R76-1 & 2, OIML R 111-1 & 2
	0 kg to 500 kg	150 g	Using M1 Class Weights As per OIML R76-1 & 2, OIML R 111-1 & 2
Volume - Glassware	100 µL to 500 µL	8.5 µL	Gravimetric Method using Weighing Balance and E2 Class Weights As per ISO 8655-6 :2022
	500 µL to 1000 µL	11 µL	
	1 mL to 10 mL	20 µL	
	10 mL to 50 mL	90 µL	
	50 mL to 100 mL	0.8 mL	
100 mL to 500 mL	40 mL		
Torque Wrench	0 N·m to 500 N·m	6 N·m	Torque Tester as per ISO 6789-1: 2017, ISO 6789-2: 2017
Sound Level Meter (at 1 kHz)	94 dB 114 dB	0.6 dB 0.8 dB	Using Sound level Calibrator as per OIML R 58: 1998
Thermal			
Temperature Indicator/ Controller with Sensor/ Thermocouples/ RTDs /Temperature Gauge (Analog /Digital) / Thermometer (Stick Type / Glass/Digital) ⁵	-10 °C to 150 °C 30 °C to 650 °C	0.52 °C 1.9 °C	Using Temperature Bath and multi-function calibrator As per EURAMET CG-8, EURAMET CG-11, EURAMET CG-13, DKD R 5-1
	Simulated Temperature ⁵		
RTD – PT 100	0 °C to 630 °C	Generate: 1.9 °C Measure: 1.4 °C	Using Multi-function calibrator (Beta MC-1210) as per EURAMET CG-11
Thermocouple Type E	-250 °C to 1000 °C	Generate: 0.77 °C Measure: 0.71 °C	

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Simulated Temperature ⁵ (continued) Thermocouple Type J	-200 °C to 1200 °C	Generate: 0.9 °C Measure: 0.87 °C	Using multi-function calibrator (Beta MC-1210) as per EURAMET CG-11
Type K	-200 °C to 1370 °C	Generate: 0.98 °C Measure 0.96 °C	
Type R	0 °C to 1750 °C	Generate 1.6 °C Measure: 1.6 °C	
Type S	0 °C to 1750 °C	Generate: 1.5 °C Measure 1.6 °C	
Type T	-250 °C to 400 °C	Generate 0.98 °C Measure 0.94 °C	
Electrical – DC/LF			
DC Voltage Generate ³	1 mV to 1000 V	0.5 %	Using Time Electronics 5025 Multi Product Calibrator as per EURAMET CG-15, IS 1248: 2003 (Part 1 to 9)
AC Voltage Generate ³ at 50 Hz	1 mV to 1000 V	0.5 %	
DC Current Generate ³	1 mA to 1000 A	0.67 %	Using Time Electronics 5025 multi Product calibrator and 50 Turns coil as per EURAMET CG-15, IS 1248: 2003 (Part 1 to 9)
AC Current Generate ³ at 50 Hz	1 mA to 1000 A	0.35 %	
DC Resistance Generate ³	1 Ω to 100 MΩ	1 %	Using Time Electronics 5025 Multi Product Calibrator as per EURAMET CG-15, IS 1248: 2003 (Part 1 to 9)
	1 Ω to 1 GΩ	0.6 %	
DC Resistance Measure ⁴	1 Ω to 100 MΩ	1.1 %	Using Fluke 8845A 6½ Digit Multimeter as per EURAMET CG-15, IS 1248: 2003 (Part 1 to 9)

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DC Voltage Measure ⁴	1 mV to 1000 V	0.45 %	Using Fluke 8845A 6½ Digit Multimeter as per EURAMET CG-15, IS 1248: 2003 (Part 1 to 9)
AC Voltage Measure ⁴ at 50 Hz	1 mV to 1000 V	0.45 %	
DC Current Measure ⁴	1 mA to 10 A	0.65 %	
AC Current Measure ⁴ at 50 Hz	1 mA to 10 A	0.65 %	
Time and Frequency			
Tachometer (Non-Contact Type)	6000 rpm to 1000 rpm 1000 rpm to 100000 rpm	1 rpm 21 rpm	5025 Multifunction Calibrator with LED light as per Sanas TR 45-02: 2017
Centrifuge, Stirrer, Rotating Equipment ⁵	100 rpm to 10000 rpm	0.5 %	Using Tachometer as per Sanas TR 45-02: 2017
Chemical/Gas			
pH Meter	4.01 pH 7.00 pH 10.01 pH	0.03 pH 0.03 pH 0.03 pH	Using Standard Buffer Solution as per manufacturer's Specification

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.

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

⁵ 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.