FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

CERTIFICATE OF ACCREDITATION

(AS PER ISO/IEC 17025:2017)

This is to attest that

M/s AL BARAKAT GOLDEN GENERAL TRADING & CONTRACTING CO.

Shop No.40 & 41, Build. No:32, Ahamadi Square, Back Side of KA4
Hyper Grand Market, 2nd Lane, Block -8, Ahamadi-61500, Kuwait

Calibration Laboratory

has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories and supplementary criteria for calibration laboratories.

Certificate Number: CL-114

Issue Date: 08.12.2023 **Valid Until:** 07.12.2025

The certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard and the relevant requirements of FDAS. (for scope of accreditation visit website www. fdasindia.org).

DEVI SARAN TEWARI
Director

FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

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SCOPE OF ACCREDITATION

(**Annexure to Certificate of CL - 114**)

Validity 08.12.2023 to 07.12.2025 Last Amended on .....

Electro-Technical Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
Measure Mode				
01	DC Voltage	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 mV to 1000 mV	0.78 % to 0.10 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1000 mV to 1000 V	0.10 % to 0.006 %
02	AC Voltage @ 50 Hz to 10 kHz	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	10 mV to 1000 mV	0.73 % to 0.11 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1000 mV to 700 V	0.11 % to 0.08 %
03	DC Current	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 mA to 100 mA	0.8 % to 0.07 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	100 mA to 3 A	0.07 % to 0.16 %
04	AC Current @ 50 Hz	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	100 mA to 500 mA	0.2 % to 0.17 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	500 mA to 2 A	0.17 % to 0.38 %

Jitendra Parmar

Dealing Officer

SCOPE OF ACCREDITATION

(**Annexure to Certificate of CL - 114**)

Electro-Technical Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
05	Resistance	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 Ω to 1000 Ω	0.42 % to 0.01 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 kΩ to 1000 kΩ	0.01 % to 0.016 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 MΩ to 10 MΩ	0.016 % to 0.07 %
06	Frequency	Using 6½ Digit Multimeter Agilent 34401A by Direct Method	100 Hz to 1 kHz	0.58 % to 0.058 %
		Using 6½ Digit Multimeter Agilent 34401A by Direct Method	1 kHz to 10 kHz	0.05 % to 0.006 %
Source Mode				
1	DC Voltage	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	1 mV to 1000 mV	0.46 % to 0.06 %
		Using Precision Multi product calibrator (Transmille 3041A) by Direct method	1000 mV to 1000 V	0.06 % to 0.05 %
2	AC Voltage @ 50 Hz	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	10 mV to 1000 mV	0.4 % to 0.21 %
		Using Precision Multi product Calibrator (Transmille 3041A) by Direct method	1000 mV to 1000 V	0.21 % to 0.05 %

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Electro-Technical Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
3	DC Current	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	1 mA to 100 mA	0.19 % to 0.09 %
		Using Precision Multi product calibrator (Transmille 3041A) by Direct method	100 mA to 3 A	0.09 % to 0.33 %
4	AC Current @ 50 Hz	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	20 mA to 500 mA	0.54 % to 0.13 %
		Using Precision Multi product calibrator (Transmille 3041A) by Direct method	500 mA to 2 A	0.13 % to 0.27 %
5	Resistance	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	1 Ω to 1000 Ω	0.97 % to 0.03 %
		Using Precision Multi product calibrator (Transmille 3041A) by Direct method	1 kΩ to 1000 kΩ	0.03 % to 0.08 %
6	Frequency	Using Precision Multi product calibrator (Transmille 3041A) by Direct method	10 Hz to 1 kHz	1.01 % to 0.32 %

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Mechanical Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
Dimension				
1	Vernier Caliper - Dial / Digital / Analog (L.C.: 0.01 mm)	Using Gauge Block Set / Accessory Set by Direct method as per IS 16491 (Part 1);2016	0 to 300 mm	9.00 µm
2	External Micrometer	Using Gauge Block Set by Direct method as per IS 2967;1983	0 to 100 mm	6.50 µm
3	Micrometer Setting Standard	Using Gauge Block Set / Dial Comparator Stand by Comparison method as per IS 2967;1983	25 mm to 100 mm	2.10 µm
4.	Plunger Dial Gauge (L.C.: 0.01 mm)	Using Gauge Block Set/ Comparator Stand by Direct method as per IS 2092;1983	0 to 10 mm	6.20 µm
Pressure				
1.	Hydraulic Pressure Dial/Digital Pressure Indicators, Gauges, Transmitters with Indicator, Recorders	Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 70 bar	0.024 bar
		Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 1400 bar	0.90 bar

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Mechanical Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 2000 bar	1.40 bar
2.	Pneumatic Pressure Digital / Analogue Pressure Gauges	Using Digital Pressure Gauge, Pneumatic/Comparator By Comparison Method Based on DKD-R 6-1;2016	0 to 20 bar	0.006 bar
3.	Digital / Analogue Pressure Gauges/ Vacuum Gauges	Using Digital Pressure Gauge, Pneumatic/Vacuum Comparator by Comparison Method Based on DKD-R 6-1:2016	0 to (-) 0.93 bar	0.005 bar

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Mechanical Calibration (At Site)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
Pressure				
1.	Hydraulic Pressure Dial/Digital Pressure Indicators, Gauges, Transmitters with Indicator, Recorders	Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 70 bar	0.024 bar
		Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 1400 bar	0.90 bar
		Using DH Budenberg Hydraulic Pressure Comparator & Precision Digital Pressure Gauge by Comparison Method Based on DKD-R 6-1;2016	0 to 2000 bar	1.40 bar
2.	Pneumatic Pressure Digital / Analogue Pressure Gauges	Using Digital Pressure Gauge, Pneumatic/Comparator By Comparison Method Based on DKD-R 6-1;2016	0 to 20 bar	0.006 bar
3.	Digital / Analogue Pressure Gauges/ Vacuum Gauges	Using Digital Pressure Gauge, Pneumatic/Vacuum Comparator by Comparison Method Based on DKD-R 6-1:2016	0 to (-) 0.93 bar	0.005 bar

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Thermal Calibration (Laboratory Based)

S. No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
Temperature				
1	Temperature Indicator with Sensor	Using RTD with Indicator (PT-100), Dry block calibrator by Comparison method	50 °C to 100 °C	0.76 °C
2	Temperature Indicator with Sensor	Using RTD with Indicator (PT-100), Dry block calibrator by Comparison method	100 °C to 600 °C	0.76 °C
3	Temperature Indicator with Sensor Temperature Indicator with Sensor of bath, Oven	Using RTD with Indicator (PT-100)/TC, Dry block calibrator by Comparison method Using RTD with Indicator (PT-100), by Direct method	600 °C to 1000 °C	1.91 °C
4	Temperature Indicator with Sensor	Using RTD with Indicator (PT-100), Dry block calibrator by Comparison method	50 °C to 600 °C	0.76 °C

***Expanded uncertainty expressed in coverage probability of approximately 95 % (coverage factor k=2)**

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