



INTERNATIONAL  
ACCREDITATION  
SERVICE®

# CERTIFICATE OF ACCREDITATION

*This is to attest that*

## **VERTEX CALIBRATION**

OFFICE NO.9, 2ND FLOOR, BUILDING NO. 242, C-RING ROAD  
DOHA 1291, QATAR

### **Calibration Laboratory CL-226**

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 March 11, 2024

Expiration Date November 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)

## VERTEX CALIBRATION

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

**Contact Name** Ronaldo Acosta

**Contact Phone** + 974-4017-2172

*Accredited to ISO/IEC 17025:2017*

*Effective Date March 11, 2024*

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

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<i>Dimensional</i>			
Outside Micrometer	Up to 150 mm	1.9 µm	Gauge Block Set by Direct Method Procedure VC-CM-M-21 (BS ISO 3401)
Calipers	Up to 150 mm 150 mm to 300 mm 300 mm to 600 mm	7.2 µm 9.1 µm 24 µm	Gauge Block Set by direct method Procedure VC-CM-M-01 (IS 3651-Part-1&2)
Thickness Gauge	Up to 100 mm	16 µm	Gauge Block Set by Direct method Procedure VC-CM-M-02
Dial Indicator (P)	Up to 100 mm	2.9 µm	Gauge Block Set by direct method Procedure VC-CM-M-03 (IS 2092, IS 11498)
Depth Gauges	Up to 100 mm	2.1 µm	Gauge Block Set by direct method Procedure VC-CM-M-04 (IS 4213)
Feeler Gauge	Up to 2 mm	2.5 µm	Digital Outside Micrometer by direct method Procedure VC-CM-M-05 (IS 3179)
Laser Distance – Length Measure	0.1 m to 1 m 1 m to 8 m	0.006 m 0.05 m	Laser Master Gauge by comparison method Procedure VC-CM-M-32

\* 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.

# 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)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<b>Mechanical</b>			
Sound Level Meter	94 dB and 114 dB (@ 1 kHz)	1.6 dB	Sound Level Calibrator by direct method Procedure VC-CM-M-16 (IS 15575, Part-1 & 2)
Volumetric Measuring Devices	200 µL to 1000 µL 1 mL to 500 mL 500 mL to 2000 mL	0.16 µL 0.3 mL 0.3 mL	Micro Balance and E1 Class Weights, Gravimetric method Procedure VC-CM-M-08 (ISO 4787, ISO 8655)
Compression Machine Class 1 & Coarser	10 kN to 100 kN	0.45%	Load Cell by direct method Procedure VC-CM-M-09 (ISO 7500-1)
	300 kN to 2700 kN	0.15 %	Load Cell by direct method Procedure VC-CM-M-09 (ASTM E4-16)
Load Cell – Tension Class 2 & Coarser	0 kN to 50 kN 50 kN to 100 kN 100 kN to 150 kN	1.6 kN 3.1 kN 5.0 kN	Load cell by comparison method Procedure VC-CM-M-31 (ASTM E4-16, ISO 376)
Load Cell – Compression Class 2 & Coarser <sup>5</sup>	10 kN to 90 kN 300 kN to 2700 kN	0.78 kN 7.6 kN	Load cell by comparison method Procedure VC-CM-M-31 (ASTM E4-16, ISO 376)
Torque Wrench / Torque Meters	99.6 N·m to 1500 N·m	0.64 %	Torque calibrator by direct method Procedure VC-CM-M-20 (IS/ISO 6789)
Weighing balance	1 mg to 200 g 200 g to 2 kg 2 kg to 10 kg 10 kg to 300 kg	0.15 mg 1.2 mg 4.1 mg 1.4 g	Standard weight Class E1, E2, F1, M1 Procedure VC-CM-M-21 (OIML R-76-1)
Batching plant scale	1 kg to 300 kg	56 g	Standard weights (M1 Class) Class II and coarser as per OIML R-76-1
Reference standard weights	1 mg to 500 mg 1 g to 500 g 1 kg to 20 kg	0.09 mg 8.8 mg 870 mg	Procedure VC-CM-M-12 (OIML R 111-1) Standard weight Class E2, F1, M1 and Weighing Balance
	100 kg 140 kg	8.2 g 8.2 g	Procedure VC-CM-M-12 (OIML R 111-1) Standard weight Class M1 and Weighing Balance

# 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)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Hydraulic Pressure Gauges <sup>5</sup>	0 bar to 70 bar 70 bar to 200 bar 200 bar to 700 bar	0.35 bar 0.42 bar 1 bar	Comparison method using Digital Pressure Gauge Procedure VC/CM/M/13 (DKD-R6-1)
Vacuum Gauges/ Switches/ Transmitters <sup>5</sup>	-1 mbar to -0.9 bar	8.1 mbar	Vacuum calibrator by direct method Procedure VC/CM/M/14 (DKD-R6-1)
Pressure Safety Valves	1 bar to 200 bar	0.42 bar	Comparison method using Digital Pressure Gauge API526 and API527
Centrifuge / RPM Measurement (Non-contact type) <sup>5</sup>	10 rpm to 500 rpm 500 rpm to 1000 rpm 1000 rpm to 90000 rpm	1.2 rpm 3.0 rpm 60 rpm	Digital Tachometer by comparison method VC/CM/M/23
<b>Thermal</b>			
Controller/Indicator with Sensor of Water bath/ Oven/ Furnace/ Incubator/ Storage room/ Freezer/ Chiller (Single sensor method) <sup>5</sup>	-25 °C to 0 °C 0 °C to 300 °C 300 °C to 1000 °C	0.76 °C 0.95 °C 0.89 °C	Master sensor RTD/ TC with data logger by single sensor method Procedure - VC-CM-T-01 & VC-CM-T-02
Mapping – Water bath/ Oven/ Furnace/ Incubator/ Storage room/ Freezer/ Chiller (9 sensor method) <sup>5</sup>	-25 °C to 0 °C 0 °C to 300 °C 300 °C to 1000 °C	1.2 °C 2.0 °C 2.5 °C	Master sensors RTD's/TC's with Multi sensor method (Mapping by using 9 sensors) Procedure - VC-CM-T-01 & VC-CM-T-02
Temperature Dry Block / Temp Bath <sup>5</sup>	-40 °C to 400 °C 400 °C to 1000 °C 600 °C to 1200 °C	1.0 °C 2.0 °C 2.0 °C	SSPRT/TC with data logger by direct method Procedure VC-CM-T-03
RTD / Thermocouple / Temp. Indicator with sensor / Temperature Gauges <sup>5</sup>	-35 °C to 650 °C	0.45 °C	Dry Block, Precision Thermometer (SSPRT) & Thermocouple (S Type) by comparison method Procedure VC-CM-T-06
Humidity Measuring devices / Thermohygrometer	10 %RH to 95 %RH @ 25 °C  5 °C to 60 °C @ 50 %RH	1.2 %RH  0.45 °C	Digital Temperature & Humidity Indicator with Sensor & Humidity Chamber  Procedure – VC-CM-T-04
<b>Electrical – DC/LF</b>			
DC Voltage - Source <sup>3</sup>	0.1 mV to 330 mV 330 mV to 330 V 330 V to 1000 V	2.3 % 0.01 % 0.01 %	Multi-Product calibrator by Direct Method Procedure - VC-CM-E-01

# 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)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Current - Source <sup>3</sup>	10 $\mu$ A to 330 $\mu$ A 330 $\mu$ A to 3.3 mA 3.3 mA to 1.0 A 1.0 A to 10 A 10 A to 20 A	0.25 % 0.03 % 0.04 % 0.07 % 0.12 %	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-03
	20 A to 400 A 400 A to 1000 A	0.87 % 1.3 %	
AC Voltage - Source <sup>3</sup>	(10 Hz to 500 kHz) 3 mV to 33 mV 33 mV to 330 mV 330 mV to 3.3 V	1.3 % 1.1 % 0.3 %	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-02
	(10 Hz to 100 kHz) 3.3 V to 33 V	0.11 %	
	(50 Hz to 20 kHz) 33 V to 330 V	0.03 %	
	(50 Hz to 10 kHz) 330 V to 1000 V	0.04 %	
AC Current - Source <sup>3</sup>	(10 Hz to 30 kHz) 30 $\mu$ A to 330 $\mu$ A 330 $\mu$ A to 330 mA	0.67 % 0.67 %	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-04
	(10 Hz to 10 kHz) 0.33 A to 1.1 A 1.1 A to 3 A	0.54 % 0.72 %	
	(50 Hz to 5 kHz) 3 A to 11 A 11 A to 20 A	0.73 % 0.25 %	
	(50 Hz) 20 A to 400 A 400 A to 1000 A	0.35 % 1.3 %	
DC Resistance - Source <sup>3</sup>	0.1 $\Omega$ to 330 k $\Omega$ 330 k $\Omega$ to 11 M $\Omega$ 11 M $\Omega$ to 110 M $\Omega$ 110 M $\Omega$ to 1100 M $\Omega$	0.12 % 0.02 % 0.06 % 1.7 %	Multi-Product Calibrator by Direct Method (2 wire and 4 wire) Procedure - VC-CM-E-05
Frequency - Source <sup>3</sup>	1 Hz to 2 MHz	0.01 %	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-08 (IS 1248 (P-1))

# 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)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Capacitance - Source <sup>3</sup>	(10 Hz to 10 kHz) 0.5 nF to 330 nF	2.9 %	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-06
	(10 Hz to 600 Hz) 0.33 µF to 330 µF	0.65 %	
	(0 Hz to 20 Hz) 0.33 mF to 110 mF	3.9 %	
Temperature Simulation (Source) <sup>5</sup> RTD (Pt-100, Pt-200, Pt-500, Pt-1000)	-200 °C to 600 °C	0.07 °C	Multi-Product Calibrator by Direct Method Procedure - VC-CM-E-07
Thermocouple			
Type B	600 °C to 1820 °C	0.87 °C	
Type C	0 °C to 2316 °C	1.2 °C	
Type E	-250 °C to 1000 °C	0.67 °C	
Type J	-210 °C to 1200 °C	0.76 °C	
Type K	-200 °C to 1372 °C	0.49 °C	
Type L	-200 °C to 900 °C	0.55 °C	
Type N	-200 °C to 1300 °C	0.78 °C	
Type R	0 °C to 1767 °C	0.86 °C	
Type S	0 °C to 1767 °C	0.89 °C	
Type T	-250 °C to 400 °C	0.81 °C	
Type U	-200 °C to 600 °C	0.73 °C	
DC Voltage - Measure <sup>4</sup>	1 mV to 10 mV 10 mV to 1000 V	0.48 % 0.05 %	Multifunction Electrical Tester Calibrator by Direct Method Procedure - VC-CM-E-04
AC Voltage - Measure <sup>4</sup> @ 50 Hz	1 mV to 10 mV 10 mV to 1000 V	4.7 % 0.54 %	
DC Current - Measure <sup>4</sup>	10 µA to 100 mA 100 mA to 1 A 1 A to 10 A	0.38 % 0.09 % 0.18 %	Multifunction Electrical Tester Calibrator by Direct Method Procedure - VC-CM-E-04
AC Current - Measure <sup>4</sup> @ 50 Hz	10 µA to 0.33 A 1 A to 10 A	0.42 % 0.59 %	
DC Resistance - Measure <sup>4</sup>	1 Ω to 1 kΩ 1 kΩ to 10 MΩ 10 MΩ to 1 GΩ	0.36 % 0.05 % 2.4 %	6 ½ Digital Multimeter by direct method Procedure -VC-CM-E-05
Frequency - Measure <sup>4</sup>	0.1 Hz to 1 MHz	0.12 %	
Capacitance @1kHz- Measure <sup>4</sup>	1 nF to 1 µF 1 µF to 100 mF	5.4 % 4.9 %	6 ½ Digital Multimeter by direct method Procedure -VC-CM-E-14

# 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)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Decade Resistors	0 kΩ to 100 kΩ 100 kΩ to 10 GΩ	0.58 kΩ 0.08 GΩ	6 ½ Digit Multimeter by direct method Procedure -VC-CM-E-13 (manufacturer's manual)
Inductance Source <sup>3</sup> @ 1 kHz	100 uH to 10 H	1.2 %	Decade Inductance Box by Direct Method
Inductance Measure <sup>4</sup> @ 1 kHz	100 uH to 10 H	1.3 %	LCR Meter by Direct Method
AC High Voltage Measure <sup>4</sup> @ 50 Hz	5 kV to 28 kV	6.2 %	High Voltage Probe with Indicator by Direct Method
DC High Voltage Measure <sup>4</sup>	5 kV to 40 kV	1.6 %	High Voltage Probe with Indicator by Direct Method
<b>Time and Frequency</b>			
Timer/ Stopwatch	5 s to 3600 s	0.03 s	Master Stopwatch by Comparison method Procedure VC-CM-E-15
<b>Chemical /Gas</b>			
pH meters <sup>5</sup>	4 pH 7 pH 10 pH	0.02 pH 0.02 pH 0.02 pH	Buffer Solutions by Direct method
Conductivity meters <sup>5</sup>	101 uS/cm 1413 uS/cm 9984 uS/cm	1 uS/cm 2 uS/cm 31 uS/cm	Buffer Solutions by Direct method
Multi gas detector	CO 100 ppm O <sub>2</sub> 18 % CH <sub>4</sub> 2.5% (50 % LEL) H <sub>2</sub> S 25 ppm	2.3 % 2.3 % 2.3 % 2.3 %	Direct method using reference GAS
Single gas Detector	O <sub>2</sub> 25 %	2.3 %	Direct method using reference GAS

<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.