CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Test Solutions de Mexico, S.A. de C.V.

Via Rápida Oriente #17228-3, Rio Tijuana 3ra Etapa
Tijuana B.C., C.P. 22226
(and satellite location as shown on the scope)

Fulfills the requirements of

ISO/IEC 17025:2017

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

In the fields of

CALIBRATION, DIMENSIONAL MEASUREMENT and TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

Jason Stine, Vice President

Expiry Date: 05 January 2027
Certificate Number: AC-1364

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

AND

ANSI/NCSL Z540-1-1994 (R2002)

Test Solutions de México, S.A. de C.V.
Vía Rápida Oriente #17228-3 Rio Tijuana 3ra Etapa
Tijuana B.C., C.P. 22226
Lucio Luis Parra 011-52-664-660-9454
lucio.luis@testsolutionsmexico.com
www.testsolutionsmexico.com

CALIBRATION, DIMENSIONAL MEASUREMENT, AND TESTING

Valid to: **January 5, 2027** Certificate Number: **AC-1364**

CALIBRATION

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Source	(0 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V 330 V to 1.1 kV	3.7 µV 7.9 µV/V + 1.1 µV 13 µV/V - 16 µV 9.7 µV/V + 93 µV 7.8 µV/V + 0.74 mV	Fluke 5500A Multiproduct Calibrator; Direct Measure
DC Current – Source	190 µA to 3.3 mA (3.3 to 33) mA (33 to 330) mA 330 mA to 2.2 A	0.12 mA/A + 18 nA 40 µA/A + 0.29 µA 0.34 mA/A - 9.5 µA 0.25 mA/A + 19 µA	Fluke 5500A Multiproduct Calibrator; Direct Measure
AC Voltage – Source	(30 to 330) mV Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz 330 mV to 3.3 V Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	 0.32 mV/V + 8.7 µV 0.54 mV/V + 3.1 µV 0.59 mV/V + 29 µV 1.4 mV/V + 15 µV 0.21 mV/V + 46 µV 0.18 mV/V + 0.12 mV 0.13 mV/V + 0.18 mV 11 µV/V + 0.46 mV 0.23 mV/V + 0.4 mV	Fluke 5500A Multiproduct Calibrator; Direct Measure

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source	(3.3 to 33) V Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (33 to 330) V 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (330 to 750) V 45 Hz to 1 kHz (1 to 10) kHz	 0.2 mV/V + 68 µV 0.18 mV/V + 0.29 mV 0.15 mV/V + 0.23 mV 0.12 mV/V + 0.13 mV 0.22 mV/V + 0.48 mV 0.29 mV/V - 3.3 mV 0.34 mV/V - 5 mV 0.49 mV/V - 11 mV 0.73 mV/V - 0.16 V 2.8 mV/V - 0.79 V	Fluke 5500A Multiproduct Calibrator; Direct Measure
AC Current – Source	(1 to 330) µA Up to 45 Hz 45 Hz to 1 kHz 330 µA to 3.3 mA Up to 45 Hz 45 Hz to 1 kHz (3.3 to 33) mA Up to 45 Hz 45 Hz to 1 kHz (33 to 330) mA Up to 45 Hz 45 Hz to 1 kHz (1 to 5) kHz 330 mA to 2.2 A Up to 45 Hz 45 Hz to 1 kHz (1 to 5) kHz	 1.9 µA 0.93 µA 0.61 mA/A + 1.7 µA 0.94 mA/A + 0.62 µA 1.2 mA/A 1.2 mA/A 1.6 mA/A - 14 µA 1.6 mA/A - 15 µA 1.8 mA/A - 16 µA 2.2 mA/A - 0.24 mA 2.3 mA/A - 0.24 mA 4.8 mA/A - 1 mA	Fluke 5500A Multiproduct Calibrator; Direct Measure
Resistance – Source (Simulation)	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω 330 Ω to 1.1 kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ	0.11 mΩ/Ω + 1.9 mΩ 87 µΩ/Ω + 2.1 mΩ 19 µΩ/Ω + 4.3 mΩ 9.4 µΩ/Ω + 2.5 mΩ 16 µΩ/Ω + 0.31 mΩ 9.8 µΩ/Ω + 7 mΩ 14 µΩ/Ω - 8 mΩ 12 µΩ/Ω + 19 mΩ 15 µΩ/Ω - 0.11 Ω 20 µΩ/Ω - 1.1 Ω	Fluke 5500A Multiproduct Calibrator; Direct Measure

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance – Source (Simulation)	330 kΩ to 1.1 MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ	20 µΩ/Ω + 57 mΩ 0.12 mΩ/Ω - 0.11 kΩ 40 µΩ/Ω + 0.16 kΩ 0.55 mΩ/Ω - 5.5 kΩ	Fluke 5500A Multiproduct Calibrator; Direct Measure
Electrical Simulation of Thermocouple Indicating Devices – Source/Measure	Type J (-210 to -100) °C (-100 to 760) °C (760 to 1 200) °C Type K (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °C Type T (0 to 120) °C (120 to 400) °C	 0.58 °C 0.48 °C 0.54 °C 1.1 °C 1.1 °C 0.81 °C 0.71 °C 0.81 °C 1.4 °C 0.7 °C	Fluke 5500A Multiproduct Calibrator; Direct Measure
DC Voltage – Measure	(0.1 to 1) V (1 to 10) V (10 to 100) V 100 V to 1 kV	22 µV/V + 6.5 µV 29 µV/V - 0.7 µV 45 µV/V - 0.16 mV 42 µV/V + 0.16 mV	HP 34401A 6.5 Digit Multimeter; Comparison Method
DC Current – Measure	Up to 3 A	1.8 mA/A – 1.3 mA	HP 34401A 6.5 Digit Multimeter; Comparison Method
AC Voltage – Measure	1 kHz 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 750) V	 0.44 mV/V + 7.8 µV 0.42 mV/V + 29 µV 0.77 mV/V - 3.5 mV 0.73 mV/V + 0.62 mV	HP 34401A 6.5 Digit Multimeter; Comparison Method
AC Current – Measure	1 kHz Up to 3 A	 2.6 mA/A - 1.4 mA	HP 34401A 6.5 Digit Multimeter; Comparison Method

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Calipers [2] Outside Inside	Up to 22 in 0.88 in 2 in	($560 + 7.5L$) µin 540 µin 590 µin	Comparison to Gage Blocks, Ring Gages, Micrometer Standards;
Dial Indicators [2]	Up to 4 in	($30 + 5.2L$) µin	Comparison to Gage Blocks
Test Indicators [2]	Up to 0.04 in	($72 + 190L$) µin	Comparison to Gage Blocks
Micrometers Inside Outside	Up to 1 in (1 to 6) in	40 µin 74 µin	Comparison to Gage Blocks
Gage Blocks [2]	Up to 1 in (1 to 4) in (4 to 10) in (10 to 40) in (40 to 120) in	4 µin ($0.9 + 3L$) µin ($4.5L - 5$) µin ($4.1 + 3.6L$) µin ($8 + 3.5L$) µin	Comparison to Universal Length Measuring Machine, Gage Blocks
Plug Gages [2]	Up to 1 in (1 to 3) in (3 to 6) in (6 to 12) in	8.4 µin ($6.6 + 1.8D$) µin ($2.8 + 3.1D$) µin ($1.2 + 3.3D$) µin	Comparison to Universal Length Measuring Machine, Gage Blocks
Ring Gages [2]	Up to 1 in (1 to 3) in (3 to 10) in (10 to 40) in	13 µin ($13 + 0.9D$) µin ($6.3 + 2.9D$) µin ($3.8 + 3.2D$) µin	Comparison to Universal Length Measuring Machine, Gage Blocks
Thread Plug Gages [2]	Up to 1.5 in (1.5 to 4) in (4 to 8) in (8 to 12) in	93 µin ($80 + 8.7D$) µin ($68 + 12D$) µin ($62 + 13D$) µin	Comparison to Universal Length Measuring Machine, Gage Blocks
Thread Ring Gages	Up to 0.25 in (0.25 to 1) in (1 to 3) in (2 to 12) in	110 µin 110 µin 110 µin 120 µin	Comparison to Universal Length Measuring Machine, Gage Blocks

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Scales and Balances (SI)	Up to 1 g (1 to 200) g (0.2 to 1) kg (1 to 10) kg (10 to 50) kg	86 µg 0.41 mg 3.1 mg 0.63 g 3.7 g	OIML Class E2 weights, OIML Class M1 cast iron weights, and internal calibration procedure are utilized in the calibration of the weighing system.
Torque Wrenches and Tools	Up to 500 lbf·in	0.46 % of reading + 0.064 lbf·in	Comparison to Transducer Techniques TRT-500 Torque Transducer
Torque Wrenches and Tools	(500 to 5 000) lbf·in	0.43 % of reading + 0.29 lbf·in	Comparison to Transducer Techniques TRS-5K Torque Transducer
Mass Flow Meters	Up to 2 ml/min (2 to 20) ml/min (20 to 200) ml/min (200 to 2 000) ml/min (2 000 to 20 000) ml/min	0.034 ml/min 0.23 ml/min 1.5 ml/min 19 ml/min 360 ml/min	Comparison to ATEQ CDF Flowmeter
Pressure Measuring Devices	Up to 300 psi	0.14 psi	Comparison to Fluke 725 Process Calibrator with Fluke 700P27 Pressure Module
Pressure Measuring Devices	(300 to 10 000) psi	0.12 % of reading	Comparison to Fluke 725 Process Calibrator with Fluke 700P31 Pressure Module
Pipettes and Other Volumetric Devices [1]	100 µl 1 ml 5 ml 25 ml 100 ml 250 ml 500 ml 1 000 ml 4 000 ml 6 000 ml	1.8 µl 1.9 µl 2 µl 8.6 µl 35 µl 61 µl 0.12 ml 0.25 ml 0.98 ml 1.5 ml	Gravimetric Method using Ohaus EX-225D, A&D GX-1000, Ohaus EX-10202 Balances

DIMENSIONAL MEASUREMENT

3 Dimensional

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Dimensional Measurement – 3D [2]	X = Up to 25 in Y = Up to 39 in Z = Up to 13 in	(150 + 5.1*L*) µin	Comparison to Coordinate Measuring Machine
Dimensional Measurement – 3D [2]	X = Up to 12 in Y = Up to 12 in Z = Up to 6 in	(100 + 8.25*L*) µin (100 + 8.25*L*) µin (125 + 11.6*L*) µin	Comparison to Video Measuring System

TESTING

Environmental

Specific Tests and/or Properties Measured	Specification, Standard, Method or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Airborne Particle Count Test, Airflow Test, Air Pressure Difference Test, Airflow Visualization Test, Temperature Test, Humidity Test, Electrostatic Test, Recovery Test, Face Velocity Test, Noise/Sound Level Test, Vibration Test, Lighting Level Test	ISO 14644-1, ISO 14644-3, IEST-RP-CC002.4, IEST-RPCC006.3, ANSI/ASHRAE Standard 110, NOM-059-SSA1-2015, NOM-164-SSA1-2015, NOM-241-SSA1-2012, NOM-025-STPS-2008	Laminar Flow Devices, Fume Hoods, Bio-Safety Cabinets and Clean Room	Met One 3413 Particle Counter, TSO/Airflow PH731 Balometer, Fluke 975 Air Flow Meter, Fluke 971 Temp/Humidity Meter, Extech 407732 Sound Level Meter, Extech 407860 Vibration Meter, Extech HD450 Light Meter
Installed Filter System Leakage Test	ISO 14644-3, IEST-RP-CC002.4, IEST-RP-CC034.4, NOM-059-SSA1-2015, NOM-164-SSA1-2015, NOM-241-SSA1-2012	HEPA Filters, ULPA Filters	ATI 2i Digital Aerosol Photometer, Met One 3413 Particle Counter
Dew Point/Humidity & Liquid Water Test	ISO 8573-1, ISO 8573-3, ISO 8573-9	Compressed Air	Vaisala MI70/DMP74B Dew Point Meter with Probe, Dräger Autotest Alpha

Environmental

Specific Tests and/or Properties Measured	Specification, Standard, Method or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Oil Aerosol and Vapor Content Test	ISO 8573-1, ISO 8573-2, ISO 8573-5	Compressed Air	CS Instruments OIL-CHECK 400 Residual Oil Content Measurement System, Dräger Autotest Alpha
Gaseous Contamination Content Test	ISO 8573-1, ISO 8573-6	Compressed Air	RAE Systems PGM-6208, and PGM-2500 Gas Detectors; Dräger Autotest Alpha
Solid Particle Content Test	ISO 8573-1, ISO 8573-4	Compressed Air	Met One 3413 Particle Counter

Services performed at satellite location

Blvd. Lopez Mateos #2290-4, Centro Comercial Castellón
Mexicali, Baja California
Fernando Garcia 686 561 9322, 9326 and 9327
fernando.garcia@testsolutionsmexico.com

CALIBRATION

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Source	(0 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V 330 V to 1.1 kV	0.53 µV/V + 9.3 µV 1.8 µV/V + 8.4 µV 3.8 µV/V + 1.9 µV 4.5 µV/V + 0.2 mV 11 µV/V + 34 µV	Fluke 5500A Multiproduct Calibrator; Direct Measure
DC Current – Source	190 µA to 3.3 mA (3.3 to 33) mA (33 to 330) mA 330 mA to 2.2 A	92 µA/A + 74 nA 28 µA/A + 0.46 µA 0.11 mA/A + 1.4 µA 51 µA/A + 73 µA	Fluke 5500A Multiproduct Calibrator; Direct Measure
AC Voltage – Source	(30 to 330) mV Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz 330 mV to 3.3 V Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (3.3 to 33) V Up to 45 Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (33 to 330) V 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (330 to 750) V 45 Hz to 1 kHz (1 to 10) kHz	 0.49 mV/V + 5 µV 0.58 mV/V + 0.4 µV 0.52 mV/V + 26 µV 0.8 mV/V - 0.9 µV 0.3 mV/V + 69 µV 0.31 mV/V + 88 µV 0.38 mV/V + 70 µV 0.75 mV/V + 16 µV 0.95 mV/V + 51 µV 0.47 mV/V + 0.5 mV 0.38 mV/V - 0.13 mV 0.45 mV/V - 0.14 mV 0.91 mV/V - 0.51 mV 0.86 mV/V + 0.36 mV 0.53 mV/V - 4.7 mV 0.63 mV/V - 8.3 mV 0.56 mV/V - 3.9 mV 1.1 mV/V - 0.19 V 0.32 mV/V + 94 mV	Fluke 5500A Multiproduct Calibrator; Direct Measure

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source	(1 to 330) µA Up to 45 Hz 45 Hz to 1 kHz 330 µA to 3.3 mA Up to 45 Hz 45 Hz to 1 kHz (3.3 to 33) mA Up to 45 Hz 45 Hz to 1 kHz (33 to 330) mA Up to 45 Hz 45 Hz to 1 kHz (1 to 5) kHz 330 mA to 2.2 A Up to 45 Hz 45 Hz to 1 kHz (1 to 5) kHz	 1.9 µA 0.93 µA 0.36 mA/A + 1.8 µA 0.49 mA/A + 0.77 µA 0.88 mA/A 0.69 mA/A 1.1 mA/A - 6 µA 1.1 mA/A - 14 µA 1.2 mA/A - 16 µA 1.3 mA/A - 88 µA 1.4 mA/A - 0.11 mA 1.8 mA/A - 0.24 mA	Fluke 5500A Multiproduct Calibrator; Direct Measure
Resistance – Source (Simulation)	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω 330 Ω to 1.1 kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ 330 kΩ to 1.1 MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ	0.11 mΩ/Ω + 1.9 mΩ 87 µΩ/Ω + 2.1 mΩ 19 µΩ/Ω + 4.3 mΩ 9.4 µΩ/Ω + 2.5 mΩ 16 µΩ/Ω + 0.31 mΩ 9.8 µΩ/Ω + 7 mΩ 14 µΩ/Ω - 8 mΩ 12 µΩ/Ω + 19 mΩ 15 µΩ/Ω - 0.11 Ω 20 µΩ/Ω - 1.1 Ω 20 µΩ/Ω + 57 mΩ 0.12 mΩ/Ω - 0.11 kΩ 40 µΩ/Ω + 0.16 kΩ 0.55 mΩ/Ω - 5.5 kΩ	Fluke 5500A Multiproduct Calibrator; Direct Measure
Electrical Simulation of Thermocouple Indicating Devices – Source/Measure	Type J (-210 to -100) °C (-100 to 760) °C (760 to 1 200) °C	 0.58 °C 0.48 °C 0.54 °C	Fluke 5500A Multiproduct Calibrator; Direct Measure

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of Thermocouple Indicating Devices – Source/Measure	Type K (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °C Type T (0 to 120) °C (120 to 400) °C	 1.1 °C 1.1 °C 0.81 °C 0.71 °C 0.81 °C 1.4 °C 0.7 °C	Fluke 5500A Multiproduct Calibrator; Direct Measure
DC Voltage – Measure	(0.1 to 1) V (1 to 10) V (10 to 100) V 100 V to 1 kV	22 µV/V + 6.5 µV 29 µV/V - 0.7 µV 45 µV/V - 0.16 mV 42 µV/V + 0.16 mV	HP 34401A 6.5 Digit Multimeter; Comparison Method
DC Current – Measure	Up to 3 A	1.8 mA/A - 1.3 mA	HP 34401A 6.5 Digit Multimeter; Comparison Method
AC Voltage – Measure	1 kHz 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 750) V	 0.44 mV/V + 7.8 µV 0.42 mV/V + 29 µV 0.77 mV/V - 3.5 mV 0.73 mV/V + 0.62 mV	HP 34401A 6.5 Digit Multimeter; Comparison Method
AC Current – Measure	1 kHz Up to 3 A	 2.6 mA/A - 1.4 mA	HP 34401A 6.5 Digit Multimeter; Comparison Method

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Calipers [2] Outside Inside	 Up to 22 in 0.88 in 2 in	 (560 + 7.5*L*) µin 540 µin 590 µin	Comparison to Gage Blocks, Ring Gages, Micrometer Standards
Dial Indicators [2]	Up to 4 in	(30 + 5.2*L*) µin	Comparison to Gage Blocks
Test Indicators [2]	Up to 0.04 in	(72 + 190*L*) µin	Comparison to Gage Blocks

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Micrometers Inside Outside	 Up to 1 in (1 to 6) in	 40 µin 74 µin	Comparison to Gage Blocks

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Scales and Balances (Avoirdupois)	Up to 16 oz (1 to 5) lb (5 to 10) lb (10 to 100) lb	0.000 33 lb 0.001 6 lb 0.003 1 lb 0.034 lb	NIST Class F weights, Cast Iron Weights and Internal Calibration Procedure are utilized in the calibration of the Weighing System.
Scales and Balances (SI)	Up to 500 g 500 g to 2.2 kg (2.2 to 4.4) kg (4.4 to 45) kg	0.15 g 0.73 g 1.5 g 15 g	NIST Class F weights, Cast Iron Weights and Internal Calibration Procedure are utilized in the calibration of the Weighing System.
Torque Wrenches and Tools	Up to 500 lbf·in	0.46 % of reading + 0.064 lbf·in	Comparison to Transducer Techniques TRT-500 Torque Transducer
Torque Wrenches and Tools	(500 to 5 000) lbf·in	0.43 % of reading + 0.29 lbf·in	Comparison to Transducer Techniques TRS-5K Torque Transducer
Mass Flow Meters	Up to 2 ml/min (2 to 20) ml/min (20 to 200) ml/min (200 to 2 000) ml/min (2 000 to 20 000) ml/min	0.034 ml/min 0.23 ml/min 1.5 ml/min 19 ml/min 360 ml/min	Comparison to ATEQ CDF Flowmeter
Pressure Measuring Devices	Up to 300 psi	0.14 psi	Comparison to Fluke 725 Process Calibrator with Fluke 700P27 Pressure Module

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Pressure Measuring Devices	(300 to 10 000) psi	0.12 % of reading	Comparison to Fluke 725 Process Calibrator with Fluke 700P31 Pressure Module

TESTING

Environmental

Specific Tests and/or Properties Measured	Specification, Standard, Method or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Airborne Particle Count Test, Airflow Test, Air Pressure Difference Test, Airflow Visualization Test, Temperature Test, Humidity Test, Electrostatic Test, Recovery Test, Face Velocity Test, Noise/Sound Level Test, Vibration Test, Lighting Level Test	ISO 14644-1, ISO 14644-3, IEST-RP-CC002.4, IEST-RPCC006.3, ANSI/ASHRAE Standard 110, NOM-059-SSA1-2015, NOM-164-SSA1-2015, NOM-241-SSA1-2012, NOM-025-STPS-2008	Laminar Flow Devices, Fume Hoods, Bio-Safety Cabinets and Clean Room	Met One 3413 Particle Counter, TSO/Airflow PH731 Balometer, Fluke 975 Air Flow Meter, Fluke 971 Temp/Humidity Meter, Extech 407732 Sound Level Meter, Extech 407860 Vibration Meter, Extech HD450 Light Meter
Installed Filter System Leakage Test	ISO 14644-3, IEST-RP-CC002.4, IEST-RP-CC034.4, NOM-059-SSA1-2015, NOM-164-SSA1-2015, NOM-241-SSA1-2012	HEPA Filters, ULPA Filters	ATI 2i Digital Aerosol Photometer, Met One 3413 Particle Counter
Dew Point/Humidity & Liquid Water Test	ISO 8573-1, ISO 8573-3, ISO 8573-9	Compressed Air	Vaisala MI70/DMP74B Dew Point Meter with Probe, Dräger Autotest Alpha

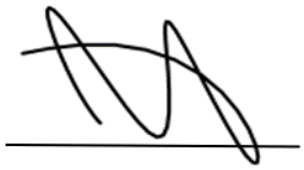
Environmental

Specific Tests and/or Properties Measured	Specification, Standard, Method or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Oil Aerosol and Vapor Content Test	ISO 8573-1, ISO 8573-2, ISO 8573-5	Compressed Air	CS Instruments OIL-CHECK 400 Residual Oil Content Measurement System, Dräger Autotest Alpha
Gaseous Contamination Content Test	ISO 8573-1, ISO 8573-6	Compressed Air	RAE Systems PGM-6208, and PGM-2500 Gas Detectors; Dräger Autotest Alpha
Solid Particle Content Test	ISO 8573-1, ISO 8573-4	Compressed Air	Met One 3413 Particle Counter

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 (k=2), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. L = length in inches; D = diameter in inches.
3. The CMC for scales and balances is highly dependent upon the resolution of the unit under test. The CMC presented here does not include the resolution of the unit under test. The resolution will be included in the reported measurement uncertainty at the time of calibration.
4. Unless otherwise specified, the calibration procedure or method utilized in the calibration of the device was internally written.
5. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1364.



Jason Stine, Vice President