CERTIFICATE OF ACCREDITATION

This is to attest

DICK MUNNS COMPANY

11133 WINNERS CIRCLE
LOS ALAMITOS, CALIFORNIA 90720, U.S.A.

Calibration Laboratory CL-122

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.

Expiration Date April 1, 2026
Effective Date February 24, 2025

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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DICK MUNNS COMPANY

Contact Name Pablo L. Acosta **Contact Phone** 1-714-827-1215

Accredited to ISO/IEC 17025:2017 *Effective Date February 24, 2025*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Mechanical			
Flowmeters by Volume (H_2O or Hydrocarbon)	0.002 gal/min to 1.0 gal/min	0.17 %	DMC Standard A-6 Volume STD, by Comparison Procedure: T.O.33K6-4-3256-1
Turbine Meters	0.002 gal/min to 0.5 gal/min	0.17 %	DMC Standard A-7 Volume STD, by Comparison Procedure: NAVAIR 17-20MG-01 or 33K6-4-900-1
PD Meters	0.2 gal/min to 1.0 gal/min	0.10 %	DMC Standard A-10 Volume STD, by comparison Procedure: T.O.33K6-4-2882-1; NAVAIR 17-20MG-01,03,54
Mag Meters	0.3 gal/min to 5.0 gal/min	0.014 %	DMC Standard A-28 Volume Prover, by Comparison Procedure: NAVAIR 17-20MG-01,03,54
Rotometers	0.5 gal/min to 15 gal/min	0.10 %	DMC Standard A-33 Volume Prover, by Comparison Procedure: NAVAIR 17-20MG-01,03,54
Vortex Meters	5.0 gal/min to 25 gal/min	0.16 %	All by Comparison Procedures: NAVAIR 17-20MG-01, 03, 54 DMC Standard A-33 Volume Prover
	5.0 gal/min to 50 gal/min	0.15 %	DMC Standard A-14 Volume Prover
	10 gal/min to 100 gal/min	0.15 %	DMC Standard A-710 Transfer STD

** 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)
Vortex Meters (continued)	100 gal/min to 600 gal/min	0.20 %	DMC Standard A-710 Transfer STD
Flow Rate Meters by Mass			All by Comparison Procedures: NAVAIR 17-20MG-01,03
	Up to 4 kg/min	0.1 %FS	DMC Standard A-322 Transfer STD
	1.01 kg/min to 12 kg/min	0.23 %	DMC Standard A-70 Micro Motion
	10 lb/min to 250 lb/min	0.1 %	DMC Standard A-50 DAQ System
	100 lb/min to 1000 lb/min	0.08 %FS	DMC Standard A-264 Transfer STD
	500 lb/min to 10000 lb/min	0.07 lb	DMC Standard A350 Scale
Flow Rate Meters by Volume			All by comparison, Procedures: NAVAIR 17-20MG-01,03,54
	10 gal/min to 100 gal/min 100 gal/min to 500 gal/min 600 gal/min to 1000 gal/min 1000 gal/min to 1500 gal/min	0.01 % 0.012 % 0.015 % 0.017 %	DMC Standard I to IV-A350 Scale, by comparison
	100 gal/min to 3000 gal/min	0.15 %	DMC Standard A-350 Scale (TRANSFER STDs A3682, A3684 & A770)
Flow Rate Meters by Volume for Compressible Gas			All by comparison Procedures: T.O.33K6-4-179-1 NAVAIR 17-20MG-02, 20
	2 cm^3/min to 50000 cm^3/min	0.12 %	DMC Standard A290 BIOS Prover
	0.005 ALPM to 0.090 ALPM	0.19 %	DMC Standard A-100 Volume prover
	0.060 ALPM to 1.2 ALPM	0.19 %	DMC Standard A-1 Volume prover
	0.200 ALPM to 12.0 ALPM	0.17 %	DMC Standard A-2 Volume prover

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Flow Rate Meter by Volume for Compressible Gas (continued)	12.1 ALPM to 25.0 ALPM	0.19 %	DMC Standard A-3 Volume prover
	0.200 ACFM to 10.0 ACFM 10.0 ACFM to 25.0 ACFM 25.0 ACFM to 50.0 ACFM	0.19 % 0.20 % 0.23 %	DMC Standard A-4 Volume prover
	2.0 ACFM to 150.0 ACFM 160 ACFM to 250.0 ACFM 250 ACFM to 1200 ACFM	0.19 % 0.19 % 0.21 %	DMC Standard A-5 Volume prover
Flow Rate Meters by Volume (Transfer Standard)			All by comparison, Procedures: NAVAIR 17-20MG-17L, MG21, MG54
	1 SCFM to 1036 SCFM	0.20 %	DMC Standard A800 Mesa Labs DryCal 800 with 2 cells
	1 SCCM to 1800 SCCM	0.8 %	DMC Standard A-8 Max Machine
	5 SCCM to 500 SCCM 500 SCCM to 50000 SCCM	0.15 % 0.15 %	Mesa Labs DryCal 800 with 2 cells
	0.003 gal/min 2.64 gal/min	0.8 %	DMC Standard A-78 Gear Meter
	0.020 gal/min to 9.25 gal/min	0.8 %	DMC Standard A-61 Gear Meter
	0.150 gal/min to 26.4 gal/min	0.8 %	DMC Standard A-58 Gear Meter
	0.500 gal/min to 50.0 gal/min	0.8 %	DMC Standard A-99 Gear Meter
	0.500 gal/min to 100.0 gal/min	0.8 %	DMC Standard A-69 Gear Meter
	10 gal/min to 600.0 gal/min	0.8 %	DMC Standard A-300 Turbine

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Flow Rate Meters by Volume (Transfer Standard, Secondary Air Flow)			By comparison, Procedure: NAVAIR 17-20MG20;T.O.33K6-4-179-1
	10 ACFM to 120 ACFM	0.38 %	DMC Standard A-297 Nozzle/Scale system
	20 CFM to 14000 CFM	0.50 %	DMC Standard A-197 Subsonic Venturi
Mass Velometers / Air Velocity Meters	50 ACFM to 8000 ACFM	0.20 %	DMC Standard A-220 (12 in Wind Tunnel) By comparison, Procedure: T.O.33.K6-4-1769-1
Anemometers	50 FPM to 8000 FPM	0.69 %	DMC Standard A-69 (12 in Wind Tunnel) By comparison Procedure: T.O.33.K6-4-1769-1
Pressure Measuring Instruments (Hydraulic and Pneumatic)			All by comparison Procedure: NAVAIR 17-20MP-03, MP-05
	0 inH_2O to 2 inH_2O	0.002 in H_2O	DMC Standard A135 Micro-manometer
	-760 mm HgA to -1 mm HgA	0.05 mm Hg	DMC Standard A22 Standard Manometer
	-15 psia to 595 psia	0.011 %	DMC Standard A321 Dead Weight Tester
	0 psig to 10000 psig	0.03 %	DMC Standard A970 Fluke Digital Pressure
	0.01 in H_2O to 10 in H_2O	0.13 %	DMC Standard A484 Pressure Standard
Hydrometers	Specific Gravity: 0.7 to 1.95	0.0002 %	DMC Standard A219 By Comparison Procedure: NIST SP 250-78
Volume Measuring Instruments	99.9304 mL	0.00010 %	DMC Standard A799 Standard volume By comparison Procedure: NIST SP 250-1039

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Volume Measuring Instruments by Gravimetric Means	1.1 gal to 5 gal	0.00088 gal	DMC 5GAL.01 Load Cell By comparison Procedure: 33K6-4-2163-1
	5 gal to 50 gal 50 gal to 100 gal 100 gal to 200 gal 200 gal to 1000 gal	0.012 gal 0.022 gal 0.056 gal 0.12 gal	DMC STD. A264 Platform Scale By comparison Procedure: NIST SP 250-1039
Torque Wrenches	4 lbf·in to 250 lbf·ft	0.25 %	Laboratory developed procedure Using Torque Standard, by comparison
Scales	0 g to 200 g	0.00020 g	DMC Standard A150 Digital Scale By comparison Procedure: 33K6-4-1204-1
Thermal			
Temperature Measuring Instruments	60 °F to 90 °F	0.019 °F	DMC Standard A24 Hart Scientific STD Thermometer
	-180 °C to 1150 °C	0.14 °C	DMC Standard A312 Hart Scientific STD Thermometer By comparison Procedures: NAVAIR 17-20MP-03, MP23, 33K5-4-42-1
Relative Humidity Measuring Instruments	10 %RH to 95 %RH	1.2 %	Custom Wet/Dry Bulb Chamber – Procedure based on NAVAIR-17-20MH-32 - by comparison
Optical Radiation			
Light Meters	0 lx to 3100 lx	1.5 %	A905 STD Lamp By Comparison Procedure: T.O.33K4-4-475-1
Pyranometers	20.2 (µW/m2)/nm to 1.58 (mW/m2)/nm (350 nm to 1000 nm)	2.3 %	
Chemical/Gas			
Gas Detection Measuring Instruments	Mixes of O2, CO2, CO, Methane, Propane, H2S & ISO-Butylene 0 % to 100 %	0.19 %	Cal Gas Cylinder and DMC Standard A1-A3 Volume standards. By comparison

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
			Procedure: NAVAIR 17-20SY-22

[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.

FS = full scale
gal = gallon (US)
ALPM = actual liter per minute
ACFM = actual cubic foot per minute
SCFM = standard cubic foot per minute
SCCM = standard cubic centimeter per minute
HgA = Hg absolute
psi = pound-force per square inch
psia = pound-force per square inch – absolute pressure
psig = pound-force per square inch – gauge pressure

[3]Field service calibration is performed for this parameter.