SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

MILLER-WEBER OF TEXAS OPERATED BY LK INDUSTRIES
1999 Tellepsen
Houston, TX 77023
Madison Crowell Phone: 346 444 8775

CALIBRATION

Valid To: October 31, 2021 Certificate Number: 5955.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 6]:

I. Fluid Quantities

Parameter/Equipment	Range	CMC[2, 5, 7] (±)	Comments
Density – Measure & Measuring Equipment[4]	(0.625 to 1.910) SG (-1 to 101) ° API	0.000 31 SG + 0.1*R* 0.052° API	Comparison to standard hydrometers
Volumetric Apparatus –			
Centrifuge Tubes	Up to 3 ml	0.0079 ml	Balance
Other Apparatus	Up to 100 ml	0.044 ml	

II. Thermodynamics

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Temperature – Measure & Measuring Equipment[4]	(-80 to -40) °C (-40 to 5) °C	0.022 ºC (22 mK) 0.016 ºC (16 mK)	Hart 5628 precision platinum resistance thermometer
	(5 to 95) °C (95 to 205) °C (205 to 305) °C (305 to 405) °C	0.013 ºC (13 mK) 0.018 ºC (18 mK) 0.034 ºC (34 mK) 0.035 ºC (35 mK)	Hart 1560 blackstack, Hart 2560 SPRT module
Temperature – Measure & Measuring Equipment[3]	(-20 to 150) °C	0.065 °C	FlukeCal 1551A StiK thermometer

III. Time & Frequency

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Rotational Speed – Measure & Measuring Equipment[3]	Up to 6000 rpm	1.7 rpm	Laser tachometer

[1] This laboratory offers commercial calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration and this laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

[4] All comparison temperature calibrations are performed in circulating liquid baths.

[5] In the statement of CMC, *R* is the numerical value of the resolution of the unit under test.

[6] This scope meets A2LA's *P112 Flexible Scope Policy*.

[7] The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

Accredited Laboratory

A2LA has accredited

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Houston, TX

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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*).

Presented this 21st day of May 2020.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5955.01
Valid to October 31, 2021

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.