



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

S. A. Meier Co. of Milwaukee, Inc.
230 James Street, A-1
Wales, WI 53183

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

CALIBRATION

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.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 02 December 2022

Certificate Number: AC-2928



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

S. A. Meier Co. of Milwaukee, Inc.

230 James Street, A-1
Wales, WI 53183
Kelly Davis
262-968-4950

CALIBRATION

Valid to: **December 2, 2022**

Certificate Number: **AC-2928**

Mass & Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment		
Force – Universal Test Machines ¹	Compression	(0 to 5) N	0.005 6 N		
		(> 5 to 10) N	0.012 N		
		(> 10 to 50) N	0.04 N		
	Tension	(> 50 to 100) N	0.062 N	Class 7 dead weights	
		(> 100 to 500) N	0.3 N		
		Compression	(0 to 5) N	0.004 8 N	Class F dead weights
			(> 5 to 10) N	0.006 8 N	
			(> 10 to 50) N	0.04 N	
			(> 50 to 100) N	0.062 N	Class F dead weights
	(> 100 to 500) N	0.36 N			
	Compression	(0 to 50) N	0.2 N	Dillon display with standard load cells	
		(> 50 to 100) N	0.32 N		
(> 100 to 500) N		0.86 N			
(> 500 to 1 000) N		2.4 N			

Mass & Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment	
Force – Universal Test Machines ¹	Compression		Dillon display with standard load cells	
		(> 1 to 10) kN		6 N
		(> 10 to 30) kN		22 N
		(> 30 to 50) kN		30 N
		(> 50 to 150) kN		94 N
	Tension			
		(0 to 50) N		0.22 N
		(> 50 to 100) N		0.26 N
		(> 100 to 500) N		0.8 N
		(> 500 to 1000) N		2 N
		(> 1 to 10) kN		6.2 N
		(> 10 to 30) kN		22 N
		(> 30 to 50) kN		34 N
		(> 50 to 150) kN		88 N
Force – Load Cells ¹	Compression	(0 to 0.5) lbf	0.000 34 lbf	Class F dead weights
		(> 0.5 to 2) lbf	0.001 lbf	
		(> 2 to 5) lbf	0.002 4 lbf	
		(> 5 to 10) lbf	0.004 8 lbf	
		(> 10 to 25) lbf	0.011 lbf	
		(> 25 to 50) lbf	0.03 lbf	
		(> 50 to 110) lbf	0.042 lbf	
		(> 110 to 200) lbf	0.096 lbf	
		(> 200 to 550) lbf	0.2 lbf	
		(> 550 to 1 100) lbf	0.36 lbf	
	Tension	(0 to 0.5) lbf	0.000 3 lbf	Class F dead weights
		(> 0.5 to 2) lbf	0.000 94 lbf	
		(> 2 to 5) lbf	0.002 2 lbf	

Mass & Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment	
Force – Load Cells ¹	(> 5 to 10) lbf	0.004 8 lbf	Class F dead weights	
	(> 10 to 25) lbf	0.012 lbf		
	Tension (> 25 to 50) lbf	0.028 lbf		
	(> 50 to 110) lbf	0.044 lbf		
	(> 110 to 200) lbf	0.096 lbf		
	(> 200 to 550) lbf	0.2 lbf		
	(> 550 to 1 100) lbf	0.36 lbf		
	Compression	(0 to 100) lbf	0.15 lbf	Dillon display with standard load cells
		(> 100 to 200) lbf	0.32 lbf	
		(> 200 to 500) lbf	0.74 lbf	
		(> 500 to 1 000) lbf	1.5 lbf	
		(> 1 000 to 2 000) lbf	1.9 lbf	
		(> 2 000 to 5 000) lbf	2.8 lbf	
		(> 5 000 to 50 000) lbf	36 lbf	
	Tension	(0 to 100) lbf	0.15 lbf	Dillon display with standard load cells
		(> 100 to 200) lbf	0.32 lbf	
		(> 200 to 500) lbf	0.74 lbf	
		(> 500 to 1 100) lbf	1.5 lbf	
		(> 1 100 to 2 000) lbf	1.9 lbf	
		(> 2 000 to 5 000) lbf	3 lbf	
		(> 5 000 to 50 000) lbf	28 lbf	
Force – Digital Force Gauges ¹	Compression (0 to 250) gf	0.015 gf	Class F dead weights	
	(0 to 2) lbf	0.001 1 lbf		
	(> 2 to 5) lbf	0.003 2 lbf		
	(> 5 to 10) lbf	0.005 4 lbf		

Mass & Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment	
Force – Digital Force Gauges ¹	Compression	(> 10 to 25) lbf	0.011 lbf	Class F dead weights
		(> 25 to 50) lbf	0.026 lbf	
		(> 50 to 100) lbf	0.04 lbf	
		(> 100 to 200) lbf	0.14 lbf	
	Tension	(0 to 250) gf	0.016 gf	Class F dead weights
		(0 to 2) lbf	0.001 1 lbf	
		(> 2 to 5) lbf	0.003 6 lbf	
		(> 5 to 10) lbf	0.005 2 lbf	
		(> 10 to 25) lbf	0.013 lbf	
		(> 25 to 50) lbf	0.026 lbf	
		(> 50 to 100) lbf	0.042 lbf	
		(> 100 to 200) lbf	0.16 lbf	
Compression	(0 to 25) lbf	0.052 lbf	Dillon display with standard load cells	
	(> 25 to 50) lbf	0.082 lbf		
	(> 50 to 100) lbf	0.15 lbf		
	(> 100 to 200) lbf	0.48 lbf		
	(> 200 to 500) lbf	0.8 lbf		
	(> 500 to 1 000) lbf	1.6 lbf		
Tension	(0 to 25) lbf	0.052 lbf	Dillon display with standard load cells	
	(> 25 to 50) lbf	0.082 lbf		
	(> 50 to 100) lbf	0.15 lbf		
	(> 100 to 200) lbf	0.48 lbf		
	(> 200 to 500) lbf	0.8 lbf		
	(> 500 to 1 000) lbf	1.5 lbf		

Mass & Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Force – Dial Gages ¹	(0 to 222) kN	5.8 kN	Dillon display with standard load cells
Force – Force Gauges ¹ (Compression & Tension)	(0 to 150) lbf	1.2 lbf	Class F dead weights
Crane Scales/ Dynamometers (tension only)	(0 to 10 000) lbf	10 lbf	Dillon display with standard load cells
	(> 10 000 to 25 000) lbf	28 lbf	
Digital Torque - CW	(0 to 3) lbf·in (> 3 to 200) lbf·in (> 200 to 1 000) lbf·in	0.004 lbf·in 0.15 lbf·in 1.3 lbf·in	Class F deadweight with torque arms
Digital Torque - CCW	0 to 3 lbf·in (> 3 to 200) lbf·in (> 200 to 1 000) lbf·in	0.002 6 lbf·in 0.15 lbf·in 1.5 lbf·in	


Length - Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Speed – Force and Universal Test Machines	(0 to 0.5) in/min	0.002 2 in/min	Stopwatch/Internal Encoder
	(> 0.5 to 5) in/min	0.009 8 in/min	
	(> 5 to 10) in/min	0.026 in/min	
	(> 10 to 20) in/min	0.054 in/min	
	(> 20 to 40) in/min	0.26 in/min	
	(> 40 to 80) in/min	0.64 in/min	
Distance – Force and Universal Test Machines	(0 to 10) in	0.001 2 in	Class AS1 Gauge Blocks
	(> 10 to 18) in	0.001 3 in	
Distance – Extensometers	(0 to 0.5) in	0.000 58 in	Mitutoyo Digital Scale

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. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2928.



R. Douglas Leonard Jr., VP, PILR SBU

