



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

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

**230 James St, 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](http://www.anab.org).

A handwritten signature in black ink, appearing to be 'Jason Stine', is positioned above a horizontal line.

Jason Stine, Vice President

Expiry Date: 02 December 2024

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  
Jeff Read  
262-968-4950

**CALIBRATION**

Valid to: **December 2, 2024**

Certificate Number: **AC-2928**

**Mass & Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment		
Force – Universal Test Machines <sup>1</sup>	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	0.30 N		
		Compression	(0 to 5) N	0.004 8 N	Class F dead weights
			(> 5 to 10) N	0.006 8 N	
	Compression	(> 10 to 50) N	0.040 N	Class 7 dead weights	
		(> 50 to 100) N	0.062 N		
		Tension	(> 100 to 500) N	0.36 N	Class F dead weights
(0 to 50) N			0.20 N		
Compression		(> 50 to 100) N	0.32 N	Dillon display with standard load cells	
		(> 100 to 500) N	0.86 N		
Compression	(> 500 to 1 000) N	2.4 N			

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Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment	
Force – Universal Test Machines <sup>1</sup>	Compression		Dillon display with standard load cells	
		(> 1 to 10) kN		7.1 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		0.80 N
		(> 500 to 1000) N		2.0 N
		(> 1 to 10) kN		6.9 N
		(> 10 to 30) kN		22 N
		(> 30 to 50) kN		34 N
		(> 50 to 150) kN		88 N
Force – Load Cells <sup>1</sup>	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	0.030 lbf	
		(> 50 to 110) lbf	0.042 lbf	
		(> 110 to 200) lbf	0.096 lbf	
		(> 200 to 550) lbf	0.22 lbf	
		(> 550 to 1 100) lbf	0.36 lbf	
	Tension	(0 to 0.5) lbf	0.000 30 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 (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment	
Force – Load Cells <sup>1</sup>	(> 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	0.24 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	3.0 lbf	
		(> 5 000 to 50 000) lbf	28 lbf	
Force – Digital Force Gauges <sup>1</sup>	(0 to 250) gf	0.14 gf	Class F dead weights	
	Compression	(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 (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment
Force – Digital Force Gauges <sup>1</sup> 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	0.15 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	0.81 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	0.82 lbf	
	(> 500 to 1 000) lbf	1.5 lbf	

**Mass & Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment
Force – Dial Gages <sup>1</sup>	(0 to 222) kN	5.8 kN	Dillon display with standard load cells
Force – Force Gauges <sup>1</sup> (Compression & Tension)	(0 to 150) lbf	1.2 lbf	Class F dead weights
Crane Scales/ Dynamometers (tension only)	(0 to 10 000) lbf (> 10 000 to 25 000) lbf	10 lbf 28 lbf	Dillon display with standard load cells
Digital Torque - CW	(0 to 3) lbf·in (> 3 to 200) lbf·in (> 200 to 1 000) lbf·in	0.004 1 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 (+/-) <sup>2</sup>	Reference Standard, Method, and/or Equipment
Speed – Force and Universal Test Machines	(0 to 0.5) in/min (> 0.5 to 5) in/min (> 5 to 10) in/min (> 10 to 20) in/min (> 20 to 40) in/min (> 40 to 80) in/min	0.002 2 in/min 0.009 8 in/min 0.026 in/min 0.054 in/min 0.26 in/min 0.64 in/min	Stopwatch/Internal Encoder
Distance – Force and Universal Test Machines	(0 to 12) in	(26 + 3.6L) μin	Class AS1 Gauge Blocks
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.  $L$  = Length in inches.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2928.



Jason Stine, Vice President

