SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TESTING MACHINES, INC. FIELD SERVICE DEPARTMENT
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CALIBRATION

Valid To: December 31, 2017 Certificate Number: 2091.01

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

I. Dimensional

Parameter/Equipment	Range	CMC[2] (±)	Comments
Micrometers[3] –			
Thickness –			
Imperial	(10 to 50) mils (100 to 500) mils	0.014 mils 0.059 mils	ISO 534, TAPPI T 411
Metric	(0.254 to 1.272) mm (2.54 to 12.72) mm	0.0004 mm 0.0015 mm	FCI/497000
Parallelism –			
Imperial	Up to 1 in	0.013 mils	
Metric	Up to 25.4 mm	0.0003 mm	
Deadweight Load Force	Up to 5 lbf	0.06 lbf	

II. Mechanical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Tear Testers[3] –			
Pendulum Force	(0 to 4385) gf	0.1 gf	ISO 1974, TAPPI T 414, ASTM D1922, D1424 FCI/831100
Cut Depth	(0 to 0.787) in	0.002 in	
Jaw Separation	(0 to 0.11) in	0.002 in	
Canadian Standard Freeness Tester[3] –			
1D Length	(0 to 130) mm	0.07 mm	ISO 5267-2, TAPPI T 227, CPPA C1 FCI/332400
Volume	(0 to 24) mL	0.07 mL	
Burst Testers[3] –			
Pressure	(0 to 200) psi (200 to 1000) psi	0.6 psi 2.9 psi	ISO 2758, ISO 2759, TAPPI T 403, T 807, T 810, FCI/130100, FCI/130900
Melt Flow Indexers[3] –			
Temperature	(100 to 400) °C	0.56 °C	ASTM D1238 FCI/460000
Bore Diameter	Up to 0.4 in	0.0006 in	
Piston Diameter	Up to 0.4 in	0.0006 in	
Mass	Up to 4 kg	0.1 g	
Die Length	Up to 0.4 in	0.0006 in	
Piston Land Length	Up to 0.3 in	0.0006 in	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Horizontal Plane Slip and Friction Tester[3] –			
Force	Up to 2000 gf	0.1 gf	ISO 15359, TAPPI T 549, T816, ASTM D1894, FCI/320000
Sled Mass	(100 to 2000) g	0.1 g	
Z-Direction Tensile Testers[3] –			
RPM	(0 to 30) rpm	0.18 rpm	FCI/842200
Speed	Up to 20 in/min	0.005 in/min	
Force (Tension Compression)	(0 to 250) lbf	0.67 lbf	
Impact Testers[3] –			
Sample Support Length	Up to 4 in	0.003 in	ISO 179, ISO 180, ASTM D256, ASTM D1822, ASTM D6110, FCI/322500, FCI/430100, FCI/430200, FCI/220500
Mass	(0 to 4) kg	0.1 g	
Notch Depth	Up to 0.4 in	0.0011 in	
Release and Adhesion Tester[3] –			
RPM	(0 to 160) rpm	0.18 rpm	TLMI L-IA1, L-IA2; PSTC –1, 4; FINAT FTM 1, 2, 3, 4; FCI/809000
Mass	(0 to 2000) g	0.1 g	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Compression Testers[3] –			
Crosshead Speed	Up to 3 in/min	0.011 in/min	ISO 13820; TAPPI T 824, T 811, T 809, T 825, T 818, T 822; FCI/173700, FCI/170000
Force	(0 to 100) lbf (100 to 250) lbf (250 to 1000) lbf (1000 to 2000) lbf (2000 to 10 000) lbf	0.29 lbf 0.67 lbf 2.7 lbf 3.7 lbf 18 lbf	
Inclined Plane Friction Testers[3] –			
Sled Mass	(200 to 1260) g	0.07 g	TAPPI T 815 FCI/322500
Plane Angle	0° to 90°	0.32°	
Tensile Testers[3] –			
Crosshead Speed (Distance/Time)	Up to 12 in/min	0.011 in/min	ISO 1924, TAPPI T 404, T 494, FCI/840000, FCI/842100
Crosshead Travel	Up to 8 in	0.002 in	
Force	(0 to 250) lbf (250 to 2000) lbf (2000 to 10 000) lbf	0.67 lbf 3.8 lbf 18 lbf	
RPM	(0 to 48) rpm	0.18 rpm	
Ink Rub Testers[3] –			
Mass	(0 to 1815) g	0.09 g	TAPPI T 830, ASTM D5264; FCI/101801
Frequency	Up to 100 strokes/min	0.26 strokes/min	

[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. Calibration and 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 actual 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.

Accredited Laboratory

A2LA has accredited

TESTING MACHINES INC. FIELD SERVICE DEPARTMENT

New Castle, DE

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets any additional program requirements in the field of calibration. 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 8 January 2009*).

Presented this 25th day of May 2016.

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 2091.01
Valid to December 31, 2017

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