



CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Berg Engineering & Sales Company, Inc.
3893 Industrial Avenue
Rolling Meadows, IL 60008

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the fields of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations and/or tests to which this accreditation applies.

L1157-1

Certificate Number



ANAB Approval

Certificate Valid: 04/23/2018-02/04/2020
Version No. 002 Issued: 04/23/2018



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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 17025:2005

Berg Engineering & Sales Company, Inc.

3893 Industrial Avenue
Rolling Meadows, IL 60008
Stephen Berg 847-577-3980

CALIBRATION

Valid to: February 4, 2020

Certificate Number: L1157-1

Electrical – DC/Low Frequency

Table with 4 columns: Parameter / Equipment, Range, Expanded Uncertainty of Measurement (+/-), Reference Standard, Method and/or Equipment. Rows include Magnetic Inspection Unit, Gauss Meter, Eddy Current Conductivity Meters, and Flaw Detector Linearities.

Length – Dimensional Metrology

Table with 4 columns: Parameter / Equipment, Range, Expanded Uncertainty of Measurement (+/-), Reference Standard, Method and/or Equipment. Row includes Ultrasonic Corrosion Thickness Gauge.



Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Ultrasonic Precision Thickness Gauge	(0.007 to 0.5) in (0.1 to 4) in	0.11 in	ASTM E797
XY Stage (X Value)	(0 to 5) mm	5.9 µm	Stage Micrometer
XY Stage (Y Value)	(0 to 5) mm	5.9 µm	
Brinell Scope	(0 to 7) mm	0.058 mm	
Optical Measuring Scope	(0 to 7) mm	0.058 mm	
Optical Measuring Scales 100X 500X	(0 to 10) mm	4.1 µm 4.8 µm	
Profilometer (Ra) ³	16.1 µin 119.5 µin	3.5 µin 12 µin	Roughness Standard ASME-B46.1
Ultrasonic Velocity Gauge	(0.18 to 0.24) in / µs	0.11 in / µs	ASTM E494
Ultrasonic Flaw Detector (Vertical Linearity)	(0.01 to 1 100) in	1 % of reading	ASTM E317
Ultrasonic Flaw Detector (Horizontal Linearity)	(0.01 to 1 100) in	0.59 % of reading	

Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Indirect Verification of Rockwell Hardness Testers ¹	HRA		Indirect Method ASTM E18 using test blocks
	Low	0.43 HRA	
	Middle	0.22 HRA	
	High	0.21 HRA	
	HRBW		
	Low	1.1 HRBW	
	Middle	0.95 HRBW	
	High	0.58 HRBW	
	HRC		
Low	0.43 HRC		
Middle	0.38 HRC		
High	0.33 HRC		

Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment		
Indirect Verification of Rockwell Hardness Testers ¹	HREW Low Middle High	0.34 HREW 0.22 HREW 0.52 HREW	Indirect Method ASTM E18 using test blocks		
	HRF Low Middle High	0.64 HRF 0.51 HRF 0.48 HRF			
	HR15N Low Middle High	0.44 HR15N 0.53 HR15N 0.26 HR15N			
	HR15Tw Low Middle High	0.63 HR15Tw 0.41 HR15Tw 0.33 HR15Tw			
	HR30TW Low Middle High	0.61 HR30TW 0.46 HR30TW 0.36 HR30TW			
	HR30N Low Middle High	0.44 HR30N 0.36 HR30N 0.31 HR30N			
	HR45N Low Middle High	0.57 HR45N 0.26 HR45N 0.26 HR45N			
	Portable Rockwell Hardness Tester	HRC Low Middle High		0.43 HRC 0.39 HRC 0.34 HRC	Indirect Method ASTM E110 using test blocks
	Indirect Verification of Brinell Hardness Tester	(500 to 3 000) kg		4.8 BHN	Indirect Method ASTM E10 using test blocks
	Brinell Optical Scanning System	(140 to 700) BHN		0.009 mm	
	Direct Verification of Brinell Hardness Tester	(1 to 3 000) kgf		6.7 kgf	

Mass

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Leeb Hardness Tester	(200 to 765) LD (300 to 750) LG	19 LD 19 LG	Indirect Method ASTM A956 using test blocks
Leeb Hardness Test Block	(500 to 800) LD (500 to 800) LG	19 LD 22 LG	
Portable Hardness Gauge UCI Method	(20 to 66) HRC	0.58 HRC	Indirect Method ASTM A1038 using test blocks
Indirect Verification of Vickers Hardness Testers	(200 to 772) HV	12 HV	Indirect Method ASTM E384 using test blocks
Indirect Verification of Knoop Hardness Testers	(200 to 734) HK	14 HK	

Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Spectral Irradiance (UV-A) (315 to 400) nm Black Light	(10 to 10 000) $\mu\text{W} / \text{cm}^2$	7.1 $\mu\text{w}/\text{cm}^2 + 7.2\%$ of reading	UVA Detector and display unit using laboratory developed method
Illuminance responsivity (Illuminant A – CIE) White Light (380 to 760) nm	(2 to 400) fc	8.5% of reading	White light Detector and display unit using laboratory developed method
Luminance responsivity White Light (380 to 760) nm	(100 to 130 000) fL	5.3% of reading	Illuminance probe and display unit using laboratory developed method



Time and Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Magnetic Inspection Unit Shot Duration	(0 to 3) s	670 ms	ASTM E1444

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. IACS unit of measure is defined as Eddy Current electrical conductivity in percentage to the International Annealed Copper Standard whereas 0.58×10^8 S/m is equivalent to 100% IACS.
3. Fixed points are approximate nominal values.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. L1157-1.



Vice President