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Complete Calibration Services

Rice Lake Weighing Systems offers comprehensive calibration services through its two ISO/IEC 17025 accredited metrology labs in Rice Lake, WI and Concord, CA. Together, these laboratories provide state-of-the-art services that promise advanced metrology expertise and a commitment to customer service through continuous improvement. Our two accredited labs offer a full selection of calibration weights, accessories and services. Our metrologists can certify weights to ASTM E617 accuracy classes 00-7; OIML R111-1 accuracy classes E1-M3. To satisfy calibration needs, Rice Lake offers certificates that fulfill various tiers of industry requirements.

Rice Lake's 100+ years of combined metrology expertise is continually expanded by staff who participate in NIST/OWM training seminars, regional metrology groups and round-robin measurement forums for related upgrades in technology and calibration tools. Additionally, Rice Lake's Concord lab, formerly known as Heusser Neweigh, is active in the NIST Western Regional Measurement Assurance Program (WRAP), the National Conference of Standards Laboratories International (NCSL International) and the American Society for Quality (ASQ). Today, Rice Lake Weighing Systems is accredited by NVLAP to conduct calibrations equal to services provided by state labs.

State and International Reciprocity

With state-granted reciprocity, Rice Lake can calibrate and ship NVLAP-accredited calibration weights to any state lab with a reciprocity agreement. NVLAP is the nation's premier calibration accreditation program; however, individual states have the ability to adopt or reject NVLAP based on state regulatory culture. When state reciprocity is a possible obstacle to your calibration needs, Rice Lake will work directly with those states' labs to get your Legal for Trade test weights and mass standards back into service.

For international customers, NVLAP-accredited calibration validates the traceable link to the international standard (SI) that is frequently required by ISO 9001 registered companies. NVLAP standards comply with and are tailored to the international documentary standards of ISO/IEC 17025 and ILAC requirements. This degree of equivalency between metrology labs in the United States and Europe simplifies calibration efforts for organizations that need the strictest scope of conformity for an international geographical region.



A2LA Cert. No. 4363.01
A2LA Cert. No. 1823.01



NVLAP Lab Code 105001-0
NVLAP Lab Code 600169-0

Rice Lake Weighing Systems' Metrology Labs



Rice Lake, WI
Concord, CA

Our metrology labs in Rice Lake, WI and Concord, CA calibrate any brand of precision or industrial weight with a four-day turnaround.

Both labs are ISO/IEC 17025 accredited for their measurement capabilities. Accreditation brings an unbiased, third party evaluation of our measurement and technical capabilities, ensuring you receive the most accurate and reliable calibration results.



Milan, Italy

CIBE S.R.L. Weights and Measures Laboratory For over 30 years, the CIBE metrology laboratory has specialized in offering testing, calibration and certification services for mass reference standards, weights and weighing instruments. The CIBE lab is accredited by ACCREDIA in Italy and Europe for calibration and periodic verification.

Customer Relations



Mike Solie
Product Manager



Deanna Stanley
Inside Sales Manager



Mark Ruefenacht
Technical Director



Dylan Callahan
Operations Manager

Order and Customer Service



Sonya Hegle



Beck Morgan



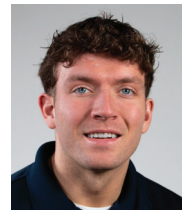
Shannon Paul



Matt Piazza



Jamie Springer



Casey Sutherland



Lynnette Thompson



Jon Thurs



Kally Wagner

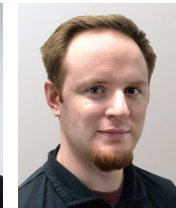
Metrology Lab Teams



Cherie Kelley
Lab Supervisor



Dan Demers
Metrologist



David Wingo
Metrologist



Heather Fenske
Lab Assistant



What is Traceability?

Traceability is documentation proving a direct link to the official U.S. one kilogram weight standard housed at the National Institute of Standards and Technology (NIST). NIST standards are calibrated to the international one kilogram weight standard maintained at the International Bureau of Weights and Measures (BIPM).

Traceability not only means that a weight or mass standard has links to the one kilogram standard, but also that the measurements are appropriate for the accuracy class required for the application. Traceability also requires proof that all environmental factors affecting accuracy were considered at the lab performing the measurement.



CHAIN OF TRACEABILITY



- Realization of BIPM
- Unbroken Chain of Comparisons
- Measurement Uncertainty
- Measurement Assurance
- Competence
- Documentation
- Periodic Recalibration



**WEIGHING
INSTRUMENT**



**CUSTOMER
WEIGHTS**

Rice Lake Calibration
Laboratory - Rice Lake, WI

Rice Lake Calibration
Laboratory - Concord, CA

National Metrology Institute (NIST)
Gaithersburg, MD

Bureau International des Poids
et Mesures - Paris, France

Rice Lake Calibration
Laboratory CIBE - Milan, Italy



**RICE LAKE'S
CALIBRATION
LABORATORIES**

**NATIONAL
METROLOGY
INSTITUTE (NIST)**

**INTERNATIONAL
SYSTEM
OF UNITS (SI)**

Packaging Weights

Virtually all Rice Lake calibration weight services in our Concord, CA and Rice Lake, WI metrology labs offer an industry-leading four-day turnaround. It is important that your calibration weights arrive at our labs undamaged. To pack your weights safely, please follow the steps below:

1. Secure Your Weights

Single weights should be individually wrapped. Weight sets need to be secure within their case. Even accessories such as milligram covers need to be protected so they cannot move. All weights need to be secure in a container designed to withstand the shipping process. Please remember, clean room cases do not provide suitable protection for shipping and should not be used.

2. Use Proper Packing Material

Single weights should be packaged individually in a vial or pouch, or wrapped in acid-free, no-lint paper, then bubble wrap or foam. Weight set cases should also be wrapped in bubble wrap or foam. Do not use packing peanuts—they create static electricity.

3. Pack Your P.O.

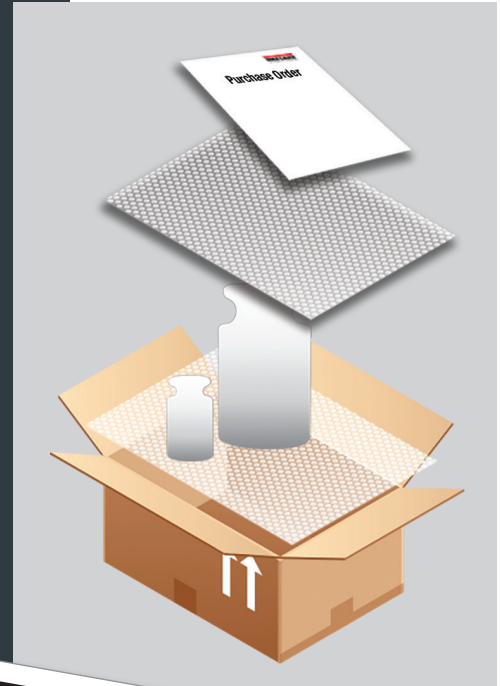
Don't forget to pack a hard copy of your purchase order or quote. Alternatively, you can include a completed copy of the recalibration form (available at ricelake.com/calibration) with preferred metrology lab, either California or Wisconsin, clearly indicated. This information will help us service your weights with the quickest turnaround time.

4. Separate Heavy Weights

Large weights, 20 pounds or 10 kilograms and heavier, should be packaged in individual boxes.

5. Don't Mix Your Weights

Please do not package stainless steel weights with cast iron weights.



Weight Request

To receive a quote for recalibration, return this form via mail, fax, or e-mail to order@ricelake.com. For questions, please contact our weights specialists at 800-472-6702 ext. 6968.

**To help us serve you better, please complete the required fields denoted with an asterisk.*

RLWS Account #: _____ **Shipping Method:** _____
Address: _____ **Shipping Account #:** _____
City: _____ **State:** _____ **Ship to:** _____
Contact: _____ **Zip:** _____ **Address:** _____
Phone: _____ **Fax:** _____ **City:** _____
Email: _____ **State:** _____ **Country:** _____
Zip: _____

Payment Information
Purchase Order #: _____ **Contact Number:** _____
Contractor: _____ **Client:** _____

Recalibration Date: No Yes, number of years: _____

Select type of documentation (only one per quote request):
 Certificate of Weight Calibration—NIST/IEC 17025 accredited. Suitable for NIST Classes ASTM D0-7, OIML E1
 Certificate of Weight Calibration—Non-accredited. Suitable for NIST Classes ASTM 1.3, OIML F1, F2

Range	Denom.	Serial #	Number of Weights	Material of Weights	Class	Qty
				<input type="checkbox"/> Individual report each weight		
				<input type="checkbox"/> All weights on one report		
				<input type="checkbox"/> Individual report each weight		
				<input type="checkbox"/> All weights on one report		
				<input type="checkbox"/> Individual report each weight		
				<input type="checkbox"/> All weights on one report		
				<input type="checkbox"/> Individual report each weight		
				<input type="checkbox"/> All weights on one report		

For shipment originating outside the USA, weights are being returned for maintenance under:
 Made in USA (ITS 9801 (0,1012)) Not made in the USA (ITS 9801 (0,2600))

Signature: _____ **Title:** _____ **Date:** _____

**We will provide complete Statement of Decontamination form and include a copy of this form and your order along with your order to hazardous materials. Service will not be customer without a completed decontamination form.*

The uncertainty of maintenance is included in the decision table in determining possible credits of the Master.

Metrology Lab Locations:
RICE LAKE: 230 W. Coleman St. • Rice Lake, WI 54988 • USA
 TEL: 800-472-6702 • FAX: 715-234-6967
CONCORD: 1400 Wilson Pass Court • Concord, CA 94520 • USA
 TEL: 800-672-1440 • FAX: 925-798-6906

Statement of Decontamination

All weights exposed to hazardous materials that are returned to Rice Lake Weighing Systems are required to have a completed decontamination form. By accepting authorization to return this product, the customer assumes all responsibility and liability for biological, chemical and radioactive decontamination and cleaning. Rice Lake Weighing Systems will not accept any delivery which does not include a completed decontamination form.

Customer Information
 Company: _____
 Cust No: _____
 Name: _____
 Phone: _____
 Email: _____
 Address: _____
 City: _____
 State/Zip: _____
 Country: _____

Product
 Manufacturer: _____ Type: _____ Serial #: _____
 Manufacturer: _____ Type: _____ Serial #: _____
 Manufacturer: _____ Type: _____ Serial #: _____
 Manufacturer: _____ Type: _____ Serial #: _____

List any exposure to hazardous fluids, gases or substances and attach copies of appropriate MSDS sheets

Please describe decontamination procedure or process used:
 ETO Bioprocess Pradication
 None Required Other _____
 Manual Disassembly and Cleaning

I certify that the aforementioned items are free of any radioactive, biohazardous, or otherwise dangerous substances (gases and are safe for human handling). By signing this form, I indicate that I have read and understand Rice Lake Weighing Systems' decontamination policy above and have taken any and all necessary steps to assure the product will not pose a chemical, biological or radioactive threat.

Signature: _____ **Title:** _____ **Date:** _____

Print Name: _____ **Title:** _____ **Date:** _____

To minimize delays, please include a copy of this form and your order along with your weight(s) to be calibrated. Service will not be performed without a completed Decontamination Form.

Metrology Lab Locations:
RICE LAKE: 230 W. Coleman St. • Rice Lake, WI 54988 • USA
 TEL: 800-472-6702 • FAX: 715-234-6967
CONCORD: 1400 Wilson Pass Court • Concord, CA 94520 • USA
 TEL: 800-672-1440 • FAX: 925-798-6906

RICE LAKE WEIGHING SYSTEMS
 An ISO 9001 Registered Company • 2015 Rice Lake Weighing Systems 1/25
 Prices and specifications subject to change without notice. Visit ricelake.com for current prices.
 www.ricelake.com/usa/usa/index.html
 Manufacturing subject to change without notice.
 ©2015 Rice Lake Weighing Systems

The "Weight Recalibration Request Form" on page 283 and the "Statement of Decontamination Form" on page 285 can also be found online at ricelake.com/recalibration

Weight Handling Procedure

- All weights and cases are inspected for damage and scheduled for calibration upon arrival to the lab.
- All stickers and markers are removed from the weights.
- Precision weights receiving accredited calibration are checked for magnetism.
- A maximum permissible error test is conducted.
- Any follow up with the client is completed.

Mass Standards Expectations

- Weights should be clean and in good repair.
- Weights shall be identified with a permanent serial number or mark into the surface of the weight.
- Stickers and markers are not allowed and will be removed. The added mass of the sticker may change the mass of the weight, possibly causing the weight to be out of tolerance which will invalidate the reported value on the certificate.
- Individual weight kits shall also be identified with unique serial numbers.
- Cast iron weights should have no evidence of rust, loose paint or adhering debris.
- Analytical weights should be handled carefully. Tolerances are small, so dirt or abuse can throw them out of tolerance.
- Any cleaning, repair or painting of standards in the metrology lab will incur an extra charge.

Case Conditions

- Interior of cases for weight kits should also be wiped out or vacuumed.
- Cases should be sound with secure latches.

Contact Us

Your existing calibration weights and weight sets should be recertified on a managed periodic basis determined by a number of factors, including but not limited to the environment, frequency of use, demands of the process, quality of the weighing device in question, age of the weights in question and handling during use.

Coast to coast, Rice Lake Weighing Systems will calibrate any of your current calibration weights or weight sets. To accurately estimate the cost of our calibration services, we offer the following four-hour response options:

Online

Complete and email the "Weight Recalibration Request Form" found at www.ricelake.com/recalibration to orderdesk@ricelake.com

Mail

Return the "Weight Recalibration Request Form" on page 283 found in the reference section of the catalog or download the form online at www.ricelake.com/metrologyservices. Once we receive your request, we will email or call you with a quote.

Phone

Call 800-472-6703 to discuss your needs and receive a quote.

Metrology staff can be contacted between the hours of 6:30 a.m. and 6:30 p.m., Monday through Friday and 8:00 a.m. to noon (Central Time) on Saturday.

Replacement documentation is provided free of charge if reported lost within 60 days of the date of the original document. After 60 days, a fee of \$50.00 plus shipping will be charged.



Documentation

Rice Lake's labs in California and Wisconsin offer two types of weight documentation: accredited and non-accredited. An accredited document is ISO/IEC 17025 accredited through NVLAP and A2LA. Measurements are traceable to the SI through NIST.

Rice Lake offers one accredited document:

- **Certificate of Weight Calibration**

Rice Lake offers two non-accredited documents:

- **Certificate of Weight Calibration**
(non-accredited but measurements are traceable to the SI through NIST)
- **Statement of Accuracy**
(non-accredited and not traceable to NIST)

What Type of Documentation Do I Need for My Weights?

Depending on the class of weight being evaluated, different documentation may be needed. Refer to any programs or guidelines within your company or the Accuracy Classes for Mass Standards and Test Weights chart below can be used as a guide to define whether an accredited or non-accredited Certificate of Weight Calibration is required.

A Statement of Accuracy is adequate if the actual values and stated uncertainties of the weights are not necessary, and only the tolerances of the specific class are needed. These documents are normally adequate for weights used to calibrate industrial balances and scales more than 6 kilograms in capacity. The mass standards used by both labs are used to verify that those weights are within the necessary tolerances. Weights with this document do not meet the requirements needed in Legal for Trade applications.

Legal for Trade Weight Applications

ASTM and OIML weights are required for Legal for Trade applications which include any product that is sold by weight.

New Weights

To order documentation with your purchase of a new weight or weight set, please note on your purchase order to add documentation and then call or fax the order to have the additional price quoted immediately.

Accuracy Classes

Current Standard and Test Weight Accuracy Classes			Historical Classes	
Typical Use	OIML ¹	ASTM E617 ²	NIST 105-1 ³	NBS CIR. 547 ³
Certificate of Weight Calibration (Accredited) Is Recommended for...				
Primary Laboratory Reference Standard High precision standards for calibration of weights and special precision analytical balances accuracy Classes I and II (class number depending on precision).	E1	00		
	E2			
		0 and 1		M and S
Certificate of Weight Calibration (Non-accredited) Is Recommended for...				
High Accuracy Balances Working standard for precision analytical work, built-in weights and external weights used to calibrate moderate precision balances.	F1	2		
		3		S1
	F2			
Statement of Accuracy Is Acceptable for...				
Industrial Scales and Balances Accuracy Class III industrial scales, dial scales, trip balances and platform scales. Also used for accuracy Class III L and III L, and weights used to calibrate scales in Legal for Trade applications.		4		P
	M1	5		Q
	M2	6	F	T
	M3	7		

¹For more information on OIML Weight Classifications, see page 240

²For more information on ASTM Weight Classification, see page 238 (ASTM E617)

³Listed for reference only. NBS Cir. 547 has been superseded by ASTM E 617 classifications

NOTE: All NIST Class F 2020 are acceptable as NIST Class F providing they meet the criteria defined in NIST Handbook 105-1 2019

Certificate Quick Look



Certificate of Weight Calibration (accredited)

- Meets requirements for ISO/IEC 17025 and ANSI/NCSL Z540-1
- Measurements are traceable to the SI through NIST
- Contains the assumed density of the weight being tested so that atmospheric buoyancy corrections can be applied
- Lists the uncertainty of the measurement process as it relates to the item being calibrated
- Lists the actual mass values or the corrections to the nominal mass of the weight being calibrated vs. 8 grams/cm³
- Lists the environmental conditions present at time of calibration
- Cites that the test was done by Rice Lake's accredited laboratories
- States that Rice Lake is ISO 9001 registered

Certificate of Weight Calibration (non-accredited)

- Measurements are traceable to the SI through NIST
- Not an accredited certificate
- Contains the assumed density of the weight being tested so that atmospheric buoyancy corrections can be applied
- Lists the uncertainty of the measurement process as it relates to the item being calibrated
- Lists the actual mass values or the corrections to the nominal mass of the weight being calibrated vs. 8 grams/cm³
- Lists the environmental conditions present at time of calibration
- Cites that the test was done by Rice Lake's laboratories

Statement of Accuracy

- Does not provide traceability to NIST
- All weight classes except E1, E2, 0, 00
- This is not a Legal for Trade or traceable document
- Tolerance statement of the weight
- Nominal value of the weight is listed
- Tolerance for the specific weight class is noted
- Before, after or uncertainty values are not listed



Certificate of Weight Calibration (Accredited)

A customer requesting an accredited Certificate of Weight Calibration needing traceability to NIST is looking for a nominal mass value plus or minus corrections and uncertainty values. To produce this document, a calibration laboratory must maintain a statistical measurement process acceptable by the accrediting body. Also, depending on the weight class and the accuracy required, different standards and procedures need to be incorporated to make sure the level of uncertainty is appropriate for the item being calibrated. The accredited Certificate of Weight Calibration is in compliance with ISO International Standard 17025 and ANSI/ NCSL Z540-1 requirements.

RICE LAKE

Certificate of Weight Calibration

ISO/IEC 17025:2017 & ANSI/NCSL-Z540-1-1994 ACCREDITED

Traceable Certificate Number: 1234567 **1**
Contractor: RICE LAKE WEIGHING SYSTEMS
 230 W. COLEMAN STREET
 RICE LAKE, WI 54868 **2**

Purchase Order Number: 3 PURCHASE ORDER
Client: RICE LAKE WEIGHING SYSTEMS
 230 W. COLEMAN STREET
 RICE LAKE, WI 54868

4 Date Received: 25 Sep 2022
5 Date Calibrated: 26 Sep 2022 to 27 Sep 2022
6 Recalibration Date: 26 Sep 2023
8 NIST Certificate Number: 684/292805-19

If there are two NIST numbers, one only may apply

7 Calibrated By: 20, 28
Procedure: WI05-0095 Rev. D

8 Condition of Weights: Acceptable for Calibration

Description of Weights: 2 mg to 100 g Polished Weights, ASTM Class 1, S/N 1234, ID# ABCD

Comments:

	Key Notes
Finish	✱ Indicates the weight does not meet the finish requirements
Material	⊕ Indicates the weight does not meet the material requirements
New Wt	◇ Indicates new weight
Missing Wt	✱ Indicates replaced missing weight with new weight
Damaged Wt	✱ Indicates replaced damaged weight
Replaced OOT	★ Indicates replaced out of tolerance weight
OOT	⊗ Indicates correction plus or minus Uncertainty greater than or equal to MPE
Magnetic Wt	★★ Indicates replaced magnetic weight
Design	⊕ Indicates the weight does not meet the design or shape requirements
Repainted	■ Indicates the weight was repainted after As Found obtained
Other	⊕ See comments above

Cleaning Levels	
A	Dusted with brush or cloth
B	Spot cleaned with ethyl alcohol
C	Full surface cleaned with ethyl alcohol
D	Spot cleaned with non-alcohol solvent followed by ethyl alcohol
E	Full surface cleaned with non-alcohol solvent followed by ethyl alcohol
F	No cleaning performed

Material Abbreviations			
AL	Aluminum	TA	Tantalum
SS	Stainless Steel	BR	Brass
CI	Cast Iron	PL	Platinum
IR	Iron	NS	Nickel Silver
MS	Mild Steel	OR	Other/Unknown

Check with your local state agency for certification of compliance on Legal-for-Trade items. The weight accuracy class is referenced in the Description of Weights. Unless otherwise noted, the weights calibrated meet the requirements of the accuracy class. Results relate only to weights calibrated. The Surface Finishes of weights are evaluated visually. Weights are screened for magnetism using work instruction WI05-0035 when they are new, when requested by the customer or when weights are suspected of not meeting specifications. Density if measured is measured using OIML R111-1 (2004) method A2. Conventional Mass is reported based on a reference density of 8.0 g/cm³. The Uncertainty of Measurement is included in the determination of Maximum Permissible Error (MPE) Pass/Fail Criteria. The specifications for Maximum Permissible Error (MPE) can be found in NIST Handbook 105-1 (2019), NIST Handbook 105-1 (1990), ASTM E617-23 or OIML R111-1 (2004), manufacturer specifications or customer specifications.

The Uncertainty assigned to the Conventional Mass values are the result of the root-sum-square of the type A and type B components, calculated in accordance with NIST SOP 29 and the Guide to the expression of uncertainty in measurement, with coverage factor ($k=2$), to express the expanded uncertainty with an approximate 95.45% confidence level. This report is not to be used to claim product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any government agency. **This document and all data within, shall not be reproduced, except in full, without the written approval of Rice Lake Weighing Systems.**

Dan Demers
 Dan Demers, Metrologist



Prepared By:
10 Rice Lake Weighing Systems® • PN 64784 • 12/21
 230 West Coleman Street • Rice Lake, WI 54868 • USA
 TEL: 715-234-9171 • FAX: 715-234-8967
 Definitions: <http://certs.ricelake.com/certs/DefinitionsV2.docx>
 Page 1 of 2

30 Sep 2022
 Issued Date:



*Procedure used:
 Internationally published procedures defined
 by NIST, ASTM and OIML*

The Certificate of Weight Calibration (accredited) includes the following information:

- 1 Traceable Certificate Number
- 2 Contractor (sold to) name and address
- 3 End user name and address
- 4 Date Calibrated
- 5 Recalibration Date (if requested)
- 6 NIST Certificate of Calibration Number
- 7 Procedure used (Intercomparison Method)
- 8 Identification of the calibrated item(s) and serial number, if applicable
- 9 The NVLAP and A2LA official logos are displayed (meeting the scope of accreditation) or (parameters provided under the scope of accreditation)
- 10 Name and Address of the Calibration Laboratory
- 11 Nominal Mass
- 12 True Mass (Mass in Vacuum)
- 13 True Mass Correction⁰
- 14 Conventional Mass: mass of a weight of a density of 8000 kg/m³ which it balances in air of density of 1.2 kg/m³
- 15 Conventional Mass Correction¹
- 16 A stated quantity of the estimated value of uncertainty²
- 17 Maximum Permissible Error for the specified accuracy class
- 18 Assumed material density of the weight being calibrated
- 19 Environmental conditions to time of calibration
- 20 Record of the weighing instrument(s)
- 21 Reference standard set used to calibrate item(s) listed on certificate

⁰ The True Mass Correction is the deviation from the Nominal Value, reported in milligrams. A minus sign indicates that the True Mass of the weight is less than the nominal value.

¹ The Conventional Mass Correction is the deviation from the Nominal Value, reported in milligrams. A minus sign indicates that the Conventional Mass of the weight is less than the nominal value.

² All measurements have a degree of uncertainty regardless of precision and accuracy. This is caused by two factors, the limitation of the measuring instrument (systematic error) and the skill of the experimenter making the measurements (random error).

RICE LAKE Certificate of Weight Calibration

Traceable Certificate Number: 1234567

Client: Rice Lake Weighing Systems

Date Calibrated: 26 Sep 2022 to 27 Sep 2022

ISO/IEC 17025 & ANSI/NCSL-Z540-1-1994 ACCREDITED

Temperature Range: 19 20.62 °C to 20.81 °C

Pressure Range: 736.58 mmHg to 740.90 mmHg

Relative Humidity Range: 42 % to 51 %

As Left Data (As Found Data is undifferentiated from As Left Data unless listed in As Found Data table)

Nominal Value	Unique ID	12 True Mass (Same UOM as Nom.)	13 True Mass Corr. (mg)	14 Conv. Mass (Same UOM as Nom.)	15 Conv. Mass Corr. (mg)	16 (k=2) Unc. (± mg)	17 MPE (± mg)	18 MPE Pass (Y=Pass N=Fail)	Assumed Density (g/cm ³)	Assumed Material	Const. Type	20 Balance Used	21 Reference Standard Set Used	Air Density (mg/cm ³)	Clean Level
2 mg		2.00162	0.00162	2.00161	0.00161	0.00062	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1659	A
3 mg		2.99858	-0.00142	2.99858	-0.00142	0.00062	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1659	A
5 mg		5.00303	0.00303	5.00302	0.00302	0.00071	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1660	A
10 mg		10.00376	0.00376	10.00375	0.00375	0.00097	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
20 mg		20.00359	0.00359	20.00357	0.00357	0.00081	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
30 mg		30.00011	0.00011	30.00008	0.00008	0.00081	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
50 mg		49.99981	-0.00009	49.99990	-0.0010	0.0016	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
100 mg		100.0033	0.0033	100.0032	0.0032	0.0019	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
200 mg		200.0016	0.0016	200.0014	0.0014	0.0019	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
300 mg		300.0032	0.0032	300.0029	0.0029	0.0016	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
500 mg		500.0026	0.0026	500.0021	0.0021	0.0021	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
1 g		1.0000130	0.0130	1.0000121	0.0121	0.0027	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
2 g		1.9999822	-0.0178	1.9999803	-0.0197	0.0031	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
3 g		3.0000197	0.0197	3.0000168	0.0168	0.0033	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
5 g		5.0000101	0.0101	5.0000054	0.0054	0.0055	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
10 g		10.000031	0.031	10.000021	0.021	0.011	0.050	Y	7.95	SS	II	676Q	K594Q	1.1664	A
20 g		20.000042	0.042	20.000023	0.023	0.012	0.074	Y	7.95	SS	II	676Q	K594Q	1.1663	A
30 g		30.000008	0.008	29.999980	-0.020	0.019	0.074	Y	7.95	SS	II	1631Q	K594Q	1.1659	A
50 g		49.999981	-0.019	49.999934	-0.066	0.027	0.12	Y	7.95	SS	II	1631Q	K594Q	1.1657	A
★ 100 g		100.000281	0.281	100.000187	0.187	0.052	0.25	Y	7.95	SS	II	1631Q	K594Q	1.1658	A

As Found Data

Nominal Value	Unique ID	True Mass (Same UOM as Nom.)	True Mass Corr. (mg)	Conv. Mass (Same UOM as Nom.)	Conv. Mass Corr. (mg)	(k=2) Unc. (± mg)	MPE (± mg)	MPE Pass (Y=Pass N=Fail)	Assumed Density (g/cm ³)	Assumed Material	Const. Type	Balance Used	Reference Standard Set Used	Air Density (mg/cm ³)	Clean Level
★ 100 g		99.999884	-0.116	99.999789	-0.211	0.052	0.25	N	7.95	SS	II	1631Q	K594Q	1.1658	A

Page 2 of 2

Certificate of Weight Calibration (Non-accredited)

A customer requesting a non-accredited Certificate of Weight Calibration, needs proof of traceability to NIST and actual values and uncertainties. Comparisons must be made between the item being calibrated and the standard being used. The mass reference standard used for the tolerance test is essential to the traceable document.

Prior to comparison between the known standard and the item submitted for calibrating, the known standard must be sufficiently calibrated over time to produce predictable measurements.

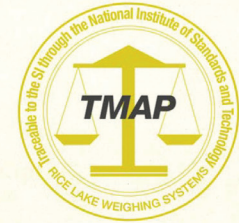
This certificate should contain all of the data related to the calibration. After calibrating, a non-accredited Certificate of Weight Calibration is issued. Although the Certificate of Weight Calibration (non-accredited) provides traceability to NIST, it is not a NVLAP accredited document. If an accredited document is required, please refer to the Certificate of Weight Calibration (accredited) on the previous page.

RICE LAKE

Certificate of Weight Calibration

Traceable Certificate Number: 1234567 **1**
 Contractor: RICE LAKE WEIGHING SYSTEMS
2 230 W. COLEMAN STREET
 RICE LAKE, WI 54868
 Purchase Order Number: **3** PURCHASE ORDER
 Client: RICE LAKE WEIGHING SYSTEMS
 230 W. COLEMAN STREET
 RICE LAKE, WI 54868

4 Date Received: 25 Sep 2022
5 Date Calibrated: 26 Sep 2022 to 27 Sep 2022
6 Recalibration Date: 26 Sep 2023
 NIST Certificate Number: 684/292805-19
 If there are two NIST numbers, one of them may apply
 Calibrated By: **7** 20, 28
 Procedure: WI05-0095 Rev. D
 Condition of Weights: **8** Acceptable for Calibration
 Description of Weights: 2 mg to 100 g Polished Weights, ASTM Class 1, S/N 1234, ID# ABCD
 Comments:



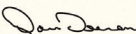
Key Notes	
Finish	* Indicates the weight does not meet the finish requirements
Material	⊕ Indicates the weight does not meet the material requirements
New Wt	◇ Indicates new weight
Missing Wt	△ Indicates replaced missing weight with new weight
Damaged Wt	✕ Indicates replaced damaged weight
Replaced OOT	★ Indicates replaced out of tolerance weight
OOT	⊗ Indicates correction plus or minus Uncertainty greater than or equal to MPE
Magnetic Wt	★ Indicates replaced magnetic weight
Design	⊗ Indicates the weight does not meet the design or shape requirements
Repainted	■ Indicates the weight was repainted after As Found obtained
Other	† See comments above

Cleaning Levels	
A	Dusted with brush or cloth
B	Spot cleaned with ethyl alcohol
C	Full surface cleaned with ethyl alcohol
D	Spot cleaned with non-alcohol solvent followed by ethyl alcohol
E	Full surface cleaned with non-alcohol solvent followed by ethyl alcohol
F	No cleaning performed

Material Abbreviations			
AL	Aluminum	TA	Tantalum
SS	Stainless Steel	BR	Brass
CI	Cast Iron	PL	Platinum
IR	Iron	NS	Nickel Silver
MS	Mild Steel	OR	Other/Unknown

Check with your local state agency for certification of compliance on Legal-for-Trade items. The weight accuracy class is referenced in the Description of Weights. Unless otherwise noted, the weights calibrated meet the requirements of the accuracy class. Results relate only to weights calibrated. The Surface Finishes of weights are evaluated visually. Weights are screened for magnetism using work instruction WI05-0035 when they are new, when requested by the customer or when weights are suspected of not meeting specifications. Density if measured is measured using OIML R111-1 (2004) method A2. Conventional Mass is reported based on a reference density of 8.0 g/cm³. The Uncertainty of Measurement is included in the determination of Maximum Permissible Error (MPE) Pass/Fail Criteria. The specifications for Maximum Permissible Error (MPE) can be found in NIST Handbook 105-1 (2019), NIST Handbook 105-1 (1990), ASTM E817-18 or OIML R111-1 (2004), manufacturer specifications or customer specifications.

The Uncertainty assigned to the Conventional Mass values are the result of the root-sum-square of the type A and type B components, calculated in accordance with NIST SOP 29 and the Guide to the expression of uncertainty in measurement, with coverage factor ($k=2$), to express the expanded uncertainty with an approximate 95.45% confidence level. This report is not to be used to claim product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any government agency. **This document and all data within, shall not be reproduced, except in full, without the written approval of Rice Lake Weighing Systems.**


 Dan Demers, Metrologist

30 Sep 2022
 Issued Date.

9 Prepared By:
 Rice Lake Weighing Systems® • PN 64784 • 12/21
 230 West Coleman Street • Rice Lake, WI 54868 • USA
 TEL: 715-234-9171 • FAX: 715-234-6967
 Definitions: <http://certs.ricelake.com/certs/DefinitionsV2.docx>
 Page 1 of 2

Procedure used:
 Internationally published procedures defined
 by NIST, ASTM and OIML


The Certificate of Weight Calibration (non-accredited) includes the following information:

- 1** Traceable Certificate Number
- 2** Contractor (sold to) name and address
- 3** End user name and address
- 4** Date Calibrated
- 5** Recalibration Date (if requested)
- 6** NIST Certificate of Calibration Number
- 7** Procedure used (Intercomparison Method)
- 8** Identification of the calibrated item(s) and serial number, if applicable
- 9** Name and address of the calibration laboratory
- 10** Nominal Mass
- 11** True Mass (Mass in Vacuum)
- 12** True Mass Correction⁰
- 13** Conventional Mass: mass of a weight of a density of 8000 kg/m³ which it balances in air of density of 1.2 kg/m³
- 14** Conventional Mass Correction¹
- 15** A stated quantity of the estimated value of uncertainty²
- 16** Maximum Permissible Error for the specified accuracy class
- 17** Assumed material density of the weight being calibrated
- 18** Environmental conditions to time of calibration
- 19** Record of the weighing instrument(s)
- 20** Reference standard set used to calibrate item(s) listed on certificate

⁰ The True Mass Correction is the deviation from the Nominal Value, reported in milligrams. A minus sign indicates that the True Mass of the weight is less than the nominal value.

¹ The Conventional Mass Correction is the deviation from the Nominal Value, reported in milligrams. A minus sign indicates that the Conventional Mass of the weight is less than the nominal value.

² All measurements have a degree of uncertainty regardless of precision and accuracy. This is caused by two factors, the limitation of the measuring instrument (systematic error) and the skill of the experimenter making the measurements (random error).



Certificate of Weight Calibration

Traceable Certificate Number: 1234567 Client: Rice Lake Weighing Systems Date Calibrated: 26 Sep 2022 to 27 Sep 2022	Temperature Range: 18 20.62 °C to 20.81 °C Pressure Range: 736.58 mmHg to 740.90 mmHg Relative Humidity Range: 42 % to 51 %
--	--

As Left Data (As Found Data is undifferentiated from As Left Data unless listed in As Found Data table)

Nominal Value	Unique ID	True Mass (Same UOM as Nom.)	True Mass Corr. (mg)	Conv. Mass (Same UOM as Nom.)	Conv. Mass Corr. (mg)	(k=2) Unc. (± mg)	MPE (± mg)	MPE Pass (Y=Pass N=Fail)	Assumed Density (g/cm ³)	Assumed Material	Const. Type	Balance Used	Reference Standard Set Used	Air Density (mg/cm ³)	Clean Level
2 mg		2.00162	0.00162	2.00161	0.00161	0.00062	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1659	A
3 mg		2.99858	-0.00142	2.99858	-0.00142	0.00062	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1659	A
5 mg		5.00303	0.00303	5.00302	0.00302	0.00071	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1660	A
10 mg		10.00376	0.00376	10.00375	0.00375	0.00097	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
20 mg		20.00359	0.00359	20.00357	0.00357	0.00081	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
30 mg		30.00011	0.00011	30.00008	0.00008	0.00081	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1661	A
50 mg		49.9991	-0.0009	49.9990	-0.0009	0.00016	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
100 mg		100.0033	0.0033	100.0032	0.0032	0.00019	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
200 mg		200.0016	0.0016	200.0014	0.0014	0.00019	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
300 mg		300.0032	0.0032	300.0029	0.0029	0.00016	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
500 mg		500.0026	0.0026	500.0021	0.0021	0.00021	0.010	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
1 g		1.0000130	0.0130	1.0000121	0.0121	0.00027	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
2 g		1.9999822	-0.0178	1.9999803	-0.0197	0.00031	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1662	A
3 g		3.0000197	0.0197	3.0000168	0.0168	0.00033	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1663	A
5 g		5.0000101	0.0101	5.0000054	0.0054	0.00055	0.034	Y	7.95	SS	I	1605Q	K594Q	1.1664	A
10 g		10.000031	0.031	10.000021	0.021	0.0011	0.050	Y	7.95	SS	II	676Q	K594Q	1.1664	A
20 g		20.000042	0.042	20.000023	0.023	0.0012	0.074	Y	7.95	SS	II	676Q	K594Q	1.1663	A
30 g		30.000008	0.008	29.999980	-0.020	0.0019	0.074	Y	7.95	SS	II	1631Q	K594Q	1.1659	A
50 g		49.999981	-0.019	49.999934	-0.066	0.0027	0.12	Y	7.95	SS	II	1631Q	K594Q	1.1657	A
★ 100 g		100.000281	0.281	100.000187	0.187	0.0052	0.25	Y	7.95	SS	II	1631Q	K594Q	1.1595	A

As Found Data															
Nominal Value	Unique ID	True Mass (Same UOM as Nom.)	True Mass Corr. (mg)	Conv. Mass (Same UOM as Nom.)	Conv. Mass Corr. (mg)	(k=2) Unc. (± mg)	MPE (± mg)	MPE Pass (Y=Pass N=Fail)	Assumed Density (g/cm ³)	Assumed Material	Const. Type	Balance Used	Reference Standard Set Used	Air Density (mg/cm ³)	Clean Level
★ 100 g		99.999884	-0.116	99.999789	-0.211	0.0052	0.25	N ☒	7.95	SS	II	1631Q	K594Q	1.1658	A

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Statement of Accuracy

A customer requesting a Statement of Accuracy needs proof that the nominal values represented by the mass in question have been designed and manufactured within exact specifications.

The Statement of Accuracy provides just such a document when and where traceability to NIST or an ISO/IEC 17025 accredited certificate of calibration is not a concern. The Statement of Accuracy is the least comprehensive documentation offered by Rice Lake Weighing Systems. Check your internal policies and procedures to determine what type of documentation you require and thoroughly review the Certificate of Weight Calibration, accredited and non-accredited, options prior to selecting laboratory documentation.

The Statement of Accuracy includes the following information:

- 1 Name and address of company that items are shipped to
- 2 Name and address of company that items were sold to
- 3 Part number
- 4 Description/Serial number
- 5 Maximum permissible error for the specific accuracy class
- 6 Name and address of the company that adjusted the weights


**Only applicable to new weights. Not a Legal for Trade or traceable document.*

Qty	Part Nbr	Description	Tolerance
1.0	12844 01	Weight, Heavy Cap 500lb NIST Class F Cast Iron Painted, Density 7.2	23 g

1 Ship To RICE LAKE WEIGHING SYSTEMS
 230 W COLEMAN ST
 RICE LAKE, WI 54868
 UNITED STATES OF AMERICA

2 Sold To RICE LAKE WEIGHING SYSTEMS
 230 W COLEMAN ST
 RICE LAKE, WI 54868
 UNITED STATES OF AMERICA

Dated 10-05-16
 Purchase Order Number RLWS
 Accuracy Report Number 2487012


THIS IS NOT A LEGAL-FOR-TRADE OR TRACEABLE DOCUMENT

Page 1 of 1

Weights listed above were compared to mass standards that are calibrated and traceable to the National Institute of Standards and Technology.
 Prepared By:
Rice Lake Weighing Systems
6 230 W. Coleman St. • Rice Lake, WI 54868 • USA
 TEL: 715-234-9171 • FAX: 715-234-6967 • www.ricelake.com
 An ISO 9001 registered company.

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PN 71066 6/15

Rice Lake Certificate Selection Guide

	Item on Certificate	Accredited Certificate of Weight Calibration	Non-Accredited Certificate of Weight Calibration	Statement of Accuracy
	ISO/IEC 17025 & ANSI/NCSL Z-540-1 Accredited Certificate	Yes	-	-
1	Name & Address of Calibration Laboratory	Yes	Yes	Yes
2	Contractor (Sold To) Name & Address*	Yes	Yes	Yes
3	Client (Ship To) Name & Address*	Yes	Yes	Yes
4	The Traceable Report Number of the Certificate for the Item under Calibration	Yes	Yes	-
5	Environmental Conditions at Time of Calibration	Yes	Yes	-
6	NIST Certificate of Calibration	Yes	Yes	-
7	Procedure Used	Yes	Yes	-
8	Identification of the Item(s) & Serial Number (If Applicable)	Yes	Yes	Yes
9	Nominal Conventional Mass	Yes	Yes	-
10	As Found Mass Value of Item under Calibration	Yes	Yes	-
11	As Left Mass Value of Item under Calibration	Yes	Yes	-
12	Estimated Uncertainty of the Measurement ¹	Yes	Yes	-
13	The Maximum Permissible Error for the Specified Accuracy Class	Yes	Yes	Yes
14	Equipment Number for the Mass Comparator/Balance Used to Perform the Calibration	Yes	Yes	-
15	The Reference Standards Used to Calibrate the Item under Test	Yes	Yes	-
16	Assumed Density of the Item(s)	Yes	Yes	Yes
17	Legal For Trade Document	Yes	-	-
18	True Mass Values	Available upon request	-	-
20	Disclaimers	May be required for weights that do not meet surface finish requirements	May be required for weights that do not meet surface finish requirements	-

* Can be specified by customer or client

¹ An expanded calibration uncertainty is required to establish metrological traceability.

Weight Class	Accredited to ISO/IEC 17025 & ANSI/NCSL Z540-1 Certificate of Weight Calibration	Non-Accredited Certificate of Weight Calibration	Non-Accredited & Not Traceable to NIST Statement of Accuracy
ASTM 00	Yes	-	-
ASTM 0	Yes	-	-
ASTM 1	Yes	Yes	Yes ²
ASTM 2	Yes	Yes	Yes ²
ASTM 3	Yes	Yes	Yes ²
ASTM 4	Yes	-	Yes ²
ASTM 5	Yes	-	Yes ²
ASTM 6	Yes	-	Yes ²
ASTM 7	Yes	-	Yes ²
OIML E1	Yes	-	-
OIML E2	Yes	-	-
OIML F1	Yes	Yes	Yes ²
OIML F2	Yes	Yes	Yes ²
OIML M1	Yes	-	Yes ²

Weight Class	Accredited to ISO/IEC 17025 & ANSI/NCSL Z540-1 Certificate of Weight Calibration	Non-Accredited Certificate of Weight Calibration	Non-Accredited & Not Traceable to NIST Statement of Accuracy
OIML M2	Yes	-	Yes ²
OIML M3	Yes	-	Yes ²
NIST F	Yes	-	Yes ²
NIST M	-	Yes	-
NIST S	Yes	Yes	-
NIST S-1	Yes	Yes	-
NIST P	Yes	Yes	-
NIST T	Yes	-	-
NIST C	Yes	-	-

² Only applicable to new weights