

## 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:** **2** RICE LAKE WEIGHING SYSTEMS  
 230 W. COLEMAN STREET  
 RICE LAKE, WI 54868

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

**4** **Date Received:** 25 Sep 2022  
**Date Calibrated:** **5** 26 Sep 2022 to 27 Sep 2022  
**Recalibration Date:** **6** 26 Sep 2023  
**NIST Certificate Number:** **6** 684/292805-19  
 If there are two NIST numbers, one is primary and one is secondary. Primary NIST number may apply.  
**Calibrated By:** **7** 20, 28  
**Procedure:** **7** W105-0095 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

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 W105-0035 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/cm<sup>3</sup>. 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 E817-23 or OIML R111-1 (2004), manufacturer specifications or customer specifications.

**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

**5** **6** **7** **8** **9** **10** **11** **12** **13** **14** **15** **16** **17** **18** **19** **20** **21** **22** **23** **24** **25** **26** **27** **28** **29** **30** **31** **32** **33** **34** **35** **36** **37** **38** **39** **40** **41** **42** **43** **44** **45** **46** **47** **48** **49** **50** **51** **52** **53** **54** **55** **56** **57** **58** **59** **60** **61** **62** **63** **64** **65** **66** **67** **68** **69** **70** **71** **72** **73** **74** **75** **76** **77** **78** **79** **80** **81** **82** **83** **84** **85** **86** **87** **88** **89** **90** **91** **92** **93** **94** **95** **96** **97** **98** **99** **100** **101** **102** **103** **104** **105** **106** **107** **108** **109** **110** **111** **112** **113** **114** **115** **116** **117** **118** **119** **120** **121** **122** **123** **124** **125** **126** **127** **128** **129** **130** **131** **132** **133** **134** **135** **136** **137** **138** **139** **140** **141** 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**722** **723** **724** **725** **726** **727** **728** **729** **720** **721** **722** **723** **724** **725** **726** **727** **728** **729** **730** **731** **732** **733** **734** **735** **736** **737** **738** **739** **730** **731** **732** **733** **734** **735** **736** **737** **738** **739** **740** **741** **742** **743** **744** **745** **746** **747** **748** **749** **740** **741** **742** **743** **744** **745** **746** **747** **748** **749** **750** **751** **752** **753** **754** **755** **756** **757** **758** **759** **750** **751** **752** **753** **754** **755** **756** **757** **758** **759** **760** **761** **762** **763** **764** **765** **766** **767** **768** **769** **760** **761** **762** **763** **764** **765** **766** **767** **768** **769** **770** **771** **772** **773** **774** **775** **776** **777** **778** **779** **770** **771** **772** **773** **774** **775** **776** **777** **778** **779** **780** **781** **782** **783** **784** **785** **786** 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**The Certificate of Weight Calibration (accredited) includes the following information:**

<b>1</b> Traceable certificate number	<b>11</b> Nominal mass	<b>20</b> Record of the weighing instrument(s)
<b>2</b> Contractor (sold to) name and address	<b>12</b> True Mass (Mass in Vacuum)	<b>21</b> Reference standard set used to calibrate item(s) listed on certificate
<b>3</b> End user name and address	<b>13</b> True Mass Correction <sup>0</sup>	<i>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.</i>
<b>4</b> Date calibrated	<b>14</b> Conventional Mass: mass of a weight of a density of 8000 kg/m <sup>3</sup> which it balances in air of density of 1.2 kg/m <sup>3</sup>	<i>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.</i>
<b>5</b> Recalibration date (if requested)	<b>15</b> Conventional Mass Correction <sup>1</sup>	<i>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).</i>
<b>6</b> NIST Certificate of Calibration Number	<b>16</b> A stated quantity of the estimated value of uncertainty <sup>2</sup>	
<b>7</b> Procedure used (Intercomparison Method)	<b>17</b> Maximum Permissible Error for the specified accuracy class	
<b>8</b> Identification of the calibrated item(s) and serial number, if applicable	<b>18</b> Assumed material density of the weight being calibrated	
<b>9</b> The NVLAP and A2LA official logo's are displayed (meeting the scope of accreditation) or (parameters provided under the scope of accreditation)	<b>19</b> Environmental conditions to time of calibration	
<b>10</b> Name and address of the Calibration Laboratory		

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/NCSC-Z540-1-1994 ACCREDITED				
Temperature Range: 20.62 °C to 20.81 °C Pressure Range: 19 736.58 mmHg to 740.90 mmHg Relative Humidity Range: 42 % to 51 %															
<b>11</b> Left Data <b>12</b> As Found Data <b>13</b> Left Data is uncalibrated from <b>14</b> As Found Data <b>15</b> Left Data is uncalibrated from <b>16</b> As Found Data <b>17</b> Left Data is uncalibrated from <b>18</b> As Found Data <b>19</b> Left Data is uncalibrated from <b>20</b> As Found Data <b>21</b> Left Data is uncalibrated from															
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 <sup>3</sup> )	Assumed Material	Const. Type	Balance Used	Reference Standard Set Used	Air Density (mg/cm <sup>3</sup> )	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	-0.0010	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		1.9998822	-0.0178	1.9998803	-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	1.1595	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 <sup>3</sup> )	Assumed Material	Const. Type	Balance Used	Reference Standard Set Used	Air Density (mg/cm <sup>3</sup> )	Clean Level
★ 100 g		99.999884	-0.116	99.999789	-0.211	0.052	0.25	N <input checked="" type="checkbox"/>	7.95	SS	II	1631Q	K594Q	1.1658	A