

Weights and Calibration Service



RICE LAKE®
WEIGHING SYSTEMS

www.ricelake.com/precision



People Plus Precision

Rice Lake Weighing Systems' mass calibration laboratories feature an industry-leading four-day turnaround with traceability to NIST and the International Standard at International Bureau of Weights and Measures. Our expert metrology staff stays up-to-date on the latest industry trends and requirements and are ready to assist and answer your questions. Both labs are accredited to ISO/IEC 17025:2017.

Metrology Labs

Rice Lake Metrology Lab

The Rice Lake metrology lab in Rice Lake, Wisconsin has been providing quality mass calibration services to Rice Lake Weighing Systems' customers for more than two decades. The weight and calibration industry's only metrology lab with a four-day turnaround, Rice Lake's lab is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), an accreditation program by NIST to provide unbiased third-party laboratory evaluation. The Rice Lake metrology lab staff has more than 200 years of combined experience and includes experts in the field of weight recalibration and certification, including the manufacture of custom weights in size and value.

Concord Metrology Lab

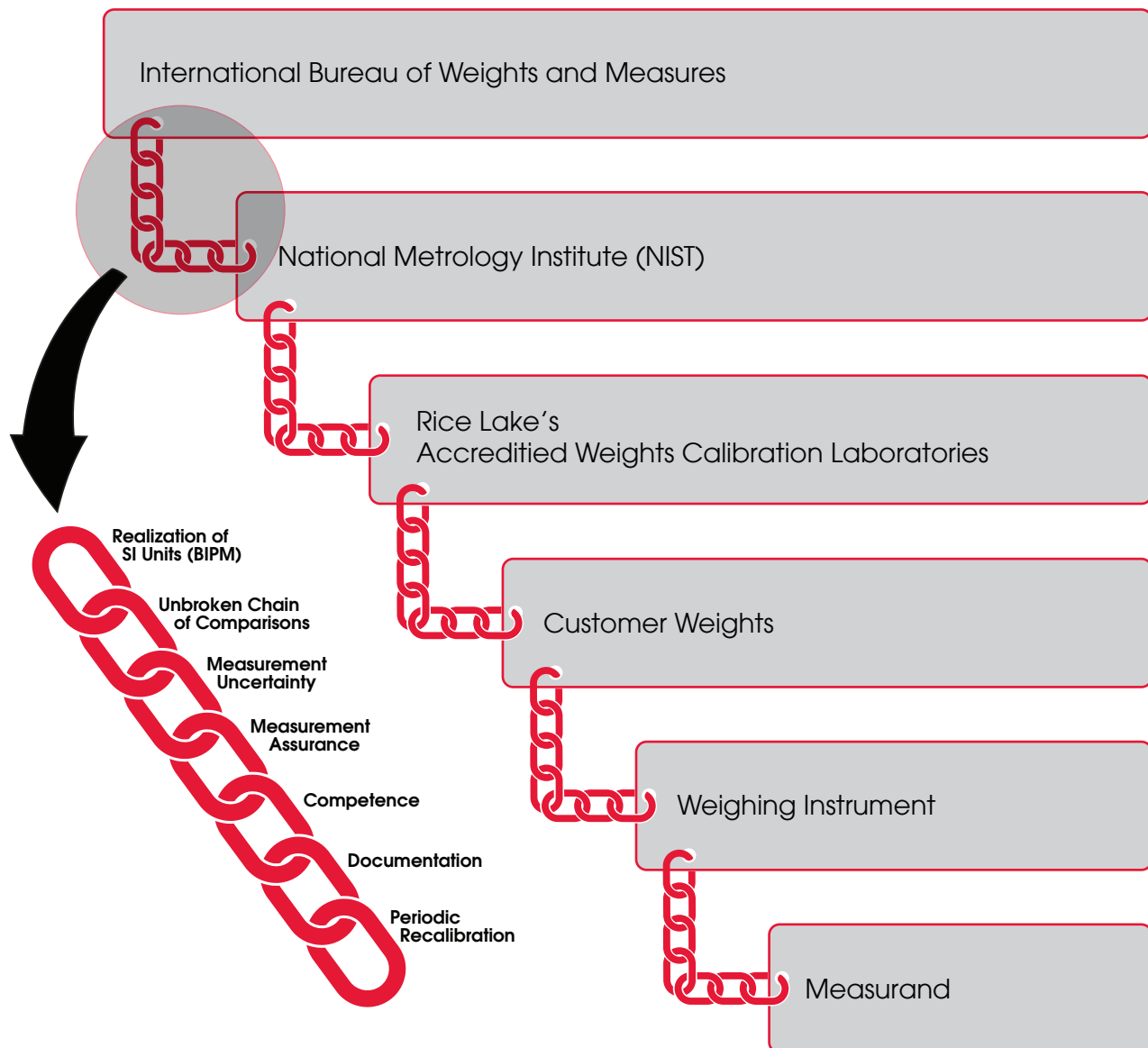
Rice Lake's Concord metrology lab (formerly Heusser Neweigh) is a state-of-the-art metrology lab committed to delivering the latest calibration methodology with the most precise calibrations. The lab's professional metrologists frequently attend and participate in NIST training, conferences, seminars and other educational opportunities. The Concord lab is also 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).

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 BIPM (International Bureau of Weights and Measures).

Traceability not only means that a weight or mass standard has links to the one kilogram standard, but also that the measurements were 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






Calibration Weights

Rice Lake offers cast iron weights and three designs of stainless steel weights. Due to varying configurations, the actual appearance of your product may be slightly different than shown. Serial numbers are available for an additional charge when ordered without laboratory documentation. Individual leaf weights should be ordered with a protective vial.

Electronic balance weights are Type II design featuring a sealing cavity for adjusting material in 100 g or larger weights. The density is approximately 7.84 g/cm^3 . Finish for Class 1 is polished. ASTM Class 2-4 are satin. ASTM Class 1-4 are manufactured in accordance with ASTM E 617-97 specification and tolerances. Applications include calibrating Class I and II balances or ASTM Class 4, 5 and 6 weights.

Precision weights (screw-knob design) are Type II design with sealing cavity for adjusting material. The density is approximately 7.95 g/cm^3 . ASTM Classes 1-4 have a polished finish. Applications include: calibrating Class I and II balances and ASTM Class 4, 5 and 6 weights, student laboratory use and rough weighing operations: for example, force.






Cast iron weights are painted weights with an adjusting cavity for sealing. Weight capacities of 10kg/20lb and up meet NIST Handbook 105-1 and Handbook 44 specifications. Applications where cast iron weights are used include field standards for testing industrial devices. The classes are NIST Class F, ASTM Class 6 and 7, OIML Class M1 and M2.



Stainless steel weights are available as cylindrical, electronic balance, grip-handle or precision (screw-knob or one-piece design).



Precision laboratory weights that are a Type I, (one-piece construction) have no added adjusting material. The density is approximately 7.95 g/cm³. ASTM Class 0 and OIML E2, F1, F2 have a polished finish. OIML M1 and M2 have a satin finish.

Classifications

ASTM Class 0 and OIML E1, E2, F1 and F2 sets and individual weights are not individually marked with their weight value and cannot be individually serialized per ASTM E 617-97. These weights include their own protective case.

OIML weights are manufactured to the specifications of the International Recommendation, OIML R 111, 2004 Edition. Applications include weights used as standards, density measurement and balance calibration.

Cylindrical weights are **NIST Class F weights** manufactured to the specifications of NIST HB-105-1. The Type II design features a sealing cavity for adjusting material in 100g or larger weights. The density is approximately 7.84 g/cm³.

Weight Kits

All cylindrical ASTM kits (excluding grip handle weights) include their own protective case and glove for safe handling.



Set shown in velvet-lined hardwood case

Weight Sets

Rice Lake offers many configurations for their weight sets. Class F sets have configurations to assist in calibration of scales; higher accuracy sets are available in 5-2-2-1 and 5-3-2-1 configuration.

A standard set would be:

5-2-2-1 – (1) 50 g, (2) 20 g and (1) 10 g

5-3-2-1 – (1) 50 g, (1) 30 g, (1) 20 g and (1) 10 g

Custom sets are available as build-to-order to meet your specific requirements.

Each weight set consists of the weights, case and/or small weight case (as appropriate), and appropriate handling tools: lifter or tweezers and white cotton gloves.

OIML and ASTM weight sets larger than 500 grams or 1 pound include a hardwood case with velvet-lined pockets. Weight sets with the largest weight of 500 grams include a precision-machined polyvinyl, crush-resistant case.

Serial numbers are not stamped on polished weights or milligram weights.

The correct class weight is dependent on the use. Weights should be more accurate than the precision of the weighing device, and it is recommended that a weight has an accuracy of one-third of the weighing device readability.

Set shown in plastic case



Set shown in precision-machined polyvinyl case



Set shown in ABS plastic case



Calibration Services

Certificate of Weight Calibration (accredited)

- Meets requirements for ISO/IEC 17025 and ANSI/NCSL Z540-1
- Provides traceability to 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)

- Provides traceability to 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

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NIST Certificate Number:
Tested By:
Description of Weights:

Certificate of Weight Calibration
SAMPLE I
Rice Lake Weighing Systems
250 W. Coleman St.
Rice Lake, WI 54868
ANSI/NCSL Z540-1:2006, Part 1 & ISO/IEC 17025:2005 Accredited
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3 Oct 2016
4 Oct 2016 to 5 Oct 2016
1 year
21.10 °C to 21.51 °C
729.84 mmHg to 729.25 mmHg
49.60 % to 52.94 %
1.1433 mg/cm³ to 1.1454 mg/cm³
68428541-15 & 68428451-14
20.22
10 mg to 500 g Grain Fresh Weights, NIST Class F, SIN SAMPLE-I

Nominal Value	ID	As Found	Nominal	Mass	In	Cor	Tol	As Left	Mass	In	Cor	Tol	Unc	k	Balance Used	Standard Used	Assumed Density
10 mg		10.072	10.072	Y	10.072	0.072	Y	10.072	0.072	Y	0.028	2	0.21	327Q	K584Q	7.99	
20 mg		20.110	20.110	Y	20.110	0.110	Y	20.110	0.110	Y	0.031	2	0.26	327Q	K584Q	7.99	
50 mg		50.086	50.086	Y	50.086	0.086	Y	50.086	0.086	Y	0.041	2	0.35	327Q	K584Q	7.99	
100 mg		100.026	100.026	Y	100.026	0.026	Y	100.026	0.026	Y	0.054	2	0.43	327Q	K584Q	7.99	
200 mg		200.107	200.107	Y	200.107	0.107	Y	200.107	0.107	Y	0.084	2	0.54	327Q	K584Q	7.99	
500 mg		500.343	500.343	Y	500.343	0.343	Y	500.343	0.343	Y	0.13	2	0.72	327Q	K584Q	7.99	
1 g		1.00054	1.00054	Y	1.00054	0.00054	Y	1.00054	0.00054	Y	0.019	2	1.1	327Q	K584Q	7.99	
2 g		2.00044	2.00044	Y	2.00044	0.00044	Y	2.00044	0.00044	Y	0.032	2	1.8	327Q	K584Q	7.99	
5 g		5.00005	5.00005	Y	5.00005	0.00005	Y	5.00005	0.00005	Y	0.068	2	3.0	327Q	K584Q	7.99	
10 g		10.00005	10.00005	Y	10.00005	0.00005	Y	10.00005	0.00005	Y	0.13	2	4.0	327Q	K584Q	7.99	
20 g		20.00005	20.00005	Y	20.00005	0.00005	Y	20.00005	0.00005	Y	0.27	2	6.0	327Q	K584Q	7.99	
50 g		50.00005	50.00005	Y	50.00005	0.00005	Y	50.00005	0.00005	Y	0.52	2	10.0	327Q	K584Q	7.99	
100 g		100.00005	100.00005	Y	100.00005	0.00005	Y	100.00005	0.00005	Y	0.92	2	15.0	327Q	K584Q	7.99	
200 g		200.00005	200.00005	Y	200.00005	0.00005	Y	200.00005	0.00005	Y	1.8	2	20.0	327Q	K584Q	7.99	
500 g		500.00005	500.00005	Y	500.00005	0.00005	Y	500.00005	0.00005	Y	3.2	2	30.0	327Q	K584Q	7.99	
1 kg		1000.00005	1000.00005	Y	1000.00005	0.00005	Y	1000.00005	0.00005	Y	5.2	2	40.0	327Q	K584Q	7.99	
2 kg		2000.00005	2000.00005	Y	2000.00005	0.00005	Y	2000.00005	0.00005	Y	9.2	2	70.0	327Q	K584Q	7.99	
5 kg		5000.00005	5000.00005	Y	5000.00005	0.00005	Y	5000.00005	0.00005	Y	15.2	2	120.0	327Q	K584Q	7.99	
10 kg		10000.00005	10000.00005	Y	10000.00005	0.00005	Y	10000.00005	0.00005	Y	25.2	2	200.0	327Q	K584Q	7.99	
20 kg		20000.00005	20000.00005	Y	20000.00005	0.00005	Y	20000.00005	0.00005	Y	45.2	2	400.0	327Q	K584Q	7.99	
50 kg		50000.00005	50000.00005	Y	50000.00005	0.00005	Y	50000.00005	0.00005	Y	85.2	2	800.0	327Q	K584Q	7.99	
100 kg		100000.00005	100000.00005	Y	100000.00005	0.00005	Y	100000.00005	0.00005	Y	155.2	2	1600.0	327Q	K584Q	7.99	
200 kg		200000.00005	200000.00005	Y	200000.00005	0.00005	Y	200000.00005	0.00005	Y	305.2	2	3200.0	327Q	K584Q	7.99	
500 kg		500000.00005	500000.00005	Y	500000.00005	0.00005	Y	500000.00005	0.00005	Y	755.2	2	8000.0	327Q	K584Q	7.99	
1000 kg		1000000.00005	1000000.00005	Y	1000000.00005	0.00005	Y	1000000.00005	0.00005	Y	1505.2	2	16000.0	327Q	K584Q	7.99	

05 Oct 2016

RICE LAKE
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Contractor:
Purchase Order Number:
Client:
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Date Calibrated:
Recal Date:
Temperature Range:
Relative Humidity Range:
Air Density Range:
NIST Certificate Number:
Tested By:
Description of Weights:

Certificate of Weight Calibration
SAMPLE II
Rice Lake Weighing Systems
250 W. Coleman St.
Rice Lake, WI 54868
ANSI/NCSL Z540-1:2006, Part 1 & ISO/IEC 17025:2005 Accredited
TMAP
The National Institute of Standards and Technology
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3 Oct 2016
4 Oct 2016 to 5 Oct 2016
1 year
21.10 °C to 21.51 °C
729.84 mmHg to 729.25 mmHg
49.60 % to 52.94 %
1.1433 mg/cm³ to 1.1454 mg/cm³
68428541-15 & 68428451-14
20.22
10 mg to 500 g Grain Fresh Weights, NIST Class F, SIN SAMPLE-II

Nominal Value	ID	As Found	Nominal	Mass	In	Cor	Tol	As Left	Mass	In	Cor	Tol	Unc	k	Balance Used	Standard Used	Assumed Density
10 mg		10.072	10.072	Y	10.072	0.072	Y	10.072	0.072	Y	0.028	2	0.21	327Q	K584Q	7.99	
20 mg		20.110	20.110	Y	20.110	0.110	Y	20.110	0.110	Y	0.031	2	0.26	327Q	K584Q	7.99	
50 mg		50.086	50.086	Y	50.086	0.086	Y	50.086	0.086	Y	0.041	2	0.35	327Q	K584Q	7.99	
100 mg		100.026	100.026	Y	100.026	0.026	Y	100.026	0.026	Y	0.054	2	0.43	327Q	K584Q	7.99	
200 mg		200.107	200.107	Y	200.107	0.107	Y	200.107	0.107	Y	0.084	2	0.54	327Q	K584Q	7.99	
500 mg		500.343	500.343	Y	500.343	0.343	Y	500.343	0.343	Y	0.13	2	0.72	327Q	K584Q	7.99	
1 g		1.00054	1.00054	Y	1.00054	0.00054	Y	1.00054	0.00054	Y	0.019	2	1.1	327Q	K584Q	7.99	
2 g		2.00044	2.00044	Y	2.00044	0.00044	Y	2.00044	0.00044	Y	0.032	2	1.8	327Q	K584Q	7.99	
5 g		5.00005	5.00005	Y	5.00005	0.00005	Y	5.00005	0.00005	Y	0.068	2	3.0	327Q	K584Q	7.99	
10 g		10.00005	10.00005	Y	10.00005	0.00005	Y	10.00005	0.00005	Y	0.13	2	4.0	327Q	K584Q	7.99	
20 g		20.00005	20.00005	Y	20.00005	0.00005	Y	20.00005	0.00005	Y	0.27	2	6.0	327Q	K584Q	7.99	
50 g		50.00005	50.00005	Y	50.00005	0.00005	Y	50.00005	0.00005	Y	0.52	2	10.0	327Q	K584Q	7.99	
100 g		100.00005	100.00005	Y	100.00005	0.00005	Y	100.00005	0.00005	Y	0.92	2	15.0	327Q	K584Q	7.99	
200 g		200.00005	200.00005	Y	200.00005	0.00005	Y	200.00005	0.00005	Y	1.8	2	20.0	327Q	K584Q	7.99	
500 g		500.00005	500.00005	Y	500.00005	0.00005	Y	500.00005	0.00005	Y	3.2	2	30.0	327Q	K584Q	7.99	
1 kg		1000.00005	1000.00005	Y	1000.00005	0.00005	Y	1000.00005	0.00005	Y	5.2	2	40.0	327Q	K584Q	7.99	
2 kg		2000.00005	2000.00005	Y	2000.00005	0.00005	Y	2000.00005	0.00005	Y	9.2	2	70.0	327Q	K584Q	7.99	
5 kg		5000.00005	5000.00005	Y	5000.00005	0.00005	Y	5000.00005	0.00005	Y	15.2	2	120.0	327Q	K584Q	7.99	
10 kg		10000.00005	10000.00005	Y	10000.00005	0.00005	Y	10000.00005	0.00005	Y	25.2	2	200.0	327Q	K584Q	7.99	
20 kg		20000.00005	20000.00005	Y	20000.00005	0.00005	Y	20000.00005	0.00005	Y	45.2	2	400.0	327Q	K584Q	7.99	
50 kg		50000.00005	50000.00005	Y	50000.00005	0.00005	Y	50000.00005	0.00005	Y	85.2	2	800.0	327Q	K584Q	7.99	
100 kg		100000.00005	100000.00005	Y	100000.00005	0.00005	Y	100000.00005	0.00005	Y	155.2	2	1600.0	327Q	K584Q	7.99	
200 kg		200000.00005	200000.00005	Y	200000.00005	0.00005	Y	200000.00005	0.00005	Y	305.2	2	3200.0	327Q	K584Q	7.99	
500 kg		500000.00005	500000.00005	Y	500000.00005	0.00005	Y	500000.00005	0.00005	Y	755.2	2	8000.0	327Q	K584Q	7.99	
1000 kg		1000000.00005	1000000.00005	Y	1000000.00005	0.00005	Y	1000000.00005	0.00005	Y	1505.2	2	16000.0	327Q	K584Q	7.99	


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Certificate of Weight Calibration
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Rice Lake Weighing Systems
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10 mg to 500 g Grain Fresh Weights, NIST Class F, SIN SAMPLE-I

Nominal Value	ID	As Found	Nominal	Mass	In	Cor	Tol	As Left	Mass	In	Cor	Tol	Unc	k	Balance Used	Standard Used	Assumed Density
10 mg		10.072	10.072	Y	10.072	0.072	Y	10.072	0.072	Y	0.028	2	0.21	327Q	K584Q	7.99	
20 mg		20.110	20.110	Y	20.110	0.110	Y	20.110	0.110	Y	0.031	2	0.26	327Q	K584Q	7.99	
50 mg		50.086	50.086	Y	50.086	0.086	Y	50.086	0.086	Y	0.041	2	0.35	327Q	K584Q	7.99	
100 mg		100.026	100.026	Y	100.026	0.026	Y	100.026	0.026	Y	0.054	2	0.43	327Q	K584Q	7.99	
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500 mg		500.343	500.343	Y	500.343	0.343	Y	500.343	0.343	Y	0.13	2	0.72	327Q	K584Q	7.99	
1 g		1.00054	1.00054	Y	1.00054	0.00054	Y	1.00054	0.00054	Y	0.019	2	1.1	327Q	K584Q	7.99	
2 g		2.00044	2.00044	Y	2.00044	0.00044	Y	2.00044	0.00044	Y	0.032	2	1.8	327Q	K584Q	7.99	
5 g		5.00005	5.00005	Y	5.00005	0.00005	Y	5.00005	0.00005	Y	0.068	2	3.0	327Q	K584Q	7.99	
10 g		10.00005	10.00005	Y	10.00005	0.00005											



With such quick
turnaround one might
expect less service.

Not so!

Delivery ahead of request!
I can't thank you enough.

WE PASSED
OUR AUDIT WITH
FLYING COLORS,
THANKS TO YOU.

Read Our Fan Mail

It almost makes us blush.

One customer wrote, "You guys are on top of it!"

Another declared,
"We passed our audit with flying colors, thanks to you."

Yet another penned, "With such quick turnaround,
one might expect less service. Not so!"

Another writes, "Delivery ahead of request!
I can't thank you enough."

Yes, your "thank you" is enough. You make our day.

RICE LAKE
WEIGHING SYSTEMS

230 W. Coleman St. • Rice Lake, WI 54868 • USA
TEL: 715-234-9171 • FAX: 715-234-6967 • www.ricelake.com

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Specifications subject to change without notice.