



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
Metrology Laboratory
2525 N Shadeland Ave Ste D3
Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

Issued To: Koenig Scale Company Inc
4779 E Margaret Dr
Terra Haute, IN 47803

Calibration Authorized By: Kevin Koenig
Phone: 812-877-6121
Email: kevkoenig@koenigscale.com

Artifact Description(s)

Test Item(s): 50 lb and 25 lb test weights

Class Specification: NIST HB 105-1 (1990), Class F

Condition: Suitable for legal metrology.
Minor wear noted.

Serial No: Various

Manufacture: Various

Material: Cast Iron

Calibration Information

Metrologist: C Gast, K Scott

Equipment Used: SCCE60K2, MTKC500

Procedure: NISTIR 6969 (2019): SOP 8,
Recommended Standard Operating
Procedure for Medium Accuracy
Calibration of Mass Standards by Modified
Substitution

Temperature: 21.17 °C to 21.77 °C

Mean: 21.54 °C

Pressure: 742.00 mmHg to 742.00 mmHg

Mean: 742.00 mmHg

Relative Humidity: 57.92 % to 66.44 %

Mean: 61.94 %

*Data for individual calibrations
are available upon request.*

Calibration Results

Nominal Mass	Serial No. / ID	Manufacture	Conventional Mass Correction		U ± (g)	k factor	Assumed Density (g/cm ³)	ASTM E617-18 Class Tolerance Met		NIST HB 105-1 (1990), Class F MPE ± (g)	Compliance with NIST HB 105-1 (1990), Class F	
			As Found (g)	As Left (g)				As Found	As Left		As Found	As Left
50 lb	807	Toledo	0.15	0.15	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	801	Toledo	0.65	0.65	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	808	Toledo	0.33	0.33	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	802	Toledo	0.22	0.22	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	805	Toledo	0.36	0.36	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	402	Rice Lake	0.21	0.21	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	404	Rice Lake	-0.36	-0.36	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	403	Rice Lake	0.53	0.53	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	810	Toledo	0.2	0.2	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	410	Rice Lake	-0.27	-0.27	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	904	Toledo	0.35	0.35	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	804	Toledo	0.29	0.29	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	809	Toledo	0.85	0.85	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1004	Toledo	-0.34	-0.34	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1008	Toledo	-0.19	-0.19	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	405	Rice Lake	0.11	0.11	0.33	2.0156	7.2	6	6	2.3	Pass	Pass

Chris Crawford CDC 7/29/21



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
 Metrology Laboratory
 2525 N Shadeland Ave Ste D3
 Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

50 lb	401	Rice Lake	0.06	0.06	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	409	Rice Lake	0.94	0.94	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	408	Rice Lake	0.49	0.49	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	407	Rice Lake	0.69	0.69	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	806	Toledo	-0.01	-0.01	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	907	Toledo	0.95	0.95	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	406	Rice Lake	0.33	0.33	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	803	Toledo	0.44	0.44	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1000	Toledo	0.16	0.16	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1001	Toledo	-0.5	-0.5	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1002	Toledo	-0.07	-0.07	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	903	Toledo	-0.91	-0.91	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1007	Toledo	0.09	0.09	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	610	Toledo	0.28	0.28	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	902	Toledo	0.21	0.21	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1013	Toledo	0.33	0.33	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1009	Toledo	-1.25	-1.25	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	604	Rice Lake	-0.56	-0.56	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1015	Toledo	0.62	0.62	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	607	Rice Lake	0.52	0.52	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1022	Toledo	0.57	0.57	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1006	Toledo	0.49	0.49	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1026	Troemner	0.95	0.95	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1030	Troemner	0.87	0.87	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1037	Troemner	0.53	0.53	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1027	Troemner	0.82	0.82	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1028	Troemner	1.07	1.07	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1018	Toledo	0.73	0.73	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1014	Toledo	0.64	0.64	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1019	Troemner	1	1	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1025	Troemner	-0.22	-0.22	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	T1010	Toledo	0.39	0.39	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1016	Toledo	-0.12	-0.12	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1024	Troemner	0.74	0.74	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1029	Troemner	0.96	0.96	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1012	Toledo	-0.23	-0.23	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1020	Rice Lake	1.01	1.01	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	R1010	Toledo	0.72	0.72	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	602	Rice Lake	-0.53	-0.53	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	603	Rice Lake	0.26	0.26	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	206	Rice Lake	0.84	0.84	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	205	Rice Lake	0.71	0.71	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	605	Rice Lake	0.01	0.01	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	208	Rice Lake	0.7	0.7	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	204	Rice Lake	0.68	0.68	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	209	Rice Lake	0.41	0.41	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	608	Rice Lake	0.53	0.53	0.33	2.0156	7.2	6	6	2.3	Pass	Pass

CDC 7/29/21

This certificate shall not be reproduced except in full, without written approval from the laboratory.
 SOP 8 Cast Iron Calibration, Rev 10/2020



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
 Metrology Laboratory
 2525 N Shadeland Ave Ste D3
 Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

50 lb	201	Rice Lake	0.82	0.82	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	203	Rice Lake	0.07	0.07	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	202	Rice Lake	0.4	0.4	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	609	Toledo	1.19	1.19	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	601	Rice Lake	0.71	0.71	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	207	Rice Lake	1.1	1.1	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1003	Toledo	-0.01	-0.01	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	210	Rice Lake	1.27	1.27	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1023	Fairbanks	0.46	0.46	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	606	Rice Lake	0.53	0.53	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
50 lb	1005	Toledo	0.03	0.03	0.33	2.0156	7.2	6	6	2.3	Pass	Pass
25 lb	2526	Rice Lake	0.1	0.1	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2503	Rice Lake	0.29	0.29	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2506	Rice Lake	0.53	0.53	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2523	Rice Lake	0.27	0.27	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2524	Rice Lake	0.13	0.13	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2507	Rice Lake	0.03	0.03	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2533	Rice Lake	0.05	0.05	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2510	Rice Lake	0.33	0.33	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2511	Rice Lake	0.28	0.28	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	211	Rice Lake	0	0	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2520	Rice Lake	0.27	0.27	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2539	Rice Lake	0.09	0.09	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2508	Rice Lake	0.18	0.18	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2513	Rice Lake	0.22	0.22	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	811	Toledo	0	0	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	911	Toledo	-0.2	-0.2	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2502	Rice Lake	0.03	0.03	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2535	Rice Lake	0.63	0.63	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2505	Rice Lake	0.21	0.21	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2504	Rice Lake	0.18	0.18	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2515	Rice Lake	0	0	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2531	Rice Lake	0.37	0.37	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2532	Rice Lake	0.35	0.35	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2514	Rice Lake	0.19	0.19	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2537	Rice Lake	0.24	0.24	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2501	Rice Lake	-0.46	-0.46	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2512	Rice Lake	0	0	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2522	Rice Lake	0.32	0.32	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2519	Rice Lake	0	0	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2517	Rice Lake	0.27	0.27	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	111	Rice Lake	0.31	0.31	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2530	Rice Lake	0.52	0.52	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2536	Rice Lake	0.34	0.34	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2540	Rice Lake	0.22	0.22	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	411	Rice Lake	-0.54	-0.54	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2525	Rice Lake	0.03	0.03	0.19	2.0119	7.2	6	6	1.1	Pass	Pass



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
Metrology Laboratory
2525 N Shadeland Ave Ste D3
Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

25 lb	2528	Rice Lake	0.18	0.18	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2509	Rice Lake	-0.09	-0.09	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2516	Rice Lake	-0.13	-0.13	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2521	Rice Lake	0.3	0.3	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2527	Rice Lake	0.26	0.26	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2529	Rice Lake	-0.14	-0.14	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2538	Rice Lake	-0.02	-0.02	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2518	Rice Lake	-0.07	-0.07	0.19	2.0119	7.2	6	6	1.1	Pass	Pass
25 lb	2534	Rice Lake	0.11	0.11	0.19	2.0119	7.2	6	6	1.1	Pass	Pass

CDC 7/29/21



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
Metrology Laboratory
2525 N Shadeland Ave Ste D3
Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

Traceability Statement

The artifact(s) described in this calibration certificate have been compared to the Standards of the State of Indiana. The Standards of the State of Indiana are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The SI unit for mass is the kilogram (kg) (see Conversion Factors below). The certificate number for this calibration is the only unique number to be used in referencing measurement traceability for the artifact(s) described in this calibration certificate.

Uncertainty Statement

The combined standard uncertainty includes uncertainties reported for the standard, uncertainties associated with the measurement process, uncertainties for any observed deviations from reference values which are less than surveillance limits (previous similar determinations have demonstrated that the maximum permissible errors are sufficiently large that buoyancy corrections are not usually significant [i.e., corrections & their uncertainty will not change the last decimal place of the calibration value or uncertainty (with uncertainty rounded to 2 significant digits)]. The combined standard uncertainty is multiplied by a coverage factor, k , to give the expanded uncertainty, which defines an interval with a 95.45 % level of confidence. The expanded uncertainty presented in this calibration certificate is consistent with the Bureau International des Poids et Mesures (BIPM) Guide to the Expression of Uncertainty in Measurement (2008) (GUM). No Surface Roughness evaluation or Magnetic Susceptibility testing has been performed and as a result there are no components for the effects of either in the uncertainty budget.

Conformity Statement

These artifacts were evaluated using NISTIR 6969: Selected Laboratory and Measurement Practices and Procedures to Support Basic Mass Calibrations (2019), SOP 8 Recommended Standard Operating Procedure for Medium Accuracy Calibration of Mass Standards by Modified Substitution. The artifacts notated with "Pass" in the Calibration Results section have been found and/or left within the Maximum Permissible Error (MPE) for NIST HB 105-1 (1990), Class F and are in compliance with that specification. An artifact is considered in compliance when the conventional mass correction plus the measurement uncertainty is equal to or less than the MPE. Bold print and a "Fail" notation indicates an out-of-compliance reading. No Surface Roughness evaluation or Magnetic Susceptibility testing has been performed. Possession of this certificate does imply this artifact meets any other requirements or statutes that may be required.

Pertinent Information

In accordance with Indiana Code (IC) 24-6-3-2, a calibration interval or recall date must be assigned to all calibrations performed by this laboratory. The results listed in this calibration certificate relate only to the artifacts described and extent of calibrations performed. All corrections stated in this calibration certificate correlate to a "Conventional Mass" (CM), also known as 'apparent mass', scale versus 8.0 g/cm^3 reference mass density and an air density of 0.0012 g/cm^3 at $20 \text{ }^\circ\text{C}$.

CDC 7/29/21



Calibration Certificate

Indiana Weights and Measures

Division of Weights and Measures
Metrology Laboratory
2525 N Shadeland Ave Ste D3
Indianapolis, IN 46219

Certificate Number: 21-377

Calibration Due Date: June 30, 2023

Date Received: June 30, 2021

Calibration Date: June 30, 2021

Issue Date: July 14, 2021

Conversion Factors

From NIST Special Publication 811, *Guide for the Use of the International System of Units (SI)*

Factors in **boldface** are exact

To convert from	to	multiply by
carat, metric	to kilogram (kg)	2.0 E-04
grain (gr)	to kilogram (kg)	6.479 891 E-05
ounce (avoirdupois) (oz)	to kilogram (kg)	2.834 952 E-02
ounce (troy or apothecary) (oz)	to kilogram (kg)	3.110 348 E-02
dram (apothecary) (dr)	to kilogram (kg)	3.887 934 6 E-03
scruple (apothecary) (s)	to kilogram (kg)	1.295 978 2 E-03
pennyweight (dwt)	to kilogram (kg)	1.555 174 E-03
pound (avoirdupois) (lb)	to kilogram (kg)	4.535 923 7 E-01

I declare or certify under penalty of perjury under the laws of the State of Indiana that the foregoing is true and correct:

Signed on this 14th day of July, 2021 in the city of Indianapolis, Marion County, Indiana

Reviewed By

Christopher Gast
Metrologist, ISDH

Authorized Signatory

Howard Wickersham
Metrologist, ISDH

CDC 7/29/21