



CALIBRATION CERTIFICATE

Cast Iron Weight, NIST Class F
Contents: (113) 50 lb, (45) 25 lb, (39) 25 kg, (1) 20 kg, (1) 10 kg

Customer:

Koenig Scale Co, Inc.
4779 E. Margaret Dr
Terre Haute, IN 47803
Kevin Koenig
Quality Manager

Certificate Number: 2024-0875

Date Received: 7/15/2024

Date Calibrated: 7/16/2024

Condition of Artifacts: Acceptable

Page 1 of 5

Methods and Traceability:

The weights described above have been compared with the standards of the State of Ohio, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST). The weights are compliant with NIST Class F specifications and tolerances from NIST Handbook 105-1 (1990). The uncertainty of the measurement is considered when making this statement of compliance. Surface finish, density and magnetism were not evaluated. It is the end user's responsibility to verify that the weights meet the accuracy requirements outlined in NIST Handbook 44 (2020), Appendix A Fundamental Considerations, when using the weights for calibration of commercial (Legal for Trade) scales. ** The laboratory calculates measurement uncertainties in accordance with NIST Standard Operating Procedure 29 (2019); ISO Guide to the Expression of Uncertainty in Measurement (GUM) (JCGM 100:2008, GUM 1995 with minor corrections, 2008); and ISO/IEC GUIDE 98-3:2008, Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995). The combined standard uncertainty is the result of the root-sum-square of the Type A and Type B components specified in the SOP listed below. The combined standard uncertainty is multiplied by an appropriate coverage factor (k) to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The effects of magnetism have not been considered in the measurement uncertainty. ** Conventional mass correction values are reported. These are based on the mass in air with reference conditions of air density 0.0012 g/cm³, mass density of 8 g/cm³, and a reference temperature of 20 °C. The correction is the weight's error from its nominal value. As Received values indicate the error of the items as submitted, before adjustment.

The following Standard Operating Procedure (S.O.P.) was used:

- 8 NIST Recommended Standard Operating Procedure for Medium Accuracy Calibration of Mass Standards by Modified Substitution. (May 2019)

Notes:

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Weights & Measures Technologist Keith Crider

7/23/2024

Issue Date



NVLAP CODE: 200420

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[Handwritten signature of Chris D. Bradford]

07/30/24



OHIO DEPARTMENT OF AGRICULTURE
DIVISION OF WEIGHTS AND MEASURES METROLOGY LABORATORY

SUBMITTED BY:		Koenig Scale Co, Inc.		CLASS:	NIST F	Page	2
OHIO TEST NO.:		2024-0875		TEMP:	20.33	°C	
DATE:		7/16/2024		PRESS:	732.36	mm Hg	
DESCRIPTION:		Cast Iron Weight		HUMID:	50.61	% RH	
Weight Identification	Nominal Value	Units	Tolerance ± (mg)	As Received (mg)	As Left (mg)	Uncertainty ± (mg)	k value
201	50	lb	2300	-1120	-1120	300	2.008
202	50	lb	2300	-460	-460	300	2.008
203	50	lb	2300	-30	-30	300	2.008
204	50	lb	2300	-1310	-1310	300	2.008
205	50	lb	2300	-1260	-1260	300	2.008
206	50	lb	2300	200	200	300	2.008
207	50	lb	2300	170	170	300	2.008
208	50	lb	2300	350	350	300	2.008
209	50	lb	2300	-90	-90	300	2.008
210	50	lb	2300	-280	-280	300	2.008
401	50	lb	2300	0	0	300	2.008
402	50	lb	2300	200	200	300	2.008
403	50	lb	2300	350	350	300	2.008
404	50	lb	2300	590	590	300	2.008
405	50	lb	2300	510	510	300	2.008
406	50	lb	2300	590	590	300	2.008
407	50	lb	2300	120	120	300	2.008
408	50	lb	2300	180	180	300	2.008
409	50	lb	2300	360	360	300	2.008
410	50	lb	2300	150	150	300	2.008
601	50	lb	2300	-250	-250	300	2.008
602	50	lb	2300	-840	-840	300	2.008
603	50	lb	2300	-760	-760	300	2.008
604	50	lb	2300	-1450	-1450	300	2.008
605	50	lb	2300	-1080	-1080	300	2.008
606	50	lb	2300	-1250	-1250	300	2.008
607	50	lb	2300	150	150	300	2.008
608	50	lb	2300	-890	-890	300	2.008
609	50	lb	2300	-60	-60	300	2.008
610	50	lb	2300	-1480	-1480	300	2.008
611	50	lb	2300	-1010	-1010	300	2.008
612	50	lb	2300	730	730	300	2.008
613	50	lb	2300	-220	-220	300	2.008
614	50	lb	2300	120	120	300	2.008
615	50	lb	2300	180	180	300	2.008
616	50	lb	2300	-150	-150	300	2.008
617	50	lb	2300	-390	-390	300	2.008
618	50	lb	2300	110	110	300	2.008
619	50	lb	2300	130	130	300	2.008
620	50	lb	2300	750	750	300	2.008
700	50	lb	2300	280	280	300	2.008
701	50	lb	2300	-30	-30	300	2.008
702	50	lb	2300	1100	1100	300	2.008
704	50	lb	2300	-1290	-1290	300	2.008
705	50	lb	2300	310	310	300	2.008
706	50	lb	2300	520	520	300	2.008
709	50	lb	2300	-800	-800	300	2.008
710	50	lb	2300	-680	-680	300	2.008
711	50	lb	2300	-1020	-1020	300	2.008
712	50	lb	2300	220	220	300	2.008
713	50	lb	2300	390	390	300	2.008

Chris D Crawford

07/30/24

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SUBMITTED BY:	Koenig Scale Co, Inc.	CLASS:	NIST F	Page	3		
OHIO TEST NO.:	2024-0875	TEMP:	20.33	°C			
DATE:	7/16/2024	PRESS:	732.36	mm Hg			
DESCRIPTION:	Cast Iron Weight	HUMID:	50.61	% RH			
Weight Identification	Nominal Value	Units	Tolerance ± (mg)	As Received (mg)	As Left (mg)	Uncertainty ± (mg)	k value
714	50	lb	2300	-540	-540	300	2.008
715	50	lb	2300	40	40	300	2.008
716	50	lb	2300	300	300	300	2.008
719	50	lb	2300	-440	-440	300	2.008
801	50	lb	2300	-200	-200	300	2.008
802	50	lb	2300	30	30	300	2.008
803	50	lb	2300	930	930	300	2.008
804	50	lb	2300	270	270	300	2.008
805	50	lb	2300	-90	-90	300	2.008
806	50	lb	2300	580	580	300	2.008
807	50	lb	2300	-710	-710	300	2.008
808	50	lb	2300	1040	1040	300	2.008
809	50	lb	2300	980	980	300	2.008
810	50	lb	2300	360	360	300	2.008
901	50	lb	2300	1080	1080	300	2.008
902	50	lb	2300	1460	1460	300	2.008
903	50	lb	2300	-310	-310	300	2.008
904	50	lb	2300	380	380	300	2.008
905	50	lb	2300	1120	1120	300	2.008
906	50	lb	2300	500	500	300	2.008
907	50	lb	2300	-310	-310	300	2.008
908	50	lb	2300	190	190	300	2.008
909	50	lb	2300	120	120	300	2.008
910	50	lb	2300	190	190	300	2.008
1000	50	lb	2300	470	470	300	2.008
1001	50	lb	2300	410	410	300	2.008
1002	50	lb	2300	50	50	300	2.008
1003	50	lb	2300	820	820	300	2.008
1004	50	lb	2300	-110	-110	300	2.008
1005	50	lb	2300	700	700	300	2.008
1006	50	lb	2300	1140	1140	300	2.008
1007	50	lb	2300	1280	1280	300	2.008
1008	50	lb	2300	-50	-50	300	2.008
1009	50	lb	2300	760	760	300	2.008
1010 R	50	lb	2300	850	850	300	2.008
1010 T	50	lb	2300	10	10	300	2.008
1011	50	lb	2300	810	810	300	2.008
1012	50	lb	2300	540	540	300	2.008
1013	50	lb	2300	10	10	300	2.008
1014	50	lb	2300	-290	-290	300	2.008
1015	50	lb	2300	570	570	300	2.008
1016	50	lb	2300	780	780	300	2.008
1017	50	lb	2300	1170	1170	300	2.008
1018	50	lb	2300	-230	-230	300	2.008
1019	50	lb	2300	-140	-140	300	2.008
1020	50	lb	2300	-500	-500	300	2.008
1022	50	lb	2300	-260	-260	300	2.008
1023	50	lb	2300	10	10	300	2.008
1024	50	lb	2300	330	330	300	2.008
1025	50	lb	2300	-170	-170	300	2.008
1026	50	lb	2300	840	840	300	2.008

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OHIO TEST NO.:		2024-0875		TEMP:	20.33	°C	
DATE:		7/16/2024		PRESS:	732.36	mm Hg	
DESCRIPTION:		Cast Iron Weight		HUMID:	50.61	% RH	
Weight Identification	Nominal Value	Units	Tolerance ± (mg)	As Received (mg)	As Left (mg)	Uncertainty ± (mg)	k value
1027	50	lb	2300	90	90	300	2.008
1028	50	lb	2300	-170	-170	300	2.008
1029	50	lb	2300	-350	-350	300	2.008
1030	50	lb	2300	60	60	300	2.008
1031	50	lb	2300	20	20	300	2.008
1032	50	lb	2300	240	240	300	2.008
1033	50	lb	2300	270	270	300	2.008
1034	50	lb	2300	-30	-30	300	2.008
1035	50	lb	2300	70	70	300	2.008
1036	50	lb	2300	-870	-870	300	2.008
1037	50	lb	2300	-390	-390	300	2.008
111	25	lb	1100	330	330	180	2.008
211	25	lb	1100	-750	-750	180	2.008
411	25	lb	1100	110	110	180	2.008
811	25	lb	1100	100	100	180	2.008
911	25	lb	1100	50	50	180	2.008
2501	25	lb	1100	-120	-120	180	2.008
2502	25	lb	1100	-210	-210	180	2.008
2503	25	lb	1100	100	100	180	2.008
2504	25	lb	1100	-80	-80	180	2.008
2505	25	lb	1100	-100	-100	180	2.008
2506	25	lb	1100	-600	-600	180	2.008
2507	25	lb	1100	560	560	180	2.008
2508	25	lb	1100	-250	-250	180	2.008
2509	25	lb	1100	-430	-430	180	2.008
2510	25	lb	1100	-610	-610	180	2.008
2511	25	lb	1100	160	160	180	2.008
2512	25	lb	1100	180	180	180	2.008
2513	25	lb	1100	-1030	-20	180	2.008
2514	25	lb	1100	-60	-60	180	2.008
2515	25	lb	1100	-480	-480	180	2.008
2516	25	lb	1100	20	20	180	2.008
2517	25	lb	1100	-280	-280	180	2.008
2518	25	lb	1100	-140	-140	180	2.008
2519	25	lb	1100	1150	-50	180	2.008
2520	25	lb	1100	700	700	180	2.008
2521	25	lb	1100	-300	-300	180	2.008
2522	25	lb	1100	-450	-450	180	2.008
2523	25	lb	1100	-700	-700	180	2.008
2524	25	lb	1100	-540	-540	180	2.008
2525	25	lb	1100	240	240	180	2.008
2526	25	lb	1100	-70	-70	180	2.008
2527	25	lb	1100	-100	-100	180	2.008
2528	25	lb	1100	30	30	180	2.008
2529	25	lb	1100	150	150	180	2.008
2530	25	lb	1100	-10	-10	180	2.008
2531	25	lb	1100	-10	-10	180	2.008
2532	25	lb	1100	-170	-170	180	2.008
2533	25	lb	1100	230	230	180	2.008
2534	25	lb	1100	710	710	180	2.008

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OHIO TEST NO.:		2024-0875		TEMP:	20.33	°C	
DATE:		7/16/2024		PRESS:	732.36	mm Hg	
DESCRIPTION:		Cast Iron Weight		HUMID:	50.61	% RH	
Weight Identification	Nominal Value	Units	Tolerance ± (mg)	As Received (mg)	As Left (mg)	Uncertainty ± (mg)	k value
2535	25	lb	1100	90	90	180	2.008
2536	25	lb	1100	540	540	180	2.008
2537	25	lb	1100	-30	-30	180	2.008
2538	25	lb	1100	-140	-140	180	2.008
2539	25	lb	1100	-270	-270	180	2.008
2540	25	lb	1100	-20	-20	180	2.008
1	25000	g	2500	-1190	-1190	320	2.008
2	25000	g	2500	250	250	320	2.008
3	25000	g	2500	-10	-10	320	2.008
4	25000	g	2500	690	690	320	2.008
5	25000	g	2500	1190	1190	320	2.008
6	25000	g	2500	1180	1180	320	2.008
7	25000	g	2500	770	770	320	2.008
8	25000	g	2500	830	830	320	2.008
9	25000	g	2500	180	180	320	2.008
11	25000	g	2500	0	0	320	2.008
12	25000	g	2500	-40	-40	320	2.008
13	25000	g	2500	660	660	320	2.008
14	25000	g	2500	-710	-710	320	2.008
15	25000	g	2500	190	190	320	2.008
16	25000	g	2500	250	250	320	2.008
17	25000	g	2500	-560	-560	320	2.008
18	25000	g	2500	50	50	320	2.008
19	25000	g	2500	-140	-140	320	2.008
20	25000	g	2500	550	550	320	2.008
21	25000	g	2500	680	680	320	2.008
22	25000	g	2500	-810	-810	320	2.008
23	25000	g	2500	210	210	320	2.008
24	25000	g	2500	-430	-430	320	2.008
25	25000	g	2500	890	890	320	2.008
26	25000	g	2500	330	330	320	2.008
27	25000	g	2500	590	590	320	2.008
28	25000	g	2500	-30	-30	320	2.008
29	25000	g	2500	1670	1670	320	2.008
30	25000	g	2500	1400	1400	320	2.008
31	25000	g	2500	320	320	320	2.008
32	25000	g	2500	80	80	320	2.008
33	25000	g	2500	890	890	320	2.008
34	25000	g	2500	1510	1510	320	2.008
35	25000	g	2500	370	370	320	2.008
36	25000	g	2500	-340	-340	320	2.008
37	25000	g	2500	880	880	320	2.008
38	25000	g	2500	160	160	320	2.008
39	25000	g	2500	50	50	320	2.008
40	25000	g	2500	-1500	-1500	320	2.008
11RK	20000	g	2000	540	540	280	2.008
1247-11	10000	g	1000	470	470	180	2.008

Chris O'Connell

07/30/24