SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention ~ protection ~ enforcement

Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501
Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785
Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572
Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale Systems INC (Unit #369) SA# **131** Certificate number: **MP4233**

Physical Address:
7805 112th Ave S
Horace, ND 58047

Billing Address:
PO Box 69
Horace, ND 58047

Contact: **Cooper Anderson** Received Date: **12/28/2021**

Phone: **701-281-9373** Certificate Issued: **12/29/2021**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	4000 lb weight carts	2	1	2	0	2
10	1000 lb weights	10	0	10	0	10
40	50 lb weights	40	0	40	0	40
1	20 lb weight	1	1	0	0	1
1	Avoirdupois kit	22	22	0	0	22
1	Metric kit	14	14	0	0	14

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

12/29/2021
Ron E Peterson, Metrologist

12/29/2021
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems INC (Unit #369)** Certificate Number: **MP4233**

Calibration Date: **12/29/2021**

Environmental conditions at time of test:

Temperature: 20.2 °C **Humidity:** 44 % **Pressure:** 661.9 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Mettler-Toledo Precision Load Cell

Condition of Carts: Used but in good condition

Manufacturer: Prairie Scales Systems **SN:** PSS-16-C1-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	-1.23	-558.00	-0.07	-30.26	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

12/29/2021

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170
Office: 118 West Capitol Avenue Phone: 605-773-3697
Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 01/03/2022

Manufacturer:	Prairie Scales Systems	**Date of Manufacture**	Jan 2016
Model Number:	4K	**ID/SN Number**	PSS-16-C1-4k

✓	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes	
✓	Powered by:	Electric/generator	✓	Diesel	Gasoline
✓	Fluid Levels:	Engine Oil			
		Hydraulic Fluid		Sealed: Yes/No	
		Battery	✓	Sealed: Yes/No	
		Liquid Fuel		Reference Line Present: Yes/No	
✓	Fluid drain tubes extend beyond the body of the cart: Yes/No			Yes	
✓	Number of axles:	2			
✓	Number /Size of Tires	16.25x5x11.25			
✓	Sealed wheel bearings: Yes/No	Yes			
✓	Drain holes present in locations where water may accumulate: Yes/No			Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No			Yes	
✓	Adjusting cavity accessible: Yes/No	Yes	Approximate capacity:(lbs)	50	
✓	Adjusting cavity sealed: Yes/No	Yes			
✓	Service brakes functioning properly: Yes/No		Yes		
✓	Parking brakes functioning properly: Yes/No		Yes		
	Remote control functioning properly: Yes/No				

✓	General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

✓	

12/29/2021

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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems INC (Unit #369)** Certificate Number: **MP4233**

Calibration Date: **12/29/2021**

Environmental conditions at time of test:

Temperature: 20.2 °C **Humidity:** 44 % **Pressure:** 661.9 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Mettler-Toledo Precision Load Cell

Condition of Carts: Used but in good condition

Manufacturer: Prairie Scales Systems **SN:** PSS-16-C2-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	-3.57	-1619.10	-0.03	-14.91	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

12/29/2021

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Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 01/03/2022

Manufacturer:	**Prairie Scales Systems**	**Date of Manufacture**	Unk
Model Number:	**0**	**ID/SN Number**	PSS-16-C2-4k

✓	Nominal Mass of Weight Cart	4000 lbs		Suitably marked: Yes/No	Yes
✓	Powered by:	Electric/generator	✓	Diesel	Gasoline
✓	Fluid Levels:	Engine Oil			
		Hydraulic Fluid		Sealed: Yes/No	
		Battery	✓	Sealed: Yes/No	
		Liquid Fuel		Reference Line Present: Yes/No	
✓	Fluid drain tubes extend beyond the body of the cart: Yes/No			Yes	
✓	Number of axles:		2		
✓	Number /Size of Tires		16.25x5x11.25		
✓	Sealed wheel bearings: Yes/No		Yes		
✓	Drain holes present in locations where water may accumulate: Yes/No			Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No			Yes	
✓	Adjusting cavity accessible: Yes/No		Yes	Approximate capacity:(lbs)	50
✓	Adjusting cavity sealed: Yes/No		Yes		
✓	Service brakes functioning properly: Yes/No			Yes	
✓	Parking brakes functioning properly: Yes/No			Yes	
	Remote control functioning properly: Yes/No				

✓	General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

✓	

12/29/2021

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Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems INC (Unit #369)

Certificate number: MP4233

Calibration Date: 12/29/2021

Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 45 % **Pressure:** 661 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 10 - 1000 lb weights

Nominal		Correction as Found		Correction as Left		NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
1000 lb	1k-19	-0.18	-80.0	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-20	-0.11	-49.9	0.00	0.1	45	4.5	2.1	Adjusted
1000 lb	1k-21	-0.13	-60.5	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-22	-0.11	-51.9	0.01	2.6	45	4.5	2.1	Adjusted
1000 lb	1k-23	-0.18	-83.9	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-24	-0.15	-66.4	0.00	0.1	45	4.5	2.1	Adjusted
1000 lb	1k-25	-0.09	-40.5	0.00	0.9	45	4.5	2.1	Adjusted
1000 lb	1k-26	-0.21	-93.4	0.00	-0.1	45	4.5	2.1	Adjusted
1000 lb	PSS-16-B1-1k	-0.63	-287.0	0.00	0.1	45	4.5	2.1	Adjusted
1000 lb	PSS-16-B2-1k	-0.57	-258.2	0.00	0.2	45	4.5	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

12/29/2021

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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 12/29/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 22.8 °C **Humidity:** 46.6 % **Pressure:** 660.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **20 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	1	-19297	-17	2300	201	2.1	Adjusted
50 lb	66A	-9952	-2	2300	201	2.1	Adjusted
50 lb	66A6	-13297	8	2300	201	2.1	Adjusted
50 lb	66A7	-15807	13	2300	201	2.1	Adjusted
50 lb	66A8	-11692	-17	2300	201	2.1	Adjusted
50 lb	66AA	-4957	-12	2300	201	2.1	Adjusted
50 lb	66AB	-14347	8	2300	201	2.1	Adjusted
50 lb	66AC	-9307	8	2300	201	2.1	Adjusted
50 lb	66AD	-10382	23	2300	201	2.1	Adjusted
50 lb	66AE	-19222	13	2300	201	2.1	Adjusted
50 lb	66AF	-15602	-7	2300	201	2.1	Adjusted
50 lb	66AG	-13032	-27	2300	201	2.1	Adjusted
50 lb	66AH	-12037	-2	2300	201	2.1	Adjusted
50 lb	66AK	-13037	8	2300	201	2.1	Adjusted
50 lb	66AL	-14277	-7	2300	201	2.1	Adjusted
50 lb	66AM	-14432	-12	2300	201	2.1	Adjusted
50 lb	66AN	-14937	3	2300	201	2.1	Adjusted
50 lb	66AO	-11497	-2	2300	201	2.1	Adjusted
50 lb	66AP	-14770	-2	2300	201	2.1	Adjusted
50 lb	66AR	-7707	-12	2300	201	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

12/29/2021

Ron Peterson, Metrologist

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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 12/29/2021 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 22.8 °C **Humidity:** 46.6 % **Pressure:** 660.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **20 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	66AS	-7337	18	2300	201	2.1	Adjusted
50 lb	66AT	-17082	13	2300	201	2.1	Adjusted
50 lb	66AU	-10667	-12	2300	201	2.1	Adjusted
50 lb	66AV	-14677	-17	2300	201	2.1	Adjusted
50 lb	66AW	-10767	18	2300	201	2.1	Adjusted
50 lb	66AX	-10652	-12	2300	201	2.1	Adjusted
50 lb	66AY	-11412	3	2300	201	2.1	Adjusted
50 lb	66AZ	-14907	3	2300	201	2.1	Adjusted
50 lb	66B1	-12882	3	2300	201	2.1	Adjusted
50 lb	66B2	-16302	63	2300	201	2.1	Adjusted
50 lb	66B3	-11902	43	2300	201	2.1	Adjusted
50 lb	66B4	-11432	3	2300	201	2.1	Adjusted
50 lb	66B5	-8492	23	2300	201	2.1	Adjusted
50 lb	66B6	-12242	-2	2300	201	2.1	Adjusted
50 lb	66B7	-11302	13	2300	201	2.1	Adjusted
50 lb	66B8	-15392	-2	2300	201	2.1	Adjusted
50 lb	66B9	-12812	-2	2300	201	2.1	Adjusted
50 lb	66BB	-8077	3	2300	201	2.1	Adjusted
50 lb	66BC	-14942	-12	2300	201	2.1	Adjusted
50 lb	66PA	-11512	-7	2300	201	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

12/29/2021

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 12/29/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 22.8 °C **Humidity:** 46.6 % **Pressure:** 660.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **1 20 lb weight**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
20 lb	A	752	752	910	110	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems INC (Unit #369) **Certificate number:** MP4233

Calibration Date: 12/29/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 46.9 % **Pressure:** 662.2 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **22 piece Avoirdupois Class F Kit** **SN 2019-739-B**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 lb		75	75	230	20	2.1	In-Tolerance
5 lb		78	78	230	20	2.1	In-Tolerance
5 lb		77	77	230	20	2.1	In-Tolerance
5 lb		77	77	230	20	2.1	In-Tolerance
5 lb		80	80	230	20	2.1	In-Tolerance
1 lb		27.6	27.6	70	6.3	2.1	In-Tolerance
1 lb		17.6	17.6	70	6.3	2.1	In-Tolerance
1 lb		20.6	20.6	70	6.3	2.1	In-Tolerance
1 lb		25.6	25.6	70	6.3	2.1	In-Tolerance
1 lb		10.6	10.6	70	6.3	2.1	In-Tolerance
0.5 lb		15.0	15.0	45	4.0	2.1	In-Tolerance
0.2 lb		-3.5	-3.5	18	1.6	2.1	In-Tolerance
0.2 lb	.	-15.2	-15.2	18	1.6	2.1	In-Tolerance
0.1 lb		2.96	2.96	9.1	0.91	2.1	In-Tolerance
0.05 lb		1.50	1.50	4.5	0.41	2.1	In-Tolerance
0.02 lb		0.52	0.52	1.8	0.18	2.1	In-Tolerance
0.02 lb		0.03	0.03	1.8	0.18	2.1	In-Tolerance
0.01 lb		0.59	0.59	1.5	0.13	2.1	In-Tolerance
0.005 lb		0.78	0.78	1.2	0.15	2.1	In-Tolerance
0.002 lb		0.294	0.294	0.87	0.085	2.1	In-Tolerance
0.002 lb		0.419	0.419	0.87	0.085	2.1	In-Tolerance
0.001 lb		0.590	0.590	0.70	0.069	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

12/29/2021

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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems INC (Unit #369)** **Certificate number:** **MP4233**

Calibration Date: 12/29/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 46.9 % **Pressure:** 662.2 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **14 piece Metric Class F Kit** **SN 2019-739-B**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
1 kg		12.7	12.7	100	8.8	2.1	In-Tolerance
1 kg	.	15.7	15.7	100	8.8	2.1	In-Tolerance
500 g		17.7	17.7	70	6.3	2.1	In-Tolerance
200 g		17.0	17.0	40	3.5	2.1	In-Tolerance
200 g	.	13.2	13.2	40	3.5	2.1	In-Tolerance
100 g		4.4	4.4	20	1.8	2.1	In-Tolerance
50 g		2.19	2.19	10	0.90	2.1	In-Tolerance
20 g		1.02	1.02	4.0	0.37	2.1	In-Tolerance
20 g	.	1.25	1.25	4.0	0.37	2.1	In-Tolerance
10 g		0.56	0.56	2.0	0.21	2.1	In-Tolerance
5 g		0.27	0.27	1.5	0.14	2.1	In-Tolerance
2 g		0.40	0.40	1.1	0.10	2.1	In-Tolerance
2 g	.	0.46	0.46	1.1	0.10	2.1	In-Tolerance
1 g		0.205	0.205	0.9	0.082	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

12/29/2021

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention – protection – enforcement

Office of Weights and Measures
Metrology Laboratory
Office: 118 West Capitol Avenue, Pierre, SD 57501
Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785
Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572
Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale System INC (Unit #349) SA# **131** Certificate number: **MP4242**

Physical Address:
9860 Industrial Drive
Horace, ND 58047

Billing Address:
PO Box 69
Horace, ND 58047

Contact: **Cooper Anderson** Received Date: **01/10/2022**

Phone: **701-281-9373** Certificate Issued: **01/11/2022**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	4000 lb weight carts	2	2	1	0	2
8	1000 lb weights	8	8	2	0	8
2	1000 lb weight baskets	2	0	2	0	2
40	50 lb weights	40	7	38	0	40
1	Avordupois weight kit	21	21	0	0	21
1	Metric weight kit	21	21	0	0	21
1	20 lb weight	1	1	0	0	1

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

01/11/2022
Ron E Peterson, Metrologist

01/11/2022
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** Certificate Number: **MP4242**

Calibration Date: **01/11/2022**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 44.8 % **Pressure:** 671.6 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Morehouse Precision Load Cell with 4215A Indicator.

Condition of Carts: Used but in good condition

Manufacturer: PSS **SN:** PSS-95-C1-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	0.28	128.21	0.28	128.21	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170
Office: 118 West Capitol Avenue Phone: 605-773-3697
Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale System INC (Unit #349) **Certificate number:** MP4242

Calibration Date: 01/11/2022

Manufacturer:	PSS	**Date of Manufacture**	Jan-95
Model Number:	PSS-4k	**ID/SN Number**	PSS-95-C1-4k

✓	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes	
✓	Powered by:	Electric/generator	✓	Diesel	Gasoline
✓	Fluid Levels:	Engine Oil			
		Hydraulic Fluid		Sealed: Yes/No	
		Battery	✓	Sealed: Yes/No	Yes
		Liquid Fuel		Reference Line Present: Yes/No	
✓	Fluid drain tubes extend beyond the body of the cart: Yes/No			Yes	
✓	Number of axles:		2		
✓	Number /Size of Tires				
✓	Sealed wheel bearings: Yes/No		Yes		
✓	Drain holes present in locations where water may accumulate: Yes/No			Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No			Yes	
✓	Adjusting cavity accessible: Yes/No		Yes	Approximate capacity:(lbs)	25 lb
✓	Adjusting cavity sealed: Yes/No		Yes		
✓	Service brakes functioning properly: Yes/No			Yes	
✓	Parking brakes functioning properly: Yes/No			Yes	
	Remote control functioning properly: Yes/No				

✓	General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

✓	List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** Certificate Number: **MP4242**

Calibration Date: **01/11/2022**

Environmental conditions at time of test:

Temperature: 20.9 °C **Humidity:** 45.8 % **Pressure:** 672.3 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Morehouse Precision Load Cell with 4215A Indicator.

Condition of Carts: Used but in good condition

Manufacturer: PSS **SN:** PSS-95-C2-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	0.59	268.59	0.02	7.72	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

01/11/2022

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Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale System INC (Unit #349) **Certificate number:** MP4242

Calibration Date: 01/11/2022

Manufacturer:	PSS	**Date of Manufacture**	Jan-95
Model Number:	PSS-4k	**ID/SN Number**	PSS-95-C2-4k

✓	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes	
✓	Powered by:	Electric/generator	✓	Diesel	Gasoline
✓	Fluid Levels:	Engine Oil			
		Hydraulic Fluid		Sealed: Yes/No	
		Battery	✓	Sealed: Yes/No	Yes
		Liquid Fuel		Reference Line Present: Yes/No	
✓	Fluid drain tubes extend beyond the body of the cart: Yes/No			Yes	
✓	Number of axles:		2		
✓	Number /Size of Tires				
✓	Sealed wheel bearings: Yes/No		Yes		
✓	Drain holes present in locations where water may accumulate: Yes/No			Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No			Yes	
✓	Adjusting cavity accessible: Yes/No		Yes	Approximate capacity:(lbs)	25 lb
✓	Adjusting cavity sealed: Yes/No		Yes		
✓	Service brakes functioning properly: Yes/No			Yes	
✓	Parking brakes functioning properly: Yes/No			Yes	
	Remote control functioning properly: Yes/No				

✓ General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

✓

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale System INC (Unit #349) **Certificate number:** MP4242

Calibration Date: 01/11/2022 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.8 °C **Humidity:** 43.9 % **Pressure:** 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 10 - 1000 lb weights

Nominal		Correction as Found		Correction as Left		NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	*k*	As Left
1000 lb	1k-03	-0.03	-14.1	-0.03	-14.1	45	4.5	2.1	In-Tolerance
1000 lb	1k-04	0.02	7.0	0.02	7.0	45	4.5	2.1	In-Tolerance
1000 lb	1k-05	0.01	3.2	0.01	3.2	45	4.5	2.1	In-Tolerance
1000 lb	1k-06	0.00	-1.8	0.00	-1.8	45	4.5	2.1	In-Tolerance
1000 lb	1k-07	-0.07	-29.7	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-08	0.00	0.6	0.00	0.6	45	4.5	2.1	In-Tolerance
1000 lb	1k-09	-0.02	-11.2	-0.02	-11.2	45	4.5	2.1	In-Tolerance
1000 lb	1k-10	-0.07	-29.6	0.00	-0.1	45	4.5	2.1	Adjusted
1000 lb	PSS-11-1995	-0.38	-172.8	0.00	0.4	45	4.5	2.1	Adjusted
1000 lb	PSS-22-1995	-0.40	-180.4	0.00	0.0	45	4.5	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

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South Dakota Department of Public Safety
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** **Certificate number:** **MP4242**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.8 °C **Humidity:** 43.9 % **Pressure:** 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **20 Class F Cast Weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	4	-4752	8	2300	201	2.1	Adjusted
50 lb	10	-7947	13	2300	201	2.1	Adjusted
50 lb	30	-7642	-12	2300	201	2.1	Adjusted
50 lb	64	-4132	8	2300	201	2.1	Adjusted
50 lb	17832-1	-4327	-2	2300	201	2.1	Adjusted
50 lb	17833-1	-5987	8	2300	201	2.1	Adjusted
50 lb	17834-1	-7317	-7	2300	201	2.1	Adjusted
50 lb	17835-1	-2142	18	2300	201	2.1	Adjusted
50 lb	17836-1	-4177	3	2300	201	2.1	Adjusted
50 lb	17838-1	-2347	3	2300	201	2.1	Adjusted
50 lb	17839-1	-4012	8	2300	201	2.1	Adjusted
50 lb	17840-1	-6672	38	2300	201	2.1	Adjusted
50 lb	17841-1	-1492	43	2300	201	2.1	Adjusted
50 lb	17842-1	-4822	18	2300	201	2.1	Adjusted
50 lb	17843-1	-3772	13	2300	201	2.1	Adjusted
50 lb	17844-1	-2047	3	2300	201	2.1	Adjusted
50 lb	17845-1	-8147	13	2300	201	2.1	Adjusted
50 lb	17846-1	-5487	8	2300	201	2.1	Adjusted
50 lb	17847-1	-9277	-2	2300	201	2.1	Adjusted
50 lb	17848-1	-1027	-1027	2300	201	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** **Certificate number:** **MP4242**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.8 °C **Humidity:** 43.9 % **Pressure:** 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **21 Class F Cast Weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	17849-1	-1317	13	2300	201	2.1	Adjusted
50 lb	17850-1	-5452	-2	2300	201	2.1	Adjusted
50 lb	17852-1	-2597	-2	2300	201	2.1	Adjusted
50 lb	17853-1	-5872	18	2300	201	2.1	Adjusted
50 lb	17854-1	-7922	13	2300	201	2.1	Adjusted
50 lb	17855-1	-8447	13	2300	201	2.1	Adjusted
50 lb	17856-1	-3447	13	2300	201	2.1	Adjusted
50 lb	17858-1	-8592	13	2300	201	2.1	Adjusted
50 lb	17859-1	-4627	3	2300	201	2.1	Adjusted
50 lb	17860-1	-10112	3	2300	201	2.1	Adjusted
50 lb	17862-1	-3177	18	2300	201	2.1	Adjusted
50 lb	17863-1	-2337	-2	2300	201	2.1	Adjusted
50 lb	17864-1	-7272	18	2300	201	2.1	Adjusted
50 lb	17865-1	-4672	33	2300	201	2.1	Adjusted
50 lb	17866-1	-7237	3	2300	201	2.1	Adjusted
50 lb	17870-1	-487	-487	2300	201	2.1	In-Tolerance
50 lb	17871-1	-5972	33	2300	201	2.1	Adjusted
50 lb	17884-1	-1297	23	2300	201	2.1	Adjusted
50 lb	17886-1	-4172	-7	2300	201	2.1	Adjusted
50 lb	17957-1	-5392	8	2300	201	2.1	Adjusted
20 lb	17904-1	240.80	240.80	910.0000	110.0	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** **Certificate number:** **MP4242**

Calibration Date: 01/11/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.7 °C **Humidity:** 44.4 % **Pressure:** 671.8 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **21 piece Avoirdupois Class F Kit** **SN 150105B**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 lb	1	50	50	230	20	2.1	In-Tolerance
5 lb	2	28	28	230	20	2.1	In-Tolerance
5 lb	3	38	38	230	20	2.1	In-Tolerance
5 lb	4	38	38	230	20	2.1	In-Tolerance
5 lb	5	50	50	230	20	2.1	In-Tolerance
1 lb	1	18.6	18.6	70	6.3	2.1	In-Tolerance
1 lb	2	20.6	20.6	70	6.3	2.1	In-Tolerance
1 lb	3	13.6	13.6	70	6.3	2.1	In-Tolerance
1 lb	4	13.6	13.6	70	6.3	2.1	In-Tolerance
1 lb	5	7.6	7.6	70	6.3	2.1	In-Tolerance
0.5 lb		8.0	8.0	45	4.0	2.1	In-Tolerance
0.2 lb		1.7	1.7	18	1.6	2.1	In-Tolerance
0.2 lb	.	7.5	7.5	18	1.6	2.1	In-Tolerance
0.1 lb		1.68	1.68	9.1	0.91	2.1	In-Tolerance
0.05 lb		1.60	1.60	4.5	0.41	2.1	In-Tolerance
0.02 lb		-0.96	-0.96	1.8	0.18	2.1	In-Tolerance
0.02 lb	.	-0.56	-0.56	1.8	0.18	2.1	In-Tolerance
0.01 lb		0.43	0.43	1.5	0.13	2.1	In-Tolerance
0.005 lb		0.48	0.48	1.2	0.15	2.1	In-Tolerance
0.002 lb		0.299	0.299	0.87	0.085	2.1	In-Tolerance
0.001 lb		0.375	0.375	0.70	0.069	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #349)** **Certificate number:** **MP4242**

Calibration Date: 01/11/2021 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.7 °C **Humidity:** 44.4 % **Pressure:** 671.8 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **21 piece Metric Class F Kit** **SN Precision Trailer**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
1 kg	1	10.7	10.7	100	8.8	2.1	In-Tolerance
1 kg	2	14.7	14.7	100	8.8	2.1	In-Tolerance
500 g		13.7	13.7	70	6.3	2.1	In-Tolerance
200 g	1	6.0	6.0	40	3.5	2.1	In-Tolerance
200 g	2	11.0	11.0	40	3.5	2.1	In-Tolerance
100 g		6.4	6.4	20	1.8	2.1	In-Tolerance
50 g		4.20	4.20	10	0.90	2.1	In-Tolerance
20 g		1.33	1.33	4.0	0.37	2.1	In-Tolerance
20 g	.	1.25	1.25	4.0	0.37	2.1	In-Tolerance
10 g		1.07	1.07	2.0	0.21	2.1	In-Tolerance
5 g		0.39	0.39	1.5	0.14	2.1	In-Tolerance
2 g		0.69	0.69	1.1	0.10	2.1	In-Tolerance
2 g	.	0.36	0.36	1.1	0.10	2.1	In-Tolerance
1 g		0.750	0.750	0.9	0.082	2.1	In-Tolerance
500 mg		0.359	0.359	0.72	0.064	2.1	In-Tolerance
200 mg		0.232	0.232	0.54	0.048	2.1	In-Tolerance
200 mg	.	0.063	0.063	0.54	0.048	2.1	In-Tolerance
100 mg		0.281	0.281	0.43	0.039	2.1	In-Tolerance
50 mg		0.149	0.149	0.35	0.032	2.1	In-Tolerance
20 mg		0.013	0.013	0.26	0.024	2.1	In-Tolerance
10 mg		-0.029	-0.029	0.21	0.022	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention ~ protection ~ enforcement

Office of Weights and Measures
Metrology Laboratory
Office: 118 West Capitol Avenue, Pierre, SD 57501
Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785
Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572
Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale Systems (Unit 328) SA# **131** Certificate number: **MP4236**

Physical Address:
7805 112th Ave S
Horace, ND 58047

Billing Address:
7805 112th Ave S
Horace, ND 58047

Contact: **Cooper Anderson**
Phone: **706-281-9373**

Received Date: **01/03/2021**
Certificate Issued: **01/04/2021**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	4000 lb weight carts	2	1	2	0	2
8	1000 lb cast weights	8	8	6	0	8
2	1000 lb baskets	2	0	2	0	2
40	50 lb weights	40	35	9	0	40
1	20 lb weight	1	1	0	0	1

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

01/04/2021
Ron E Peterson, Metrologist

01/04/2021
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Unit 328)** Certificate Number: **MP4236**

Calibration Date: **01/04/2022**

Environmental conditions at time of test:

Temperature: 19.8 °C **Humidity:** 44.4 % **Pressure:** 661.2 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Morehouse Precision Load Cell with 4215A Indicator.

Condition of Carts: Used but in good condition

Manufacturer: Prairie Scale Systems **SN:** PSS-13-C1-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	-1.30	-588.46	-0.02	-11.31	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

01/04/2021

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
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Metrology Lab
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Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (Unit 328) **Certificate number:** MP4236

Calibration Date: 01/04/2022

Manufacturer:	**Prairie Scale Systems**	**Date of Manufacture**	Unk
Model Number:	**4k**	**ID/SN Number**	PSS-13-C1-4k

✓	Nominal Mass of Weight Cart	4000 lbs		Suitably marked: Yes/No	Yes	
✓	Powered by:	Electric/generator	✓	Diesel		Gasoline	
✓	Fluid Levels:	Engine Oil				
		Hydraulic Fluid		Sealed: Yes/No	Yes	
		Battery	✓	Sealed: Yes/No	Yes	
		Liquid Fuel		Reference Line Present: Yes/No	Yes	

✓	Fluid drain tubes extend beyond the body of the cart: Yes/No	Yes		
✓	Number of axles:	2		
✓	Number /Size of Tires	4-413/127-285.8		
✓	Sealed wheel bearings: Yes/No	Yes		
✓	Drain holes present in locations where water may accumulate: Yes/No		Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No		Yes	
✓	Adjusting cavity accessible: Yes/No	Yes	Approximate capacity:(lbs)	60
✓	Adjusting cavity sealed: Yes/No	Yes		
✓	Service brakes functioning properly: Yes/No		Yes	
✓	Parking brakes functioning properly: Yes/No		Yes	
	Remote control functioning properly: Yes/No			

✓ General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

✓

01/04/2022

Ron Peterson, Metrologist

Ver 20210927

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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Unit 328)** Certificate Number: **MP4236**

Calibration Date: **01/04/2022**

Environmental conditions at time of test:

Temperature: 20.2 °C **Humidity:** 45.3 % **Pressure:** 661.2 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Morehouse Precision Load Cell with 4215A Indicator.

Condition of Carts: Used but in good condition

Manufacturer: Prairie Scale Systems **SN:** PSS-13-C2-4k

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	*k*	Tolerance (lb)	Condition as Left
4000	-1.36	-616.62	-0.05	-22.70	0.10	2.04	1.40	In Tolerance

Notes:

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:
The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

01/04/2021

Ron Peterson, Metrologist

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Pierre SD 57501

Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (Unit 328) **Certificate number:** MP4236

Calibration Date: 01/04/2022

Manufacturer:	**Prairie Scale Systems**	**Date of Manufacture**	Unk
Model Number:	**4k**	**ID/SN Number**	PSS-13-C2-4k

✓	Nominal Mass of Weight Cart	4000 lbs		Suitably marked: Yes/No		Yes
✓	Powered by:	Electric/generator	✓	Diesel		Gasoline	
✓	Fluid Levels:	Engine Oil				
		Hydraulic Fluid			Sealed: Yes/No	Yes
		Battery	✓		Sealed: Yes/No	Yes
		Liquid Fuel			Reference Line Present: Yes/No	Yes

✓	Fluid drain tubes extend beyond the body of the cart: Yes/No		Yes	
✓	Number of axles:	2		
✓	Number /Size of Tires	4-413/127-285.8		
✓	Sealed wheel bearings: Yes/No	Yes		
✓	Drain holes present in locations where water may accumulate: Yes/No		Yes	
✓	Weight restraint railing permanently fixed and solid: Yes/No		Yes	
✓	Adjusting cavity accessible: Yes/No	Yes		Approximate capacity:(lbs) 60
✓	Adjusting cavity sealed: Yes/No	Yes		
✓	Service brakes functioning properly: Yes/No		Yes	
✓	Parking brakes functioning properly: Yes/No		Yes	
	Remote control functioning properly: Yes/No			

✓ General condition at time of calibration (note any accumulated dirt/debris, damage, loose parts, or evidence of tampering or unauthorized entry of seals).

List and report any repair and maintenance performed, parts replaced, etc., Leaks repaired, new battery, carburetor, exhaust system, wheels changed, welding performed, etc. Include any comments or changes since the last calibration.

✓

01/04/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (Unit 328) **Certificate number:** MP4236

Calibration Date: 01/04/2022 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.3 °C **Humidity:** 44.4 % **Pressure:** 658.7 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **10 - 1000 lb weights**

Nominal		Correction as Found		Correction as Left		NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	*k*	As Left
1000 lb	1k-11	-0.03	-13.4	-0.03	-13.4	45	4.5	2.1	In-Tolerance
1000 lb	1k-12	-0.07	-33.0	0.00	0.2	45	4.5	2.1	Adjusted
1000 lb	1k-13	-0.06	-25.8	0.00	-0.1	45	4.5	2.1	Adjusted
1000 lb	1k-14	-0.05	-23.8	0.00	0.2	45	4.5	2.1	Adjusted
1000 lb	1k-15	-0.07	-30.6	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-16	-0.07	-31.6	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-17	0.05	21.1	-0.02	-7.1	45	4.5	2.1	Adjusted
1000 lb	1k-18	-0.05	-21.0	-0.05	-21.0	45	4.5	2.1	In-Tolerance
1000 lb	PSS-13-B1-1k	-0.49	-220.6	0.00	0.7	45	4.5	2.1	Adjusted
1000 lb	PSS-13-B2-1k	-0.69	-314.8	0.00	-0.1	45	4.5	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2021

Ron Peterson, Metrologist

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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (Unit 328) **Certificate number:** MP4236

Calibration Date: 01/04/2022 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.2 °C **Humidity:** 45.7 % **Pressure:** 660.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **24 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	0	943	943	2300	201	2.1	In-Tolerance
50 lb	17	-322	-322	2300	201	2.1	In-Tolerance
50 lb	040	-322	-322	2300	201	2.1	In-Tolerance
50 lb	043	-877	-877	2300	201	2.1	In-Tolerance
50 lb	045	-737	-737	2300	201	2.1	In-Tolerance
50 lb	046	423	423	2300	201	2.1	In-Tolerance
50 lb	047	13	13	2300	201	2.1	In-Tolerance
50 lb	048	-812	-812	2300	201	2.1	In-Tolerance
50 lb	049	443	443	2300	201	2.1	In-Tolerance
50 lb	050	-1237	8	2300	201	2.1	Adjusted
50 lb	051	328	328	2300	201	2.1	In-Tolerance
50 lb	053	-992	-992	2300	201	2.1	In-Tolerance
50 lb	054	-597	-597	2300	201	2.1	In-Tolerance
50 lb	055	833	833	2300	201	2.1	In-Tolerance
50 lb	056	-1857	8	2300	201	2.1	Adjusted
50 lb	057	88	88	2300	201	2.1	In-Tolerance
50 lb	059	23	23	2300	201	2.1	In-Tolerance
50 lb	060	243	243	2300	201	2.1	In-Tolerance
50 lb	061	-467	-467	2300	201	2.1	In-Tolerance
50 lb	062	-467	-467	2300	201	2.1	In-Tolerance
50 lb	063	-297	-297	2300	201	2.1	In-Tolerance
50 lb	071	-2717	23	2300	201	2.1	Adjusted
50 lb	073	-802	-802	2300	201	2.1	In-Tolerance
50 lb	077	-227	-227	2300	201	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2021

Ron Peterson, Metrologist

Ver 20210927

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Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (Unit 328) **Certificate number:** MP4236

Calibration Date: 01/04/2022 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.2 °C **Humidity:** 45.7 % **Pressure:** 660.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **16 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	17800-1	-922	-922	2300	201	2.1	In-Tolerance
50 lb	17873-1	-797	-797	2300	201	2.1	In-Tolerance
50 lb	17874-1	438	438	2300	201	2.1	In-Tolerance
50 lb	17875-1	-767	-767	2300	201	2.1	In-Tolerance
50 lb	17876-1	-2	-2	2300	201	2.1	In-Tolerance
50 lb	17877-1	-662	-662	2300	201	2.1	In-Tolerance
50 lb	17878-1	83	83	2300	201	2.1	In-Tolerance
50 lb	17879-1	-2557	23	2300	201	2.1	Adjusted
50 lb	17880-1	-692	-692	2300	201	2.1	In-Tolerance
50 lb	17882-1	-2147	13	2300	201	2.1	Adjusted
50 lb	17883-1	-2557	-2	2300	201	2.1	Adjusted
50 lb	17885-1	-1512	-2	2300	201	2.1	Adjusted
50 lb	17887-1	-2172	3	2300	201	2.1	Adjusted
50 lb	17888-1	-397	-397	2300	201	2.1	In-Tolerance
50 lb	17889-1	-687	-687	2300	201	2.1	In-Tolerance
50 lb	17894-1	-1427	-1027	2300	201	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2021

Ron Peterson, Metrologist

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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (Shop Weights) **Certificate number:** MP4236

Calibration Date: 01/04/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.3 °C **Humidity:** 43 % **Pressure:** 656.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **1 20 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
20 lb	17905-1	272	272	910	110	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2022

Ron Peterson, Metrologist

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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Unit 328)** **Certificate number:** **MP4236**

Calibration Date: 01/04/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21.1 °C **Humidity:** 47.6 % **Pressure:** 662.5 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **13 piece Metric Class F Kit** **SN 328 Metric**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
1 kg		31.7	31.7	100	8.8	2.1	In-Tolerance
500 g		35.7	35.7	70	6.3	2.1	In-Tolerance
200 g		15.0	15.0	40	3.5	2.1	In-Tolerance
200 g	.	12.0	12.0	40	3.5	2.1	In-Tolerance
100 g		3.8	3.8	20	1.8	2.1	In-Tolerance
50 g		1.1	1.1	10	0.90	2.1	In-Tolerance
20 g		1.7	1.7	4	0.37	2.1	In-Tolerance
20 g	.	1.1	1.1	4	0.37	2.1	In-Tolerance
10 g		-0.18	-0.18	2	0.21	2.1	In-Tolerance
5 g		0.48	0.48	1.5	0.14	2.1	In-Tolerance
2 g		0.39	0.39	1.1	0.10	2.1	In-Tolerance
2 g	.	0.37	0.37	1.1	0.10	2.1	In-Tolerance
1 g		0.375	0.375	0.9	0.082	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2021

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Unit 328)** **Certificate number:** **MP4236**

Calibration Date: 01/04/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21.1 °C **Humidity:** 47.6 % **Pressure:** 662.5 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **19 piece Avoirdupois Class F Kit** **SN 5FXO**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 lb	A	70	70	230	20	2.1	In-Tolerance
5 lb	B	63	63	230	20	2.1	In-Tolerance
5 lb	C	112	112	230	20	2.1	In-Tolerance
5 lb	D	69	69	230	20	2.1	In-Tolerance
5 lb	E	60	60	230	20	2.1	In-Tolerance
1 lb	A	24.6	24.6	70	6.3	2.1	In-Tolerance
1 lb	B	24.6	24.6	70	6.3	2.1	In-Tolerance
1 lb	C	24.6	24.6	70	6.3	2.1	In-Tolerance
1 lb	D	23.6	23.6	70	6.3	2.1	In-Tolerance
1 lb	E	22.6	22.6	70	6.3	2.1	In-Tolerance
8 oz		22.0	22.0	45	4.0	2.1	In-Tolerance
4 oz		7.7	7.7	23	2.0	2.1	In-Tolerance
2 oz		4.3	4.3	11	1.0	2.1	In-Tolerance
1 oz		2.09	2.09	5.4	0.48	2.1	In-Tolerance
1/2 oz		0.74	0.74	2.8	0.29	2.1	In-Tolerance
0.2 oz		1.01	1.01	1.6	0.32	2.1	In-Tolerance
0.2 oz		0.87	0.87	1.6	0.32	2.1	In-Tolerance
0.1 oz		0.34	0.34	1.3	0.13	2.1	In-Tolerance
0.05 oz		-0.03	-0.03	1.0	0.10	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2021

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention – protection – enforcement

Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501
Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785
Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572
Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale System INC (Unit #397) SA# **131** Certificate number: **MP4243**

Physical Address:
9860 Industrial Drive
Horace, ND 58047

Billing Address:
PO Box 69
Horace, ND 58047

Contact: **Cooper Anderson**
Phone: **701-281-9373**

Received Date: **01/10/2022**
Certificate Issued: **01/11/2022**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	1000 lb weights	2	1	2	0	2
4	500 lb weights	4	0	4	0	4
24	50 lb weights	24	0	24	0	24
1	20 lb weight	1	1	0	0	1
1	Metric kit	21	21	0	0	21
1	Avoirdupois kit	22	22	0	0	22

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

01/11/2022
Ron E Peterson, Metrologist

01/11/2022
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #397)** **Certificate number:** **MP4243**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.8 °C **Humidity:** 43.9 % **Pressure:** 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **6 - Bulk weights**

Nominal		Correction as Found		Correction as Left		NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	*k*	As Left
1000 lb	1k-01	-0.07	-32.8	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	1k-02	-0.09	-43.0	0.00	0.2	45	4.5	2.1	Adjusted
500 lb	500-01	-0.08	-34.4	0.00	0.1	23	2.1	2.1	Adjusted
500 lb	500-02	-0.05	-24.2	0.00	-0.1	23	2.1	2.1	Adjusted
500 lb	500-03	-0.05	-23.6	0.00	0.1	23	2.1	2.1	Adjusted
500 lb	500-04	-0.07	-31.0	-0.01	-5.5	23	2.1	2.1	Adjusted

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #397)** **Certificate number:** **MP4243**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.8 °C **Humidity:** 43.9 % **Pressure:** 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **25 Class F Cast Weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	1	-4327	-7	2300	201	2.1	Adjusted
50 lb	4	-5592	38	2300	201	2.1	Adjusted
50 lb	6	-4352	18	2300	201	2.1	Adjusted
50 lb	7	-5697	-2	2300	201	2.1	Adjusted
50 lb	13	-4272	-2	2300	201	2.1	Adjusted
50 lb	16	-13757	-12	2300	201	2.1	Adjusted
50 lb	17	-5167	-12	2300	201	2.1	Adjusted
50 lb	18	-4642	-2	2300	201	2.1	Adjusted
50 lb	20	-4777	-12	2300	201	2.1	Adjusted
50 lb	21	-4287	-7	2300	201	2.1	Adjusted
50 lb	24	-4282	13	2300	201	2.1	Adjusted
50 lb	27	-4882	-2	2300	201	2.1	Adjusted
50 lb	35	-5037	8	2300	201	2.1	Adjusted
50 lb	36	-16657	23	2300	201	2.1	Adjusted
50 lb	42	-15077	3	2300	201	2.1	Adjusted
50 lb	44	-12822	3	2300	201	2.1	Adjusted
50 lb	65	-13647	-2	2300	201	2.1	Adjusted
50 lb	67	-3672	23	2300	201	2.1	Adjusted
50 lb	70	-3727	13	2300	201	2.1	Adjusted
50 lb	71	-3397	-2	2300	201	2.1	Adjusted
50 lb	17879.1	-15417	-2	2300	201	2.1	Adjusted
50 lb	66A1	-18457	-12	2300	201	2.1	Adjusted
50 lb	66AJ	-6972	-2	2300	201	2.1	Adjusted
50 lb	71V2	-16832	13	2300	201	2.1	Adjusted
20 lb	65XC	361	361	910	110	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Unit #397)** **Certificate number:** **MP4243**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 40.8 % **Pressure:** 671.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **21 Piece Metric Class 1 Weight kit(s)** **SN 5FWZ**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 kg	A	131	131	500	44	2.1	In-Tolerance
5 kg	B	122	122	500	44	2.1	In-Tolerance
2 kg	A	68	68	200	18	2.1	In-Tolerance
2 kg	B	91	91	200	18	2.1	In-Tolerance
1 kg		36.7	36.7	100	8.8	2.1	In-Tolerance
500 g	A	20.7	20.7	70	6.3	2.1	In-Tolerance
500 g	B	18.7	18.7	70	6.3	2.1	In-Tolerance
500 g	C	17.7	17.7	70	6.3	2.1	In-Tolerance
500 g	D	23.7	23.7	70	6.3	2.1	In-Tolerance
500 g	E	18.7	18.7	70	6.3	2.1	In-Tolerance
200 g		5.0	5.0	40	3.5	2.1	In-Tolerance
200 g	.	4.0	4.0	40	3.5	2.1	In-Tolerance
100 g		6.40	6.40	20	1.78	2.1	In-Tolerance
50 g		3.37	3.37	10	0.90	2.1	In-Tolerance
20 g		1.76	1.76	4	0.37	2.1	In-Tolerance
20 g	.	1.32	1.32	4	0.37	2.1	In-Tolerance
10 g		0.32	0.32	2	0.21	2.1	In-Tolerance
5 g		0.35	0.35	1.5	0.14	2.1	In-Tolerance
2 g		0.46	0.46	1.1	0.10	2.1	In-Tolerance
2 g	.	0.48	0.48	1.1	0.10	2.1	In-Tolerance
1 g		0.370	0.370	0.9	0.082	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale System INC (Unit #397) **Certificate number:** MP4243

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 40.8 % **Pressure:** 671.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **22 piece Avoirdupois Class F Kit** **SN 150105A**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 lb	1	-1	-1	230	20	2.1	In-Tolerance
5 lb	2	-59	-59	230	20	2.1	In-Tolerance
5 lb	3	28	28	230	20	2.1	In-Tolerance
5 lb	4	-4	-4	230	20	2.1	In-Tolerance
5 lb	5	-30	-30	230	20	2.1	In-Tolerance
1 lb	1	-11.4	-11.4	70	6.3	2.1	In-Tolerance
1 lb	2	-3.4	-3.4	70	6.3	2.1	In-Tolerance
1 lb	3	22.6	22.6	70	6.3	2.1	In-Tolerance
1 lb	4	4.6	4.6	70	6.3	2.1	In-Tolerance
1 lb	5	-5.4	-5.4	70	6.3	2.1	In-Tolerance
0.5 lb		-14.0	-14.0	45	4.0	2.1	In-Tolerance
0.2 lb		1.2	1.2	18	1.6	2.1	In-Tolerance
0.2 lb		-2.9	-2.9	18	1.6	2.1	In-Tolerance
0.1 lb		5.05	5.05	9.1	0.91	2.1	In-Tolerance
0.05 lb		3.63	3.63	4.5	0.41	2.1	In-Tolerance
0.02 lb		1.14	1.14	1.8	0.18	2.1	In-Tolerance
0.02 lb	.	0.53	0.53	1.8	0.18	2.1	In-Tolerance
0.01 lb		0.80	0.80	1.5	0.13	2.1	In-Tolerance
0.005 lb		0.60	0.60	1.2	0.15	2.1	In-Tolerance
0.002 lb		0.384	0.384	0.87	0.085	2.1	In-Tolerance
0.002 lb	.	0.684	0.684	0.87	0.085	2.1	In-Tolerance
0.001 lb		0.520	0.520	0.70	0.069	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention ~ protection ~ enforcement

Office of Weights and Measures
Metrology Laboratory
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Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale Systems (Shop Weights) SA# **131** Certificate number: **MP4237**

Physical Address:
7805 112th Ave S
Horace, ND 58047

Billing Address:
PO Box 69
Horace, ND 58047

Contact: **Cooper Anderson** Received Date: **01/03/2022**

Phone: **701-281-9373** Certificate Issued: **01/04/2022**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
35	50 pound cast weights	35	34	2	0	35

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

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01/04/2022
Ron E Peterson, Metrologist

01/04/2022
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Shop Weights)** **Certificate number:** **MP4237**

Calibration Date: 01/04/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.3 °C **Humidity:** 43 % **Pressure:** 656.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **29 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	25	108	108	2300	201	2.1	In-Tolerance
50 lb	29	173	173	2300	201	2.1	In-Tolerance
50 lb	7IV4	1593	3	2300	201	2.1	Adjusted
50 lb	76	-547	-547	2300	201	2.1	In-Tolerance
50 lb	79	1503	1503	2300	201	2.1	In-Tolerance
50 lb	58	1353	1353	2300	201	2.1	In-Tolerance
50 lb	78	323	323	2300	201	2.1	In-Tolerance
50 lb	69	1288	1288	2300	201	2.1	In-Tolerance
50 lb	86	608	608	2300	201	2.1	In-Tolerance
50 lb	3	903	903	2300	201	2.1	In-Tolerance
50 lb	8	873	873	2300	201	2.1	In-Tolerance
50 lb	7IV5	2103	8	2300	201	2.1	Adjusted
50 lb	31	423	423	2300	201	2.1	In-Tolerance
50 lb	9	583	583	2300	201	2.1	In-Tolerance
50 lb	75	383	383	2300	201	2.1	In-Tolerance
50 lb	19	853	853	2300	201	2.1	In-Tolerance
50 lb	7IV3	-282	-282	2300	201	2.1	In-Tolerance
50 lb	74	8	8	2300	201	2.1	In-Tolerance
50 lb	23	1458	1458	2300	201	2.1	In-Tolerance
50 lb	28	673	673	2300	201	2.1	In-Tolerance
50 lb	26	403	403	2300	201	2.1	In-Tolerance
50 lb	30	128	128	2300	201	2.1	In-Tolerance
50 lb	11	893	893	2300	201	2.1	In-Tolerance
50 lb	15	803	803	2300	201	2.1	In-Tolerance
50 lb	80	168	168	2300	201	2.1	In-Tolerance
50 lb	22	-782	-782	2300	201	2.1	In-Tolerance
50 lb	68	873	873	2300	201	2.1	In-Tolerance
50 lb	72	628	628	2300	201	2.1	In-Tolerance
50 lb	32	518	518	2300	201	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Shop Weights)** **Certificate number:** **MP4237**

Calibration Date: 01/04/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 20.3 °C **Humidity:** 43 % **Pressure:** 656.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Cleaned and painted

Artifact(s): **6 50 lb weights**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
50 lb	38	-677	-677	2300	201	2.1	In-Tolerance
50 lb	12	-167	-167	2300	201	2.1	In-Tolerance
50 lb	5	1188	1188	2300	201	2.1	In-Tolerance
50 lb	37	418	418	2300	201	2.1	In-Tolerance
50 lb	34	338	338	2300	201	2.1	In-Tolerance
50 lb	2	1298	1298	2300	201	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/04/2022

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention - protection - enforcement

Office of Weights and Measures
Metrology Laboratory
Office: 118 West Capitol Avenue, Pierre, SD 57501
Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785
Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572
Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

Prairie Scale System INC (Shop) SA# **131** Certificate number: **MP4244**

Physical Address:
9860 Industrial Drive
Horace, ND 58047

Billing Address:
PO Box 69
Horace, ND 58047

Contact: **Cooper Anderson**
Phone: **701-281-9373**

Received Date: **01/10/2022**
Certificate Issued: **01/11/2022**

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
1	Metric Weight kit	33	33	0	0	33

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor *k* to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:
The artifacs submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2018), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) and the correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 33 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

01/11/2022
Ron E Peterson, Metrologist

01/11/2022
Dwight R Johnson, Reviewer

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale System INC (Shop) **Certificate number:** MP4244

Calibration Date: 01/11/2022 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 40.8 % **Pressure:** 671.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **21 piece Metric Class F Kit** **SN 7IVI**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
5 kg	A	159	159	500	44	2.1	In-Tolerance
5 kg	B	143	143	500	44	2.1	In-Tolerance
2 kg		77	77	200	18	2.1	In-Tolerance
2 kg	.	50	50	200	18	2.1	In-Tolerance
1 kg		23.7	23.7	100	8.8	2.1	In-Tolerance
500 g	A	12.7	12.7	70	6.3	2.1	In-Tolerance
500 g	B	14.7	14.7	70	6.3	2.1	In-Tolerance
500 g	C	24.7	24.7	70	6.3	2.1	In-Tolerance
500 g	D	20.7	20.7	70	6.3	2.1	In-Tolerance
500 g	E	12.7	12.7	70	6.3	2.1	In-Tolerance
200 g	A	8.0	8.0	40	3.5	2.1	In-Tolerance
200 g	B	5.0	5.0	40	3.5	2.1	In-Tolerance
100 g		8.0	8.0	20	1.8	2.1	In-Tolerance
50 g		3.76	3.76	10	0.90	2.1	In-Tolerance
20 g		1.45	1.45	4	0.37	2.1	In-Tolerance
20 g	.	1.46	1.46	4	0.37	2.1	In-Tolerance
10 g		0.42	0.42	2.0	0.21	2.1	In-Tolerance
5 g		0.59	0.59	1.5	0.14	2.1	In-Tolerance
2 g		0.09	0.09	1.1	0.10	2.1	In-Tolerance
2 g	.	0.39	0.39	1.1	0.10	2.1	In-Tolerance
1 g		0.010	0.010	0.9	0.082	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

South Dakota Department of Public Safety
Office of Weights and Measures
Metrology Lab
Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697

CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale System INC (Shop)** **Certificate number:** **MP4244**

Calibration Date: 01/11/2022 Purchase Order Number: **0**

Environmental conditions at time of test:

Temperature: 21 °C **Humidity:** 40.8 % **Pressure:** 671.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **12 piece Metric Class F Kit** **SN 7IVI**

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	*k*	As Left
500 mg		0.377	0.377	0.72	0.064	2.1	In-Tolerance
200 mg		0.173	0.173	0.54	0.048	2.1	In-Tolerance
200 mg	.	0.105	0.105	0.54	0.048	2.1	In-Tolerance
100 mg		0.188	0.188	0.43	0.039	2.1	In-Tolerance
50 mg		0.138	0.138	0.35	0.032	2.1	In-Tolerance
20 mg		0.115	0.115	0.26	0.024	2.1	In-Tolerance
20 mg	.	0.105	0.105	0.26	0.024	2.1	In-Tolerance
10 mg		0.094	0.094	0.21	0.022	2.1	In-Tolerance
5 mg		0.059	0.059	0.17	0.020	2.1	In-Tolerance
2 mg		0.043	0.043	0.12	0.015	2.1	In-Tolerance
2 mg	.	0.052	0.052	0.12	0.015	2.1	In-Tolerance
1 mg		0.047	0.047	0.10	0.015	2.1	In-Tolerance

* Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism or checked for density, and effects of magnetism or density are not included in the uncertainties.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

01/11/2022

Ron Peterson, Metrologist

Ver 20210927

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention – protection – enforcement

Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501

Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785

Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572

Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

INVOICE

Certificate number: **MP4242-MP4245** Purchase Order Number: **0** Date: **01/11/2022**

Company Name: **Prairie Scale System INC (Unit #349)**

Physical Address: **9860 Industrial Drive**
Horace, ND 58047

Billing Address: **PO Box 69**
Horace, ND 58047

Contact: **Cooper Anderson**

Phone: **701-281-9373**

Items submitted for calibration

Quantity	Artifact(s)	Quantity	Artifact(s)
2	4000 lb weight carts	8	1000 lb weights
2	1000 lb weight baskets	40	50 lb weights
1	Avordupois weight kit	1	Metric weight kit
1	20 lb weight		

Notes: Invoice includes $144.00 for MP4245 (Anchor Ingredients) and items submitted and reported in report numbers MP4243 and MP4244

17 Hours at $96.00/hr $ 1,632.00
Shipping Fee: $ -
Total Amount Due: $ 1,632.00

Payment is due when you receive this bill.

Payments should be sent to: Department of Public Safety
Office of Weights and Measures
118 West Capitol Avenue
Pierre, SD 57501

If you have any questions; please contact this office at (605) 773-3697.

Ron Peterson, Metrologist

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
prevention ~ protection ~ enforcement

Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501

Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785

Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572

Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

INVOICE

Certificate number: **MP4236/MP4237**

Purchase Order Number: **0**

Date: **01/04/2021**

Company Name: **Prairie Scale Systems (Unit 328)**

Physical Address: **7805 112th Ave S**
Horace, ND 58047

Billing Address: **7805 112th Ave S**
Horace, ND 58047

Contact: **Cooper Anderson**

Phone: **706-281-9373**

Items submitted for calibration			
Quantity	Artifact(s)	Quantity	Artifact(s)
2	4000 lb weight carts	8	1000 lb cast weights
2	1000 lb baskets	40	50 lb weights

Notes: Invoice for both MP4236 (Unit 328) and MP4237 (Shop)

COPY

13	Hours at $96.00/hr	$	1,248.00
	Shipping Fee:	$	-
	Total Amount Due:	**$**	**1,248.00**

Payment is due when you receive this bill.

Payments should be sent to: Department of Public Safety
Office of Weights and Measures
118 West Capitol Avenue
Pierre, SD 57501

If you have any questions; please contact this office at (605) 773-3697.

Ron Peterson, Metrologist

SOUTH DAKOTA
DEPARTMENT OF PUBLIC SAFETY
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Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501

Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785

Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572

Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

INVOICE

Certificate number: **MP4233** Purchase Order Number: **0** Date: **12/29/2021**

Company Name: **Prairie Scale Systems INC (Unit #369)**

Physical Address: **7805 112th Ave S**
Horace, ND 58047

Billing Address: **PO Box 69**
Horace, ND 58047

Contact: **Cooper Anderson**

Phone: **701-281-9373**

Items submitted for calibration			
Quantity	Artifact(s)	Quantity	Artifact(s)
2	4000 lb weight carts	10	1000 lb weights
40	50 lb weights	1	20 lb weight
1	Avoirdupois kit	1	Metric kit

Notes:

COPY

13 Hours at $96.00/hr $ 1,248.00

Shipping Fee: $ -

Total Amount Due: $ 1,248.00

Payment is due when you receive this bill.

Payments should be sent to: Department of Public Safety
Office of Weights and Measures
118 West Capitol Avenue
Pierre, SD 57501

If you have any questions; please contact this office at (605) 773-3697.

Ron Peterson, Metrologist

RICE LAKE Certificate of Weight Calibration

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

Traceable Certificate Number: 3344040A
Contractor: PRAIRIE SCALE SYSTEMS INC
PO BOX 69
HORACE, ND 58047-0069

Purchase Order Number: CA-102624
Client: PRAIRIE SCALE SYSTEMS
9860 INDUSTRIAL DR
HORACE, ND 58047

Date Received: 09 Feb 2022
Date Calibrated: 10 Feb 2022 to 11 Feb 2022
Recalibration Date: 10 Feb 2023
NIST Certificate Number: 684/291344-18 & 684/292805-19
If there are two NIST numbers, one or both may apply
Calibrated By: 05, 17
Procedure: WI05-0095 Rev. D
Condition of Weights: Acceptable for Calibration
Description of Weights: 4-2 kg Satin Finish Weights, ASTM Class 1 and 5 kg Satin Finish Weight, NIST Class S
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/cm^3. 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 E617-18 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

11 Feb 2022
Issued Date:

NVLAP CALIBRATION
NVLAP LAB CODE 105001-0

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

A2LA ACCREDITED
Certificate #4363.01

RICE LAKE Certificate of Weight Calibration

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

Traceable Certificate Number: 3344040A
Client: PRAIRIE SCALE SYSTEMS
Date Calibrated: 10 Feb 2022 to 11 Feb 2022

Temperature Range: 21.75 °C to 21.79 °C
Pressure Range: 714.34 mmHg to 724.78 mmHg
Relative Humidity Range: 47 % to 55 %

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 kg	H563	2.00000871	8.71	**2.00000259**	**2.59**	0.36	5.0	Y	7.84	SS	II	208Q	L595Q	1.1357	A
✳ 2 kg	H564	2.00000761	7.61	**2.00000149**	**1.49**	0.36	5.0	Y	7.84	SS	II	208Q	L595Q	1.1357	A
✳ 2 kg	H565	2.00000817	8.17	**2.00000205**	**2.05**	0.38	5.0	Y	7.84	SS	II	208Q	L595Q	1.1294	A
✳ 2 kg	H566	2.00000849	8.49	**2.00000237**	**2.37**	0.39	5.0	Y	7.84	SS	II	208Q	L595Q	1.1224	A
✳ 5 kg	F197	5.0000174	17.4	**5.0000021**	**2.1**	1.1	12	Y	7.84	SS	II	208Q	L595Q	1.1190	A

RICE LAKE Certificate of Weight Calibration

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

Traceable Certificate Number: 3344040
Contractor: PRAIRIE SCALE SYSTEMS INC
PO BOX 69
HORACE, ND 58047-0069

Purchase Order Number: CA-102624
Client: PRAIRIE SCALE SYSTEMS
9860 INDUSTRIAL DR
HORACE, ND 58047

Date Received: 09 Feb 2022
Date Calibrated: 10 Feb 2022 to 11 Feb 2022
Recalibration Date: 10 Feb 2023
NIST Certificate Number: 684/291344-18 & 684/292805-19
If there are two NIST numbers, one or both may apply
Calibrated By: 05, 17, 28
Procedure: WI05-0095 Rev. D
Condition of Weights: Acceptable for Calibration
Description of Weights: 2 mg to 100 g Polished Weights and 200 g to 5 kg Satin Finish Weights, ASTM Class 1, Set S/N F196
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/cm^3. 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 E617-18 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

11 Feb 2022
Issued Date:

NVLAP CALIBRATION
NVLAP LAB CODE 105001-0

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

A2LA ACCREDITED Certificate #4363.01

RICE LAKE Certificate of Weight Calibration

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

Traceable Certificate Number: 3344040
Client: PRAIRIE SCALE SYSTEMS
Date Calibrated: 10 Feb 2022 to 11 Feb 2022

Temperature Range: 21.49 °C to 21.81 °C
Pressure Range: 712.28 mmHg to 724.78 mmHg
Relative Humidity Range: 46 % to 55 %

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	F196	2.0009	0.0009	**2.0009**	**0.0009**	0.0010	0.010	Y	7.95	SS	I	503Q	L595Q	1.1252	A
5 mg	F196	5.00317	0.00317	**5.00317**	**0.00317**	0.00095	0.010	Y	7.95	SS	I	503Q	L595Q	1.1264	A
10 mg	F196	9.99969	-0.00031	**9.99968**	**-0.00032**	0.00060	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
20 mg	F196	20.00274	0.00274	**20.00272**	**0.00272**	0.00085	0.010	Y	7.95	SS	I	503Q	L595Q	1.1261	A
20 mg	F196.	19.99394	-0.00606	**19.99392**	**-0.00608**	0.00085	0.010	Y	7.95	SS	I	503Q	L595Q	1.1270	A
50 mg	F196	50.00597	0.00597	**50.00592**	**0.00592**	0.00078	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
100 mg	F196	100.00132	0.00132	**100.00123**	**0.00123**	0.00097	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
200 mg	F196	199.99991	-0.00009	**199.99972**	**-0.00028**	0.00083	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
200 mg	F196.	200.00073	0.00073	**200.00054**	**0.00054**	0.00083	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
500 mg	F196	500.0026	0.0026	**500.0021**	**0.0021**	0.0010	0.010	Y	7.95	SS	I	2022Q	L595Q	1.1226	A
1 g	F196	1.0000133	0.0133	**1.0000124**	**0.0124**	0.0013	0.034	Y	7.95	SS	II	2022Q	L595Q	1.1226	A
2 g	F196	2.0000125	0.0125	**2.0000106**	**0.0106**	0.0015	0.034	Y	7.95	SS	II	2022Q	L595Q	1.1226	A
2 g	F196.	2.0000097	0.0097	**2.0000078**	**0.0078**	0.0015	0.034	Y	7.95	SS	II	2022Q	L595Q	1.1226	A
5 g	F196	5.0000193	0.0193	**5.0000146**	**0.0146**	0.0034	0.034	Y	7.95	SS	II	2022Q	L595Q	1.1226	A
10 g	F196	10.0000162	0.0162	**10.0000067**	**0.0067**	0.0094	0.050	Y	7.95	SS	II	1958Q	L595Q	1.1350	A
20 g	F196	19.9999977	-0.0023	**19.9999788**	**-0.0212**	0.0063	0.074	Y	7.95	SS	II	1958Q	L595Q	1.1353	A
20 g	F196.	20.0000402	0.0402	**20.0000213**	**0.0213**	0.0063	0.074	Y	7.95	SS	II	1958Q	L595Q	1.1344	A
50 g	F196	50.000040	0.040	**49.999993**	**-0.007**	0.011	0.12	Y	7.95	SS	II	1958Q	L595Q	1.1355	A
100 g	F196	100.000016	0.016	**99.999922**	**-0.078**	0.022	0.25	Y	7.95	SS	II	1958Q	L595Q	1.1355	A
✳ 200 g	F196	200.000966	0.966	**200.000354**	**0.354**	0.054	0.50	Y	7.84	SS	II	699Q	L595Q	1.1169	A
✳ 200 g	F196.	200.000893	0.893	**200.000281**	**0.281**	0.054	0.50	Y	7.84	SS	II	699Q	L595Q	1.1174	A
✳ 500 g	F196	500.001706	1.706	**500.000175**	**0.175**	0.094	1.2	Y	7.84	SS	II	699Q	L595Q	1.1173	A
✳ 1 kg	F196	1.00000309	3.09	**1.00000003**	**0.03**	0.16	2.5	Y	7.84	SS	II	699Q	L595Q	1.1158	A
✳ 2 kg	F196	2.00000740	7.40	**2.00000128**	**1.28**	0.36	5.0	Y	7.84	SS	II	208Q	L595Q	1.1357	A
✳ 5 kg	F196	5.0000172	17.2	**5.0000019**	**1.9**	1.1	12	Y	7.84	SS	II	208Q	L595Q	1.1190	A