

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 (328)

SA# 131

Certificate number: M25043

Physical Address:

9800 Industrial Drive

Horace, ND 58047

Contact: Jordan White

Phone: 701-281-9591

Billing Address:

9800 Industrial Drive

Horace, ND 58047

Received Date: 01/21/2025

Certificate Issued: 01/22/2025

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
2	1000 lb Basket	2	0	2	0	2
8	1000 lb Weights	8	1	8	0	8
40	50 lb Weights	40	38	39	0	40
1	20 lb Weight	1	1	1	0	1
1	Metric Kit	13	13	0	0	13
1	Avoirdupois Kit	19	19	0	0	19

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 artifacts 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 (2023), 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.) for mass calibrations and less than the specified tolerances for volume calibrations. 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 50 % 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.



Ron E Peterson, Metrologist

01/22/2025



NVLAP LAB CODE 600384-0

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under lab code 600384-0. This certificate may not be used to claim product endorsement by NVLAP, NIST Office of Weights and Measures or any other government agency, and may not be reproduced, except in full without written approval from this laboratory.



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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (328)** Certificate Number: **M25043**
 Calibration Date: **01/22/2025**

Environmental conditions at time of test:

Temperature: 19.5 °C **Humidity:** 45.68 % **Pressure:** 671.2 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: PSS

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	3.95	1795	0.01	4	0.12	2.01	1.40	Adjusted

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 practical 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 recalibration 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.

Ron E Peterson, Metrologist 01/22/2025 Dwight R Johnson, Reviewer 01/22/2025
 Ver 20250114



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (328) **Certificate number:** M25043
Calibration Date: 01/28/2025

Manufacturer: **Date of Manufacture**
Model Number: **ID/SN Number**

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	<input type="text" value="4000 lbs"/>	Suitably marked: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="text"/>	Gasoline <input type="text"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="text"/>		
		Hydraulic Fluid <input type="text"/>		Sealed: Yes/No <input type="text"/>
		Battery <input checked="" type="checkbox"/>		Sealed: Yes/No <input type="text" value="Yes"/>
		Liquid Fuel <input type="text"/>		Reference Line Present: Yes/No <input type="text"/>

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Number of axles:	<input type="text" value="2"/>	
<input checked="" type="checkbox"/>	Number /Size of Tires	<input type="text" value="18x8x12.125"/>	
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	<input type="text" value="Yes"/>	Approximate capacity:(lbs) <input type="text" value="30"/>
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No	<input type="text" value="Yes"/>	
<input type="checkbox"/>	Remote control functioning properly: Yes/No	<input type="text"/>	

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.



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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (328)** Certificate Number: **M25043**
 Calibration Date: **01/22/2025**

Environmental conditions at time of test:

Temperature: 19.5 °C **Humidity:** 45.68 % **Pressure:** 671.2 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: PSS

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	-1.25	-567	-0.14	-64	0.12	2.01	1.40	Adjusted

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 practical 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 recalibration 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.

Ron E Peterson, Metrologist 01/22/2025 Dwight R Johnson, Reviewer 01/22/2025
 Ver 20250114



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (328) Certificate number: M25043
Calibration Date: 01/28/2025

Manufacturer: Date of Manufacture:
Model Number: ID/SN Number:

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	<input type="text" value="4000 lbs"/>	Suitably marked: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="text"/>	Gasoline <input type="text"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="text"/>		
		Hydraulic Fluid <input type="text"/>		Sealed: Yes/No <input type="text"/>
		Battery <input checked="" type="checkbox"/>		Sealed: Yes/No <input type="text" value="Yes"/>
		Liquid Fuel <input type="text"/>	Reference Line Present: Yes/No	<input type="text"/>

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Number of axles:	<input type="text" value="2"/>
<input checked="" type="checkbox"/>	Number /Size of Tires	<input type="text" value="18x8x12.125"/>
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No	<input type="text" value="Yes"/>
<input type="checkbox"/>	Remote control functioning properly: Yes/No	<input type="text"/>
	Approximate capacity:(lbs)	<input type="text" value="30"/>

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.



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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (328) **Certificate number:** M25043

Calibration Date: 01/22/2025 **Purchase Order Number:**

Environmental conditions at time of test: Serial# Unit 328

Temperature: 19.8 °C **Humidity:** 46.7 % **Pressure:** 669.8 mmhg

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

Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301

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

Artifact(s): **24 50 lb weights** **SN Unit 328**

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	k	Condition As Left
50 lb	012	-443	-443	2300	200	2.02	In-Tolerance
50 lb	029	-6143	17	2300	200	2.02	Adjusted
50 lb	038	-8218	42	2300	200	2.02	Adjusted
50 lb	040	-7203	67	2300	200	2.02	Adjusted
50 lb	041	-7148	-8	2300	200	2.02	Adjusted
50 lb	043	-4328	47	2300	200	2.02	Adjusted
50 lb	045	-1028	7	2300	200	2.02	Adjusted
50 lb	046	-5858	-18	2300	200	2.02	Adjusted
50 lb	047	-5373	-8	2300	200	2.02	Adjusted
50 lb	048	-5688	52	2300	200	2.02	Adjusted
50 lb	049	-6293	-13	2300	200	2.02	Adjusted
50 lb	050	-4188	17	2300	200	2.02	Adjusted
50 lb	051	-6958	27	2300	200	2.02	Adjusted
50 lb	052	-9358	22	2300	200	2.02	Adjusted
50 lb	053	-6168	57	2300	200	2.02	Adjusted
50 lb	054	-8078	22	2300	200	2.02	Adjusted
50 lb	055	-7523	27	2300	200	2.02	Adjusted
50 lb	056	-4588	-18	2300	200	2.02	Adjusted
50 lb	057	-6993	32	2300	200	2.02	Adjusted
50 lb	059	-8148	-23	2300	200	2.02	Adjusted
50 lb	060	-6913	42	2300	200	2.02	Adjusted
50 lb	061	-5373	-18	2300	200	2.02	Adjusted
50 lb	062	-9018	22	2300	200	2.02	Adjusted
50 lb	063	-5608	-3	2300	200	2.02	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

Ron E Peterson, Metrologist

01/22/2025



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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (349)** Certificate Number: **M25027**
 Calibration Date: **12/17/2024**

Environmental conditions at time of test:

Temperature: 19.49 °C **Humidity:** 47.65 % **Pressure:** 671.25 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

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	0.78	356	0.00	0	0.12	2.01	1.40	Adjusted

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 practical 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 recalibration 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.

Ron E Peterson, Metrologist 12/17/2024
 Ver 20240214



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (349) Certificate number: M25027
Calibration Date: 01/28/2025

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

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>	Gasoline <input type="checkbox"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="checkbox"/>		
		Hydraulic Fluid <input type="checkbox"/>		Sealed: Yes/No <input type="checkbox"/>
		Battery <input checked="" type="checkbox"/>		Sealed: Yes/No Yes
		Liquid Fuel <input type="checkbox"/>	Reference Line Present: Yes/No	<input type="checkbox"/>

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	Yes		
<input checked="" type="checkbox"/>	Number of axles:	2		
<input checked="" type="checkbox"/>	Number /Size of Tires	6.25x5x11.25		
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	Yes		
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No	Yes		
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No	Yes		
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	Yes	Approximate capacity:(lbs)	25
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	Yes		
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No	Yes		
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No	Yes		
<input type="checkbox"/>	Remote control functioning properly: Yes/No	<input type="checkbox"/>		

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.



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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (349)** Certificate Number: **M25027**
 Calibration Date: **12/17/2024**

Environmental conditions at time of test:

Temperature: 19.65 °C **Humidity:** 45.94 % **Pressure:** 671.61 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

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	0.78	356	0.09	41	0.12	2.01	1.40	Adjusted

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 practical 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 recalibration 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.

Ron E Peterson, Metrologist 12/17/2024
 Ver 20240214



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Systems (349) Certificate number: M25027
Calibration Date: 01/28/2025

Manufacturer: **PSS** Date of Manufacture: **34700**
Model Number: **PSS 4k cart** ID/SN Number: **PSS-95-C2-4k**

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>	Gasoline <input type="checkbox"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="checkbox"/>		
		Hydraulic Fluid <input type="checkbox"/>		Sealed: Yes/No <input type="checkbox"/>
		Battery <input checked="" type="checkbox"/>		Sealed: Yes/No Yes
		Liquid Fuel <input type="checkbox"/>		Reference Line Present: Yes/No <input type="checkbox"/>

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	Yes		
<input checked="" type="checkbox"/>	Number of axles:	2		
<input checked="" type="checkbox"/>	Number /Size of Tires	6.25x5x11.25		
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	Yes		
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No	Yes		
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No	Yes		
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	Yes	Approximate capacity:(lbs)	25
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	Yes		
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No	Yes		
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No	Yes		
<input type="checkbox"/>	Remote control functioning properly: Yes/No	<input type="checkbox"/>		

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.



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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (349) **Certificate number:** M25027

Calibration Date: 12/17/2024 **Purchase Order Number:**

Environmental conditions at time of test: Serial# Unit 349

Temperature: 19.4 °C **Humidity:** 47.9 % **Pressure:** 66706 mmhg

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

Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301

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

Artifact(s): **20 50 lb weights** **SN Unit 349**

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	k	Condition As Left
50 lb	17845-1	-5313	82	2300	200	2.02	Adjusted
50 lb	17847-1	-3108	67	2300	200	2.02	Adjusted
50 lb	17848-1	-2908	12	2300	200	2.02	Adjusted
50 lb	17849-1	-5418	107	2300	200	2.02	Adjusted
50 lb	17850-1	-3033	-8	2300	200	2.02	Adjusted
50 lb	17852-1	-3268	142	2300	200	2.02	Adjusted
50 lb	17854-1	-115148	32	2300	200	2.02	Adjusted
50 lb	17855-1	-5748	37	2300	200	2.02	Adjusted
50 lb	17856-1	-5108	17	2300	200	2.02	Adjusted
50 lb	17858-1	-4683	97	2300	200	2.02	Adjusted
50 lb	17859-1	-4268	-13	2300	200	2.02	Adjusted
50 lb	17860-1	-4848	37	2300	200	2.02	Adjusted
50 lb	17862-1	-4708	122	2300	200	2.02	Adjusted
50 lb	17864-1	-6273	-18	2300	200	2.02	Adjusted
50 lb	17865-1	-5523	122	2300	200	2.02	Adjusted
50 lb	17866-1	-5008	57	2300	200	2.02	Adjusted
50 lb	17870-1	-4238	17	2300	200	2.02	Adjusted
50 lb	17871-1	-2393	17	2300	200	2.02	Adjusted
50 lb	17884-1	-4208	42	2300	200	2.02	Adjusted
50 lb	17886-1	-4083	22	2300	200	2.02	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

Ron E Peterson, Metrologist 12/17/2024



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 Sys INC (369)**
 Calibration Date: **01/07/2025**

Certificate Number: **M25036**

Environmental conditions at time of test:

Temperature: 19.4 °C **Humidity:** 45.82 % **Pressure:** 679.12 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: PSS

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	-0.36	-162	-0.03	-11	0.12	2.01	1.40	Adjusted

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 practical 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 recalibration 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.

Ron E Peterson, Metrologist

01/07/2025

Ver 20240214



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Sys INC (369) Certificate number: M25036
Calibration Date: 01/28/2025

Manufacturer: **PSS** Date of Manufacture: **Jan 2016**
Model Number: **PSS 4k Cart** ID/SN Number: **PSS-16-C1-4k**

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	4000 lbs	Suitably marked: Yes/No	Yes
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>	Gasoline <input type="checkbox"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="checkbox"/>		
		Hydraulic Fluid <input type="checkbox"/>		Sealed: Yes/No <input type="checkbox"/>
		Battery <input checked="" type="checkbox"/>		Sealed: Yes/No Yes
		Liquid Fuel <input type="checkbox"/>		Reference Line Present: Yes/No <input type="checkbox"/>

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	Yes	
<input checked="" type="checkbox"/>	Number of axles:	2	
<input checked="" type="checkbox"/>	Number /Size of Tires	16.25x5x11.25	
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	Yes	
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No		Yes
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No		Yes
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	Yes	Approximate capacity:(lbs) 15
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	Yes	
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No		Yes
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No		Yes
<input type="checkbox"/>	Remote control functioning properly: Yes/No		<input type="checkbox"/>

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.



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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Sys INC (369)** Certificate Number: **M25036**
 Calibration Date: **01/07/2025**

Environmental conditions at time of test:

Temperature: 19.4 °C **Humidity:** 45.82 % **Pressure:** 679.12 mmhg

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

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.
 Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: PSS

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	0.46	208	0.10	45	0.12	2.01	1.40	Adjusted

Notes:

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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 practical to zero error. All fluid levels must be maintained as close to refererøte levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an outof-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require recalibration 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 cetificate number provides documented evidence for measurement traceability.

Ron E Peterson, Metrologist 01/07/2025
 Ver 20240214



Inspection Checklist for Weight Cart

Calibrated for: Prairie Scale Sys INC (369) **Certificate number:** M25036
Calibration Date: 01/28/2025

Manufacturer: **Date of Manufacture**
Model Number: **ID/SN Number**

<input checked="" type="checkbox"/>	Nominal Mass of Weight Cart	<input type="text" value="4000 lbs"/>	Suitably marked: Yes/No	<input type="text" value="Yes"/>
<input checked="" type="checkbox"/>	Powered by:	Electric/generator <input checked="" type="checkbox"/>	Diesel <input type="text"/>	Gasoline <input type="text"/>
<input checked="" type="checkbox"/>	Fluid Levels:	Engine Oil <input type="text"/>	Sealed: Yes/No <input type="text"/>	
		Hydraulic Fluid <input type="text"/>	Sealed: Yes/No <input type="text" value="Yes"/>	
		Battery <input checked="" type="checkbox"/>	Reference Line Present: Yes/No <input type="text"/>	
		Liquid Fuel <input type="text"/>		

<input checked="" type="checkbox"/>	Fluid drain tubes extend beyond the body of the cart: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Number of axles:	<input type="text" value="2"/>	
<input checked="" type="checkbox"/>	Number /Size of Tires	<input type="text" value="16.25x5x11.25"/>	
<input checked="" type="checkbox"/>	Sealed wheel bearings: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Drain holes present in locations where water may accumulate: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Weight restraint railing permanently fixed and solid: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Adjusting cavity accessible: Yes/No	<input type="text" value="Yes"/>	Approximate capacity:(lbs) <input type="text" value="15"/>
<input checked="" type="checkbox"/>	Adjusting cavity sealed: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Service brakes functioning properly: Yes/No	<input type="text" value="Yes"/>	
<input checked="" type="checkbox"/>	Parking brakes functioning properly: Yes/No	<input type="text" value="Yes"/>	
<input type="checkbox"/>	Remote control functioning properly: Yes/No	<input type="text"/>	

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.



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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (397) Certificate number: M25028

Calibration Date: 12/17/2024 Purchase Order Number:

Environmental conditions at time of test: Serial# Unit 397

Temperature: 19.7 °C Humidity: 46.8 % Pressure: 671.8 mmHg

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

Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301

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

Artifact(s): **24 50 lb weights** **SN Unit 397**

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	k	Condition As Left
50 lb	001	-6328	-23	2300	200	2.02	Adjusted
50 lb	004	-4818	132	2300	200	2.02	Adjusted
50 lb	006	-7748	87	2300	200	2.02	Adjusted
50 lb	007	-6993	32	2300	200	2.02	Adjusted
50 lb	013	-5928	32	2300	200	2.02	Adjusted
50 lb	013	-5973	-3	2300	200	2.02	Adjusted
50 lb	014	-6008	137	2300	200	2.02	Adjusted
50 lb	016	-4403	27	2300	200	2.02	Adjusted
50 lb	017	-6008	27	2300	200	2.02	Adjusted
50 lb	021	-5338	32	2300	200	2.02	Adjusted
50 lb	024	-5978	7	2300	200	2.02	Adjusted
50 lb	027	-3418	7	2300	200	2.02	Adjusted
50 lb	028	-2958	42	2300	200	2.02	Adjusted
50 lb	036	-5988	12	2300	200	2.02	Adjusted
50 lb	042	-4353	2	2300	200	2.02	Adjusted
50 lb	065	-4863	7	2300	200	2.02	Adjusted
50 lb	067	-4238	37	2300	200	2.02	Adjusted
50 lb	070	-4523	17	2300	200	2.02	Adjusted
50 lb	071	-2448	-13	2300	200	2.02	Adjusted
50 lb	085	-5328	27	2300	200	2.02	Adjusted
50 lb	17872-1	-6513	22	2300	200	2.02	Adjusted
50 lb	66A1	-6453	42	2300	200	2.02	Adjusted
50 lb	66AJ	-6138	12	2300	200	2.02	Adjusted
50 lb	71V2	-1188	-1188	2300	200	2.02	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

Ron E Peterson, Metrologist

12/17/2024



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 Scales Sys INC (754) **Certificate number:** M25037
Calibration Date: 01/07/2025 **Purchase Order Number:**

Environmental conditions at time of test: Serial#
Temperature: 21 °C **Humidity:** 45.5 % **Pressure:** 678.6 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Substitution, May 2019
Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301
Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 21 piece Avoirdupois Kit

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	k	Condition As Left
5 lb	1	-4	-4	230	20	2.04	In-Tolerance
5 lb	2	-63	-63	230	20	2.04	In-Tolerance
5 lb	3	24	24	230	20	2.04	In-Tolerance
5 lb	4	-8	-8	230	20	2.04	In-Tolerance
5 lb	5	-32	-32	230	20	2.04	In-Tolerance
1 lb	6	-8.6	-8.6	70	6.1	2.04	In-Tolerance
1 lb	7	-2.6	-2.6	70	6.1	2.04	In-Tolerance
1 lb	8	24.5	24.5	70	6.1	2.04	In-Tolerance
1 lb	9	5.5	5.5	70	6.1	2.04	In-Tolerance
1 lb	10	-3.6	-3.6	70	6.1	2.04	In-Tolerance
0.5 lb	10	-14.8	-14.8	45	4.0	2.04	In-Tolerance
0.2 lb		2.2	2.2	18	1.6	2.04	In-Tolerance
0.2 lb		8.1	8.1	18	1.6	2.04	In-Tolerance
0.1 lb		1.36	1.36	9.1	0.78	2.04	In-Tolerance
0.05 lb		1.60	1.60	4.5	0.39	2.04	In-Tolerance
0.02 lb		-0.99	-0.99	1.8	0.16	2.04	In-Tolerance
0.02 lb		-0.59	-0.59	1.8	0.16	2.04	In-Tolerance
0.01 lb		0.44	0.44	1.5	0.13	2.04	In-Tolerance
0.005 lb		0.52	0.52	1.2	0.10	2.05	In-Tolerance
0.002 lb		0.300	0.300	0.87	0.076	2.05	In-Tolerance
0.001 lb		0.409	0.409	0.7	0.061	2.05	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

Ron E Peterson, Metrologist 01/07/2025



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CALIBRATION CERTIFICATE

Calibrated for: Prairie Scales Sys INC (754)

Certificate number: M25037

Calibration Date: 01/07/2024

Purchase Order Number:

Environmental conditions at time of test:

Serial# 5FWZ

Temperature: 21 °C

Humidity: 45 %

Pressure: 678.5 mmhg

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

Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301

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

Artifact(s): **21 piece Metric Kit**

SN 5FWZ

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	<i>k</i>	Condition As Left
5 kg	A	163	163	500	43	2.04	In-Tolerance
5 kg		133	133	500	43	2.04	In-Tolerance
2 kg		77	77	200	17	2.04	In-Tolerance
2 kg	A	70	70	200	17	2.04	In-Tolerance
1 kg		12.0	12.0	100	8.7	2.04	In-Tolerance
500 g		18.5	18.5	70	6.1	2.04	In-Tolerance
500 g	A	12.5	12.5	70	6.1	2.04	In-Tolerance
500 g	B	15.5	15.5	70	6.1	2.04	In-Tolerance
500 g	D	21.5	21.5	70	6.1	2.04	In-Tolerance
500 g	E	14.5	14.5	70	6.1	2.04	In-Tolerance
200 g		16.8	16.8	40	3.4	2.04	In-Tolerance
200 g	A	8.0	8.0	40	3.4	2.04	In-Tolerance
100 g		7.9	7.9	20	1.7	2.04	In-Tolerance
50 g		3.39	3.39	10	0.86	2.04	In-Tolerance
20 g		1.49	1.49	4	0.34	2.04	In-Tolerance
20 g		1.13	1.13	4	0.34	2.04	In-Tolerance
10 g		0.37	0.37	2	0.17	2.04	In-Tolerance
5 g		0.14	0.14	1.5	0.13	2.04	In-Tolerance
2 g		0.476	0.476	1.1	0.095	2.04	In-Tolerance
2 g		0.496	0.496	1.1	0.095	2.04	In-Tolerance
1 g		0.377	0.377	0.9	0.078	2.04	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

Ron E Peterson

Ron E Peterson, Metrologist

01/07/2024

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 (Shop)

SA# 131

Certificate number: M25044

Physical Address:

9800 Industrial Drive

Horace, ND 58047

Contact: Jordan White

Phone: 701-281-9591

Billing Address:

9800 Industrial Drive

Horace, ND 58047

Received Date: 01/21/2025

Certificate Issued: 01/22/2025

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	ATSM Class 2 Metric Kits	29	29	0	0	29
18	50 lb Weights	18	16	5	0	18
1	Class F Metric Kit	30	30	0	0	30

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 artifacts 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 (2023), 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.) for mass calibrations and less than the specified tolerances for volume calibrations. 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 50 % 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.



Ron E Peterson, Metrologist

01/22/2025



Ron E Peterson, Reviewer

01/22/2025



NVLAP LAB CODE 600384-0

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CALIBRATION CERTIFICATE

Calibrated for: **Prairie Scale Systems (Shop)** Certificate number: **M25044**

Calibration Date: 01/22/2024

Environmental conditions at time of test:

Temperature: 20.4 C Humidity: 49.34 % Pressure: 672.03 mmhg

Test method used: SOP 4, *Weighing by Double Substitution*, May 2019

Test equipment used: Lab standards traceable to SI through NIST and Mettler XPR5004SC, XPE505C, XPR36C, Vaisala PTU301

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

Artifact(s): **24 piece Metric Kit SN F196**

Nominal		True Mass Correction	Conventional Mass Correction	ASTM E 617 Class 2	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)	mg	k	Density (g/cm ³)
5 kg		18.6	3.3	25	1.3	2.00	7.84
2 kg		8.18	2.06	10	0.58	2.01	7.84
1 kg		3.20	0.14	5	0.58	2.04	7.84
500 g		2.03	0.50	2.5	0.11	2.01	7.84
200 g		1.053	0.441	1	0.061	2.01	7.84
200 g		1.038	0.426	1	0.061	2.01	7.84
100 g		-0.021	-0.115	0.5	0.042	2.01	7.95
50 g		0.056	0.009	0.25	0.040	2.02	7.95
20 g		0.017	-0.002	0.1	0.015	2.02	7.95
20 g		0.043	0.024	0.1	0.015	2.02	7.95
10 g		0.022	0.013	0.074	0.011	2.02	7.95
5 g		0.0182	0.0135	0.054	0.0088	2.02	7.95
2 g		0.0149	0.0130	0.054	0.0061	2.01	7.95
2 g		0.0094	0.0075	0.054	0.0061	2.01	7.95
1 g		0.0131	0.0121	0.054	0.0051	2.02	7.95
500 mg		0.0001	-0.0004	0.025	0.0039	2.02	7.95
200 mg		-0.0016	-0.0018	0.025	0.0034	2.03	7.95
200 mg		-0.0006	-0.0008	0.025	0.0034	2.03	7.95
100 mg		-0.0024	-0.0025	0.025	0.0024	2.03	7.95
50 mg		0.0049	0.0049	0.014	0.0024	2.03	7.95
20 mg		0.0027	0.0027	0.014	0.0024	2.04	7.95
20 mg		-0.0053	-0.0053	0.014	0.0024	2.04	7.95
10 mg		0.0022	0.0022	0.014	0.0027	2.04	7.95
5 mg		0.0019	0.0018	0.014	0.0024	2.04	7.95

* 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, surface finish, density, or other specification requirements and their affects are not included in the uncertainty.

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

Ron E Peterson, Metrologist 01/22/2024



CALIBRATION CERTIFICATE

Calibrated for: Prairie Scale Systems (Shop) Certificate number: M25044
Calibration Date: 01/22/2025 Purchase Order Number:

Environmental conditions at time of test: Serial#
Temperature: 14.93 °C Humidity: 46 % Pressure: 671.4 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Substitution, May 2019
Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301
Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): **18 50 lb weights**

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	<i>k</i>	Condition As Left
50 lb	009	1422	1422	2300	200	2.02	In-Tolerance
50 lb	023	-283	-283	2300	200	2.02	In-Tolerance
50 lb	063	1822	2	2300	200	2.02	Adjusted
50 lb	069	117	117	2300	200	2.02	In-Tolerance
50 lb	072	1582	17	2300	200	2.02	Adjusted
50 lb	073	517	517	2300	200	2.02	In-Tolerance
50 lb	074	752	752	2300	200	2.02	In-Tolerance
50 lb	075	1207	1207	2300	200	2.02	In-Tolerance
50 lb	076	-8	-8	2300	200	2.02	In-Tolerance
50 lb	077	1127	1127	2300	200	2.02	In-Tolerance
50 lb	078	922	922	2300	200	2.02	In-Tolerance
50 lb	079	917	917	2300	200	2.02	In-Tolerance
50 lb	080	1117	1117	2300	200	2.02	In-Tolerance
50 lb	086	1037	1037	2300	200	2.02	In-Tolerance
50 lb	17851-1	1247	1247	2300	200	2.02	In-Tolerance
50 lb	17861-1	-1458	2	2300	200	2.02	Adjusted
50 lb	17861-1	4232	-3	2300	200	2.02	Adjusted
50 lb	17869-1	-3498	52	2300	200	2.02	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



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) Certificate number: M25044

Calibration Date: 01/22/2025 Purchase Order Number:

Environmental conditions at time of test: Serial# 7IVJ

Temperature: 20.7 °C Humidity: 45.9 % Pressure: 671.8 mmhg

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

Test equipment used: Lab standards traceable to the SI, XPR64003LD5C, XPR5003SC, XPR226CDR, XPR36C, Vaisala PTU301

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

Artifact(s): **21 piece Metric Kit** SN 7IVJ

Nominal	SN/ID	Correction as Found mg	Correction as Left mg	NIST Class F Tolerance (mg)	Uncertainty mg	<i>k</i>	Condition As Left
5 kg	A	143	143	500	43	2.04	In-Tolerance
5 kg	B	119	119	500	43	2.04	In-Tolerance
2 kg	.	51	51	200	17	2.04	In-Tolerance
2 kg	B	94	94	200	17	2.04	In-Tolerance
1 kg		24.0	24.0	100	8.7	2.04	In-Tolerance
500 g	A	22.5	22.5	70	6.1	2.04	In-Tolerance
500 g	B	20.5	20.5	70	6.1	2.04	In-Tolerance
500 g	C	19.5	19.5	70	6.1	2.04	In-Tolerance
500 g	D	25.5	25.5	70	6.1	2.04	In-Tolerance
500 g	E	21.5	21.5	70	6.1	2.04	In-Tolerance
200 g		6.6	6.6	40	3.4	2.04	In-Tolerance
200 g	.	4.1	4.1	40	3.4	2.04	In-Tolerance
100 g		6.8	6.8	20	1.7	2.04	In-Tolerance
50 g		4.11	4.11	10	0.86	2.04	In-Tolerance
20 g		1.45	1.45	4	0.34	2.04	In-Tolerance
20 g	.	1.41	1.41	4	0.34	2.04	In-Tolerance
10 g		0.54	0.54	2	0.17	2.04	In-Tolerance
5 g		0.56	0.56	1.5	0.13	2.04	In-Tolerance
2 g		0.081	0.081	1.1	0.095	2.04	In-Tolerance
2 g	.	0.371	0.371	1.1	0.095	2.04	In-Tolerance
1 g		0.012	0.012	0.9	0.078	2.04	In-Tolerance

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

Ron E Peterson, Metrologist 01/22/2025 Dwight R Johnson, Reviewer 01/22/2025

