

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

K-Scale SA# 90 Certificate number: M26039 Rev A

Physical Address: Rev A to separate Class 2 kit

1701 W Madison 1701 W Madison

Sioux Falls, SD 57104 Sioux Falls, SD 57104

Contact: Kevin Baumgartner Received Date: 10/27/2025

Phone: 605-334-8003

Certificate Issued: 10/29/2025

FIIOIIE.	003-334-0003			Certin	cate issueu.	10/23/2023
	Artifacts Submit	ted and Sun	nmary of Re	esults:		As Left
Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	In Tolerance
2	Weight Carts	2	1	2	0	2
46	Bulk Weights	46	40	8	0	46
72	50 lb Weights	72	67	27	0	72
48	25 lb Weights	48	43	13	0	48
3	Ech II Weight kit	13	13	0	0	13
4	Avoirdupois kits	60	60	0	0	60
4	Metric kits/weights	54	54	0	0	54

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.. SD Metrology laboratory uses an assumed density provided by the customer or weight manufacturer which could affect measurement results.

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

10/29/2025

Wade Robbins, Reviewer

0/29/2025

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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.

Ver 20250114 1 of 25



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: K-Scale Certificate Number: M26039 Rev A

Calibration Date: 10/28/2025 Rev A to separate Class 2 kit 0

Environmental conditions at time of test:

Temperature: 21 °C Humidity: 44.92 % Pressure: 675.06 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: DunBar SN: 11111895

Ν	Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
	3000	0.58	264	-0.03	-11	0.12	2.01	1.05	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 1058, 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

Ver 20250114

10/28/2025

Wade Robbins, Reviewer

10/28/2025



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10/28/2025

Inspection Checklist for Weight Cart

Calibrated f	or:	K-Scale		Certificate number:	M26039 Rev A
Calibration	Date:	10/30/2025	F	Rev A to separate Class 2 k	it 0
				. —	2004
Manufactur	_	DunBar	Date of Man		2001
Model Num	ber:	WM20	ID/SN Numb	per	11111895
	7	_			
√	-		000 lbs	Suitably marked: Yes/No	Yes
√	Powered by:	Electric/generator	Diesel	Gasolin	e ✓
✓	Fluid Levels:	Engine Oil	√		
		Hydraulic Fluid	√	Sealed: Yes/N	
		Battery	√	Sealed: Yes/N	
T .	-	Liquid Fuel		rence Line Present: Yes/N	o Yes
✓	-	ibes extend beyond the body of	of the cart: Yes/No	Yes	
✓	Number of ax		2		
✓	Number /Size	e of Tires	21x9x15		
✓	Sealed wheel	bearings: Yes/No	Yes	<u> </u>	_
✓	-1	resent in locations where wate	•		
✓	-	aint railing permanently fixed a		Yes	
✓	Adjusting cav	vity accessible: Yes/No	Yes	Approximate capacity:(lbs	100
✓	Adjusting cav	vity sealed: Yes/No	Yes	-	
✓	Service brake	es functioning properly: Yes/No	Yes		
✓	Parking brake	es functioning properly: Yes/No	Yes		
	Remote cont	rol functioning properly: Yes/N	lo]	
	-				
		lition at time of calibration (not unauthorized entry of seals).	te any accumulated dirt/	debris, damage, loose par	ts, or evidence of
✓	tampening of	undutiforized entry of seals).			
	Ust and some			-d -k- 1b	
	•	rt any repair and maintenance xhaust system, wheels changed		•	• •
✓	the last calib		a,	or morade any comments of	on anges amee
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Ron E Peterson, Metrologist

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CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate Number: M26039 Rev A

Calibration Date: 10/29/2025 Rev A to separate Class 2 kit 0

Environmental conditions at time of test:

Temperature: 20.23 °C Humidity: 44.52 % Pressure: 675.44 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: B-TEK Scales SN: 16592B

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
4000	6.92	3142	-0.12	-57	0.13	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 1058, 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.

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Wade Robbins, Reviewer

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Inspection Checklist for Weight Cart

Calibrated for: Calibration Date:	K-	-Scale		Certificate number: M26039 Re					
Calibration Date	::	10/30/2025		Rev A to se	parate Class 2 kit	0			
Manufacturer:	Г	B-TEK Scale	s	Date of Manufacture		2018			
Model Number:		B54WTC-400		ID/SN Number	16592B				
	<u> </u>	2511116 100		15/014 (4411156)	103325				
√ No	ominal Mass o	of Weight Cart	4000 lbs	Suitably r	marked: Yes/No	Yes			
√ Po	wered by:	Electric/generato	or	Diesel	Gasoline	\checkmark			
√ Flu	id Levels:	Engine Oil	✓						
-		Hydraulic Flui	d 🗸		Sealed: Yes/No	Yes			
		Batter	-y		Sealed: Yes/No	Yes			
		Liquid Fuel	√	Reference Line	Present: Yes/No	Yes			
√ Flu	iid drain tube	es extend beyond the bo	dy of the cart:	Yes/No Yes		-			
√ Nu	mber of axle	es:		2					
√ Nu	ımber /Size o	of Tires	21	x7x15					
√ Sea	aled wheel b	earings: Yes/No	,	Yes					
√ Dra	ain holes pre	sent in locations where v	water may acc	umulate: Yes/No	Yes				
√ W€	eight restrain	nt railing permanently fix	ed and solid:	Yes/No	Yes				
√ Ad	justing cavity	y accessible: Yes/No	Yes	Approxim	ate capacity:(lbs)	100			
√ Ad	justing cavity	y sealed: Yes/No	Yes		•				
√ Ser	rvice brakes f	functioning properly: Yes	s/No	Yes					
√ Pai	rking brakes	functioning properly: Yes	s/No	Yes					
Re	mote contro	I functioning properly: Ye	es/No						
				umulated dirt/debris, da	mage, loose parts,	or evidence of			
√ tar	npering or ui	nauthorized entry of seal	is).						
<u>L</u>									
	•		•	d, parts replaced, etc., Le performed, etc. Include	•	•			
	e last calibrat		inged, Weiding	perrormed, etc. merade	any comments or c	stratiges strice			
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Ron E Peterson, Me	etrologist	10/29/2025		Wade Robbins, Reviewer		10/29/2025			

Ver Ver 20250114



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CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number: 0

Environmental conditions at time of test: Serial#

Temperature: 21.5 °C Humidity: 47.7 % Pressure: 675.6 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, an XPE604KMC balance, and a Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage
Artifact(s):
24 1000 lb weights

Nominal		Correction	as Found	Correction	n as Left	NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
1000 lb	1	0.09	40.9	0.00	-0.1	45	4.7	2.0	Adjusted
1000 lb	2	0.00	-0.2	0.00	-0.2	45	4.7	2.0	In-Tolerance
1000 lb	3	-0.01	-5.4	-0.01	-5.4	45	4.7	2.0	In-Tolerance
1000 lb	5	0.16	70.4	0.00	0.2	45	4.7	2.0	Adjusted
1000 lb	6	0.02	9.7	0.02	9.7	45	4.7	2.0	In-Tolerance
1000 lb	7	-0.05	-24.2	0.00	0.1	45	4.7	2.0	Adjusted
1000 lb	8	-0.02	-10.2	-0.02	-10.2	45	4.7	2.0	In-Tolerance
1000 lb	9	0.12	52.5	0.00	0.0	45	4.7	2.0	Adjusted
1000 lb	10	-0.06	-27.4	0.00	-0.1	45	4.7	2.0	Adjusted
1000 lb	11	0.11	49.3	0.00	0.1	45	4.7	2.0	Adjusted
1000 lb	12	-0.02	-7.7	-0.02	-7.7	45	4.7	2.0	In-Tolerance
1000 lb	13	0.00	-0.9	0.00	-0.9	45	4.7	2.0	In-Tolerance
1000 lb	14	-0.03	-13.8	-0.03	-13.8	45	4.7	2.0	In-Tolerance
1000 lb	15	-0.03	-13.9	-0.03	-13.9	45	4.7	2.0	In-Tolerance
1000 lb	17	0.00	0.2	0.00	0.2	45	4.7	2.0	In-Tolerance
1000 lb	21	0.05	23.8	0.05	23.8	45	4.7	2.0	In-Tolerance
1000 lb	28	-0.02	-7.4	-0.02	-7.4	45	4.7	2.0	In-Tolerance
1000 lb	121	0.06	26.5	0.06	26.5	45	4.7	2.0	In-Tolerance
1000 lb	D	-0.02	-10.4	-0.02	-10.4	45	4.7	2.0	In-Tolerance
1000 lb	E	0.03	14.5	0.03	14.5	45	4.7	2.0	In-Tolerance
1000 lb	J	0.16	74.5	0.00	0.0	45	4.7	2.0	Adjusted
1000 lb	Р	0.03	14.1	0.03	14.1	45	4.7	2.0	In-Tolerance
1000 lb	RR	0.00	0.4	0.00	0.4	45	4.7	2.0	In-Tolerance
1000 lb	W	0.12	52.4	0.00	0.2	45	4.7	2.0	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

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Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number: 0

Environmental conditions at time of test: Serial#

Temperature: 20 °C Humidity: 46.5 % Pressure: 675.8 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, an XPE604KMC balance, and a Vaisala PTU301

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

Artifact(s):

19 1000 lb weights

Nominal		Correction a	as Found	Correction	n as Left	NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
1000 lb	1	-0.03	-13.0	-0.03	-13.0	45	4.7	2.0	In-Tolerance
1000 lb	2	0.02	10.3	0.02	10.3	45	4.7	2.0	In-Tolerance
1000 lb	14	-0.02	-8.4	-0.02	-8.4	45	4.7	2.0	In-Tolerance
1000 lb	15	-0.01	-6.2	-0.01	-6.2	45	4.7	2.0	In-Tolerance
1000 lb	19	0.08	34.8	0.08	34.8	45	4.7	2.0	In-Tolerance
1000 lb	20	0.00	-0.5	0.00	-0.5	45	4.7	2.0	In-Tolerance
1000 lb	21	0.01	5.6	0.01	5.6	45	4.7	2.0	In-Tolerance
1000 lb	23	0.00	-0.5	0.00	-0.5	45	4.7	2.0	In-Tolerance
1000 lb	C18	0.06	26.6	0.06	26.6	45	4.7	2.0	In-Tolerance
1000 lb	GG	0.03	13.6	0.03	13.6	45	4.7	2.0	In-Tolerance
1000 lb	H18	0.02	7.0	0.02	7.0	45	4.7	2.0	In-Tolerance
1000 lb	I	0.03	15.2	0.03	15.2	45	4.7	2.0	In-Tolerance
1000 lb	J18	0.05	22.7	0.05	22.7	45	4.7	2.0	In-Tolerance
1000 lb	K	0.01	6.6	0.01	6.6	45	4.7	2.0	In-Tolerance
1000 lb	L1	0.04	16.5	0.04	16.5	45	4.7	2.0	In-Tolerance
1000 lb	M18	0.02	7.4	0.02	7.4	45	4.7	2.0	In-Tolerance
1000 lb	MM	-0.01	-4.9	-0.01	-4.9	45	4.7	2.0	In-Tolerance
1000 lb	SS	-0.03	-15.8	-0.03	-15.8	45	4.7	2.0	In-Tolerance
1000 lb	VV	0.00	0.6	0.00	0.6	45	4.7	2.0	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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number: 0

Environmental conditions at time of test: Serial#

Temperature: $21.5\,^{\circ}\text{C}$ Humidity: $47.7\,\%$ Pressure: $675.6\,\text{mmhg}$ 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, an XPE604KMC balance, and a Vaisala PTU301

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

Artifact(s):

3 500 lb weights

Nominal		Correction	as Found	Correction	n as Left	NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
500 lb	В	-0.01	-4.4	-0.01	-4	23	2.4	2.0	In-Tolerance
500 lb	С	0.01	3.5	0.01	4	23	2.4	2.0	In-Tolerance
500 lb	D	0.00	1.7	0.00	2	23	2.4	2.0	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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 48.6 % Pressure: 675.6 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):

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	-853	-853	2300	200	2.02	In-Tolerance
50 lb	1	-1958	2	2300	200	2.02	Adjusted
50 lb	2	-1113	-1113	2300	200	2.02	In-Tolerance
50 lb	3	-958	-958	2300	200	2.02	In-Tolerance
50 lb	3	-2393	7	2300	200	2.02	Adjusted
50 lb	4	-338	-338	2300	200	2.02	In-Tolerance
50 lb	6	-1313	2	2300	200	2.02	Adjusted
50 lb	7	-268	-268	2300	200	2.02	In-Tolerance
50 lb	9	-643	-643	2300	200	2.02	In-Tolerance
50 lb	10	-668	-668	2300	200	2.02	In-Tolerance
50 lb	10	-1268	12	2300	200	2.02	Adjusted
50 lb	11	-873	-873	2300	200	2.02	In-Tolerance
50 lb	13	-1923	2	2300	200	2.02	Adjusted
50 lb	15	-1418	-8	2300	200	2.02	Adjusted
50 lb	15	-908	-908	2300	200	2.02	In-Tolerance
50 lb	16	-2078	7	2300	200	2.02	Adjusted
50 lb	20	-923	-923	2300	200	2.02	In-Tolerance
50 lb	20	-353	-353	2300	200	2.02	In-Tolerance
50 lb	20	-823	-823	2300	200	2.02	In-Tolerance
50 lb	21	-703	-703	2300	200	2.02	In-Tolerance
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^{*} 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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 48.6 % Pressure: 675.6 mmhg

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

Test method used: Lob standards trassable to the SL XDR 4003LDES XDR 2026 XDR 2026 DR XDR 2

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		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
50 lb	24	-3043	-8	2300	200	2.02	Adjusted
50 lb	25	-2378	-8	2300	200	2.02	Adjusted
50 lb	27	-938	-938	2300	200	2.02	In-Tolerance
50 lb	28	-1473	2	2300	200	2.02	Adjusted
50 lb	31	-1768	7	2300	200	2.02	Adjusted
50 lb	33	-1148	-1148	2300	200	2.02	In-Tolerance
50 lb	36	-178	-178	2300	200	2.02	In-Tolerance
50 lb	38	-1528	7	2300	200	2.02	Adjusted
50 lb	41	-1533	12	2300	200	2.02	Adjusted
50 lb	48	-553	-553	2300	200	2.02	In-Tolerance
50 lb	50	-1658	2	2300	200	2.02	Adjusted
50 lb	51	-738	-738	2300	200	2.02	In-Tolerance
50 lb	52	-1443	-23	2300	200	2.02	Adjusted
50 lb	53	-973	-973	2300	200	2.02	In-Tolerance
50 lb	98	87	87	2300	200	2.02	In-Tolerance
50 lb	321	187	187	2300	200	2.02	In-Tolerance
50 lb	333	-1818	2	2300	200	2.02	Adjusted
50 lb	8-C44	-1783	-13	2300	200	2.02	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

Mone Al ade Robbins



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 19.96 °C Humidity: 45.6 % Pressure: 675.8 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): 12 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	-793	-793	2300	200	2.02	In-Tolerance
50 lb	17	-2723	-3	2300	200	2.02	Adjusted
50 lb	18	-1473	7	2300	200	2.02	Adjusted
50 lb	22	-138	-138	2300	200	2.02	In-Tolerance
50 lb	32	297	297	2300	200	2.02	In-Tolerance
50 lb	34	-1503	2	2300	200	2.02	Adjusted
50 lb	43	-2178	-8	2300	200	2.02	Adjusted
50 lb	47	-1568	727	2300	200	2.02	Adjusted
50 lb	90	-718	-718	2300	200	2.02	In-Tolerance
50 lb	97	-1383	-3	2300	200	2.02	Adjusted
50 lb	С	1037	1037	2300	200	2.02	In-Tolerance
50 lb	F	-1298	2	2300	200	2.02	Adjusted
			<u> </u>				

^{*} 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

None Met



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 19.96 °C Humidity: 45.6 % Pressure: 675.8 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): 22 50 lb weights SN Hanging Wts

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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	-163	-163	2300	200	2.02	In-Tolerance	
50 lb	12	-483	-483	2300	200	2.02	In-Tolerance	
50 lb	13	357	357	2300	200	2.02	In-Tolerance	
50 lb	21	-243	-243	2300	200	2.02	In-Tolerance	
50 lb	25	342	342	2300	200	2.02	In-Tolerance	
50 lb	27	-543	-543	2300	200	2.02	In-Tolerance	
50 lb	31	-598	-598	2300	200	2.02	In-Tolerance	
50 lb	32	-758	-758	2300	200	2.02	In-Tolerance	
50 lb	33	132	132	2300	200	2.02	In-Tolerance	
50 lb	34	262	262	2300	200	2.02	In-Tolerance	
50 lb	35	-1438	2	2300	200	2.02	Adjusted	
50 lb	36	-18	-18	2300	200	2.02	In-Tolerance	
50 lb	38	-1308	-8	2300	200	2.02	Adjusted	
50 lb	39	-638	-638	2300	200	2.02	In-Tolerance	
50 lb	46	-923	-923	2300	200	2.02	In-Tolerance	
50 lb	46	-768	-768	2300	200	2.02	In-Tolerance	
50 lb	47	-323	-323	2300	200	2.02	In-Tolerance	
50 lb	49	1487	1487	2300	200	2.02	In-Tolerance	
50 lb	51	467	467	2300	200	2.02	In-Tolerance	
50 lb	59	-508	-508	2300	200	2.02	In-Tolerance	
50 lb	С	-1843	7	2300	200	2.02	Adjusted	
50 lb	Н	1397	1397	2300	200	2.02	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

Mone Al ade Rollins



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 48.6 % Pressure: 675.6 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): 28 25 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
25 lb	2	-49	-49	1100	120	2.02	In-Tolerance
25 lb	10	246	246	1100	120	2.02	In-Tolerance
25 lb	56	141	141	1100	120	2.02	In-Tolerance
25 lb	1PJ5	151	151	1100	120	2.02	In-Tolerance
25 lb	1PJ5	-1119	6	1100	120	2.02	Adjusted
25 lb	1PJ6	-784	6	1100	120	2.02	Adjusted
25 lb	1PJ8	181	181	1100	120	2.02	In-Tolerance
25 lb	1PJA	-609	6	1100	120	2.02	Adjusted
25 lb	1PJI	-319	-319	1100	120	2.02	In-Tolerance
25 lb	1PJP	-319	-319	1100	120	2.02	In-Tolerance
25 lb	1PJP	-284	-284	1100	120	2.02	In-Tolerance
25 lb	1PJV	-134	-134	1100	120	2.02	In-Tolerance
25 lb	1PJX	-189	-189	1100	120	2.02	In-Tolerance
25 lb	1PK1	161	161	1100	120	2.02	In-Tolerance
25 lb	1PK11	46	46	1100	120	2.02	In-Tolerance
25 lb	1PK4	-24	-24	1100	120	2.02	In-Tolerance
25 lb	1PK5	-984	1	1100	120	2.02	Adjusted
25 lb	1PK6	-684	-4	1100	120	2.02	Adjusted
25 lb	1PK8	106	106	1100	120	2.02	In-Tolerance
25 lb	1PK9	-519	-519	1100	120	2.02	In-Tolerance
25 lb	1PKD	-479	-479	1100	120	2.02	In-Tolerance
25 lb	1PKF	-94	-94	1100	120	2.02	In-Tolerance
25 lb	1PKG	61	61	1100	120	2.02	In-Tolerance
25 lb	1PKL	-2524	6	1100	120	2.02	Adjusted
25 lb	1PKM	-449	-449	1100	120	2.02	In-Tolerance
25 lb	1PKN	-259	-259	1100	120	2.02	In-Tolerance
25 lb	1PKO	-379	-379	1100	120	2.02	In-Tolerance
25 lb	1PKW	331	331	1100	120	2.02	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

None Al ade Rollins



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 48.6 % Pressure: 675.6 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): 20 25 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
25 lb	1PJ1	16	16	1100	120	2.02	In-Tolerance
25 lb	1PJ2	11	11	1100	120	2.02	In-Tolerance
25 lb	1PJ9	-1029	6	1100	120	2.02	Adjusted
25 lb	1PJD	-589	-9	1100	120	2.02	Adjusted
25 lb	1PJJ	-764	11	1100	120	2.02	Adjusted
25 lb	1PJL	-184	-184	1100	120	2.02	In-Tolerance
25 lb	1PJM	-244	-244	1100	120	2.02	In-Tolerance
25 lb	1PJN	-114	-114	1100	120	2.02	In-Tolerance
25 lb	1PJT	-304	-304	1100	120	2.02	In-Tolerance
25 lb	1PJT	-424	-424	1100	120	2.02	In-Tolerance
25 lb	1PJZ	-1014	6	1100	120	2.02	Adjusted
25 lb	1PK2	-129	-129	1100	120	2.02	In-Tolerance
25 lb	1PK3	-89	-89	1100	120	2.02	In-Tolerance
25 lb	1PK7	51	51	1100	120	2.02	In-Tolerance
25 lb	1PK8	-614	-9	1100	120	2.02	Adjusted
25 lb	1PKE	966	1	1100	120	2.02	Adjusted
25 lb	1PKJ	-389	-389	1100	120	2.02	In-Tolerance
25 lb	1PKK	-139	-139	1100	120	2.02	In-Tolerance
25 lb	1PKO	-929	-9	1100	120	2.02	Adjusted
25 lb	KS-D2	-149	-149	1100	120	2.02	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

Mone Al ade Rollins



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/28/2025 **Purchase Order Number:**

Environmental conditions at time of test:

Temperature: 21.1 °C **Humidity: 48.6%** Pressure: 675.6 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): 2 Metric Weight(s)

Correction as Left Nominal Correction as Found NIST Class F Uncertainty Condition SN/ID mg Tolerance (mg) mg mg k As Left Υ -269 -269 500 43 2.04 5 kg In-Tolerance 20 kg -535 -535 2000 200 2.02 In-Tolerance

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

Wade Rollins 10/28/2025

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



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039

Calibration Date: 10/29/2025 Environmental conditions at time of test:

Temperature: 20.555 C Humidity: 49.325 % Pressure: 672.63 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): 1 piece Metric Kit SN 07-463352

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)
200 g	07-463352	0.160	-0.029	1	0.061	2.01	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

10/29/2025

Ron E Peterson, Metrologist

None 1st Wade Rollins

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Wade Robbins, Reviewer



Metrology Lab

Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039

Calibration Date: 10/29/2025 **Environmental conditions at time of test:**

Ron E Peterson, Metrologist

Temperature: 20.555 C Humidity: 49.325 % Pressure: 672.63 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

1 piece Metric Kit SN 06-J17124-22 Artifact(s):

Nominal		True Mass Correction	Conventional Mass Correction	ASTM E 617 Class	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)		k	Density (g/cm³)
100 g	06-J17124-22	-0.491	-0.585	1	0.041	2.01	7.95
					_		

^{*} 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

10/29/2025

Wade Robbins, Reviewer



Metrology Lab

Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039

Calibration Date: 10/29/2025 **Environmental conditions at time of test:**

> Temperature: 20.555 C Humidity: 49.325 % Pressure: 672.63 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): 9 piece Metric Kit SN OVC3

	Aitilact(s).	3	piece ivietric kit		JIV		
		o .:	Conventional Mass	ASTM E 617 Class			
Nominal		True Mass Correction	Correction	2	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)	mg	k	Density (g/cm³)
100 g		-0.046	-0.140	0.5	0.041	2.01	7.95
50 g		-0.059	-0.106	0.25	0.039	2.01	7.95
30 g		0.099	0.071	0.15	0.026	2.03	7.95
20 g		0.030	0.011	0.1	0.016	2.01	7.95
10 g		0.050	0.041	0.074	0.011	2.01	7.95
5 g		0.016	0.011	0.054	0.0089	2.01	7.95
3 g		0.035	0.032	0.054	0.010	2.05	7.95
2 g		0.0419	0.0400	0.054	0.0088	2.01	7.95
1 g		0.038	0.037	0.054	0.0051	2.01	7.95

^{*} 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

10/29/2025 Ron E Peterson, Metrologist Wade Robbins, Reviewer



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 47 % Pressure: 672.1 mmhg

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

Test method used: Lob standards transplants to the SL XDR 4003LDES XDR 2026 XDR 2

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): 16 piece Avoirdupois Kit SN 081500C

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
5 lb		26	26	230	20	2.04	In-Tolerance
2 lb	5	10.4	10.4	91	7.9	2.04	In-Tolerance
2 lb	6	27.4	27.4	91	7.9	2.04	In-Tolerance
1 lb		11.5	11.5	70	6.1	2.04	In-Tolerance
0.5 lb		3.2	3.2	45	4.0	2.03	In-Tolerance
0.2 lb	1	8.6	8.6	18	1.6	2.04	In-Tolerance
0.2 lb	2	8.4	8.4	18	1.6	2.04	In-Tolerance
0.1 lb		7.37	7.37	9.1	0.78	2.04	In-Tolerance
0.05 lb		2.27	2.27	4.5	0.39	2.04	In-Tolerance
0.02 lb		1.37	1.37	1.8	0.16	2.03	In-Tolerance
0.02 lb		0.81	0.81	1.8	0.16	2.03	In-Tolerance
0.01 lb		0.54	0.54	1.5	0.13	2.04	In-Tolerance
0.005 lb		0.84	0.84	1.2	0.10	2.04	In-Tolerance
0.002 lb		0.580	0.580	0.87	0.076	2.04	In-Tolerance
0.002 lb		0.710	0.710	0.87	0.076	2.04	In-Tolerance
0.001 lb		0.064	0.064	0.7	0.061	2.04	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

None Al



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 47 % Pressure: 672.1 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 piece Avoirdupois Kit SN 081910A

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Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
10 lb		119	119	450	39	2.04	In-Tolerance
10 lb		126	126	450	39	2.04	In-Tolerance
5 lb		79	79	230	20	2.04	In-Tolerance
5 lb		31	31	230	20	2.04	In-Tolerance
2 lb		26.4	26.4	91	7.9	2.04	In-Tolerance
2 lb		9.4	9.4	91	7.9	2.04	In-Tolerance
1 lb		9.5	9.5	70	6.1	2.04	In-Tolerance
0.5 lb		0.6	0.6	45	4.0	2.03	In-Tolerance
0.2 lb		3.1	3.1	18	1.6	2.04	In-Tolerance
0.2 lb		3.2	3.2	18	1.6	2.04	In-Tolerance
0.1 lb		1.30	1.30	9.1	0.78	2.04	In-Tolerance
0.05 lb		0.45	0.45	4.5	0.39	2.04	In-Tolerance
0.02 lb		0.44	0.44	1.8	0.16	2.03	In-Tolerance
0.02 lb		0.39	0.39	1.8	0.16	2.03	In-Tolerance
0.01 lb		0.70	0.70	1.5	0.13	2.04	In-Tolerance
0.005 lb		0.21	0.21	1.2	0.10	2.04	In-Tolerance
0.002 lb		0.285	0.285	0.87	0.076	2.04	In-Tolerance
0.001 lb		0.379	0.379	0.7	0.061	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

None 1st Wade Rollins



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21.1 °C Humidity: 47 % Pressure: 672.1 mmhg

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

The project of the standards transplant to the SU YORG 1003 NEG YORG 2003 N

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): 16 piece Avoirdupois Kit SN 081500B

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Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
10 lb	KS	-119	-119	450	39	2.04	In-Tolerance
10 lb	12	35	35	450	39	2.04	In-Tolerance
5 lb		26	26	230	20	2.04	In-Tolerance
1 lb	1	-5.6	-5.6	70	6.1	2.04	In-Tolerance
1 lb	3	6.5	6.5	70	6.1	2.04	In-Tolerance
1 lb	4	-12.6	-12.6	70	6.1	2.04	In-Tolerance
1 lb	5	17.5	17.5	70	6.1	2.04	In-Tolerance
1 lb	8	3.5	3.5	70	6.1	2.04	In-Tolerance
4 oz	1	7.5	7.5	23	2.0	2.03	In-Tolerance
4 oz	2	10.3	10.3	23	2.0	2.03	In-Tolerance
4 oz	3	0.5	0.5	23	2.0	2.03	In-Tolerance
1 oz	2	2.12	2.12	5.4	0.48	2.02	In-Tolerance
1 oz	3	1.84	1.84	5.4	0.48	2.02	In-Tolerance
0.5 oz		1.26	1.26	2.8	0.24	2.03	In-Tolerance
0.5 oz		0.25	0.25	2.8	0.24	2.03	In-Tolerance
0.25 oz		0.25	0.25	1.7	0.15	2.02	In-Tolerance
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^{*} 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

None Met



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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21 °C Humidity: 45.5 % Pressure: 677.6 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): 22 piece Metric Kit SN 080602B

Artifact(s). 22 piece Metric Kit 310 000002B							
Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
2 kg	1	86	86	200	17	2.04	In-Tolerance
2 kg	2	89	89	200	17	2.04	In-Tolerance
2 kg	3	79	79	200	17	2.04	In-Tolerance
2 kg	4	90	90	200	17	2.04	In-Tolerance
2 kg	5	72	72	200	17	2.04	In-Tolerance
1 kg		41.0	41.0	100	8.7	2.04	In-Tolerance
500 g	1	34.5	34.5	70	6.1	2.04	In-Tolerance
500 g	2	31.5	31.5	70	6.1	2.04	In-Tolerance
500 g	3	14.5	14.5	70	6.1	2.04	In-Tolerance
500 g	4	30.5	30.5	70	6.1	2.04	In-Tolerance
500 g	5	32.5	32.5	70	6.1	2.04	In-Tolerance
200 g		12.9	12.9	40	3.4	2.04	In-Tolerance
200 g		10.7	10.7	40	3.4	2.04	In-Tolerance
100 g		10.1	10.1	20	1.7	2.04	In-Tolerance
50 g		4.05	4.05	10	0.86	2.04	In-Tolerance
20 g		1.24	1.24	4	0.34	2.04	In-Tolerance
20 g		1.95	1.95	4	0.34	2.04	In-Tolerance
10 g		0.98	0.98	2	0.17	2.03	In-Tolerance
5 g		0.92	0.92	1.5	0.13	2.04	In-Tolerance
2 g		0.491	0.491	1.1	0.095	2.04	In-Tolerance
2 g		-0.029	-0.029	1.1	0.095	2.04	In-Tolerance
1 g		-0.434	-0.434	0.9	0.078	2.04	In-Tolerance
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^{*} 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

None Al



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CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21 °C Humidity: 45.5 % Pressure: 677.6 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): 16 piece Metric Kit SN 20BD

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
5 kg		127	127	500	43	2.04	In-Tolerance
2 kg		79	79	200	17	2.04	In-Tolerance
2 kg		85	85	200	17	2.04	In-Tolerance
1 kg		51.0	51.0	100	8.7	2.04	In-Tolerance
500 g		24.5	24.5	70	6.1	2.04	In-Tolerance
200 g		17.5	17.5	40	3.4	2.04	In-Tolerance
200 g		16.2	16.2	40	3.4	2.04	In-Tolerance
100 g		1.7	1.7	20	1.7	2.04	In-Tolerance
50 g		2.43	2.43	10	0.86	2.04	In-Tolerance
20 g		0.94	0.94	4	0.34	2.04	In-Tolerance
20 g		0.61	0.61	4	0.34	2.04	In-Tolerance
10 g		0.64	0.64	2	0.17	2.03	In-Tolerance
5 g		0.17	0.17	1.5	0.13	2.04	In-Tolerance
2 g		0.431	0.431	1.1	0.095	2.04	In-Tolerance
2 g		0.341	0.341	1.1	0.095	2.04	In-Tolerance
1 g		0.082	0.082	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.

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

None Al



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CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21 °C Humidity: 46.3 % 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): 14 piece Metric Kit SN 01AY

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
2 kg		93	93	200	17	2.04	In-Tolerance
1 kg		43.0	43.0	100	8.7	2.04	In-Tolerance
500 g		34.5	34.5	70	6.1	2.04	In-Tolerance
200 g		16.3	16.3	40	3.4	2.04	In-Tolerance
200 g		15.5	15.5	40	3.4	2.04	In-Tolerance
100 g		7.6	7.6	20	1.7	2.04	In-Tolerance
50 g		3.40	3.40	10	0.86	2.04	In-Tolerance
20 g		1.08	1.08	4	0.34	2.04	In-Tolerance
20 g		1.03	1.03	4	0.34	2.04	In-Tolerance
10 g		0.91	0.91	2	0.17	2.03	In-Tolerance
5 g		0.44	0.44	1.5	0.13	2.04	In-Tolerance
2 g		0.191	0.191	1.1	0.095	2.04	In-Tolerance
2 g		0.326	0.326	1.1	0.095	2.04	In-Tolerance
1 g		-0.549	-0.549	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.

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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: K-Scale Certificate number: M26039 Rev A

Calibration Date: 10/29/2025 Purchase Order Number:

Environmental conditions at time of test:

Temperature: 21 °C Humidity: 46.3 % 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): 10 piece Avoirdupois Kit SN SD180711

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
8 oz	1	10.2	10.2	45	4.0	2.03	In-Tolerance
8 oz	2	13.2	13.2	45	4.0	2.03	In-Tolerance
8 oz	3	19.2	19.2	45	4.0	2.03	In-Tolerance
8 oz	4	24.2	24.2	45	4.0	2.03	In-Tolerance
8 oz	5	17.2	17.2	45	4.0	2.03	In-Tolerance
8 oz	6	23.2	23.2	45	4.0	2.03	In-Tolerance
8 oz	7	21.2	21.2	45	4.0	2.03	In-Tolerance
8 oz	8	20.2	20.2	45	4.0	2.03	In-Tolerance
8 oz	9	15.2	15.2	45	4.0	2.03	In-Tolerance
8 oz	10	14.2	14.2	45	4.0	2.03	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

None 1st Quele Robbine