



Receipt Date: March 11, 2019
Cal. Date: March 12, 2019
Certificate Date: March 12, 2019

Certificate No.: 340750
Set Serial No.: 11 & 22
Barcode: 201586

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 33 (2018)
Technician ID: 11

Item(s) Submitted: 2 - 2500 lb Weight Carts
Manufacturer: Anderson
Weight Type: NA
Equipment ID: None
Condition: Acceptable
Temperature: 19.9 °C
Pressure: 738.7 mmHg
Relative Humidity: 49.6 %

Nominal Value	Serial No.	CM Correction (g)		NIST HB105-8 Class		k	U (g)
		As Received	As Left	As Received	As Left		
2500 lb	11	-10538	32	*	105-8	2.02	33
2500 lb	22	-10769	16	*	105-8	2.02	33

New batteries. Next battery change will require sealed batteries per NIST Handbook 105-8 requirements.
Cart(s) as received (*) exceed NIST HB105-8 tolerance.

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-8 (2003) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 33 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Pete Whebbe
Pete Whebbe
Metrologist

Reviewed by:
Anna Pierce
[Signature]
Metrologist



Receipt Date: March 11, 2019
Cal. Date: March 12, 2019
Certificate Date: March 12, 2019

Certificate No.: 340751
Set Serial No.: OV_Series
Barcode: 201585

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

Item(s) Submitted: Cast Slab Weights
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.4 °C
Pressure: 738.2 mmHg
Relative Humidity: 47.6 %

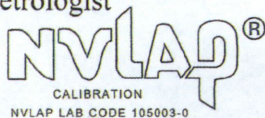
Nominal Value	Serial No.	CM Correction (g)		NIST HB105-1 Class		k	U (g)
		As Received	As Left	As Received	As Left		
2500 lb	OV2X	165	-3	*	F	2.02	11
2500 lb	OV2Y	145	11	*	F	2.02	11
2500 lb	OV2Z	147	3	*	F	2.02	11
2500 lb	OV30	146	-1	*	F	2.02	11
2500 lb	OV31	90	90	F	F	2.02	11
2500 lb	OV32	68	68	F	F	2.02	11

* Weight(s) as received exceed largest NIST HB105-1 Tolerance Class.

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Pete Whebbe

Metrologist



Reviewed by:
Erik Alfvin

Metrologist

Receipt Date:	March 11, 2019	Certificate No.:	340752
Cal. Date:	March 12, 2019	Set Serial No.:	7 - 10
Certificate Date:	March 12, 2019	Barcode:	201588

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

Item(s) Submitted: Cast Cube Weights
Manufacturer: PUC
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.4 °C
Pressure: 735.2 mmHg
Relative Humidity: 49.3 %

Nominal Value	Serial No.	CM Correction (g)		NIST HB105-1 Class		k	U (g)
		As Received	As Left	As Received	As Left		
500 lb	7	-1.1	-1.1	F	F	2.13	2.0
500 lb	8	-4.1	-4.1	F	F	2.13	2.0
500 lb	9	13.9	13.9	F	F	2.13	2.0
500 lb	10	29.9	-1.1	*	F	2.13	2.0

* Weight(s) as received exceed largest NIST HB105-1 Tolerance Class.

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Pete Whebbe

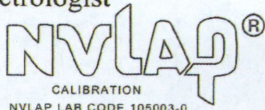
Reviewed by:

Erik Alfvin

Metrologist

Metrologist

Page 1 of 1



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Receipt Date: March 11, 2019
Cal. Date: March 12 & 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340753
Set Serial No.: NSI 01 to 40, None
Barcode: 201589

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078

Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

Item(s) Submitted: Cast Hand Weights
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.6 °C
Pressure: 730.8 mmHg
Relative Humidity: 48.0 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
50 lb	NSI 01	1120	1120	F	F	2.03	130
50 lb	NSI 02	3480	-30	*	F	2.03	130
50 lb	NSI 03	-1310	-1310	F	F	2.03	130
50 lb	NSI 04	470	470	F	F	2.03	130
50 lb	NSI 05	560	560	F	F	2.03	130
50 lb	NSI 06	1130	1130	F	F	2.03	130
50 lb	NSI 07	-2950	120	*	F	2.03	130
50 lb	NSI 08	1920	1920	F	F	2.03	130
50 lb	NSI 09	1210	1210	F	F	2.03	130
50 lb	NSI 10	-2470	50	*	F	2.03	130
50 lb	NSI 11	560	560	F	F	2.03	130
50 lb	NSI 12	2820	60	*	F	2.03	130
50 lb	NSI 13	850	850	F	F	2.03	130
50 lb	NSI 14	-1070	-1070	F	F	2.03	130
50 lb	NSI 15	-230	-230	F	F	2.03	130
50 lb	NSI 16	3170	-20	*	F	2.03	130
50 lb	NSI 17	2920	180	*	F	2.03	130
50 lb	NSI 18	2840	200	*	F	2.03	130
50 lb	NSI 19	-1340	-1340	F	F	2.03	130
50 lb	NSI 20	-560	-560	F	F	2.03	130
50 lb	NSI 21	990	990	F	F	2.03	130
50 lb	NSI 22	2040	2040	F	F	2.03	130
50 lb	NSI 23	1790	1790	F	F	2.03	130
50 lb	NSI 24	-3350	500	*	F	2.03	130
50 lb	NSI 25	2120	2120	F	F	2.03	130
50 lb	NSI 26	-2060	-2060	F	F	2.03	130
50 lb	NSI 27	3190	0	*	F	2.03	130
50 lb	NSI 28	320	320	F	F	2.03	130
50 lb	NSI 29	2400	130	*	F	2.03	130
50 lb	NSI 30	3850	50	*	F	2.03	130

Weight(s) as received (*) exceed NIST HB105-1 class F tolerance.

Receipt Date: March 11, 2019
Cal. Date: March 12 & 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340753
Set Serial No.: NSI 01 to 40, None
Barcode: 201589

Continued,

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

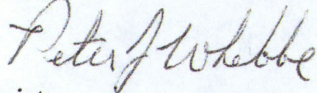
Item(s) Submitted: Cast Hand Weights
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.6 °C
Pressure: 730.8 mmHg
Relative Humidity: 48.0 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
50 lb	NSI 31	-1500	-1500	F	F	2.03	130
50 lb	NSI 32	1400	1400	F	F	2.03	130
50 lb	NSI 33	2820	240	*	F	2.03	130
50 lb	NSI 34	-70	-70	F	F	2.03	130
50 lb	NSI 35	-3280	440	*	F	2.03	130
50 lb	NSI 36	1750	1750	F	F	2.03	130
50 lb	NSI 37	110	110	F	F	2.03	130
50 lb	NSI 38	1230	1230	F	F	2.03	130
50 lb	NSI 39	-1070	-1070	F	F	2.03	130
50 lb	NSI 40	3490	530	*	F	2.03	130
25 lb		206	206	F	F	2.03	70
25 lb		-14	-14	F	F	2.03	70

Weight(s) as received (*) exceed NIST HB105-1 class F tolerance.

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Pete Whebbe



Metrologist

Reviewed by:

Erik Alfvin



Metrologist

Receipt Date: March 11, 2019
Cal. Date: March 12 & 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340754
Set Serial No.: NSI 41 to 80
Barcode: 201587

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

Item(s) Submitted: Cast Hand Weights
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.6 °C
Pressure: 730.8 mmHg
Relative Humidity: 48.0 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
50 lb	NSI 41	1780	1780	F	F	2.03	130
50 lb	NSI 42	2230	280	*	F	2.03	130
50 lb	NSI 43	3150	40	*	F	2.03	130
50 lb	NSI 44	3590	90	*	F	2.03	130
50 lb	NSI 45	1580	1580	F	F	2.03	130
50 lb	NSI 46	440	440	F	F	2.03	130
50 lb	NSI 47	1630	1630	F	F	2.03	130
50 lb	NSI 48	-290	-290	F	F	2.03	130
50 lb	NSI 49	3060	380	*	F	2.03	130
50 lb	NSI 50	2030	2030	F	F	2.03	130
50 lb	NSI 51	4200	130	*	F	2.03	130
50 lb	NSI 52	960	960	F	F	2.03	130
50 lb	NSI 53	-270	-270	F	F	2.03	130
50 lb	NSI 54	3540	-80	*	F	2.03	130
50 lb	NSI 55	860	860	F	F	2.03	130
50 lb	NSI 56	-2060	-2060	F	F	2.03	130
50 lb	NSI 57	1640	1640	F	F	2.03	130
50 lb	NSI 58	3300	0	*	F	2.03	130
50 lb	NSI 59	1300	1300	F	F	2.03	130
50 lb	NSI 60	3810	280	*	F	2.03	130
50 lb	NSI 61	2620	580	*	F	2.03	130
50 lb	NSI 62	780	780	F	F	2.03	130
50 lb	NSI 63	3210	110	*	F	2.03	130
50 lb	NSI 64	3020	100	*	F	2.03	130
50 lb	NSI 65	1210	1210	F	F	2.03	130
50 lb	NSI 66	3130	-100	*	F	2.03	130

Weight(s) as received (*) exceed NIST HB105-1 class F tolerance.

Receipt Date: March 11, 2019
Cal. Date: March 12 & 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340754
Set Serial No.: NSI 41 to 80
Barcode: 201587

Continued,

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 11

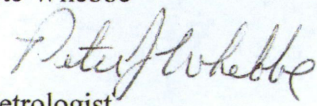
Item(s) Submitted: Cast Hand Weights
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Acceptable
Temperature: 20.6 °C
Pressure: 730.8 mmHg
Relative Humidity: 48.0 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
50 lb	NSI 67	2260	20	*	F	2.03	130
50 lb	NSI 68	3710	300	*	F	2.03	130
50 lb	NSI 69	1050	1050	F	F	2.03	130
50 lb	NSI 70	930	930	F	F	2.03	130
50 lb	NSI 71	1080	1080	F	F	2.03	130
50 lb	NSI 72	3880	100	*	F	2.03	130
50 lb	NSI 73	3820	10	*	F	2.03	130
50 lb	NSI 74	3170	180	*	F	2.03	130
50 lb	NSI 75	1770	1770	F	F	2.03	130
50 lb	NSI 76	1680	1680	F	F	2.03	130
50 lb	NSI 77	2130	2130	F	F	2.03	130
50 lb	NSI 78	400	400	F	F	2.03	130
50 lb	NSI 79	3370	380	*	F	2.03	130
50 lb	NSI 80	1240	1240	F	F	2.03	130

Weight(s) as received (*) exceed NIST HB105-1 class F tolerance.

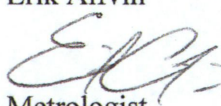
The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Pete Whebbe


Metrologist

Reviewed by:

Erik Alfvín


Metrologist

Receipt Date: March 11, 2019
Cal. Date: March 12 & 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340755
Set Serial No.: OF44
Barcode: 017730

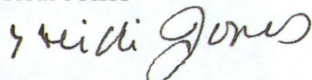
Calibration Certificate

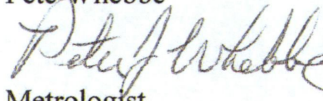
NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 09

Item(s) Submitted: 30 lb kit w/ ounces
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 20.4 °C
Pressure: 730.8 mmHg
Relative Humidity: 47.7 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
10 lb		78	78	F	F	2.03	11
10 lb		187	187	F	F	2.03	11
5 lb		78.5	78.5	F	F	2.03	5.5
1 lb		1.5	1.5	F	F	2.03	1.1
1 lb		15.1	15.1	F	F	2.03	1.1
1 lb		31.0	31.0	F	F	2.03	1.1
1 lb		19.7	19.7	F	F	2.03	1.1
1 lb		17.8	17.8	F	F	2.03	1.1
4 oz		-5.55	-5.55	F	F	2.05	0.29
4 oz		-8.17	-8.17	F	F	2.05	0.29
4 oz		-3.61	-3.61	F	F	2.05	0.29
1 oz		2.29	2.29	F	F	2.05	0.11
1 oz		0.94	0.94	F	F	2.05	0.11
1 oz		1.89	1.89	F	F	2.05	0.11
1/2 oz		1.488	1.488	F	F	2.06	0.076
1/2 oz		0.307	0.307	F	F	2.06	0.076
1/4 oz		0.717	0.717	F	F	2.06	0.048
1/4 oz		-0.092	-0.092	F	F	2.06	0.048

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Heidi Jones

Laboratory Administrator

Reviewed by:
Pete Whebbe

Metrologist

Receipt Date: March 11, 2019
Cal. Date: March 12, 2019
Certificate Date: March 12, 2019

Certificate No.: 340756
Set Serial No.: 1HZV
Barcode: 200328

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 20.3 °C
Pressure: 734.3 mmHg
Relative Humidity: 47.3 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
10 lb		184	184	5	5	2.03	11
10 . lb		153	153	5	5	2.03	11
5 lb		94.9	94.9	5	5	2.03	5.5
2 lb		38.7	38.7	5	5	2.03	2.2
2 . lb		38.2	38.2	5	5	2.03	2.2
1 lb		19.1	19.1	5	5	2.03	1.1
0.5 lb		10.60	10.60	5	5	2.03	0.61
0.2 lb		5.75	5.75	5	5	2.03	0.22
0.2 . lb		3.82	3.82	5	5	2.03	0.22
0.1 lb		4.26	4.26	5	5	2.03	0.14
0.05 lb		1.786	1.786	5	5	2.03	0.098
0.02 lb		0.202	0.202	4	4	2.03	0.055
0.02 . lb		0.739	0.739	5	5	2.03	0.055
0.01 lb		0.637	0.637	5	5	2.03	0.041
0.005 lb		0.196	0.196	4	4	2.03	0.044
0.002 lb		0.440	0.440	5	5	2.03	0.026
0.002 . lb		0.192	0.192	5	5	2.03	0.026
0.001 lb		-0.010	-0.010	4	4	2.03	0.021

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to ASTM E617 (2018) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Pete Whebbe
Metrologist

Receipt Date: March 11, 2019
Cal. Date: March 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340757
Set Serial No.: OFBA
Barcode: 017731

Calibration Certificate

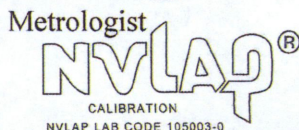
NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 20

Item(s) Submitted: Metric Weight Set
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 20.3 °C
Pressure: 728.6 mmHg
Relative Humidity: 47.3 %

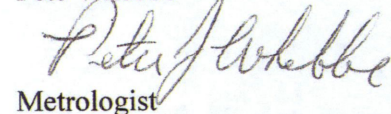
Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
2 kg		88.7	88.7	F	F	2.04	5.3
1 kg		42.3	42.3	F	F	2.04	2.5
500 g		31.5	31.5	F	F	2.04	1.3
200 g		13.68	13.68	F	F	2.04	0.50
200 g		10.40	10.40	F	F	2.04	0.50
100 g		6.57	6.57	F	F	2.04	0.25
50 g		0.95	0.95	F	F	2.04	0.15
20 g		1.483	1.483	F	F	2.25	0.094
20 g		1.261	1.261	F	F	2.25	0.094
10 g		1.174	1.174	F	F	2.04	0.065
5 g		0.303	0.303	F	F	2.03	0.044
2 g		0.644	0.644	F	F	2.03	0.032
2 g		-0.047	-0.047	F	F	2.03	0.032
1 g		0.271	0.271	F	F	2.04	0.025

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Anna Pierce

Reviewed by:
Pete Whebbe



Metrologist

Receipt Date: March 11, 2019
Cal. Date: March 13, 2019
Certificate Date: March 13, 2019

Certificate No.: 340758
Set Serial No.: 1HZW
Barcode: 200329

Calibration Certificate

NORTHWEST SCALE, INC.
2210 EAST MAIN AVE UNIT 2A
WEST FARGO, ND 58078
Contact: JIM JACOBS
Phone: 701-298-9527
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 20

Item(s) Submitted: Metric Weight Set
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 20.6 °C
Pressure: 728.6 mmHg
Relative Humidity: 48.1 %

Nominal Value	Serial No.	<u>CM Correction (mg)</u>		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
2 kg		95.3	95.3	F	F	2.04	5.3
1 kg		43.1	43.1	F	F	2.04	2.5
500 g		31.7	31.7	F	F	2.04	1.3
200 g		9.40	9.40	F	F	2.04	0.50
200 g		15.13	15.13	F	F	2.04	0.50
100 g		9.08	9.08	F	F	2.04	0.25
50 g		4.54	4.54	F	F	2.04	0.15
20 g		1.335	1.335	F	F	2.25	0.094
20 g		0.866	0.866	F	F	2.25	0.094
10 g		0.919	0.919	F	F	2.04	0.065
5 g		0.329	0.329	F	F	2.03	0.044
2 g		0.629	0.629	F	F	2.03	0.032
2 g		0.447	0.447	F	F	2.03	0.032
1 g		0.601	0.601	F	F	2.04	0.025

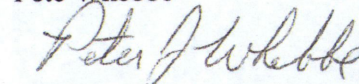
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Anna Pierce

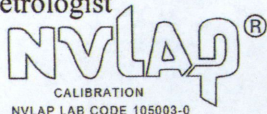
Reviewed by:
Pete Whebbe



Metrologist



Metrologist



United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Minnesota

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

Scope

Mass Echelon I	Mass Echelon III	Volume Gravimetric, I
20 kg to 1 mg	50 kg to 1 mg	20 L to 10 ml
Mass Echelon II	5000 lb to 0.001 lb	100 gal to 0.25 gal
5 kg to 1 mg	4 oz to 0.03125 oz	Volume Transfer, II
1000 lb to 250 lb	Weight Carts	1500 gal to 5 gal
50 lb to 0.001 lb	5 000 lb to 2000 lb	Volume Transfer, II LPG
	Wheel Load Weighers	200 gal to 25 gal
	12 000 lb to 2000 lb	
	Railroad Test Cars/Carts	
	110 000 lb to 80 000 lb	
	10 000 lb to 8 000 lb	



2019

Douglas A. Olson

Douglas A. Olson, Chief
NIST Office of Weights and Measures

Effective Dates: 2019-01-01 to 2020-02-01