20200421125018KK

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A SADCAS Accredited Calibration Laboratory

CALIBRATION CERTIFICATE

Date of Calibration	**:**	**April 21, 2020**
Date of Next Calibration	**:**	**None**
Calibrated For	**:**	**customer**
Calibration of	**:**	**balance**
Manufacturer	**:**	**manufacturer**
Serial Number	**:**	**4598**
Range	**:**	**0.0 - 300.0**
Resolution	**:**	**0.01**
Calibrated At	**:**	**location**
Immersion Depth	**:**	**0.001**

Calibrated by
Sign
Approved By
Lab Manager
Sign

1 Standards used:

Laboratory Standards and Equipment Used	***Serial Number***	***Certificate Number***
OHAUS	***OHAUS***	***201103170800***

2 Procedure used:

3 Calibration Conditions:

Temperature: 123 ± 1ºC

Humidity : 23 ± 10% RH

4 Units used : grams

5 Results:

Settling time found to be	**12.02**
Weight used for corner load test	**100.0**
Max corner loading error	**0.150000000000000568**
Cold start drift found to be	**0.005**
Repeatability at 1/2 load found	**35.35533905932738**
Repeatability at full load found	**36.062445840513924**

Nominal Mass	Actual Mass	Linearity Up	Difference
100.0	**100.0**	**100.0**	**0.0**
100.0	**100.0**	**99.98**	**0.019999999999999602**
100.0	**100.0**	**100.15**	**0.150000000000000568**

The uncertainty of the balance was estimated to be 101.005 grams (95% confidence level)

Customer	**customer**		
Location	**location**	**Certificate Number**	**20200421125018KK**
Manufacturer	**manufacturer**	**Date**	**April 21, 2020**
Model	**model**	**Calibrated by**	
Serial Number	**4598**	**Valindation**	**YES**
Range	**0.0 - 300.0**	**Clean**	**YES**
Resolution	**0.01**	**Level**	**YES**
Units	**grams**	**Warmed Up**	**YES**
Tare Check	**YES**	**Exercised**	**YES**

1) Standards Used

Nominal	Actual	Uncertainty
100.0	**100.0**	**0.005**

2) Cold Start:

Test Weight(g)	**10.0**
Test #	**Result**
1	**10.0**
2	**10.01**
3	**9.99**
4	**10.0**
5	**9.98**
Cold Drift	**0.005**

3) Settling Time:

Reading	Settling Time
1	12.0
2	11.85
3	12.25
4	12.5
5	11.5

4) Linearity(before calibration):

Nominal Mass	Actual Mass	Linearity Up	Difference
100.0	100.0	100.0	0.0
100.0	100.0	99.98	0.019999999999602
100.0	100.0	100.15	0.15000000000000568

5) Linearity(after calibration adjustments):

Nominal Value	100.0	100.0	100.0	100.0	100.0
Actual Value	100.0	100.0	100.0	100.0	100.0
Linearity Up	10.0	50.0	100.0	150.0	200.0
Linearity Down	200.0	200.5	149.95	99.1	50.5
Linearity Up	10.5	50.45	99.98	150.35	200.01
Average Reading	73.5	100.3167	116.6433	133.15	150.17
Difference	109.5525	86.7616	28.8444	29.4887	86.3168
Standard Deviation	26.5	0.3167	16.6433	33.15	50.17

6) Repeatability:

	1/2 Load	Full Load
Nominal Mass	100.0	100.0
Actual Mass	100.0	100.0
Reading #1	0.0	0.0
Reading #2	50.0	51.0
Average Reading	25.0	25.5
Standard Deviation	35.3553	36.0624

7) Off Center Error

Test Weight		100.0
Position	Reading	Weight Difference

A	**100.0**	**0.0**
B	**99.98**	**0.01999999999999602**
C	**99.85**	**0.15000000000000568**
D	**100.15**	**0.15000000000000568**
E	**100.0**	**0.0**
Minimum Reading		**99.85**
Maximum Reading		**100.15**
Average Reading		**99.996**
Minimum Corner Error		**99.85**
Standard Deviation of Readings		**0.10644247272588522**

The uncertainty of the measurement was estimated to be + 101.005grams.(95% confidence level)

6 Traceability:

The standard set of mass pieces is traceable to CSIR National Metrology Laboratory South Africa through calibration certificate number ISOOHA01 MV/M-3640

7 Remarks:

The reported uncertainties of measurement were calculated and expressed in accordance with the BIPM, ISO, IEC, IUPAP, OIML document entitled: "A guide to the expression of Uncertainty in Measurement"(International Organization for Standardization, Geneva Switzerland, 1993)

The reported uncertainties of measurement are based on standard uncertainty multiplied by a coverage factor of k=2, which unless specifically stated otherwise provides a level of confidence of approximately 95%