



CALIBRATION CERTIFICATE

Certificate No. :- 2223/0211/08 -08	Page No. :- 1 of 2
Date of Calibration :- 11-Feb-2023	Calibration Due Date :- 10-Feb-2024
1.Customer Name & Address : Health Horizon Diagnostics Varun Capital,Flat No.401 & 402, CTS No.364,365/13,FP No.713,714/13,Shivaji Nagar, Pune-411005	SRF No. :- 2223/0211/08 Date of Received :- 11-Feb-2023 Cal. Cert. Issue Date :- 14-Feb-2023 Condition of UUC :- OK Location of calibration :- In Lab Calibration Procedure No. :- MTS/VM/WI-01

2.Environmental Conditions:	Temperature: 20.1 °C	Relative Humidity: 49 % RH
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3. Description of UUC			
Name :- Micropipette	Range :- 100 to 1000	µL	
Make :- Erba	L.C. :- 5	µL	
I.D No. :- HHD/IN/MP/02	Model/Sr.No. :- --/NH468614		
Type :- Analog	Location :- --		

4. Reference Standards used for calibration:			
Name :- Digital Weighing Balance	4- Wire RTD Sensor With Indicator		
Make :- Saffron	Tempsens, 4 Wire/Tempmet		
I.D No./Sr. No. :- MTS/WB-04 / M21090500	MTS/TIS-01/867,0042		
Certificate No. :- 2223/0921/02-01	NI/2206/016/001		
Calibration Validity :- 20-Sep-2023	05-06-2023		
Certified By :- Mastertech Systems	Nishitronics (CC-2294)		
Range/Uncertainty :- As Per Certificate	As Per Certificate		

5. Calibration Results						
S. No.	Cal Point		Cal Point		Cal Point	
	100 µl		500 µl		1000 µl	
	Mass (mg)	Volume (µl)	Mass (mg)	Volume (µl)	Mass (mg)	Volume (µl)
1	101.95118	102.23664	505.50203	506.91744	1016.44120	1019.28724
2	99.49865	99.77725	503.42118	504.83076	1014.18445	1017.02417
3	100.55638	100.83794	501.22451	502.62794	1011.21458	1014.04598
4	100.89005	101.17254	505.36965	506.78469	1007.27635	1010.09672
5	100.71458	100.99658	504.39102	505.80331	1008.91203	1011.73698
6	100.56802	100.84961	505.78400	507.20020	1007.78940	1010.61121
7	100.98965	101.27242	503.89741	505.30832	1005.48700	1008.30236
8	100.71524	100.99724	504.89745	506.31116	1008.97450	1011.79963
9	100.93540	101.21802	503.96784	505.37895	1007.98561	1010.80797
10	100.85961	101.14202	505.02365	506.43772	1009.11223	1011.93774
Mean	100.76788	101.05003	504.34787	505.76005	1009.73774	1012.56500
Standard Devi.	0.596472640	0.598142763	1.340009818	1.343761846	3.325649090	3.334960907





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S. No.	Cal Point	Accuracy Limit %	Accuracy %
1	100	3.0 %	1.05 %
2	500	0.8 %	1.15 %
3	1000	0.6 %	1.26 %

S. No.	Cal Point	% CV Limit	% CV
1	100	0.6 %	0.592 %
2	500	0.3 %	0.266 %
3	1000	0.2 %	0.329 %

Z Factor 1.0028 µl/mg Temperature 20.1 Deg C Humidity 49% RH

Barometric Pressure 945.1 hPa Water Temperature 22.2 Deg C

NOTES:

- 1.The value measured of uuc & standard are mean of 10 reading.
- 2.The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by coverage factor K=2, which corresponds to a coverage probability of approximately 95.45% for normal distribution
- 3.This certificate refers only to the particular UUC submitted for calibration. UUC stands for Unit Under Calibration.
- 4.The calibration results reported in the certificate are valid at the time of and under the stated conditions of measurement.
5. This certificate shall not be reproduced, except in full unless written permission for the publication of an approved abstract has been obtained from "Mastertech Systems" Pune.
- 6.The Instruments used for calibration are traceable to National/International standards and their calibrations are valid.
7. Calibration Accepted Yes.

Calibrated By

Ms. Prachita Nighojkar
Calibration Engineer



Approved By

Mr. Daulat Shete
Technical Manager



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CALIBRATION CERTIFICATE

Certificate No.	: 2223/0921/02-01	Calibration Due Date	: 20-Sep-2023
Date of Calibration	: 21-Sep-2022	Cal. Cert. Issue Date	: 22-Sep-2022
1. Clients Name & Address :		SRF No.	: 2223/0921/02
Mastertech Systems		Date of Received	: 21-Sep-2022
Anjali Niketan, Flat No. 3,		Condition of UUC	: OK
2nd Floor, Viveknagar,		Location of calibration	: In Lab
Akurdi, Pune-411035.		Calibration Procedure No.	: MTS/WB/WI-01
		ULR NO.	: CC291122000000824F

2. Environmental Conditions: Temperature 22.3 °C Relative Humidity: 54 % Rh

3. Description of UUC

Name :- Weighing Balance	Range	: 0 to 220 g
Make :- Saffron	Resolution	: 0.00001 g up to 60 g & 0.0001 g
I.D No. :- MTS/WB-04	Model/Sr.No.	: SES265/M21090500
Type :- Digital	Location	: —

4. Reference Standards used for calibration

Name	: Weight Box
Make / Model	: Shimadzu / E2 Class
I.D No./Sr. No.	: MTS/SWB-01 / 1802820
Certificate No.	: HTC/2022/05/10945
Calibration Validity	: 06-06-2023
Certified By	: HTC (CC-2478)
Range/Uncertainty	: As Per Certificates

5. CALIBRATION RESULTS:

i. REPEATABILITY OF MEASUREMENTS:

Load	Repeatability of Measurement
g	g
200	0.0001
100	0.0001

ii. CORRECTION FOR BALANCE INDICATION (LINEARITY TEST):

Load	Mass of Standard	Observed on UUC	Correction	Expanded Uncertainty
g	g	g	g	±mg
200	200.00019	199.9998	0.00039	0.4
100	100.00011	99.9999	0.00021	0.4
50	50.00006	49.99999	0.00007	0.4
10	10.000031	9.99999	0.000041	0.4
1	1.000016	1.00000	0.000016	0.4
0.1	0.100008	0.10000	0.000008	0.4
0.05	0.050008	0.05000	0.000008	0.4
0.001	0.001003	0.00100	0.000003	0.4





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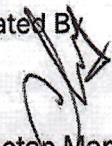
iii. OFF CENTER LOADING TEST:

A weight of 100 g was placed at center of the balance pan & then was moved to various positions related to center. The maximum error found due to off center loading, relative to center is : 0.0003 g

NOTES:


1. The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by coverage factor $K=2$, which corresponds to a coverage probability of approximately 95% for normal distribution
2. When the sign of the correction is positive (+) the correction value should be added to the balance reading to give the correct mass value of the test weight & when it is negative (-) the correction value should be subtracted from it.
3. Any correction for the Air buoyancy has to be calculated assuming that the object being weighted is balanced against a hypothetical weight of density $7950 \pm 140 \text{ kg/m}^3$; ($k=2$) for Stainless Steel Weights in air of measured density.
4. This certificate refers only to the particular UUC submitted for calibration. UUC stands for Unit Under Calibration.
5. The calibration results reported in the certificate are valid at the time of and under the stated conditions of measurement.
6. This certificate shall not be reproduced, except in full unless written permission for the publication of an approved abstract has been obtained from "Mastertech Systems" Pune.
7. The Instruments used for calibration are traceable to National/International standards and their calibrations are valid.
8. Thermal stabilization of reference weights is done before performing the actual calibration process.
9. The calibration certificate issued for weighing balance used for scientific or industrial purposes only.

Calibrated By


Mr. Chetan Mane
Calibration Engineer



Approved By


Mr. Daulat Shete
Technical Manager

End of Certificate