

FULL SCALE CALIBRATION AND ZERO ERROR RECORD
(Analytical and Precision Weighing Balance)

Unit : X

Department : QC

Month and year : October 2024

Balance Code No. : Bal_23

Capacity (gm) : 320.000

Make : METTLER TOLEDO

Model : MS303S

Std. Weight Box ID. : WBI_1

Least Count (gm) : 0.001

Tolerance: +/- Least count of the balance OR +/- 0.1 % of Standard weight whichever is higher and value should be rounded off on lower side as per display capacity of balance.

Standard weights for calibration (gm)		Tolerance (gm)	Accuracy Limits(Std wt +/- Tolerance) (gm)
Lower	0.020	± 0.001	0.019 - 0.021
Middle(1)	10.000	- 0.003 + 0.006	9.997 - 10.006
Middle(2)	20.000	- 0.004 + 0.005	19.996 - 20.005
Middle(3)	30.000	- 0.005 + 0.006	29.995 - 30.006
Middle(4)	40.000	- 0.004 + 0.007	39.996 - 40.007
Middle(5)	50.000	- 0.005 + 0.006	49.995 - 50.006
Middle(6)	64.000	- 0.004 + 0.005	63.996 - 64.005
Middle(7)	160.000	- 0.003 + 0.004	159.997 - 160.004
Upper	256.000	- 0.004 + 0.001	255.996 - 256.001

Note: 1. Adjust zero error before commencing the weighing operation.

2. Check against standard weights on quarterly.

Date	Time	Spirit Level (Ok/ Not Ok)	Zero Error	Standard weights kept on the balance (gm)		Readings shown (gm)	Remark	Performed by	Checked By
14.10.2024	12:18	OK	Nil	Lower	0.020	0.020	Ok	Sail(12)	Abhishek(A)
				Middle(1)	10.000	10.000	Ok	Sail(12)	Abhishek(A)
				Middle(2)	20.000	20.000	Ok	Sail(12)	Abhishek(A)
				Middle(3)	30.000	30.000	Ok	Sail(12)	Abhishek(A)
				Middle(4)	40.000	40.000	Ok	Sail(12)	Abhishek(A)
				Middle(5)	50.000	50.000	Ok	Sail(12)	Abhishek(A)
				Middle(6)	64.000	64.000	Ok	Sail(12)	Abhishek(A)
				Middle(7)	160.000	160.000	Ok	Sail(12)	Abhishek(A)
				Upper	256.000	256.000	Ok	Sail(12)	Abhishek(A)

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2. Uncertainty test:

Sr. No.	Standard Weight (gm)	Reading displayed on the balance (gm)	Remarks
1	0.020	0.020	Ok
2	0.020	0.020	Ok
3	0.020	0.020	Ok
4	0.020	0.020	Ok
5	0.020	0.020	Ok
6	0.020	0.020	Ok
7	0.020	0.020	Ok
8	0.020	0.020	Ok
9	0.020	0.020	Ok
10	0.020	0.020	Ok
Mean		0.020	-
Standard Deviation (S.D.)		0.0000	-

Uncertainty =
$$\frac{3 \times \text{S.D.}}{\text{Standard Weight (gm)}} = 0.150$$

Acceptance criteria : Value of uncertainty should be NMT 0.001 gm.

Remark : Not Complies

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3. Repeatability test:

Sr. No.	Standard Weight (gm)	Reading displayed on the balance (gm)	Remarks
1	0.020	0.020	Not Ok
2	0.020	0.020	Ok
3	0.020	0.020	Ok
4	0.020	0.020	Ok
5	0.020	0.020	Ok
6	0.020	0.020	Ok
7	0.020	0.020	Ok
8	0.020	0.020	Ok
Mean		0.020	-
Standard Deviation (S.D.)		0.0000	-

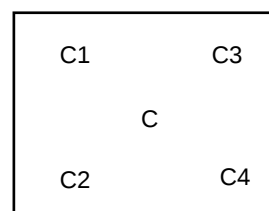
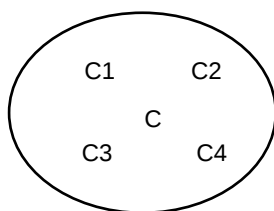
$$\text{Repeatability (\%)} = \frac{2 \times (0.41 \times d)}{\text{Standard weight (gm)}} \times 100 = 4.10$$

Acceptance criteria : Repeatability is NMT 0.10 %

Remark : Not Complies

4. Eccentricity test :

Note: Adjust zero error before commencing the weighing operation .



Sr No.	Standard Weight (gm)	Position	Reading displayed by the balance (gm)	Deviation from center =X-C	Remark
1	0.020	C	0.020	-----	Ok
2	0.020	C1	0.020	0.000	Ok
3	0.020	C2	0.020	0.000	Ok
4	0.020	C3	0.020	0.000	Ok
5	0.020	C4	0.020	0.000	Ok

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Where, X=C1, C2, C3, C4 i.e. different corners of the balance.

Acceptance criteria : Deviation is not more than 0.05%.

Remark: Complies

Comment: _____

Calibration Done By: Sail (12)

Checked By:
(Quality Assurance)

Date : 14.10.2024

Date :