

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

Unit : X

Department : QC

Month and year : April 2025

Balance Code No. : BCN_10

Capacity (gm) : 320.000

Make : METTLER TOLEDO

Model : ML203

Std. Weight Box ID. : WBI_1,WB_10

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)	45.000	± 1.000	44.000 - 46.000
Middle(2)	65.000	± 1.000	64.000 - 66.000
Middle(3)	85.000	± 1.000	84.000 - 86.000
Middle(4)	110.000	± 1.000	109.000 - 111.000
Middle(5)	135.000	± 1.000	134.000 - 136.000
Middle(6)	160.000	± 1.000	159.000 - 161.000
Middle(7)	185.000	± 1.000	184.000 - 186.000
Upper	200.000	± 1.000	199.000 - 201.000

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
02.04.2025	11:32	OK	Nil	Lower	0.020	0.020	Ok	Abhishek(A)	Mangesh(11)
				Middle(1)	45.000	45.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(2)	65.000	65.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(3)	85.000	85.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(4)	110.000	110.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(5)	135.000	135.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(6)	160.000	160.000	Ok	Abhishek(A)	Mangesh(11)
				Middle(7)	185.000	185.000	Ok	Abhishek(A)	Mangesh(11)
				Upper	200.000	200.000	Ok	Abhishek(A)	Mangesh(11)

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2. Uncertainty test:

Sr. No.	Standard Weight (gm)	Reading displayed on the balance (gm)	Remarks
1	110.000	110.000	Ok
2	110.000	110.000	Ok
3	110.000	110.000	Ok
4	110.000	110.000	Ok
5	110.000	110.000	Ok
6	110.000	110.000	Ok
7	110.000	110.000	Ok
8	110.000	110.000	Ok
9	110.000	110.000	Ok
10	110.000	110.000	Ok
Mean		110.000	-
Standard Deviation (S.D.)		0.0000	-

$$\text{Uncertainty} = \frac{3 \times \text{S.D.}}{\text{Standard Weight (gm)}} = 0.000$$

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

Remark : Complies

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3. Repeatability test:

Sr. No.	Standard Weight (gm)	Reading displayed on the balance (gm)	Remarks
1	185.000	185.000	Ok
2	185.000	185.000	Ok
3	185.000	185.000	Ok
4	185.000	185.000	Ok
5	185.000	185.000	Ok
6	185.000	185.000	Ok
7	185.000	185.000	Ok
8	185.000	185.000	Ok
9	185.000	185.000	Ok
10	185.000	185.000	Ok
Mean		185.000	-
Standard Deviation (S.D.)		0.0000	-

Repeatability (%) = $\frac{2 \times (0.41 \times d)}{\text{Standard weight (gm)}}$ X 100 = 0.00

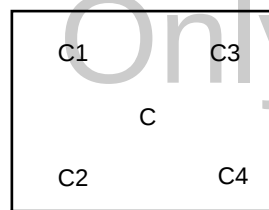
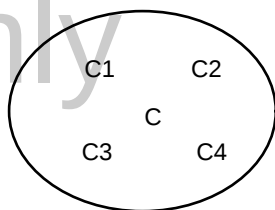
Acceptance criteria : Repeatability is NMT 0.10 %

Remark : Complies

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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	135.000	C	135.000	-----	Ok
1	135.000	C	135.000	-----	Ok
2	135.000	C1	135.000	0.000	Ok
3	135.000	C2	135.000	0.000	Ok
4	135.000	C3	135.000	0.000	Ok
5	135.000	C4	135.000	0.000	Ok
6	135.000	C5	135.000	0.000	Ok
7	135.000	C6	135.000	0.000	Ok
8	135.000	C7	135.000	0.000	Ok

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: Abhishek (A)

Checked By:
(Quality Assurance)

Date : 02.04.2025

Date :