

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

Unit : X

Department :	QC	Month and year :	October 2024
Balance Code No. :	Balance-121212	Capacity (gm) :	350.000
Make :	METTLER TOLEDO	Model :	ML303
Std. Weight Box ID. :	WBI_1,WB001	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	± 0.002	0.018 - 0.022
Middle(1)	10.000	- 0.104 + 0.452	9.896 - 10.452
Middle(2)	20.000	± 2.000	18.000 - 22.000
Middle(3)	30.000	- 2.000 + 1.000	28.000 - 31.000
Middle(4)	40.000	± 1.000	39.000 - 41.000
Middle(5)	50.000	- 2.000 + 1.000	48.000 - 51.000
Upper	60.000	- 2.000 + 1.000	58.000 - 61.000

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
13.10.2024	10:21	OK	Nil	Lower	0.020	0.020	Ok	Priti(5)	Mangesh(11)
				Middle(1)	10.000	10.000	Ok	Priti(5)	Mangesh(11)
				Middle(2)	20.000	20.000	Ok	Priti(5)	Mangesh(11)
				Middle(3)	30.000	30.000	Ok	Priti(5)	Mangesh(11)
				Middle(4)	40.000	40.000	Ok	Priti(5)	Mangesh(11)
				Middle(5)	50.000	50.000	Ok	Priti(5)	Mangesh(11)
				Upper	60.000	60.000	Ok	Priti(5)	Mangesh(11)

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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	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	-

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

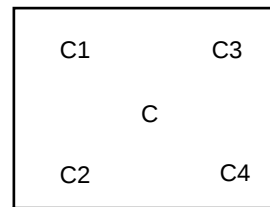
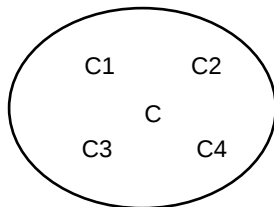
Acceptance criteria : Repeatability is NMT 0.10 %

Remark : Not Complies

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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	0.020	C	0.021	-----	Ok
2	0.020	C1	0.021	0.000	Ok
3	0.020	C2	0.021	0.000	Ok
4	0.020	C3	0.021	0.000	Ok
5	0.020	C4	0.021	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: Priti (5)

Checked By:
(Quality Assurance)

Date : 13.10.2024

Date :