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FULL SCALE CALIBRATION AND ZERO ERROR RECORD

(Analytical and Precision Weighing Balance)

Unit : X

Department : QC

Month and year : March 2025

Balance Code No. : Balance-131313

Capacity (gm) : 350.000

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	± 0.002	0.018 - 0.022
Middle(1)	30.000	± 1.000	29.000 - 31.000
Middle(2)	40.000	- 1.500 + 1.123	38.500 - 41.123
Upper	50.000	- 10.000 + 2.000	40.000 - 52.000

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
11.03.2025	15:13	OK	Nil	Lower	0.020	0.018	Ok	Mangesh(11)	Sail(12)
				Middle(1)	30.000	30.018	Ok	Mangesh(11)	Sail(12)
				Middle(2)	40.000	40.018	Ok	Mangesh(11)	Sail(12)
				Upper	50.000	50.010	Ok	Mangesh(11)	Sail(12)

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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	-

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

Acceptance criteria : Repeatability is NMT 0.10 %

Remark : Not Complies

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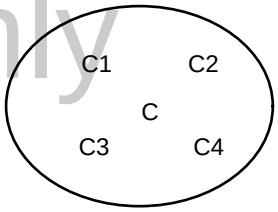
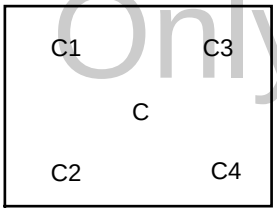
4. Eccentricity test :

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	0.020	------	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

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: Mangesh (11)

Checked By:
(Quality Assurance)

Date : 11.03.2025

Date :