

CERTIFICATE OF CALIBRATION

Issue:- Certificate Number: **98396**
98396_21 Date of Issue: **24-Oct-25**
Approved Signatory: **Thomas Herrington**
Page 1 of 2 Signed: 



Submitter:-

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Issued by:-

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EQUIPMENT: Weights
SERIAL NUMBER: ~~AH8~~ Set AH1
MAKE/TYPE: N/A
STANDARDS USED: Set 12412
DATE RECEIVED: 26 September 2025
DATE CALIBRATED: 10 October 2025
DETAILS: 15 Cast Iron

MEASUREMENTS:

Kent Scientific Services method used: CAL SMALL, Calibration of Small Masses.

The calibrations took place in a controlled environment with the temperature held between 18°C and 22°C, and with the relative humidity held between 40% and 60%.

The measurement results obtained in the table, where each measured value given represents not the true mass, but the mass of a hypothetical weight of density 8,000 kg.m⁻³, which in air of density 1.2 kg.m⁻³ would balance the corresponding weight identified in the first column at 20°C.

The method of weighing was by substitution (Borda's method). In each instance the standard weight used had been calibrated by UKAS Calibration Laboratory number 0474, 0260 or 0352 within the previous three years. The uncertainty of measurements for each of the different denominations is listed in the last column of the table. Duplicate weights, where present, are indicated by a dot or dots.

Customer supplied information is notated with a ~, and results relate only to the item(s) calibrated.

Unless otherwise notated, samples are tested in as received condition at Kent Scientific Services.

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TABLE OF MEASUREMENT RESULTS

Identity Mark	Nominal Mass	Measured Value	Error from Nominal	Estimated Uncertainty
MB4	0.5N	50.948 72 g	- 12.09 mg	± 0.61 mg
M02	1N	101.894 8 g	- 26.8 mg	± 1.0 mg
M03	1N	101.895 9 g	- 25.7 mg	± 1.0 mg
M05	1N	101.893 3 g	- 28.3 mg	± 1.0 mg
S2E	1N	101.896 5 g	- 25.1 mg	± 1.0 mg
M06	10N	1019.152 g	- 64 mg	± 11 mg
M07	5N	509.582 3 g	- 25.9 mg	± 5.1 mg
M08	20N	2038.307 g	- 125 mg	± 20 mg
M09	20N	2038.342 g	- 91 mg	± 20 mg
M10	50N	5096.129 g	+ 48 mg	± 51 mg
M11	100N	10192.35 g	+ 180 mg	± 110 mg
M12	100N	10192.17 g	+ 10 mg	± 110 mg
M13	100N	10192.49 g	+ 330 mg	± 110 mg
M14	100N	10192.22 g	+ 60 mg	± 110 mg
HANGER	5N	509.582 0 g	- 26.2 mg	± 5.1 mg
M02	* 1N	101.922 9 g	+ 1.3 mg	± 1.0 mg
M03	* 1N	101.923 8 g	+ 2.2 mg	± 1.0 mg
M05	* 1N	101.922 0 g	+ 0.4 mg	± 1.0 mg
S2E	* 1N	101.921 3 g	- 0.4 mg	± 1.0 mg
M06	* 10N	1019.200 g	- 16 mg	± 11 mg
M07	* 5N	509.615 5 g	+ 7.4 mg	± 5.1 mg
M08	* 20N	2038.434 g	+ 2 mg	± 20 mg
M13	* 100N	10192.10 g	- 70 mg	± 110 mg
HANGER	* 5N	509.601 7 g	- 6.5 mg	± 5.1 mg

* Denotes post adjustment calibration

The basis for conversion between force units and mass units is that a 1kg mass will experience a force of g newtons where g is the strength of the local gravitational field. At Kent Scientific Services the estimated local $g = 9.81146 \text{ ms}^{-2}$.

END OF RESULTS