


## CERTIFICATE OF CALIBRATION

Issue:- Certificate Number: **98536**  
98536\_10 Date of Issue: **17-Dec-25**  
Approved Signatory: **Thomas Herrington**  
Page 1 of 3 Signed: 



### Submitter:-

Mecmesin Limited  
Newton House  
Spring Copse Business Park  
Slinfold  
West Sussex  
RH13 0SZ

### Issued by:-

Kent Scientific Services  
8 Abbey Wood Road  
Kings Hill  
West Malling  
Kent  
ME19 4YT  
Tel: 03000 415 100  
Fax: 01732 220006

**EQUIPMENT:** Weights  
**SERIAL NUMBER:** See table overleaf  
**MAKE/TYPE:** N/A Weight set MC3 calibration from 15-12-2025  
**STANDARDS USED:** Set 12412  
**DATE RECEIVED:** 5 December 2025  
**DATE CALIBRATED:** 15 December 2025  
**DETAILS:** 54 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<sup>-3</sup>, which in air of density 1.2 kg.m<sup>-3</sup> 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 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
2001	1N	101.920 1 g	- 1.5 mg	± 1.0 mg
2002	1N	101.919 1 g	- 2.5 mg	± 1.0 mg
2003	1N	101.923 0 g	+ 1.4 mg	± 1.0 mg
2004	1N	101.920 1 g	- 1.5 mg	± 1.0 mg
2006	1N	101.926 5 g	+ 4.9 mg	± 1.0 mg
2009	1N	101.928 2 g	+ 6.6 mg	± 1.0 mg
2012	1N	101.919 7 g	- 2.0 mg	± 1.0 mg
2013	1N	101.922 5 g	+ 0.8 mg	± 1.0 mg
2016	1N	101.922 2 g	+ 0.6 mg	± 1.0 mg
2020	1N	101.925 2 g	+ 3.6 mg	± 1.0 mg
3508	1N	101.920 5 g	- 1.1 mg	± 1.0 mg
3509	1N	101.925 6 g	+ 4.0 mg	± 1.0 mg
3510	1N	101.918 1 g	- 3.5 mg	± 1.0 mg
3511	1N	101.928 7 g	+ 7.0 mg	± 1.0 mg
3514	1N	101.926 5 g	+ 4.9 mg	± 1.0 mg
2023	5N	509.618 7 g	+ 10.5 mg	± 5.1 mg
2025	5N	509.615 8 g	+ 7.6 mg	± 5.1 mg
2027	5N	509.627 0 g	+ 18.9 mg	± 5.1 mg
2028	5N	509.596 3 g	- 11.8 mg	± 5.1 mg
2029	5N	509.615 3 g	+ 7.1 mg	± 5.1 mg
3500	5N	509.595 0 g	- 13.1 mg	± 5.1 mg
3502	5N	509.606 3 g	- 1.9 mg	± 5.1 mg
3503	5N	509.598 5 g	- 9.7 mg	± 5.1 mg
3362L	5N	509.579 0 g	- 29.2 mg	± 5.1 mg
3025	10N	1019.162 g	- 54.4 mg	± 10.2 mg
1963	10N	1019.224 g	+ 7.7 mg	± 10.2 mg
2031	10N	1019.241 g	+ 24.4 mg	± 10.2 mg
2033	10N	1019.291 g	+ 75.0 mg	± 10.2 mg
2035	10N	1019.269 g	+ 53.0 mg	± 10.2 mg
2036	10N	1019.221 g	+ 4.6 mg	± 10.2 mg
3362E	10N	1019.233 g	+ 16.6 mg	± 10.2 mg
1960	20N	2038.509 g	+ 76.0 mg	± 20.4 mg
1961	20N	2038.435 g	+ 2.4 mg	± 20.4 mg
2040	20N	2038.547 g	+ 114.1 mg	± 20.4 mg
2046	20N	2038.494 g	+ 61.1 mg	± 20.4 mg
3022	20N	2038.527 g	+ 94.6 mg	± 20.4 mg
3515	20N	2038.441 g	+ 8.4 mg	± 20.4 mg
3517	20N	2038.478 g	+ 45.0 mg	± 20.4 mg
3518	20N	2038.536 g	+ 103.2 mg	± 20.4 mg
3362A	20N	2038.439 g	+ 6.8 mg	± 20.4 mg
3362C	20N	2038.443 g	+ 10.7 mg	± 20.4 mg
3362D	20N	2038.506 g	+ 73.2 mg	± 20.4 mg
2047	50N	5096.271 g	+ 189 mg	± 51 mg
2050	50N	5096.218 g	+ 137 mg	± 51 mg
2051	50N	5096.293 g	+ 212 mg	± 51 mg
2052	50N	5096.351 g	+ 269 mg	± 51 mg
3362F	50N	5096.293 g	+ 212 mg	± 51 mg
3362G	50N	5096.301 g	+ 219 mg	± 51 mg
2055	100N	10192.56 g	+ 400 mg	± 103 mg
2056	100N	10192.56 g	+ 400 mg	± 103 mg
2057	100N	10192.60 g	+ 430 mg	± 103 mg
2058	100N	10192.47 g	+ 310 mg	± 103 mg
2062	100N	10192.36 g	+ 190 mg	± 103 mg
3020	100N	10192.00 g	- 160 mg	± 103 mg

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

**TABLE OF MEASUREMENT RESULTS contd.**

Identity Mark	Nominal Mass	Measured Value	Error from Nominal	Estimated Uncertainty
3362L	* 5N	509.610 5 g	+ 0.5 mg	± 5.1 mg
3025	* 10N	1019.219 g	- 1.3 mg	± 10.2 mg
2033	* 10N	1019.214 g	- 5.6 mg	± 10.2 mg
2035	* 10N	1019.215 g	- 5.1 mg	± 10.2 mg
1960	* 20N	2038.431 g	+ 31.1 mg	± 20.4 mg
2040	* 20N	2038.427 g	+ 27.4 mg	± 20.4 mg
2022	* 20N	2038.430 g	+ 30.0 mg	± 20.4 mg
3518	* 20N	2038.432 g	+ 32.1 mg	± 20.4 mg
3362D	* 20N	2038.428 g	+ 27.7 mg	± 20.4 mg
2006	* 1N	101.921 2 g	+ 1.2 mg	± 1.0 mg
2009	* 1N	101.920 7 g	+ 0.7 mg	± 1.0 mg
2020	* 1N	101.920 9 g	+ 0.9 mg	± 1.0 mg
3509	* 1N	101.920 1 g	+ 0.1 mg	± 1.0 mg
3511	* 1N	101.920 8 g	+ 0.8 mg	± 1.0 mg
3514	* 1N	101.922 1 g	+ 2.1 mg	± 1.0 mg
2027	* 5N	509.615 7 g	+ 5.7 mg	± 5.1 mg
2051	* 50N	5096.171 g	+ 71 mg	± 51 mg
2052	* 50N	5096.198 g	+ 98 mg	± 51 mg
3362F	* 50N	5096.051 g	- 49 mg	± 51 mg
3362G	* 50N	5096.081 g	- 19 mg	± 51 mg
2057	* 100N	10192.34 g	+ 144 mg	± 103 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

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