


CERTIFICATE OF CALIBRATION

Issue:- 95659_21	Certificate Number: Date of Issue:	95659 05-Apr-22
Page 1 of 2	Approved Signatory: Signed:	Mark Norfolk 

**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 FR1

SERIAL NUMBER: J01 - J015, Z #

MAKE/TYPE: N/A

STANDARDS USED: Set 12412

DATE RECEIVED: 15 March 2022

DATE CALIBRATED: 24 March 2022

DETAILS: 15 Cast Iron, 11 Brass #

MEASUREMENTS:

Kent Scientific Services method used: CAL-M2, 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 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 to the item calibrated.

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

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

TABLE OF MEASUREMENT RESULTS

Identity Mark	Nominal Force	Measured Value	Error from Nominal	Estimated Uncertainty
J01 #	0.5 N	50.956 09 g	- 4.72 mg	± 1.61 mg
J02 #	1 N	101.898 4 g	- 23.2 mg	± 1.1 mg
J03 #	1 N	101.908 2 g	- 13.4 mg	± 1.1 mg
J04 #	1 N	101.915 0 g	- 6.7 mg	± 1.1 mg
J05 #	1 N	101.904 1 g	- 17.5 mg	± 1.1 mg
J06 #	5 N	509.577 7 g	- 30.5 mg	± 5.1 mg
J07	10 N	1019.172 g	- 44 mg	± 11 mg
J08	20 N	2038.383 g	- 50 mg	± 21 mg
J09	20 N	2038.338 g	- 95 mg	± 21 mg
J10	50 N	5096.004 g	- 78 mg	± 51 mg
J11	100 N	10192.13 g	- 30 mg	± 110 mg
J12	100 N	10192.17 g	+ 10 mg	± 110 mg
J13	100 N	10192.09 g	- 70 mg	± 110 mg
J14	100 N	10192.09 g	- 70 mg	± 110 mg
J015	5 N	509.5364 g	- 71.8 mg	± 5.1 mg
J02 *	1 N	101.921 6 g	- 0.0 mg	± 1.1 mg
J03 *	1 N	101.921 8 g	+ 0.2 mg	± 1.1 mg
J04 *	1 N	101.921 5 g	- 0.2 mg	± 1.1 mg
J05 *	1 N	101.922 6 g	+ 0.9 mg	± 1.1 mg
J06 *	5 N	509.604 2 g	- 4.0 mg	± 5.1 mg
J07 *	5 N	1019.244 g	+ 28 mg	± 110 mg
J09 *	20 N	2038.438 g	+ 5 mg	± 21 mg
J015 *	5 N	509.6111 g	+ 3.0 mg	± 5.1 mg

Identity Mark	Nominal Mass	Measured Value	Error from Nominal	Estimated Uncertainty
Z #	100 g	100.002 2 g	+ 2.2 mg	± 1 mg
Z #	100 g	100.003 2 g	+ 3.2 mg	± 1 mg
Z #	50 g	50.000 73 g	+ 0.73 mg	± 0.60 mg
Z #	20 g	20.001 55 g	+ 1.55 mg	± 0.50 mg
Z #	20 g°	20.001 60 g	+ 1.59 mg	± 0.50 mg
Z #	10 g	10.001 39 g	+ 1.39 mg	± 0.40 mg
Z #	5 g	5.000 88 g	+ 0.88 mg	± 0.30 mg
Z #	2 g	2.000 59 g	+ 0.59 mg	± 0.24 mg
Z #	2 g°	2.000 63 g	+ 0.63 mg	± 0.24 mg
Z #	1 g	1.000 79 g	+ 0.79 mg	± 0.20 mg

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 $g = 9.81146 \text{ ms}^{-2}$.

* Denotes post adjustment calibration

Additions to _10 of certificate

END OF RESULTS