

CERTIFICATE OF CALIBRATION

ISSUED BY EDINBURGH INSTRUMENTS LTD. t/a PRECISA UK

DATE OF ISSUE: 19/01/2023

Certificate Number: CC/62214 ✓



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APPROVED SIGNATORY

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Client: GJC Instruments Ltd

North West House

Chester Road

Tattenhall

Cheshire

CH3 9AH

Date of Calibration: 12/01/2023 ✓

Engineer: Craig Simmonds

The Calibration was carried out at the above address.

This certificate relates to the NAWI listed below only. If the NAWI is moved the results may not apply.

Description and Identification:

A single range electro-magnetic force compensation weighing machine.

Pan Type	Round
System	Electronic
Manufacturer	Ohaus
Model	Explorer E01140
Serial Number	1118501519 ✓
Capacity	110 g
Digital Interval	0.0001 g
Location	Laboratory
Customer ID	N/A

Environmental Conditions:

Test Start Temperature 21°C

Test End Temperature 21.2°C

Weather Station: WSP/0111/19

Test Start Pressure 995mBar

Test End Pressure 994mBar

Test Start Humidity 55%RH

Test End Humidity 54%RH

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 of and/or to units of measurements realised at the National Physical Laboratory or other recognised metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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Measurements:

Prior to the test commencing the machine had been allowed to stabilise for a period of one hour. The weighing machine has been calibrated, after activation of the internal/external calibration cycle (where fitted), by applying weights to the load receptor using test weights from the following calibrated sets:

ID	Class	Calibration Date	Calibrated By	Cert No
4034	F1	26 July 2022 ✓	Hertfordshire Metrology Laboratory	10140

Mass values are reported, not in terms of true mass, but on weight-in-air basis where the mass is that of a hypothetical weight of density 8000 kgm^{-3} , which it balances in air of density 1.2 kgm^{-3} at a temperature of $20 \text{ }^\circ\text{C}$.

Test A involved placing standard weights on the centre of the load receptor in ascending order

Test B involved placing the same weight, firstly in the centre of the load receptor, then at each mid-sideral point.

Test C involved placing the same weight on the load receptor 5 or 10 times, removing it between each application.

In Test A, the value given in the first column (Load Applied) is the actual mass applied to the load receptor as stated on the above calibration certificate, rounded to 1 decimal place greater than the resolution of the machine under test.

The mass given in the second column (Indicated Value) is the mass indicated by the indicator on the machine under test.

The Uncertainties of Measurement is shown at the end of the Table

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TABLE

Test A - Linearity

Load Applied	As Found	Indicated Value
g	g	g
0.00000	0.0000	0.0000
0.01999	0.0201	0.0200
0.09998		0.1000
0.19996	0.2000	0.2000
0.49993		0.4999
1.99995	1.9998	2.0000
4.99993		4.9999
9.99999		10.0000
19.99989	20.0001	20.0000
49.99983		50.0000
109.99998	110.0006	110.0002



A single range electro-magnetic force compensation weighing machine.

Capacity: 110g

Serial No: 1118501519 / N/A

Rev 84

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Edinburgh Instruments Ltd

PLU0117

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Test B - Eccentricity

Nominal Load

Applied:	Indicated Value
39.999744g	g
Centre (E)	39.9999
Rear Left (A)	39.9996
Rear Right (B)	39.9998
Front Left (C)	39.9995

Front Right (D)	40.0000
Centre (E)	39.9999

Test C - Repeatability

Nominal Load Applied: 100.0000g

Zero Point	Indicated Value
g	g
0.0000	100.0000
-0.0001	100.0000
-0.0001	100.0000
0.0000	100.0000
-0.0001	99.9999
-0.0001	100.0000
-0.0001	100.0000
-0.0002	99.9999
-0.0003	99.9999
0.0000	100.0000

Standard Deviation 5.00666E-05

The Uncertainty of Measurement for all tests is \pm 0.00029 g

A single range electro-magnetic force compensation weighing machine.

Capacity: 110g
Serial No.: 1118501519 / N/A

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.

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