



Australian Government
**Department of Industry, Science,
Energy and Resources**

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4C/317

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

MARCO Model CHECKMASTER Weighing Instrument

submitted by MARCO Limited
Enterprise Way
Edenbridge
Kent
TN8 6HF
United Kingdom

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated October 2015.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 2 approved – certificate issued	04/08/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4C/317' and only by persons authorised by the submitter.

It is the submitter's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0B.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.


Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.



Darryl Hines
Manager
Policy and Regulatory
Services

TECHNICAL SCHEDULE No 6/4C/317

1. Description of Pattern **approved on 04/08/20**

A MARCO model CHECKMASTER class  single interval self-indicating non-automatic weighing instrument (Figure 1a and Table 1) of 6 kg maximum capacity with a verification scale interval of 0.002 kg. The minimum capacity is 0.04 kg.

Instruments shall be marked 'NOT FOR TRADING DIRECT WITH THE PUBLIC' (or similar wording).

Instruments may be fitted with output sockets (output interfacing capability) for the connection of peripheral and/or auxiliary devices.

The instrument operates from mains AC power (100-240 V AC, 50/60 Hz).

1.1 Basework

The MARCO model CHECKMASTER basework (Figure 1b) has the load receptor directly supported by a single load cell. The load receptor has a nominal dimension of 300 mm x 300 mm, and typically uses a stainless steel construction.

1.2 Load cell

A Zemic model B6N C3 load cell of 20 kg maximum capacity is used.

1.3 Indicator

A pole-mounted Ian Fellows model CHECKMASTER digital indicator having a stainless steel enclosure is used. The indicator is described in the documentation of approval NMI S720.

1.4 Zero

A zero-tracking device may be fitted.

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

The instrument has automatic and semi-automatic zero-setting devices with a nominal range of not more than 4% of the maximum capacity of the instrument. The automatic zero-setting device operates only when the instrument has been stable below zero for at least 5 seconds.

1.5 Tare

A semi-automatic subtractive tare device of up to maximum capacity may be fitted.

1.6 Display Check

A display check is initiated whenever power is applied.

1.7 Levelling

The instrument is provided with adjustable feet and a level indicator. The level indicator (bubble) is located on basework underneath the weighing receptor. A notice indicating the location of the level indicator (e.g. "Level bubble provided under platform", or similar) shall be provided in a location clearly visible to the operator.

The instrument is to be used in a level condition as indicated by the level indicator.

1.8 Additional Features

Instruments may be fitted with a lightbar (Below/OK/Above), setpoint and check functions (LOW/PASS/HIGH). The additional functions (other than the indications of measured mass, i.e. gross, tare, net, totals, displayed either on the indicator or on an auxiliary or peripheral device) are not approved for trade use.

1.9 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R 76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with NMI General Supplementary Certificate No S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.


Instruments may be fitted with RS-232 serial data interfaces, Wifi, RFID and programmed inputs/outputs.

1.10 Verification Provision

Provision is made for the application of a verification mark.

1.11 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	MARCO Limited
Indication of accuracy class	
Pattern approval number for the instrument	NMI 6/4C/317
Maximum capacity	<i>Max</i> g or kg #1
Minimum capacity	<i>Min</i> g or kg #1
Verification scale interval	<i>e</i> = g or kg #1
Serial number of the instrument

#1 These markings are shown near the display of the result.

In addition, instruments shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

1.12 Software

The software is designated MC8_XXXW and DX8_XXXW, where 'XXX' refers to the identification of non-legally relevant software.

The software version and number can be seen in the switch-on display sequence (when the power is first applied to the instrument).

1.13 Sealing Provision

The instrument is sealed by recording the audit trail counter on verification.

Access to allow changing of set-up parameters including calibration parameters must be protected by a passcode.

The instrument automatically increments a configuration or calibration value (audit trail number) each time the indicator is re-configured or calibrated.

The value of calibration event counter can be seen in the switch-on display sequence (when the power is first applied to the instrument) and may be recorded on a destructible adhesive label attached to the instrument (as TAN followed by a number).

Any subsequent alteration to the calibration or configuration will be evident as the recorded values and the current counter values will differ.

2. Description of Variant 1 **approved on 04/08/20**

The MARCO CHECKMASTER series instruments in certain other single interval capacities as listed in Table 1 and as shown in Figures 1a and 1b (the pattern is shown in **bold**):

TABLE 1

Maximum Capacity (<i>Max</i>)	Minimum Capacity (<i>Min</i>)	Verification Scale Interval (<i>e</i>)	Platform Size (Nominal)	Zemic B6N C3 Load Cell Maximum Capacity (E_{max})
3 kg	0.02 kg	0.001 kg	300 x 300 mm	10 kg
6 kg	0.04 kg	0.002 kg	300 x 300 mm	20 kg
15 kg	0.1 kg	0.005 kg	300 x 300 mm	30 kg

3. Description of Variant 2 **approved on 04/08/20**

The pattern or variant 1 having an Ian Fellows model LINEMASTER V digital indicator (Figure 2). The model LINEMASTER V digital indicator is described in the documentation of approval NMI S720.

TEST PROCEDURE No 6/4C/317

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

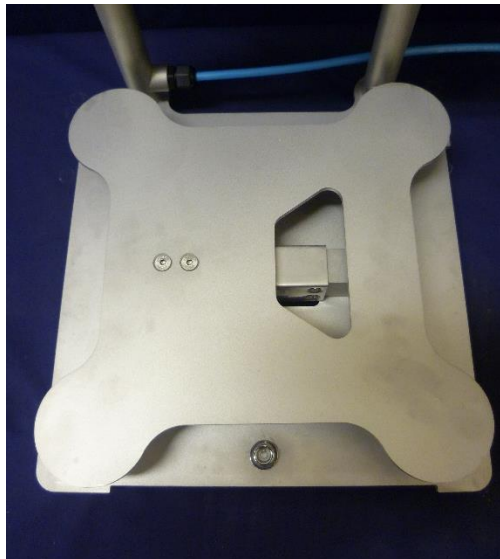
Maximum Permissible Errors

The maximum permissible errors are specified in the *National Trade Measurement Regulations 2009*.

FIGURE 6/4C/317 – 1



(a) MARCO Model Checkmaster Weighing Instrument (Pattern & Variant 1)



(b) MARCO Model Checkmaster Basework Mounting Frame (Pattern & Variant 1)

FIGURE 6/4C/317 – 2



Ian Fellows Model Linemaster V Digital Indicator (Variant 2)

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