Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/10B/51C

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.

Modern Weighbridge Model MW4000E Weighing Instrument

submitted by Modern Weighbridge and Scale Service Pty Ltd
25 Davis Street
Wingfield SA 5013

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 July 2004.

This approval becomes subject to review on **1/12/18**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 5 approved – certificate issued	23/11/07
1	Pattern & variants 1 to 5 reviewed & updated – certificate issued	20/06/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/10B/51C' and only by persons authorised by the submittor.

It is the submittor'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 Certificates No S1/0/A or No S1/0B.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to the instrument shall be within the limits specified herein and in any approval documentation for the components where they are approved separately.

The pattern as approved herein or with substitute load cells and/or indicator and in other capacities and configurations and configurations, shall comply with General Certificate No 6B/0.

Note: New instruments manufactured under this approval shall only use load cells and/or indicators with current NMI supplementary certificates.

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

Dr A Rawlinson

TECHNICAL SCHEDULE No 6/10B/51C

1. Description of Pattern approved on 23/11/07

A Modern Weighbridge model MW4000E class (III) non-automatic self-indicating weighing instrument of 30 000 kg maximum capacity and approved for use with up to 3000 verification scale intervals.

1.1 Basework

The model MW4000E basework has the platform fully supported by 4 load cells.

If approach ramps are provided care shall be taken to ensure that these do not interfere with the platform.

1.2 Load Cells

Four Precision Transducers model HPC30 load cells of 30 000 kg capacity are used. The load cells are also described in the documentation of approval NSC S412.

1.3 Indicator

A Rinstrum model 5000 digital indicator is used. The indicator is also described in the approval documentation of approval NSC S363.

1.4 Descriptive Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Modern Weighbridge
Indication of accuracy class	(III)
Maximum capacity	*Max* ..... kg or t *
Minimum capacity	*Min* ..... kg or t *
Verification scale interval	*e* = ... kg or t *
Tare capacity (if less then *Max)*	*T* = - ..... kg
Serial number of the instrument	.....
Pattern approval mark for the instrument	NMI 6/10B/51C
Pattern approval mark for the load cells	S...
Pattern approval mark for the indicator	S...

* These markings shall also be shown near the display of the result if they are not already located there.

1.5 Levelling

Where instruments are liable to be tilted (i.e. they are not installed in a permanently fixed location) they are provided with adjustable feet and a level indicator. Adjacent to the level indicator is a notice stating 'instrument must be level when in use', or similar wording.

1.6 Sealing Provision

Provision is made for the calibration adjustments in the indicator to be sealed as described in the approval documentation for the indicator used.

1.7 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1 approved on 23/11/07

In capacities as listed below with no less than 4 and with up to 10 approved load cells:

- 100 up to 1499 kg;
- 1500 up to 14 999 kg;
- 15 000 kg up to 149 999 kg; and
- 150 000 kg and above;

using approved load cells and an approved digital indicator (in accordance with General Certificate of Approval No 6B/0).

A number of adjacent baseworks may be provided, with each configured as a separate weighing instrument. This may be achieved by either:

(a) a separate indicator being provided for each platform (a separate summing indicator may be provided – see General Supplementary Certificates Nos S1/0/A or S1/0B), or

(b) the use of an indicator which has provision for the connection of more than one separate baseworks (see the approval documentation for the indicator).

Note: The above (regarding adjacent baseworks) has been mentioned at the request of the certificate holder. Such arrangements are generally acceptable (additional requirements of Trade Measurement Legislation may apply). It should not be inferred that the lack of mention of such arrangements in any other certificate implies that such arrangements are unacceptable.

3. Description of Variant 2 approved on 23/11/07

As hopper weighing instruments in the capacities below:

- 100 up to 1499 kg;
- 1500 up to 14 999 kg;
- 15 000 kg up to 149 999 kg; and
- 150 000 kg and above.

Instruments are either:

(a) fitted with 3, 4 or 5 approved load cells (arranged symmetrically to ensure even loading of each cell) where the hopper is a vertical cylindrical or tank-type load receptor directly supported by the load cells; or

(b) fitted with 4 approved load cells where the hopper is a non-vertical cylindrical, or other hopper-type load receptor.

Note: Instruments with more than 4 load cells may be acceptable if prior written agreement from the National Measurement Institute is obtained.

In addition suitable provision must be made for the application of suitable verified masses to the instrument as required for verification and certification purposes. It may be necessary for such masses to be incorporated within the design of the instrument.

Note: The load receptor may be in the form of a hopper or bag suspended from the base frame.

4. Description of Variant 3 approved on 23/11/07

Hopper weighing instruments with a tilting hopper incorporating an hydraulic ram mechanism allowing the hopper to be tilted for emptying. The system is provided with an interlock which prevents the taking of a weighing result unless the hopper is in a level (untilted) condition.

5. Description of Variant 4 approved on 23/11/07

With up to 4000 verification scale intervals using other approved load cells.

Instruments used with more than 3000 verification scale intervals shall be provided with wind protection in accordance with clause **4. Wind Effects** of General certificate of Approval No 6B/0.

6. Description of Variant 5 approved on 23/11/07

A version of the instrument consisting of a base-frame supporting the load cells which in turn support the weighbridge platform. The design is intended to facilitate re-location of the instrument. Adjacent platforms may also be provided.

The weighbridge is intended to be installed on concrete pads to attempt to ensure level conditions, stability, and adequate load bearing capability.

Note: Trade Measurement Legislation may require particular arrangements regarding weighbridges (such as approaches and location of the weighbridge platform and indicator for example) to be met. This approval does not certify that such requirements have (or can be) met.

Re-location of the weighbridge should not be carried out without notification of the appropriate Trade Measurement Authority. The authority would generally require verification following any relocation.

TEST PROCEDURE No 6/10B/51C

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

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

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