



Australian Government

**National Measurement
Institute**

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4C/243

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.

A & D Model EK-610i Weighing Instrument

submitted by A & D Australasia Pty Ltd
 (formerly A & D Mercury Pty Ltd)
 32 Dew Street
 Thebarton SA 5031

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 **1/10/16**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	15/09/06
1	Pattern & variant 1 – certificate issued	22/01/07
2	Pattern & variant 1 reviewed & updated – certificate issued	20/12/11

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 6/4C/243' 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 Certificates No S1/0/A or No S1/0B.

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

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the end.

TECHNICAL SCHEDULE No 6/4C/243

1. Description of Pattern

approved on 15/09/06

The A & D model EK-610i self-indicating single interval non-automatic weighing instrument of high accuracy class II of 600 g maximum capacity (Figure 1 and Table 1).

Instruments are fitted with a single load cell and have a liquid crystal display (LCD). Instruments have an auxiliary indicating device (a differentiated scale division (digit) which is shown in a different colour (Figure 1) in the display) with a value as shown in the 'scale interval (*d*)' column of Table 1.

Instruments are approved for use over a temperature range of +5°C to +35°C, and are so marked.

Instruments are not for trading direct with the public, and are so marked.

Power supply may be either:

- 7-10 V DC supplied by an AC/DC mains adaptor or other DC power source; or
- rechargeable batteries.

Note: The AC/DC mains adaptor supplied was an A & D Mercury model TB-172 power supply (8 V DC, 300 mA); the submitter should be consulted regarding the acceptability of alternative power supply units.

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

1.1 Zero and Tare

Instruments have an initial zero-setting device with a nominal range of not more than 20% of the maximum capacity of the instrument.

Instruments have a combined semi-automatic zero-setting and subtractive tare balancing device (operated by the 're-zero' key). Operation of this device zeroes the instrument to within $\pm 0.25e$ if the load is within the zero-setting range (4% of the maximum capacity of the instrument), otherwise the instrument is tared.

The subtractive taring device operates up to the maximum capacity of the instrument.

A zero-tracking device may also operate to automatically correct to within $\pm 0.25e$ whenever the instrument comes to rest with the display indicating zero (including net zero).

1.2 Management Functions

Instruments may be fitted with a number of management functions including target weighing function ('HI OK LO'), percentage ('%') and counting ('pcs'). These functions and displays are not approved for trade use.

1.3 Display Check

A display check is initiated when the instruments are switched on.

1.4 Levelling

Instruments are provided with adjustable feet and a level indicator, adjacent to which is a level notice stating 'Instrument must be level when in use', or similar wording.

1.5 Descriptive Markings and Notices

The instrument model number is shown on the instrument nameplate.

Instruments carry the following markings:

Manufacturer's mark, or name written in full	A & D Company Limited, Japan
Name or mark of manufacturer's agent	A & D Mercury Pty Ltd
Indication of accuracy class	Ⓜ (or Ⓜ, see variant 1)
Pattern approval mark for the instrument	NMI 6/4C/243
Maximum capacity	<i>Max</i> g *
Minimum capacity	<i>Min</i> g *
Verification scale interval	<i>e</i> = g *
Actual scale interval	<i>d</i> = g * #
Tare capacity (if less than <i>Max</i>)	<i>T</i> = - g
Serial number of the instrument
Special temperature limits	+5°C to +35°C

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

Marking not required for class Ⓜ instruments (see variant 1).

Instruments are not for trading direct with the public, and are so marked.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

Sealing of the calibration adjustment is provided by preventing access to the switch mounted on the main circuit board. Access to this switch is protected by applying a destructible adhesive label (Figure 2).

2. Description of Variant 1

approved on 15/09/06

Certain other models of the EK series of single interval non-automatic weighing instruments as listed in Table 1. These models are similar to the pattern but may have a rectangular platter (Figure 3) rather than the circular platter shown in Figure 1.

In addition, some models may be of medium accuracy class Ⓜ, and for such instruments:

- the auxiliary indicating device (differentiated scale division) described for the pattern is not provided, however an extended indicating device may be provided, whereby the display temporarily indicates (for approximately 5 seconds) with a scale interval less than the verification scale interval; and
- Instruments are marked as accuracy class Ⓜ.

TABLE 1

Model Number	Maximum Capacity (<i>Max</i>)	Minimum Capacity (<i>Min</i>)	Verification Scale Interval (<i>e</i>)	Scale Interval (<i>d</i>)	Accuracy Class (#)
EK-610<i>i</i>	600 g	0.5 g	0.1 g	0.01 g	high (##)
EK-6100 <i>i</i> (*)	6000 g	5 g	1 g	0.1 g	high
EK-410 <i>i</i>	400 g	2 g	0.1 g	= <i>e</i>	medium
EK-610 <i>i</i>	600 g	2 g	0.1 g	= <i>e</i>	medium
EK-4100 <i>i</i> (*)	4000 g	20 g	1 g	= <i>e</i>	medium
EK-6100 <i>i</i> (*)	6000 g	20 g	1 g	= <i>e</i>	medium

Approved models of the EK series

- (#) High accuracy class ② – medium accuracy class ③.
- (##) The pattern is shown above in **bold** type.
- (*) These models have a 133 × 170 mm rectangular platter; all other models have a 110 mm diameter circular platter.

TEST PROCEDURE No 6/4C/243

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 Schedule 1 of the *National Trade Measurement Regulations 2009*.

Ensure that instruments are only being used within the special temperature limits stated elsewhere in this Technical Schedule.

FIGURE 6/4C/243 – 1



A & D Model EK-610i Weighing Instrument

FIGURE 6/4C/243 – 2



Showing Typical Sealing

FIGURE 6/4C/243 – 3



Model EK-6100i (Variant 1)

~ End of Document ~