



Australian Government
National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Notification of Change
Certificate of Approval No 6/9C/270
Change No 2

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

The following changes are made to the approval documentation for the
UWE Model FM-150 Weighing Instrument
submitted by Colonial Weighing Australia Pty Ltd
5 Sara Grove
Tottenham VIC 3012.

In Certificate of Approval No 6/9C/270 dated 24 September 2003;

1. The Condition of Approval referring to the review of the approval should be amended to read:
"This approval becomes subject to review on 1 December 2011, and then every 5 years thereafter."
2. The FILING ADVICE should be amended by adding the following:
"Notification of Change No 1 dated 24 September 2003
Notification of Change No 2 dated 16 March 2007"

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, appearing to be 'J. G. T.', is located in the bottom right corner of the page.



Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Notification of Change
Certificate of Approval No 6/9C/270
Change No 1

The following changes are made to the approval documentation for the

UWE Model FM-150 Weighing Instrument

submitted by Colonial Weighing Australia Pty Ltd
5 Sara Grove
Tottenham VIC 3012.

All the documentation for this approval, comprising Certificate of Approval No 6/9C/270, its Technical Schedule and Figures 1 to 4, all dated 9 May 2002, are superseded by the documentation attached herein, and may be destroyed.

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

A handwritten signature in black ink, appearing to be "J. H. H.", written over a light grey rectangular background.



Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Certificate of Approval

No 6/9C/270

Issued 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

UWE Model FM-150 Weighing Instrument

submitted by Colonial Weighing Australia Pty Ltd
5 Sara Grove
Tottenham VIC 3012.

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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 December 2006, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 6/9C/270 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 Commission 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 the Commission's Document NSC P 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

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

DESCRIPTIVE ADVICE

Pattern: approved 28 November 2001

- A UWE model FM-150 self-indicating weighing instrument of 150 kg maximum capacity.

Variants: approved 28 November 2001

1. Certain FMB series instruments as listed in Table 1.

Variants: approved 24 April 2002

2. Certain FM and FS series baseworks as listed in Table 2 with a compatible Commission-approved indicator.

Technical Schedule No 6/9C/270 describes the pattern and variants 1 & 2.

FILING ADVICE

Certificate of Approval No 6/9C/270, its Technical Schedule and Figures 1 to 4, all dated 9 May 2002, are superseded by this Certificate, Technical Schedule and Figures, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/9C/270 dated 24 September 2003

Technical Schedule No 6/9C/270 dated 24 September 2003 (incl. Tables 1 & 2, and Test Procedure)

Figures 1 to 4 dated 24 September 2003

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.



TECHNICAL SCHEDULE No 6/9C/270

Pattern: UWE Model FM-150 Weighing Instrument

Submittor: Colonial Weighing Australia Pty Ltd
5 Sara Grove
Tottenham VIC 3012

1. Description of Pattern

A UWE model FM-150 self-indicating weighing instrument (Figure 1) with a maximum capacity of 150 kg and a verification scale interval of 0.05 kg.

Instruments are approved for use over a temperature range of 0°C to +40°C and are so marked.

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

Instruments are powered by battery or by a model T41-9-500D-4 DC mains adaptor.

1.1 Basework

The model FM-150 basework (Figure 2) has the load receptor directly supported by a single load cell. The load receptor has maximum nominal dimensions of 425 x 525 mm.

1.2 Load Cell

A Minebea NMB model CB14 150K-21 load cell of 150 kg capacity is used.

1.3 Indicator

A UWE model FM digital indicator is used; alternatively, a model FMB or a model FS indicator may be used. Figure 3 shows all three models. The indicators may be fitted with output sockets for the connection of auxiliary and/or peripheral devices.

1.3.1 Zero

Zero is automatically corrected to within $\pm 0.25e$ whenever power is applied and whenever the instrument comes to rest within $0.5e$ of zero.

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

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

1.3.2 Tare

A semi-automatic subtractive tare device of up to 49.95 kg maximum capacity may be fitted.

1.3.3 Display Check

A display check is initiated whenever power is applied.

1.4 Verification/Certification Provision

Provision is made for a verification/certification mark to be applied.

1.5 Levelling

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice advising that the instrument must be level when in use.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of destructible labels placed over the join of the front and back covers of the indicator.

1.7 Descriptive Markings and Notices

(a) Instruments carry the following markings:

Manufacturer's mark, or name written in full	UWE, Taiwan
Name or mark of manufacturer's agent	Colonial Weighing, Australia
Indication of accuracy class	Ⓜ
Pattern approval mark for the instrument	NSC No 6/9C/270
Maximum capacity	<i>Max</i> kg *
Verification scale interval	<i>e</i> = kg *
Minimum capacity	<i>Min</i> kg *
Maximum subtractive tare	<i>T</i> = - kg
Serial number of the instrument
Special temperature limits	0°C to +40°C

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

(b) Instruments carry a notice stating "not for trading direct with the public", or similar wording.

2. Description of Variants

2.1 Variant 1

Certain FMB series instruments as listed in Table 1 (refer also to Figure 4).

	TABLE 1		
Instrument model	FMB-30	FMB-60	FMB-150
Value of verification scale interval:	0.01 kg	0.02 kg	0.05 kg
Maximum platform size:	325 x 450 mm	325x450 mm	325x450 mm
Maximum tare capacity:	9.99 kg	19.98 kg	49.95 kg
Load cells:	Tedea Huntleigh	Tedea Huntleigh	Tedea Huntleigh
Model number:	1042 (4)	1042 (4)	1042 (4)
Load cell maximum capacity:	50 kg	100 kg	150 kg

Note: All models are powered by battery or by a model T41-9-500D-4 DC mains adaptor.

Approved Models and Capacities of FMB Series Instruments

2.2 Variant 2

Certain FM and FS series baseworks as listed in Table 2. They may be used with either the UWE model FM, FMB or FS indicator of the pattern or used with a compatible Commission-approved (by Supplementary Certificate) indicator provided the conditions set out below are met.

The approved baseworks and their limiting characteristics are given in Table 2.

The conditions to be met are:

- The excitation voltage used is within the range approved for the baseworks.
- The maximum load applied to the basework (live load plus any dead load) does not exceed the load cell maximum capacity.

Note: As the load cell capacity for the 150 kg baseworks is 150 kg, the baseworks shall be supplied as shown in Figures 2 and 4 of the approval (no additional dead load is allowed).

- The verification scale interval is not less than the minimum value specified.
- The number of verification scale intervals is less than or equal to the n_{max} value specified.
- The signal voltage per verification scale interval is no less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

$$\text{Indicator Sensitivity} \leq 1000 \times E_x \times LC_Sens \times e / E_{max}$$

where E_x = Excitation from indicator (V)

LC_Sens = Load cell sensitivity (mV/V)

E_{max} = Load cell maximum capacity (nominal) (kg)

e = verification scale interval of the instrument (kg)

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μ V)

2.2.1 Markings

(a) The basework is marked with the following:

Manufacturer's mark, or name written in full	UWE, Taiwan
Name or mark of manufacturer's agent	Colonial Weighing, Australia
Indication of accuracy class	Ⓜ
Pattern approval mark for the instrument	NSC No 6/9C/270
Basework model number
Maximum capacity	<i>Max</i> kg
Serial number of the instrument
Special temperature limits	0°C to +40°C

- (b) The indicator is marked and carries notices in accordance with its NSC approval documentation. The indicator is also marked with the pattern approval mark (NSC 6/9C/270) for the basework.

TABLE 2

Basework model	FM-60	FM-150	FS-60	FS-150
Basework maximum capacity	60 kg	150 kg	60 kg	150 kg
Maximum number of verification scale intervals	3000	3000	3000	3000
Minimum value of verification scale interval	0.02 kg	0.05 kg	0.02 kg	0.05 kg
Maximum platform size (mm)	425x525	425x525	425x525	425x525
Maximum tare capacity	19.98 kg	49.95 kg	19.98 kg	49.95 kg
Load cells:	Minebea NMB	Minebea NMB	Minebea NMB	Minebea NMB
Model number (*)	CB14 100K-21	CB14 150K-21	CB14 100K-21	CB14 150K-21
Load cell maximum capacity Emax	100 kg	150 kg	100 kg	150 kg
Number of load cells	1	1	1	1
Load cell sensitivity at Emax	2.2 mV/V	2.2 mV/V	2.2 mV/V	2.2 mV/V
Input impedance	405 Ω	405 Ω	405 Ω	405 Ω
Excitation voltage (maximum)	20 V	20 V	20 V	20 V
Cable length (±0.1m) (#)	1.5 m	1.5 m	1.5 m	1.5 m
Number of leads (plus shield)	4	4	4	4

(*) The load cell model numbers are in the form “Minebea NMB model CB14 100K-21”.

(#) The load cell cable length supplied with the basework shall not be shortened.

Notes:

- All models are powered by battery or by a model T41-9-500D-4 DC mains adaptor.
- The models FS-60 and FS-150 use indicator housings and baseworks of stainless steel construction.

Approved Models and Capacities of FM and FS Series Baseworks

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Uniform Test Procedures.

Maximum Permissible Errors at Verification/Certification

For the weighing range in use, the maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads, m , expressed in verification scale intervals, e , are:

- $\pm 0.5 e$ for loads $0 \leq m \leq 500$;
- $\pm 1.0 e$ for loads $500 < m \leq 2\,000$; and
- $\pm 1.5 e$ for loads $2\,000 < m \leq 10\,000$.

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

FIGURE 6/9C/270 – 1



UWE Model FM-150 Weighing Instrument

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FIGURE 6/9C/270 – 2



Typical UWE FM Series Basework

FIGURE 6/9C/270 – 3



UWE Model FM Digital Indicator



UWE Model FMB Digital Indicator



UWE Model FS Digital Indicator

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FIGURE 6/9C/270 - 4



Typical UWE FMB Series Basework



Typical UWE FS Series Basework