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

Notification of Change
Supplementary Certificate of Approval No S437
Change No 1

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

Marel Model M2200-Pxx Digital Indicator

submitted by Marel hf
Austurhraun 9
210 Gardabaer
ICELAND.

A. In Supplementary Certificate of Approval No S437 dated 13 August 2004;

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 June **2014**, and then every 5 years thereafter."

2. The FILING ADVICE should be amended by adding the following:

   "Notification of Change No 1 dated 13 January 2011"

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

Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Supplementary Certificate of Approval

No S437

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

Marel Model M2200-Pxx Digital Indicator

submitted by Marel hf
Austurhraun 9
210 Gardabaer
ICELAND.

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 June 2009, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked 'NSC S437' and only by persons authorised by the submittor.

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Instruments incorporating a digital indicator purporting to comply with this approval shall be marked 'NSC S437' in addition to the approval number of the instrument.

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.

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

The values of the performance criteria (maximum number of scale intervals etc.) applicable to an instrument incorporating the pattern approved herein shall be within the limits specified herein and in any approval documentation for the other components.

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

DESCRIPTIVE ADVICE

Pattern: approved 14 May 2004

- A Marel model M2200-Pxx single or multiple range digital indicator.

Technical Schedule No S437 describes the pattern.

FILING ADVICE

The documentation for this approval comprises:

Supplementary Certificate of Approval No S437 dated 13 August 2004
Technical Schedule No S437 dated 13 August 2004 (incl. Table 1 and Test Procedure)
Figures 1 dated 13 August 2004

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

TECHNICAL SCHEDULE No S437

Pattern: Marel Model M2200-Pxx Digital Indicator

Submittor: Marel hf
Austurhraun 9
210 Gardabaer ICELAND

1. Description of Pattern

A Marel model M2200-Pxx digital mass indicator (Table 1 and Figure 1) which may be configured to form part of:

- A weighing instrument with a single weighing range of up to 7500 verification scale intervals; or
- A multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 7500 verification scale intervals per weighing range.

Note: The indicator is marked as 'M series 2200'; when power is initially applied it indicates 'C2200-P02'.

The instrument may be configured so that the weighing range changes automatically with increasing load and automatically changes back to the low range when the indication comes to rest at zero. Alternatively, the weighing range may also be changed manually (see instrument users guide). An arrow annunciator illuminates alongside the appropriate range information to indicate the range in use.

Instruments may be fitted with output sockets (output interfacing capability) and other interfaces (including an infrared communications interface) for the connection of auxiliary and/or peripheral devices.

The liquid crystal display panel incorporates displays of the weights values, range indication, and certain additional management functions described below.

This approval does not include the use of the indicator as an automatic weighing instrument, unless specifically mentioned in a certificate of approval for such an instrument.

The instrument is NOT FOR TRADING DIRECT WITH THE PUBLIC and shall be so marked.

TABLE 1 – Specifications

Maximum number of verification scale intervals	7500 or 7500 per range
Minimum sensitivity	0.4 μV/scale interval
Excitation voltage	14 V DC
Maximum excitation current	165 mA

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1.1 Zero

Instruments have a zero light which illuminates whenever zero is correct within ±0.25*e* (*e* of the weighing range in use).

The instrument has a combined semi-automatic zero-setting and tare device with a nominal range of not more than 4% of the maximum capacity of the instrument (Max_2).

Zero is automatically corrected to within ±0.25*e* (*e* of the weighing range in use), then the zero button is pressed, whenever power is applied and whenever the instrument comes to rest within 0.5*e* (*e* of the weighing range in use) of zero.

The instrument also has an initial zero-setting device with a nominal range of not more than 20% of the maximum capacity of the instrument (Max_2).

1.2 Tare

The instrument has provision for a combined semi-automatic zero-setting and tare device of up to maximum capacity.

The instrument has provision for pre-set tare values to be keyboard-entered, or stored in a product look up (PLU) table.

The instrument also has provision for an automatic tare device (which may or may not be enabled). This operates such that the weight of a container which is within 10% (or 30%) of a previously set initial semi-automatic tare value will be automatically tared.

Any tare value set whilst the instrument is in the lower range will also be active in the higher range. Any tare value set whilst the instrument is in the higher range will be cancelled when the indicator is switched to the lower weighing range.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

The intrument operates from mains AC power (110-240 V AC nominal).

1.5 Additional Management Functions

The instrument also has provision for additional management functions such as the setting of target values and limits (under/accept/over facility with associated bar graph type display), and the grading of items into weight categories, and has memories associated with these functions.

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.

1.6 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Marel hf, Iceland
Name or mark of manufacturer's agent	….....
Indication of accuracy class	(III)
Maximum capacity/verification scale interval/ minimum capacity (for range 1)	Max_1 / *e* / *Min* ..... kg #1
Maximum capacity/verification scale interval/ minimum capacity (for range 2)	Max_2 / *e* / *Min* ..... kg #1
Maximum subtractive tare	*T* = - .... kg #2
Serial number of the instrument	….....
Pattern approval mark for the indicator	NSC No S437
Pattern approval mark for other components	..... #3

#1 These markings are also shown near the display of the result if they are not already located there.

#2 This marking is required if *T* is not equal to *Max*.

#3 May be located separately from the other markings.

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

1.7 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of two event counters which increment whenever the calibration or configuration parameters are altered.

When power is initially applied to the instrument it indicates "CAL Events xxx" and "CON Events yyy" as part of the power-on sequence. At verification/certification the xxx and yyy values shall be recorded and marked on the instrument.

Additional security is provided by means of a password which restricts access to calibration and configuration settings.

It is therefore possible at any time to determine whether the calibration or configuration has been altered by comparing the CAL and CON values with those recorded at the time of verification/certification.

1.8 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

TEST PROCEDURE

Instruments should be tested in conjunction with any tests specified in the approval documentation for the instrument to which the pattern is connected, as appropriate, and in accordance with any relevant tests specified in the Uniform Test Procedures.

Maximum Permissible Errors at Verification/Certification

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

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

For multiple range instruments with verification scale intervals e_1, e_2, …, apply e_1, for zero adjustment, and for maximum permissible errors apply e_1, e_2, …, as applicable for the load.

FIGURE S437 – 1

Marel Model M2200-Pxx Digital Indicator