13/2/6
18 November 2010

Australian Government

National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Notification of Change
Instrument Certificate of Approval No 13/2/6
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

Scale Components Model CWC-6 Automatic Catchweighing and Dimensional Measuring Instrument

submitted by Scale Components Pty Ltd
now of 4 Dan Street
Slacks Creek QLD 4127.

A. In Instrument Certificate of Approval No 13/2/6 dated 2 May 2008;

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 18 November 2010"

B. In Instrument Certificate of Approval No 13/2/6 and its Technical Schedule Variation No 1 both dated 2 May 2008, and in Technical Schedule No 13/2/6 dated 31 March 2005, all references to the address of the submittor should be amended to read:

   "4 Dan Street
   Slacks Creek QLD 4127."

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

Bradfield Road, West Lindfield NSW 2070

Instrument Certificate of Approval

No 13/2/6

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

Scale Components Model CWC-6 Automatic Catchweighing and Dimensional Measuring Instrument

submitted by Scale Components Pty Ltd
288 Musgrave Road
COOPERS PLAINS QLD 4108.

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 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

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 with approval number 'NSC 13/2/6' and only by persons authorised by the submittor.

..../2

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.

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

Special Condition of Approval:

This approval is limited to eight (8) instruments having the following serial numbers: 20041218, 20041219, 20050114, 20050220, 20050221, 20050222, 20050223, and 20050701.

DESCRIPTIVE ADVICE

Pattern: approved 14 May 2004

- A Scale Components model CWC-6 automatic catchweighing and dimensional measuring instrument which is approved for use to weigh and to measure the linear dimensions of certain objects while in motion.

Technical Schedule No 13/2/6 describes the pattern.

Variant: approved 30 April 2008

1. As a dimensional measuring instrument only.

Technical Schedule No 13/2/6 Variation No 1 describes variant 1.

FILING ADVICE

Certificate of Approval No 13/2/6 dated 31 March 2005 is superseded by this certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 13/2/6 dated 2 May 2008
Technical Schedule No 13/2/6 dated 31 March 2005 (incl. Test Procedure)
Technical Schedule No 13/2/6 Variation No 1 dated 2 May 2008
Figures 1 to 4 dated 31 March 2005

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 13/2/6

Pattern: Scale Components Model CWC-6 Automatic Catchweighing and Dimensional Measuring Instrument

Submittor: Scale Components Pty Ltd
228 Musgrave Road
Coopers Plains QLD 4108

1. Description of Pattern

A Scale Components model CWC-6 automatic catchweighing and dimensional measuring instrument (Figure 1) which is approved for use to weigh and to measure the linear dimensions of certain objects while in motion.

The pattern includes a Mettler Toledo model SL 100 ID1 weighing module, a Mettler Toledo ID1 Plus digital indicator, and a Cargoscan model CS5000 dimensioning frame. Instruments may be fitted with output sockets (output interfacing capability) for the connection of peripheral and/or auxiliary devices.

1.1 Details

The pattern is approved for use as a class Y(a) automatic catchweighing instrument with a maximum capacity of 60 kg and with a verification scale interval (e) of 0.05 kg. The pattern is approved for use for the determination of the linear dimensions of objects having maximum dimensions (i.e. length x width x height) of 122 x 92 x 90 cm and minimum dimensions of 20 x 10 x 10 cm, with a scale interval (d) of 1 cm. The maximum conveyor speed is 1.15 m/s and the minimum conveyor speed is 0.25 m/s.

The pattern is fitted with a belt-conveyor-type load receptor of 1600 mm in length and includes an infeed conveyor system, a dimensioning frame, a system controller, an operator console, and a number of indicators. The instrument shown in Figure 1 includes an optional overhead scanner for reading bar codes. A printer may also be fitted.

1.2 Operation

Optical sensors on the infeed conveyor sense the object and based on this information conveyor speeds are adjusted by the system controller to ensure that the object is on the load receptor for a period sufficient to obtain accurate weight values.

After weighing, the object passes through the dimensioning frame where a grid of infra-red lights detect the overall width and height of the object. The length of the object is determined as a function of the time taken to pass through the frame and the conveyor speed.

..../2

The Cargoscan model CS5000 dimensioning frame converts the detected characteristics into the linear dimensions of the smallest rectangular box (parallelepiped – #) that would fully contain the object. From these dimensions the volume is calculated.

(#) A rectangular box (parallelepiped) is a polyhedron having six faces that are parallel in pairs; each face is a parallelogram and adjacent edges are perpendicular.

The instrument has a number of alarm functions which display error messages if the object is too big, too small, outside the measurement field, too reflective, etc.

1.3 Dimensioning Frame

The Cargoscan model CS5000 dimensioning frame has a measuring field of 960 x 960 mm.

1.4 Catchweighing System

The Scale Components model CWC-6 catchweighing system is approved for use as a class Y(a) automatic catchweighing instrument with a maximum capacity of 60 kg and with a verification scale interval (e) of 0.05 kg. The load receptor has maximum nominal dimensions of 1000 mm in width and 1600 mm in length. It uses a Mettler Toledo model SL 100 ID1 weighing module.

The model CWC-6 catchweighing system is fitted with a variable speed drive. The maximum conveyor speed is 1.15 m/s and the minimum conveyor speed is 0.25 m/s.

1.5 System Controller

The Scale Components model CWC-6 system controller (Figure 2) controls the speeds of the conveyors by processing the data from the tachometer and the photo eyes on the conveyor belts. It also processes the data from the weighing module. It controls the system operation modes and interfaces to the operator's console.

1.6 Operator's Console

The operator's console consists of a personal computer utilising a Windows operating system and data handling software. A typical operator display is shown in Figure 3. Note that the console may be situated in other locations adjacent to the instrument.

The operator's console captures the data from the measuring frame and the weighing module and provides an indication of this data on the display (Figure 3). It also shows a list of error messages that relate to the CWC-6 system.

1.7 Indicators

The following indicators are fitted:

(i) a Mettler Toledo model ID1 Plus digital indicator which displays the weight in kg;

(ii) a Cargoscan model CS2200 dimensional indicator (Figure 4) which shows the length, width and height in cm, and the volume in dm^3; and

(iii) the operator's VDU display (Figure 3) which shows the length, width and height in cm, the volume in dm^3 and also displays the weight (in kg).

1.8 Markings and Notices

(a) Instruments carry the following markings:

Manufacturer's mark, or name written in full	Scale Components Pty Ltd
Model designation	CWC-6
Serial number	…..
Year of manufacture	…..
Pattern approval mark	NSC 13/2/6
Maximum capacity	*Max* .... kg
Minimum capacity	*Min* ..... kg
Verification scale interval	*e* = ... kg
Maximum conveyor speed	..... m/s
Minimum conveyor speed	..... m/s
Maximum object length	*Max* .... cm
Maximum object width	*Max* .... cm
Maximum object height	*Max* .... cm
Minimum object length	*Min* ..... cm
Minimum object width	*Min* ..... cm
Minimum object height	*Min* ..... cm
Scale interval	*d* = ... cm

(b) Instruments carry one or more notices stating DIMENSIONING FRAME TO BE USED FOR MEASURING RECTANGULAR BOXES ONLY, or similar wording.

1.9 Sealing Provision

Provision is made for the calibration adjustments in the Cargoscan model CS2200 dimensional indicator to be sealed by means of an electronic sealing feature which is password protected. A four digit event counter records every time the electronic seal is opened; the counter resets to '1' when it passes 9999 counts. By noting the value of the event counter at the time of verification/certification it is possible to verify if the seal has been opened since the previous verification/certification.

Alternatively, the sealing dipswitch inside the Cargoscan model CS2200 indicator may be set to the ON position and then the indicator housing sealed by means of destructible adhesive labels.

Provision is made for the calibration adjustments in the Mettler toledo model ID1 indicator to be sealed by means of a destructible adhesive label and the special bracket provided with the indicator.

1.10 Verification/Certification Provision

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

TEST PROCEDURE

A. Static Weighing – the weight indicator (Figure 4) should be used.

The maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads, m, expressed in verification scale intervals, *e*, are:

$\pm 0.5e$ for loads $0 \leq m \leq 500$; and

$\pm 1.0e$ for loads $500 < m \leq 2\,000$.

- With the conveyor switched off, carry out a load test and an eccentricity test.

B. Dynamic Weighing – the operator's VDU display (Figure 3) should be used.

The maximum permissible errors for a class Y(a) catchweighing instrument for increasing and decreasing loads on initial verification/certification for loads, m, expressed in verification scale intervals, e, are:

$\pm 1.5e$ for loads $0 \leq m \leq 500$; and

$\pm 2e$ for loads $500 < m \leq 2\,000$.

- Prepare two test objects approximately equal to 10% and 80% of the maximum weighing capacity. The masses of the test objects shall be measured on a verified, non-automatic weighing instrument with an uncertainty equal to or better than 0.5e.
- With the conveyors running, apply each mass separately at least ten times.
- The tests shall be conducted at the maximum conveyor speed marked on the instrument.
- Vary the position of the test objects across the receptor.

TESTS – Use the following tests to determine compliance with the maximum permissible errors – n is a whole number.

TEST 1 – Maximum permissible error = $\pm 1.5e$

Test load = ne

Readings:	A: (n - 2)e	reject
	B: (n + 2)e	reject
	A < Readings < B	accept

TEST 2 – Maximum permissible error = ±2e

Test load = (n + 0.5)e

Readings:	A: (n - 2)e	reject
	B: (n + 3)e	reject
	A < Readings < B	accept

C. Dimensional Measuring

The maximum permissible error at verification/certification, expressed in terms of scale interval (*d*) is:

±1.0*d* for linear dimensions from the minimum linear dimension to any value up to and including the maximum linear dimension of the instrument.

- Test objects shall be used, in the shape of rectangular boxes with known linear dimensions such that each axis (i.e. length x width x height) is tested for at least five dimensions between and including the minimum and maximum dimensions (approximately) specified on the instrument nameplate. Each test object shall be opaque, rigid and with flat faces and well-defined edges. All adjacent faces and edges shall be perpendicular to each other. The dimensions shall be equal to Nd and known to an uncertainty equal to or better than ±1/3d using a verified length standard. N is a whole number.
- Vary the position across the receptor, and the orientation of the test objects so that each axis is tested for the five dimensions.
- Tests shall be conducted at both the minimum and maximum conveyor speeds, or at the specified single speed, as marked on the instrument nameplate.
- Check that the dimensions indicated on the dimensional indicator (Figure 5) are within the maximum permissible error, i.e. the display is either Nd or (N±1)d. Check that the dimensions indicated on the dimensional indicator are repeated on the system indicator.
- Check that the volume indicated on the dimensional indicator is equal to the volume calculated using the displayed dimensions rounded to the nearest 0.1 dm^3.

TECHNICAL SCHEDULE No 13/2/6

VARIATION No 1

Pattern: Scale Components Model CWC-6 Automatic Catchweighing and Dimensional Measuring Instrument

Submittor: Scale Components Pty Ltd
288 Musgrave Road
COOPERS PLAINS QLD 4108

1. Description of Variant 1

The pattern as a dimensional measuring instrument only, i.e. with the catchweighing system described in clause 1.4 of Technical Schedule No 13/2/6 either removed or not operating.

If the catchweighing system is removed, then all markings and displays relating to the weighing system should also be removed.

For instruments complying with this variant, only part **C. Dimensional Measuring** in the TEST PROCEDURE in Technical Schedule No 13/2/6 is applicable.

FIGURE 13/2/6 – 1

Scale Components Model CWC-6 Automatic Catchweighing and Dimensional Measuring Instrument

13/2/6
31 March 2005

FIGURE 13/2/6 – 2

Scale Components Model CWC-6 System Controller

FIGURE 13/2/6 – 3

Typical Operator's Console Display

FIGURE 13/2/6 – 4

Cargoscan Model CS200 Dimensional Indicator