Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Cancellation Certificate of Approval No 13/2/4

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

This is to certify that the approval for use for trade granted in respect of the

Caljan Model Analyser Automatic Catchweighing and Dimensional Measuring Instrument

submitted by R A Technologies Pty Ltd
48 Skarratt Street
Silverwater NSW 2128

has been cancelled in respect of new instruments as from 1 November 2005.

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

National Standards Commission

Certificate of Approval

No 13/2/4

Issued under Regulation 63
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the

Caljan Model Analyser Automatic Catchweighing and Dimensional Measuring Instrument

submitted by R A Technologies Pty Ltd
48 Skarratt Street
Silverwater NSW 2128.

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.

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CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 October 2004, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 13/2/4 and only by persons authorised by the submittor.

Instruments currently marked NSC No P13/2/4 and purporting to comply with this approval shall be re-marked NSC No 13/2/4 at their next verification/ certification 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 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.

DESCRIPTIVE ADVICE

Pattern: provisionally approved 22 July 1998
approved 14 September 1999

- A Caljan model Analyser automatic catchweighing and dimensional measuring instrument.

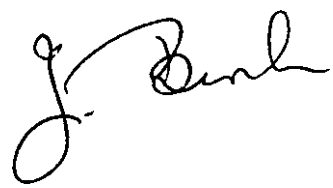
Technical Schedule No 13/2/4 describes the pattern.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 13/2/4 dated 7 January 2000
Technical Schedule No 13/2/4 dated 7 January 2000 (incl. Test Procedure)
Figures 1 to 5 dated 7 January 2000

Signed and sealed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.



TECHNICAL SCHEDULE No 13/2/4

Pattern: Caljan Model Analyser Automatic Catchweighing and Dimensional Measuring Instrument.

Submittor: R A Technologies Pty Ltd
48 Skarratt Street
Silverwater NSW 2128.

1. Description of Pattern

A Caljan model Analyser 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 Garvens Automation GmbH (or 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 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 to measure 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.

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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 (Figure 2).

1.4 Catchweighing System

The Caljan model Analyser 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 Garvens Automation GmbH (or Mettler Toledo) model SL 100 ID1 weighing module.

The model Analyser 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 Caljan model Analyser system controller processes data from the operator's console, the tachometers, the measuring frame and the weighing module. It controls the system operation, calculates deemed weight and provides the indications to display on the VDU. The controller causes error messages to be displayed and also controls the speed of the conveyors.

1.6 Operator's Console

The operator's console consists of a conventional computer keyboard and a VDU. A typical operator display is shown in Figure 3. Note that the console may be situated in other locations adjacent to the instrument.

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1.7 Indicators

The following indicators are fitted:

(i) a Mettler Toledo model ID1*Plus* digital indicator (Figure 4) which displays the weight in kg;

(ii) a dimensional indicator (Figure 5) 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 dynamic weight (in kg).

1.8 Verification/Certification Provision

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

1.9 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of a destructible label and the special bracket provided with the instrument and fitted as shown in Figure 4.

1.10 Markings

Instruments carry the following markings, in the form shown at right:

Manufacturer's mark, or name written in full	.....
Model designation	Analyser
Serial number	.....
Year of manufacture	.....
Pattern approval mark	NSC No 13/2/4
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

TEST PROCEDURE

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:

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

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

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:

$\pm 1.5\ e$ for loads $0 \leq m \leq 500$; and
$\pm 2\ e$ 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 = ±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

Dimensional Measuring

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

±1.0d for lengths from the minimum length to any value up to and including the maximum length capacity 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.

National Standards Commission

Notification of Change

Certificate of Approval No 13/2/4

Change No 1

The following change is made to the approval documentation for the

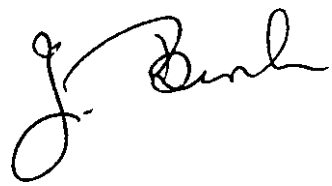
Caljan Model Analyser Automatic Catchweighing and Dimensional Measuring Instrument

submitted by R A Technologies Pty Ltd
48 Skarratt Street
Silverwater NSW 2128.

In Technical Schedule No 13/2/4 dated 7 January 2000, the maximum object length is increased so that the second sentence of clause **1.1 Details** should be amended to read, in part;

> "The pattern is approved to measure ... dimensions (length x width x height) of ***160*** x 92 x 90 cm and ..."

Signed and sealed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.



13/2/4
20 October 2000

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Notification of Change

Certificate of Approval No 13/2/4

Change No 2

The following change is made to the approval documentation for the

Caljan Model Analyser Automatic Catchweighing and Dimensional Measuring Instrument

submitted by R A Technologies Pty Ltd
48 Skarratt Street
Silverwater NSW 2128.

In Technical Schedule No 13/2/4 dated 7 January 2000, clause **1.10 Markings** should be amended to include;

"Indication of accuracy class Class Y(a)"

Signed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

FIGURE 13/2/4 - 1

Caljan Model Analyser Automatic Catchweighing
and Dimensional Measuring Instrument

FIGURE 13/2/4 - 2

Cargoscan Model CS5000 Dimensioning Frame
and Dimensional Indicator

FIGURE 13/2/4 - 3

Typical Operator’s VDU Display

FIGURE 13/2/4 - 4

Mettler Toledo Model ID1*Plus* Indicator
With Sealing Bracket

FIGURE 13/2/4 - 5

Dimensional Indicator