Australian Government
National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

No 6/4C/227

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

Sartorius Model GC1603S-0AU Weighing Instrument

submitted by Sartorius AG
Weender Landstraße 94 - 108
D-37075 Göttingen Germany.

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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 September 2014, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 6/4C/227' 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 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.

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DESCRIPTIVE ADVICE

Pattern: approved 20 August 2004

- The Sartorius type BD DL 100 model GC1603S-0AU self-indicating special accuracy class (I) non-automatic weighing instrument of 320 g maximum capacity.

Variants: approved 20 August 2004

1. Certain GC…0AU and CP…0AU series models of type BD BL 100 special accuracy class (I) weighing instruments as listed in Table 1.
2. Certain GP…0AU and CP…0AU series models of type BD BL 200 high accuracy class (II) weighing instruments as listed in Table 2.

Variant: approved 16 December 2004

3. Certain LE…0AU series models of type BD BL 100 and of type BD BL 200 weighing instruments as listed in Tables 1 and 2. May now also be known as models of the CPA...0CE series.

Technical Schedule No 6/4C/227 describes the pattern and variants 1 to 3.

Variant: approved 23 September 2010

4. Approved models of type BD BL 100 and of type BD BL 200 weighing instruments as listed in Tables 1 and 2 now known by certain alternative model numbers.

Technical Schedule No 6/4C/227 Variation No 1 describes variant 4.

FILING ADVICE

Certificate of Approval No 6/4C/227 dated 21 December 2004 is superseded by this certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/4C/227 dated 24 September 2010
Technical Schedule No 6/4C/227 dated December 2004 (incl. Tables 1 and 2, and Test Procedure)
Technical Schedule No 6/4C/227 Variation No 1 dated 24 September 2010 (incl. Notification of Change)
Notification of Change No 1 dated 8 November 2005
Notification of Change No 2 dated 15 April 2010
Figures 1 to 4 dated December 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 6/4C/227

Pattern: Sartorius Model GC1603S-0AU Weighing Instrument

Submittor: Sartorius AG
Weender Landstraße 94 - 108
D-37075 Göttingen Germany

1. Description of Pattern

The Sartorius type BD BL 100 model GC1603S-0AU self-indicating non-automatic weighing instrument of special accuracy class (I) of 320 g maximum capacity (Figure 1 and Table 1).

Instruments use electromagnetic force compensation technology and have a liquid crystal display (LCD).

Instruments are approved for use over a temperature range of +15°C to +25°C, and are so marked. Instruments are not for trading direct with the public, and are so marked.

Some instruments may have a windshield provided over the load receptor.

The AC/DC mains adaptor supplied was a type FW47981A power supply (14.5 V DC, 530 mA); the submittor 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 'Tare' key). Operation of this device zeroes the instrument if the load is within the zero-setting range (up to 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 ±0.25e (or ±0.5d where d<e) whenever the instrument comes to rest with the display indicating zero (including net zero).

1.2 Alternative Units

(i) Metric Carats

Instruments may be operated in a mode using units of metric carats (1 metric carat = 0.2 g). This may either be instead of, or in addition to, operation with units of grams (g). The symbol 'ct' indicates when the units are metric carats.

An instrument that can be operated in the metric carat mode shall carry markings in metric carats (in addition to markings in grams if gram units are also available).

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(ii) Other Units

Use of units other than kilograms (kg), grams (g), milligrams (mg) or carats (ct) are not approved for trade use.

1.3 Management Functions

Instruments may be fitted with a number of additional functions which display values that are not weighing results, namely counting, percentage, 'Net-total formulation' and 'Animal weighing/averaging'. The displays of such values are identified by the symbols, e.g. percentage by '%'.

These functions and displays are not approved for trade use.

1.4 Display Check

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

1.5 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.

1.6 Internal Calibration System

Instruments are fitted with an internal 'calibration' system. This comprises an internal calibration mass that may be applied to the instrument in an automatic adjustment cycle that is initiated manually by pressing a key.

1.7 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	Sartorius AG
Name or mark of manufacturer's agent	…….
Indication of accuracy class	
Pattern approval mark for the instrument	NMI 6/4C/227
Maximum capacity	*Max* ..... g/ct *
Minimum capacity	*Min* ..... g/ct *
Verification scale interval	*e* = ... g/ct *
Actual scale interval	*d* = ... g/ct *
Serial number of the instrument	.....
Special temperature limits	+15°C to +25°C

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

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

1.8 Verification/Certification Provision

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

1.9 Sealing Provision

Sealing of the calibration adjustments of special accuracy class (I) instruments is not required.

NOTE: Sealing of high accuracy class (II) instruments is required – refer to variant 2.

2. Description of Variants

2.1 Variant 1

Certain GC and CP series models of the type BD BL 100 weighing instruments of special accuracy class (I) as listed in Table 1. Figure 2 shows a typical CP** instrument.

2.2 Variant 2

Certain GC and CP series models of the type BD BL 200 weighing instruments of high accuracy class (II) as listed in Table 2. Figure 3 shows a typical GP** instrument.

Instruments are approved as high accuracy class (II), and are so marked.

Instruments are approved for use over a temperature range of +10°C to +30°C, and are so marked.

Instruments are not approved to display in milligrams (mg).

2.2.1 Sealing Provision

For high accuracy class (II) instruments, sealing of the calibration adjustment is provided by the use of destructible adhesive labels on the rear of the instrument to prevent access to the calibration switch, and to prevent separation of the casing of the instrument (Figure 4).

Sealing of the instrument does not prevent operation of the internal calibration system. However the instrument uses data regarding the value of the internal mass, and alteration of that data is prevented.

2.3 Variant 3

Certain LE series models of the type BD BL 100 and BD BL 200 weighing instruments as listed in Tables 1 and 2, respectively.

Instruments are fitted with an ‘ISO CAL’ feature which forces periodic recalibration (based on time and temperature) using the internal calibration mass.

LE series type BD BL 100 instruments are approved for use over a temperature range of +10°C to +40°C, while LE series type BD BL 200 instruments are approved for use over a temperature range of 0°C to +40°C; instruments are so marked.

TABLE 1

Model Number	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*)
CP64-0AU	64 g	0.01 g	0.001 g	0.0001 g
CP124S-0AU	120 g	0.01 g	0.001 g	0.0001 g
CP224S-0AU	220 g	0.01 g	0.001 g	0.0001 g
CP324-0AU	320 g	0.01 g	0.001 g	0.0001 g
GC803S-0AU	160 g 800 ct	0.01 g 0.1 ct	0.001 g 0.01 ct	0.0001 g 0.001 ct
GC1603S-0AU	320 g 1600 ct	0.01 g 0.1 ct	0.001 g 0.01 ct	0.0001 g 0.001 ct
LE244S-0AU	240 g	0.01 g	0.001 g	0.0001 g
LE324S-0AU	320 g	0.01 g	0.001 g	0.0001 g

Approved models of the BD BL 100 type special accuracy class (I)

TABLE 2

Model Number	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*)
CP622-0AU	620 g	0.5 g	0.1 g	0.01 g
CP2201-0AU	2200 g	5 g	0.1 g	0.1 g
CP2202S-0AU	2200 g	0.5 g	0.1 g	0.01 g
CP3202S-0AU	3200 g	0.5 g	0.1 g	0.01 g
CP4202S-0AU	4200 g	0.5 g	0.1 g	0.01 g
CP5202S-0AU	5200 g	0.5 g	0.1 g	0.01 g
GP3202-0AU	3200 g	0.5 g	0.1 g	0.01 g
GP5202-0AU	5200 g	0.5 g	0.1 g	0.01 g
LE2202S-0AU	2200 g	0.5 g	0.1 g	0.01 g
LE4202S-0AU	4200 g	0.5 g	0.1 g	0.01 g
LE6202S-0AU	6200 g	0.5 g	0.1 g	0.01 g

Approved models of the BD BL 200 type high accuracy class (II)

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 special accuracy class (I) 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 $0 \leq m \leq 50\,000$;
±1.0 *e* for loads $50\,000 < m \leq 200\,000$; and
±1.5 *e* for loads $200\,000 < m$.

For high accuracy class (II) 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 $0 \leq m \leq 5\,000$;
±1.0 *e* for loads $5\,000 < m \leq 20\,000$; and
±1.5 *e* for loads $20\,000 < m \leq 100\,000$.

For instruments with an internal self-calibration facility

Prior to verification/certification ensure that the instrument has been adjusted by the internal self-calibration system by pressing the ‘CAL’ key until ‘Auto Cal’ appears, and then allow the calibration procedure to proceed to completion (with no load on the platter).

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

TECHNICAL SCHEDULE No 6/4C/227

VARIATION No 1

Pattern: Sartorius Model GC1603S-0AU Weighing Instrument

Submittor: Sartorius AG
Weender Landstraße 94 - 108
D-37075 Göttingen Germany

1. Description of Variant 4

Approved models of type BD BL 100 special accuracy class Ⓘ and of type BD BL 200 high accuracy class ⒾⒾ weighing instruments as listed in Tables 1 and 2 now known by alternative model numbers as described below. There may be cosmetic differences from the instruments shown in Figures 1 to 3.

Instruments of this variant are fitted with the 'ISO CAL' feature (automatic internal span adjustment device) described for variant 3.

(i) Approved models of the GC…0AU series of type BD BL 100 special accuracy class Ⓘ weighing instruments as listed in Table 1 now known as models of the GCA...0CE series with the same numerical characters.

(ii) Approved models of the CP…0AU series of type BD BL 100 special accuracy class Ⓘ weighing instruments as listed in Table 1 now known as models of the CPA...0CE series with the same numerical characters.

(iii) Approved models of the GP…0AU series of type BD BL 200 high accuracy class ⒾⒾ weighing instruments as listed in Table 2 now known as models of the GPA...0CE series with the same numerical characters.

(iv) Approved models of the CP…0AU series of type BD BL 200 high accuracy class ⒾⒾ weighing instruments as listed in Table 2 now known as models of the CPA...0CE series with the same numerical characters.

NOTIFICATION OF CHANGE

In Technical Schedule No 6/4C/227 dated 21 December 2004, the 1st line of clause **2.2 Variant 2** should be amended to read, in part:

"Certain G**P** and CP series …"

6/4C/227
8 November 2005

Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Notification of Change
Certificate of Approval No 6/4C/227
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

Sartorius Model GC1603S-0AU Weighing Instrument

submitted by Sartorius AG
Weender Landstraße 94 - 108
D-37075 Göttingen
Germany.

In Technical Schedule No 6/4C/227 dated 21 December 2004:

(a) Clause **1. Description of Pattern**, 2nd sentence of the 3rd paragraph; and
(b) Clause **1.7 Descriptive Markings and Notices**, 3rd paragraph,

the text 'Instruments are not for trading direct with the public, and are so marked' should be replaced with the following:

> 'Instruments are not to be used for retail counter use and are so marked, with the exception of instruments used for the weighing of precious metals and precious stones provided that instruments are located such that the instrument and its display are clearly visible to both parties to the transaction.'

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

6/4C/227
15 April 2010

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

Notification of Change
Certificate of Approval No 6/4C/227
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

Sartorius Model GC1603S-0AU Weighing Instrument

submitted by Sartorius AG
Weender Landstraße 94 - 108
D-37075 Göttingen Germany.

A. In Certificate of Approval No 6/4C/227 dated 21 December 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 September **2014**, and then every 5 years thereafter."

2. In the DESCRIPTIVE ADVICE, the text for variant 3 (the LE series) should be amended by adding the following:

   "May also be known as the CPA series.

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

   "Notification of Change No 1 dated 8 November 2005
   Notification of Change No 2 dated 15 April 2009"

B. In Technical Schedule dated 6/4C/227 dated 21 December 2004, the 1st paragraph of clause **2.3 Variant 3** should be amended by adding the following:

   "Approved models of the LE...0AU series as listed in Tables 1 and 2 may alternatively be known as models of the CPA...0CE series with the same numerical characters, e.g. the model LE244S-0AU may be known as the model CPA244S-0CE. There may be cosmetic differences between the LE and CPA series instruments."

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

FIGURE 6/4C/227 – 1

Sartorius Model GC1603S-0AU Weighing Instrument

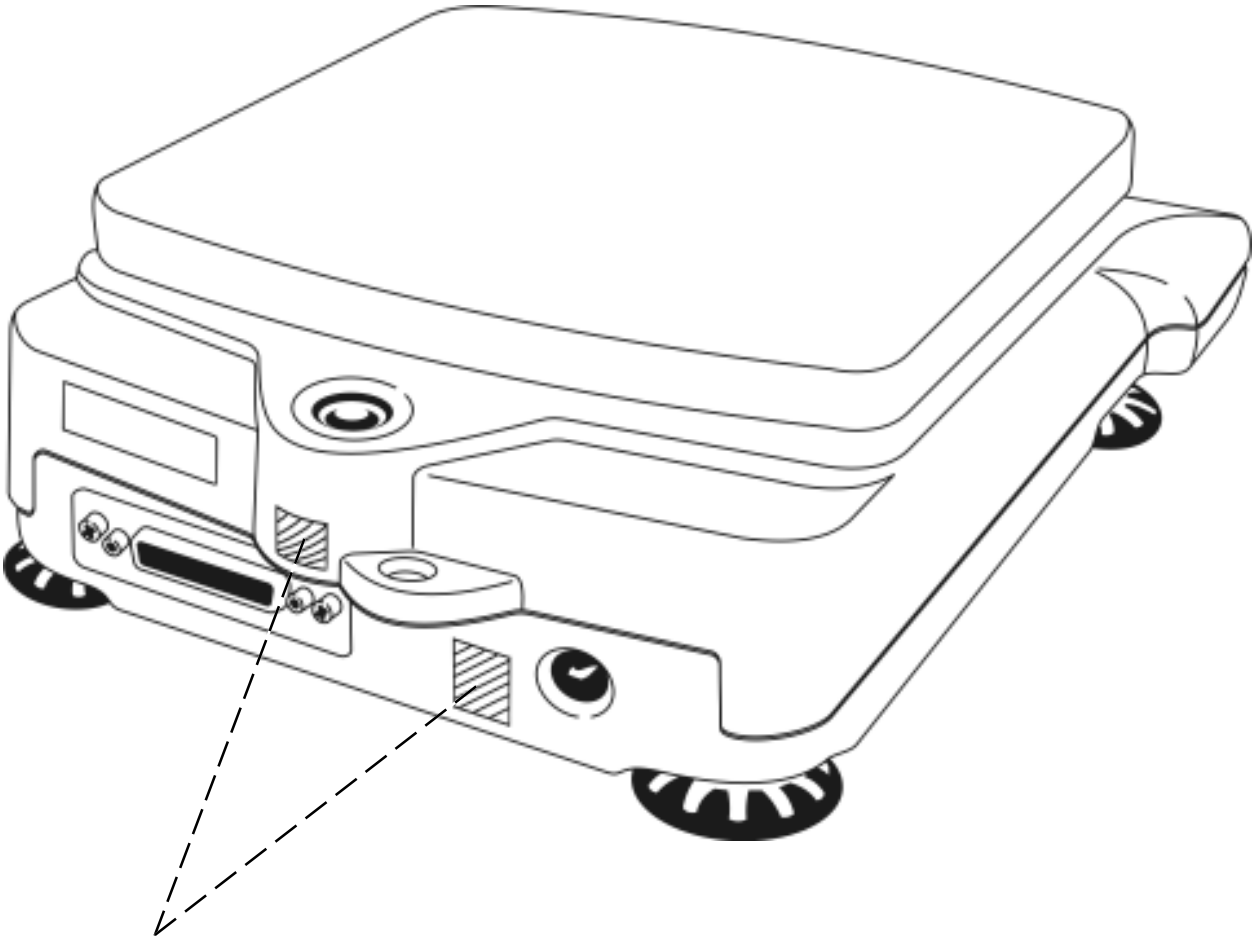
FIGURE 6/4C/227 – 2

Typical Sartorius CP Weighing Instrument

FIGURE 6/4C/227 – 3

Typical Sartorius GP Weighing Instrument

FIGURE 6/4C/227 – 4



Showing Sealing of Typical High Accuracy Class (II) Instrument