



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

Certificate of Approval NMI 6/4C/219

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 instruments herein described.

A & D Model GX-2000 Weighing Instrument

submitted by A & D Australasia Pty Ltd
 32 Dew Street
 Thebarton SA 5031

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.

This approval becomes subject to review on **1/08/21**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	31/07/03
1	Pattern approved – certificate issued	4/09/03
2	Variant 1 approved – interim certificate issued	10/06/05
3	Variants 1 & 2 approved – certificate issued	29/06/05
4	Variant 3 approved – interim certificate issued	30/04/07
5	Variants 3 & 4 approved – certificate issued	17/07/07
6	Pattern & variants 1 to 4 reviewed – notification of change issued	9/10/08
7	Pattern & variants 1 to 4 reviewed , updated & amended (change submittor name & remove variant 4) – certificate issued	23/06/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 6/4C/219' and only by persons authorised by the submitter.

It is the submitter'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.

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

Special:

The National Trade Measurement Legislation has particular requirements regarding measuring instruments to be used for the measurement of precious stones and precious metals. It should not be assumed that the approval by the National Measurement Institute of the pattern of this instrument (or its variants) indicates that the instrument will necessarily meet all relevant requirements. In particular although the original approval of these instruments included provision for metric carat units, the instruments do not meet requirements for use of metric carats – see notes within the certificate in regard to this.

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



Dr A Rawlinson

TECHNICAL SCHEDULE No 6/4C/219

1. Description of Pattern

approved on 31/07/03

An A & D model GX-2000 Class 2 weighing instrument (Figure 1 and Table 1) of 2100 g maximum capacity. May also be known as A & D Mercury or A & D Australasia instruments of the same model.

TABLE 1

Maximum Capacity (<i>Max</i>)	Minimum Capacity (<i>Min</i>)	Verification Scale Interval (<i>e</i>)	Scale Interval (<i>d</i>)
2 100 g 10 500 ct	0.5 g 5 ct	0.1 g 1 ct	0.01 g 0.1 ct

Note: As originally approved, the certificate of approval included provision for operation in a mode using metric carat units instead of, or in addition to, operation with units of grams (g) (1 metric carat = 0.2 g, the symbol 'ct' indicates metric carat units). However the metric carat configuration does not meet requirements of the National Measurement Legislation. Consequently metric carat units have now been removed from this approval. Existing instruments with a metric carat mode may remain in use (applicable values shown shaded above), however the metric carat mode shall not be used for trade.

The instrument is an electromagnetic force compensation type and the display is a vacuum fluorescent type.

Instruments are approved for use over a temperature range of +10°C to +30°C, and are so marked. Instruments are not for trading direct with the public, and are so marked.

Instruments are powered by an A&D Mercury type TB-124 mains adaptor (Output 11.8 V DC, 300 mA). The submitter should be consulted regarding the acceptability of alternatives.

Instruments may be fitted with output sockets for the connection of peripheral and/or auxiliary 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.

The instruments have a combined semi-automatic zero-setting and subtractive tare-balancing device (operated by the 're-zero' key). Operation of this device zeroes the instrument to within $\pm 0.5d$ if the load is within the zero-setting range (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 $\pm 0.5d$ whenever the instrument comes to rest with the display indicating zero (including net zero).

1.2 Management Functions

Instruments may be fitted with a number of additional functions which display values that are not weighing results (e.g. counting or percentage). The displays of such values are identified by the symbols 'pcs' or '%'. These functions and displays are not approved for trade use.

1.3 Display Check

A facility to enable checking of the display is initiated when the instrument is switched on at the indicator on/off key.

1.4 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.

1.5 Internal Self-Calibration System

Instruments are fitted with an internal 'self-calibration' system. This comprises an internal calibration mass that may be applied to the instrument (in an automatic adjustment cycle), or manually by pressing a key, or according to predetermined criteria (time period and/ or temperature variation).

The effect of any calibration adjustment due to this system is limited to a difference of +1e at maximum capacity from the previous calibration value.

1.6 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	A & D Co. Ltd.
Name or mark of manufacturer's agent	A & D Australasia Pty Ltd
Indication of accuracy class	Ⓜ
Pattern approval number for the instrument	NMI (or NSC) 6/4C/219
Maximum capacity	Max g or kg #1
Minimum capacity	Min g or kg #1
Verification scale interval	e = g or kg #1
Actual scale interval	d = g or kg #1
Serial number of the instrument
Special temperature limits	+10°C to +30°C

#1 These markings are also 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.

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Sealing Provision

Sealing of the calibration adjustment is provided by preventing access to the switch mounted on the RS232 board. Access to this switch is protected by applying a destructible adhesive label or by sealing wire (Figure 2).

Instruments are provided with an integral 'self-calibration system'; Sealing of the instrument does not prevent operation of this system, however the system uses data regarding the value of internal mass, and alteration of that data is prevented.

2. Description of Variant 1 **approved on 10/06/05**

Additional models in the GX series.

Parameters for the additional models are shown in Table 2.

Instruments may be provided with a glass 'breeze break' (wind shield); two versions are shown in Figure 3.

Note: See note below Table 2 in regard to metric carats.

3. Description of Variant 2 **approved on 29/06/05**

Various model GF series instruments with parameters as shown in Table 2.

The GF series instruments are similar to the GX series instruments, but do not have an internal calibration mass, and do not have the 'automatic adjustable environment setting' facility of the GX series.

Glass 'breeze breaks' (wind shields) similar to those shown in Figure 3 may also be fitted to GF series instruments.

Note: See note below Table 2 in regard to metric carats.

4. Description of Variant 3 **approved on 30/04/07**

Certain models in the GX-K series of high accuracy class II and of special accuracy class I with parameters are shown in Table 3.

5. Description of Variant 4 **approved on 17/07/07**
removed 23/06/16

Certain additional models in the GX series of high accuracy class II with parameters are shown in Table 4.

Note: Variant 4 (and Table 4) are hereby removed, upon advice from the submitter that no instruments were ever installed for use for trade using this variant.

TABLE 2

Models		Class	Max	Min	e	d	
GF-200	GX-200	g mode	II	210 g	0.2 g	0.01 g	0.001 g
		ct mode	II	1050 ct	2 ct	0.1 ct	0.01 ct
GF-300		g mode	II	310 g	0.2 g	0.01 g	0.001 g
		ct mode	II	1550 ct	2 ct	0.1 ct	0.01 ct
GF-400	GX-400	g mode	II	410 g	0.2 g	0.01 g	0.001 g
		ct mode	II	2050 ct	2 ct	0.1 ct	0.01 ct
GF-600	GX-600	g mode	II	610 g	0.2 g	0.01 g	0.001 g
		ct mode	II	3050 ct	2 ct	0.1 ct	0.01 ct
GF-1200		g mode	II	1210 g	2 g	0.1 g	0.01 g
		ct mode	II	6050 ct	20 ct	1 ct	0.1 ct
GF-2000		g mode	II	2100 g	2 g	0.1 g	0.01 g
		ct mode	II	10500 ct	20 ct	1 ct	0.1 ct
GF-3000		g mode	II	3100 g	2 g	0.1 g	0.01 g
		ct mode	II	15500 ct	20 ct	1 ct	0.1 ct
GF-4000	GX-4000	g mode	II	4100 g	2 g	0.1 g	0.01 g
		ct mode	II	20500 ct	20 ct	1 ct	0.1 ct
GF-6100	GX-6100	g mode	II	6100 g	2 g	0.1 g	0.01 g
		ct mode	II	30500 ct	20 ct	1 ct	0.1 ct
GF-6000	GX-6000	g mode	II	6100 g	20 g	1 g	0.1 g
GF-8000	GX-8000	g mode	II	8100 g	20 g	1 g	0.1 g

Approved Specifications – GF Series & Certain GX Series Instruments (variants 1 & 2)

Note: As originally approved, the certificate of approval included provision for operation in a mode using metric carat units instead of, or in addition to, operation with units of grams (g) (1 metric carat = 0.2 g, the symbol 'ct' indicates metric carat units). However the metric carat configuration does not meet requirements of the National Measurement Legislation. Consequently metric carat units have now been removed from this approval. Existing instruments with a metric carat mode may remain in use (applicable values shown shaded above), however the metric carat mode shall not be used for trade.

TABLE 3

Model Number	Maximum Capacity (Max)	Minimum Capacity (Min)	Verification Scale Interval (e)	Scale Interval (d)	Accuracy Class (#)
GX-8K	8.1 kg	1 g	0.1 g	0.01 g	special
GX-10K	10.1 kg	1 g	0.1 g	0.01 g	special
GX-12K	12 kg	5 g	1 g	0.1 g	high
GX-20K	21 kg	5 g	1 g	0.1 g	high
GX-30K	31 kg	5 g	1 g	0.1 g	high

(#) Special accuracy class ① – high accuracy class ②.

Approved models of the GX-K series (variant 3)

TEST PROCEDURE

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

The maximum permissible errors are specified in the *National Trade Measurement Regulations 2009*.

FIGURE 6/4C/219 – 1



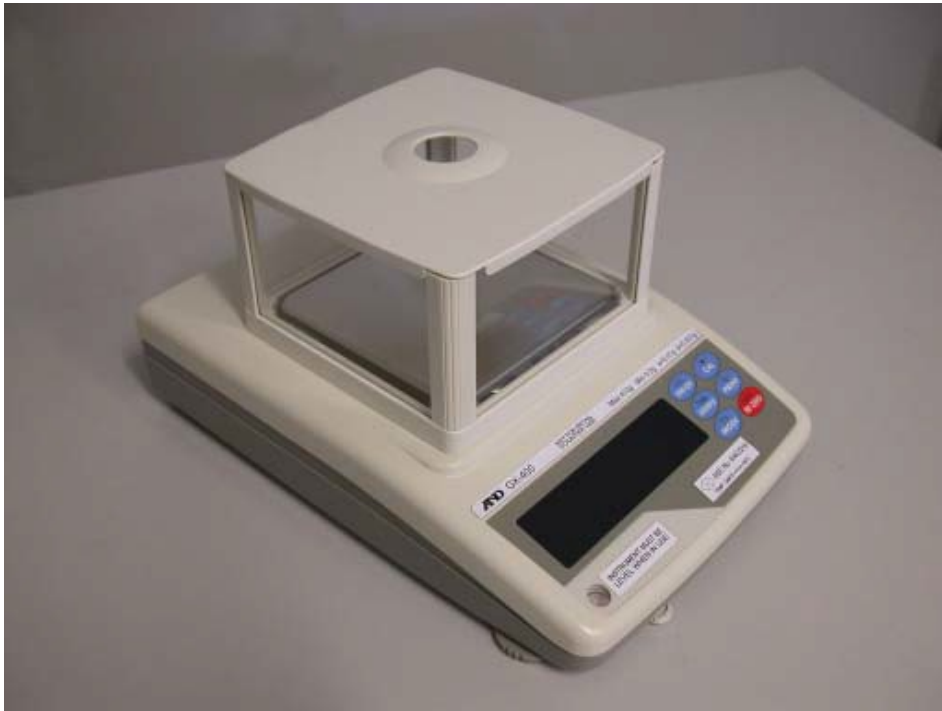
A & D Model GX-2000 Weighing Instrument (pattern)

FIGURE 6/4C/219 – 2

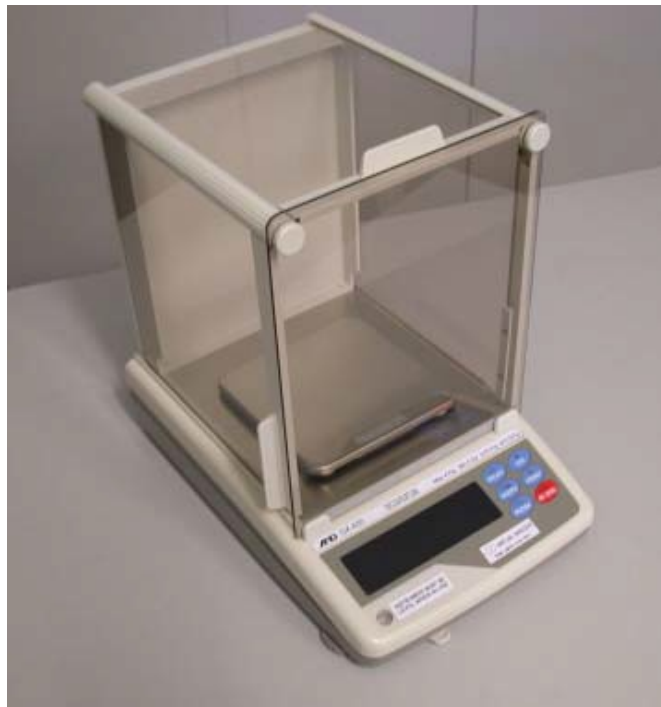


Showing Sealing Methods

FIGURE 6/4C/219 – 3



(a) Showing Standard 'Breeze Break' (Wind Shield)



(b) Showing Typical Alternative 'Breeze Break' (Wind Shield)