Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4C/222

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.

Shinko Denshi Vibra Model AJ-1200CE Weighing Instrument

submitted by W. W. Wedderburn Pty. Limited
101 Williamson Road
Ingleburn NSW 2565

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 is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	26/08/03
1	Pattern approved – certificate issued	26/09/03
2	Variant 1 approved – interim certificate issued	27/10/03
3	Variant 1 approved – certificate issued	21/11/03
4	Variant 2 approved – interim certificate issued	8/09/04
5	Variant 2 approved – certificate issued	27/09/03
6	Variants 3 to 5 approved – certificate issued	21/03/06
7	Pattern & variants 1 to 5 amended (Special Condition of Approval) – notification of change issued	1/02/07
8	Pattern & variants 1 to 5 reviewed – notification of change issued	9/10/08

Document History (cont…)

Rev	Reason/Details	Date
9	Pattern & variants 1 to 5 reviewed, consolidated into variants 1 to 3, & updated – variant 4 approved – certificate issued	16/08/12
10	Review date removed & special condition amended – certificate issued	08/05/23

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 6/4C/222' 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.

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 Regulations restricts the use of metric carat units to the weighing of precious stones only, and includes restrictions regarding the maximum capacities and the scale intervals of instruments used for certain purposes (e.g. precious stones and precious metals). Such restrictions must be considered in addition to the contents of this certificate.

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

Darryl Hines
Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 6/4C/222

1. Description of Pattern approved on 16/08/12

The Shinko Denshi Vibra model AJ-1200CE high accuracy class (II) weighing instrument (Figure 1 and Table 1) of 1200 g maximum capacity.

The instruments use a 'tuning-fork' technology and have a liquid crystal display (LCD).

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 not for trading direct with the public, 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.

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

Power is supplied by an internal battery (option AJBT) or by a Wedderburn model 9VDC500 (9 V DC, 500 mA) mains adaptor; the submittor should be consulted regarding the acceptability of alternatives.

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 '–>0/T<–' 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 ('–>T<–' appears). 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

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.

Table 2 shows parameters for the AJ series instruments when used in units of 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).

1.3 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 ‘%’.

In addition instruments have a facility for setting of target ranges and providing HI / OK / LO indications.

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

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice advising that the instrument must be level when in use.

1.6 Internal Self-Calibration System

Some instruments are fitted with an internal ‘calibration’ system (refer to Tables 1 and 2).

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	Shinko Denshi Co. Ltd
Name or mark of manufacturer’s agent	WEDDERBURN
Indication of accuracy class	(I) or (II)
Pattern approval number for the instrument	NMI (or NSC) No 6/4C/222
Maximum capacity	*Max* ..... g or ct #
Minimum capacity	*Min* ..... g or ct #
Verification scale interval	*e* = ... g or ct #
Actual scale interval	*d* = ... g or ct #
Serial number of the instrument	.....
Special temperature limits	+10°C to +30°C

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

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

1.8 Verification Provision

Provision is made for the application of a verification mark.

1.9 Sealing Provision

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

For high accuracy class Ⓘⓘ instruments, sealing of the calibration adjustment is provided by the use of destructible adhesive labels to prevent access to the calibration switch on the base of the instrument, and to prevent separation of the casing of the instrument (Figure 2).

Where 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 the internal mass, and alteration of that data is prevented.

2. Description of Variant 1 re-approved on 16/08/12

Other approved instruments of the AJ series of special accuracy class Ⓘ when and of high accuracy class Ⓘⓘ, as listed in Table 1 (displaying in grams) and Table 2 (displaying in metric carats).

3. Description of Variant 2 re-approved on 16/08/12

Certain models of the CT series (Figure 3), similar to the AJ series instruments, of special accuracy class Ⓘ when displaying in metric carats and of high accuracy class Ⓘⓘ when displaying in grams, as listed in Table 3.

Power is supplied by an internal battery (option CTBT) or by a Wedderburn model 9VDC500 (9 V DC, 500 mA) mains adaptor; the submittor should be consulted regarding the acceptability of alternatives.

4. Description of Variant 3 re-approved on 16/08/12

Certain models of the SJ series, similar to the AJ series instruments, as listed in Table 4.

For SJ models, power is supplied by an internal battery (option CTBT) or by a Wedderburn model 9VDC500 (9 V DC, 500 mA) mains adaptor; the submittor should be consulted regarding the acceptability of alternatives.

SJP models do not have the battery option.

5. Description of Variant 4 approved on 16/08/12

The pattern and variants may be fitted with a Vibra model SDI customer display unit (Figure 4) via an RS232 interface.

TEST PROCEDURE No 6/4C/222

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

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

Prior to verification 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).

TABLE 1 – Pattern and variant 1

Approved Models of the AJ Series (displaying in grams)

Model Number	Class (#1)	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*) (#2)	SC (#3)	WS (#4)
AJ-220CE	2	220 g	0.02 g	0.01 g	0.001 g		Y
AJ-420CE	2	420 g	0.02 g	0.01 g	0.001 g		Y
AJ-620CE	1	620 g	0.1 g	0.01 g	0.001 g		Y
AJ-820CE	1	820 g	1 g	0.01 g			
AJ-1200CE	**2**	**1200 g**	**0.5 g**	**0.1 g**	**0.01 g**		
AJ-2200 CE	2	2200 g	0.5 g	0.1 g	0.01 g		
AJ-4200 CE	2	4200 g	0.5 g	0.1 g	0.01 g		
AJ-6200 CE	1	6200 g	1 g	0.1 g	0.01 g		
AJ-8200 CE	2	8200 g	5 g	1 g	0.1 g		
AJ-12000 CE	2	12 000 g	5 g	1 g	0.1 g		
AJH-220CE	2	220 g	0.02 g	0.01 g	0.001 g	Y	Y
AJH-420CE	2	420 g	0.02 g	0.01 g	0.001 g	Y	Y
AJH-620CE	1	620 g	0.1 g	0.01 g	0.001 g	Y	Y
AJH-2200 CE	2	2200 g	0.5 g	0.1 g	0.01 g	Y	
AJH-4200 CE	2	4200 g	0.5 g	0.1 g	0.01 g	Y	
AJ-320 CE	2	320 g	0.02 g	0.01 g	0.001 g		
AJ-3200 CE	2	3200 g	0.5 g	0.1 g	0.01 g		
AJH-320 CE	2	320 g	0.02 g	0.01 g	0.001 g	Y	
AJH-3200 CE	2	3200 g	0.5 g	0.1 g	0.01 g	Y	

Notes: For Table 1:

The pattern, model AJ-1200CE, is shown in **bold**.

(#1) '1' represents special accuracy class Ⓘ
'2' represents high accuracy class Ⓘⓘ

(#2) Some instruments have an auxiliary indicating device (a differentiated scale division which is shown in brackets in the display) with a value as shown in the 'd' column of the Tables.

(#3) The instruments marked 'Y' under 'SC' in the Tables have the internal 'calibration' system.

(#4) Those instruments marked 'Y' under 'WS' in the Tables have a windshield provided over the load receptor.

TABLE 2 – Variant 1

Approved Models of the AJ Series (displaying in metric carats)

Model Number	Class (#1)	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*) (#2)	SC (#3)	WS (#4)
AJ-220CE	2	1100 ct	0.2 ct	0.1 ct	0.01 ct	Y	
AJ-420CE	2	2100 ct	0.2 ct	0.1 ct	0.01 ct	Y	
AJ-620CE	2	3100 ct	0.2 ct	0.1 ct	0.01 ct	Y	
AJ-820CE	1	4100 ct	5 ct	0.05 ct			
AJ-1200CE	2	6000 ct	5 ct	1 ct	0.1 ct		
AJH-220CE	2	1100 ct	.2 ct	0.1 ct	0.01 ct	Y	Y
AJH-420CE	2	2100 ct	0.2 ct	0.1 ct	0.01 ct	Y	Y
AJH-620CE	2	3100 ct	0.2 ct	0.1 ct	0.01 ct	Y	Y

TABLE 3 – Variant 2

Approved Models of the CT Series (displaying in grams or metric carats)

Model Number	Class (#1)	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*) (#2)	SC (#3)	WS (#4)
CT-600CE	2 1	120 g 600 ct	0.02 g 0.1 ct	0.01 g 0.01 ct	0.001 g 0.001 ct		Y Y
CT-1600 TCE	2	1600 ct	0.2 ct	0.1 ct	0.01 ct		
CT-1600 CE	2	1600 ct	0.2 ct	0.1 ct	0.01 ct		

Notes: For Tables 2 & 3:

(#1) ‘1’ represents special accuracy class (I)
‘2’ represents high accuracy class (II)

(#2) Some instruments have an auxiliary indicating device (a differentiated scale division which is shown in brackets in the display) with a value as shown in the ‘d’ column of the Tables.

(#3) The instruments marked ‘Y’ under ‘SC’ in the Tables have the internal ‘calibration’ system.

(#4) Those instruments marked ‘Y’ under ‘WS’ in the Tables have a windshield provided over the load receptor.

TABLE 4 – Variant 3

Approved Models of the SJ Series (displaying in grams)

Model Number	Class (#1)	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*) (#2)
SJ-220 CE	2	220 g	0.2 g	0.01 g	
SJ-420 CE	2	420 g	0.2 g	0.01 g	
SJ-620 CE	2	620 g	0.5 g	0.1 g	0.01 g
SJ-1200 CE	2	1200 g	5.0 g	0.1 g	
SJ-2200 CE	2	2200 g	5.0 g	0.1 g	
SJ-4200 CE	2	4200 g	5.0 g	0.1 g	
SJ-6200 CE	2	6200 g	5.0 g	1 g	0.1 g
SJ-12K CE	2	12 000 g	50.0 g	1 g	
SJP-220 CE	2	220 g	0.2 g	0.01 g	
SJP-420 CE	2	420 g	0.2 g	0.01 g	
SJP-620 CE	2	620 g	0.5 g	0.1 g	0.01 g
SJP-1200 CE	2	1200 g	5.0 g	0.1 g	
SJP-2200 CE	2	2200 g	5.0 g	0.1 g	
SJP-4200 CE	2	4200 g	5.0 g	0.1 g	
SJP-6200 CE	2	6200 g	5.0 g	1 g	0.1 g
SJP-12K CE	2	12 000 g	50.0 g	1 g	

Notes: For Table 4:

(#1) '2' represents high accuracy class (II)

(#2) Some instruments have an auxiliary indicating device (a differentiated scale division which is shown in brackets in the display) with a value as shown in the 'd' column of the Tables.

FIGURE 6/4C/222 – 1

Typical Shinko Denshi Vibra AJ Series Weighing Instrument

FIGURE 6/4C/222 – 2

Typical Mechanical Sealing

FIGURE 6/4C/222 – 3

Shinko Denshi Vibra Model CT-600CE Weighing Instrument

FIGURE 6/4C/222 – 4

Vibra Model SDI External Display Unit

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