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

Certificate of Approval

No 6/4D/280

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.

Teraoka Seiko Model DPS-3600 Weighing Instrument

submitted by W W Wedderburn Pty Ltd
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 becomes subject to review on **1/06/18**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	31/05/96
1	Pattern & variant 1 approved – certificate issued	16/09/96
2	Variants 2 & 3 approved – interim certificate issued	10/11/97
3	Variants 2 & 3 approved – certificate issued	13/01/98
4	Variant 4 approved – interim certificate issued	10/09/98
5	Variant 4 approved – certificate issued	27/10/98
6	Variant 5 approved – interim certificate issued	29/10/99
7	Variant 5 approved – certificate issued	30/11/99
8	Variant 6 approved – interim certificate issued	28/05/00
9	Variant 6 approved – certificate issued	31/03/00
10	Variant 7 approved – interim certificate issued	2/06/00
11	Variant 7 approved – certificate issued	10/07/00

Document History (cont…)

Rev	Reason/Details	Date
12	Variant 5 amended (additional model) – notification of change issued	31/10/00
13	Variant 8 approved – interim certificate issued	21/02/01
14	Variant 8 approved – certificate issued	5/03/01
15	Variants 9 & 10 approved – interim certificate issued	21/02/01
16	Variants 9 & 10 approved – certificate issued	17/05/01
17	Pattern amended (additional Condition of Approval) – notification of change issued	22/04/02
18	Pattern & variants 1 to 10 reviewed – notification of change issued	18/06/02
19	Variant 11 approved – interim certificate issued	31/10/02
20	Variant 11 approved – certificate issued	26/11/02
21	Variant 4 amended (a load cell capacity) – notification of change issued	22/03/06
22	Pattern & variants 1 to 11 reviewed – notification of change issued	1/08/07
23	Pattern & variants 1 to 11 reviewed & updated – certificate issued	10/10/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 6/4D/280' 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.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

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 6/4D/280

1. Description of Pattern

approved on 31/05/96
re-approved 14/06/02

A Teraoka model DPS-3600 class (III) non-automatic multi-interval self-indicating price-computing weighing instrument (Figure 1) with a verification scale interval e_1 of 0.002 kg for up to 6 kg and with a verification scale interval e_2 of 0.005 kg from 6 kg to 15 kg.

Instruments have unit price to $9999.99/kg, price to $9999.99, a product look up (PLU) facility, and may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

Instruments have an alphanumeric display and are fitted with either one or two integral label printers.

1.1 Zero

Zero is automatically corrected to within $\pm 0.25e_1$ whenever power is applied and whenever the instrument comes to rest within $0.5e_1$ of zero.

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

1.2 Tare

A semi-automatic subtractive tare device and/or pre-set subtractive tare device, each of up to 0.998 kg maximum capacity, may be fitted.

The tare value in use is displayed adjacent to the weight value display on the instruments' alphanumeric display.

Pre-set tare values may be associated with product look up (PLU) items.

1.3 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.

1.4 Display Check

A display check is initiated whenever power is applied.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

Provision is made for destructible labels placed either over one or more casing retaining screws or over the join of the casing halves.

1.7 Descriptive Markings and Notices

Instruments are marked with the following data, together in one location, in the form shown at right:

Manufacturer's mark, or name written in full	Teraoka
Name or mark of manufacturer's agent	WEDDERBURN
Indication of accuracy class	(III)
Pattern approval number for the instrument	NMI (or NSC 6/4D/280
Maximum capacity	*Max* ...../..... g or kg #
Minimum capacity	*Min* ..... g or kg #
Verification scale interval	*e* = .../..... g or kg #
Maximum subtractive tare	*T* = - ……. g or kg
Serial number of the instrument	……..

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

In addition, instruments are marked NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

2. Description of Variant 1 **approved on 31/05/96**

The model DPS-3600XT (Figure 2) which is similar to the pattern but in a different housing and with only one integral label printer.

3. Description of Variant 2 **approved on 10/11/97**

With certain alternative Teraoka baseworks as listed below replacing the DPS-3600 basework of the pattern.

Basework Model		S-AK	S-AK	S-AK
Maximum capacity		6 kg	15 kg	30 kg
Maximum capacity	Low range	3 kg	6 kg	15 kg
	High range	6 kg	15 kg	30 kg
Verification scale interval	Low range	0.001 kg	0.002 kg	0.005 kg
	High range	0.002 kg	0.005 kg	0.010 kg
Maximum tare capacity		2.999 kg	5.998 kg	9.995 kg
Load cell model		N6	N15	N30

4. Description of Variant 3 **approved on 1/5/07**

The pattern or variants with the basework incorporated in an automated weigh/ wrap/labeller, and known as a model AW-3600 instrument (Figure 3).

Instruments are approved for static weighing only, with a maximum weighing rate of 30 packs per minute.

5. Description of Variant 4 **approved on 10/09/98**

Certain baseworks of this approval (Table 1) used with a compatible NMI-approved (by Supplementary Certificate) indicator provided the conditions set out below are met.

Instruments may be known according to their basework or their indicator model number, e.g. an instrument comprising a model S-AK 15 basework and a model DI-160 indicator, may be known as either a model S-AK 15 or as a model DI-160.

The approved baseworks and their limiting characteristics are given in Table 1.

The conditions to be met are:

- The excitation voltage used is within the range approved for the baseworks.
- The maximum load applied to the basework (live load plus any dead load) does not exceed the load cell maximum capacity.
- The verification scale interval (e_1 for multi-interval) is not less than the minimum value specified (for single or multi-interval operation as applicable).
- The number of verification scale intervals is less than or equal to the n_{max} value specified.
- The signal voltage per verification scale interval is no less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

  Indicator Sensitivity < 1000 × Ex × LC_Sens × e / Emax

  where Ex = Excitation from indicator (V)

  LC_Sens = Load cell sensitivity (mV/V)

  Emax = Load cell maximum capacity (nominal) (kg)

  e = verification scale interval of the instrument (kg). For multi-interval instruments use e_1.

  Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

6. Description of Variant 5 approved on 29/10/99

The pattern or variants (of 6 kg or 15 kg maximum capacity) with the basework incorporated in a weigh/wrap/labeller, and known as a model AW-3600CP.

Instruments may be fitted with either a single label printer or dual printers as shown in Figure 4.

Instruments are approved for static weighing only, with a maximum weighing rate of 30 packs per minute.

Note that the maximum weight of packages that can be wrapped may be less than the maximum weighing capacity.

Instruments in which the labels are applied automatically to the packages are known as model AW-3600CP Auto.

7. Description of Variant 6 approved on 28/02/00

Certain baseworks of the Teraoka Seiko S-YC series (Table 2). These baseworks are intended as replacements for the S-AK series of variant 4, and may be used with a compatible NMI-approved (by Supplementary Certificate) indicator provided the conditions set out below are met.

Instruments may be known according to their basework or their indicator model number, e.g. an instrument comprising a model S-YC 15 basework and a model DI-160 indicator, may be known as either a model S-YC 15 or as a model DI-160.

The approved baseworks and their limiting characteristics are given in Table 2.

The conditions to be met are:

- The excitation voltage used is within the range approved for the baseworks.
- The maximum load applied to the basework (live load plus any dead load) does not exceed the load cell maximum capacity.
- The verification scale interval (e_1 for multi-interval) is not less than the minimum value specified (for single or multi-interval operation as applicable).
- The number of verification scale intervals is less than or equal to the n_{max} value specified.
- The signal voltage per verification scale interval is no less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator, i.e.

  Indicator Sensitivity < 1000 × Ex × LC_Sens × e / Emax

  where Ex = Excitation from indicator (V)

  LC_Sens = Load cell sensitivity (mV/V)

  Emax = Load cell maximum capacity (nominal) (kg)

  e = verification scale interval of the instrument (kg). For multi-interval instruments use e_1.

  Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

8. Description of Variant 7 approved on 2/06/00

The pattern or variants (of 6 kg or 15 kg maximum capacity) with the basework incorporated in a weigh/wrap/labeller. Instruments are known as a model FX-3600 having a maximum platform size of 230 mm × 300 mm or as a model FX-3600XL having a maximum platform size of 230 mm × 350 mm (Figure 5).

Instruments may be fitted with either a single label printer or dual printers.

9. Description of Variant 8 approved on 21/02/01

The Teraoka Seiko model AW-3600 SMART weigh/wrap/labeller (Figure 6).

The AW-3600 SMART is available in single-interval or multi-interval models in accordance with Table 3 below.

Instruments are approved for static weighing only, with a maximum weighing rate of 30 packs per minute.

Note that the maximum weight of packages that can be wrapped may be less than the maximum (weighing) capacity listed in Table 3.

10. Description of Variant 9 approved on 3/05/01

The Teraoka Seiko model AW-3600 weigh/wrap/labeller as described in variant 3 but with up to three label printers in addition to the two printers shown in Figure 3.

11. Description of Variant 10 approved on 3/05/01

The Teraoka Seiko model AW-3600CPR weigh/wrap/labeller which is similar to the model AW-3600CP Auto described in variant 5 but with a rear package exit rather than the front exit shown in Figure 4. Instruments may also be fitted with additional package return systems not shown in Figure 4.

12. Description of Variant 11 approved on 31/10/02

The pattern or variants 1, 2, 4 or 6 with the basework incorporated in a weighing and wrapping instrument, and known as a Teraoka Seiko model AW-3600Pi.

Instruments may be fitted with two label printers as shown in Figure 7. Alternatively, instruments may use the indicator/printer (single printer) unit from the Teraoka Seiko model DPS-3600XT approved in variant 1 and shown in Figure 2.

The instrument is a non-automatic weighing instrument and labels are applied manually.

Note that the maximum weight of packages that can be wrapped may be less than the maximum weighing capacity.

TABLE 1 – Approved Baseworks and Their Limiting Characteristics (Variant 4)

Baseworks	6 kg S-AK 6 (S-WP 6)	15 kg S-AK 15 (S-WP 15)	30 kg S-AK 30 S-AK 25
Basework Maximum Capacity (kg)	6	15	30
Maximum Platform Sizes (mm)	284 × 371 (246 × 336)	284 × 371 (246 × 336)	284 × 371
Load Cell Used	N6	N15	N30
Load Cell Maximum Capacity Emax (kg)	9	22.5	45
nmax	3000	3000	3000
Minimum Verification Scale Interval Value for (kg) single interval or Multi-interval use	0.001	0.002	0.005
Output Rating at Emax (mV/V)	1.5	1.5	1.5
Input Impedance (ohms)	430	430	430
Excitation Voltage (V)	5 - 20	5 - 20	5 - 20
Cable Lengths (+0.1m) (m)	0.5 to 3.0 (#)	0.5 to 3.0 (#)	0.5 to 3.0 (#)
Number of Leads (plus shield)	4	4	4

(#) The cable length supplied with the basework shall not be shortened.

TABLE 2 – Approved Baseworks and Their Limiting Characteristics (Variant 6)

Baseworks	6 kg S-YC 6	15 kg S-YC 15	30 kg S-YC 30
Basework Maximum Capacity (kg)	6	15	30
Maximum Platform Sizes (mm)	341 × 284	341 × 284	341 × 284
Load Cell Used	K6	K15	K30
Load Cell Maximum Capacity Emax (kg)	9	23	45
nmax	3000	3000	3000
Minimum Verification Scale Interval Value for (kg) single interval or Multi-interval use	0.001	0.002	0.005
Output Rating at Emax (mV/V)	1.5	1.5	1.5
Input Impedance (ohms)	430	430	430
Maximum Excitation Voltage (V)	12	12	12
Cable Lengths (+0.1m) (m)	0.5 to 3.0 (#)	0.5 to 3.0 (#)	0.5 to 3.0 (#)
Number of Leads (plus shield)	4	4	4

(#) The cable length supplied with the basework shall not be shortened.

TABLE 3 – Limiting Characteristics of the AW-3600 SMART Series (Variant 8)

Single-interval models			
Maximum capacity		6 kg	15 kg
Verification scale interval		0.002 kg	0.005 kg
Maximum tare capacity		0.998 kg	0.995 kg
Multi-interval models			
Maximum capacity		6 kg	15 kg
Maximum capacity	Low range	3 kg	6 kg
	High range	6 kg	15 kg
Verification scale interval	Low range	0.001 kg	0.002 kg
	High range	0.002 kg	0.005 kg
Maximum tare capacity		0.999 kg	0.998 kg
Load cell model		N6	N15

TEST PROCEDURE No 6/4D/280

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

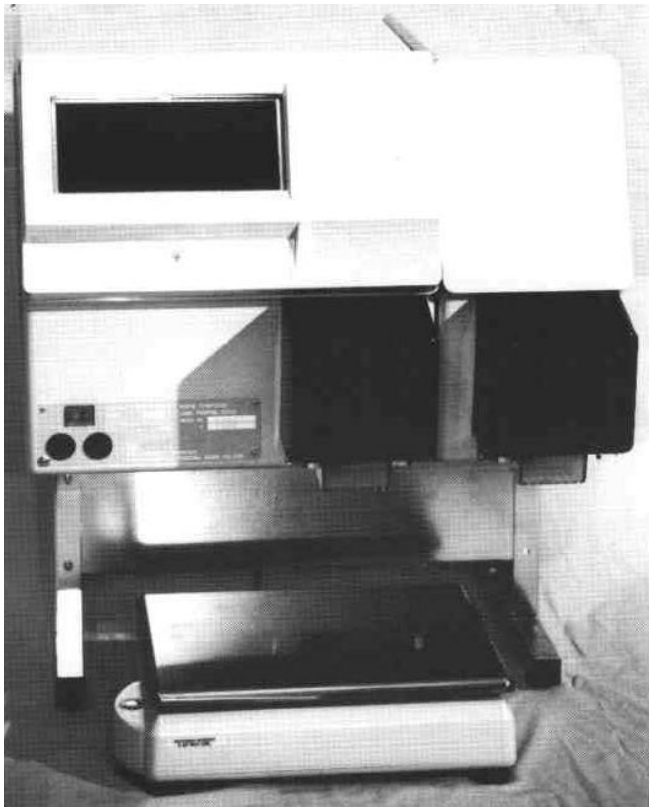
The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

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

For multi-interval instruments with verification scale intervals of e_1, e_2 …, apply e_1 for zero adjustment, and maximum permissible errors apply e_1, e_2 …, as applicable for the load.

FIGURE 6/4D/280 – 1



Teraoka Seiko Model DPS-3600 Weighing Instrument (The Pattern)

FIGURE 6/4D/280 – 2

Teraoka Seiko Model DPS-3600XT Weighing Instrument (Variant 1)

FIGURE 6/4D/280 – 3

Teraoka Seiko Model AW-3600 Instrument (Variant 3)

FIGURE 6/4D/280 – 4

Teraoka Seiko Model AW-3600CP Instrument (Variant 4)

FIGURE 6/4D/280 – 5

Teraoka Seiko Model FX-3600XL (Variant 7)

FIGURE 6/4D/280 – 6

Teraoka Seiko Model AW-3600 SMART Weighing Instrument (Variant 8)

FIGURE 6/4D/280 – 7

Teraoka Seiko Model AW-3600Pi Weighing Instrument (Variant 11)

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