Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval
NMI 13/2/2

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.

Ishida Model Boxer Automatic Catchweighing and Dimensional Measuring Instrument

submitted by SCACO Pty Ltd
(formerly Scale Components Pty Ltd
now of 4 Dan Street
Slacks Creek QLD 4127

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 documents:

NMI R 51, *Automatic Catchweighing Instruments*, dated August 2009, in respect of its weighing operation, and

NMI R 129, *Multi-dimensional Measuring Instruments*, dated July 2004, in respect of its dimensional measuring operation.

This approval becomes subject to review on **1/01/21**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	1/12/97
1	Pattern & variant 1 approved – certificate issued	20/07/98
2	Pattern & variant 1 amended (markings) – notification of change issued	20/10/00
3	Pattern & variant 1 reviewed & amended (submittor name, etc.) – notification of change issued	7/05/03
4	Pattern & variant 1 reviewed – notification of change issued	25/03/08
5	Pattern & variant 1 reviewed & amended (submittor name) – notification of change issued	22/04/10
6	Pattern & variant 1 reviewed & amended (submittor name) – amended certificate issued	21/06/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 13/2/2' 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

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 13/2/2

1. Description of Pattern approved on 1/12/1997

An Ishida model Boxer 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.

1.1 Details

The pattern is approved for use as a class Y(a) automatic catchweighing instrument with a maximum capacity of 110 kg and with a verification scale interval (e) of 0.05 kg. The pattern is approved to measure the linear dimensions of rectangular-box (parallelepiped – #) shaped objects only having maximum dimensions (i.e. length × width × height) of 121 × 91 × 91 cm and minimum dimensions of 20 × 10 × 10 cm, with a scale interval (d) of 0.5 cm.

The roller conveyor speed is 25 m/min.

The pattern is fitted with a roller-conveyor-type load receptor, a dimensioning frame, and a control panel and indicator unit.

The pattern is used in RETURN mode only. To set the instrument to RETURN mode, switch the RETURN/PASS switch on the control panel to the RETURN position before turning the instrument on at the control panel.

The pattern is not used with infeed or outfeed conveyors where the object passes from an infeed conveyor onto the receptor or from the receptor onto an outfeed conveyor.

1.2 Operation

The object to be measured is placed on the load receptor. The instrument detects the object (i.e. a light beam is cut) and the rollers are activated moving the object through the measurement frame. When the object approaches the end of the load receptor the instrument rollers are stopped and reversed, returning the object to its original position on the load receptor.

(#) 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 dimensioning frame has a grid of light emitting diodes (LEDs) and corresponding receivers which detect the overall width and height of the object. The length of the object is determined as a function of the time taken to cut the light beams of four LED/receivers located along the load receptor.

The instrument has a number of alarm functions which display error messages if the object is too big, too small, overweight, etc. Reference should be made to the explanation of alarm functions as set out in the Ishida publication *MB-900A Parcel Dimensioning System Service Manual dated 1993, Section 5*.

1.3 Dimensioning Frame

The dimensioning frame is 98 cm wide × 103 cm high (Figure 1).

1.4 Catchweighing System

The load receptor has maximum nominal dimensions of 121 cm in length and 102 cm in width. It uses a Kubota model K2BS-600SDS load cell of 600 kg maximum capacity mounted as shown in Figure 2.

1.5 Main Control Panel and Indicator (Figure 3)

The main control panel is used to set the mode of operation of the instrument.

The indicator displays the static weight in kg, and the length, width and height in cm.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

Provision is made for the calibration adjustments to be sealed by a destructible label across the load cell amplifier control panel housing (Figure 4) and the adjacent permanently fixed panel of the instrument.

Another destructible label is placed across the dipswitch control panel housing and the adjacent permanently fixed panel of the instrument (Figure 3).

1.8 Markings and Notices

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

Manufacturer's mark, or name written in full	Ishida
Model designation	.....
Serial number	.....
Year of manufacture	.....
Pattern approval mark	NMI (or NSC) No 13/2/2
Indication of accuracy class	Class Y(a)
Maximum capacity	Max ..... kg
Minimum capacity	Min ..... kg
Verification scale interval	e = ... kg
Maximum roller conveyor speed	V_{max} ..... m/min
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

(b) Instruments carry one or more notices stating TO BE USED FOR MEASURING RECTANGULAR BOXES ONLY, NOT SUITABLE FOR USE WITH INFEED OR OUTFEED CONVEYORS, and TO BE USED IN RETURN MODE ONLY, or similar wording.

2. Description of Variant 1 approved on 1/12/97

An Ishida model Boxer-DMI with a roller conveyor speed of 50 m/min, and having a maximum weighing capacity of 80 kg with a verification scale interval of 0.1 kg.

Instruments are approved for use in either RETURN or PASS mode and may be used with infeed and outfeed conveyors.

To set the instrument to PASS mode, switch the RETURN/PASS switch on the control panel to the PASS position before turning the instrument on at the control panel.

Alternatively, instruments may operate in PASS mode only, in which case the RETURN/PASS switch is not required.

Instead of the notices required for the pattern, instruments carry a notice stating TO BE USED FOR MEASURING RECTANGULAR BOXES ONLY, or similar wording.

TEST PROCEDURE

Instruments shall be tested in accordance with 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.

Note: If appropriate for conduct of tests, the instrument may be set to weigh statically, as follows: Set the instrument to CHECK mode by holding the SELF TEST switch in the ON position when turning the instrument on at the control panel.

Maximum Permissible Errors

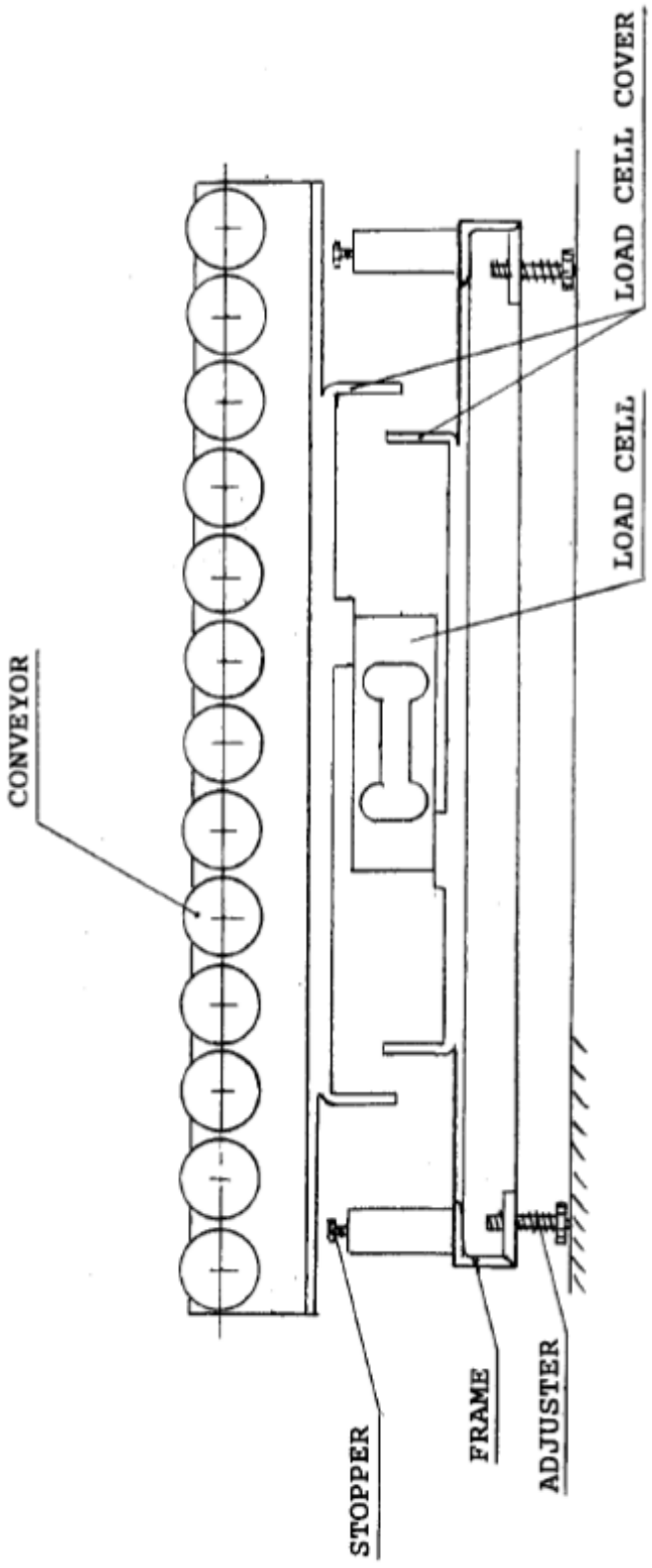
The maximum permissible errors are specified in the *National Trade Measurement Regulations 2009*.

(a) For Catchweighers, in relation to the weighing operation of the instrument, and
(b) For Multi-dimensional measuring instruments, in relation to the dimensional measuring aspects of the instrument.

FIGURE 13/2/2 – 1

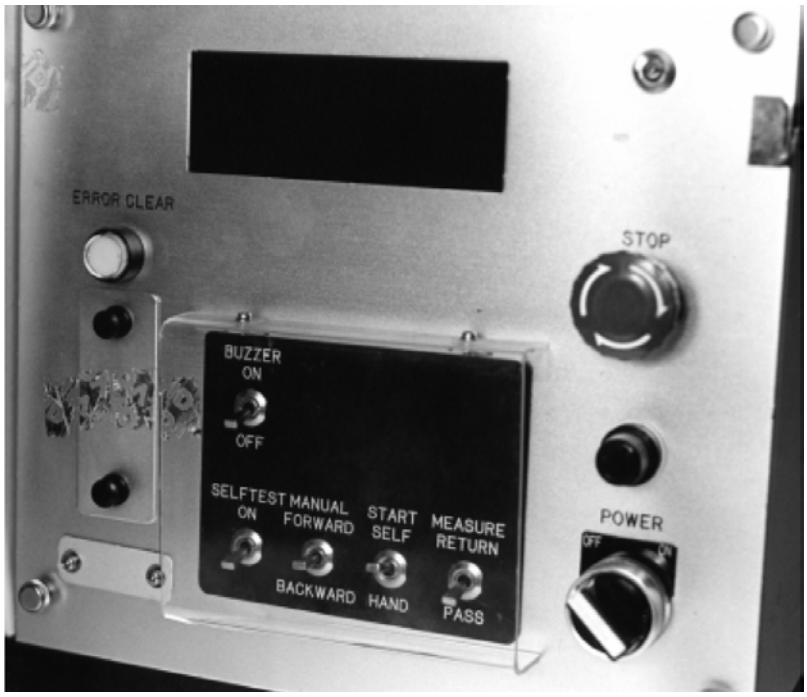
Ishida Model Boxer Catchweighing and
Dimensional Measuring Instrument

FIGURE 13/2/2 – 2



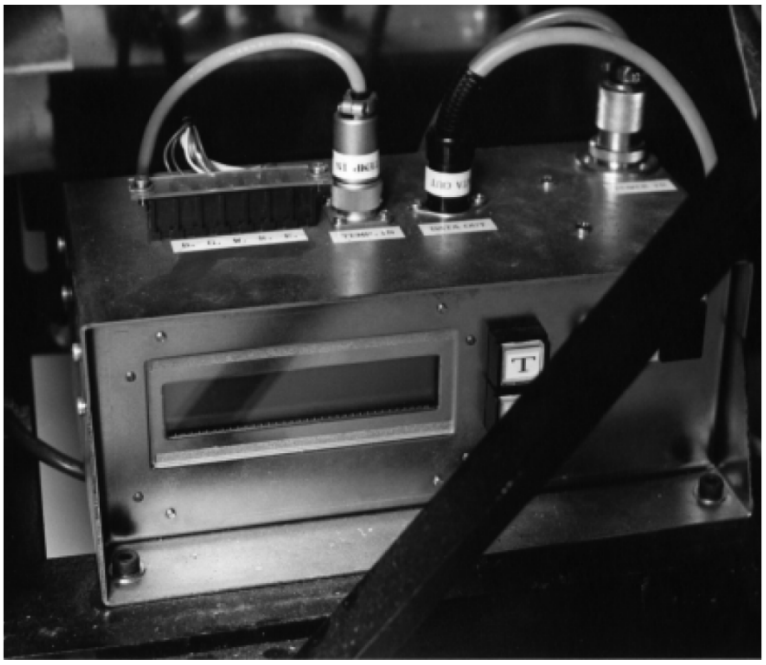
Showing Load Cell Mounting

FIGURE 13/2/2 – 3



Main Control Panel and Indicator

FIGURE 13/2/2 – 4



Load Cell Amplifier Control Panel

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