Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 13/1/30

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.

Honeywell model AutoCube 8200-1 Dimensional Measuring Instrument

submitted by Braco Compliance Pty Ltd
Unit 308, 469-481 High Street
Northcote VIC 3070

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 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

This approval becomes subject to review on 1/05/23, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	13/01/18

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 13/1/30' 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 Certificate No S1/0B.

Special: For the pattern and all variants

Instruments are only approved for use for determination of the dimensions and volume of the smallest rectangular box having smooth, flat surfaces with a uniform and non-black colour.

The dimensions determined may also be used for the calculation (by peripheral equipment) of a volume and/or 'dimensional weight' (*) value of the object, also for the purposes of determining freight or postal charges.

(*) A **'dimensional weight'** value is a calculated value deemed to be a weight value obtained by applying a conversion factor to the object's volume as calculated from the measured dimensions.

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
Pattern Approval, Policy and Licensing Section

TECHNICAL SCHEDULE No 13/1/30

1. Description of Pattern approved on 13/01/18

A Honeywell model AutoCube 8200-1 dimensional measuring instrument (Figure 1) which is approved for use for the determination of the linear dimensions of certain stationary objects. Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

1.1 Details

The pattern is approved for use for the determination of the linear dimensions of rectangular box-shaped (parallelepiped (#), cuboidal) objects only having variable maximum dimensions (i.e. length × width × height) described below and minimum dimensions 10 × 10 × 10 cm, with a scale interval of measurement (*d*) of 1 cm.

Depending on the height and angle that the Dimensioning Camera is installed relative to the object measurement area, the maximum object dimensions are as follows:

(i) At 1.5 metres height and an angle of 30°, the maximum object dimensions are 70 × 70 × 70 cm.
(ii) At 1.5 metres height and an angle of 45°, the maximum object dimensions are 90 × 90 × 90 cm or 110 x 90 x 70 cm.
(iii) At 1.8 metres height and an angle of 45° the maximum object dimensions are 100 × 100 × 100 cm or 120 x 100 x 70 cm.

The maximum object dimensions described above provide a greater object length dimension provided the object height dimension is reduced and the object remains is within the view of the Dimensioning Camera.

Objects are measured statically by being positioned manually in a defined measurement area.

The pattern is approved for use in measuring the linear dimensions of opaque objects only; the dimensions determined may also be used for the calculation of volume and/or 'dimensional weight' value (*) of the item (refer to the Special Conditions of Approval).

Note: This instrument is NOT suitable for:

- transparent objects and objects packed in thick, transparent wrapping material, e.g. 'bubble wrap';
- Objects with a mirror-like surface, e.g. chrome or other high gloss finish,
- Objects with a black surface colour.

(#) 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.

(*) A **'dimensional weight'** value is a calculated value deemed to be a weight value obtained by applying a conversion factor to the object's volume as calculated from the measured dimensions.

1.2 Dimensioning Camera

The pattern includes a Honeywell model Autocube 8200-1 camera unit (Figure 2) mounted on a fixed column (Figure 1 shows a typical arrangement). The camera unit is an active stereoscopic system which includes an infrared projector and both infrared and colour cameras. The infrared and colour images are transmitted by USB connection to the controller for processing.

1.3 PC Controller

The Honeywell model 8200-1 includes a PC-based device that connects to the Dimensioning Camera to receive and process the measurement data. The PC operates on a Microsoft Windows based operating system running Autocube software AtcEngine version 1.x.x.x and GUI Software Revision App 1.x.x.x. The software version numbers are displayed by selecting the 'About' menu option.

A display connected to the PC provides an indication of measurement results. The indicator is also used to display any error messages that occur during a measurement operation. An additional display may be connected to the PC to provide an indication for the customer.

1.4 Indications

The display connected to the PC-based controller provides an indication of measurement results, however measurement data from the AutoCube 8200-1 may also be made available to other systems for indication and/or printing.

Printed and displayed information must be made available for verification and must comply with the requirements set out in document NMI R129, *Multidimensional Measuring Instruments*, in particular as per the extract below.

> 7.9.1 Any printed ticket or displayed indication shall include sufficient information to identify the transaction, for example:
> (a) dimensions: length (*L*), width (*W*) and height (*H*);
> (b) volume (vol);
> (c) weight (Wt) if the instrument includes a weighing instrument;
> (d) dimensional weight (Dim Wt ... kg or DW ... kg);
> (e) dimensional tare (DT ... kg);
> (f) conversion factor (F);
> (g) quantity for charging, for example dimensions, vol or DW ... kg;
> (h) price rate and price; and
> (i) date, transaction number or other identification of the object.
>
> *Note 1:* Icons may be used to identify indications.
> *Note 2:* When the customer is not present during the measurement process the above information need not be displayed or printed out at the time but shall be available on request.
> *Note 3:* The price interval and the price rate shall comply with the national regulations applicable for trade.
>
> 7.9.2 A printed ticket shall also contain the following printed or pre-printed information:
> (a) that the dimensions and/or volume shown are those of the smallest rectangular box that fully encloses the object; and
> (b) that the dimensional weight is a calculated value deemed to be a weight value obtained by applying a conversion factor to the object's volume or dimensions.

1.5 Descriptive Markings

(a) The Dimensioning Camera carries the following markings:

Manufacturer's mark, or name written in full	Honeywell International Inc
Model designation	Autocube 8200-1
Serial number of the instrument	.....
Year of manufacture	.....
Pattern approval mark	NMI 13/1/30
Maximum dimensions for each axis	*Max* ..... mm (#)
Minimum dimensions for each axis	*Min* ..... mm
Scale interval	*d* = ... mm

(#) Instruments may be marked with the maximum dimension for each axis for the height and angle that the Dimensioning Camera has been installed. Refer also to clause **1.1 Details.**

(b) Instruments carry one or more notices stating:

- 'To be used for rectangular box shaped objects only',

- 'Certain highly reflective or transparent items cannot be measured',

- 'Objects with black surface colour cannot be measured',

Or similar wording.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

Provision is made for sealing the calibration adjustments means of a sealing label applied over one or more housing screws located at the back of the Dimensioning Camera unit (Figure 3).

TEST PROCEDURE No 13/1/30

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

Note: Refer to clause **1.4 Indications** – Printed and displayed information must be made available for verification and must comply with the requirements set out in document NMI R 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

Maximum Permissible Errors

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

Instruments shall be tested as follows:

(a) Test objects shall be used, in the shape of rectangular boxes with known linear dimensions such that each axis (i.e. length × width × height) is tested for at least five dimensions between and including the minimum and maximum dimensions (approximately) specified on the instrument nameplate. Each test object shall be non-sound absorbing, rigid and with flat faces and well-defined edges. All adjacent faces and edges shall be perpendicular to each other. The dimensions shall be equal to N*d* and the lengths shall be known to an uncertainty equal to or better than ±1/5 of the maximum permissible error, which is equal to the scale interval (*d*). N is a whole number.

(b) Carry out at least three test runs for each object, varying position and orientation in the defined measurement area. Each measurement shall be within the maximum permissible error.

(c) Check that instruments are marked in accordance with clause **1.5 Descriptive Markings**.

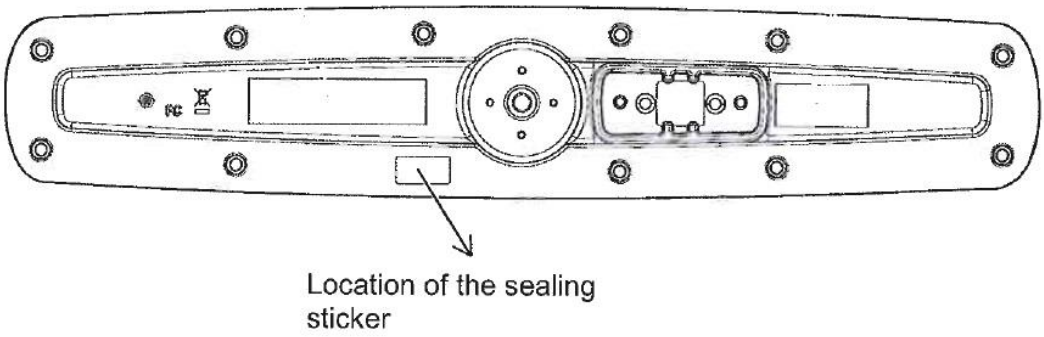
FIGURE 13/1/30 – 1

Honeywell model Autocube 8200-1 Dimensional Measuring Instrument

FIGURE 13/1/30 – 2

Honeywell model Autocube 8200-1 Dimensioning Camera

FIGURE 13/1/30 – 3



Showing Typical Mechanical Sealing Provision on the Autocube 8200-1

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