



Australian Government
**National Measurement
Institute**

Bradfield Road, West Lindfield NSW 2070

Cancellation
Certificate of Approval No 13/1/5

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the
Quantronix Model CubiScan 200-TL Dimensional Measuring Instrument

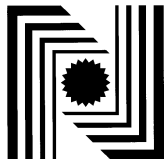
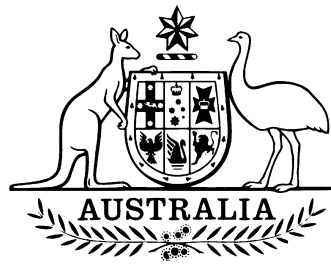
submitted by Quantronix Inc.
 PO Box 929
 Farmington UTAH 84025-0929
 USA

has been cancelled in respect of new instruments as from 1 October 2007.

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

A handwritten signature in black ink, appearing to be 'J. H. T.', written in a cursive style.

13/1/5
31 October 2001



National Standards Commission

12 Lyonpark Road, North Ryde NSW

Certificate of Approval

No 13/1/5

Issued 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

Quantronix Model CubiScan 200-TL Dimensional Measuring Instrument

submitted by Quantronix Inc.
 PO Box 929
 Farmington UTAH 84025-0929
 USA.

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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 June 2006, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 13/1/5 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 Commission 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 the Commission's Document NSC P 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

Special: For variant 1

The submitter shall advise the Commission in writing of the proposed location and specifications of each instrument prior to it being verified/certified.

Instruments shall not be verified/certified until the person intending to carry out the verification/certification has been advised in writing by the Commission of the suitability of the instrument.

DESCRIPTIVE ADVICE

Pattern: provisionally approved 14 May 2001
approved 24 August 2001

- A Quantronix model CubiScan 200-TL dimensional measuring instrument.

Variant: approved 29 October 2001

1. For use with objects having various maximum dimensions and with the instrument operating at various conveyor speeds.

Technical Schedule No 13/1/5 describes the pattern and variant 1.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 13/1/5 dated 31 October 2001
Technical Schedule No 13/1/5 dated 31 October 2001 (incl. Test Procedure)
Figures 1 and 2 dated 31 October 2001

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.



TECHNICAL SCHEDULE No 13/1/5

Pattern: Quantronix Model CubiScan 200-TL Dimensional Measuring Instrument.

Submittor: Quantronix Inc.
PO Box 929
Farmington UTAH 84025-0929
USA.

1. Description of Pattern

A Quantronix model CubiScan 200-TL dimensional measuring instrument (Figure 1) which is approved for use in measuring the linear dimensions of a rectangular box (parallelepiped - #) from which the volume is calculated; from this volume, a '**dimensional weight**' value (*) is determined by means of a conversion factor.

(#) 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.

1.1 Details

The pattern is approved for use to measure rectangular boxes having maximum dimensions (i.e length x width x height) of 152 x 122 x 91 cm and minimum dimensions of 8 x 8 x 5 cm. The pattern has a scale interval (d) of 0.5 cm and is approved for use with an operating speed between 70 and 166 m/min.

The pattern is fitted with a belt-type conveyor and a Quantronix model CubiScan 200-TL dimensioning frame and indicator/system controller.

1.2 Dimensioning Frame

The dimensioning frame uses infrared LEDs and light sensors to determine the height of objects. The length and width are determined with triangulation using lasers paired with line-scan cameras and a rotary tachometer.

Objects to be measured should:

- Not be transparent, dark blue or black; or
- Not be highly reflective; or
- Not have openings, holes or irregular edges.

1.3 Indicator/System Controller

The system controller mounted inside the primary cabinet assembly includes a computer that uses CubiScan version 1.208 software and processes signals from the dimensioning frame and line-scan cameras for display on the indicator. The indicator (Figure 2) displays the measurement results, error messages and self-test/power-up information (including software version).

Instruments are fitted with output sockets for the connection of peripheral and/or auxiliary devices. The measurement results can be sent from the instrument to another source via RS 232 communications.

1.4 Operation

On power-up, the word ZERO is illuminated when the unit is ready for operation. A measurement is made by passing the object through the frame on the moving conveyor and the dimensions are displayed when the measurement is complete. The measurement remains on the display until cleared by a successive measurement.

Whenever an error has been detected the indicator displays an error code. An error can only be cleared by rectifying the cause of the error. The instrument resets automatically.

The various error codes are listed in the CubiScan 200-TL user's manual.

1.5 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of a switch jumper placed on the jumper switch bank on the control board. The doors of both the primary and secondary cabinet assemblies (Figure 1) are sealed.

1.7 Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Quantronix, Inc. USA
Model designation	CubiScan 200-TL
Serial number
Year of manufacture
Pattern approval mark	NSC No 13/1/5
Maximum conveyor speed m/min
Minimum conveyor speed 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

2. Variant 1

The pattern for use with rectangular-box shaped objects having various other maximum dimensions (i.e. length x width x height) up to 183 x 152 x 122 cm and with the instrument operating at various other conveyor speeds up to 183 m/min. Other specifications remain the same as for the pattern, namely the minimum dimensions are 8 x 8 x 5 cm and the scale interval (d) is 0.5 cm.

Refer to the Special Condition of Approval.

TEST PROCEDURE

Maximum Permissible Error at Verification/Certification

The maximum permissible error at verification/certification, expressed in terms of scale interval (d) is:

$\pm 1.0d$ for lengths from the minimum length to any value up to and including the maximum length capacity of the instrument.

- Test objects shall be used, in the shape of rectangular boxes with known linear dimensions such that each axis (i.e. length x width x 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 opaque, 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 Nd and known to an uncertainty equal to or better than $\pm 1/3d$ using a verified length standard. N is a whole number.
- Vary the position across the receptor, and the orientation of the test objects so that each axis is tested for the five dimensions.
- Tests shall be conducted at both the minimum and maximum conveyor speeds, as marked on the instrument nameplate.
- Check that the dimensions indicated are within the maximum permissible error, i.e. the display is either Nd or $(N\pm 1)d$.
- Check that the 'dimensional weight' value (DW ...) indicated is equal to the volume calculated using the displayed dimensions divided by the conversion factor (F).

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FIGURE 13/1/5 - 1



PRIMARY CABINET
ASSEMBLY

SECONDARY CABINET
ASSEMBLY

Quantronix Model CubiScan 200-TL Dimensional Measuring Instrument

13/1/5
31 October 2001

FIGURE 13/1/5 - 2



Indicator/System Controller