Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Cancellation

Certificate of

Approval No 13/1/2

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 Approval 13/1/2 issued in respect of the

Quantronix Model CubiScan 200-XIR 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 June 2005.

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

National Standards Commission

Certificate of Approval

No 13/1/2

Issued under Regulation 9
of the
National Measurement (Patterns of Measuring Instruments) Regulations

This is to certify that an approval for use for trade has been granted in respect of the

Quantronix Model CubiScan 200-XIR 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.

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CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 January 2004 and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 13/1/2 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 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 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 the pattern

Instruments currently marked NSC No P13/1/2 and which comply with this approval may be re-marked NSC No 13/1/2 at their next verification/certification.

Special: For variant 1

The submittor 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 26 March 1997
approved 4 December 1998

- A Quantronix model CubiScan 200-XIR automatic dimensional measuring instrument.

Variant: approved 12 July 1999

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

Technical Schedule No 13/1/2 describes the pattern and variant 1.

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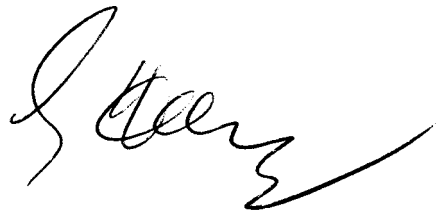
FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 13/1/2 dated 19 July 1999
Technical Schedule No 13/1/2 dated 19 July 1999 (incl. Test Procedure)
Figures 1 and 2 dated 19 July 1999

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.



TECHNICAL SCHEDULE No 13/1/2

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

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

1. Description of Pattern

A Quantronix model CubiScan 200-XIR automatic dimensional measuring instrument which is approved for use to measure the linear dimensions of certain objects while in motion.

1.1 Details

The pattern (Figure 1) is approved to measure linear dimensions of rectangular-box (rectangular parallelepiped - #) shaped objects only having maximum dimensions (i.e. length x width x height) of 150 x 91 x 91 cm and minimum dimensions of 5 x 5 x 5 cm, with a scale interval (d) of 0.5 cm.

The pattern comprises a belt-type conveyor, a dimensioning unit, and a combined control/indicator unit.

1.2 Conveyor

The conveyor is set to operate at a single fixed speed between the maximum conveyor speed of 85 m/min and the minimum conveyor speed of 30 m/min.

1.3 Dimensioning Unit

The dimensioning unit measures the dimensions of the object as it travels along the conveyor belt. A series of emitting and receiving photosensors in a vertical frame measures the height of the object, and an array of photosensors mounted at the sides of the conveyor detect the length and width of the object.

1.4 Indicator

A dot matrix LED indicator is mounted above the horizontal section of the measuring frame (Figure 2) to display the measurement results, error messages and self-test/power-up information.

(#) A rectangular box (rectangular parallelepiped) is a polyhedron having 6 faces that are parallel in pairs; each face is a parallelogram and adjacent edges are perpendicular.

1.5 Controller

The controller mounted inside the horizontal section of the measuring frame (Figure 2) includes a MINI-CC186 single board computer that uses CubiScan V4.2 software and processes signals from the photosensors for display on the indicator. The measurement results can be sent from the instrument to another source via RS 232 communications.

1.6 Operation

On power-up, a green light marked “ready” is illuminated when the unit is ready for operation. A red light marked “wait” is illuminated when the unit is measuring and in 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, the green “ready” light is extinguished and below it a red light is illuminated. 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-XIR user’s manual.

1.7 Markings and Notices

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

Manufacturer’s mark, or name written in full	Quantronix, Inc.
Model designation	CubiScan 200-XIR
Serial number of the instrument	.....
Year of manufacture	*.....*
Pattern approval mark	NSC No 13/1/2
Maximum dimensions for each axis	*Max* ..... cm
Minimum dimensions for each axis	*Min* ..... cm
Scale interval	*d =* ..... cm
Maximum conveyor speed	*Max* ..... m/min
Minimum conveyor speed	*Min* ..... m/min
Operating temperature range	$0^{o}C/40^{o}C$

(b) A notice stating “To be used for rectangular box shaped objects only”, or similar wording, is displayed on the marking plate.

1.8 Verification/Certification Provision

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

1.9 Sealing Provision

Provision is made for sealing the calibration adjustments in the controller by means of a destructible label across two adjacent sections of the horizontal section of the measuring frame as shown in Figure 2.

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 180 m/min. Other specifications remain the same as for the pattern, namely the minimum dimensions are 5 x 5 x 5 cm and the scale interval (d) is 0.5 cm.

Refer to the Special Conditions 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:

±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 ±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 the conveyor speed to which the instrument is set.
- Check that the dimensions indicated on the indicator are within the maximum permissible error, i.e. the display is either Nd or (N±1)d.

FIGURE 13/1/2 - 1

Quantronix Model CubiScan 200-XIR

FIGURE 13/1/2 - 2

Showing Upper Dimensioning Frame, Indicator and Sealing Method