Australian Government

Department of Industry, Science, Energy and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval
NMI 13/1/23

VARIANT 6 VALID FOR VERIFICATION PURPOSES UNTIL 1 November 2021

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.

Cubetape Model C190MFT Dimensional Measuring Instrument

submitted by   Mettler-Toledo Limited
                      220 Turner Street
                      Port Melbourne   VIC   3207

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.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern and variant 1 approved – certificate issued	15/06/12
1	Variant 2 approved – interim certificate issued	21/12/12
2	Variant 2 approved – certificate issued	18/02/13
3	Pattern and variants 1 & 2 amended (Markings & Test Procedure) – Variants 3 to 5 approved – certificate issued	6/06/17
4	Variant 6 provisionally approved – interim certificate issued	2/11/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 13/1/23' 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.

Special

Instruments are only approved for use for determination of the dimensions of a rectangular box and for the calculation of volume and/or 'dimensional weight' (*) value of the item, 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.

Special Conditions of Approval: (Provisional Approval – Variant 6)

Provisional approval variant 6 is limited to ten (10) sites only, the locations of which may be obtained from the National Measurement Institute. The submittor shall advise NMI in writing of the proposed location or serial number of each instrument prior to it being initially verified.

Instruments purporting to comply with variant 6 of this approval shall be marked with approval number 'NMI P13/1/23' and only by persons authorised by the submittor. **(Note: The 'P' in the approval number may be a temporary marking.)**

The variation to the approval will remain provisional pending completion of satisfactory testing and evaluation.

In the event of unsatisfactory performance the approval may be cancelled (or altered).

The submittor shall implement such modifications as required by NMI. In the event that such modifications (if any are required by NMI) are not made to the satisfaction of NMI, this approval may be withdrawn.

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
Policy and Regulatory Services

TECHNICAL SCHEDULE No 13/1/23

1. Description of Pattern   approved on 15/06/12

A Cubetape model C190MFT dimensional measuring instrument (Figures 1 and 2) which is approved for use for the determination of the linear dimensions of certain objects.

1.1 Details

The instrument is approved for use for the determination of the linear dimensions of rectangular box-shaped (parallelepiped (#), cuboidal) objects only having maximum dimensions (i.e. length × width × height) of 1200 × 300 × 300 cm and minimum dimensions 10 × 10 × 10 cm, with a scale interval of measurement (d) of 1 cm.

The instrument is a battery-operated hand-held unit (Figure 1) which stores measurement results to internal memory and which can then be transferred to other peripheral devices.

The dimensions of objects are determined by manually extending the integrated retractable nylon-coated spring steel tape.   Markings along the tape are used by the dimensioning unit to detect the length of each dimension of the object being measured.

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: Markings on the tape itself are not intended for trade use. The tape is marked in both centimetre and inch units and the instrument shall be display 'TAPE MARKINGS ARE NOT LEGAL FOR TRADE USE', or similar wording, by permanent label or displayed when instrument powered on.

(#) 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 Unit

The Cubetape model C190MFT comprises a hand-held unit with an integrated colour LCD display and a marked tape with a maximum length of 300 cm. Three Status LED lights are built into the unit to show measurement progress. The instrument operates using Cubetape version 1.07x software.

Measurement results are stored in the memory of the device and may be transferred to peripheral devices using the USB data connection or wirelessly using Bluetooth or infrared connectivity.

1.3 Zeroing

The instrument is zeroed prior to any reading, by allowing the tape to be fully retracted (by releasing the tape brake) whilst the unit is powered on.

Failure to zero the instrument in this way may result in readings which are less than the correct dimensions and a tape error message may be indicated on the LCD display.

1.4   Append Function

An append function allows measurement of objects with a length greater than the maximum length of the tape. The object may be partially measured and pressing the append button allows the object to be measured by adding additional partial measurements.

The append function operates for the length dimension only. The instrument allows 3 partial measurements to be appended to give a total maximum length of 1200 cm.

1.5   Typical Operation

- Check that the tape is fully retracted to ensure correct zeroing.

- The tape is then extended along one side of the item (commencing with the tape fully retracted to ensure correct zeroing), aligning the tape index (end protector) and the edge of the C190 unit to contact the edge of the item.

- The brake/trigger button is then pressed and the unit records the current length for the first dimension being measured. Alternatively the append button may be pressed to record a partial measurement and the brake/trigger records the final length.

- This is repeated for the other two dimensions of the item. Note that the append function is not available for these two dimensions.

- The unit may then indicate the calculated volume and/or dimensional weight for the determined dimensions. The results are then stored or transferred wirelessly to other devices.

1.6   Indications

The pattern is fitted with an integrated indicator however measurement data from the C190MFT is made available to other systems for indication and/or printing.

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.

1.7   Descriptive Markings and Notices

(a)   Instruments carry the following markings (in the vicinity of the indicating device):

Manufacturer's mark, or name written in full	Parceltools Pty Limited
Manufacturer's agent	Mettler Toledo
Model designation	.....
Serial number of the instrument	.....
Year of manufacture	.....
Pattern approval mark	NMI 13/1/23
Maximum dimensions for each axis	*Max* ..... cm
Minimum dimensions for each axis	*Min* ...... cm
Scale interval	*d* = ... cm

(b)   The instrument shall display 'TAPE MARKINGS ARE NOT LEGAL FOR TRADE USE', or similar wording, by permanent label or when instrument is powered on.

1.8   Verification Provision

Provision is made for the application of a verification mark (Figure 2c).

1.9   Sealing Provision

Provision is made for a sealing label to be applied to the tape module behind the battery cover as shown in Figures 2c and 2d.

2.   Description of Variant 1   approved on 15/06/12

Certain other models of the C190 series as follows:

•   Model C190MBD which does not include the Bluetooth wireless connectivity.

•   Model C190MBS which includes a barcode scanner used to read a barcode identifying the item to be measured.

3.   Description of Variant 2   approved on 21/12/12

With a ParcelTools Australia model C190T replacement tape cassette (Figure 3) which is the same as the Cubetape tape cassette originally used in the pattern.

The C190T tape cassette is only approved for trade use when it is installed in the pattern or variant and taking measurements through the display of the pattern.

May also be known as a Great Wall Company tape cassette of the same model.

4.   Description of Variant 3   approved on 6/06/17

A Cubetape model CSN110 ScanTape™ dimensional measuring instrument (Figure 1) which has the same capabilities as the pattern as listed in clause **1.1 Details** but has additional features and an upgraded housing.

5.   Description of Variant 4   approved on 6/06/17

A Cubetape model CSN110 ScanTape™ PRO dimensional measuring instrument which is similar to Variant 3 but utilises barcode markings on the retractable tape (Figure 4). The enclosure has a fixed scanner positioned to read the barcode marking on the tape. The tape is marked with the barcode value of the length to be read with a scale interval of 1 cm.

The instrument may also be known as model C190 PRO.

6.   Description of Variant 5   approved on 6/06/17

With a ParcelTools Australia model C190T-C and C190T-C-O replacement tape cassette (Figure 5) which is the same as the Cubetape tape cassette originally used in the pattern.

The C190T-C (human readable and barcode markings) and C190T-C-O (barcode markings only) tape cassette is only approved for trade use when it is installed in the pattern or variant and taking measurements through the display of the pattern.

7.   Description of Variant 6   provisionally approved on 2/11/20

With a ParcelTools Australia model C190POS CubeTape dimensional measuring instrument (Figure 6) which has the same capabilities as the pattern, however does not include the built in indicator described in clause **1.6 Indications**.

7.1 Indications

The C190POS must be connected to a compatible Bluetooth enabled device capable of indicating the measurement results transmitted by the unit.

Measurement data is only transmitted when the user has operated the instrument for the three dimensions of the object being measured.

The measurement data transmitted by the instrument comprises:

- Dimensions length (L), width (W) and height (H);
- 8 bit cyclic redundancy check (CRC8) applied to the dimensions data
- Units of measurement
- Serial number identification

Measurement data transmitted by the C190POS IS NOT LEGAL FOR TRADE USE until the dimensions data has been validated with CRC8 data.

Information displayed on a connected compatible Bluetooth enabled device must be made available for verification and must comply with the requirements set out in document NMI R129, *Multidimensional Measuring Instruments*.

7.2 Indication Software

With the Bluetooth enabled device connected to the C190POS instrument operating Mettler Toledo Octo DataCapture software.

The C190POS may also be used in conjunction with certain other 3rd party software (#) that provide indicating functionality described in clause **7.1 Indications**. Indicated data shall only be indicated or shown as valid measurement data where the transmitted dimensions data are validated by the transmitted CRC8 data.

(#) Note that the manufacturer (Parceltools Pty Ltd) must be consulted regarding the acceptability of any alternative 3rd party electronic document software.

TEST PROCEDURE No 13/1/23

Note: Refer to clause **1.6 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.

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 Error at Verification

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

Instruments shall be tested as follows:

(a)   Test objects shall be used of known lengths such that each axis (i.e. length × width × height) is tested for at least five dimensions between and including the minimum and maximum lengths specified on the instrument nameplate. Each test object shall be rigid and with well-defined edges to simulate the edges of a rectangular box. All adjacent faces and edges shall be perpendicular to each other. The dimensions shall be equal to Nd 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 length. Each measurement shall be within the maximum permissible error.

(c)   Check that the instrument includes 'TAPE MARKINGS ARE NOT LEGAL FOR TRADE USE', or similar wording, by permanent label or displayed when instrument powered on, in accordance with clause **1.1 Details**.

FIGURE 13/1/23 – 1

(Front View)

Cubetape Model C190MFT Dimensional Measuring Instrument (Pattern)
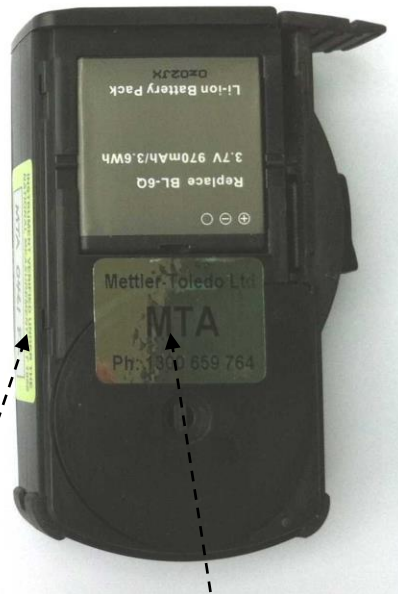
FIGURE 13/1/23 – 2

(a) Rubber Protective Cover
(Black)

(b) Battery Cover

(c) Cubetape Model C190MFT

Verification
Mark

Sealing Label
Securing Tape Module

(d) Typical Sealing

(e) Rubber Protective Cover
(Blue)

Cubetape Model C190MFT Instrument Including Typical Sealing

FIGURE 13/1/23 – 3

ParcelTools Australia Model C190T Replacement Tape Cassette (Variant 2)

FIGURE 13/1/23 – 4

Cubetape model CSN110 ScanTape™PRO
May also be known as C190 PRO
(Variant 4)

FIGURE 13/1/23 – 5

(a) C190T-C-O Retractable Barcode only tape cassette (Variant 5)

(b) C190T-C Retractable Barcode tape cassette with human readable scale markings (Variant 5)

FIGURE 13/1/23 – 5

C190POS with C190T-U tape cassette (Variant 6)

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