



**Australian Government**  
**National Measurement  
Institute**

Bradfield Road, West Lindfield NSW 2070

# **Certificate of Approval**

## **No13/1/18**

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

METTLER TOLEDO Model CSN840 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.

### **CONDITIONS OF APPROVAL**

This approval becomes subject to review on 1 November 2015, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI13/1/18' 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 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.

The National Measurement Institute 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:**

Instruments are only approved for use for determination of the dimensions and volume of the smallest rectangular box that could contain an object, for the purposes of determining freight or postal charges.

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.

DESCRIPTIVE ADVICE

**Pattern:** approved 28 October 2010

- A METTLER TOLEDO model CSN840 dimensional measuring instrument.

Technical Schedule No13/1/18 describes the pattern.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 13/1/18 dated 29 October 2010  
Technical Schedule No 13/1/18 dated 29 October 2010 (incl. Test  
Procedure)  
Figures 1 to 3 dated 29 October 2010

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, consisting of stylized cursive letters, positioned above a horizontal line.

## TECHNICAL SCHEDULE No 13/1/18

**Pattern:** METTLER TOLEDO Model CSN840 Dimensional Measuring Instrument

**Submitter:** Mettler-Toledo Limited  
220 Turner Street  
Port Melbourne VIC 3207

### 1. Description of Pattern

A METTLER TOLEDO model CSN840 dimensional measuring instrument (Figure 1) which is approved for use for the determination of the linear dimensions of 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 objects having maximum dimensions (i.e. length  $\times$  width  $\times$  height) of 250  $\times$  250  $\times$  260 cm and minimum dimensions 20  $\times$  20  $\times$  20 cm, with a scale interval of measurement ( $d$ ) of 2 cm.

The pattern converts the detected characteristics into the linear dimensions of the smallest rectangular box (parallelepiped – #) that would fully contain the object.

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'; or
- Objects with a mirror-like surface, e.g. chrome or other high gloss finish, however, the instrument can measure objects covered in shiny sealing tape or glossy plastic wrapping, e.g. 'cling wrap'.

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

- (#) 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 Laser Scanners

The pattern includes three METTLER TOLEDO model CSN840 laser scanners (Figures 1 and 2a) mounted to a frame above the defined measurement area. The laser scanners are positioned in a triangular arrangement which provides a view of all sides of the object to be measured.

One of the scanners is configured as a master scanner which receives image data from the remaining two scanners configured as slave scanners. The master scanner processes the measurement results and outputs to a METTLER TOLEDO model CS2200LX indicator or an optional workstation. The system operates using Cargoscan version 1.6.x software.

### 1.3 Indicator Unit

A METTLER TOLEDO model CS2200LX indicator (Figure 2b) provides a 4 line alphanumeric LCD display for indication of measurement results. The indicator is also used to operate and configure the instrument and displays any error messages that occur during a measurement operation.

Indicator lamps may be fitted to signal when the system is operating, a measurement is in progress or an error has been detected.

### 1.4 Workstation

An optional workstation (Figure 3) can also be used to initiate measurement operations and display results, as well as collecting additional information about the object being measured via barcode scanners or keyboard data entry.

### 1.5 Indications

The pattern is fitted with a model CS2200LX indicator however measurement data from the CSN840 is 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 preprinted 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.

## 1.6 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	METTLER TOLEDO A/S
Model designation	.....
Serial number of the instrument	.....
Year of manufacture	.....
Pattern approval mark	13/1/18
Maximum dimensions for each axis	<i>Max</i> ..... cm
Minimum dimensions for each axis	<i>Min</i> ..... cm
Scale interval	<i>d</i> = ..... cm

- (b) Instruments carry one or more notices stating CERTAIN REFLECTIVE OR TRANSPARENT ITEMS CANNOT BE MEASURED, and ITEMS MUST BE PLACED WITH LARGEST AND MOST STABLE SURFACE DOWN, or similar wording.

## 1.7 Verification Provision

Provision is made for the application of a verification mark.

## 1.8 Sealing Provision

Provision is made for sealing the calibration adjustments in software using an audit trail which records adjustments.

Provision is also made for sealing the CSN840 enclosure by means of a sealing label applied over the edge of the enclosure.

## TEST PROCEDURE

Note: Refer to clause **1.5 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 Error at Verification**

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

The maximum permissible error at verification/certification is:

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

Instruments shall be tested as follows:

- (a) Test objects shall be used of known lengths such that each axis (i.e. length  $\times$  width  $\times$  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. The lengths shall be known to an uncertainty equal to or better than  $\pm 1/5$  of the maximum permissible error, which is equal to the scale interval (*d*).
- (b) Carry out at least three test runs for each length, varying position and orientation across the receptor. Each measurement shall be within the maximum permissible error.
- (c) Check that instruments are marked and carry one or more notices in accordance with clause **1.6 Descriptive Markings and Notices**.

FIGURE 13/1/18 – 1



METTLER TOLEDO Model CSN840 Dimensional Measuring Instrument

FIGURE 13/1/18 – 2



(a) METTLER TOLEDO Model CSN840 Laser Scanners



(b) Typical Display of a METTLER TOLEDO Model CS2200LX Indicator



FIGURE 13/1/18 – 3



Typical Optional Workstation