



**Australian Government**

**National Measurement  
Institute**

Bradfield Road, West Lindfield NSW 2070

# **Notification of Change**

## **Certificate of Approval No 6/14G/11**

### **Change No 1**

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

The following changes are made to the approval documentation for the  
Cargoscan Model CS9000 Automatic Catchweighing Instrument

submitted by           Mettler Toledo Limited  
                                  Unit 3, 220 Turner Street  
                                  Port Melbourne   VIC   3207.

- A.    In Certificate of Approval No 6/14G/11 dated 30 May 2005:
1.    The Condition of Approval referring to the review of the approval should be amended to read:  
          “This approval becomes subject to review on 1 November **2015**, and then every 5 years thereafter.”
  2.    The FILING ADVICE should be amended by adding the following:  
          “Notification of Change No 1 dated 8 June 2011”
- B.    In Technical Schedule No 6/14G/11 dated 30 May 2005, the 1<sup>st</sup> paragraph of the TEST PROCEDURE should be replaced by the following:  
          “Instruments shall be tested in accordance with any relevant tests specified in the **national inspection** test procedures.”

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 a series of loops and a long horizontal stroke at the bottom.



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

12 Lyonpark Road, North Ryde NSW 2113

**Certificate of Approval**  
**No 6/14G/11**

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  
Cargoscan Model CS9000 Automatic Catchweighing 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.

**CONDITIONS OF APPROVAL**

This approval becomes subject to review on 1 November 2009, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NSC 6/14G/11' and only by persons authorised by the submittor.



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.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

#### DESCRIPTIVE ADVICE

**Pattern:** approved 5 October 2004

- A Cargoscan model CS9000 class Y(a) automatic catchweighing instrument of 60 kg maximum capacity.

**Variants:** approved 5 October 2004

1. With certain other specifications including different maximum capacities.

**Variants:** approved 27 May 2005

2. With a Mettler Toledo model Cargoscan CS900 dimensional measuring instrument.
3. With a Cargoscan model CS5200.2 dimensional measuring instrument.

Technical Schedule No 6/14G/11 describes the pattern and variants 1 to 3.

#### FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 6/14G/11 dated 30 May 2005  
Technical Schedule No 6/14G/11 dated 30 May 2005 (incl. Test Procedure)  
Figures 1 and 2 dated 30 May 2005



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.

## TECHNICAL SCHEDULE No 6/14G/11

**Pattern:** Cargoscan Model CS9000 Automatic Catchweighing Instrument

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

### 1. Description of Pattern

A Cargoscan model CS9000 class Y(a) automatic catchweighing instrument (Figure 1) which is approved for use to weigh objects dynamically.

#### 1.1 Details

The instrument is a single interval class Y(a) automatic catchweighing instrument with a verification scale interval of 0.05 kg and a maximum capacity of 60 kg. Instruments have a minimum capacity of 0.25 kg.

The instrument operates dynamically (package in motion on the weighing receptor). The maximum belt speed of the weighing receptor is 45 m/min and the maximum length of the object to be weighed (package) is 1 m. The throughput is variable and depends on several factors, e.g. size of label, size of pack and weight of pack. The instrument has facilities to detect errors and provide error messages for situations outside the limits.

NOTE: A static non-automatic weighing mode for calibration purposes is also available in which the conveyors do not operate.

Instruments may be fitted with sockets (output interfacing capability) for the connection of peripheral and/or auxiliary devices, and for the external programming of PLU and labelling data.

The Cargoscan model CS9000 comprises:

- (a) A Mettler Toledo model JagXtreme indicator;
- (b) A Cargoscan model CS9000 weighing unit;
- (c) Infeed and outfeed conveyors and a programmable logic controller (PLC) which controls the conveyors; and
- (d) A computer system which controls the conveyor system and into which the weighing results are recorded.

The weighing unit is connected to the Mettler Toledo model JagXtreme indicator, and conveyor motors and other sensors are connected to the PLC (programmable logic controller). Both the JagXtreme and PLC are connected to a computer that coordinates the measuring system, and collects the measurement data. This computer may in turn be connected to a management/accounting system for invoicing purposes.

The package is required to be on the platform for a period of at least 300 ms. This parameter is set from the JagXtreme indicator which also filters the weight values to arrive at the final weight value.

## **1.2 Operation**

The system is designed to operate in dynamic weighing mode. A static mode is available when the conveyor is stopped for calibration purposes.

An object to be weighed moves from the infeed conveyor onto the weighing receptor conveyor and is weighed while in motion. After weighing, the object continues onto the outfeed conveyor and the weight data is provided to the management system for invoicing purposes (together with other data identifying the package, e.g. barcode information).

Optical sensors connected to the PLC provide information regarding the position of the package on the conveyor. The sensors signal the beginning of weighing operations once the package arrives onto the weighing receptor.

A PC-based operator's console built into the frame of the CS9000 weighing unit provides additional indications of current and previous measurement results, the status of packages on the conveyor and control of conveyor speed and direction.

## **1.3 Indicator**

A Mettler Toledo model JagXtreme digital indicator is used (Figure 1a) and displays the weight (in kg). This indicator is also described in the documentation of approval NSC S339.

### **1.3.1 Zero**

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument, capable of setting zero to within  $\pm 0.25e$ .

The instrument has a zero tracking device which maintains the zero reading whenever the load receptor is empty and within the zero setting range.

## **1.4 Weighing and Conveyor System**

The CS 9000 weighing unit uses four HBM model BLC-250 load cells of 114 kg maximum capacity; the load cells may also be known as Mettler Toledo model 776 and are mounted as shown in Figure 1b. The belt conveyor-type load receptor has a nominal conveyor length of 1600 mm and a maximum width of 960 mm.

The conveyor system comprises separate infeed and outfeed conveyors (Figure 2) and an associated electric motor drive arrangement for each conveyor. Optical sensors are provided, located alongside the conveyors.

## **1.5 Sealing Provision**

Provision is made for the sealing of the calibration adjustments of the indicator to be sealed as described in its approval documentation.

## **1.6 Verification/Certification Provision**

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

## 1.7 Descriptive Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Cargoscan
Importer's mark, or name written in full	Mettler Toledo Limited
Model designation	.....
Serial number	.....
Accuracy class	Y(a)
Pattern approval mark	NSC 6/14G/11
Maximum capacity	<i>Max</i> ..... kg
Minimum capacity	<i>Min</i> ..... kg
Verification scale interval	<i>e</i> ..... kg
Maximum conveyor speed	..... m/min
Minimum conveyor speed	..... m/min
Maximum object length	<i>Max</i> ..... m
Minimum object length	<i>Min</i> ..... m

## 2. Description of Variants

### 2.1 Variant 1

Having certain other specifications as listed below:

Maximum capacity	40 kg	40 kg	50 kg	50 kg
Maximum conveyor speed	45 m/min	70 m/min	40 m/min	60 m/min
Maximum object length	1.2 m	1 m	1.1 m	0.9 m

### 2.2 Variant 2

The Cargoscan model CS9000 automatic catchweighing instrument connected to a Mettler Toledo model Cargoscan CS900 dimensional measuring instrument (as described in the documentation of approval NMI 13/1/10).

This arrangement facilitates the common processing of measurement data and may use the same conveyor system (Figure 2).

### 2.3 Variant 3

The Cargoscan model CS9000 automatic catchweighing instrument connected to a Mettler Toledo model CS5200.2 dimensional measuring instrument (as described in the documentation of approval NSC 13/1/7).

This arrangement facilitates the common processing of measurement data and may use the same conveyor system.

## TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the **Uniform** Test Procedures.

### Non-automatic Operation

The maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads,  $m$ , expressed in verification scale intervals,  $e$ , are:

- $\pm 0.5e$  for loads  $0 \leq m \leq 500$ ;
- $\pm 1.0e$  for loads  $500 < m \leq 2\,000$ ; and
- $\pm 1.5e$  for loads  $2\,000 < m \leq 10\,000$ .

- With the conveyor switched off, carry out a load test and an eccentricity test.

### Automatic Operation

The maximum permissible errors for class Y(a) automatic catchweighing instruments for increasing and decreasing loads on initial verification/certification for loads,  $m$ , expressed in verification scale intervals,  $e$ , are:

- $\pm 1.5e$  for loads  $0 \leq m \leq 500$ ;
- $\pm 2e$  for loads  $500 < m \leq 2\,000$ ; and
- $\pm 2.5e$  for loads  $2\,000 < m \leq 10\,000$ .

- Prepare two test objects, one close to minimum capacity and the other close to the maximum capacity. The uncertainty of the test masses shall be equal to or better than  $0.5e$ .
- The tests shall be conducted at the maximum rate at which the system will operate (i.e. introduce packages immediately after each other).
- Vary the position of the test masses across the load receptor.

TESTS – Use the following tests to determine compliance with the maximum permissible errors -  $n$  is a whole number.

TEST 1 – Maximum permissible error =  $\pm 1.5e$

Test load =  $ne$

Readings:	A: $(n - 2)e$	reject
	B: $(n + 2)e$	reject
	A < Readings < B	accept

TEST 2 – Maximum permissible error =  $\pm 2e$

Test load =  $(n + 0.5)e$

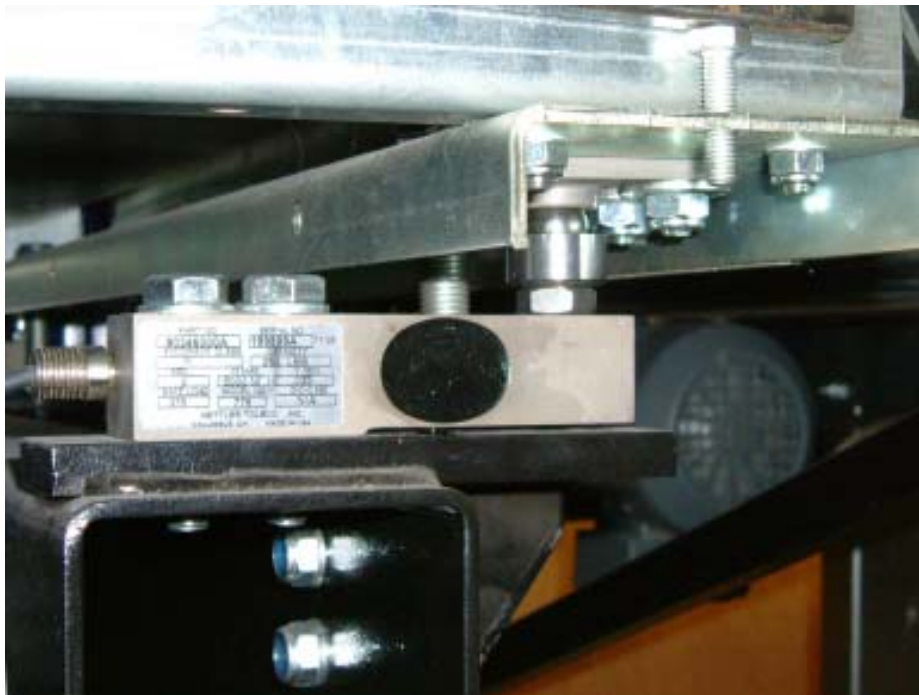
Readings:	A: $(n - 2)e$	reject
	B: $(n + 3)e$	reject
	A < Readings < B	accept

TEST 3 – Maximum permissible error =  $\pm 2.5e$

Test load =  $ne$

Readings:	A: $(n - 3)e$	reject
	B: $(n + 3)e$	reject
	A < Readings < B	accept

FIGURE 6/14G/11 – 1



Cargoscan Model CS9000 Automatic Catchweighing Instrument



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30 May 2005

FIGURE 6/14G/11 – 2



Typical Cargoscan Model CS9000 Automatic Catchweighing Instrument  
With a Mettler Toledo Model Cargoscan CS900 Dimensional Measuring Instrument