Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/9C/335

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.

Dini Argeo Model LTF2500C-1 Weighing Instrument

submitted by Dini Argeo S.r.l.
Via della Fisica 20
41042 Spezzano di Fiorano
Modena
Italy

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 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated October 2015.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	14/05/26

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/9C/335' and only by persons authorised by the submittor.

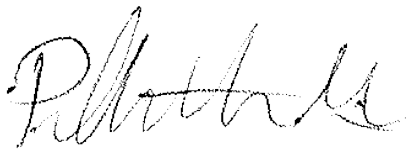
It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this 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 Certificate No S1/0B.

Special

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

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



Phillip Mitchell
A/g Manager
Policy and Regulatory services

TECHNICAL SCHEDULE No 6/9C/335

1. Description of Pattern approved on 14/05/26

A Dini Argeo model LTF2500C-1 Forklift Scale class (III) single interval self-indicating non-automatic weighing instrument of 2500 kg maximum capacity with a verification scale interval of 5 kg and with a minimum capacity of 100 kg fitted to a forklift truck (Figure 1a).

The instrument is intended to operate only whilst the forklift and its carriage are stationary (i.e. not whilst the forklift is in motion, or whilst the load is being moved). It is however acceptable for the forklift or load to be moved between the zeroing of the instrument and the weighing of the load.

Instruments are fitted with an LCD display for displaying weight values.

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

1.1 Load Receptor

The load receptor consists of a pair of lifting forks fitted to a forklift truck. Each fork has one Dini Argeo model DGT weight transmitter (Figure 2). The digital weighing signal is transmitted to the indicator by using Bluetooth protocol.

The fork has a nominal blade length of 1160 mm and a painted mild steel construction.

1.2 Load Cells

Two Dini Argeo model SBX-1KH stainless steel shear beam load cells of 2000 kg maximum capacity are connected to the weight transmitter directly in each fork.

1.3 Levelling

A ST model IIS2DLPC 3-axis accelerometer is fitted within the DGT weight transmitter housing in each fork, such that it will reflect tilting of the load receptor and will detect the degree to which the instrument is tilted from its reference (level) condition.

This tilt sensor provides a signal to the indicator. The indicator imposes limits on the level condition by automatically disabling weight determination for out of level conditions and displays ‘tilt’ on the screen. The tilt compensation is up to 2.44% in longitudinal or transverse directions before the error condition is triggered.

1.4 Indicator

A Dini Argeo model LTFC-1 digital indicator (Figure 1b) with an ABS enclosure is used.

1.4.1 Zero

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

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.

A zero-tracking device may be fitted (however see note below).

Note: There is a risk that the zero-tracking device of an instrument may inappropriately track zero where the instrument load receptor is not actually at

zero – resulting in weighing errors. For this type of instrument this risk is heightened (e.g. due to long thin wedge like tines lowering a pallet, leaking of lift cylinder, etc). Hence in most usage situations it is recommended that the zero-tracking device be disabled.

1.4.2 Tare

A semi-automatic subtractive taring device of up to the maximum capacity of the instrument may be fitted.

A pre-set taring device (keyboard-entered and/or stored) of up to the maximum capacity may also be fitted.

1.4.3 Display Check

A display check is initiated whenever power is applied.

1.4.4 Additional Features

The additional functions (other than the indications of measured mass, i.e. gross, tare, net, totals, displayed either on the indicator or on an auxiliary or peripheral device) are not approved for trade use.

Instruments may be fitted with setpoint/batch, weight limits, checkweighing, counting, peak hold, dosing, percentage weighing and over/under functions. These functions are not approved for trade use.

1.4.5 Power Supply

Power supply may be by:

- AC mains power (110-240 V AC, 50/60 Hz); or
- 8 – 24 V DC supplied by an AC/DC mains adaptor or other DC power source or 24 V DC road vehicle power supply; and/or
- an internal/external 6 V rechargeable battery.

Note: The AC/DC mains adaptor supplied was model WT24-1201500-Z power supply (output 12 V DC, 1.5 A) – the submittor should be consulted regarding the acceptability of alternative power supply units.

Each fork may be powered by a 3.6 V or 3.7 V DC Li-ion rechargeable battery pack.

1.4.6 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R 76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with NMI General Supplementary Certificate of Approval No S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

Instruments may be fitted with NINA-B112-04B Bluetooth module, RS-232/485, WiFi, USB and RF (radio frequency).

1.5 Descriptive Markings and Notices

Instruments are marked with the following data:

Manufacturer's mark, or name written in full	Dini Argeo
Indication of accuracy class	(III)
Pattern approval number for the instrument	NMI 6/9C/335
Maximum capacity	*Max* ..... kg #
Minimum capacity	*Min* ..... kg #
Verification scale interval	*e* =..... kg #
Serial number of the instrument	…….

\# These markings are shown near the display of the result.

Instruments shall carry a notice clearly visible to the operator stating NOT TO USE THE INSTRUMENT UNLESS WITHIN TILT LIMIT, or similar wording.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

(a) Provision is made for the calibration to be sealed by setting a link on the main board within the instrument to 'OPEN' position, and then preventing access within the protective cover (Figure 4a) or within the instrument housing.

It is possible to determine that the link status is in the 'OPEN' position by pressing the '↑' key to enter setup menu when the power is first applied to the indicator.

- If the link is in the 'OPEN' position, the instrument will not allow to change instrument configurations. In this case the instrument may be verified.
- Otherwise the instrument will allow to change instrument configurations in which case the instrument should not be verified until the link has been correctly set to the 'OPEN' position.

Sealing to prevent access within the protective housing may be achieved by using a destructible adhesive label placed over the securing screw in the protective cover within the instrument as shown in Figure 4a or destructible adhesive labels placed over the opposite sides of a join in the instrument housing.

(b) Provision is made for each weight transmitter to be sealed by means of destructible adhesive labels as shown in Figure 4b.

1.8 Software

The legally relevant software version is designed 5.10.04/02.05.

The instrument type number and software version number can be seen by pressing the '↓' key during the switch-on display sequence (when the power is first applied to the instrument).

The weight transmitter software version is designed 09.01. The software version number can been displayed via a serial command (LEGAL) from the indicator.

2. Description of Variant 1 approved on 14/05/26

The Dini Argeo model LTF2500TS-1 forklift weighing instrument which is similar to the pattern but having a Dini Argeo model LTFTS-1 indicator (Figure 3). The indicator has an ABS enclosure with an LCD touchscreen display for display of the weight value.

2.1 Software

The legally relevant software version is designed 05.18.01.

The instructions for accessing the legally relevant version numbers are as follows (starting from the normal weighing mode):

- Press the ‘MENU’ key and then ‘Diagnostic’ key.
- Press the ‘Indicator information’ key. The legally relevant software version is displayed**.**

2.2 Sealing Provision

Provision is made for the calibration to be sealed by setting a link on the main board within the instrument to ‘CLOSE’ position, and then preventing access within the protective cover (Figure 4a) or within the instrument housing.

It is possible to determine that the link status is in the ‘CLOSE’ position by pressing the top right of the LCD touchscreen to enter setup menu when the power is first applied to the indicator.

- If the link is in the ‘CLOSE’ position, the instrument will display ‘Technical setup (LEGAL FOR TRADE)’. In this case the instrument may be verified.
- Otherwise the instrument will display ‘Technical setup (INTERNAL USE ONLY)’ in which case the instrument should not be verified until the link has been correctly set to the ‘CLOSE’ position.

Alternative instructions for determining that the link status is in the ‘CLOSE’ position are as follows (starting from the normal weighing mode):

- Press the ‘MENU’ key and then ‘Diagnostic’ key.
- Press the ‘Indicator information’ key. ‘LEGAL FOR TRADE’ or ‘INTERNAL USE ONLY’ is displayed**.**

Sealing to prevent access within the protective housing may be achieved by using a destructible adhesive label placed over the securing screw in the protective cover within the instrument (Figure 4a) or using destructible adhesive labels placed over the opposite sides of a join in the instrument housing.

TEST PROCEDURE No 6/9C/335

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures (NITP), taking into account the following notes.

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 Errors

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

Notes:

Levelling Arrangements and Stability of Ground

The site chosen for weighing should be firm and within 1.5 degrees of level – the level sensing device imposes limits on the level condition, however the stability of the ground surface should also be considered as well as safety concerns.

Gravity Variation

Where the instrument is verified in one location and subsequently moved to another location, the effects of differences in the acceleration of gravity at each location may need to be considered.

Testing shall be carried out with the forks with which the instrument is to be used in normal operation, and with the load applied in a manner similar to normal operation (e.g., for an instrument used for weighing pallets, fit the weighing instrument to a forklift truck, place an empty standard size (1200 × 1200 mm, nominal) hardwood/plastic pallet on the forks and raise above the ground.

Testing shall be carried out with the instrument having zero set using an initial zero-setting or semi-auto zero-setting device with a pallet on the forks and having the forks tilted to their reference (level) condition.

Tests (in addition to those in the NITP)

1) Eccentricity

Using a known load of approximately 1/3 *Max,* carry out tests to determine whether operation is within the maximum permissible errors with this load at the left, right, front and rear of the pallet.

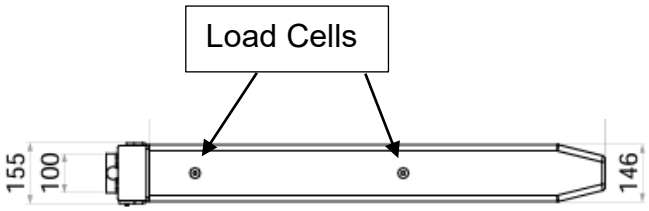
2) Tilting

Carry out tests to determine whether operation is within the maximum permissible errors, with loads of $^1/_2$ *Max* and close to *Max* by having the forks tilted to their reference (level) condition and then having the forks tilted forward until the instrument is disabled (weighing display showing ‘Err 5‘) and gradually reducing the degree of tilt until a weight value is reacquired.

Repeat the test with the forks tilted backward.

Repeat the test with the forklift truck tilted sideways (left and right). Note: Health and safety concerns may impose a safe tilt limit. **DO NOT EXCEED SAFE CONDITIONS**. Only perform the tilt test to its allowed safe limit.

FIGURE 6/9C/335 - 1



From Underneath

(a) Dini Argeo Model LTF2500C-1 Twin Forks (Pattern)

(b) Dini Argeo Model LTFC-1 Indicator (Pattern)

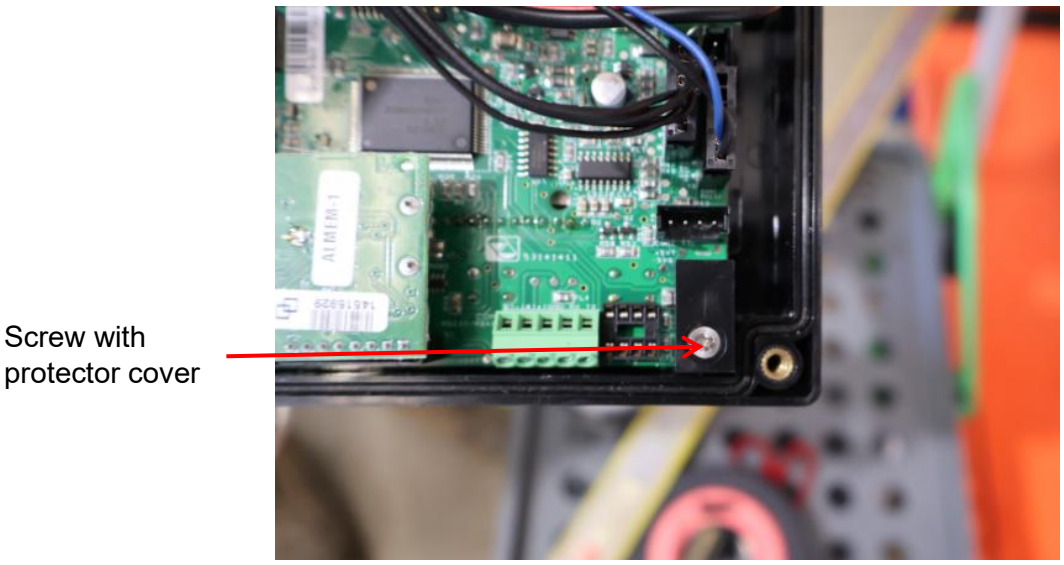
FIGURE 6/9C/335 – 2

Dini Argeo Bluetooth Device

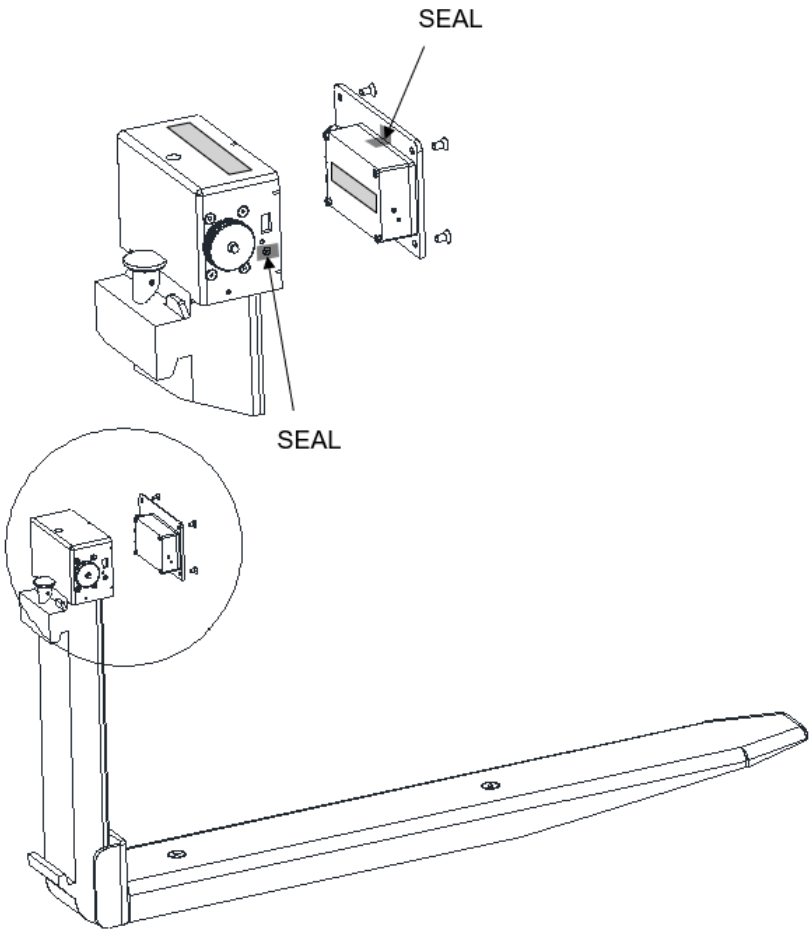
FIGURE 6/9C/335 – 3

(b) Dini Argeo Model LTFTS-1 Indicator (Variant 1)

FIGURE 6/9C/335 – 4



(a) Typical LTFC-1 and LTFTS-1 Indicators Sealing Method



(b) Sealing Method on Weight Transmitter

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