Australian Government

Department of Industry,
Innovation and Science

National Measurement Institute

Certificate of Approval
NMI 6/14G/19

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.

FKI Logistex Model WBC-F Automatic Catchweighing Instrument

submitted by   Beumer Group Denmark A/S
                      (formerly FKI Logistex A/S)
                      P.O. Pedersens Vej 10
                      DK-8200 Aarhus N
                      Denmark

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 51, *Automatic Catchweighing Instruments*, dated August 2009.

This approval becomes subject to review on **1/7/21**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved – interim certificate issued	19/6/08
1	Pattern & variants 1 to 3 approved – certificate issued	16/7/08
2	Pattern & variants 1 to 3 **reviewed** & amended (submittor name & test procedure) – certificate issued	26/04/17

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/14G/19' 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.

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.

Dr A Rawlinson

TECHNICAL SCHEDULE No 6/14G/19

1. Description of Pattern   approved on 19/06/08

An FKI Logistex model WBC-F class Y(a) automatic catchweighing instrument with a maximum capacity of 30 kg and a verification scale interval of 0.05 kg

Instruments are approved for use over a temperature range of 0°C to +40°C and must be so marked.

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

Note: Some items may be known or branded as 'Beumer' or 'Crisplant' rather than FKI Logistex.

1.1 Details

The pattern is approved for use as a class Y(a) automatic catchweighing instrument with a maximum capacity of 30 kg and with a verification scale interval (e) of 0.05 kg, and minimum capacity of 0.25 kg.

The system operates dynamically (i.e. with the objects being weighed in moving on the conveyor). The conveyor speed is 1.25 m/s.

The instrument has facilities to detect errors and provide error messages for situations outside the speed and package size limits.

The pattern (Figure 1) comprises:

(a)   A basework consisting of a load receptor with a conveyor and a belt drive motor supported by four Eilersen Electric model SD load cells of 50 kg maximum capacity (Figure 2a).

The length of the load receptor/conveyor is 1800 mm. The belt width is 1200 mm. The instrument is intended for items with lengths between 1166 mm (maximum length) and 90 mm (minimum length).

(b)   A weighing instrument display unit mounted in a steel enclosure (Figure 1). This unit contains:

- Four Eilersen Electric model MCE9610 or MCE2010 load cell interface modules (Figure 3a) that receive data from the load cells and provide it via the Eilersen Electric model MCE 9627 'motherboard' (Figure 3b) to the display module.

- A Crisplant model MCE 9625 display module (this module manufactured by Eilersen Electric) which processes the load cell data and displays the weighing result in kilograms (kg). The display module also provides the operator interface for the weighing instrument.

  Note: The MCE 9625 (Figure 2b) may have markings for kg, lb or oz units. Only the kg mode may be operational.

- Additional modules for interfacing the instrument to an industrial network may be provided (e.g. MCE 9635 Profibus or MCE 9637 Device net modules – Figures 3c and 3d). These modules also communicate via the model MCE 9627 board.

(c)   Infeed and outfeed conveyors which are provided at each end of the weigh conveyor to convey parcels onto and away from the weighing unit.

(d)   Two photocell units (each containing one or more photocells), one located at the infeed end of the weigh conveyor, and another located at the outfeed end of the weigh conveyor. These provide information to the display module regarding package location to ensure that sufficient time has been provided for weighing, and that items have been adequately separated.

(e)   A Siemens Simatic programmable logic controller (PLC), also known as the Crisplant Machine Controller (CMC) which monitors the positions of packages on the weigh conveyor (using information from the optical sensors), and controls the conveyor belts (which are each driven by a motor connected to a frequency converter unit).

The CMC is also connected to the display unit (MCE 9625 display module) which provides information to it regarding its status and weight values.

Note that a single CMC may control a number of WBC-F instruments.

The processor/control/display unit, load cells and photocell units are powered by a 24 V DC, 2 A supply.

The belt drive motors are supplied by 415 V AC.

The instrument is intended for fixed installations and a level indicator is not provided.

Note: The instrument is only approved in situations where the weight value determined for each item is actually to be used as the basis of a transaction. This may for example be by the value being printed and affixed to the item, or by association of the weight value with identification from the particular item (e.g. by a barcode which individually identifies the item) for later billing – the latter may be appropriate for use in freight/postal situations.

1.2   Zero

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

The instrument has semi-automatic and automatic zero-setting devices with a nominal range of not more than 4% of the maximum capacity of the instrument, capable of setting zero to within $\pm0.25e$.

A zero indicator is provided which illuminates whenever the instrument is within $\pm0.25e$ of zero.

The instrument monitors its zero (belt empty) condition and if this deviates from zero by more than $\pm0.5e$ this is indicated by the display unit to the Crisplant Machine Controller (CMC) which will ensure that the belt is run empty and a zero-setting operation is initiated. If the zero setting operation fails, the weighing belt is stopped and an error code is generated.

1.3   Operation

The system operates dynamically (i.e. with the objects being weighed in moving on the conveyor).

Optical sensors provide information regarding the position of the package on the conveyors and provide signals (via input/output modules on the network) to the

Crisplant Machine Controller (CMC) which enable it to control the belt drive motors to ensure adequate separation of items (i.e. that sufficient time is provided for weighing of each item).

The CMC performs a supervisory role over the instrument and associated functions (e.g. stopping the infeed conveyor to ensure an empty weigh conveyor for zero setting if necessary). In turn the CMC may be supervised and provide information to a higher level plant control system (see variant 3).

After weighing, the object continues on to an outfeed conveyor while the weight is displayed on the indication of the display unit (MCE 9625). As well as the weight indication, the MCE 9625 provides a secondary indication, which provides status codes relating to the weighing.

Should various conditions for valid weighing have been met, a status code of '0' is shown, and the weight value is displayed. Otherwise, a status code other than '0' is shown (indicating the particular error condition) – in such cases the weight value is not shown (except for weight values below Min, i.e. status codes 1 and 10). According to the error condition, the belts may be stopped by the CMC (for the items to be removed manually), or the particular package may continue on the conveyor and be directed to a location for 'abnormal' items.

Only weight values with an associated status code of '0' (No error) are valid and approved weighing results which may be used for trade purposes.

Note that in certain cases unapproved weight data may transferred or stored within the system (with a status code other than '0' – such data may be required for non-trade related management purposes). Weight data is always transferred and stored (see Variant 3) with the status code.

It shall be ensured that any peripheral and/or auxiliary devices only use approved weight data for trade purposes.

1.4   Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Beumer Group (#)
Model designation	…..
Serial number	…..
Accuracy class	Y(a)
Pattern approval number	NMI 6/14G/19
Maximum capacity	*Max* …. kg (*)
Minimum capacity	*Min* ….. kg (*)
Verification scale interval	$e =$…… kg (*)
Maximum conveyor speed	……….. m/s
Temperature range	0°C / 40°C

(*)   These markings are also shown near the display of the result if they are not already located there.

The instrument shall also be marked "For Freight or Postal Use Only".

(#) 'Beumer Group' may also be shown as 'Crisplant' or 'FKI Logistex'.

1.5 Sealing Provision

A link ('jumper S8') on the MCE 9627 motherboard (Figure 4a) is fitted to inhibit the ability to download weighing parameters to the weighing instrument.

Once this link is in place a lead and wire (or similar) type seal is used to seal access within the display unit enclosure (Figure 4b).

1.6 Verification Provision

Provision is made for a verification/certification mark to be applied

2. Description of Variant 1   approved on 19/06/08

The instrument with a basework having a maximum capacity of 15 kg, a verification scale interval of 0.05 kg and a minimum capacity of 0.25 kg, for which the load receptor/conveyor length is 1250 mm and the belt width is 800 mm.

The instrument is intended for items with lengths between 744 mm (maximum length) and 90 mm (minimum length). The conveyor speed is 1.1 m/s.

3. Description of Variant 2   approved on 19/06/08

The pattern or variants connected to a SICK model VMS-520 dimensional measuring instrument (as described in the documentation of approval NMI 13/1/11). The weigh conveyor is also used to transport items past the dimensioning heads. Data output from the SICK VMS-520 system is also provided to the Crisplant Machine Controller (CMC).

3. Description of Variant 3   approved on 19/06/08

A number of instruments (pattern or variants) as part of a measuring and sorting system controlled by a Crisplant System Controller revision 5 (CSC5).

The CSC5 is a computer system with a database, running the CSC revision 5 software.

The system utilises item identification data (e.g. from barcode scanners) together with weight and/or volume data and other information to sort items for delivery within a freight/postal system.

The structure of the system and the data transfers and storage within it (and with the weighing and dimensioning system, CMC and CSC5) have been designed to ensure that identification, weight and volume data are encrypted and have checking facilities to ensure the integrity of this data.

The CSC5 includes provision for electronic storage of data to permit checking of it in the case of dispute (rather than printout of such data). NMI believes that the storage mechanisms are adequate for this purpose; however the acceptability of such data storage is at the discretion of the applicable State or Territory Trade Measurement Authority.

TEST PROCEDURE

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Ensure that instruments are only being used within the special temperature limits stated elsewhere in this Technical Schedule.

Maximum Permissible Errors

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

Tests

Note 1: Testing may be carried out using a test mode of the CMC in which test items are conveyed forward through the weighing system and are then conveyed back to the infeed conveyor to facilitate re-weighing for test purposes (weighing and recording only occur in the forward direction). In addition, a test mode of the instrument which provides indications in 5 g scale intervals, may be used during testing (with appropriate variation of procedures).

Note 2: In addition, tests may be carried out to confirm correct operation of a complete measuring system (variant 3), in regard to correct association of measurement data to particular items and transfer of the measurement data through the CMC to the CSC, and storage and retrieval of that data at the CSC. It is suggested that this also include a test to ensure that weight data from an overweight item (status code '2') is not used for trade purposes within the billing system of the instrument operator.

FIGURE 6/14G/19 – 1
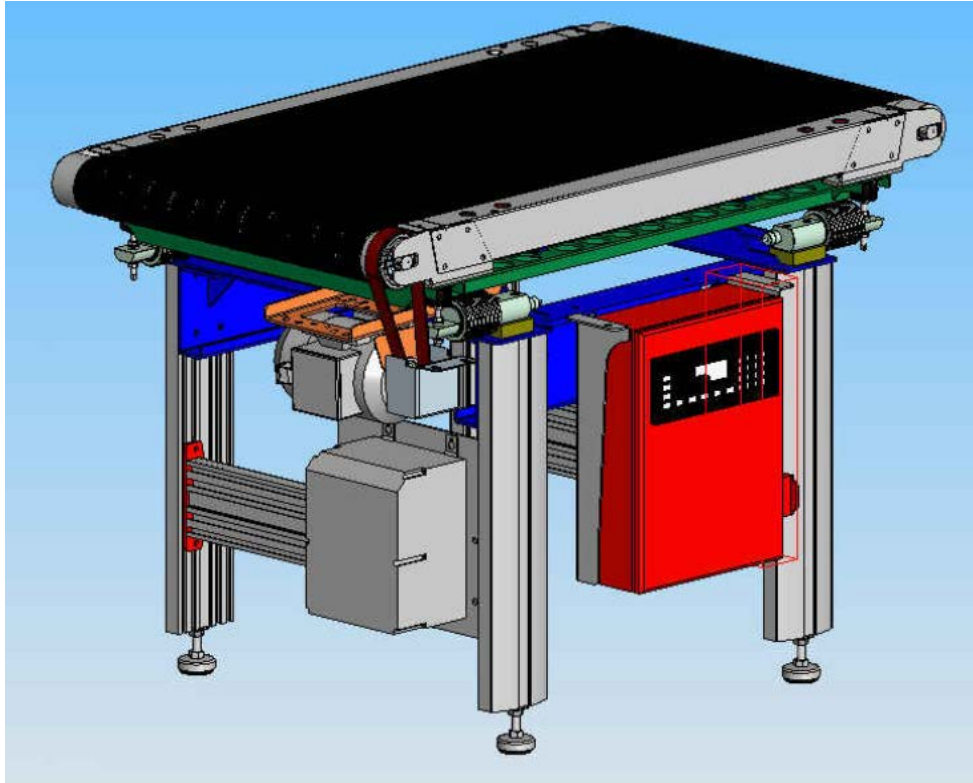
(a)   FKI Logistex Model WBC-F Basework and Display Unit

(b)   FKI Logistex Model WBC-F Incorporated Into Conveyor System,
With SICK Model VMS-520 (Variant 2)

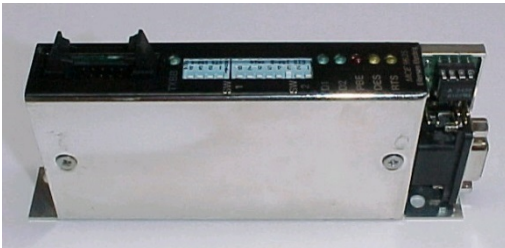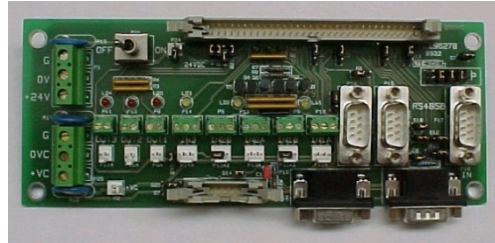FIGURE 6/14G/19 – 2

(a)   Eilersen Electric Model SD Load Cell

(c) Crisplant Model MCE 9625 Display Module
(manufactured by Eilersen Electric)

FIGURE 6/14G/19 – 3

**(a)
MCE9610 / MCE2010
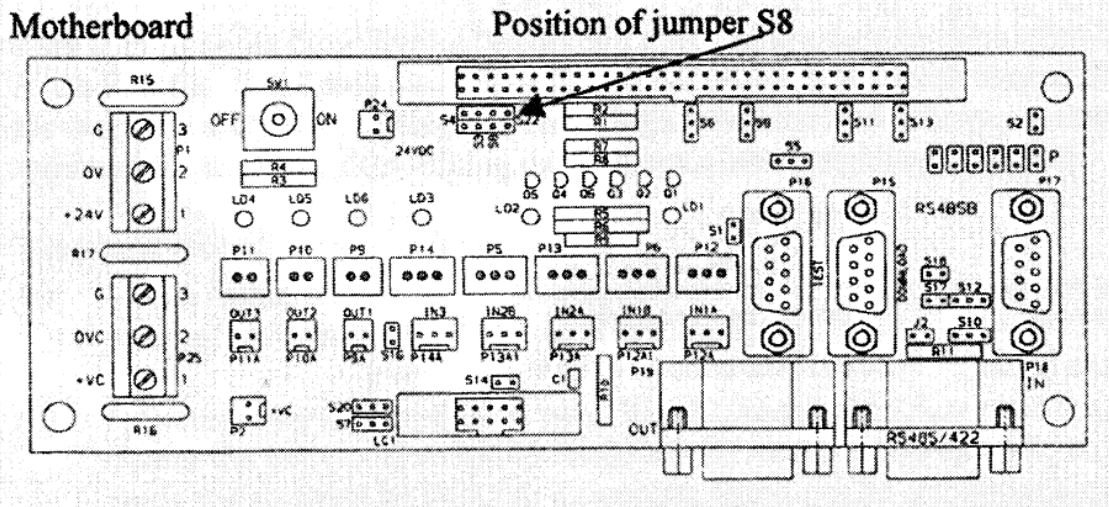Digital Load Cell Module**

**(b)
MCE 9627
Motherboard**

**(c)
MCE9635
Profibus module**

**(d)
MCE9637
Device net module**

Various Eilersen Electric Modules

FIGURE 6/14G/19 – 4

(a)   MCE 9627 Motherboard Layout Showing Location of Sealing Link

(b)   Display Unit Showing Typical Sealing of The Housing

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