



Australian Government  
Department of Industry,  
Innovation and Science

## National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

### Certificate of Approval NMI 6/14G/26

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.

Crisplant Model WBC-H Automatic Catchweighing Instrument

submitted by BEUMER Group Australia Pty Ltd  
(formerly submitted by Crisplant A/S)  
Garigal, Suite 70, Level 2  
23 Narabang Way  
Belrose NSW 2085

**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 2* dated July 2004.

This approval becomes subject to review on 1/04/18, and then every 5 years thereafter.

#### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern and variants 1 to 3 provisionally approved – interim certificate issued	7/03/13
1	Pattern and variants 1 to 3 approved – certificate issued	5/08/13
2	Variant 4 approved – interim certificate issued	21/07/14
3	Variant 4 approved – certificate issued	25/10/14
4	Pattern updated (branding amended & new software version) & variants 5 & 6 approved – certificate issued	19/01/17
5	Variant 5 amended – certificate issued	19/09/17
6	Pattern and variant 1 amended – certificate issued	20/09/18

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/14G/26' 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.

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**  
Acting Manager  
Pattern Approval, Policy and  
Licensing Section

TECHNICAL SCHEDULE No 6/14G/26

**1. Description of Pattern** **provisionally approved on 25/07/13**  
**approved on 5/08/13**  
**amended on 20/09/18**

A Crisplant model WBC-H automatic catchweighing instrument (Figure 1) which is approved for use to weigh certain objects while in motion, for freight or postal use.

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

Note: Some items may be known or branded as 'BEUMER' rather than 'Crisplant'. (Crisplant A/S is a member of the BEUMER Group).

**1.1 Details**

The Crisplant model WBC-H is approved for use as a class Y(a) automatic catchweighing instrument with a maximum capacity of 50 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 whilst the belt of the weighing conveyor is moving), and may also operate statically (with the object stopped on the weighing conveyor). In addition, the system may operate in a 'dual speed' mode in which the belt speed is reduced to allow weighing of longer items, which would not be able to be weighed at the higher speed. The mode of operation may alter during system operation due to differences in dimensions of the item being weighed or operational needs (e.g. stopping of the belt to respond to throughput constraints elsewhere in the installation).

The speed of the weighing conveyor is up to 1.15 m/s.

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

The WBC-H (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 SPSX C5 load cells of 50 kg maximum capacity (Figure 2a).

The length of the load receptor/conveyor is 1550 mm. The belt width is 800 mm. The instrument is intended for items with lengths between 900 mm (maximum length) and 100 mm (minimum length), widths of between 100 mm and 700 mm, and heights of between 5 mm and 700 mm.

- (b) A weighing instrument display unit mounted in a steel enclosure (Eilersen Electric model 4080, see Figure 1a). This unit contains:

- An Eilersen Electric model 4014 load cell interface board (Figure 2b) that receives data from the load cells. This board 'piggy-backs' onto a Eilersen Electric model 4025 weighing controller board (Figure 2b) and provides it with the weight data. The Eilersen Electric model 4025 weighing controller board controls operation of the instrument and processes the weight data for display on the Crisplant model 4024L display module (this module also manufactured by Eilersen Electric).

- A Crisplant model 4024L display module (Figure 2c) which displays the weighing result and also provides the operator interface for the weighing instrument.  
Note: The Crisplant 4024L display module may have markings for kg, lb or oz units. Only the kg mode may be operational.
  - A filter module is provided in the power supply to the **Eilersen Electric** 4025 weighing controller 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) Optical sensors at the infeed and outfeed ends of the weigh conveyor.
- (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 weighing controller board (**Eilersen Electric** 4025) which provides information to it regarding its status and weight values.

Note that a single CMC may control a number of WBC-H instruments (with input/output modules provided at each WBC-H).

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

Power is supplied to the belt drive motors via a frequency converter – power may vary from 380 V AC to 480 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  $\pm 0.25e$ .

A zero indicator is provided which illuminates whenever the instrument is within  $\pm 0.25e$  of zero.

The instrument display unit has a zero-tracking device. This monitors the indication of the instrument when the belt is empty. Where the indication is at zero, zero-tracking may operate to maintain the instrument at zero within  $\pm 0.25e$ . Where the indication is not at zero, the display unit reports this to the Crisplant Machine Controller (CMC), which can control package delivery to ensure that the belt is run empty, and issue a zero-setting command (if the zero-setting fails this would be reported to the CMC and the weighing belt would stop), The display unit also reports to the CMC if there has been excessive time since the zero-tracking device last operated, the CMC is thus able to ensure that the weighing belt is regularly run empty, to facilitate operation of the device.

### **1.3 Operation**

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

The optical sensors provide information regarding the position of the package on the conveyors and length of the package, 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 provide adequate time for weighing of items, including by the use of the 'dual speed' mode or by stopping the belts(s).

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 (Crisplant 4024L). As well as the weight indication, the Crisplant 4024L 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 code 80). 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 (in which case the weight value shall not be used for trade).

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 (i.e. with a status code other than '0') may be transferred or stored within the system – such data may be needed for non-trade related management purposes. Weight data is always transferred and stored (see Variant 3) with the status code.

Any peripheral and/or auxiliary devices shall only use approved weight data for trade purposes.

### **1.4 Verification Provision**

Provision is made for the application of a verification mark.

## 1.5 Software

The identification of the system software may be as follows:

CCWD 100501.2.1.x or CCWD 110301.1.1.x or CCWD 110301.1.2.x or CCWD 150616.1.0.x (the x indicates a 'wildcard' – various numbers may replace the x).

On system power-up the software identification (together with its date in YYMMDD format) is displayed on the Crisplant 4024L display immediately following a display check (all 8's).

## 1.6 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Crisplant A/S
Model designation	.....
Serial number	.....
Accuracy class	Y(a)
Pattern approval mark	NMI 6/14G/26
Maximum capacity	Max .... kg (*)
Minimum capacity	Min ..... kg (*)
Verification scale interval	e =..... kg (*)
Maximum conveyor speed	..... m/s
Temperature range	-10°C to 40°C

(\*) These markings are also shown near the display of the result if they are not already located there. Units of gram (g) may also be used.

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

## 1.7 Sealing Provision

Access to facilities for altering the calibration or critical parameters of the instrument are password protected.

In addition the system maintains an event counter which automatically increments whenever calibration or critical parameters of the instrument are modified. The event counter value can be viewed as part of the power-up sequence immediately following display of the software identification (see description in 1.5 above), it may also be viewed by pressing the "Print" button on the Crisplant 4024L display.

The value of the event counter at the time of verification shall be recorded on a destructible adhesive label adjacent to the identification plate of the instrument (and shall also be recorded in the verification records).

## 2. Description of Variant 1 **provisionally approved on 25/07/13** **approved on 5/08/13** **amended on 20/09/18**

The Crisplant model WBC-H is approved for use as a class Y(a) automatic catchweighing instrument for freight or postal use, with certain configurations:

- Having a verification scale interval (e) of 0.05 kg, a minimum capacity of 0.25 kg, and a Maximum capacity of from 25 to 50 kg.
- Having a verification scale interval (e) of 0.02 kg, a minimum capacity of 0.1 kg, and a Maximum capacity of from 10 to 50 kg.

- c) Having a verification scale interval (e) of 0.01 kg, a minimum capacity of 0.05 kg, and a Maximum capacity of from 5 to 10 kg.

Instruments may have various belt lengths (up to 1800 mm) and belt widths (up to 800 mm), and belt speeds (up to 2.2 m/s) according to the items intended to be weighed and the particular installation.

**3. Description of Variant 2** **provisionally approved on 25/07/13**  
**approved on 5/08/13**

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).

**4. Description of Variant 3** **provisionally approved on 25/07/13**  
**approved on 5/08/13**

A number of instruments (pattern or variants) as part of a measuring and sorting system controlled by a Crisplant System Controller (CSC), and connected to further downstream computer systems for data storage and processing.

The CSC is a computer system with a database, running the CSC software (revision 4 or later).

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 within it (and within the weighing and dimensioning system, CMC and CSC) have been designed to ensure the integrity of identification, weight and volume data and incorporate checking facilities in regard to this.

The system includes provision for electronic storage of data to permit checking of it in the case of dispute.

**5. Description of Variant 4** **approved on 21/07/14**

Two weighing instruments are adjoined (without a barrier) each of which is similar to the instruments described for the pattern or variant 1.

The instruments may be operated independently or in dual mode through manual selection by the operator. In dual mode two instruments work as a belt conveyor with weighing function disabled.

Note: Each instrument shall be verified separately.

In addition a test should be included to ensure that weight data from dual mode is not transferred through the CMC to CSC and downstream computer systems for storage and retrieval of that data, so that the billing system of the instrument operator can ensure that no such values are used for trade.

## 6. Description of Variant 5

**approved on 19/01/17  
amended on 19/09/17**

Certain Crisplant models of single interval WBC-H series as Y(b) instruments with conveyor lengths from 1550 mm to 2200 mm, conveyor widths from 800 mm to 1000 mm, and having maximum weighing capacities from 5 kg to 50 kg.

Instruments may have a maximum of 1000 verification scale intervals and a speed of up to 2.2 m/s (with the verification scale interval being in the series 0.01, 0.02, 0.05, 0.1, 0.2, 0.5 ... kg).

The instrument is intended for items with lengths between 100 mm to 1600 mm, widths of between 90 mm to 700 mm, and heights of between 5 mm to 700 mm.

## 7. Description of Variant 6

**approved on 19/01/17**

The pattern and variants 1, 4 & 5 may be installed at an inclination of 3° from horizontal (Figure 4).

### TEST PROCEDURE No 6/14G/26

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

In addition three tests shall be carried out with a test object of a length close to the maximum for which the instrument is intended to be used in normal operation (which will trigger operation of the instrument in 'dual speed' mode if necessary).

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*.

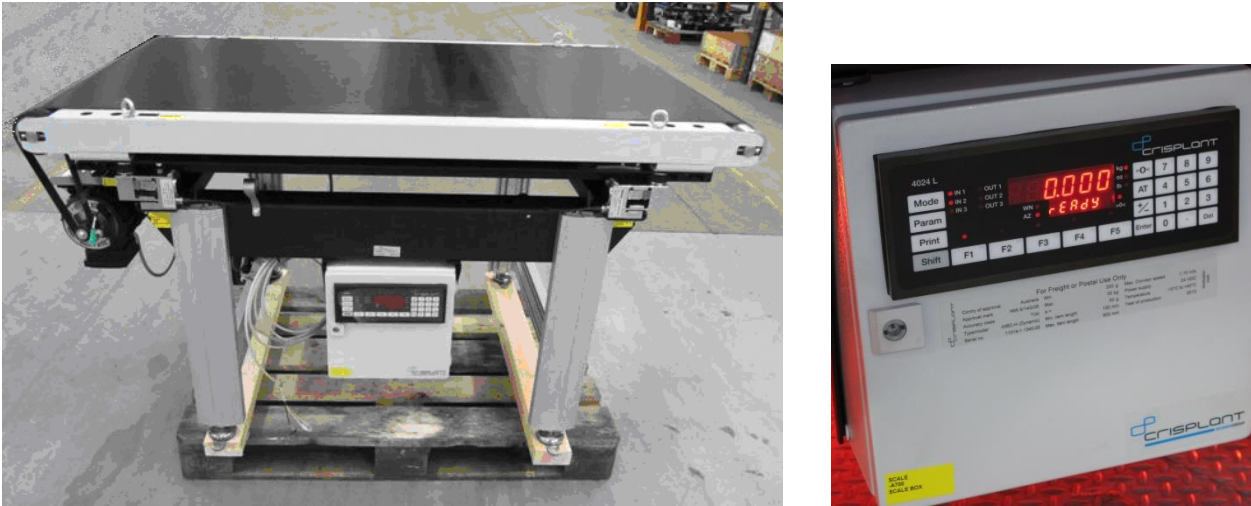
### Tests

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 1/10<sup>th</sup> scale interval, may be used during testing (with appropriate variation of procedures).

Note 2: In addition, tests shall 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 downstream computer systems for storage and retrieval of that data. This should also include a test to ensure that weight data from an underweight item (status code '80') has the status code associated with the item identification and any weight data, so that the billing system of the instrument operator can ensure that such values are not used for trade.



FIGURE 6/14G/26 – 1



(a) Crisplant Model WBC-H Basework and Model 4080 Display Unit

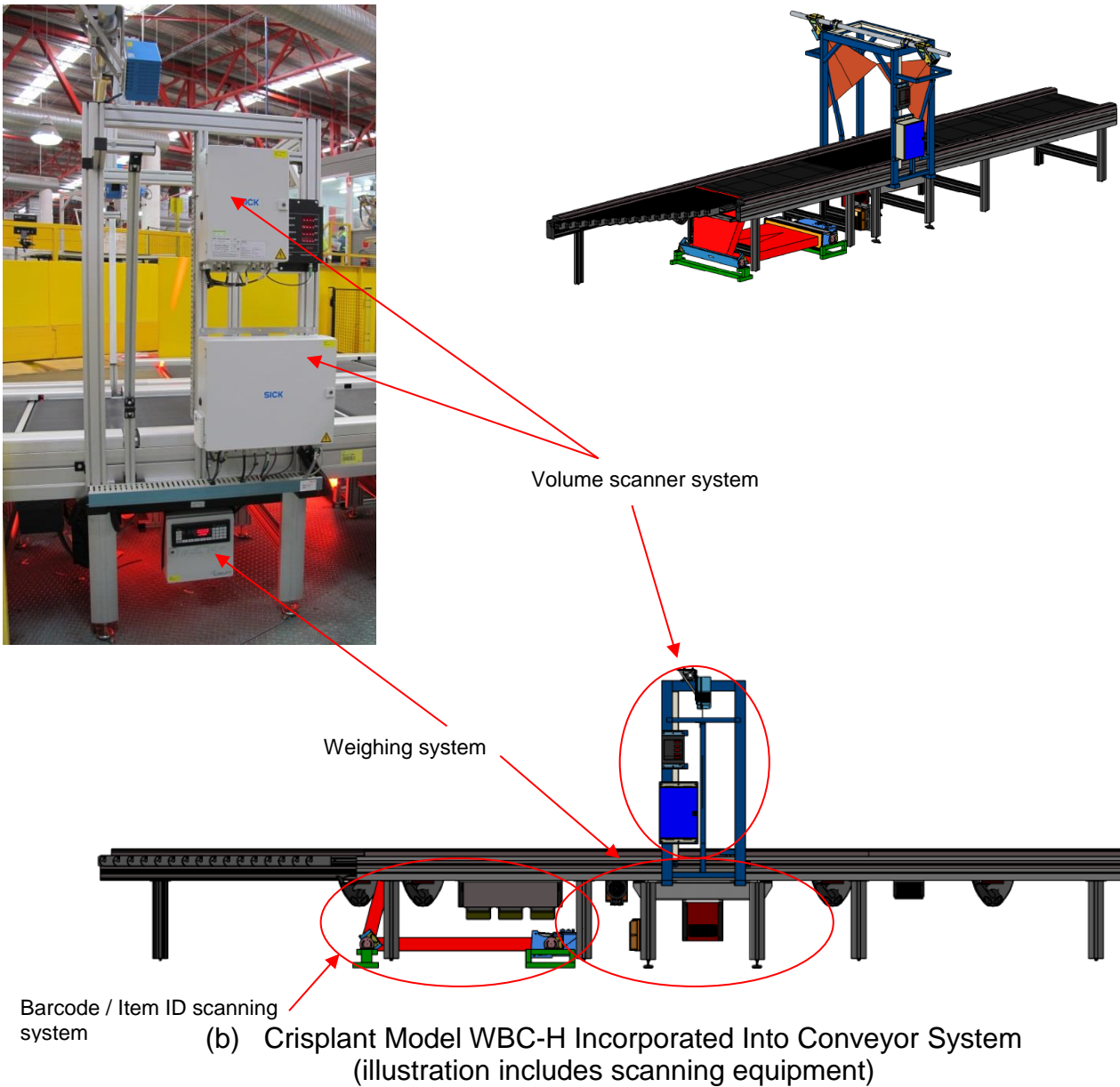
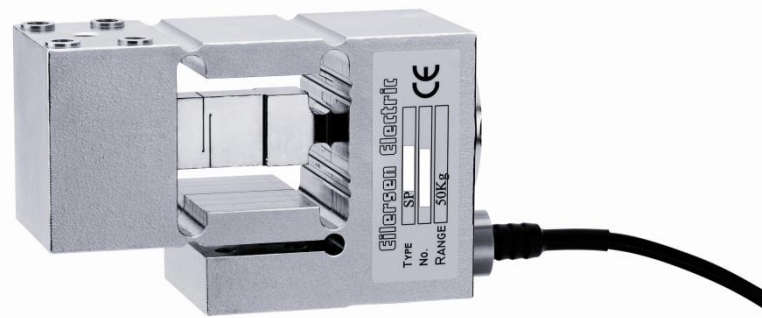
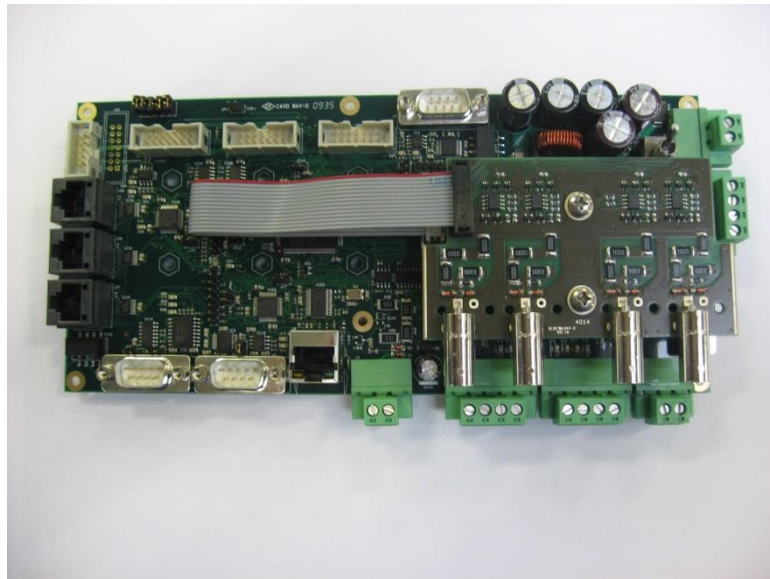


FIGURE 6/14G/26 – 2



(a) Eilersen Electric Model SPSX 50 kg Load Cell



(b) Eilersen Electric Model 4025 Weighing Board (with 'piggy-back' Eilersen Electric model 4014 load cell interface board)



(c) Crisplant Model 4024L Display Module  
(manufactured by Eilersen Electric)

FIGURE 6/14G/26 – 3



Two Weighing Instruments Adjoined Without a Barrier – Variant 4

FIGURE 6/14G/26 – 4



Crisplant Model WBC-H Basework Tilted Longitudinally

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