



Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/14B/24

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.

Kotzur Model BW 10-3100-S Discontinuous Totalising Automatic Weighing Instrument

submitted by Kotzur Pty Ltd
56 – 60 Commercial Street
Walla Walla NSW 2659

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 107, *Discontinuous Totalising Automatic Weighing Instruments (Totalising Hopper Weighers)*, dated July 2004.

This approval becomes subject to review on 1/11/19, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern and variant 1 provisionally approved – interim certificate issued	1/10/14
1	Pattern and variants 1 to 5 approved – certificate issued	30/04/15

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/14B/24' and only by persons authorised by the submittor.

Instruments purporting to comply with this approval and currently marked 'NMI 6/14B/24' may be re-marked 'NMI 6/14B/24' but 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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0B.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to the instrument shall be within the limits specified herein and in any approval documentation for the components where they are approved separately.

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.

A handwritten signature in black ink, appearing to read 'A. Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

1. Description of Pattern **provisionally approved on 1/10/14**
approved on 30/04/15

A Kotzur Model BW 10-3100-S Class 0.2 discontinuous totalising automatic weighing instrument (DTAWI) (Figures 1 and 2) having a weigh hopper of 9000 kg maximum capacity.

The instrument is installed in a permanently fixed location.

Note: This approval has been granted with reference to document NMI R 107, *Discontinuous Totalising Automatic Weighing Instruments (Totalising Hopper Weighers)*, dated July 2004. The following description is intended to introduce terms used in this Certificate and Technical Schedule which may be additional to those in that document but which are consistent with the terminology in the document.

The system aims to provide a *bulk load delivery* using a particular automatic *delivery sequence* (the term 'delivery' may also be taken to refer to 'receipt').

This sequence involves the totalisation of the results of a number of *discrete load deliveries* or *weighing cycles*, each of which involves the division of the bulk product into *discrete loads*, according to a *target discrete load* the mass of which is then determined by weighing to give the *discrete load delivered* following which the product is discharged to the bulk output. Note that the *target discrete load* may be achieved by stopping or slowing the bulk product delivery prior to the *target discrete load* value being reached according to *discrete load target shutoff adjustments* (such as inflight adjustments or slow flow pre-sets).

Each *discrete load delivered* is totalised (at any time this may be termed the *cumulative totalisation*).

The *target discrete load* is generally a pre-selected value that is the same for most of the *discrete load deliveries* (this may be termed the *pre-selected target discrete load*). However for the final one or two deliveries in the *bulk load delivery* the *target discrete load* may differ (for example to avoid excessively large or small *discrete loads*). In addition, arrangements for stopping or slowing the bulk product delivery prior to the *target discrete load* value being reached may vary for the final discrete deliveries in the delivery sequence according to *target totalised load shutoff adjustments* (such as inflight adjustments or slow flow pre-sets).

The *totalised bulk load delivered* may be intended to be close to a requested amount (*target totalised load*) in which case adjustments and pre-sets as described above may be used to achieve this as closely as possible.

Alternatively the *totalised bulk load delivered* may be the quantity measured without a particular target totalised load.

The *totalised bulk load delivered* is the cumulative totalisation (sum of all discrete loads delivered), in the complete *bulk load delivery*. The transaction is based on the *totalised bulk load delivered* (not the *target totalised load*).

1.1 Details

The BW 10-3100-S instrument is a Class 0.2 discontinuous totalising automatic weighing instrument having a weigh hopper with a maximum capacity of 9000 kg. Note: In the model designation BW 10-3100-S, the first number (10) indicates a nominal capacity of the weigh hopper in m³, the second number (3100) indicates the nominal diameter of the weigh hopper in mm, whereas the S indicates the 'stand-alone' nature of the instrument using the SysTec IT 6000E indicator with IT BULK E software.

The instrument is approved for use with a minimum totalised load (Σ_{\min}) of not less than 22 500 kg and a totalisation scale interval of 5 kg. The instrument has a minimum capacity of 6000 kg, and is set to have a *target discrete load* of from 6000 to 7500 kg.

The BW 10-3100-S instrument permanently records the *totalised bulk load delivered* and the net value of each discrete load delivered. This information can be sent to a printer if required.

Note: The discrete load values are NOT approved for trade use. The totalised bulk load delivered (a total of the discrete load delivered values) is the value approved for trade use.

1.2 Weighing System

The pattern comprises components as described below.

- (a) A weigh hopper with out-feed gate, using three (3) Scaime model CB50X5t C4 CH 10e load cells of 5000 kg maximum capacity. The load cells are also described in the documentation of approval NMI S547, and are mounted as shown in Figures 1c and 1d. The load cells are located symmetrically around the weigh hopper.
- (b) A SysTec model IT6000E digital indicator (Figure 3) for the weighing system (the digital indicator is also described in the documentation of approval NMI S556). The indicator is fitted with associated networking and input/output modules as necessary to control gates of the hoppers, interface with relevant sensors (e.g. upper garner fill level), and communicate with any plant control system, computer, printer etc.
- (c) The SysTec model IT6000E mentioned in (b) above operates with SysTec IT BULK E software (Version 1.14) which utilises the weight readings provided by the digital indicator to determine the discrete load values and totalises them to determine the *totalised bulk load delivered*, and stores the weighing data.

Note: The software version may have an associated 'Build number'. Build numbers subsequent to Build 1.14 are acceptable provided they do not involve metrological changes.

- (e) The SysTec model IT6000E mentioned in (b) above incorporates an operator interface by which the operator can control the system, and access the weighing data.

Note: The system may also be controlled and weighing data accessed by other (networked) computers.

- (f) A printer (to print transaction data) (*), or equivalent record in electronic form. Figure 6 shows a typical printout/record.
- (g) Actuators and associated position sensors to control the product in-feed and the out-feed gates for the weigh hopper. (*)
- (*) For items marked (*) above, 'Compatible and Equivalent' equipment may be used. 'Compatible and Equivalent' refers to equipment of the same or better specifications, requiring no changes to software for satisfactory operation of the complete system.

1.3 Indicator and Weighing Control Arrangements

The SysTec model IT6000E indicator running SysTec IT BULK E software is self-sufficient for operating the bulk weigher and recording the weight data from the digital indicator. The unit controls the weighing sequence, including checking of various aspects of the system operation (blocked chutes, gates open or closed as appropriate).

The system has facilities for controlling 'fast' and 'slow' filling of the weigh hopper and 'preact' values which can adjust automatically (to attempt to achieve consistent filling).

The IT6000E may interface with equipment which controls other aspect of plant operation, by providing an 'error' signal to this equipment if any issues are detected in the weighing process, along with a signal indicating 'Material Short' (i.e. indicating that space is available in the upper garner, and thus that product flow to it should be started or stopped).

The SysTec IT BULK E software uses inputs from the system to determine when no further product delivery is required (e.g. when the no further product is available, the discharge receptacle is full, or sufficient product has been supplied). In some cases these inputs may be provided by the plant operator's control system (e.g. to indicate that sufficient product has been supplied).

Weight data from the IT6000E is used by the SysTec IT BULK E software to determine the discrete load values, totalise them to determine the *totalised bulk load delivered*, and store this weight data.

Where sufficient product has been supplied, the SysTec IT BULK E software finalises the delivery and totalises the discrete load deliveries to form the *total bulk load delivered* value.

The weight data, together with information regarding the weighing sequence status, may also be provided to the plant operator's control system, which may retrieve weight data for printing if required. In addition the SysTec IT BULK E software maintains a record of every completed weighing cycle. The record consists of the weight value, date and an identification number, which cannot be deleted or changed (the identification number is reset to 0001 whenever the date is changed).

The system has provision for a number of additional modes:

Feed through mode

In which the system simply feeds product, the product delivery is not totalised. This mode is not for trade use (no transaction record is generated).

Manual operation

In which the gates of the system may be manually operated, outside the normal operation sequence, the product delivery is not totalised.

Simple weighing mode

In which the weigh hopper operates as a simple (non-automatic) weighing instrument, without any data entry or additional functions (automatic and manual tare facilities, as well as zero setting are available, together with a capability to display the net weight value with expanded resolution. The product delivery is not totalised.

These modes are not approved for trade use.

1.4 Operation

An overview of the sequence of operation of the system is shown in Figure 4.

The system is considered to be a discontinuous totalising automatic weighing instrument as it follows a predetermined program of automatic processes characteristic of the instrument. The product is weighed by individual discrete loads, which are totalised to determine the bulk product weighed.

- (a) A target totalised load value is requested within the SysTec IT BULK E software, together with the product type (if the system utilises differing settings for a number of different products). Other information such as order number or customer may also be entered.
- (b) The SysTec IT BULK E software utilises 'Product Files' containing predetermined parameters applicable to the measurement of the requested product (or applicable to all products if alternative product files are not required).
- (c) Once 'Start' is selected the weighing process proceeds as shown in the overview of Figure 4.

Figure 5 shows some typical system operator screens.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The digital indicator shall be sealed as described in the documentation of its approval (see 1.2 (b) above).

The 'Product File' parameters (see 1.4(b) above) shall be password protected within the 'Supervisor Mode' of the IT BULK E software.

1.7 Markings and Notices

- (a) Instruments carry the following markings, grouped together in a clearly visible place on the instrument, either on a descriptive plate fixed near the indicating device or on the indicating device itself:

Manufacturer's mark, or name written in full	Kotzur Pty Ltd
Indication of accuracy class	0.2
Pattern approval mark for the instrument	NMI 6/14B/24
Model number	BW 10-3100-S
Serial number of the instrument
Maximum capacity	$Max = 9000 \text{ kg}$ (#)
Minimum capacity	$Min = 6000 \text{ kg}$ (#)
Minimum totalised load (not less than)	$\Sigma_{min} = 22\,500 \text{ kg}$ (#)
Totalisation scale interval	$d_t = 5 \text{ kg}$
Material to be measured

- (#) These markings shall also be shown near the display of the result if they are not already located there.
- (b) Instruments carry a notice visible to the operator stating TARGET DISCRETE LOAD SHALL BE MIN 6000 kg and MAX 7500 kg', or similar wording.

Note: Markings for variants vary according to particular characteristics.

2. Description of Variant 1 provisionally approved on 1/10/14 approved on 30/04/15

The Kotzur model BW 10-3100-S Class 0.2, 0.5, 1 or 2 discontinuous totalising automatic weighing (DTAW) instrument having a weigh hopper of 9000 kg maximum capacity, and a totalisation scale interval (d_t) of 5 kg. The instrument may be set to have a *target discrete load*, within the range shown below, and have a minimum totalised load value (Σ_{min}) of not less than the value shown below. The minimum capacity shall be equal to the lesser of the Minimum Target Discrete Load, and the Minimum totalised load.

The Kotzur model BW 10-3100-S is similar to the pattern, and uses (3) Scaime model CB50X5t C4 CH 10e load cells of 5000 kg maximum capacity (approval NMI S547).

Class	Target Discrete Load		Minimum totalised load (not less than)
	Min	Max	
0.2	6000 kg	7500 kg	22 500 kg
0.5	2000 kg	7500 kg	6000 kg
1	1000 kg	7500 kg	3000 kg
2	500 kg	7500 kg	1500 kg

3. Description of Variant 2 approved on 30/04/15

The Kotzur model BW 14-3100-S Class 0.2, 0.5, 1 or 2 discontinuous totalising automatic weighing (DTAW) instrument having a weigh hopper of 12 000 kg maximum capacity, and a totalisation scale interval (d_t) of 5 kg. The instrument may be set to have a *target discrete load*, within the range shown below, and have a minimum totalised load value (Σ_{\min}) of not less than the value shown below. The minimum capacity shall be equal to the lesser of the Minimum Target Discrete Load, and the Minimum totalised load.

The Kotzur model BW 14-3100-S is similar to the pattern, and uses (3) Scaime model CB50X5t C4 CH 10e load cells of 5000 kg maximum capacity (NMI S547).

Class	Target Discrete Load		Minimum totalised load (not less than)
	Min	Max	
0.2	9 000 kg	11 000 kg	18 000 kg
0.5	2000 kg	11 000 kg	6000 kg
1	1000 kg	7500 kg	3000 kg
2	500 kg	7500 kg	1500 kg

4. Description of Variant 3 approved on 30/04/15

The Kotzur model BW 15-4400-S Class 0.2, 0.5, 1 or 2 discontinuous totalising automatic weighing (DTAW) instrument having a weigh hopper of 15 000 kg maximum capacity, and a totalisation scale interval (d_t) of 5 kg. The instrument may be set to have a *target discrete load*, within the range shown below, and have a minimum totalised load value (Σ_{\min}) of not less than the value shown below. The minimum capacity shall be equal to the lesser of the Minimum Target Discrete Load, and the Minimum totalised load.

The Kotzur model BW 15-4400-S is similar to the pattern, and uses (3) Scaime model CB50X10t C4 CH 10e load cells of 10 000 kg maximum capacity (approval NMI S547).

Class	Target Discrete Load		Minimum totalised load (not less than)
	Min	Max	
0.2	9 000 kg	13 000 kg	18 000 kg
0.5	2000 kg	12 000 kg	6000 kg
1	1000 kg	7500 kg	3000 kg
2	500 kg	7500 kg	1500 kg

5. Description of Variant 4 approved on 30/04/15

The Kotzur model BW 20-4400-S Class 0.2, 0.5, 1 or 2 discontinuous totalising automatic weighing (DTAW) instrument having a weigh hopper of 18 000 kg maximum capacity, and a totalisation scale interval (d_t) of 5 kg. The instrument may be set to have a *target discrete load*, within the range shown below, and have a minimum totalised load value (Σ_{\min}) of not less than the value shown below. The minimum capacity shall be equal to the lesser of the Minimum Target Discrete Load, and the Minimum totalised load.

The Kotzur model BW 20-4400-S is similar to the pattern, but has a larger volume weigh hopper and uses three (3) Scaime model CB50X10t C4 CH 10e load cells of 10 000 kg maximum capacity (NMI S547).

Class	Target Discrete Load		Minimum totalised load (not less than)
	Min	Max	
0.2	10 000 kg	15 000 kg	20 000 kg
0.5	2000 kg	15 000 kg	6000 kg
1	1000 kg	15 000 kg	3000 kg
2	500 kg	15 000 kg	1500 kg

6. Description of Variant 5

approved on 30/04/15

The Kotzur model BW 20-4400-S Class 0.2, 0.5, 1 or 2 discontinuous totalising automatic weighing (DTAW) instrument having a weigh hopper of 18 000 kg maximum capacity, and a totalisation scale interval (d_i) of 10 kg. The instrument may be set to have a *target discrete load*, within the range shown below, and have a minimum totalised load value (Σ_{min}) of not less than the value shown below. The minimum capacity shall be equal to the lesser of the Minimum Target Discrete Load, and the Minimum totalised load.

The Kotzur model BW 20-4400-S is similar to the pattern, but uses three (3) Scaime model CB50X10t C4 CH 10e load cells of 10 000 kg maximum capacity (NMI S547).

Class	Target Discrete Load		Minimum totalised load (not less than)
	Min	Max	
0.2	10 000 kg	15 000 kg	45 000 kg
0.5	4000 kg	15 000 kg	12 000 kg
1	2000 kg	15 000 kg	6000 kg
2	1000 kg	15 000 kg	3000 kg

TEST PROCEDURE No 6/14B/24

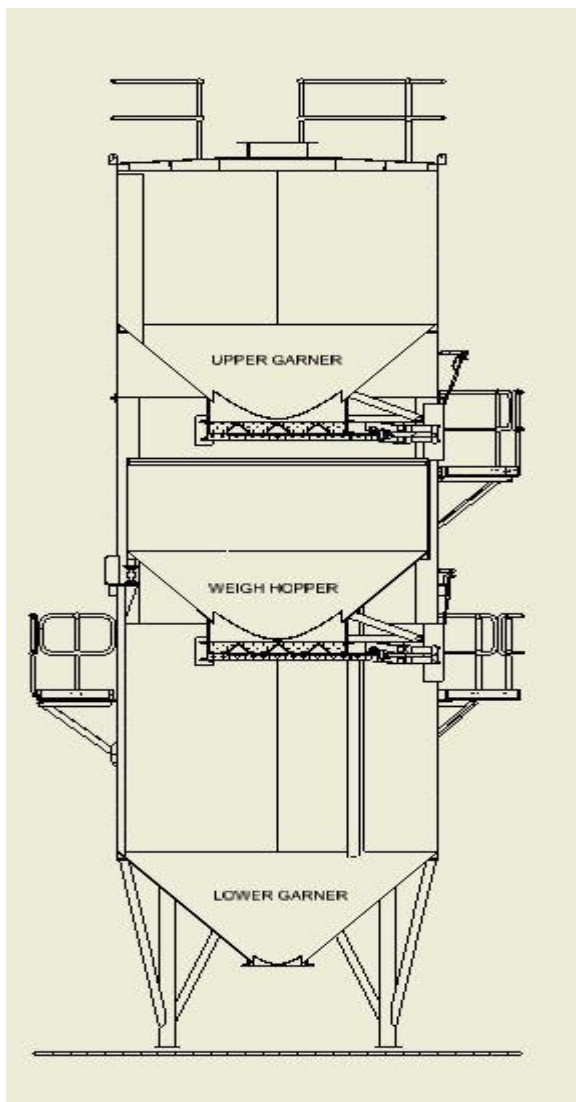
Instruments shall be tested in accordance with any relevant tests specified in the applicable National Instrument Test Procedures for this category of instrument.

Where an applicable National Instrument Test Procedure does not exist, a copy of an appropriate test procedure should be requested from NMI.

Maximum Permissible Errors

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

FIGURE 6/14B/24 – 1



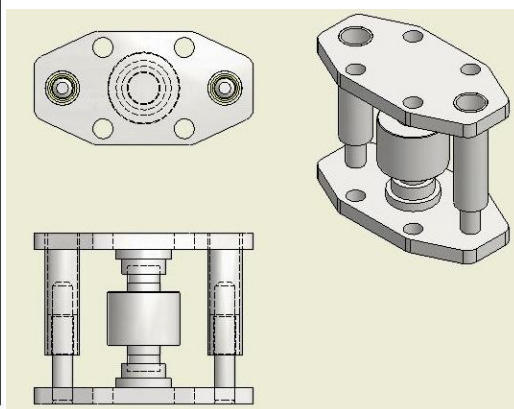
(a) Diagram



(b) Photograph (typical installation)



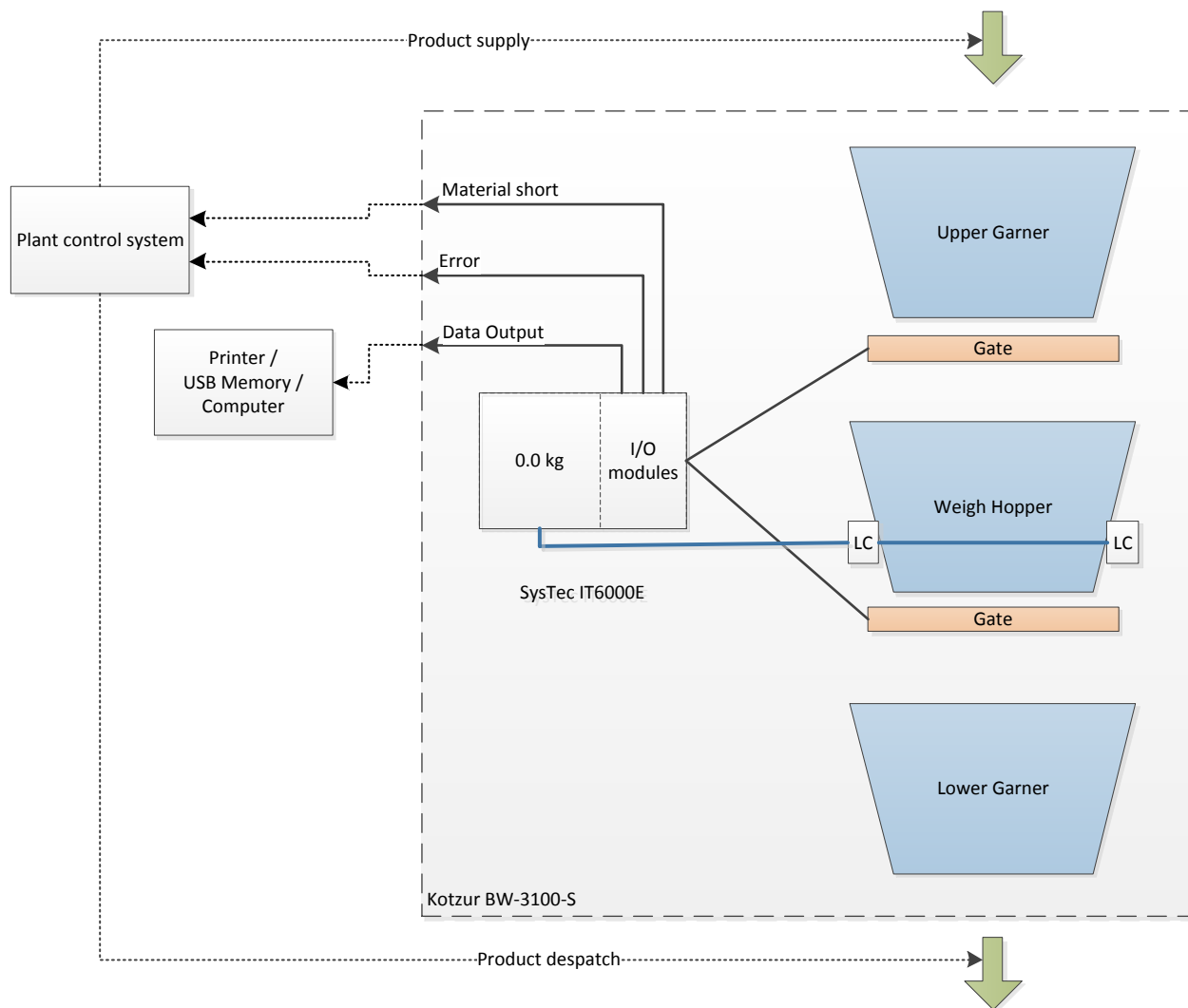
(c) Load Cell



(d) Load Cell Mounting

Kotzur Model BW 10-3100-S (The Pattern)

FIGURE 6/14B/24 - 2



Kotzur Model BW 10-3100-S Weighing Instrument – System Overview

FIGURE 6/14B/24 - 3



(a) Panel Mount



(b) Desk Mount



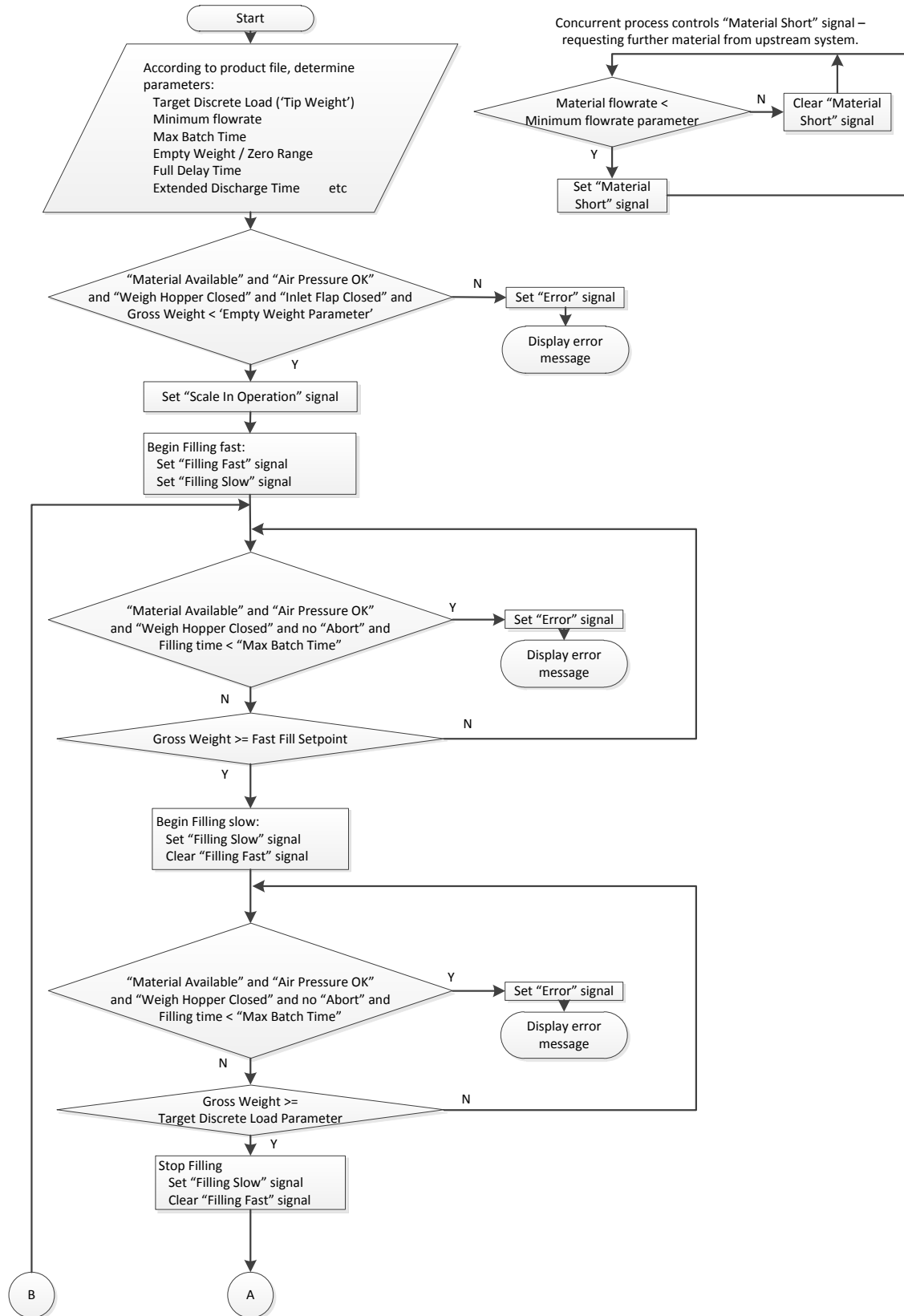
(c) Integrated into Control Cabinet

SysTec IT6000E Weighing Terminal

FIGURE 6/14B/24 – 4a

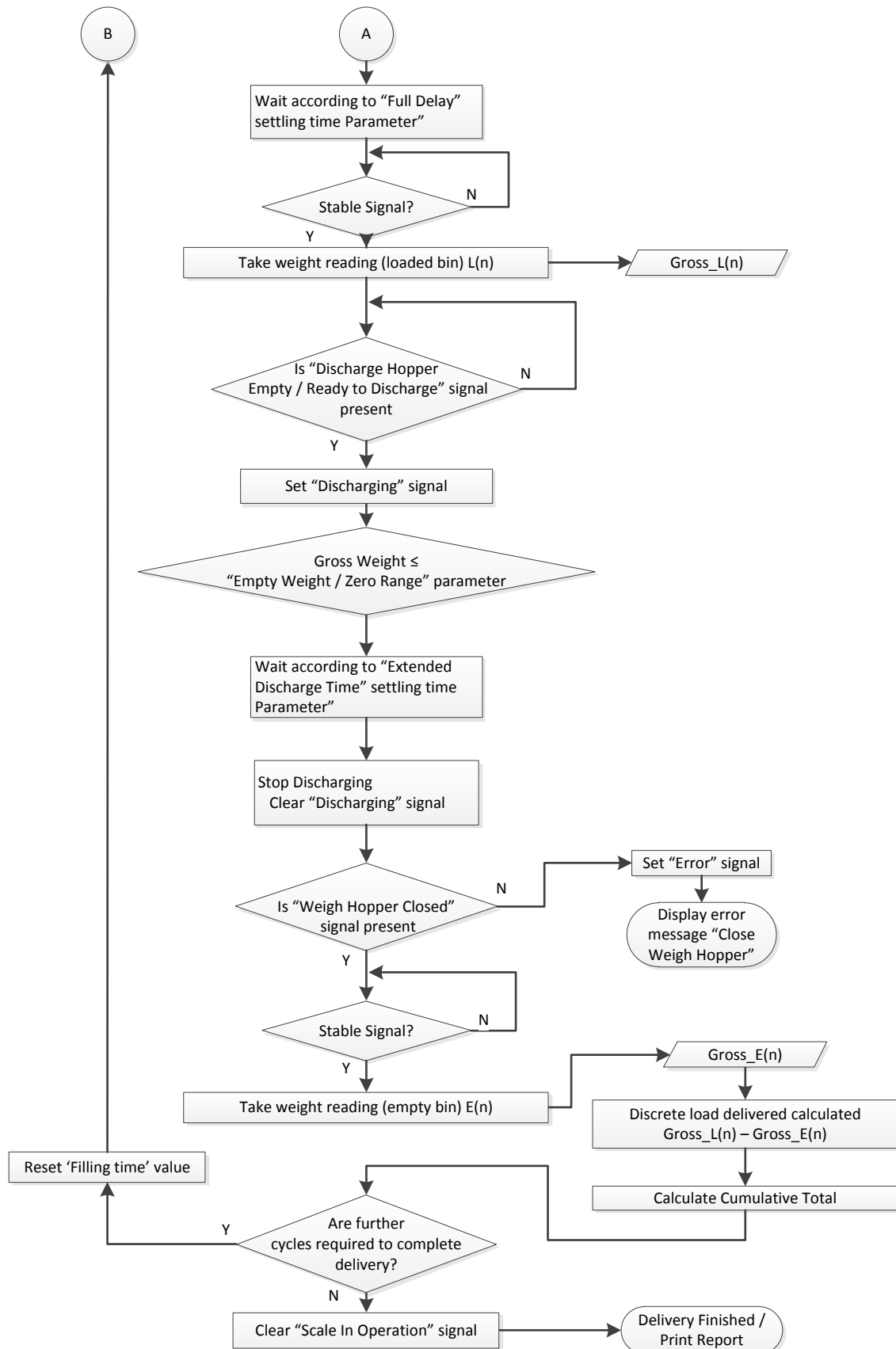
Overview of System Operation

Note: This diagram does not cover all aspects of system operation.



Overview of System Operation – part (a)


FIGURE 6/14B/24 – 4b




Overview of System Operation – part (b)

FIGURE 6/14B/24 - 5

During Running (shipping mode)

W1	Max 30 kg Min 1.00 kg	e=d= 0.05 kg
W1	1.40 kg	
Tare	0.00 kg	
Shipping of Order: 12345678		
SysTec GmbH Ludwig-Erhard-Str. 6 50129 Bergheim		
Ash		
Target wgt:	500.00kg	Tip Cnt: 1
Bt. Total:	1.40kg	Fast
Throughp.	0.00t/h	Silo-No. F 0
<input type="button" value="Stop"/> <input type="button" value="Exit"/>		
F1	F2	F3
F4	F5	F6

At end of shipping

W1	Max 30 kg Min 1.00 kg	e=d= 0.05 kg
W1	0.00 kg	
Tare	0.00 kg	
Shipping of Order: 12345678		
SysTec GmbH Ludwig-Erhard-Str. 6 50129 Bergheim		
Ash		
Target wgt:	100.00kg	Tip Cnt: 4
Total:	120.00kg	Print ok? N
<input type="button" value="No"/> <input type="button" value="Yes"/>		
F1	F2	F3
F4	F5	F6

Kotzur Model BW 10-3100 System Operator Screens (Typical)

FIGURE 6/14B/24 - 6

Louis Dreyfus Commodities						
Moree Rail Weigher Newell Highway, Moree NSW 2400						
Date	Time	Order Number	Product	Parcel Weight	Units	Weigher Transaction Number
17.10.14	15:32	123456	WHEAT-APH2	22605	kg	12
17.10.14	15:44	123456	WHEAT-APH2	23710	kg	13
17.10.14	15:46	123456	WHEAT-APH2	24200	kg	14
17.10.14	16:04	123456	WHEAT-APH2	23675	kg	15
17.10.14	16:10	123456	WHEAT-APH2	24450	kg	16
17.10.14	16:31	123456	WHEAT-APH2	23550	kg	17
17.10.14	16:36	123456	WHEAT-APH2	24060	kg	18
17.10.14	16:40	123456	WHEAT-APH2	23895	kg	19
17.10.14	16:53	123456	WHEAT-APH2	23820	kg	20
17.10.14	16:59	123456	WHEAT-APH2	24365	kg	21
17.10.14	17:39	123456	WHEAT-APH2	24285	kg	22
17.10.14	18:15	123456	WHEAT-APH2	23980	kg	23
17.10.14	18:17	123456	WHEAT-APH2	24145	kg	24
17.10.14	18:20	123456	WHEAT-APH2	24220	kg	25
17.10.14	18:32	123456	WHEAT-APH2	24395	kg	26
TOTAL TRANSACTION WEIGHT				359.355 Tonne		

Typical Output/Printout

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