

(UK/0126/0053)



MI-006

United Kingdom of Great Britain and Northern Ireland

## Certificate of EC type-examination of a measuring instrument

**Number: UK/0126/0053**

issued by the Secretary of State for Innovation, Universities & Skills  
Notified Body Number 0126

In accordance with the requirements of the Measuring Instruments (Automatic Gravimetric Filling Instruments) Regulations 2006 (SI 2006/1258) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 which implement, in the United Kingdom, Council Directive 2004/22/EC, this certificate of EC type-examination has been issued to:

**Portpack UK Ltd  
Unit A2, Enterprise Business Park  
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Hucknall  
Notts, NG15 7SZ  
United Kingdom**

in respect of an automatic gravimetric filling instrument, designated the EW2000, and comprising a material feed device, a weighing unit supported by strain-gauge load cell(s), an electronic indicator and a PLC, and having the following characteristics:

<i>Reference accuracy class:</i>	<i>Ref(0.1)</i>
<i>Maximum capacity:</i>	<i>Dependant upon load cell(s) specification</i>
<i>Minimum load:</i>	<i>Dependant upon indicator type and operating accuracy class X(x)</i>
<i>Scale interval:</i>	<i><math>\geq 10</math> g</i>
<i>Number of scale intervals</i>	<i><math>\leq 5,000</math></i>

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.

Signatory: P R Dixon  
for Chief Executive  
National Weights & Measures Laboratory  
Department for Innovation, Universities & Skills  
Stanton Avenue  
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Issue Date: 16 April 2009  
Valid Until: 15 April 2019  
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# Descriptive Annex

## 1 INTRODUCTION

This pattern of an automatic gravimetric filling instrument designated the EW2000 is designed to dispense pre-determined loads of powdered or granular materials. The system comprises a material feed device, a weighing unit supported by strain-gauge load cell(s), an electronic indicator and a PLC.

The operator selects the predetermined (target) weight and other operational inputs via the keyboard on the front of the controller. The microprocessor operates the weigher in response to signals from the controller, the load cell(s) and plant sensors.

The display on the front of the controller shows the predetermined weight and the actual weight of the weighing unit when the machine is operating.

## 2 FUNCTIONAL DESCRIPTION

### 2.1 Mechanical

#### 2.1.1 Feeding device

The feeding device may be any one of the following:

- Gravity Feeder or High Speed Gravity Feeder
- Single or Double Screw Feeder
- Belt Feeder or High Speed Belt Feeder
- Vibratory Feeder

#### 2.1.2 Weighing platform

##### 2.1.2.1 Load receptor

For net weighing, the load receptor incorporates a weigh hopper and associated discharge device, for weighing of target weights in the weigh hopper. The weigh hopper may have one or two discharge gates, each discharge gate being pneumatically driven by one or two air cylinders. The discharge gate(s) are controlled by sensors to ensure the correct operation of the machine.

For gross weighing, the load receptor may consist of a bag clamp and spout. The bag clamp is operated by one or two air cylinders. Sensors detect the presence of a bag.

##### 2.1.1.2 Load cell(s)

Any compatible load cell(s) may be used providing the following conditions are met:

- i) There is a respective OIML Certificate of Conformity (R60) or a Test Certificate (EN45501) issued for the load cell by a Notified Body responsible for type examination under Directive 90/384/EEC.

- ii) The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 4, 2004, section 11), and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to EN45501 has been conducted on this load cell.
- iii) The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in the above WELMEC 2 document.
- iv) The load transmission conforms to one of the examples detailed in WELMEC 4 Guide for Load Cells.

### **2.1.3 Pneumatic**

The air cylinders which operate the weigh hopper discharge flaps, bag clamps and feed cut-off gates are double acting type used in conjunction with directional control valves having solenoid-pilot air actuators and spring or pilot air return actuators. The operating pressure range is 3 - 6 bar, over pressures are prevented by a pressure regulator and under pressures are detected by a pressure switch.

## **2.2 Electrical**

### **2.2.1 Controller cabinet**

The controller cabinet houses the PLC and/or electrical relays and power supply. The CSX indicator may be inset into the door of the controller cabinet. In the case of a multiple weigher installation, more than one CSX indicator may be installed. Alternatively, the CSX(s) may be mounted separately. The pneumatic actuators controlling the filling process are mounted within the weigher chassis.

### **2.2.2 Weight indicator**

The instrument comprises an Ian Fellows digital weight indicator type CSX (Figure 1). The indicator housing is fabricated from stainless steel plate, the front panel comprises a weight display with auxiliary LCD display, and operator keyboard. The LCD panel displays the weight and user information.

### **2.2.3 Devices**

The indicator has the following devices:

- self-test sequence and display check during power-up
- determination of the stability of equilibrium
- calibration/set-up access via internal calibration switch
- initial zero-setting, overall effect  $\leq 20\%$
- semi-automatic zero-setting
- zero-tracking
- indication of stable equilibrium
- semi-automatic subtractive tare (not operable during automatic operation)

### 3 TECHNICAL DATA

3.1 The EW2000 has the following technical characteristics:

Reference accuracy class	0.1
Power supply	110/120 VAC -50/60 Hz 220/240 VAC -50/60 Hz 24 VDC
Maximum subtractive tare	≤ - Max
Maximum capacity	Dependent upon load cell(s) specification
Minimum load	≥ 267d for X(0.1) ≥ 134d for X(0.2) ≥ 18d for X(0.5) ≥ 5d for X(1)
Scale interval	≥ 10 g
Maximum number of scale intervals	5,000
Load cell excitation voltage	5 V dc
Minimum input impedance	43 Ω
Load cell connection	6-wire system
Max cable length*	150 m/mm <sup>2</sup>
Minimum input voltage per scale interval	1.0 μV/div
Modules	P <sub>i</sub> = 0.5 for the indicator P <sub>i</sub> = 0.7 for the load cell
Operating temperature range	-10 °C to + 40 °C
Climatic environment	Closed, non-condensing
EM Classification	E2

\* indicator to junction of cell cable(s)

### 3.2 Documentation and drawings

CSX indicator dimensional drawing	31-M-1463 rev A
CSX Operating Manual	P07.006 rev A
CSX PCB layout	31-M-1462 rev A
EW2000 Operating Manual	PP2000 section 5
EW2000 general arrangement (4 weighers)	LS001027/07 rev 1

### **3.3 Software**

#### **3.3.1 PLC**

If a PLC is incorporated, it is used for interlocking of upstream and downstream equipment only and contains no legally relevant software.

#### **3.3.2 CSX indicator**

The indicator software has the version number PO7\_XXX, which is displayed at power-up. Any calibration needs access to the calibration switch located on the main board, protected by seals on the enclosure, and can therefore be performed only by authorised personnel.

#### **3.3.4 Software download**

Any software download requires breaking the seals on the indicators, and needs changing of the EPROM. This operation must be carried out only by authorised personnel and the action must be recorded as well as the new version number when the seals are replaced.

## **4 PERIPHERAL DEVICES AND INTERFACES**

### **4.1 Interfaces**

The indicators have any of the following interfaces:

- Communication port (RS232, RS485)
- Printer port, serial port (RS232)
- Control I/O interface
- Analogue output (optional)

### **4.2 Peripheral devices**

**4.2.1** The instrument may be connected to any peripheral device that has been issued with a test certificate by a Notified Body responsible for type approval under Directive 2004/22/EC in any Member State and bears the CE marking of conformity to the relevant directives; or

A peripheral device without a test certificate may be connected under the following conditions:

- it bears the CE marking for conformity to the EMC Directive;
- it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
- it prints weighing results and other data as received from the weighing instrument without any modification or further processing; and
- it complies with the applicable requirements of Paragraph 8.1 of Annex I.

**4.2.2** The printout of individual weight readings is for information purposes only, except for preset values and the number of weighing operations.

## **5 APPROVAL CONDITIONS**

The certificate is issued subject to the following conditions:

### **5.1 Legends and inscriptions**

**5.1.1** The instrument bears the following legends (Figure 9):

- ‘CE’ marking
- Supplementary metrology marking
- Notified body identification number
- Reference accuracy class
- Serial number
- Manufacturers mark or name
- Certificate number
- Maximum capacity (Max)
- Minfill (Min)
- Scale interval, d
- Information in respect of the conditions of use (when applicable)

**5.1.2** The printer bears a label marked “FOR MANAGEMENT PURPOSES ONLY”

### **5.2 Interlocks and error messages**

**5.2.1** System interlocks are present, within the software, to prevent:

- Air supply pressure below limit,
- Head of material in upper feed hopper insufficient
- Weigh hopper discharge gate not closed.

**5.2.2** Error messages appear on the display unit to provide information to the operator.

## **6 LOCATION OF SEALS AND VERIFICATION MARKS**

**6.1** The ‘CE’ mark shall be impossible to remove without damaging it. The rating plate shall be impossible to remove without it being destroyed.

The markings and inscriptions shall fulfil the requirements of Paragraph 9 of Annex I of the Directive 2004/22/EC.

**6.2** Components that may not be dismantled or adjusted by the user will be secured by either a wire and seal or tamper evident label and securing mark. The securing mark may be either:

- a mark of the manufacturer and/or manufacturer’s representative, or
- an official mark of a verification officer.

**6.3** Calibration/set-up data is stored within a non-volatile memory on the indicator, and can only be accessed via the internal calibration switch, protected by seals. Whenever this data is modified, the seal must be broken and this operation must be recorded as well as the calibration/set-up data when the seal is replaced.

**7 ALTERNATIVES**

There are currently no authorised alternatives.

**8 ILLUSTRATIONS**

Figure 1 CSX indicator

Figure 2 Rating plate

**9 CERTIFICATE HISTORY**

<b>ISSUE NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
UK/0126/0053	16 April 2009	Type approval first issued.
-	-	No revisions have been issued



Figure 1 CSX indicator

<b>Portpack UK Ltd</b>	Type		Serial No		TAN			M 09
	Cert. No	Year	V	Hz	Bar			
Accuracy class Ref(x)	Max kg	Min kg	e kg	d kg	T kg	T °C	T °C	CE
Products(x)	Accuracy class X(x)	Max fill kg	Min fill kg	Average Number Of Fills	Boqs/min			

Figure 2 Rating plate

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 (Part of the National Measurement Office)  
 Department of Innovation, Universities and Skills