



United Kingdom of Great Britain and Northern Ireland

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

**Number: UK/0126/0001 Revision 2**

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

In accordance with the requirements of the Measuring Instruments (Automatic Catchweighers) Regulations 2006 (SI 2006/1257) 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:

**AEW Delford Systems  
Main Road  
Dovercourt  
Harwich, CO12 4LP  
United Kingdom**

in respect of an automatic catchweighing instrument designated the 8000 Series and having the following characteristics:

Maximum capacity	Max	$\leq 27500$ g
Minimum capacity	Min	$\geq 20$ e
Scale interval		$1 \text{ g} \leq e \leq 10 \text{ g}$
Accuracy classes		Y(a) and XIII(1)

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.

This Revision replaces earlier versions of the certificate.

A handwritten signature in black ink, appearing to read 'P R Dixon'.

Signatory: P R Dixon  
for Chief Executive  
National Weights & Measures Laboratory  
Department for Innovation, Universities & Skills  
Stanton Avenue  
Teddington  
Middlesex TW11 0JZ  
United Kingdom

Issue Date: 27 July 2007  
Valid Until: 29 October 2016  
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# Descriptive Annex

## 1 INTRODUCTION

This pattern of an automatic catchweigher, designated the 8000 Series, operates as an automatic weight or weight/price labeller (Category Y). The instrument may also operate as an automatic checkweigher (Category X).

It comprises a weighing device with associated thermal label printer and mechanical handling facilities and is designed to weigh packs dynamically. Pricing, pack and labelling information is stored in files, known as Comformats, selectable for the commodity or labels being processed. Labels are printed with the required transaction data and are applied to the packs automatically.

## 2 FUNCTIONAL DESCRIPTION

### 2.1 Mechanical

**2.1.1** The instrument (Figure 1) is constructed in stainless steel and anodised aluminium. The framework is a fabricated floor standing stainless steel frame on adjustable feet. A level-indicator is provided on top of the weigh head conveyor. On the frame are mounted the modular conveyor sections (in-feed, weigh head, and out-feed). The in-feed and out-feed conveyors are driven by dc motors. The weigh head conveyor is self-contained and is also driven by a dc motor.

**2.1.2** The control cabinet, situated behind the conveyors houses the conveyor based electrical hardware, keyboard and display. Access is through a lockable rear cover. The machine covers are stainless steel throughout with a perspex cover provided over the weighing area. Three photocells are used for pack detection. Two photocells are mounted just before the weigh head and the third just after.

**2.1.3** Packs are weighed as they pass over the weigh head conveyor which runs continuously at the speed of the in-feed and out-feed conveyors. The weighing system is constructed around a load cell, the authorised models being: Class C3 Teda Huntleigh 1040 (all instruments) or Class C3 Teda Huntleigh 1260 (Max = 20 kg and 27.5 kg instruments only). The load cell is mounted on a base-plate which also houses a silicone oil dashpot.

**2.1.4** The label head is mounted above the out-feed conveyor. It contains the hardware necessary to print, feed and apply self-adhesive labels from a reel. The label applicator is a linear applicator and contains the pneumatics necessary to apply a partial vacuum to the label.

### 2.2 Electrical

**2.2.1** The electrical hardware is based in two main locations: the control cabinet and the thermal label printer.

**2.2.2** The control of the instrument is provided by a single board, designated the Elvis board. The Elvis board uses a Motorola MPC860 microprocessor to provide the control of the system and to drive the display and keyboard. It also communicates with the processor in each label printer. One of the interface boards on the Elvis board has connections for the fibre optics from the weigh head unit and provides the dedicated electronic hardware counters for determination of the weight data. The keyboard is a piezo-electric type, and the display is a colour LCD unit.

**2.2.3** An interconnecting conduit between the control cabinet and the thermal label printer contains the mains power and signal cables and air supply pipe. The labeller comprises a main processor module, a host board, and a display and keypad. The main processor module incorporates a 32-bit microprocessor, memory, serial ports and a connection to the host board.

**2.2.4** Weigh head unit

**2.2.4.1** The load cell power supply, signal processing and conversion electronics are housed directly below the weighing conveyor in a die-cast aluminium box attached to the baseplate. A second smaller box attached to the side of the first contains a dc-dc converter, the fibre optics for transmitting the weight data to the control cabinet and supplies +/- 15 V input to the larger box. The analogue-to-digital converter is based on an AD 652 Synchronous Voltage to Frequency Converter and a pulse counter.

**2.3** **Devices**

The instrument has the following devices:

- Initial zero setting device
- Automatic zero setting device
- Pre-set tare device

**3** **TECHNICAL DATA**

**3.1** The 8000 Series has the following technical characteristics.

Maximum capacity (Max)	3000g	1500g/ 3000g	5500g	1500g/ 4600g	3000g/ 9600g	10000g	20000g	27500g
Scale interval (e)	2g	1g/2g	2g	1g/2g	2g/5g	5g	10g	10g
Max operating speed	0.8m/s		See Figure 2					
Minimum capacity (Min)	≥20e							
Tare (T)	-1000g					-9999 g		
Load cell model	Tedeo Huntleigh 1040						Tedeo Huntleigh 1040 / Tedeo Huntleigh 1260	
Load cell E <sub>max</sub>	10kg				15kg		50kg	
Climatic environment	0°C to +35 °C							
	Non-condensing (closed)							
Electromagnetic environments	E1 E2							
Power supply	230 V a.c. 50/60 Hz							
Display/keyboard location	Main cabinet or remote module							
Accuracy classes	Y(a) and XIII(1)							

## **3.2 Documentation and drawings**

WPL8000 Reference Manual  
1521560 (Top level drawing for Elvis Board)  
1521561  
1521562  
1521563  
1521564  
1521565  
1529962  
1528496  
1528557  
1528650  
1528155  
1528142  
1528130

## **3.3 Software**

**3.3.1** The weighing and average weight software version is shown in the Self Checks window, while the machine is warming up, and also can be seen in the test window while the machine is in Weigh Mode (either running or stopped). The version number of the legally relevant software is Ver. 1.x.

## **4 PERIPHERAL DEVICES AND INTERFACES**

### **4.1 Interfaces**

The instrument may have the following interfaces:

- (i) 1 x RS 422
- (ii) 2 x RS 232
- (iii) Parallel CAN I/O port
- (iv) Up to 6 RS 232 / 422 / 485 configured isolated or non-isolated
- (v) 2 x CAN

### **4.2 Peripheral devices**

The instrument may be connected to any peripheral device that has been issued with a test certificate by a Notified Body responsible for Annex B (MI-006) 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 89/336/EEC;
- 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.

## **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:**

- ‘CE’ marking
- Supplementary metrology marking
- Notified body identification number
- Accuracy class
- Serial number
- Manufacturers mark or name
- Certificate number

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

**6.1** The ‘CE’ marking, supplementary metrology marking and certificate number are located on the side of the control cabinet. The CE mark shall be impossible to remove without damaging it. The data 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** Calibration data is stored within a non-volatile memory IC on the microprocessor board inside the control cabinet. The contents of this memory are protected against change by a Protect switch mounted on the board. Software interlocks prevent the machine running if the memory is not protected. Unauthorised access to the protect switch is prevented by sealing of a cover over the switch.

**6.3** The calibration data can only be changed by invoking the Calibrate function within the Engineer’s Menu in program mode. This function is protected to Engineer level.

### **6.4 Audit trail**

**6.4.1** An audit trail may be implemented as an alternative to the physical sealing arrangement. The audit trail has two non-resettable event counters. One event counter increments whenever any configuration setting is changed and is identified as “Configuration”. The other event counter increments each time the instrument is calibrated and is identified as “Calibration”.

**6.4.2** The event counter values shall be indelibly marked on the rating plate or to a label securely fixed to the control cabinet.

**6.4.3** The audit trail is incorporated into the overall software of the instrument from WPL version 6.38 onwards. The WPL software version number is shown in the warm-up screen when pressing Machine Info, in the same test window page as the weighing and average weight software version, and also in the Engineers Menu, Self Tests page.

**6.4.4** To view these counters:  
Press “Program Mode”  
Press “System Admin Menu”  
Press “Counters”  
To exit:  
Press “Return”  
Press “Main Menu”  
Press “Weigh Mode”

**6.5** 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.

## **7 ALTERNATIVES**

**7.1** Having the machine fitted with two top labellers, in which case the system is modified as follows. The outfeed conveyor length is extended and two identical label printers are fitted in series. Each printer is connected to the control cabinet via its own interconnecting conduit containing mains power supply, an air supply pipe and signal cables (RS232). The Group Comformat may be used to enable labelling using one printer only, or using both.

**7.2** Having the machine fitted with a base labeller (Figure 3). The base labeller is a Delford labeller which is controlled directly by the 8060 via an RS232 serial interface on the main control cabinet. The labeller has inputs to detect conveyor movement and its own photocell. It comprises a main processor module, a host board, an I/O and stepper board, a printhead interface board and a display and keypad. The main processor module incorporates a 32-bit microprocessor, memory, serial ports and a connection to the host board.

**7.2.1** The maximum packs/min throughput of the machine may be limited by the speed of the base labeller.

**7.2.2** The base labeller is connected directly to the control cabinet of the 8060 via the RS232 serial port, the software in the control cabinet communicates with the base labeller as if it were a top labeller. The base labeller does not store label formats, but does store fonts and logo bitmaps.

**7.3** Having the top labeller removed from the machine, in which case the frame is modified and the machine fitted with one or two base labellers. Where the machine is fitted with two base labellers the outfeed conveyor is extended with the bed having two apertures.

**7.4** Having a machine fitted with two top labellers and a base labeller, in which case the base labeller will be connected to the same RS232 serial port as the second top labeller. The user will manually switch between the top labeller and base labeller using a serial port switch.

**7.5** Having a rotary label applicator in place of the linear label applicator. The maximum belt speed is 0.8 m/s.

**7.6** Having the base labeller mounting changed so that there is no lift mechanism, pneumatic locking bolts or PLC.

- 7.7** Having the thermal label printer without the small keypad and display.
- 7.8** Having up to eight labellers, made up of any combination of printer types, including top linear, top rotary, base linear and base conveyor style.
- 7.9** Having the Elvis board, display and keyboard removed from the main control cabinet and located in a remote module (Figure 4). The control cabinet will either be reduced in size or the display and keyboard area will be blanked-off.
- 7.9.1** The remote module is free standing and comprises a support column with the keyboard and display housing mounted at the top. Four level adjustable feet are provided. The Elvis board is mounted in the remote module behind the display and keyboard. Connections are made from the remote pod to the main control cabinet via a flexible conduit.
- 7.9.2** When the remote module is connected, the following items will also be transferred from the main control cabinet to the remote module:-
- (i) access level keyswitch
  - (ii) removable data device (data-card reader or floppy disk drive)
- 7.10** Having the instrument modified to enable the connection of a sleeving/labelling unit (SLU), in which case the instrument is designated the 'Integrated machine'. The outfeed conveyor and thermal label printer are removed such that the system comprises only three conveyors. The thermal label printer is replaced by a Smart Date printer provided on the SLU. The outfeed conveyor is replaced by the infeed conveyor of the SLU. The SLU is a stand-alone system which is mounted following the weigh head conveyor of the modified instrument. The interface between the instrument and the SLU is achieved by communication via a PIP processor board and the SLU's PLC. The SLU utilises the Smart Date printer to print the associated weight and price information received from the 'Integrated' machine onto the sleeve. The SLU takes the sleeve and places it around the pack. Interlocks are provided to ensure that the correct sleeve is placed on each pack.
- 7.10.1** The Smart Date printer may be replaced by a Markem Cimjet printer and the instrument may be configured such that the outfeed conveyor and thermal label printer are retained. The stand-alone SLU is mounted following the outfeed conveyor.
- 7.10.2** The instrument may be configured to operate using:-
- (i) only the thermal label printer; or
  - (ii) only the SLU; or
  - (iii) both the thermal label printer and the SLU.
- 7.11** Having a modified construction (Figure 5) as follows.
- 7.11.1** The instrument comprises a framework which supports the modular conveyor sections, the electrical cabinet at the rear and the main system control panel incorporating the display/keyboard. There are three conveyors; the infeed, separator and weigh head conveyor. The conveyors are driven by brushless DC motors with the speed controlled by software. A cover is provided over the weigh head conveyor.
- 7.11.2** The electrical cabinet houses the power supply and conveyor based electrical hardware. The main control element of the instrument is housed in the operator panel mounted above the electrical cabinet.

**7.11.3** Modular labeller

**7.11.3.1** The outfeed conveyor and thermal label printer are combined in a stand-alone modular labeller which is connected to the main instrument and is located following the weigh head conveyor.

**7.11.4** Multiple modular labellers, including base labellers, may be connected to the instrument.

**7.11.5** The modular labeller(s) may be removed from the system and replaced by an SLU.

**7.11.6** Having the instrument configured with both a modular labeller and an SLU. The instrument may be configured with both a modular labeller and an SLU and may operate using:-

- (i) only the modular labeller; or
- (ii) only the SLU; or
- (iii) both the modular labeller and the SLU.

**7.11.7** The control electronics, display and keyboard may be removed from the main housing and located in a remote module. The housing will either be reduced in size or the display and keyboard area will be blanked-off.

**7.12** Having an alternative construction as described below.

**7.12.1** The alternative construction is as shown in drawing No 1525348 (Figure 6), and the instrument is designated the 8500 Series. The stronger and stiffer design combined with the use of a Tedeia Huntleigh (Vishay) 1260 C3 75kg load cell allows the following extended weight ranges for heavy products. The rated operating speeds are 0.2 and 0.4 m/s.

**7.12.2** The weight ranges are as follows:

Min <sub>1</sub> = 0 kg	Max <sub>1</sub> = 5 kg	e <sub>1</sub> = 5 g
Min <sub>2</sub> = 5 kg	Max <sub>2</sub> = 10 kg	e <sub>2</sub> = 10 g
Min <sub>3</sub> = 10 kg	Max <sub>3</sub> = 40 kg	e <sub>3</sub> = 20 g

and

Min <sub>1</sub> = 0 kg	Max <sub>1</sub> = 10 kg	e <sub>1</sub> = 10 g
Min <sub>2</sub> = 10 kg	Max <sub>2</sub> = 40 kg	e <sub>2</sub> = 20 g

## **8 ILLUSTRATIONS**

- Figure 1 Mechanical drawing of the 8060 instrument
- Figure 2 Conveyor speed profile
- Figure 3 Base labeller
- Figure 4 Remote module
- Figure 5 Modified construction
- Figure 6 Modified construction: 8500 Series for heavy products

## CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
UK/0126/0001	30 October 2006	Type examination certificate first issued.
UK/0126/0001 Rev 1	20 April 2007	Tedea Huntleigh 1260 load cell added to Section 2.1.3 and Table 3.1.
UK/0126/0001 Rev 2	27 July 2007	Authorised alternative 7.12 added.

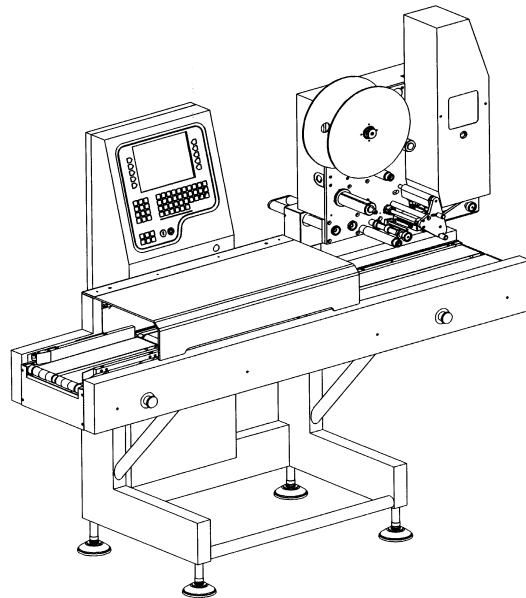
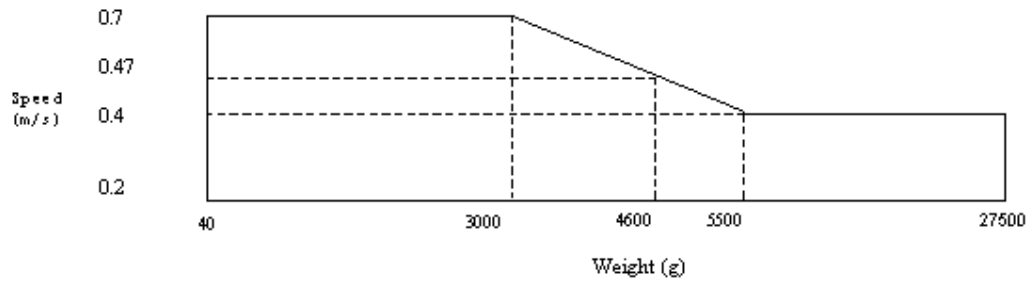
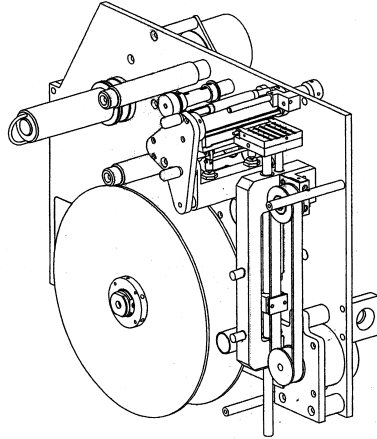


Figure 1 Mechanical drawing of the 8060 instrument



**Figure 2 Conveyor speed profile**



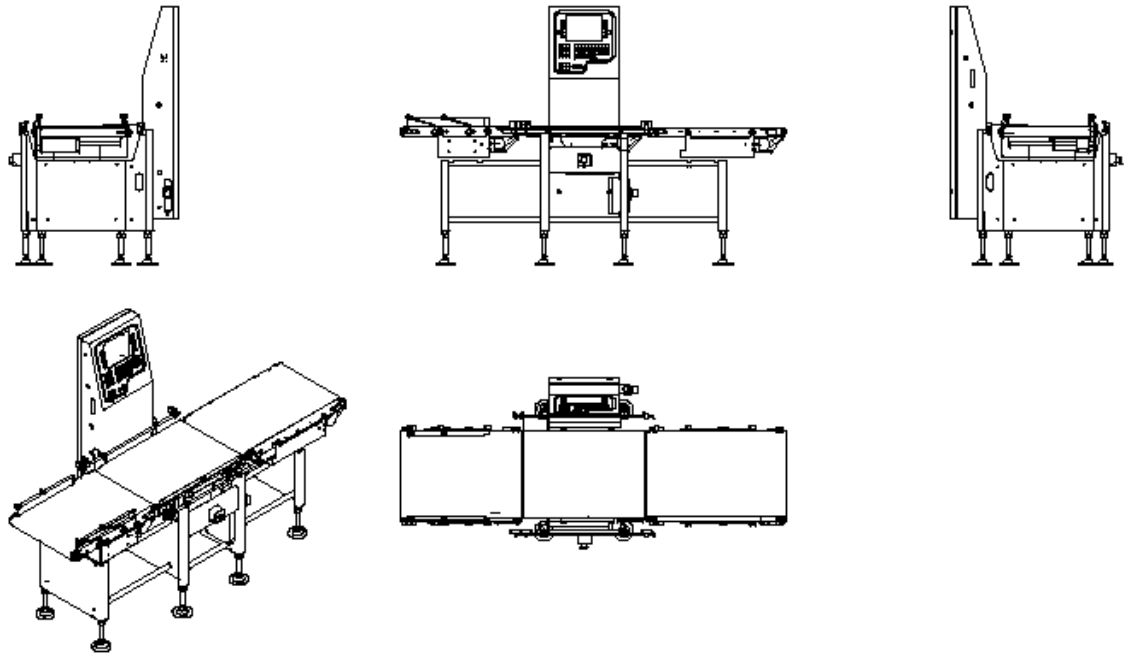
**Figure 3 Base labeller**



**Figure 4 Remote module**



**Figure 5 Modified construction**



**Figure 6 Modified construction: 8500 Series for heavy products**

**Price £10.00 net**

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