

(2903)

BIS

Department for
Business Innovation
& Skills

III(2)

Certificate Pursuant to section 12 of the Weights and Measures Act 1985

Certification No 2903

Valid Until 01 November 2020

In accordance with the provisions of section 12 of the Weights and Measures Act 1985, the Secretary of State for Business, Innovation and Skills hereby certifies as suitable for use for trade a pattern of a liquid measuring instrument, as described in the descriptive annex to this Certificate, and having the following characteristics:-

A spirit-measuring instrument for use in dispensing intoxicating liquor in fixed quantities of 35 ml. The instrument uses a bottle fed reservoir to deliver liquor to the dispensing spout via a positive displacement device. Correct measure for each product is achieved by means of precise control of the positive displacement device. A dispense is initiated by the momentary depression of a switch situated on the unit.

Note: This certificate relates to the suitability of the equipment for use for trade only in respect of its metrological characteristics. It does not constitute or imply any guarantee as to the safety of the equipment in use for trade or otherwise.

*Submitted by: Dolmen Innovative Product Development
174 Ivy Exchange
Granby Place
Parnell Square
Dublin 1
Ireland*



Signatory: P R Dixon
for Chief Executive
National Weights & Measures Laboratory
(part of the National Measurement Office)
Department for Business, Innovation and Skills
Stanton Avenue
Teddington
Middlesex TW11 0JZ
United Kingdom

Issue Date: 02 November 2010
Valid Until: 01 November 2020
Reference No: TS0501/0002

CONTENTS

CERTIFICATION NO 2903

1 INTRODUCTION

2 CONSTRUCTION

- 2.1 General
- 2.2 Mechanical
- 2.3 Electrical
- 2.4 Electronics
- 2.5 Interlocks
- 2.6 Legends
- 2.7 Securing (sealing)

3 OPERATION

- 3.1 System set-up
- 3.2 Dispensing

4 AUTHORISED ALTERNATIVES

5 RECOMMENDED TESTS

- 5.1 Accuracy
- 5.2 Interlocks
- 5.3 Labels and markings
- 5.4 Securing

6 ILLUSTRATIONS

7 CERTIFICATE HISTORY

Descriptive Annex

1 INTRODUCTION

This liquid measuring instrument is for use in dispensing intoxicating liquor (spirits) in fixed quantities of 35 ml. The instrument is supplied from a reservoir fed by an inverted bottle.

The model designation for this instrument is the DIAGEO FSD 2010.

Control of the delivered quantity is achieved by an electrically powered pump comprising of an electric motor driving a piston, via a crankshaft, to form a positive displacement volume-based pump. The pump, via a two-stroke action of the piston, performs a full cycle for the dispense and recharging of the pump chamber.

The dispense is activated by pressing a push button, incorporated into the dispenser housing, which initiates the cycle and thereby the delivery of the measure.

2 CONSTRUCTION

2.1 General

2.1.1 The components are all contained within a single housing, with the exception of the “coupler” which is a separate item that is fitted to the bottle (neck / thread) to allow the connection of the bottle into the instrument. A general view is shown in Figure 1, and a schematic diagram of the system is shown in Figure 2.

2.1.2 The device is designed to be installed vertically onto a mounting bracket, which allows the unit to be installed and removed.

2.1.3 The coupler has a “breather valve/pipe” to prevent a vacuum forming in the bottle when liquid is dispensed. When the coupler is attached to the bottle the breather enters the neck of the bottle. The breather incorporates a non-return valve which only allows the passage of air, into the bottle.

2.1.4 A sensor, mounted into the housing of the unit, detects the positioning of the “coupler” into the neck of the unit.

2.2 Mechanical

2.2.1 The piston is situated within the pump chamber, and operated by a crankshaft connected to the output shaft of the electric motor.

2.2.2 The crankshaft includes a crankshaft “plate”, which has a cut-out so that the position of the piston for a maximum stroke can be detected by an optical sensor.

2.2.3 The piston incorporates a rubber ‘o-ring’ seal, making a positive seal against the wall of the pump chamber.

2.3 Electrical

2.3.1 The system is powered from a CE marked transformer having an:

- input of 100 – 240 VAC 50/60 Hz, 1.5A;
- output of +12VDC, 5 A

via a 5mm jack socket situated at the rear of the housing. Access to the rear of the unit may therefore be required to allow connection/disconnection of the jack socket/plug.

2.3.2 When the electrical supply is connected the motor will start and automatically move the piston to its starting position.

2.4 Electronics

2.4.1 The unit electronics control the operation of:

- the solenoid valve, and
- the electric motor of the pump,

and monitor the :

- operation of the dispense button,
- bottle sensor
- crankshaft position sensor, and
- liquid level sensor.

2.4.2 When the system is primed and in standby mode, and the signals from the sensors are correct, the unit electronics operates a solid green LED indicating that there is sufficient liquid in the system for at least one dispense measure.

2.5 Interlocks

2.5.1 The following interlocks will prevent the system from conducting a dispense:

- coupler not in position
- liquid level too low (insufficient liquid for a correct dispense) prior to a dispense request
- piston not in correct position
- a second dispense request (activation of press button) until completion of the initial dispense cycle.

2.5.2 The liquid sensor is positioned such that there is still sufficient liquid in the chamber to prevent an under-dispense. If the pump chamber is empty or does not have enough liquid to dispense a full measure, the status LED will change to flashing orange.

2.5.3 If the level sensor detects that there is insufficient liquid to allow a correct dispense due to an empty bottle, and the bottle is removed, the status LED will change to flashing orange.

2.5.4 To ensure only complete volumes are dispensed, the reservoir level is checked by the optical liquid level sensor. If a low level is detected during a cycle, that cycle is allowed to finish but any further dispensing is prevented until the reservoir is re-charged.

After that cycle, the status LED changes to red to indicate that the system needs to be re-charged.

2.6 Legends

2.6.1 The instrument shall bear the following legends:

- the number of the certificate of approval preceded by the words 'Certification No', or 'Cert No', legibly and durably marked: **2903**
- the nominal quantity conspicuously, legibly and durably marked on the front of the unit in plain block characters on a plain background and in distinct contrast thereto: **35 ml**
- the name of its manufacturer or supplier, legibly and durably marked: **Diageo Irl, St. James Gate, Dublin 8, Ireland**

The above may be in the form of an adhesive label which shall be destroyed/voided if removed, or moulded into the body of the unit, or a combination.

2.7 Securing (sealing)

2.7.1 The following items are to be secured with a tamper evident seal:

- The protruding security loop on the top cover of the housing (Figure 3), through which securing wire and a security seal can be affixed. The security seal shall be such that the verification mark can be applied the verification authority.
- Additionally, a self adhesive label may be applied across the joint line between the top cover and the main housing. The label shall bear the identification of the verification authority or the manufacturer. The adhesive label shall be destroyed/voided if removed.

The outer panels cannot be removed, and the enclosure cannot be opened, without first removing the top cover therefore either seal type creates tamper evidence when the top cover has been removed.

3 OPERATION

3.1 System set-up

3.1.1 The accuracy of dispense is achieved through the installation of the crankshaft which determines the movement of the piston and therefore the dispense quantity.

3.2 Dispensing

3.2.1 With the bottle in position the liquid will flow from the bottle to fill the pump chamber while displacing air bubbles back into the bottle. The Status LED then turns green to indicate that the chamber is full and that the unit is ready to dispense a complete measure.

3.2.2 The dispense button is pressed momentarily, to initiate the dispense. The solenoid is activated, closing the input port (from the bottle) and opening the output port to the dispense nozzle. This is a simultaneous action.

3.2.3 When the motor has turned through 180 degrees the piston will have travelled its maximum forward stroke and dispensed one fixed measure. The position of the motor is detected by an optical position sensor via a gap in the revolving crankshaft plate and power is immediately cut to the solenoid. This causes the valve to drop instantly under spring pressure and stops liquid flow into the chamber. The pump completes a cycle, returning to its initial position.

3.2.4 During the dispense cycle, the status LED will turn orange, as liquid is being dispensed, and is then unlit as the chamber is being refilled. Once a cycle has been completed, and the piston is in the start position, the status LED turns green again and the cycle can be re-started.

3.3 Purging

3.3.1 The system may be purged of liquid by removing the bottle from the system, the status LED will change to flashing orange. The remaining liquid can then be “pumped out” by using the dispense button.

4 AUTHORISED ALTERNATIVES

4.1 Having multiple units arranged in a “cluster” (Figure 4). The units may be fitted with display panel(s). The display panel options are external to the dispense device and have no electrical or functional connectivity to it.

5 RECOMMENDED TESTS

In addition to those tests specified in Regulations the following tests may be performed to check for conformity to the pattern.

5.1 Accuracy

5.1.1 Accuracy tests shall be carried out to verify that the amount dispensed from each measure is within the specified accuracy limits.

Note: For verification purposes, water may not be suitable. To avoid contamination of the instrument before delivery to the customer, tests may be performed using any white spirit, ideally vodka or any similar such liquor that contains no Caramel (such as the dark liquors) and no flavour or scented odour.

5.2 Interlocks

5.2.1 Verify the operation of the interlocks described in Section 2.5.

5.3 Labels and markings

5.3.1 Verify that the label bearing the certificate number and the name of the manufacturer, described in Section 2.6, is present on the instrument.

5.3.2 Ensure that any branding and/or display panels mounted on the front of the housing do not obscure the nominal quantity marking.

5.4 Securing

5.4.1 On completion of tests, verify that the securing described in Section 2.7 is in place.

6 ILLUSTRATIONS

- Figure 1 General view of unit
- Figure 2 Schematic diagram of the system
- Figure 3 View of external features and controls
- Figure 4 Cluster arrangement with display panel(s)

7 CERTIFICATE HISTORY

CERTIFICATE NUMBER	DATE	DESCRIPTION
2903	02 November 2010	Certificate first issued.



Figure 1 General view of unit

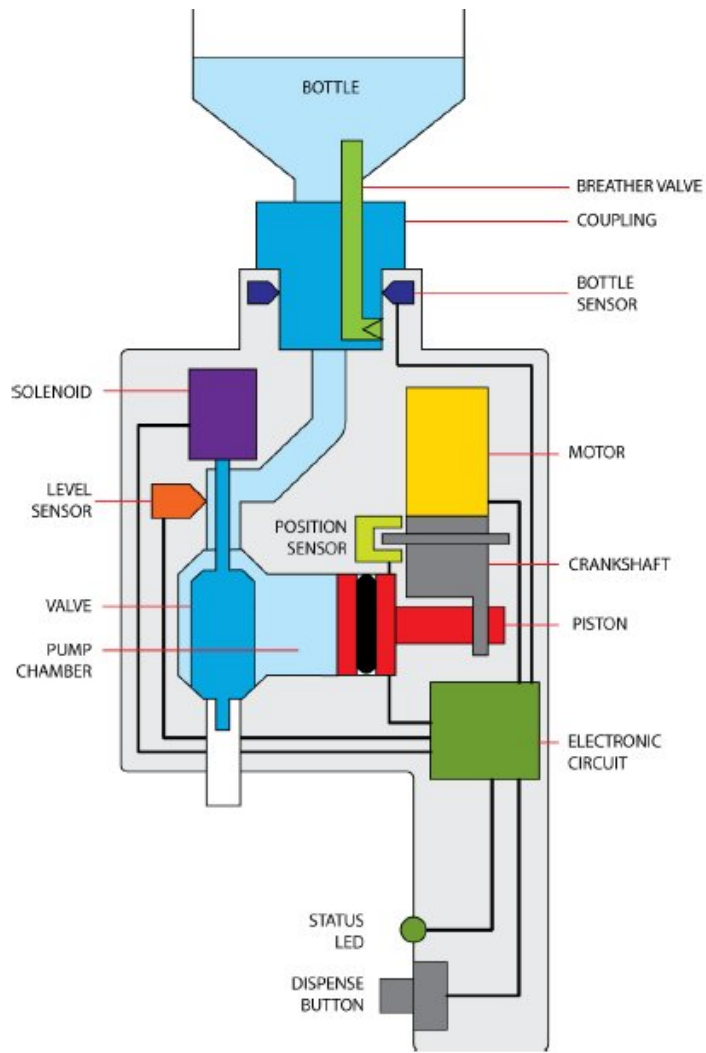


Figure 2 - Schematic diagram of the system

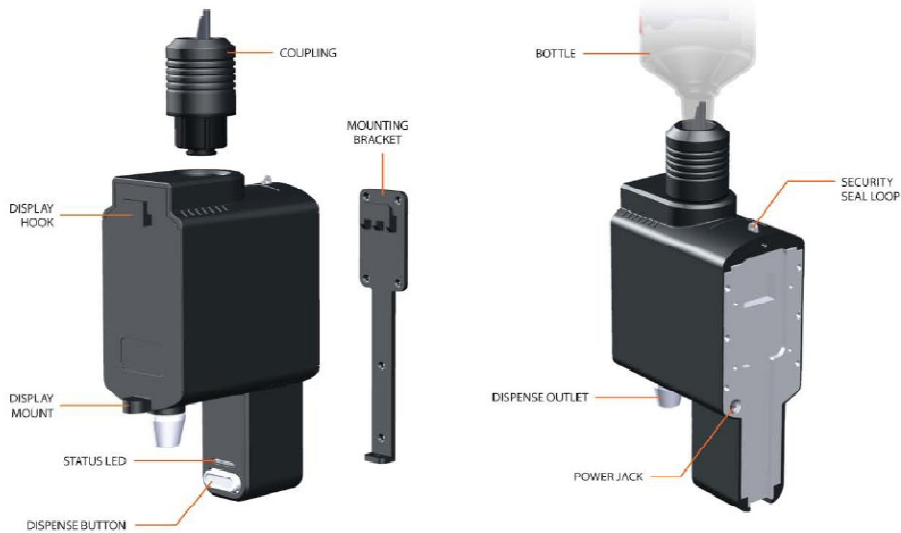


Figure 3 View of external features and controls



Figure 4 Cluster arrangement with display panel(s)