

# **WEIGHTS AND MEASURES**

**The Measuring Instruments (Intoxicating  
Liquor) Regulations 1983 (as amended)**

**Guidance on Regulation**

**November 2011**

**Version 2**

This publication was withdrawn on 1 January 2017.

This guidance is addressed to organisations that are required to comply with weights and measures law. Following the guidance is not in itself obligatory but, if you do follow it, this should help your organisation to meet its legal obligations.

Ultimately, only the courts can provide a definitive interpretation of the law. However, for further guidance on how to comply with the law, you can contact your local trading standards department, who provide this service free of charge:

[www.tradingstandards.gov.uk](http://www.tradingstandards.gov.uk) - simply type in your postcode and press "go".

If you identify any issues in relation to inaccuracies, inconsistencies or lack of clarity with the guidance please report them to [registry@nmo.gov.uk](mailto:registry@nmo.gov.uk). NMO will endeavour to resolve issues of inconsistent guidance or regulatory conflicts within 90 days. Updated guidance will be issued as appropriate.

This guidance has been produced in accordance with the Department for Business, Innovation and Skills Code of Practice on Guidance. You can see the Code of Practice at the following link <http://www.bis.gov.uk/files/file53268.pdf> and will be reviewed in October 2016.

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## REVISION HISTORY

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This publication was withdrawn on 7 January 2021.

# FOREWORD

Renumber from here?

## **Health and Safety at Work Act 1974**

1 Nothing in these Notes for Guidance should be construed as overriding, amending or deferring safety regulations and requirements issued by the Health and Safety Executive (in Northern Ireland the Health and Safety Executive for Northern Ireland), in connection with the conduct of persons and the condition and use of machinery and equipment on any premises.

## **The Regulations**

2 The Measuring Equipment (Intoxicating Liquor) Regulations 1983 (S.I. 1983 No. 1656) as amended<sup>1</sup>, (the Regulations) prescribe the procedures which measuring equipment used on premises for the measurement of intoxicating liquor which is sold by retail must satisfy before the equipment in question can be verified and stamped to indicate conformity with the regulations and suitability for use for trade in accordance with Section 11 of the Weights and Measures Act 1985. These amendments include the Measuring Equipment (Intoxicating Liquor) (Amendment) Regulations 2009.

3 An unofficial consolidated version of the Measuring Equipment (Intoxicating Liquor) Regulations 1983 produced by NMO is available and can be found at [http://www.nmo.bis.gov.uk/fileuploads/Legislation/Unofficial\\_consolidated\\_text\\_1983\\_no\\_1656\\_Jan\\_2010.pdf](http://www.nmo.bis.gov.uk/fileuploads/Legislation/Unofficial_consolidated_text_1983_no_1656_Jan_2010.pdf)

## **Applicability**

4 The Regulations apply in GB but do not extend to Northern Ireland which has its own weights and measures legislation (the Measuring Equipment (Intoxicating Liquor) Regulations (Northern Ireland) 1984 No. 188 as amended). This does not prevent equipment stamped in GB in accordance with the Regulations from being put into use in Northern Ireland.

## INTRODUCTION

5 This guidance is intended to assist manufacturers, approved verifiers, repairers and enforcement officers on the application of the Measuring Equipment (Intoxicating Liquor)

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<sup>1</sup> the Measuring Equipment (Intoxicating Liquor) (Amendment) Regulations 1984 (S.I. 1984 No. 273)  
the Weights and Measures (Metrication Amendments) Regulations 1994 (S.I. 1994 No. 1851)  
the Weights and Measures (Metrication Amendments) Regulations 2001 (S.I. 2001 No. 85)  
the Measuring Equipment (Intoxicating Liquor) (Amendment) Regulations 2009 (S.I. 2009 No. 2463) and  
the Weights and Measures (Specified Quantities (Unwrapped Bread and Intoxicating Liquor) Order 2011 (S.I. 2011 No. 2331)

Regulations 1983. It incorporates the guidance notes issued in September 2009 on the Measuring Equipment (Intoxicating Liquor) (Amendment) Regulations 2009 which introduced the option of statistical sampling for certain fixed chamber measuring instruments. It applies to measuring equipment (other than capacity serving measures) which are used for the measurement of the prescribed alcoholic beverages i.e. spirits (gin, whisky, rum, and vodka), wine and draught beer and cider (see the Weights and Measures (Intoxicating Liquor) Order 1988 S.I. 1988 No. 2039 as amended by the Weights and Measures (Specified Quantities) (Unwrapped Bread and Intoxicating Liquor) Order 2011<sup>2</sup> for details of the quantities permitted). These quantities are also reproduced in the table associated with of paragraph 13 for ease of reference. The measuring equipment should also be used for the measurement of capacity for other intoxicating liquor for which the quantity is specified on a voluntary basis which is to say that if the intoxicating liquor is not regulated then it can be supplied in any quantity but, if a voluntary quantity declaration is given, then the quantity stated must be the quantity supplied and should be measured using suitable equipment.

6 When measuring equipment is in use for trade (under Section 7 of the Weights and Measures Act 1985) it may not be used to measure any intoxicating liquor unless the measuring equipment has been verified and stamped. In determining whether measuring equipment is in use for trade the following criteria need to be considered:

1. Is the equipment being used on trade premises for a commercial purpose?
2. Is the use for the measurement of an alcoholic beverage intended for sale? and
3. Is there evidence to prove that the measurement is not in use for the purpose of trade?

Evidence could be that the intoxicating liquor can be dispensed into an approved Capacity Serving Measure (Line or Brim Measure) provided that facilities exist to top the glass up to the required level however this would depend on how, where and by whom the equipment was likely to be used. Such intoxicating liquor is only permitted to be sold in one of the limited number of quantities listed in the above mentioned order. This means that, if intoxicating liquor is supplied through a non-approved meter, the quantity specified must be measured otherwise i.e. into a stamped glass. If the quantity dispensed from the meter is short of the full measure then there must be a method by which the quantity can be made up to the right level by hand but in order to do this a means to do so must be provided.

Separate guidance from Local Government Regulation (formerly LACORS) is provided at Annex 7 on the use of self-service measuring instruments when they are used for the dispense of draught beer or cider. Before use consideration must be given as to the manner in which these instruments are to be used to ensure that the beer is supplied only in quantities of  $\frac{1}{3}$  pint,  $\frac{2}{3}$  pint,  $\frac{1}{2}$  pint or multiples of  $\frac{1}{2}$  pint e.g. into a stamped glass. Other intermediate quantities are not permitted (see the Weights and Measures (Intoxicating Liquor) Order 1988<sup>3</sup>).

In addition the requirement to use stamped equipment for trade also applies to any other intoxicating liquor where a quantity has been specified voluntarily.

## **PART I**

### **Application (Regulation 2)**

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<sup>2</sup> <http://www.legislation.gov.uk/ukxi/2011/2331/made/data.pdf>

<sup>3</sup> The Weights and Measures (Intoxicating Liquor) Order 1988 (S.I. 1988 No 3049)

7 The Regulations only apply to measuring equipment for use on premises where liquor is sold by retail.

8 The Regulations apply to measuring equipment (referred to in this guidance as “instruments”), other than capacity serving measures which are used for the measurement of the prescribed alcoholic beverages in a quantity not exceeding 2 pints. Metric quantities are not similarly restricted in relation to maximum size. The instruments can also be used for the purposes of Section 11 of the Weights and Measures Act 1985 for the measurement of non-prescribed liquids where the quantity supplied is specified by volume on a voluntary basis. This relates to the definition of use for trade in Section 7 of the Weights and Measures Act.

9 These regulations cover beer/cider meters, wine dispensers and spirit measures. The technologies employed may be by fixed chamber or flow measurement. It is not considered that bottle top pourers will satisfy the requirements of these regulations unless type approved. The Document TE/18 setting out the Design Assessment Criteria for Hand-held spirit measuring instruments is available from NMO on request. Document TE/21 sets out design assessment criteria for spirit or wine measuring instruments and TE 22 sets out design assessment criteria for beer, cider or wine measuring instruments.

10 It is important to recognise that all instruments used on premises where trade is being carried out are considered to be in use for trade unless the contrary is proved (Section 7 of the Weights and Measures Act 1985). Instruments used where capacity serving measures are also used for that dispense may be considered appropriate such that the instrument does not itself need to be approved or verified. Section 7 refers to “use for trade”. The question is which measure or measuring instrument is in use for trade. The upstream measuring instrument may, if circumstances are appropriate, be considered not to be in use for trade if the downstream measure is prescribed.

11 The circumstances need to be judged in each case. Unless the means to ensure a full measure is provided it may not be considered sufficient by means of a top-up facility either on the instrument or by the availability of a bottle on “standby”. It is recommended that, when in doubt, instruments should be approved and verified. In deciding on whether instruments like wine dispensers are in use for trade the questions set out in Annex 6 should be considered together with the Local Government Regulation guidance at Annex 6A.

### Table of permitted sizes

The following table sets the specified quantities applicable to certain intoxicating liquor when dispensed in use for trade. The requirements are taken from the Weights and Measures (Intoxicating Liquor) Order 1988 as amended.

Alcoholic Beverage	Permitted quantities	Notes
Draught beer and cider	$\frac{1}{3}$ pint, $\frac{1}{2}$ pint, $\frac{2}{3}$ pint and multiples of $\frac{1}{2}$ pint	
Spirits – gin, whisky, rum, vodka	25 ml, 35 ml and multiples of 25 ml or 35 ml	Either 25 ml or 35 ml or a specified multiple to be used on a single premises/ a notice must be displayed indicating the quantity dispensed



Wine including sparkling wine above 75 ml	125 ml and 175 ml or multiples of 125 ml or 175 ml.	Drinking or transfer measures
	250 ml, 500 ml, 750 ml, or 1 L	Carafes
Fortified wine	50 ml, 70 ml or multiples	Drinking or transfer measures

- Changes to the Weights and Measures (Intoxicating Liquor) Order 1988 were announced by NMO in the Government response to the Consultation on specified quantities – non pre-packages and food information which was published in September 2009.
- The revised legislation came into effect on 1 October 2011  
<http://www.legislation.gov.uk/uksi/2011/2331/made/data.pdf>
- Guidance on the changes to specified quantities including alcoholic beverages is at  
<http://www.bis.gov.uk/assets/bispartners/nmo/docs/legislation/legislation/sfq/specified-quantities-guidance-for-business-2011.pdf>

## PART II

### **Principles of construction (Regulation 3)**

12 Type approval is a requirement for all instruments. The requirements for type approval can be found on the NMO website under “Product Certification”.

### **Marking of instruments (Regulation 7)**

13 In addition to the marking of the number of the type approval certificate (see Regulation 4) all instruments must be marked with an indication of quantity which reflects the provisions of Regulation 7 in respect of the permitted abbreviations to be used.

### **Supplementary Indications of Quantity (Regulation 7A)**

14 The optional use of non-metric quantities as supplementary indications to specified metric units may continue to be given after 1 January 2010<sup>4</sup>.

<sup>4</sup> The Weights and Measures (Metrication Amendments) Regulations 2009 (S.I.2009 No.3045)

## **PART III**

### **Testing measures**

#### **15 Measuring the volume delivered from intoxicating liquor measuring equipment**

This equipment may be of the positive displacement type, turbine meter or timed delivery system types.

A(1) Two methods are prescribed:

- Volumetric method: where the volume is determined after delivery into a volume standard.
- Gravimetric method: where the volume is determined when compared to mass, using a weighing instrument.

The test method does not depend upon the type of measuring equipment being tested.

Before testing any measuring equipment, the inspector or approved verifier shall ensure that--

- (a) the equipment is complete with all its parts as described in the certificate of approval;
- (b) the liquid has first been passed through the equipment or that the equipment is fully primed; and
- (c) when it is fully primed no leakage is apparent.

A(2) All measuring equipment tested on any premises on which it is used for trade shall be tested with the intoxicating liquor that it is designed to deliver.

A(3) All measuring equipment on other premises shall be tested with the intoxicating liquor it is designed to deliver or with water.

#### **B Testing by the volumetric method – a suggested approach**

The liquid [liquor or water as defined in A(2) & (3) above] shall be discharged into an appropriate working standard or testing equipment

#### **C. Testing by the Gravimetric method – a suggested approach**

The liquid [liquor or water as defined in A(2) & (3) above] shall be discharged into a container that has been “tared off” on a weighing instrument which complies with the Weights and Measures (Local and Working Standards Weights and Testing Equipment) Regulations 1986 (e.g. an electronic top pan balance). The regulations refer to the determination of the “discrimination threshold” of the equipment. For digital equipment this is the weight which produces a change of one digit in the reading. For analogue equipment, it is the weight which produces a 1 mm permanent displacement of the pointer.

16 The weight of the liquid (in the tared-off container) shall be determined by use of the weighing instrument. The temperature of the water/liquid shall be measured using a thermometer complying with one of the descriptions in Annex 2 and having a valid test or calibration certificate from a laboratory or test house having the appropriate UKAS (or equivalent) accreditation, and the density of the liquid determined.

17 The volume of the measure is obtained by multiplying the apparent weight of the liquid by the apparent density in air of the liquid at that temperature. Distilled or de-ionised water may be used for this test, and the table in Annex 3 sets out the apparent density of pure water in air for different temperatures. However it is perfectly acceptable to use ordinary tap water provided that its density at the temperature of the test is known.

18 It is important to change the water being used reasonably frequently throughout the test, as it may become contaminated by material dissolved from the surface of the glass.

19 The instrument must be complete, as described in the certificate of approval. Accuracy testing is carried out with water, or the prescribed intoxicating liquor. Dispenses are made, and the capacity determined using either of the previously described methods.

20 When using the Gravimetric method, the liquid temperature should always be recorded at the beginning and then at suitable intervals during the testing e.g. once every 10 dispenses, to ensure the density calculation is applied correctly for all the deliveries. The density of the liquid will need to be determined so that results can be processed effectively.

21 Where the instrument is approved to deliver more than one quantity, or from more than one selection, the accuracy should be determined for each quantity/selection.

## **Regulation 11B**

### **Statistical sampling (for fixed chamber measuring instruments only).**

22 Note: that regulation 11B does not apply to fixed chamber measuring instruments used in the dispense of draught beer and cider. These are prohibited due to the nature of such devices being influenced by several conditions e.g. a long length of pipework between the instrument, line pressure and the cage holding the beer or cider

1. Approved verifiers and inspectors may verify instruments comprising a fixed chamber measuring instrument which meet the relevant criteria specified in the regulations and are used for the measurement of intoxicating liquor, except beer and cider, to test a sample of the production. Where a sample meets the acceptance criteria the whole batch can then be stamped confirming compliance with the requirements (See Annex 1).
2. There is no requirement for manufacturers to follow these sampling procedures which are optional. For the purposes of clarity it should be understood that there will be no compulsion placed on manufacturers to abandon 100% testing if they either do not believe that their production arrangements are suitable for such testing or that they do not consider that it would represent a cost saving for them.

3. It should also be noted that, if a batch which has been tested by means of a statistical sample and does not meet the specified acceptance criteria, it will be necessary to carry out 100% testing of the **whole batch** from which the sample was drawn i.e. every instrument must be tested individually prior to stamping unless the whole batch is destroyed. NB It is not considered acceptable that measures from failed batches should be blended with other potentially acceptable measures and the reworked batch subject to a re-test.
4. It is intended that the option of using statistical sampling should be confined to measuring instruments where the supply of liquid is sited immediately adjacent to the measuring instrument. It is specifically not intended that the provisions should apply to items such as beer meters or other instruments which can only be tested after they have been installed in the place where they are to be used and, for which, testing of every unit is still required.
5. The instruments to which Regulation 11B applies must comprise a batch of items of fixed chamber measuring equipment of amongst other things the same design (excluding those which have adjustable electronic/electro-mechanical method for the control of the dispense), the same manufacture and be designed to deliver the same nominal quantity of liquor.
6. The use of antifoaming agents

When testing intoxicating liquor containing carbon dioxide in the form of aerated bubbles it is necessary to use an appropriate method to Guidance on the use of anti-foaming agents to measure beer used in testing instruments can be found in Annex 4 (1967 Determination from the Board of Trade) and Annex 5 (Weights and Measures Bulletin 1002) specifically relating to the presence of bubbles in the liquid under test.

## Regulation 12

### Testing Methods

23 The following equipment is needed for verification:

#### a) For instruments to be tested Gravimetrically

- A suitable weighing instrument e.g. one that conforms with the requirements of the Weights and Measures (Local and Working Standard Weights and Testing Equipment) Regulations 1986. The weighing instrument should have a discrimination threshold and repeatability in grams not exceeding 1/5 of the appropriate limit of error expressed in millilitres relating to the measure used in the test. Therefore a suitable weighing instrument to test e.g. a spirit measuring instrument with 35 ml delivery which has a permitted tolerance of  $\pm 0.7$  ml is one that has a scale interval of no more than 1 fifth of 0.7 g (i.e. 0.14 g). As weighing instruments have a scale interval in the form  $1 \times 10^k$ ,  $2 \times 10^k$  or  $5 \times 10^k$  units in which the result is expressed (the index k being a positive or negative whole number or equal to zero), the scale interval value would need to be 0.1 g (or lower). It is recommended that users of this guidance refer to NWML 7130

(<http://www.nmo.bis.gov.uk/Docs/Enforcement/7000%20series/7130.pdf> ) paragraph 12 on how to determine the repeatability of an instrument and assess its suitability.

- Test weights, with traceability to national standards, conforming to OIML R 111 accuracy class M1, for the min and max of the weighing range to be used during testing. This will enable the scale to be checked regularly.
- A calibrated thermometer (UKAS or equivalent) see Annex 2
- An appropriate density chart for the liquid used during the test, i.e. the liquid it is designed to deliver for measuring equipment tested on any premises on which it is used for trade) or water, (see Annex 3 for Apparent Density of Distilled Water).

b) **For instruments to be tested volumetrically:**

- Suitable glass flask(s) e.g. one(s) that conforms to Working Standards of Capacity-Glass Volumetric Flasks NWML 7320  
<http://www.nmo.bis.gov.uk/Docs/Enforcement/7000%20series/7320%20WS%20Glass%20Flasks%20dec%2007.pdf>
- A copy of “Weights and Measures Bulletin No. 1002” regarding the use of Anti-Foaming Agents (if applicable, when testing Beer/Cider) can be downloaded from  
[http://www.nmo.bis.gov.uk/content.aspx?SC\\_ID=38%20](http://www.nmo.bis.gov.uk/content.aspx?SC_ID=38%20)

3. It is suggested that the following documentation should be available to demonstrate compliance:

- A copy of the Regulations
- Verification test record form
- A copy of the type approval certificate, to enable the instrument to be checked for compliance.

Where the instruments are to be tested using a statistical sampling method plan (see the Table in Annex 1 for one such example) then this should also include

- A suitable sampling plan
- A random number table or random number generator (for selection of the samples).

## **PART IV**

### **Stamping of Measures Regulation 15**

24 The stamp should be applied to each measure in the group after the group has been passed as fit for trade use. The stamp must be placed on the outside of the measure.

Measures which bear any other mark which might be taken to be a stamp may not be stamped. Measures which have any other statement or mark on them which might reasonably be taken to be an expression of approval or guarantee of accuracy by any person may not be stamped.

### **Pre-stamped instruments**

25 In accordance with the amendment to Section 15 of the Weights and Measures Act 1985 included in the Deregulation (Weights and Measures) Order 1999 (S.I. 1999 No.503), an approved verifier who is the manufacturer of any instrument is permitted to apply the prescribed stamp to that equipment before that instrument has been passed as fit for use for trade, if he is satisfied on reasonable grounds that it will not be used (whether for trade or otherwise) unless either :-

- (a) the equipment has been passed as fit for use for trade, or
- (b) the stamp has been destroyed, obliterated or defaced.

28 Where equipment to which such a prescribed stamp has been applied subsequently fails to pass as fit for use for trade then the approved verifier may either destroy, obliterate or deface the stamp by either :-

- (a) in any case where there is a prescribed manner of doing so, in that manner, or
- (b) in any other case, in such reasonable manner as will leave no doubt that the stamp has been intentionally destroyed, obliterated or defaced.

26 Where a written procedure exists it is recommended that it should include details of the procedure in place to ensure that pre-test stamped instrument that has not been passed as fit for use for trade is not used or exposed for sale. Specifically it should include details on

- a) the procedures used for "quarantine" instruments which have been pre-test stamped but which have not been tested or passed as fit for use for trade
- b) procedures for disposal (or obliteration of the stamp) of pre-test stamped instruments failing to meet the requirements for passing as fit for use for trade

### **Accepted Batches subject to sample-failures**

27 Where the batch has been sampled and the sample passes the test but there are rejected items, then those items in the satisfactory batch which failed the test may not be passed fit for use for trade. Such items must be destroyed or, provided that they have not been pre-stamped prior to testing, may be used for purposes other than prescribed trade use.

## TEST/SAMPLING METHOD

**Definitions**

In this Annex—

- 'acceptance criterion', in relation to a statistical check by attributes, means the greatest number of defective instruments/units found in the sample which, if attained, will nevertheless result in the acceptance of the lot being inspected;
- 'lot' means a group/batch of instruments/units, the number of which does not exceed 10,000 and which are of the same design and size and are manufactured by the same process, and 'size of the lot' means the number of instruments/units comprised in the lot;
- 'rejection criterion', in relation to a statistical check by attributes, means the number of defective instruments/units found in the sample inspected which, if equaled or exceeded, will result in the rejection of the lot being inspected;
- 'sample' means a number of measures selected at random from a lot, and 'sample size' means the number of measures in a sample;
- 'sampling plan' means a sampling plan, an example of which is given in paragraph 3, under which the number of individual instruments/units is to be equal to the size of the sample as specified by the plan and which entails the application of the following methodology.
- 'statistical check by attributes' means a check in which the instruments/units in a sample are classed as defective or not defective in accordance with the provisions of this Annex.

1. The number of instruments/units checked shall be equal to the number in the sample as indicated in the table below.

2. If the number of defective instruments/units found in the sample is less than or equal to the acceptance criterion in that table, the group/batch shall be considered as acceptable for the purpose of the check, except for those instruments that were found not to satisfy the test.

3. If the number of defective instruments/units found in the sample is equal to or greater than the rejection criterion the group/batch shall be rejected.

Number in group/batch	Number of instruments/units in sample	Number of defective instruments/units	
		Acceptance criterion	Rejection criterion
1 - 320	32	0	1
321 - 650	65	1	2
650- 1 000	100	2	3

Over 1 000	160	3	4
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- (i) Batches should be easily identifiable with suitable records. To demonstrate this, manufacturers should introduce batch identification and provide associated records to accompany products when submitted for examination and test. Records of actions taken in relation to failed batches and defective units within acceptable batches should be retained.
- (ii) It is recommended that a detailed quality procedure, or other documentation which describes the procedures under which statistical sampling is conducted, should be provided. It should include information relating to the manner in which the sample is to be selected (e.g. use of random numbers or times of production) together with the test procedures to be followed and procedures for dealing with failures. Records should be available to show that those procedures have been followed.
- (iii) Batches should be drawn from a single homogeneous production run. For instruments assembled from a selection of parts, the batch should comprise an assembly of parts which are each taken from the same batch or batches. For example instruments, which are assembled from components including rubber sealing rings, all those sealing rings should also come from the same batch.

4. If a sample fails then the whole batch, i.e. not just the sample, will be subject to 100% testing, unless the whole batch is destroyed.

5. Where the sample passes the test but there are any rejected items then those items in the satisfactory batch which failed the test may not be passed fit for use for trade. Such items must be destroyed or, provided that they have not been pre-stamped prior to testing, may be used for purposes other than prescribed trade use.

#### **Determination of the sample**

8. The requirement in the Regulations is that the selection of the lot should be done in such a way that it ensures that the sample of instruments chosen provides an acceptable quality level of not more than 1 per cent when tested for attributes, including for limits of error specified in the Regulations.

9. The number of items of fixed chamber measuring equipment must be determined and the items to be tested selected by using sampling plans and procedures which the inspector or the approved verifier considers to be representative. This could be in accordance with British Standard Specification for Sampling procedures for inspection by attributes BS6001-0:2006<sup>(5)</sup> (ISO 2859-10:2006) which provides an acceptable quality level equal to 1 per cent. For isolated lots, it is recommended that the user consults the sampling plans indexed by limiting quality (LQ) given in BS6001-2:1993 (ISO 2859-2:1985).

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10. In selecting the sample, a method that provides “an acceptable quality level not more than 1 per cent etc” should be used.

11. The sample should be drawn in such a way that it is close enough to random so as not to distort the result of the test.

This publication was withdrawn on 7 January 2021.

## **Thermometers**

Thermometers suitable for measuring the temperature of the test water are those which comply with any one of the following British Standards:

- a) BS 5471 : 1977      Thermometers for use with alcohol hydrometers.
- b) BS 593 : 1974      Laboratory thermometers.
- c) BS 5074 : 1974      Short and long stem thermometers for precision use.

Alternatively properly calibrated electronic thermometers may be used.

This publication was withdrawn on 7 January 2021.

Apparent Density of Distilled Water in Air in kg/m<sup>3</sup>

<u>Temperature of water(°C)</u>	<u>Density (kg/m<sup>3</sup>)</u>
5	998.51
6	998.51
7	998.50
8	998.48
9	998.43
10	998.38
11	998.31
12	998.23
13	998.14
14	998.03
15	997.92
16	997.79
17	997.66
18	997.50
19	997.34
20	997.17
21	996.98
22	996.79
23	996.58
24	996.37
25	996.14
26	995.92
27	995.67
28	995.42
29	995.16
30	994.90

These figures take into account the difference between the density of water and an assumed density of 8,000 kg/m<sup>3</sup> if the weights used. The expansion of soda glass is also accounted for. The figures given are for distilled water, if tap water is used they should be increased by 0.3 kg/m<sup>3</sup>.



## Determination by the Board of Trade

of a matter referred by the Chief Inspector of Weights and Measures for the County Borough of Blackpool at the request of Porter-Lancastrian Limited The testing of measuring instruments in accordance with the Measuring Instruments (Intoxicating Liquor) Regulations 1965 (S.I. 1965 No. 1815)

The Board of Trade have been required under section 14(2) of the Weights and Measures Act 1963 to adjudicate upon certain differences between the Chief Inspector of Weights and Measures for the County Borough of Blackpool and Porter-Lancastrian Limited of Bolton, Lancashire.

The differences relate to –

- i. the propriety of determining the quantity of beer in a working standard capacity measure when bubbles are adhering to the inner sides of the measure;
- ii. the use of anti-foam compounds when using beer for the testing of instruments;
- iii. the period for which a working standard capacity measure used for testing should be drained before re-use and the drying of such a measure before re-use.

The Board of Trade, after considering the written evidence of the parties and carrying out such tests as they consider appropriate, have reached the following conclusions:

1. The Board consider that the difference described in head (i) above is purely a question of the interpretation of Regulation 12(2) of the Measuring Instruments (Intoxicating Liquor) Regulations 1965. This particular provision reads –

"In determining whether a measuring instrument falls within the prescribed limits of error, account shall be taken only of the quantity of liquid delivered by the instrument."

In the Board's view a measurement of the contents of a measure containing both liquid and bubbles does not permit "account to be taken only of the

quantity of liquid delivered". If a measurement is taken when bubbles are adhering to the side of the measure account must inevitably be taken of the volume occupied by the bases forming those bubbles (whether of air or gases released from the beer). Accordingly, where beer is used for testing, the amount of liquid in a measure should not be ascertained by taking a measurement at a time when bubbles are adhering to the sides of the measures.

2. The Board accept that any attempt to measure the quantity of a foaming liquid such as beer without the use of an anti-foaming compound occasions long delays. The Board has conducted comparative tests involving the use of a small quantity of Silcolapse 437 smeared around the neck of the measure above the highest graduation line. The Board are of the opinion that the use of anti-foaming compounds has no significant effect upon the drainage characteristics of a standard measure and does not add significantly to the volume of the liquid involved.

The use of anti-foaming compounds is not prohibited by the relevant Regulations and the Board see no reason why inspectors should not use them.

3. The Board consider that variations in practice in draining of standard measures before re-use may produce significant variations in testing results and have recommended a period of drainage of 60 seconds before use. The Board have caused a series of experiments to be conducted in respect of the drainage of standard measures filled with beer. A series of six tests showed that drainage by inversion for a period of 30 seconds (as opposed to 60 seconds) showed an average increase in residue of 0.005 fl.oz. Drainage by inversion and shaking for up to 10 seconds, followed by the application of anti-foaming compounds and then by a further shaking in an inverted position for up to 10 seconds, resulted in a further average increase of 0.023 fl.oz. In the Board's view any deviation from the recommended period of drainage specified in SWM.259 is undesirable in that it leads to inconsistency in testing results.

A.G. White  
an Assistant Secretary  
of the Board of Trade  
14<sup>th</sup> March, 1967

**The Use in Testing of Intoxicating Liquor Measuring Systems (Beer Meters) of Anti-Foaming Agents**

The Measuring Equipment (Intoxicating Liquor) Regulations 1983 do not specifically prescribe the method of testing for “beer meters”. This makes both gravimetric and volumetric testing a possibility. The choice is mainly determined by the practicalities of the installation and the time available.

If an inspector or self verifier chooses to use a volumetric method it is normal practice to use an anti foaming agent to reduce the head in the measuring vessel and thus avoid overspill.

It has come to the attention of NWML that many different chemicals are being used as anti foaming agents by manufacturers, trading standards officers and self verifiers.

NWML has only conducted comparative tests on a silicon based anti foaming agent called Silcolapse 437. The tests concluded that when smeared around the neck of the measure above the highest graduation line there was no significant effect upon the drainage characteristics of a standard measure and it did not add significantly to the volume of the liquid being tested.

When using other products to suppress the foam generated while dispensing it is important to take account of the impact of that product on the measurement result.

Some of the products available can have a more dramatic effect on the liquid being used for testing preventing the release of carbon dioxide completely. Any product that significantly changes the nature of the liquid under test is not recommended without supporting evidence of the degree of uncertainty they introduce into the measurement task.

Where a dispute arises between the user/submitter of an instrument and the verifier/inspector about the use of an anti-foaming agent other than Silcolapse 437 further testing should be undertaken to demonstrate that the agent does not have a significant effect on the measurement.

October 2008

### **Regulatory requirements for wine dispensers**

1. In the case of wine Article 5 of the Weights and Measures (Intoxicating Liquor) Order 1988 prescribes the quantities in which wine must be sold it does not prescribe the method by which it must be measured. If measuring equipment (an instrument) or a measure (a capacity serving measure) is used then consideration must be given as to the method prescribed by regulation and the appropriate requirements from the relevant regulations must be applied.
2. The alternative for the seller is to not use any form of measuring instrument or measure but to use their skill and judgement in ascertaining the correct amount. This is the process used in many parts of America to dispense spirits from “free flow” or “bottle top” pourers. For wine the possibility exists that the seller will “estimate” the dispense of a legal measure from the original bottle by leaving specific amounts in the bottle. However, should the amount dispensed be less than the quantity requested then a short measure offence would have been committed (Section 28). This would be a high risk method of dispensing the prescribed quantity particularly if the vendor does not want to give too much away in quantity or be open to prosecution from ‘short measure’.
3. This is very different from the way in which beer and cider are capable of being sold as Article 2 of the Order not only prescribes the quantity but the use of a capacity measure or a measuring instrument e.g. beer meter, as the method by which it must be measured.

### **Different Scenarios for the measurement of wine**

4. In relation to measuring instruments and measures there are five possibilities outlined for the measurement of wine dispensed for trading purposes which should lead to a legal measurement taking place. There may be other possibilities. This is on the assumption that the measuring instruments and measures are being used by the vendor and not by the customer and that the legal nominal quantities are being used i.e. 125 ml and/or 175 ml or multiples of both. The remaining three possibilities are not considered to be legal.

#### **Measurement considered legal**

- 4.1. Pouring direct from the bottle/container into a verified CE-marked or crown-stamped ‘drinking’ measure if, in relation to the latter, it was put on the market before 1st October 2006.
- 4.2. Pouring into a verified CE-marked or crown stamped ‘transfer’ measure if, in relation to the latter, it was put on the market before 1st October 2006 and then transferring into a non-approved wine glass.
- 4.3. Pouring using an approved ‘wine dispenser’ that delivers a nominal quantity (or quantities) into a non-approved wine glass (note: it is not permissible to approve a dispenser having a ‘top up’ facility (i.e. ‘free-flow’). The dispenser is in use for trade but the plain (non-approved) wine glass is not – it is simply being used as a receptacle.

- 4.4. Pouring using an approved 'wine dispenser' that delivers a nominal quantity (or quantities) into an approved wine glass (note: it is not permissible to approve a dispenser having a 'top up' facility (i.e. 'free-flow'). The dispenser is in use for trade but the approved wine glass is not – it is simply being used as a receptacle in the same way as pouring into a plain (non-approved) wine glass. The wine dispenser could be delivering 125 ml whereas the approved wine glass simply being used as a receptacle could be a 175 ml measure.
- 4.5. Pouring from a non-approved 'wine dispenser' that delivers a nominal quantity (or quantities) and has a facility to 'top up' (either as part of the dispenser or by the availability of a separate method eg another bottle on standby) into an approved wine glass. The approved glass is in use for trade and the customer can ask the vendor for a 'top-up' if the dispense is short.

Measurement not considered legal

- 4.6. Pouring from a non-approved 'wine dispenser' that delivers a nominal quantity (or quantities) and not having a facility to 'top up' into an approved wine glass.
- 4.7. Pouring from a non-approved 'wine dispenser' that delivers a nominal quantity (or quantities) and having a facility to 'top up' into a non-approved wine glass.
- 4.8. Pouring from a non-approved 'wine dispenser' that delivers a nominal quantity (or quantities) and not having a facility to 'top up' into a non-approved wine glass.
5. Methods 1, 2, 3, 4, and 5 are considered legal under the Weights and Measures Act 1985 whereas Methods 6, 7, and 8 are not considered legal. Method 6 would potentially lead to a short measure offence (Section 28) whereas 7 and 8 would potentially lead to an offence of having unstamped measuring equipment or measures for use for trade (Section 11(3)).
6. The above examples relate to a wine dispenser being used by the vendor and not the purchaser. If the purchaser is responsible for operating the wine dispenser as a 'self service' instrument then it is NMO's opinion that it would not be appropriate for a 'self-service' wine dispenser to be unstamped, even if the wine is dispensed into a stamped glass, on the assumption that the delivery to the customer is expected to be correct and any means to enable the dispenser of a 'top-up' is unlikely to be provided in practice.
7. An 'approved wine dispenser' means it has been submitted to NMO Technical Services Directorate and gained a type approval certificate under section 12, and 'stamped' by a trading standards officer or approved verifier.
8. There are plans to deregulate the rules for specified quantities for wine measures below 75 ml. In this case the seller will be free to choose from the following sizes as specified in Schedule 3 of the 85 Act: 1, 2, 5, 10, 20, 25, 35, 50, 70, 125, 175, 250 ml
9. The rules for using wine dispensers and/or approved glasses with these quantities remain as specified above.



**Automated Wine Dispensing Systems**

This Guidance amends and replaces the Guidance issued by LACORS on 10/07/2007.

In response to a request from industry, LACORS wishes to offer the following guidance in relation to automated wine dispensing systems.

**Background**

This type of instrument is a vending machine-style piece of equipment that allows retailers to offer several bottles of wine for dispensing via an automated delivery system. It may incorporate a wine preservation system. Several UK retailers have already installed such systems. There are differing makes of instrument that operate along similar lines.

**Metrology**

Such systems dispense wine by the glass in measurements that can be defined by the operator (retailer). When wine is sold by the glass, it must be sold in measures of 125ml or 175ml, or multiples thereof [1]. These systems are typically used to dispense measures between 25ml and 75ml, for the purposes of sampling. As a result, this method of dispensing for sale is currently unlawful. The only lawful way to use the equipment at present, for selling wine by the glass, would be to dispense measures of 125ml, 175ml or multiples thereof into stamped, lined glasses, or other stamped capacity measures. However, it is worth noting that the machine generally gives no option to 'top up.' If its measures are not as accurate as claimed, the onus would be on the retailer to top up the stamped glass to its line, or the stamped capacity measure to the appropriate level, manually, which may mean opening another bottle.

Further, these machines do not, currently, have a Type Approval Certificate (TAC) for the UK. As a result, it is not lawful to use the machine as a measuring instrument for the sale of wine unless into stamped, lined glasses, or other stamped capacity measures. It could be used to give away samples, but it seems unlikely that retailers would be content to do this. If the amount dispensed can be varied by the user, the apparatus is unlikely to be awarded a TAC.

**Licensing**

If a retailer is only licensed to sell alcohol for consumption off the premises (an 'off-licence') then it would be unlawful for them to sell alcohol for consumption on the premises without the proper licence. However, even with an on-licence, all of the guidance above still applies.

**Conclusion**

As a result, LACORS strongly advises that a prospective purchaser of such a system is made aware of this advice

Those who have already installed the system should be aware that they may be in contravention of weights & measures and / or licensing law, unless stamped, lined

glasses, or stamped capacity measures, are used.

Section 7 (5) of the Weights and Measures Act 1985 reads:-

Where any weighing or measuring equipment is found in the possession of any person carrying on trade or on any premises which are used for trade, that person or, as the case may be, the occupier of those premises shall be deemed for the purposes of this Act, unless the contrary is proved, to have that equipment in his possession for use for trade.

The possession of unstamped wine dispensing instruments on trade premises is therefore, potentially, a breach of Section 7(5) of the Weights and Measures Act, unless it could be proved by the user that a stamped glass, or other stamped capacity measure, is used as the legal quantity determinant on each occasion of use, and that there is in place a five procedure which facilitates the topping up of quantities which are deficient. The wine should be presented to the customer in this stamped glass, or it should be transferred from a stamped capacity measure into a drinking glass in front of them.

This publication was withdrawn on 7 January 2021.

## LOCAL GOVERNMENT REGULATION GUIDANCE

19 May 2010

### SELF SERVICE DRAUGHT BEER MEASURING INSTRUMENTS

#### Background

Instruments of this type have been found mounted on tables in licensed premises. They enable customers to measure draught beer into glasses, and to settle their account by reference to the total quantity of beer drawn. These systems incorporate a meter such as a turbine meter, which allows free-flow delivery, and indicate the quantity delivered, for example, in pints of 0.1 pint.

#### Legal Metrological Requirements

Such systems allow customers themselves to dispense beer into a glass in various quantities, which they determine themselves.

There are 2 relevant Metrology Statutory Instruments:-

- The Weights and Measures (Intoxicating Liquor) Order 1988 (as amended) and
- The Measuring Equipment (Intoxicating Liquor) Regulations 1983 (as amended)

Article 2 of the Weights and Measures (Intoxicating Liquor) Order 1988 reads:-

2(1) Unless pre-packed in a securely closed container and except when sold as a constituent of a mixture of two or more liquids, beer or cider shall be sold by retail:

- (a) Only in a quantity of  $\frac{1}{3}$  pint,  $\frac{1}{2}$  pint or a multiple of  $\frac{1}{2}$  pint; and
- (b) Subject to paragraph (2) below, where sold for consumption on the premises of the seller, only in a capacity measure of the quantity in question.

(2) Paragraph (1)(b) above shall not apply where:

- (a) The quantity of the intoxicating liquor the subject of the sale is ascertained by means of measuring equipment stamped in accordance with regulation 16(2) of the Measuring Equipment (Intoxicating Liquor) Regulations 1983.
- (b) The liquor in question is delivered directly from the measuring equipment into the container in which it is intended the buyer should receive it.
- (c) The liquor in question is so delivered after the buyer has ordered it; and
- (d) The measuring equipment (or that part of it from which the liquor is delivered) is installed in such a position that the delivery of the liquor into the container can readily be seen by

customers in that part of the premises where the buyer ordered the liquor.

Regulation 2 of the Measuring Equipment (Intoxicating Liquor) Regulations 1983 (as amended) reads:-

These Regulations apply to measuring equipment for use for trade on premises where liquor is sold by retail for the purpose of making any measurement of liquor in a quantity not exceeding 2 pints; and measuring equipment to which these Regulations apply is hereby prescribed for the purposes of section 11(1) of the Act.

### **Compliance with the Metrological Requirements**

With the instruments in question, the quantity delivered is defined by the operator, who is the customer. If there is no direct control or interlock which prevents the operator delivering quantities other than  $\frac{1}{3}$  pint,  $\frac{1}{2}$  pint or multiples of  $\frac{1}{2}$  a pint, compliance with the Weights and Measures (Intoxicating Liquor) Order 1988 will not be guaranteed, especially if any indications of the quantity dispensed, or measurements recorded, are in 0.1 pint.

The requirement for the deliveries, where sold for consumption on the premises of the seller, to be only in a verified capacity serving measure (CSM) of the quantity in question, is not likely to be met as it is the buyer not the seller taking the delivery and the sale is not on the basis of the delivery into the CSM. The alternative requirement, in that the quantity of the intoxicating liquor which is the subject of the sale is ascertained by means of measuring equipment stamped in accordance with regulation 16(2) of the Measuring Equipment (Intoxicating Liquor) Regulations 1983, will also not be met, unless the system is fully compliant with the requirements of the regulations including the requirements for type approval under the Weights and Measures Act 1985 and is stamped.

If such an instrument were used to make ANY measurement of liquor in a quantity not exceeding 2 pints, it would appear to fall within the definition of measuring equipment in the Measuring Equipment (Intoxicating Liquor) Regulations 1983 (as amended), and would be prescribed, and would require a certificate of approval. At present, no such measuring equipment is made in accordance with a pattern in respect of which such a certificate of approval is in force, as required by Regulation 3.

If NO measurements were made that were less than 2 pints, then this alternative ceases to be an option and therefore all such deliveries would have to be made into a verified CSM.

### **Licensing**

There are licensing concerns since the beer is delivered, free flow, by the customer. It would be important that some control procedure was in place whereby the bar staff can effectively supervise alcohol sales, and ensure that offences under the Licensing Act 2003 relating to underage and proxy sales, as well as selling to drunk persons, are not committed by either patrons or staff. These issues have both health and road safety implications.

### **Conclusion**

In inspecting and testing instruments of this type, councils should be aware of the manner of use, and the type of product measured and its characteristics. Councils cannot give "approval" for use, unless all such usage is fully compliant.

Based on information received to date, these instruments are unlawful for use for trade and as such, their use is an offence by virtue of section 11(2) of the Weights and Measures Act 1985.

As with all such matters we would expect councils to consider their own enforcement policies alongside views of the licensing authority, any consumer complaints and unfair competition issues, before considering what action to take.

It is strongly advised that a prospective purchaser of such a system is made aware of this advice. Those who have already installed such systems should be aware that they may be in contravention of weights & measures and / or licensing law, depending on how the systems are used.

This publication was withdrawn on 7 January 2021.



**National  
Measurement  
Office**

This publication was withdrawn on 7 January 2021.