WEIGHTS AND MEASURES

The Measuring Instruments (Liquid Fuel and Lubricants) Regulations 2006 (S.I. 2006 No. 1266)
as amended by
The Measuring Instruments (Amendment) Regulations 2010 (SI 2010/2881)

Guidance on Regulation

March 2011

Version 6
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 - simply type in your postcode and press “go”.

*This guidance complies with the Government Code of Practice on Guidance and will be reviewed in October 2016*

The National Measurement Office
Stanton Avenue
Teddington
Middlesex
TW11 0JZ
www.nmo.bis.gov.uk

ENQUIRIES
Phone tel 020 8943 7277
Email registry@nmo.gov.uk
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| Version 3 / February 2009| Revised Schedule 4 – markings and inscriptions  
                             Revised criteria for re-qualification replaces para 90 and deletes paras 91-92 |
| Version 4 / July 2009    | Corrects error in Schedule 4 |
| Version 5 / December 2010| Updates guidance to comply with the BRE Code of Practice on Guidance on Regulation, minor changes to up-date links |
| Version 6 / March 2011   | Amendment to incorporate changes from the Measuring Instruments (Amendment) Regulations 2010 – Contents, paras 2, 4, 5, 6, 13, 14.1, 14.2, 15.1, 17, 18.2, 86, 101-104, 106, 108, Schedule 1 – paras 1.3 and 16(10), and Schedule 6 to address the implementation of Commission Directive 2009/137/EC; and miscellaneous typographical errors. |
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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.

Foreword


3 Separate measuring instrument regulations have been made to implement each of the instrument types prescribed in the UK under the Directive. They have been written so that for each type of instrument (measure) their field of application and in-service control mirror the scope of regulations made previously under the Weights and Measures Act 1985 and the Weights and Measures (Northern Ireland) Order 1981. A further regulation relates to instruments covered by the Directive, but not regulated within the UK2. This regulation provides a means by which UK manufacturers can be permitted to undertake conformity assessment procedures on these instruments. This will allow them to export to other Member States where the particular instruments are regulated.

4 There is also a distinction between measures relating to the measuring instruments when they are first placed on the market or put into use (which are governed by the Directive, as amended,) and the in-service provisions which are derived from existing national provisions. The Regulations, as amended, therefore apply both at the point at which the instrument is placed on the market and in-service testing and subsequent repair and re-qualification.

5 The Regulations came into force on 30 October 2006 after which date new designs of liquid fuel and lubricant measuring instruments placed on the market must comply with their provisions. The provisions of the Amendment Regulations must also be complied

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with from 1 June 2011 when they come into force. This guidance is intended to assist manufacturers, notified bodies and enforcement authorities in meeting the requirements of the Regulations.

6 There is significant input from WELMEC, the European Co-operation in Legal Metrology, to the understanding and interpretation of the Directive. WELMEC has already convened a number of working groups for this purpose, and the UK participates in WG10 on measuring equipment for liquids other than water. WELMEC considers questions of application and implementation, particularly in areas of technical uncertainty and acts as a forum for seeking advice from the European Commission on common issues. Document 8.15 is a guide for liquids other than water and documents 10.5 and 10.6 respectively relate to the marking of fuel dispensers and the sealing of fuel dispensers. Information regarding WELMEC and its decisions and publications can be found at www.welmec.org.

Background

7 The Directive is a “New Approach” Directive and was adopted by the EC Council of Ministers in April 2004. It consists of 27 Articles, 14 annexes and 10 instrument specific annexes and provides (subject to the transitional provisions) for the repeal of the earlier old approach Directives 71/319/EEC and 71/348/EEC on meters and ancillary equipment for liquids other than water.

8 Member States were required to implement the provisions of the Directive into their national law by 30 April 2006 and to apply the new legislation with effect from 30 October 2006.

9 The Directive extends to all measuring instruments listed in Article 1 and provides that Member States may prescribe them for measuring tasks for reasons of public interest, public health, public safety, public order, protection of the environment, protection of consumers, levying of taxes and duties and fair trading where they consider it justified. Following a public consultation it was decided that the UK implementation should apply to areas covered by existing weights and measures regulations only. Consideration about whether to extend the scope of the requirements to previously unregulated instruments or applications may be the subject of further consultation at a later date.


11 The Commission has issued guidance on New Approach directives in “Guidance on the implementation of directives based on the New and Global Approach” which can be found at:

12 The principals of the Regulations are set out in the Commission Guidance as follows:

- Harmonisation is limited to essential requirements.
- Only products fulfilling the essential requirements may be placed on the market and put into service.
- Harmonised standards, the reference numbers of which have been published in the Official Journal and which have been transposed into national standards, are presumed to conform to the corresponding essential requirements.
- Normative documents drawn up by OIML and the list of the parts thereof corresponding to the essential requirements (in conformity with Article 16.1 of the Directive for which the Commission has published the references in the Official Journal.
- Application of harmonised standards or other technical specifications remain voluntary, and manufacturers are free to choose any technical solution that provides compliance with the essential requirements.
- Manufacturers may choose between different conformity assessment procedures provided for in the applicable directive.

13 The "New Approach" to Technical Harmonisation is an important part of the process for achieving the single market. It is intended to remove the technical barriers to trade caused by differing national laws. Directives agreed under the New Approach allow for the free movement (placing on the market and putting into service) in the Community of goods that conform to the essential and other requirements of those Directives. Such products carry the "CE marking" and no Member State is allowed to refuse complying products access to its market. In this case all compliant liquid fuel and lubricants measuring instruments covered by the Directive (as amended by Directive 2009/137/EC) have free movement throughout the Community.

14.1 The Amendment Directive was agreed on 10 November 2009 and entered into force on 1 December 2009. Member States were required to implement the Amendment Directive into their national law by 1 December 2010\(^3\) and to apply the new legislation with effect from 1 June 2011.

14.2 Regulation 2 of the Amendment Regulations implements the Amendment Directive in respect of liquid fuel and lubricants measuring instruments by amending the essential requirements so as to explicitly prohibit systematic exploitation of these instruments.

15.1 In the Regulations, as amended, it is important to distinguish between when instruments are first placed on the market or put into use and requirements that relate to in-service provisions. The first are requirements of the Directive, as amended; the second are national provisions and will therefore apply only to Great Britain.

15.2 The Regulations apply to both of these aspects and will therefore cover the initial placing on the market or putting into use of an instrument, its in-service testing and subsequent repair and re-qualification. In line with existing regulations for liquid fuel and lubricants measuring instruments the “in service” provisions are limited to use for trade as defined under s7 of The Weights and Measures Act 1985. Northern Ireland has its own in-service provisions.

\(^3\) The Amendment Directive was implemented into UK law on 2 December 2010.
16 The Directive provides an ‘optionality clause’. This means that Member States may prescribe the category and range of applications for measuring instruments they wish to control. This will lead to a variation between Member States which will mean that for the same use, instruments in some Member States will be regulated, whereas in other Member States they will not.

PART I

PRELIMINARY

17 The Regulations, as amended, have been made using powers in the European Communities Act 1972 and, in relation to Part III, the Weights and Measures Act 1985. The Regulations, as amended, also extend to Northern Ireland except for Part III. Separate in-service regulations will be drafted for Northern Ireland.

Citation and commencement

Regulation 1

18.1 This gives the title of the Regulations and states the coming into force dates of 30 May 2006 for the regulations listed in 1(2) (essentially relating to the designation of notified bodies) and 30 October 2006 for the remaining regulations.

18.2 Regulation 1 of the Amendment Regulations gives the title and coming into force date of 1 June 2011 of the changes to the Regulations.

Interpretation

Regulation 2

19 This gives definitions of many of the terms used in the Regulations. Other terms may be defined where they appear, or have the same meanings as in the Weights and Measures Act 1985 or in Northern Ireland the Weights and Measures (NI) Order 1981.

20 The following definitions are important to an understanding of the Regulations.

Manufacturer - means a person responsible for the conformity of a liquid fuel and lubricants measuring instrument with these Regulations with a view to either placing it on the market under his own name or putting it into use for his own purposes, or both;

Authorised representative - The manufacturer may appoint any natural or legal person to act on his behalf as an authorised representative. The authorised representative must be established in a Member State. The authorised representative must be authorised by the manufacturer, in writing, to act on his behalf, and he may be addressed by the UK authorities instead of the manufacturer with regard the latter’s obligations under the
Regulations. The manufacturer remains generally responsible for actions carried out by an authorised representative on his behalf.

**Approved verifier** - This is a term used in Regulation 23 and means a person approved pursuant to section 11(A)(1) of the Weights and Measures Act 1985 (in Northern Ireland Article 9(3B) of the Weights and Measures (NI) Order 1981.

**Inspector** - This is a term used in Regulation 20, and is not defined in the Regulations. It means an inspector of weights and measures appointed under section 72(1) of the Weights and Measures Act 1985 (in Northern Ireland Article 40 of the Weights and Measures (NI) Order 1981).

**Importer/person responsible for placing on the market** - An importer (a person responsible for placing on the market), for the purposes of the Directive, is any natural or legal person established in the Community who places a product from a third country on the Community market. The importer must ensure that he is able to provide the market surveillance authority with the necessary information regarding the product, where the manufacturer is not established in the Community, and has no authorised representative in the Community. In line with Schedule 1 of the Interpretation Act 1978 a person includes a body of persons corporate or unincorporated in that it applies to both a natural or a legal person.

**Meter** – this term is derived from R117 and is NOT as colloquially used in the UK. Meter in these Regulations includes the measurement transducer, pulser, calculator and the indicator.

**Notified Body** means—

(a) the Secretary of State; or

(b) a United Kingdom notified body namely a person designated under Regulation 7; and

(c) for the purposes of regulations 4(1)(c), 20(1)(b), 22(1)(c) and 25(6), a person designated by another Member State who has been notified to the Commission and the other Member States pursuant to Article 11.1 of the Directive.

**Installer**

The installer and assembler of a product, which is already placed on the market, should take necessary measures to ensure that it still complies with the essential requirements at the moment of first use within the Community.

**Minimum measured quantity**

Minimum measured quantity is the same as ‘minimum delivery’ which is still an acceptable marking. Although the Directive allows flexibility the norm throughout Europe will be for a 2 litre minimum delivery for conventional retail fuel dispensers.

**Application**
Regulation 3

21 The Application is consistent with the part of the 1995 regulations covering measuring systems in use for trade making continuous and dynamic measurement of liquid fuel in a quantity equal to or less than 100 litres. This does not mean that measuring instruments must be limited to a maximum of 100 litres although there may be Health and Safety regulations which have additional requirements. However any measuring system which is used for making deliveries up to and including 100 litres are covered by these regulations even if they can also make deliveries greater than 100 litres. Measuring systems which never make deliveries of 100 litres or less are not within the scope of these regulations.

22 Schedule 1 defines a fuel dispenser as a measuring system intended for the refuelling of motor vehicles, small boats and small aircraft but the Directive does not qualify ‘small’. This is not a problem as the quantity dispensed controls whether the system is prescribed or not. If the measuring system makes trade deliveries equal to or less than 100 litres or 100 kilograms, it is prescribed by these regulations. This is compatible with the typical deliveries made to small boats and small aircraft. If a fuel dispenser is for commercial aircraft or large vessels and only ever delivers quantities greater than 100 litres or 100 kilograms it is not covered by these regulations. NWML would advise operators of such equipment to label them clearly not to be used for deliveries below 100 litres or 100 kilograms.

23 Annex MI-005 of the Measuring Instruments Directive deals with measuring systems making continuous and dynamic measurement. Therefore instruments, such as paraffin dispensers, which only dispense preset quantities, remain within the scope of the 1995 regulations.

24 All weighing machines were prescribed by The Weights and Measures Regulations 1963 (in Northern Ireland the Weights and Measures Regulations (Northern Ireland) 1967 and this included any instruments indicating mass units such as mass flow instruments. Annex MI-005 of the Measuring Instruments Directive includes both mass and volume. To rationalize the situation and maintain the status quo these regulations cover measuring systems making continuous and dynamic measurement of liquid fuel in a quantity equal to or less than 100 kilograms. Although with most liquids 100 litres is not equal to 100 kilograms it was decided to use this nominal value as the actual equivalent mass of 100 litres would be different for different fuels and lubricants.

25 LPG (liquefied petroleum gas) and LNG (liquefied natural gas) are excluded from the scope of the Regulations. CNG (compressed natural gas) is a gas and therefore not a liquid fuel.

Regulation 3(1)

26 The Regulations apply to liquid fuel measuring instruments in use for trade as defined by section 7 of the Weights and Measures Act 1985 (in Northern Ireland Article 5 of the Weights and Measures (NI) Order 1981 that have been first placed on the market or put into service on or after the 30 October 2006. The Regulations have similar in-service provisions to those included in the existing regulations insofar as they are consistent with the Directive.
Regulation 3(2)

27 The Regulations do not apply to liquid fuel measuring instruments in respect of which a certificate of approval granted before 30 October 2006 under the following regulations that is still in force and which is first passed as fit for use for trade and stamped:

- The Weights and Measures Regulations 1963 (in Northern Ireland the Weights and Measures Regulations (Northern Ireland) 1967) for mass flow measuring instruments.

28 A certificate of approval referred to in Regulation 3(2) will remain valid until the date on which it expires but no later than 30 October 2016. However it may remain in force in accordance with Section 12(11) of the Weights and Measures Act 1985, in which case, those instruments will still be subject to the 1995 Regulations.

29 The certificate may be modified up to the date of expiry. A liquid fuel measuring instrument may continue to be used indefinitely provided that it complies with the expired certificate.

Regulation 3(3)

30 Instruments not in conformity with the Regulations may be displayed or presented at a trade fair, exhibition or demonstration if they are clearly marked to indicate that they are not compliant with the essential requirements of the Regulations and cannot be acquired or used until they have been made to comply by the manufacturer.

31 A certificate of approval referred to in Regulation 3(2) and any authorisation of modification to that certificate shall have the effect that existing certificates of approval issued under the Measuring Equipment (Liquid Fuel and Lubricants) Regulations 1995, or the Weights and Measures Regulations 1963 (in Northern Ireland the Weights and Measures Regulations (Northern Ireland) 1967) for mass flow measuring instruments, will remain valid until the date on which they expire that is no later than 30 October 2016.

Part II

Placing on the market and putting into use of liquid fuel and lubricant measuring instruments

Regulation 4(1)

This is similar to ‘passing as fit for trade’ under earlier regulations.
32 This regulation makes it an offence to first place on the market or put into use an instrument to which the Regulations apply unless it
(a) Meets the essential requirements,
(b) Has demonstrated conformity with these essential requirements and
(c) Carries the CE marking, M marking and identification number of the notified body which carried out the conformity assessment.

33 In Regulation 4(b) “its” refers to “the instrument’s”.

34 The terms placing on the market and putting into use are defined in the regulations and originate from the Directive. The requirements of Regulation 4(1) apply only to when liquid fuel and lubricants measuring instruments are first placed on the market or put into use. Any subsequent re-qualification is addressed by Part IV of the regulations. It should be remembered that it is intended these regulations apply only to instruments that are being used for trade as defined in Section 7 of the Weights and Measures Act 1985 (in Northern Ireland Article 5 of the weights and Measures (NI) Order 1981). This applies to instruments when they are first placed on the market or re-qualified.

5 Compliance with the essential requirements

Regulation 5(1)

35 Manufacturers can use more than one method to demonstrate compliance with the essential requirements.

Regulation 5(1) lists some of these methods:-

(a) using any technical solution that complies with the essential requirements;
(b) correctly applying solutions set out in the relevant national standard; or
(c) correctly applying solutions set out in the relevant normative document,

and selecting and following one of the conformity assessment procedures referred to in regulation 6.

Regulations 5(2) and (3)

36 This includes the presumption that instruments which conform fully or in part to relevant national standards or normative documents will be presumed to conform fully or in part with the essential requirements. Relevant national standards and normative documents for this purpose will be published by the NMO, or the competent authority in another Member State in accordance with Regulation 2. Normative document references for liquid fuel measuring instruments identified by the Commission are published on the NMO web-site and can be found at http://www.NMO.gov.uk/mid.aspx. Currently no harmonised standards exist in this field.

Where conformity is only in part to relevant national standards or normative documents then either alternative, or parts of both documents, where available, should be used to give full conformity or other technical solutions provided. Other technical solutions could include the use of European standards which are not harmonised standards and international standards such as OIML Recommendations which are not normative documents.
37 The appropriate OIML Recommendation for liquid fuel measuring instruments is Recommendation R117 (Edition 1995) which can be found on the OIML web-site at http://www.oiml.org/publications/. For OIML Normative Document references and relevant WELMEC publications please see subsequent paragraphs on conformity assessment.

38 Where conformity is only in part to relevant national standards or normative documents then either alternative, where available, should be used to give full conformity or other technical solutions provided. Other technical solutions could include the use of European standards which are not harmonised standards and international standards such as OIML Recommendations which are not normative documents.

**Regulation 5 (4)**

39 Provides for devices which do not meet the essential requirements and which are not in use for trade. These can be connected to a measuring instrument without affecting the conformity of the instrument to the essential requirements. This could for example be optical reading or data storage devices for management purposes only.

**Conformity assessment procedures**

**Regulation 6(1)**

40 The different conformity assessment procedures available to manufacturers are set out as modules in the annexes of the Directive. These are numbered A to H1.

The options available to manufacturers for liquid fuel and lubricant measuring instruments are as follows:

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<thead>
<tr>
<th>Measuring Systems</th>
<th>B+D</th>
<th>B+F</th>
<th>G</th>
<th>H1</th>
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The options above represent:

- Type examination followed by declaration of conformity by the manufacturer based on formal quality assurance of the production process (including test and final inspection) as two separate processes (Modules B + D)
- Type examination followed by 3rd Party verification (Modules B + F)
- 3rd Party verification for one off ‘bespoke’ instruments which would otherwise need type examination (Module G)
- Design examination together with declaration of conformity by the manufacturer based on full formal quality assurance of the design and production process (including test and final inspection) as part of an integrated process (Module H1)

41 The procedures that manufacturers must follow in order to meet the requirements of the individual modules are considered in Schedule 1 to these guidance notes.
42 For further information on conformity assessment procedures and other aspects regarding the interpretation of the Directive reference should be made to “Guide to the implementation of directives based on the New Approach and the Global Approach” This document can be found at the following website.


43 For Modules F under 4.1 and 5.2 the recommended tests to be carried out for initial and subsequent verification should identified together with the standards necessary to ensure traceability of measurement. See Schedule 7 to this guidance.

44 The EU Commission in relation to the Directive has published a list of references to normative documents in the Official Journal C268/01 which in part gives presumption of conformity to the essential requirements. This includes OIML R117 edition 2005 and OIML D11 edition 2004. This information can be found on the NMO web-site or by reference to the EU web-site at


45 The normative references address all the relevant provisions of the Directive i.e. both the general and instrument specific requirements, in tabular form, in relation to the corresponding paragraphs of the respective OIML Recommendation and makes comment, in general terms only, of any differences.

46 WELMEC documents, published on the WELMEC website, set out as guidance full versions of these simplified tables with background information and comment for interested parties. Liquids other than water are covered by document WELMEC 8-15.


Other WELMEC documents of interest are the guides 10.5 and 10.6 in relation to the marking of fuel dispensers and sealing of fuel dispensers respectively which can be found at:

http://www.welmec.org/fileadmin/user_files/publications/WELMEC%20Guide%2010.5%202006.pdf, and


47 It will be for the manufacturer and/or Notified Body to decide how to interpret the guidance.

Regulation 6(2)

48 Schedule 3 of the Regulations outlines the nature of the technical documentation that a manufacturer or his authorised representative must maintain. This information must be provided to a notified body to enable them to carry out the relevant assessment. This documentation must be provided in the language of the notified body or any other acceptable language acceptable to it in compliance with paragraph 10 of Part II of Schedule 2.
Designation of United Kingdom notified bodies

Regulation 7(1)

49 Under Article 11 of the Directive notified bodies are required for the tasks relating to the conformity assessment of modules A to H1 (see paragraph 39 of this guidance for those relevant to liquid fuel and lubricants measuring instruments). The criteria for designation of these bodies in accordance with Article 12 are included in Schedule 2 Part 1 of the Regulations.

Regulation 7(2)

50 If an organisation meets the requirements of Schedule 2 Part I of the Regulations permit the Secretary of State (NMO) to designate a person, whether that is a person resident or incorporated or carrying on a business in the United Kingdom or any other type of person e.g. a local weights and measures authority, to be a UK notified body. The definition of a notified body includes a person although it would appear unlikely that an individual person would be appointed. Where the designation is in respect of a particular description of a liquid fuel or lubricant measuring instrument the Secretary of State must be satisfied that the applicant meets the criteria as respects that instrument. As with the definition of an importer and, in line with Schedule 1 of the Interpretation Act 1978, a person includes a body of persons corporate or unincorporated in that it applies to both a natural or a legal person. The application form for bodies applying to be designated as a United Kingdom notified body under Regulation 7 can be found at:


Regulation 7(3)

51 If a person applying to be a notified body operates an approved quality system under a relevant harmonised standard e.g. EN 17025/17020 and EN45011/45012 he shall be presumed to meet the criteria of the Directive only to the extent that the standard corresponds with the criteria of the Directive. The application form for persons applying to be designated as a notified body under Article 11 and bodies wishing to extend their current status to include conformity assessment tasks in the Directive can be found at:


Regulation 7(4)

52 Designations under the Regulations must be in writing which may be either in electronic or hard copy format.. They may include conditions such as the scope of the designation.

Regulation 7(5)

53 In addition to the criteria in Schedule 2 Part I of the Regulations the Secretary of State may consider any matter appearing to him to be relevant prior to designating a person to be a UK notified body under Regulation 7. The functions of a notified body in Regulation 8 are set out in Part 2 of Schedule 2 to the Regulations and in Schedule 2 of this guidance.
Provisions supplemental to regulation 7

Regulation 9

54 These provisions of Regulation 9 deal with the publication of lists of notified bodies and the inspection of notified bodies. The Secretary of State will periodically carry out an inspection of UK notified bodies. The purpose of that inspection shall be to verify whether the notified body meets the notified body criteria and complies with any designation to which it is subject and complies with the Regulations. It is important to remember that although such an inspection may result in a visit to a manufacturer, it is the notified body that will be being inspected, not the manufacturer.

Regulation 9(1)

55 Member States provide the European Commission and other Member States with details of the notified bodies designated under the Directive. The European Commission also publishes a list of notified body numbers which gives details of the notified body and the instruments on the NANDO website. For MID click on: http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=directive.annex&dir_id=125641&type_dir=NO%20CPD

Search by Annex for the relevant declaration of conformity and then by instrument type Search by country and then by notified body number to give name and for MID the instruments for which it has been notified and the applicable procedures/annexes

56 This site will enable you to find the European notified bodies as well as third country bodies designated under formal agreements [Mutual Recognition Agreements (MRAs), Protocols to the Europe Agreements on Conformity Assessment and Acceptance of Industrial Products (PECAs) and European Economic Area (EEA)] responsible for carrying out the conformity assessment procedures.

57 The Secretary of State also publishes a list of manufacturers approved those Notified Body responsible for quality certification. This specifies which instruments/ measures the manufacturer is approved to ‘self verify’. These details will be available on the NMO website at nmo.gov.uk under ‘enforcement’.

Fees

Regulation 11

58 This Regulation permits notified bodies (which includes the Secretary of State) to charge such fees in connection with or incidental to the carrying out of conformity assessments or specific tasks as it may determine.

59 Section 56 of the Finance Act 1973 requires the Secretary of State to define by statute the fees he charges for certain tasks to be carried out in relation to EU commitments/obligations. The Measuring Instruments (EEC Requirements (Fees) (Amendment) Regulations 2004 (S.I. 2004 No 1300 were amended to add the MID
Regulations to the existing list of regulations by the Measuring Instruments (EEC Requirements (Fees) Regulations 2006 (S.I. 2006 No 604), the Measuring Instruments (EEC Requirements (Fees) (Amendment No 2) Regulations 2006 (S.I. 2006 No 2679) and the Measuring Instruments (EEC Requirements (Fees) Regulations 2008 (S.I. 2008 No 732).

60 The Regulations do not govern the fees that may be charged by other notified bodies other than identifying broad parameters in which all notified body fees should be set. 60

61 The Regulations do not govern other duties undertaken by local authorities relative to the Regulations i.e. in service inspection, subsequent re-qualification and market surveillance.

Regulation 11(4)

62 Provides that, in cases where fees are charged after work is completed or payment of fees has been requested in writing, those fees have not been paid to the notified body within a period of 28 days then the notified body may give 14 days’ notice in writing that the certificates or notification appropriate to the conformity assessment will be suspended until the fees have been paid.

Marking and identification requirements

Regulation 12

63 Schedule 4 to this guidance describes the CE marking, supplementary metrology (M) marking and the identification number of the notified body concerned with the conformity assessment which must be affixed to each instrument so as to be visible and legible. The M mark denotes that the instrument meets the requirements of the MID. WELMEC has issued guide number 10.5 titled Guide for Common Application of Marking of Fuel Dispensers. This can be downloaded free from: www.welmec.org. This guide addresses the marking with issues such as multi product dispensers, common calculators and gives recommendations for marking plates with multiple markings.

64 It should be noted the supplementary markings are different from those in the NAWI Directive 2009/23/EC For the purposes of the Directive; the M marking does not have to be on a green background as it does under 90/384/EEC but it must be accompanied by the last two digits of the year in which it is affixed. See drawings in Schedule 4 to this guidance.

Conformity with other directives

Regulation 13

65 Where the liquid fuel and lubricant measuring instrument falls within the scope of other directives which provide for the affixing of the CE marking the CE marking affixed to the measuring instruments shall, in addition to conformity with the Measuring
Instruments Directive, indicate conformity with those other directives which provides for the affixing of the CE marking. These directives could include the following:

- 89/336/EEC (amended by 91/263/EEC, 92/31/EEC and 2004/108/EC) on electromagnetic compatibility, as implemented by The Electromagnetic Compatibility Regulations 2005 (as amended);

- 89/392/EEC (amended by 91/368/EEC, 93/44/EEC and 93/68/EEC) on machinery safety (for some but not all industrial products), as implemented by the Supply of Machinery (Safety) Regulations 2008 (SI 2008/1595);

- 2006/95/EC on low voltage, as implemented by the Electrical Equipment (Safety) Regulations 1994; and

- 94/9/EC on equipment in potentially explosive atmospheres (ATEX), as implemented by the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996.

This list is not exhaustive.

**Part III – USE FOR TRADE OF MEASURING SYSTEMS**

**Requirements for use for trade**

**Regulation 14**

66 This part applies to liquid fuel and lubricant measuring instruments in use for trade once they have been placed on the market and put into use in Great Britain (see paragraph 109 regarding Northern Ireland). It applies irrespective of whether the instrument was attested under the Regulations or the corresponding regulations issued by another Member State.

67 This part of the Regulations is made under section 15 of the Weights and Measures Act 1985. This part of the Regulations prescribe the requirements for use for trade of the instruments and for the avoidance of doubt prescribe the instruments for the purposes of section 11(1) of the Act once put into use. The enforcement provisions of Part IV of the Regulations make reference to Regulation 14 in Part III by providing the inspector or approved verifier the criteria under which a disqualification or re-qualification sticker/mark may be applied to an instrument. Only the inspector of weights and measures can apply a disqualification mark to an instrument. The activities of an approved verifier are controlled by an approval issued by the Secretary of State under section 11A of the Weights and Measures Act 1985. Approved verifiers must apply to the Secretary of State to have any liquid fuel and lubricants measuring instruments covered by the Regulations that they propose to re-qualify added to the appendix which accompanies their approval.
Although Regulation 14(a) requires the system to be compliant with the essential requirements most of this will have been addressed by the conformity assessment procedure. When the system is in service it is normally only necessary to check conformance with the conformity assessment certificate, check no modifications or changes have been made, and confirm it remains within the in service error limits in schedule 5.

69 Regulation 14(b) requires that the measuring system is positioned so that can be tested with relative ease.

70 There is no requirement under these Regulations for there to be visibility between any kiosk control equipment and a dispenser, however, there may be Health and Safety legislation requiring this.

**Maximum permissible error (mpe)**

**Regulation 15**

71 This gives the in service errors to be as detailed in the tables in Schedule 5. The values are twice in excess, and once in deficiency, times the putting into use error limits. The values have been calculated where possible and in some cases are overridden by other requirements. These are complex because of the number of accuracy classes and minimum measured quantities that are possible. Most of these will never apply but were included as such instruments were within the scope of the previous regulations and it was decided to maintain the status quo. This Regulation requires instruments to continue to meet the essential requirements in-service. There are separate in-service values for maximum permissible errors (MPEs).

**Appendix 1 at the end of this guidance gives simplified data for common petrol and diesel fuel dispensers with a 2 litre minimum measured quantity.**

72 The mpe is doubled for the minimum measured quantity, and so a larger delivered quantity shall not have a smaller mpe, the error for any other quantity is never less than the mpe for the minimum measured quantity.

Regulation 15(3) does not add any additional requirement but attempts to clarify how to read the table.

**Manner of use**

**Regulation 16**
73 This regulation requires that the instrument is used within its design parameters and the operating parameters against which it was assessed during its conformity assessment.

74 Regulation 16(2) requires that the product is marked sufficiently clearly so that the buyer can differentiate between similar products on offer. Additionally, if an incorrect product is delivered legal action may be taken based on the product marking not corresponding to that which was delivered.

**Regulation 16(3)**

75 This Regulation 16(3) will be satisfied if the instrument is used for its intended purpose, measuring the liquids for which it has been approved, and within its rated operating conditions.

**Regulation 16(4)**

76 This Regulation requires sales indicators to be at zero before a new measurement starts to simplify reading the result, this is particularly important when the instrument is operated by a member of the general public. The requirement to remain at zero until liquid is delivered ensures accurate measurement and prevents excessive hose dilation. Consumers find it unsatisfactory for the quantity and price indication to start to increment when the pump is switched on but before any liquid is delivered.

**Adjustment of calibration**

**Regulation 16(5)**

77 This Regulation requires that when an instrument is adjusted it is set as close to zero as practical. This supersedes the requirement in the 1995 Regulations to ‘straddle strike’ although it will probably result in most instruments having results which straddle the zero error line.

78 Why has the requirement changed? Tests carried out at NMO show that there is a large spread of errors when smaller deliveries are taken. These are associated with the meter errors which are the same irrespective of whether a large or small delivery is made. They are therefore more significant for small quantities and represent a larger percentage of the quantity delivered. As the quantity delivered increases, these meter errors become less and less significant and the calibration error of the measuring transducer becomes the main error contribution. This wide spread of errors at minimum delivery could allow the instrument to straddle strike while still exploiting the error allowance at typical delivery quantities. The solution is to set the instrument as close to zero as practical for deliveries which are typical.

**NWML advises that the calibration is set as close to zero error as is practical using the 20 litre fast flowrate tests for standard fuel dispensers**

79 This will satisfy the requirements of regulation 16(5), provide the best accuracy for the majority of deliveries, and will probably result in the other test results straddling the zero error line.
Regulation 16(7)

80 The Regulation prohibits an instrument from being used in circumstances in which it may be prevented from operating consistently or accurately. An example of this might be when a supply tank is consistently allowed to run dry.

Regulation 16(8)

81 The Regulation allows the buyer to take a delivery at his own risk which is below the minimum measured quantity. Fuel dispensers are normally approved for a 2 litre minimum delivery and will be marked with a corresponding legend. However, if the buyer chooses to take a small delivery, where convenience is more important than accuracy, e.g. for a moped or to fill a can for a lawn mower, then this is not an offence.

82 The equipment in paragraph 9(5) of Schedule 1 to the Regulations relating to any special equipment that may be needed to permit the control of measuring tasks when the instrument has been placed on the market must be incorporated in the instrument and the operation manual must describe the procedure for testing the equipment. These might include controlled access to a higher resolution mode, or the ability to display programmed measurement parameters for example viscosities of different liquids to be metered.

Part IV - ENFORCEMENT

Enforcement authority

Regulation 17

83 All enforcement of these regulations will be under the European Communities Act. The powers of the Weights and Measures Act (in Northern Ireland the Weights and Measures (NI) Order 1981) do not extend to enforcement for these regulations.

17(2)

84 This Regulation imposes a duty on every local weights and measures authority in Great Britain to enforce the Regulations within its area. (In Northern Ireland the enforcement authority is the Department of Enterprise, Trade and Investment). It also authorises the Secretary of State to enforce Part II of the Regulations and for that purpose gives him the power to appoint any persons to act on his behalf. The power of the Secretary of State is independent of a weights and measures authority and is to ensure the Secretary of State is able to fulfil his obligations to conduct market surveillance. Those authorised by the Regulation are referred to as “enforcement authorities”.

Compliance notice procedures
Regulation 18

85 In cases where the enforcement authority has established that the CE marking and/or M mark have been inappropriately affixed for an the instrument that has been placed on the market or put into use it may serve a notice on the manufacturer or his authorised representative requiring him to end the infringement. It must be noted that this power rests with an enforcement authority, not with an officer of that authority. It therefore does not limit the issuing of these notices to inspectors.

86 It should also be remembered that the application of the CE and the M marking confirms compliance with the essential requirements in schedule 1 of the Regulations, as amended (see paragraph 16 ‘Accuracy classification and maximum permissible errors (MPEs)’, Schedule 1), when the instrument was placed on the market or put into use. This will include selecting and following one of the conformity assessment routes. Any contravention that falls outside of these definitions is not caught by the compliance notice procedure.

This regulation is not applicable to crown-stamped instruments.

Immediate enforcement action

Regulation 19

87 An enforcement authority has powers to take action pursuant to this Regulation where it has reasonable grounds for considering that either:

(a) the requirements of a compliance notice procedure have not been complied with; or

(b) a liquid fuel measuring instrument which has been placed on the market or put into use, does not bear one or more of the CE marking, the M marking and the identification number of the notified body which carried out the conformity assessment procedure in respect of that instrument; or

(c) a liquid fuel measuring instrument bearing the CE marking and the M marking does not meet all the essential requirements when placed on the market, or properly installed and put into use in accordance with the manufacturer's instructions.

88 The Secretary of State will publish particulars of any notice issued withdrawing a certificate or notification. It is expected that this will take the form of advice to trading standards officers/interested parties published on the NMO website (www.nmo.bis.gov.uk)

Disqualification

Regulation 21

23
89 In cases where an instrument has been altered and the inspector has been notified in writing of the alterations a disqualification sticker will be required in all cases where the instrument no longer meets the essential requirements.

90 The disqualification mark will not in all cases be a sticker and may include other methods of obliteration of the marks where this would be more appropriate. In cases where an instrument has been altered and the inspector has been notified in writing of the alterations a disqualification sticker/mark will be required in all cases where the instrument no longer meets the essential requirements.

Re-qualification

Regulation 22

91 It is important to contrast this process with that relating to initially placing a measure on the market for the first time which requires the involvement of a notified body. Re-qualification may be by an inspector of weights and measures or by an approved verifier, e.g. the manufacturer or a repairer.

Testing of liquid fuel and lubricants measuring instruments

Regulation 23

92 The Regulations do not stipulate a test procedure for conformity assessment or verification. It only stipulates that an instrument must comply with the essential requirements. The use of a harmonised standard or normative document will demonstrate compliance with the essential requirements. The reference for normative documents covering liquid fuel and lubricants measuring instruments is given in the section describing regulation 5(2) above.

93 For Module F the recommended tests to be carried out for initial verification will vary according to the design of the instrument, for example its flowrate, minimum delivery, and typical delivery.

94 For instruments which are not typical fuel dispensers, due consideration of design parameters should be taken into consideration. For example:

a. If a fuel dispenser is approved with a minimum delivery of 5 litres because of a long hose or high flow rates then the minimum test quantity must not be below 5 litres.

b. If the typical delivery from a fuel dispenser is large, mainly used to refill large vehicles, consideration should be given to taking test deliveries above 20 litres.

c. For lubricating oil meters. Tests should be carried out at, or just above, minimum delivery; and at other values that are representative of typical deliveries for example 5 and 10 times the minimum delivery. These tests should also be carried out at different flowrates. Tests might also reflect the
normal mode of operation which might include a typical fast delivery followed by a ‘topping up’ delivery all within one transaction.

95 The Regulations do not stipulate a verification procedure. They only stipulate that an instrument must comply with the essential requirements. The use of a harmonised standard or normative document will demonstrate compliance with the essential requirements.

96 It should be noted that OIML R117 1995(E) has been notified in the Official Journal as a normative document. The web link is as follows:


97 Where third party testing is carried out in accordance with Module F the testing requirement is specified in the harmonised standard or normative document or equivalent tests. In the absence of these documents the Notified Body is responsible for specifying the appropriate tests to be used for the purposes of Sections 6.1 and 7.2 of Annex F1 to the Directive.

**Reference value for Accuracy class**

98 The reference value for accuracy class shall be stated in the certificate of approval and shall be equal to the best accuracy class, that is to say the class of the highest level of precision, for which that instrument may be tested and passed as fit for use for trade.

99 The reference value is the best accuracy class that has been established for the instrument by laboratory testing (for type approval). An instrument can be declared as meeting the requirements even if subsequent testing with “liquid” indicates a better accuracy class.

100 This regulation, being part of Part IV (Enforcement), relates only to the testing carried out by the inspector in relation to his duties as an enforcement officer when he makes an in-service inspection of the measuring system. It does not apply to testing for conformity assessment or re-qualification.

**Unauthorised application of authorised marks**

**Regulation 24**

101 Any liquid fuel measuring instrument in use for trade but not marked with the notified body number, CE mark and M mark and put in use on or after 30 October 2006 may be disqualified unless it can be demonstrated that the instrument is not subject to the Regulations, as amended.

**Powers of entry and inspection**
Regulation 25(1)

102 It is important to consider the definition of Enforcement Officer. It is either an inspector as defined in the Weights and Measures Act (in Northern Ireland the weights and Measures (NI) Order 1981), or a person appointed by the Secretary of State to act on his behalf to enforce the Regulations, as amended.

103 It should be noted that this Regulation gives an enforcement officer the authority to inspect and test a liquid fuel measuring instrument, but it is only an inspector of weights and measures that may reject the instrument if it is found not to comply with the Regulations, as amended. The enforcement authority does have the power to issue a compliance notice (regulation 18) or take immediate enforcement action (regulation 19) if the requirements of those regulations are not met.

104 The powers under regulation 25(1) should be contrasted with those existing in relation to the Non-Automatic Weighing Instruments Regulations 2000, as amended. These give an authorised officer an extra power to inspect relevant quality systems. A similar power has not been included in these regulations. This means that an enforcement officer will not have the power to look at the quality systems that a manufacturer or approved verifier may be using when engaging in conformity assessment procedures of their own instruments. Where this becomes a necessity such action may be authorised as part of a market surveillance exercise.

105 It should be noted that there is no clause in these regulations which allows a person to refuse to give information if it may incriminate them. This should be contrasted with the NAWI regulations which do contain such a clause.

Penalties for Offences

Regulation 27

106 The enforcement provisions for these Regulations, as amended, have been made under the European Communities Act. The maximum penalty is a fine not exceeding level 5 on the standard scale levied on summary conviction. The scale has 5 levels, each corresponding to a certain amount. This means that the level of fines can be updated by changing the value of each level, without the need to amend the legislation relating to each separate offence. The current values of the standard scale are section 37 of the Criminal Justice Act 1982 provides as follows:

<table>
<thead>
<tr>
<th>Level on the scale</th>
<th>Amount of fine</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>£200</td>
</tr>
<tr>
<td>2</td>
<td>£500</td>
</tr>
<tr>
<td>3</td>
<td>£1,000</td>
</tr>
<tr>
<td>4</td>
<td>£2,500</td>
</tr>
<tr>
<td>5</td>
<td>£5,000</td>
</tr>
</tbody>
</table>
107 This penalty avoids the threat of imprisonment previously applicable to offences made under the Weights and Measures Act 1985.

Part V Miscellaneous and Supplemental

Adaptation for Northern Ireland

108 The Regulations, as amended, apply to Northern Ireland subject to Schedule 6. This means that these amended Regulations apply the requirements relating to placing on the market and putting into use to the whole of the UK. However the in-service provisions relate to Great Britain. Northern Ireland will make in-service provisions for liquid fuel and lubricant measuring instruments.

The Electromagnetic Compatibility regulations 2005

109 The Electromagnetic Compatibility Directive was implemented in the UK by the Electromagnetic Compatibility Regulations 2005 (S.I. 2005 No 281) and applies to all instruments. The MID specifically provides electromagnetic immunity requirements in relation to instruments within its scope and therefore these implementing regulations have been disapplied for all MID instruments by Regulation 33 of S.I. 2006 No 1258 the Measuring Instruments (Automatic Gravimetric Filling Instruments) Regulations 2006. The EMC Regulations 2005 remain in force for all other liquid fuel and lubricant measuring instruments not subject to these regulations i.e. all those instruments that are not regulated whether because the instrument type is not regulated in the UK or is a regulated instrument that is not in use for trade, or is not within the scope of these regulations. MID regulations apply to sub-assemblies which are also excluded where MID applies.
Schedule 1

1. Essential Requirements

1.1 There are two elements to the essential requirements. Annex 1 of the Directive outlines the essential requirements with which all measuring instruments must comply. Annex MI-005, as amended, covers the specific requirements relating to measuring systems for continuous and dynamic measurement of liquids other than water.

1.2 The essential requirements are specified in Schedule 1 to the Regulations, as amended, for liquid fuel and lubricants measuring instruments to which the regulations apply. This Schedule details all the essential requirements some of which might be checked by an inspector during an in-service inspection but many are normally only tested during the conformity assessment procedure.

1.3 The preamble to Annex I of the Directive contains an implicit general protection against the systematic exploitation of the maximum permissible errors of measurement (inside the controlled range) for measuring instruments. The Amendment Directive provides in addition a specific protection against such systematic exploitation for measuring systems for continuous and dynamic measurement of liquids other than water (at point 2.8, under point 2 of the Specific Requirements, in Annex MI-005).

1.4 Additional information may be found in OIML R117 and R118 from which many of the essential requirements came. These documents can be downloaded free from: www.oiml.org/publications.

1.5 WELMEC guide 8.15 is a table of correspondence comparing MID Annex 1 and MI 005 with R117 edition 1995 and can be downloaded free from: www.welmec.org

2. Definitions

These are the same as appear in the Directive.

An ‘associated measuring instrument’ might be a platinum resistance thermometer built into the system to measure the temperature of the liquid fuel. As far as the approved system is concerned these will normally appear to be part of the system. Other associated measuring instruments might measure the pressure or density of the liquid being measured.
‘Base conditions’ refer to predetermined conditions which the measurement is adjusted to. For example, if standard temperature accounting is being used the volume of the liquid is adjusted to the equivalent volume at 15°C irrespective of the ambient temperature.

‘Critical change value’ is the name given to the error limit allowed when disturbance tests are carried out.

‘Direct indication’ means the indication at metering conditions and before any conversion to base, or other, conditions is made.

‘Fuel dispenser’ see Part 1, Application of this guidance in relation to ‘small’ boats and ‘small’ aircraft’.

3. Allowable errors

Under rated operating conditions the errors shall not exceed the maximum permissible error in the absence of a disturbance. ‘Bilateral’ means the error may be either positive or negative.

The manufacturer is responsible for specifying the climatic, mechanical and electromagnetic environment in which the instrument will meet the essential requirements. The tests to establish whether the instrument meets these requirements are normally carried out by the notified body or approved test house/laboratory. In general the terms ‘open’ and ‘closed’ will correspond to equipment that is outside or inside a building. The temperature limits in Table 1 are not in pairs. The manufacturer may choose any one of the upper temperature limits and pair it with any low temperature limit from the table.

4. Reproducibility

The application of the same measurand in a different location or by a different user, all other conditions being the same, shall result in close agreement of successive measurements.

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4 See the following link for guidance


- guidance for Retail Fuel Dispensers (Petrol Pumps) fitted with Standard Temperature Accounting (STA) displays
- the layman's guide on standard temperature accounting measurement
For fuel dispensers the measurement accuracy should be virtually independent of the operator because the instrument will be used by the public.

5. Repeatability

The application of the same measurand under the same conditions shall result in close agreement of successive measurements. The differences in results must be small compared to the MPE.

The MID does not quantify what ‘small’ means. One acceptable solution would be to use OIML R117. This requires the meter repeatability error not to be higher than two-fifths of the error class for any quantity equal to, or greater than, five times the minimum measured quantity. For most instruments in class 0.5 this equates to a repeatability error of 0.2%.

6. Discrimination and sensitivity

A measuring system shall be sufficiently sensitive and the discrimination threshold shall be sufficiently low for the intended task.

Sensitivity is interpreted as the resolution of the measuring system. This is not necessarily the same as the resolution shown on the indicating device, as internal resolution might differ from displayed resolution. Alternatively, manufacturers may choose an optimistically small scale interval to imply higher accuracy. The discrimination threshold is the hysteresis of the measuring system, i.e. the quantity that is delivered before the calculated volume increments. Again, this could differ from the visual indication.

The MID gives no explicit guidance on the sensitivity and discrimination thresholds for meter measuring systems. However, Schedule 1, paragraph 16 (4), gives the largest scale interval of the indicator as MMQ x A/100, e.g. 0.5% x MMQ for Class 0.5. Alternatively, the calculator accuracy must be 1/10 of the MPE in line A of Table 2. i.e. 0.05% x MMQ for Class 0.5. It is recommended that the internal sensitivity and discrimination threshold follow the latter figure.

7. Durability

A measuring instrument shall be designed to maintain an adequate stability of its metrological characteristics over a period of time estimated by the manufacturer. It shall be installed, used and maintained in accordance with the manufacturer’s instructions and within the specified environmental conditions for which it is intended.
The period of testing shall estimated by the manufacturer. As a guide, OIML R117 recommends that meters be tested for a period of 100 hours. Other factors should be considered such as the meter should be tested with the lowest viscosity liquid it is to be used with and/or the liquid with the lowest lubricating properties. If the test liquid does not have the same properties as the worst case liquid to be measured, consideration should be given to extending the test duration.

8. Reliability

A measuring instrument shall be designed to reduce as far as possible the effect of a defect that would lead to an inaccurate measurement result, unless the presence of such a defect is obvious. If a fault develops it must be rectified before the instrument is used again.

Aids to reliability might include self checking facilities and redundancy. Most modern electronics have some form of internal self checking. The pulse train between the transducer encoded disc and the calculator normally has redundancy and checks for reverse rotation and incorrect bits. OIML R117 chapter 4 will provide some possible acceptable solutions. It is sometimes considered that if an instrument is well designed, meets the accuracy requirements, passes the tests for environment, EMC, and durability, then it should work reliably and accurately.

9. Suitability

9.1
A measuring instrument shall have no feature likely to facilitate fraudulent use, whereas possibilities for unintentional misuse shall be minimal.

The trade display is required to be maintained until the transaction has been paid.

It is not common to find fraudulent features on fuel dispensers. Such features are normally fitted after the assessment, installation and verification process. Possibilities include:

- Clever electronics that displays correctly at typical test delivery quantities but under delivers in between. Consider testing at untypical quantities.

- Fraudulent electronics that under delivers which can be switched to accurate mode when inspector arrives on site. Consider covert tests
- Liquid bypass back to supply side of meter with a solenoid valve so the bypass can be shut when an inspector arrives. Consider covert tests.

- Running tanks dry to deliver air/petrol mix. Normal testing should detect.

9.2
A measuring instrument shall be suitable for its intended use taking account of the practical working conditions and shall not require unreasonable demands of the user in order to obtain a correct measurement result. This is particularly important where fuel dispensers are intended for self service use.

9.3
Where a measuring instrument is designed for the measurement of values of the measurand that are constant over time, the measuring instrument shall be insensitive to small fluctuations of the value of the measurand. This sub-paragraph covers the situation where the volume or price-to-pay display continually flickers up and down by one digit. It is more common on weighing machines where the instrument is trying to display a live weight. Manufacturers resolve this problem by including hardware or software means to present a constant indication.

9.4
A measuring instrument shall be robust and its materials of construction shall be suitable for the conditions for which it is intended to be used.

9.5
A measuring instrument shall be designed so as to allow the control of the measuring tasks after the instrument has been placed on the market and put into use. If necessary, special equipment or software for this control shall be part of the instrument. The test procedure shall be described in the operation manual.

9.6
When an instrument has associated software which provides other functions besides the measuring function, the software that is critical for the metrological characteristics shall be identifiable and shall not be inadmissibly influenced by the associated software.

An acceptable solution for software is provided by WELMEC guide 7.2.

9.10
Any percentage of air or gas not easily detectable in the liquid fuel shall not lead to a variation of error greater than—
(d) 0.5 % for liquid fuel of a viscosity not exceeding 1 mPa.s; or
(e) 1 % for liquid fuel of a viscosity exceeding 1 mPa.s.,
but the allowed variation shall never be smaller than 1% of the minimum measured quantity and this value applies in the case of air or gas pockets.
The error limits given in this sub-paragraph are additional errors due to the influence of air and gases on the measuring results. They would be applied when assessing a gas eliminator for a test certificate. The limits should be seen as applying to entrained air and gas, as well as pockets. It should be noted that these limits are insensitive to the accuracy class of the meter measuring system into which the gas eliminator will be incorporated. When the gas eliminator is incorporated in a meter measuring system, the standard MPEs for measuring systems would apply (regulation 15 or Schedule 1, paragraph 16).
Typically petrol has a viscosity about 0.5 mPa.s, diesel is in the range 2 to 5 mPa.s, and oils can be around 100mPa.s. However the viscosity is dependent on the particular product and its temperature, and oils are extremely variable.

11(c)
The display of the quantity on which the transaction is based shall be permanent until all parties in the transaction have accepted the measurement result.

It is possible that the pump controller, kiosk control unit, and EPOS may be controlled equipment where the volume and price are stored before the payment is completed, but after the dispenser is reset for a further delivery.

10. Protection against corruption

10.1
The metrological characteristics of a measuring instrument shall not be influenced in any inadmissible way by the connection to it of another device, by any feature of the connected device itself or by any remote device that communicates with the measuring instrument.

The Notified Body should test to ensure that where other CE marked equipment is interconnected the instrument is not adversely affected. WELMEC 7.2 addresses software requirements.

10.2
A hardware component that is critical for metrological characteristics shall be designed so that it can be secure. Security measures foreseen shall provide for evidence of an intervention.
Hardware is traditionally protected by sealing devices. The suitability of the sealing device will be assessed by the notified body during conformity assessment and a list of items sealed should be given in the type approval or design examination certificate.

The type of sealing device is not prescribed but traditionally it is a lead seal crimped over a twisted wire and stamped with the inspector's seal. Such stamps will now include those of approved verifiers. It is envisaged that future sealing may be a combination of mechanical seals and stickers. The sealing scheme will be proposed by the manufacturer and needs to be approved by the Notified Body.

The WELMEC Guide 10.5 on marking shows possible data plates where stickers may be placed. WELMEC is also working on a Sealing guide which will be published in the future.

**10.3, 10.4, 10.5 and 10.6**
Software that is critical for metrological characteristics shall be identified as such and shall be secured. Software identification shall be easily provided by the measuring instrument and evidence of an intervention shall be available for a reasonable period of time. Software that is critical for measurement characteristics and metrologically important parameters stored or transmitted shall be adequately protected against accidental or intentional corruption.

WELMEC Guide 7.1 and 7.2 provide a possible solution to these requirements. WELMEC Guide 2.3 on Examining Software in weighing instruments may also provide useful information. These guides can be downloaded free from: [http://www.welmec.org](http://www.welmec.org)

**11. Information to be borne and to accompany the instrument**

WELMEC guide 10.5 provides a possible solution for marking.

**11.1**
A measuring instrument shall bear the following inscriptions:
— Manufacturer mark or name;
— Information in respect of its accuracy, e.g. 'Class 0.5'
Plus, when applicable:
— Information in respect of the conditions of use;
— measuring capacity; e.g. ‘Minimum 2L’
— measuring range; e.g. maximum and minimum flowrates
— Identity marking; e.g. model name or number
— number of the EC-type examination certificate or the EC design examination certificate;
— Information whether or not additional devices providing metrological results comply with the provisions of this Directive on legal metrological control.

11.2
A measuring instrument of dimensions too small or too sensitive a composition to allow it to bear the relevant Information shall have its packaging, if any, and the accompanying documents required by the provisions of this Directive suitably marked.

In general this will not apply to most instruments covered by these regulations. Exceptionally it may apply to instruments such as small hand held lubricating oil meters. However it is recommended that they are still marked sufficiently to identify the instrument with at least key markings such as:

- certificate number
- minimum measured quantity
- accuracy class

11.3
The instrument shall be accompanied by information on its operation, unless the simplicity of the measuring instrument makes this unnecessary.

11.4
Information shall be easily understandable and shall include where relevant:

a. rated operating conditions;
b. mechanical and electromagnetic environment classes;
c. the upper and lower temperature limits, whether condensation is possible or not, open or closed location;
d. instructions for installation, maintenance, repairs, permissible adjustments;
e. instructions for correct operation and any special conditions of use;
f. conditions for compatibility with interfaces, sub-assemblies or measuring instruments.

11.5
Groups of identical measuring instruments used in the same location or used for utility measurements do not necessarily require individual instruction manuals.

11.6
The scale interval for a measured value shall be in the form 1×10^n, 2×10^n, or 5×10^n, where n is any integer or zero. The unit of measurement or its symbol shall be shown close to the numerical value.

11.7
The units of measurement used and their symbols shall be in accordance with the provisions of Community legislation on units of measurement and their symbols.
11.8
All marks and inscriptions required under any requirement shall be clear, non-erasable, unambiguous and non-transferable.

12. Indication of result

12.1
Indication of the result shall be by means of a display or hard copy.

12.2
The indication of any result shall be clear and unambiguous and accompanied by such marks and inscription necessary to inform the user of the significance of the result. Easy reading shall be facilitated under normal conditions of use. Additional indications may be shown provided that they cannot be confused with the metrologically controlled marking.

12.3
In the case of hard copy the print or record shall also be easily legible and non-erasable.

12.4
A measuring instrument for direct sales trading transactions shall be designed to present the measurement result to both parties in the transaction when installed as intended. When critical in case of direct sales, any ticket provided to the consumer by an ancillary device not complying with the appropriate requirements of this Directive shall bear appropriate restrictive information.

12.5
The direct indication may be converted into another quantity using a conversion device. This regulation allows conversion from, for example, volume at metering conditions, to volume at a standard temperature (e.g. 15°C), or to equivalent mass. The measurement used for trade should be normally available. Other quantities may be displayed on the same indicator on demand but should not be allowed to conflict with the requirement at Schedule 1, 9(11)(c). Where the converted value is used for trade the unit marking must be clear e.g. ‘L at 15°C’ instead of ‘L’.

13. Further processing of data to conclude the trading transactions.

13.1
A measuring system shall record by a durable means the measurement result accompanied by information to identify the particular transaction, when:

a. the measurement is non-repeatable and

These instruments normally deliver into tanks or sumps already containing an unquantified amount of liquid so the measurement is non-repeatable.

b. the measuring system is normally intended for use in the absence of one of the trading parties.

This will normally only apply to lubricating oil meters used in garages.

13.2 Additionally, a durable proof of the measurement result and the information to identify the transaction shall be available on request at the time the measurement is concluded.

Durable may include printed or electronically stored values.

14. Conformity evaluation

14.1 A measuring system shall be designed so as to allow ready evaluation of its conformity with the appropriate requirements of this Directive.

The design shall allow the system to be assessed and verified in a reasonable manner.

15. Rated operating conditions

The manufacturer may specify the rated operating conditions although it should be noted temperature values must be chosen from Table 1. Where conversion to a standard temperature is carried out other national and European legislation exists that may need to be considered. The norm for temperature conversion is usually 15°C.

16. Accuracy classification and maximum permissible errors

This section details how to calculate the errors for all the five classes, for five quantities less than 2 litres, and for quantities above 2 litres; and exceptions for
minimum measured quantities. It also includes error allowances for conversion devices. It can therefore appear rather complex.

The error allowances for a standard 2 litre minimum delivery fuel dispenser are given in Appendix 1.

Example 1 - Fuel dispenser with 5 litre minimum delivery

For qualification and re-qualification

Accuracy Class from Table 6 0.5 %
MMQ 5 L
‘A’ from Table 3 0.5 (Note, it is the numerical value not %)

From Schedule 1, 16(4)(b), Condition 2

\[
E_{\text{min}} = (2 \times \text{MMQ}) \times (A/100)
\]
\[
= (2 \times 5) \times (0.5/100)
\]
\[
= 0.05 \text{ L}
\]
\[
= 50 \text{ mL}
\]

Schedule 1, 16(3) states the MPE is never less than \( E_{\text{min}} \); therefore the error allowance remains at 50 mL from the minimum delivery of 5 litres up to 10 litres. Thereafter the error allowance is 0.5% of the delivered quantity as in the table:

<table>
<thead>
<tr>
<th>Quantity (L)</th>
<th>MPE (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMQ to 2xMMQ (5L to 10L)</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>30</td>
<td>150</td>
</tr>
<tr>
<td>40</td>
<td>200</td>
</tr>
<tr>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>100</td>
<td>500</td>
</tr>
</tbody>
</table>

In service the MPEs are the same in deficiency, and 1.5 times the above figures in excess.

Example 2 – Lubricating oil meter with 0.5 litre minimum delivery

For qualification and re-qualification
Manufacturer’s viscosity range 50 to 300 mPa.s
Accuracy Class from Table 6 0.5 %
MMQ 0.5 L
‘A’ from Table 3 0.5 (Note, it is the numerical value not %)

From Schedule 1, 16 Table 4 and 16(5).

\[
\text{MPE for MMQ} = \text{Twice value in Table 4 for 0.5 L} \\
= 2 \times 2 \times A\% \times 0.5 \text{ L} \\
= 2\% \times 0.5\text{L} \\
= 0.01 \text{ L} \\
= 10 \text{ mL}
\]

Schedule 1, 16(3) states the MPE is never less than \(E_{\text{min}}\); therefore the error allowance remains at 10 mL from the minimum delivery of 0.5 litres up to 1 litre. Thereafter the error allowance is 0.5% of the delivered quantity as in the table:

<table>
<thead>
<tr>
<th>Quantity (L)</th>
<th>MPE (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMQ to 2xMMQ (0.5L to 1.0L)</td>
<td>10</td>
</tr>
<tr>
<td>1.5</td>
<td>7.5</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
</tr>
</tbody>
</table>

In service the MPEs are the same in deficiency, and 1.5 times the above figures in excess.

16(6) to 16(9) Converted indications and devices

WELMEC guide 10.4 describes the Test procedures for Type Approval and Initial Verification of Electronic Calculators with Conversion Function and Conversion Devices (Flowcomputers) and Associated Measuring Instruments (e.g. temperature, pressure and/or density transmitters) for application in Measuring Systems for Liquids other than Water. For the benefit of separate testing, the applicable partial Maximum Permissible Errors (MPE’s) and Significant Faults / Critical Change Values (SF’s / CCV’s) are given.

16(10)
The Amendment Regulations make additional provision that liquid fuel and lubricants measuring instruments must be set as accurately as possible i.e. as closely as possible to zero for placing on the market and putting into use with the aim of preventing short measure from within the given tolerances.

17 Maximum permissible effect of disturbances

Legal metrology normally distinguishes between influence factors and disturbance factors; they are defined in Schedule 1, paragraph 2. A manufacturer will specify the rated operating conditions for his instrument, e.g. temperature, pressure, voltage ranges, etc. Influence factors become disturbances when the rated operating condition is not specified for that factor or if the factor exceeds the rated operating condition. Generally, the environmental factors are influence quantities because the manufacturer designs the instrument around the environment ranges over which he could reasonably expect the instrument to be used. Electrical factors, on the other hand, are not so predictable and may readily exceed the specified rated operating conditions; they then become disturbance factors.

The limit by which the measurement result is permitted to change as the result of any disturbance is defined as the critical change value and this is specified in 17 (2). The critical change value is an additional allowance under which the measurement result may change under these exceptional conditions. In these circumstances, the total acceptable error in the measurement result would be $\text{MPE} + \text{critical change value} = 1.2 \times \text{MPE}$. Note that for changes due to influence factors, e.g. temperature, the error in the measurement result shall not exceed the MPE.

OIML R117 describes the types of tests that would be undertaken for disturbances and influence quantities for conformity assessment. These include:

<table>
<thead>
<tr>
<th>Test</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Static temperatures</td>
<td>Influence quantity</td>
</tr>
<tr>
<td>b. Damp heat</td>
<td>Influence quantity</td>
</tr>
<tr>
<td>c. Vibration</td>
<td>Disturbance</td>
</tr>
<tr>
<td>d. Immunity to radiated, radiofrequency, electromagnetic fields</td>
<td>Disturbance</td>
</tr>
<tr>
<td>e. Electrostatic discharge</td>
<td>Disturbance</td>
</tr>
<tr>
<td>f. Voltage variation</td>
<td>Influence quantity</td>
</tr>
<tr>
<td>g. Perturbations on d.c. voltage powered equipment</td>
<td>Disturbance</td>
</tr>
</tbody>
</table>

17(1)
The maximum permissible effects of an electromagnetic disturbance are specified separately in (a) to (c) but the critical change value is still as specified above.

17(1)(c)
If the change in the measurement result is greater than the critical change value, the measurement system should stop the flow and retrieve the measurement result from just before the critical change value was exceeded. This implies that for all instruments the latest measurement results should be stored in real time, preferably in non-volatile memory, until the delivery is satisfactorily completed.

18 Power supply failure
OIML R117 offers a possible solutions at 5.1.9.

19 Putting into use
The MID annex MI 005 specifies several types of accuracy class that are applicable to various types of measurement systems. The 1995 Regulations covered all types of liquid fuel measuring systems and so, to maintain the status quo, all accuracy classes are included in these regulations. However the vast majority of systems encountered will be in Class 0.5. If the measurement system is capable of exceeding the accuracy class required for the product measured, then the manufacturer may request that the system be approved to a higher accuracy class. For example, a system that normally falls into class 0.5 could be approved as class 0.3.

Accuracy class 0.5 applies to measuring systems which are fuel dispensers, for refuelling aircraft, and for all other systems not separately identified in Table 6. Exceptions are made for liquid fuels at high and low temperatures, with high viscosity, and for low flowrates, where Class 1.0 is applicable. A dynamic viscosity of 1000 mPa.s is very high and would probably only apply to products such as heavy gear oil. Normal lubrication oils are usually significantly lower than this figure. If in doubt, information should be sought from the oil manufacturer requesting the dynamic viscosity at the temperature of measurement.

Paragraph 20 Units of measurement
Appropriate abbreviations of the units may be used.
Schedule 2

Notified Bodies

Part 1 – Criteria to be satisfied by notified bodies

This Schedule sets out the criteria that a notified body must meet in order to satisfy the Secretary of State that the body is suitable to be designated a notified body under the Regulations. This includes demonstrating that the body, its director and staff involved in conformity assessment are professional and not subject to financial inducements, has at its disposal all the staff and facilities necessary to carry out the conformity assessment in a proper manner, will be impartial and observe professional secrecy and holds adequate civil liability insurance.

Where the body sub-contracts specific tasks it will need to ensure that the sub-contractor meets the requirements of these Regulations. The body must keep relevant documents assessing the sub-contractor’s qualifications and the work carried out by him under these regulations at the disposal of the Secretary of State.

The applicant body shall demonstrate that it meets the core criteria set out in the Directive. If an applicant applies in the UK it is the Secretary of State acting via the NMO that will assess whether an organisation meets the core criteria necessary to enable them to act as a notified body.

The following standards act as guidelines for the operation of various notified bodies:

5.2 The ISO/IEC 17000 Series

Council Decision 93/465/EEC set out the general framework for the assessment of notified bodies. It includes the policy that Member States should use the EN 45000 series of standards as the basis for the assessment of an applicant body against the core criteria. These standards are being replaced progressively by standards in the ISO/IEC17000 series and the standards that are relevant for these guidelines are listed below. They are referred to collectively as the ‘conformity assessment body standards’. The conformity assessment body standards cover different types of body but in general terms they have a similar structure, consisting of parts dealing with the organisation and management of a body, and parts dealing with the technical requirements relating to the operation of the body in the areas of testing, inspection, product certification and management systems assessment.
BS EN ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories* (The contents of this standard differ considerably from BS 45001:1989 that it has superseded.)

BS EN ISO/IEC 17020:2004 *General criteria for the operation of various types of bodies performing inspection* (This standard has superseded BS EN 45004:1995 but the contents are identical.)

BS EN 45011:1998 *General requirements for bodies operating product certification Systems*

BS EN 45012:1998 *General requirements for bodies operating assessment and certification/registration of quality systems.* (This standard will be superseded by ISO/IEC 17021.)

Note 1 Official Journal L220 30 August 1993. 93/465EEC Council Decision of 22 July 1991 concerning the modules for the various phases of the conformity assessment procedures and the rules for the affixing of the CE Marking, which are intended to be used in the technical harmonisation directives. (“The Modules Decision”).

**Part 2 – Functions**

The notified body is required to assess the application from the manufacturer for a certificate of conformity, design or type examination certificate or notification (approval of the manufacturers' quality system), taking account of the actual or usual environment of the measuring system together with any other technical criteria appearing to it to be relevant.

Paragraph 9(5) requires the notified body designated under Regulation 7 to send a copy of:

a) a certificate of conformity
b) a design or type examination certificate
c) a notification of approval of the manufacturer’s quality system

to the Secretary of State once it has been issued.

Specific arrangements will be made with notified bodies issuing certificates in categories b and c as part of their designation process.

For notified bodies appointed to conduct tasks under annexes that require the issuing of certificates of conformity the process is more general. In the first instance the notified body is required to report a summary of actions as part of their designation letter (annex 1). The notified body is also required to retain the certificate of conformity for assessment by the bodies designated auditor on behalf of the Secretary of State and if requested inspection directly by the Secretary of State.
Schedule 3

Technical Documentation in MID Article 10

1 The technical documentation shall render the design, manufacture and operation of the measuring instrument intelligible and shall permit an assessment of its conformity with the appropriate requirements of this Directive.

Manufacturers are reminded of the need for complete and effective documentation where this will be assessed by another party as part of the conformity assessment procedure. A comprehensive package of information will help the assessment procedure progress in an efficient manner, can raise confidence in the product being assessed, and help in reducing costs.

2. The technical documentation shall be sufficiently detailed to ensure:
— the definition of the metrological characteristics,
— the reproducibility of the metrological performances of produced instruments when properly adjusted using appropriate intended means, and
— the integrity of the instrument.

3. The technical documentation shall include insofar as relevant for assessment and identification of the type and/or instrument:
   (a) a general description of the instrument;
   (b) conceptual design and manufacturing drawings and plans of components, sub-assemblies, circuits, etc;
   (c) manufacturing procedures to ensure consistent production;
   (d) if applicable, a description of the electronic devices with drawings, diagrams, flow diagrams of the logic and general software information explaining their characteristics and operation;
   (e) descriptions and explanations necessary for the understanding of paragraphs (b), (c) and (d), including the operation of the instrument;
   (f) a list of the standards and/or normative documents referred to in Article 13, applied in full or in part;
   (g) descriptions of the solutions adopted to meet the essential requirements where the standards and/or normative documents referred to in Article 13 have not been applied;
   (h) results of design calculations, examinations, etc;
   (i) the appropriate test results, where necessary, to demonstrate that the type and/or instruments comply with:
— the requirements of this Directive under declared rated
operating conditions and under specified environmental disturbances,
— the durability specifications for liquids other than water.
(j) the EC-type examination certificates or EC design examination certificates in respect of instruments containing parts identical to those in the design.

4. The manufacturer shall specify where seals and markings have been applied.

5. The manufacturer shall indicate the conditions for compatibility with interfaces where relevant.
Supply of Stickers

The Secretary of State has decided that it is necessary to provide a long-term, professional solution to resolve the difficulties that have arisen in securing a consistent good quality source for the supply of the metrology stickers that local authorities and others require to fulfil their statutory obligations for both initial verification, disqualification and subsequent re-qualification activities.

A new solution has been identified which will enable NMO to produce printed versions of the stickers described below on demand. The system has the capability to incorporate the specific identification data required in thermal printed form. This solution will replace the current stop-gap solution introduced in 2006 to allow for the changes to the marking requirements in the MID which meant that, when re-qualifying an instrument, an inspector has to apply both his number and the year of re-qualification in manuscript on a modified NAWI sticker using a “permanent” marker. It has become clear that these marks were not sufficiently permanent so as to withstand the harsh cleaning requirements in some conditions of use particularly in the food preparation sector.

The new stickers have been tested and performed well in a harsh cleaning environment and have been found to meet the requirements applicable in the food industry.

It is the opinion of the Secretary of State that the following stickers should be required to be used for the statutory marks. The new stickers are 12.7 mm x 11.10 mm.

It is not envisaged that the Weights and Measures (Prescribed Stamp) Regulations 1968 (SI. 1968/1615) will need to be amended as re-qualification is carried out under the provisions of these regulations.

The Green M metrology mark, and the CE mark for initial verification which are the responsibility of the instrument manufacturer will not be supplied centrally.

The new stickers will also be relevant to local authorities who are notified bodies and to approved verifiers under the regulations. Commercial organisations which need to obtain supplies are invited to contact stickers@nmo.gov.uk to discuss availability and prices.
The Secretary of State has determined that there will be benefits arising from a change of process with the stickers produced centrally and supplied by NMO directly to local authorities. To that end the decision has been made to supply a limited quantity of stickers free of charge to all inspectors. The stickers used for re-qualification of NAWI and MID instruments will be supplied overprinted with the inspector’s number and on an annual basis with the year also overprinted. Stickers can also be overprinted with the relevant Notified Body/Approved Verifier numbers on request.

If you have a requirement for a larger quantity, or you are not a local authority, please contact stickers@nmo.gov.uk. It will be possible to agree terms under which larger numbers/other stickers can be provided (at a cost).

**STICKER 1 – RE-QUALIFICATION**

**Inspector or**

![INS/0704/08](image)

This is all white label printed on which with the prescribed crown and the information for Inspector’s number will be overprinted using thermal printing technology for use for NAWI and MID instruments.

**Approved Verifier**
This is all white label printed on which with the prescribed crown and the information for Approved Verifier number will be overprinted using thermal printing technology.

**STICKER 2 – DISQUALIFICATION**

This is a plain white label bearing the prescribed crown mark which has been printed with the disqualification mark. No overprinting is required.

**STICKER 3 - NOTIFIED BODY IDENTIFICATION NUMBER FOR INITIAL VERIFICATION**
This is a plain white label in which the Notified Body number has been overprinted using a thermal printer. It is not a requirement for the number to be pre-fixed by NB.

**Other marks and requirements for MID instruments**

1. The CE marking consists of the symbol “CE” according to the design laid down in paragraph 1.B(d) of the Annex to Decision 93/465/EEC. The CE marking shall be at least 5 mm high.
2. The M marking consists of the capital letter “M” and the last two digits of the year of its affixing, surrounded by a rectangle. The height of the rectangle shall be equal to the height of the CE marking. The M marking shall immediately follow the CE marking.
3. The identification number of the notified body concerned shall follow the CE marking and the M Marking.
4. The CE marking and the M marking shall be indelible. The identification number of the notified body concerned shall be indelible or self destructive upon removal. All markings shall be clearly visible or easily accessible.”

Directive 2004/22/EC does not itself contain diagrams for any of these marks although the **CE mark** is prescribed by reference to paragraph 1.B(d) of the Annex to Decision 93/465/EEC.
Possible Examples of Article 17 Markings required by the MID Directive

This mark looks the same as some previous marks, but there are subtle changes, and it should be studied closely. It should be noted, for example, that the C and E are not formed by perfect semi-circles, i.e. the top and bottom arms extend one square beyond the semi-circles, and the middle arm of the E stops one square short.

The graphic is not made available for download from any official sources, but can be obtained in a wide variety of file formats from commercial organisations,
sometimes freely available for download. One such organisation in the UK is Conformance, but please note that the NMO makes no guarantee of accuracy or suitability of any files obtained from commercial sources.

As far as the M mark is concerned the manufacturer applying the mark has freedom over the design provided that the M marking meets the criteria set down in Paragraph 2 of Schedule 4 of Directive 2004/22/EC, as to being surrounded by a rectangle also containing the last two digits of the year of affixing, and is placed immediately after the CE mark.

Similarly the Notified Body must place its mark, or authorise the manufacturer to do so on its behalf, so that it follows the CE and M markings.

The identification number of the notified body concerned shall follow the CE marking and M marking.

When a “liquid fuel and lubricants measuring instrument” consists of a set of devices operating together, the markings shall be affixed on the instrument’s main device.

The CE marking and the M marking must be indelible. The identification number of the notified body concerned must be indelible or self-destructive upon removal. All markings shall be clearly visible or easily accessible.

The Directive does not specify in detail the form and appearance of all the various markings. It has therefore been necessary to decide on the details that will apply under the Regulations as indicated in the examples statutory marks above.

Schedule 5

Maximum Permissible Errors

This schedule details the in-service error limits.

Table 1 lists the error allowances above the minimum measured quantity.

Table 2 lists the error allowance for quantities equal to the minimum measured quantity. However, because of Part III regulation 15(2), the error allowance will never be less than this figure.

Example
All conventional petrol and diesel fuel dispensers are Class 0.5 and the vast majority have a 2 litre minimum delivery.

Therefore, from Table 1, the in-service error above minimum delivery is +1%, - 0.5%.

But it is never less than the absolute value of the error for the minimum delivery which is +2%, -1% of 2 litres, i.e. +40 mL, -20mL.
Schedule 6

Adaptations for Northern Ireland

The in-service regulations regarding use for trade in Part III are disapplied for Northern Ireland which, while covered by the main part of the Regulations, as amended, is responsible for its own in-service regulations.
Work instructions etc for 3rd party verification

Local Government Regulation (formerly LACORS) work instructions should be used as guidance in carrying out 3rd party verification. These instructions are available for non-subscribers from www.lacors.gov.uk. You should then click on Publications at the top, scroll down to Trading Standards, then click on Metrology, then Measuring Instruments Directive (MID), and open the page called MID Equipment Test Forms. This is the same page as seen by Local Government Regulation’s subscribers.

The above instructions along with test forms and conformity certificates provide guidance for those notified bodies designated to carry out declaration of conformity based on product verification (Module F1) i.e. 3rd party initial verification. It is primarily aimed at Trading Standards Services but could be used by other organisations carrying out verification activities whether as part of initial or subsequent verification.

Sections of the instructions cover: staff, equipment (including documentation), and verification procedures along with a separate ‘check list’ test form and proforma Certificate of Conformity and Refusal to Issue Certificate of Conformity.
Appendix 1

Quick reference guide for a Class 0.5 fuel dispenser with standard 2 litre minimum delivery

Use high resolution mode, 'Inspector's digit', where available. It is normally only necessary to check accuracy, conformance with the conformity assessment certificate, and that no modifications or changes have been made.

Error allowances for initial qualification and re-qualification:

<table>
<thead>
<tr>
<th>Quantity (L)</th>
<th>MPE (%)</th>
<th>MPE (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>± 1</td>
<td>± 20</td>
</tr>
<tr>
<td>&gt; 2 to ≤ 4</td>
<td>± 1% of 2L ± 20</td>
<td></td>
</tr>
<tr>
<td>&gt; 4</td>
<td>± 0.5</td>
<td>_ _</td>
</tr>
<tr>
<td>5</td>
<td>±0.5</td>
<td>± 25</td>
</tr>
<tr>
<td>10</td>
<td>± 0.5</td>
<td>± 50</td>
</tr>
<tr>
<td>20</td>
<td>± 0.5</td>
<td>± 100</td>
</tr>
</tbody>
</table>

Error allowances in-service:

<table>
<thead>
<tr>
<th>Quantity (L)</th>
<th>MPE (%)</th>
<th>MPE (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>+ 2, - 1</td>
<td>+40, -20</td>
</tr>
<tr>
<td>&gt; 2 to ≤ 4</td>
<td>+2%, -1% of 2L +40, -20</td>
<td></td>
</tr>
<tr>
<td>&gt; 4</td>
<td>+1, - 0.5</td>
<td>_ _</td>
</tr>
<tr>
<td>5</td>
<td>+1, - 0.5</td>
<td>+50, -25</td>
</tr>
<tr>
<td>10</td>
<td>+1, - 0.5</td>
<td>+100, -50</td>
</tr>
<tr>
<td>20</td>
<td>+1, - 0.5</td>
<td>+200, -100</td>
</tr>
</tbody>
</table>

Setting to Zero:

For standard fuel dispensers NMO advises that the calibration is set as close to zero error as is practical using the 20 litre fast flow rate tests.

This will satisfy the requirements of regulation 16(5), provide the best accuracy for the majority of deliveries, and will probably result in the other test results straddling the zero error line.

Markings:
In addition to the section on **Schedule 4** in this document see **WELMEC 10.5 Guide for Common Application of Marking of Fuel Dispensers** for possible solutions which satisfy the MID.