

WEIGHTS AND MEASURES

**The Measuring Instruments
(Cold-water Meters) Regulations 2006
(S.I. 2006 No.1268)**

as amended by

**The Measuring Instruments (Amendment)
Regulations 2010
(S.I. 2010 No. 2881)**

**The Measuring Equipment (Cold-water Meters)
Regulations 1988
(S.I. 1988 No. 997) as amended**

Guidance on Regulation

February 2012

Version 1

This publication was withdrawn on 7 January 2021.

Summary

This guidance covers all cold-water meters in use for trade. **Part 1** of this document covers cold-water meters covered by the Measuring Instruments Directive (MID) i.e. those put on the market on or after 1st October 2006. **Part 2** covers cold-water meters under national control in Great Britain i.e. before the MID came into force and during the transitional period.

Nothing in this 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.

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

<http://www.tradingstandards.gov.uk/advice/index.cfm> - 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.

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Part 1: The Measuring Instruments (Cold-water Meters) Regulations 2006 (S.I 2006 No. 1268), as amended by The Measuring Instruments (Amendment) Regulations 2010 (S.I. 2010 No. 2881) [Pages 4 to 25]

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Part 1: The Measuring Instruments (Cold-water Meters) Regulations 2006 (S.I. 2006 No. 1268), as amended by The Measuring Instruments (Amendment) Regulations 2010 (S.I. 2010 No. 2881)

1.1 Foreword

1.1.1 The Measuring Instruments (Cold-water Meters) Regulations 2006, SI 2006/1268, (“the Regulations”), as amended by the Measuring Instruments (Amendment) Regulations 2010, SI 2010/2881, (“the Amendment Regulations”) implement Council Directive 2004/22/EC (“the Directive”), as amended by Commission Directive 2009/137/EC¹ (“the Amendment Directive”), in relation to cold-water meters within the category of water meters covered by the Directive. The Regulations, as amended, provide for the harmonisation of laws on cold-water meters within Member States, thereby creating a single market for them.

1.1.2 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.

1.1.3 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.

1.1.4 This guidance covers the above Regulations and Amendment Regulations.

1.1.5 The Regulations came into force on 30 October 2006 after which date new designs of cold-water meters placed on the market must comply with their provisions. The provisions of the Amendment Regulations must also be complied with from 1 June 2011 when they come into force. This guidance is intended to assist manufacturers, utility companies, notified bodies and enforcement authorities in meeting the requirements of the Regulations.

1.1.6 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 WG11 the sub-group on utilities including water meters. 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. Information regarding WELMEC and its decisions and publications can be found at: www.welmec.org.

¹ Commission Directive 2009/137/EC of the European Parliament and of the Council on measuring instruments in respect of exploitation of the maximum permissible errors, as regards the instrument-specific annexes MI-001 to MI-005

² The Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 (S.I. 2006 No 1270) as amended by The Measuring Instruments (Amendment) Regulations 2006 (S.I. 2006 No 2625)

1.1.7 A similar system of approval and verification of instruments has been operating successfully for several years for non-automatic weighing instruments (NAWI) and manufacturers have benefited enormously from its introduction, through savings in costs on both approvals and verification, and through the widening of an easily accessible market. This should also be the case with the Regulations, as amended.

1.2 Background

1.2.1 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 Directive on cold-water meters. 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.

1.2.2 The Directive extends to all measuring instruments listed in Article 1 and provides that Member States may prescribe use of 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.

1.2.3 The Directive is the second "New Approach" Directive adopted in respect of measuring instruments. The first was Directive 2009/23/EC (formerly 90/384/EEC) (the NAWI Directive) and relates to non-automatic weighing instruments and came fully into force in January 2003.

1.2.4 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:

http://ec.europa.eu/enterprise/policies/single-market-goods/files/blue-guide/guidepublic_en.pdf

1.2.5 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 use.
- 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.

1.2.6 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 water meters covered by the Directive 2004/22/EC (as amended by the Amendment Directive) have free movement throughout the Community.

1.2.7.1 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 2010³ and to apply the new legislation with effect from 1 June 2011.

1.2.7.2 Regulation 3 of the Amendment Regulations implements the Amendment Directive in respect of cold-water meters by amending the essential requirements so as to explicitly prohibit systematic exploitation of these instruments.

1.2.8 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.

1.2.9 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.

1.3 PART 1 - PRELIMINARY

1.3.1 The Regulations, as amended, have been made using powers under 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. It is our understanding that in-service provisions for water meters will not be provided in Northern Ireland.

Citation and commencement

Regulation 1

1.3.2.1 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.

1.3.2.2 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

1.3.3 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.

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

³ The Amendment Directive was implemented into UK law on 2 December 2010.

Manufacturer – This term means a person responsible for the conformity of a cold-water meter 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 22, 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 the term used in Regulation 21 and 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.

Notified Body – This means:

- (a) the Secretary of State i.e. National Measurement Office (NMO) Services; or
- (b) a United Kingdom notified body namely a person designated under Regulation 7; and
- (c) for the purposes of regulations 4(1)(c), 19(1)(b), 21(1)(c) and 24(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. This applies to products where the directive in question covers putting into service, and where such manipulations may have an impact on the compliance of the product. In the case of the addition of automatic meter reading devices (AMR) e.g. handheld or network technology where data is collected on consumption from a water meter and transferred to a central database for the purpose of billing of the quantity used it is important that the customer still has access to the actual reading on the meter.

Domestic Premises

This is a definition that is specific to these regulations and is defined in Regulation 3(5): Premises used for the purpose of living accommodation notwithstanding that such premises are used for other purposes as well as living accommodation.

Application

Regulation 3(1)

1.3.5 The Regulations apply to cold-water meters for use for trade on domestic premises as defined by section 7 of the Weights and Measures Act 1985 that have been first placed on the market or put into use 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)

1.3.6 The Regulations do not apply to cold-water meters in respect of which a certificate of approval granted before 30 October 2006 under the following regulations is still in force and which is first passed as fit for use for trade and stamped:

- Measuring Equipment (Cold-water Meter) Regulations 1988
- Measuring Instruments (EEC Requirements) Regulations 1988

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 Instruments (Cold-water Meter) Regulations 1988 or the Measuring Equipment (EEC Requirements) Regulations 1988 will remain valid until the date on which they expire but no later than 29 October 2016 and may be modified up to the date of expiry. A cold-water meter may continue to be used indefinitely provided it complies with the expired certificate.

Regulation 3(3)

1.3.7 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.

1.4 PART II – PLACING ON THE MARKET AND PUTTING INTO USE

Requirements for placing on the market and putting into use

Regulation 4(1)

1.4.1 This regulation makes it an offence to first place on the market or put into use a cold-water meter 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.

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

1.4.3 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 cold-water meters 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.

Compliance with the essential requirements

Regulation 5(1)

1.4.4 Manufacturers can use more than one method to demonstrate compliance with the essential requirements. These methods are identified as:-

- (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.

Regulation 5(2)

1.4.5 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 to 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 documents for cold-water meters identified by the Commission are published on the NMO website and can be found at:

<http://www.bis.gov.uk/nmo>.

The references to harmonised standards were published by the Commission in the Official Journal and those in relation to cold-water meters are listed below:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2007:162:0013:0014:EN:PDF>

- EN 14154-1:2005+A1:2007 Water meters — Part 1: General requirements,
- EN 14154-2:2005+A1:2007 Water meters — Part 2: Installation and conditions of use and
- EN 14154-3:2005+A1:2007 Water meters — Part 3: Test methods and equipment

They have been adopted as BS EN standards.

1.4.6 The appropriate OIML Recommendation for cold-water meters is Recommendation R49-1(2006) which can be found on the OIML web-site at:

<http://www.oiml.org>.

1.4.7 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)

1.4.8 Provides for devices which do not meet the essential requirements and which are not in use for trade. These can be connected to a cold-water meter 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. These devices are likely to carry their own CE marking under directives other than 2004/22/EC.

Conformity assessment procedures

Regulation 6(1)

1.4.9 The different conformity assessment procedures available to manufacturers are set out as modules in the annexes of Directive 2004/22/EC. These are numbered A to H1. The options available to manufacturers for water meters are as follows:

	B+D	B+F	H1
Cold-water Meters	•	•	•

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)
- 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)

1.4.10 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:

http://ec.europa.eu/enterprise/policies/single-market-goods/files/blue-guide/guidepublic_en.pdf

1.4.11 For Module F under 4.1 and 5.2 the recommended tests to be carried out for initial and subsequent verification should be identified together with the standards necessary to ensure traceability of measurement.

1.4.12 The EU Commission in relation to the Directive has published a list of references to normative documents in the Official Journal (2006/C 269/01) which in part gives presumption of conformity to the essential requirements. This includes details on cold-water meters (MI 001 in relation to Recommendation R 49-1 edition 2006 and R49-1 edition 2004. This information can be found on the NMO website or by reference to the EU website at:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2006:269:0001:0028:EN:PDF>

1.4.13 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.

1.4.14 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. Cold-water meters are covered by document WELMEC 8.11, which can be found at: <http://www.welmec.org>.

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

1.4.16 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 language acceptable to it in compliance with paragraph 10(1)(a) of Part II of Schedule 3.

Designation of United Kingdom notified bodies

Regulation 7(1)

1.4.17 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 32 of this guidance for those relevant to cold-water meters). 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)

1.4.18 If an organisation meets the requirements of Schedule 2 Part I 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 cold-water meter the Secretary of State must be satisfied that the applicant meets the criteria as respects that meter. As with the definition of an importer and, in line with Schedule 1 of the Interpretation Act 1978, a person includes both a natural and a legal person. The application form for bodies applying to be designated as a United Kingdom notified body under Regulation 7 is available on the NMO website: www.bis.gov.uk/nmo.

Regulation 7(3)

1.4.19 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 on the NMO website at: www.bis.gov.uk/nmo

Regulation 7(4)

1.4.20 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) and 8

1.4.21 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.

Provisions supplemental to regulation 7

Regulation 9

1.4.22 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 these 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)

1.4.23 The Secretary of State will publish a list which specifies for which instruments the notified body is designated and any conditions to which it is subject. These details will be available on the NMO website at <http://www.mps.gov.uk/nmo/regulation>.

1.4.24 The European Commission also publishes a list of notified body numbers which gives details of the notified body and the instruments on the New Approach Notified and Designated Organisations (NANDO) website. For the MID click on:

<http://ec.europa.eu/enterprise/newapproach/nando/>

1.4.25 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.

1.4.26 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 (PECAAs) and European Economic Area (EEA) - responsible for carrying out the conformity assessment procedures referred to in the application.

Fees

Regulation 11

1.4.27 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.

1.4.28 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.

1.4.29 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. 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)

1.4.30 Provides that, in cases where fees (charged after work is completed or payment of fees has been requested in writing) 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

1.4.31 Annex 1 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.

1.4.32 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 the NAWI Directive but it must be accompanied by the last two digits of the year in which it is affixed. See drawings in the Annex to this guidance.

Conformity with other directives

Regulation 13

1.4.33 Where a cold-water meter falls within the scope of other directives which provide for the affixing of the CE marking the CE marking affixed to the cold-water meters shall, in addition to conformity with the Directive, indicate conformity with those other directives. Other directives of which manufacturers should be aware include the following

- 89/336/EEC (amended by 91/263/EEC, 92/31/EEC and 2004/108/EC) on electro-magnetic 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) and
- 2006/95/EC on low voltage, as implemented by the Electrical Equipment (Safety) Regulations 1994.

This list is not exhaustive.

1.5 PART III – USE FOR TRADE OF COLD-WATER METERS

1.5.1 This part applies to all cold-water meters in use for trade once they have been placed on the market and put into use in Great Britain (see paragraph 92 regarding Northern Ireland). It equally applies irrespective of whether the instrument was attested under the Regulations or the corresponding regulations issued by another Member State.

1.5.2 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 instrument and for the avoidance of doubt prescribe the instrument 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 may be applied to an instrument. Only the inspector of weights and measures can apply a disqualification mark to a measure. 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 cold-water meter covered by the Regulations that they propose to re-qualify added to the appendix which accompanies their approval.

Requirements for use for trade

Regulation 14

1.5.3 This Regulation requires instruments to continue to meet the essential requirements in-service. There are separate in-service maximum permissible errors (MPEs).

1.5.4 It is considered that a suitable meter would be one that ensures sufficient accuracy at all flow rates for the particular domestic purpose be it direct or indirect application. The application will dictate the 'turn down ratio' necessary to ensure that the meter accuracy from minimum flowrate to permanent flowrate and for short periods of time to overload flowrate is appropriate. This is more difficult to achieve for meters with large "turn down ratios".

1.5.5 It is recommended that, for meters with a nominal diameter of 15mm, a suitable meter should ensure sufficient accuracy over a flowrange that at least encompasses that defined by:

- (i) Permanent flowrate $Q_3=1.6$ m³/h with a turndown ratio $Q_3/Q_1=200$, for use with an indirect water supply system; or
- (ii) Permanent flowrate $Q_3=1.6$ m³/h with a turndown ratio $Q_3/Q_1=160$, for use with a direct water supply system.

It is recommended that, for meters with a nominal diameter of 20mm, a suitable meter should ensure sufficient accuracy over a flowrange that at least encompasses that defined by:

- (i) Permanent flowrate $Q_3=4.0$ m³/h with a turndown ratio $Q_3/Q_1=250$, for use with an indirect water supply system; or
- (ii) Permanent flowrate $Q_3=4.0$ m³/h with a turndown ratio $Q_3/Q_1=160$, for use with a direct water supply system.

1.5.6 It is recognised that, at the point of initial verification and when the meter is installed, it may be difficult to determine whether the property has a direct or an indirect water supply system. In order to address this potential difficulty and also to negate any need for a new

meter to be installed should the water supply system be changed at a later date from a direct to an indirect system, it is recommended that a suitable meter according to (i) above should be specified for all water supply system types.

Maximum permissible error

Regulation 15

1.5.7 The table gives the “in use” errors for cold-water meters. The errors are an increase of 20% and 25% respectively on the maximum permissible errors for placing on the market and putting into use

Flowrate Range	Errors-In use for trade
Q1 to < Q2	6%
Q2 and including Q4	2.5%

Manner of use

Regulation 16

1.5.8 Where a cold-water meter is marked with a temperature range, flowrate range or any other mark which signifies a manner and purpose of use it shall not be used for trade outside those ranges. The marks may instead appear on accompanying documentation as provided for in paragraph 11(3) of Schedule 1.

66 Manufacturers and users should be aware of the requirement in sub paragraph (4) that meters are required to be set as close to zero as is practicable when adjusted. It is not acceptable to set a meter with a good error characteristic to the lower limit of the accuracy range.

1.6 PART IV – ENFORCEMENT

Enforcement authority

1.6.1 All enforcement of these regulations will be under the European Communities Act. The powers of the Weights and Measures Act do not extend to enforcement for these regulations.

Regulation 17

1.6.2 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 local weights and measures authorities and is to ensure the Secretary of State is able to fulfil his obligations to conduct market surveillance. Those authorised by this regulation are referred to as “enforcement authorities”.

Compliance notice procedures

Regulation 18

1.6.3 In cases where the enforcement authority has established that the CE marking and/or M mark have been inappropriately affixed for an 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.

1.6.4 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 15 'MPE' of 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.

Immediate enforcement action

Regulation 19

1.6.5 The 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 cold-water meter 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 cold-water meter 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.

72 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 and published on the NMO website (www.bis.gov.uk/nmo).

Disqualification

Regulation 21

1.6.6 In cases where a cold-water meter 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.

1.6.7 Where it appears that the nature or degree of the non-compliance is not such that a disqualification sticker should be affixed immediately, an inspector may give any person in possession of the cold-water meter a notice requiring rectification in a period of not less than 14 and not more than 28 days.

1.6.8 This should be contrasted with the 1988 Cold-water Meter Regulations. Under these regulations it was necessary to first leave a 28 day notice. This would enable the meter to be rectified before it was disqualified. Under the Regulations a cold-water meter can be immediately disqualified.

Re-qualification

Regulation 22

1.6.9 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.

1.6.10 Re-qualification is the process by which either an inspector or an approved verifier assesses compliance of the instrument after it has, or could have, been disqualified and returned to conformity with the essential requirements. This means that the MPEs will be those applicable to first placing the instrument on the market.

Testing of cold-water meters

Regulation 23

1.6.11 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 cold-water meters is given in the section describing regulation 5(2) above.

1.6.12 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 4.1 and 5.2 of Annex F to the Directive.

1.6.13 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 verification.

Regulation 23(1)

1.6.14 Requires the person in control of the equipment to provide such assistance as necessary to enable the inspector to carry out his duties. In most cases, this normally means allowing access to the equipment and co-operation of site staff so that inspection of the equipment can take place and test deliveries can be made. However, the regulation gives the inspector the power to require reasonable assistance in a number of specific and non-specific ways. This helps to ensure that the inspector cannot be prevented from carrying out his duties without very good reason.

Unauthorised applications of authorised marks

Regulation 24

1.6.15 Any cold-water meter 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

1.6.16 It is important to consider the definition of Enforcement Officer. It is either an inspector as defined in the Weights and Measures Act 1985 (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 Part II of the Regulations, as amended.

1.6.17 It should be noted that this Regulation gives an enforcement officer the authority to inspect and test a cold-water meter, but it is only an inspector of weights and measures that may reject the meter 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, as amended, are not met.

1.6.18 The powers under regulation 25(1) should be contrasted with those existing in relation to the NAWI Regulations 2000 (SI 2000/3236), as amended - 'the NAWI Regulations'. 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.

1.6.19 It should be noted that the Regulations, as amended, apply to cold-water meters for the supply of water to domestic premises, but an inspector does not have the right of entry into a premises used only as a dwelling house.

1.6.20 It should be noted that there is no provision 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 provision.

Penalties for offences

Regulation 27

1.6.21 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:

Level on the scale	Amount of fine
1	£200
2	£500
3	£1,000
4	£2,500
5	£5,000

1.6.22 This penalty avoids the threat of imprisonment previously applicable to offences made under the Weights and Measures Act 1985.

1.7 PART V – MISCELLANEOUS AND SUPPLEMENTAL

Adaptation for Northern Ireland

Regulation 32

1.7.1 The Regulations, as amended, apply to Northern Ireland subject to Schedule 5. This means that the 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 only.

The Electromagnetic Compatibility regulations 2005

1.7.2 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 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 cold-water meters 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. The EMC Regulations continue to apply to emissions.

This publication was withdrawn on 1 January 2021.

ANNEX

MARKING AND INSCRIPTIONS

Regulation 12(3)

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 11.1 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 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

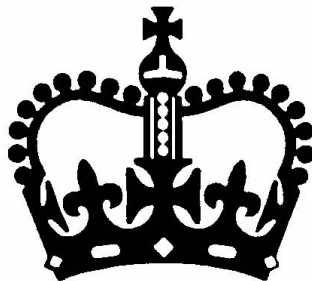
INS/0704/08



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.

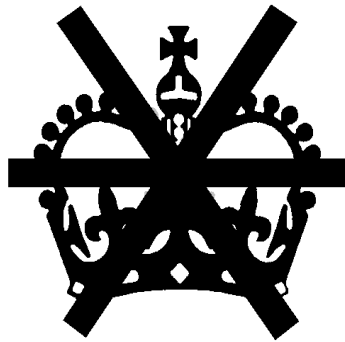
Approved Verifier

AV/0704/08



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**

NB 0126

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.

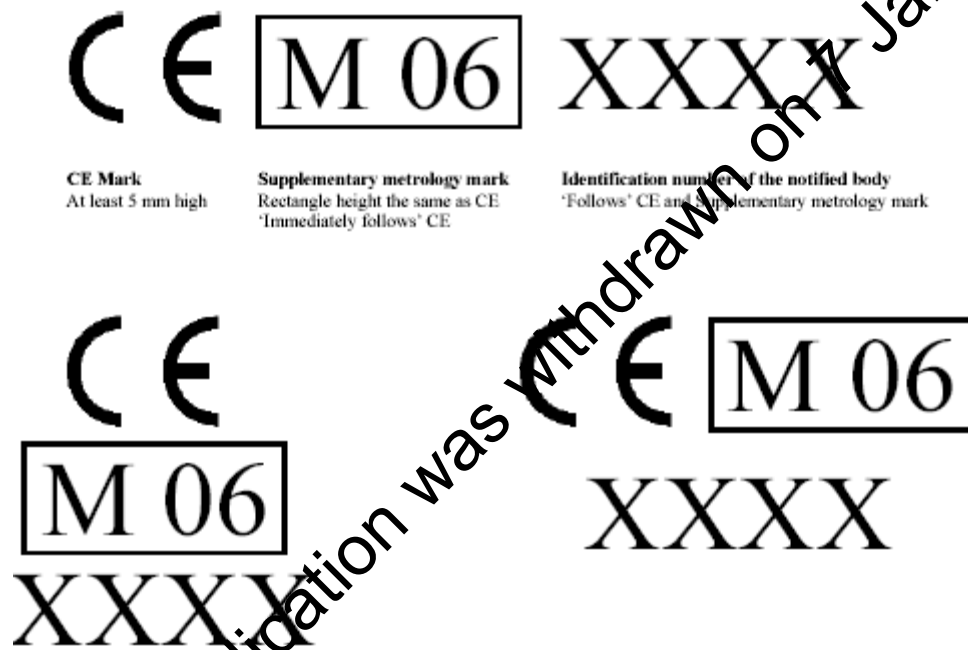
**Other marks and requirements for MID
instruments**

1. The CE marking consists of the symbol “CE” according to the design laid down in paragraph I.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

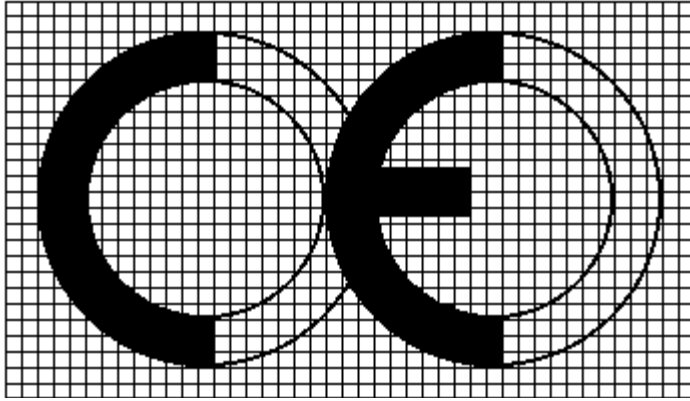


CE Mark
At least 5 mm high

Supplementary metrology mark
Rectangle height the same as CE
'Immediately follows' CE

Identification number of the notified body
'Follows' CE and Supplementary metrology mark

“The CE mark must not be less than 5mm in its vertical height, and the proportions maintained. It is generally shown on a grid in the guidance booklets, as below (the grid does not form part of the marking and is for information only):



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.

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 cold-water meter consists of a number 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 of statutory marks above.

This publication was withdrawn on 7 January 2021.

Part 2: The Measuring Equipment (Cold-water Meters) Regulations 1988 (S.I. 1988 No. 997), as amended [Pages 26 to 42]

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This publication was withdrawn on 7 January 2021

Part 2: The Measuring Equipment (Cold-water Meters) Regulations 1988 (S.I. 1988 No. 997), as amended

2.1 INTRODUCTION

2.1.1

These Regulations bring cold-water meters in use for trade under metrological control for the first time. This new step is prompted by the Public Utility Transfers and Water Charges Act 1988 which makes statutory provision for compulsory trials of water metering, as recommended by the Watts Report (Joint Study of Water Metering: Report of the Steering Group. HMSO 1985).

2.1.2

The Watts Report concluded that charging for water on the basis of the quantity supplied should be developed to provide a fairer and more efficient basis than charging by reference to rateable value. The Report also recommended that the framework of the Weights and Measures Act should be used to ensure that meters are accurate and reliable, so that consumers can have a high degree of confidence in their performance.

2.1.3

In 1987 the National Measurement Office, NMO (The National Weights and Measures Laboratory, NWML at the time) sought the views of interested parties on the most appropriate method of metrological control. The responses were overwhelmingly in support of a regime of independent checking of meters and NMO (NWML at the time) subsequently issued for consultation draft Regulations requiring the verification of meters by inspectors. Following assessment of the comments received and further discussions with interested parties the Regulations were made on 7 June 1988 and published on 14 June. They came into force on 1 August 1988.

2.1.4

The regulations now apply in England, Wales and Scotland.

2.1.5

These Regulations have been amended as follows:

- Measuring Equipment (Cold-water Meters) (Amendment) Regulations 2001, S.I. 2001 No 1229, from 28 September 2001, by extending the regulations to Scotland; by changing the application of the regulations to meters for the supply of cold water to domestic premises in place of supply for domestic purposes; by updating the references to British Standards, and providing for dispensing with the testing of meters imported from another state of the European Economic Area under certain specified circumstances.
- Weights and Measures (Standards Amendment) Regulations 2003, S.I. 2003 No 214, from 28 February 2003, by substituting a reference to Standard BS EN ISO

17025 for that to the subsequently withdrawn Standard EN45001, as being the appropriate Standard for the accreditation of laboratories who may carry out testing of equipment imported into Great Britain.

2.2 GLOSSARY

2.2.1

In these Notes:

“the 1988 Act” means the Public Utility Transfers and Water Charges Act 1988

“the Act” means the Weights and Measures Act 1985

“the customer” means the person who is liable to pay water charges in respect of any premises in relation to which a meter is fitted

“the Directive” means Council Directive 75/33/EEC relating to cold-water meters

“the EEC Regulations” means the Measuring Instruments (EEC Requirements) Regulations 1988, SI 1988/186 as amended by SI 1988/1128

“the inspector” means an inspector of weights and measures, also known as a Trading Standards Officer

“water undertaker” means a water authority or statutory water company

2.3 SCOPE AND PURPOSE

2.3.1

These Notes have been prepared for the guidance of all who are concerned with observing or applying the new controls. This includes equipment manufacturers, inspectors of weights and measures, users and owners of those cold-water meters which are in use for trade, as defined in section 7 of the Act.

2.3.2

Although limited to meters installed from 1 August 1988 compulsorily by or at the behest of the water undertaker or 1 April 1989 in other cases, parts of these Notes, for example the section on in-service testing, may well be of use in other circumstances such as the testing of meters installed before those dates.

2.3.3

A cold-water meter in use for trade, even if not caught by these Regulations, must not be false or unjust [Section 17 of the Act].

2.3.4

For a discussion of the meaning of “supply of water for domestic purposes” see, for example, Halsbury’s Laws, 4th edition, vol. 49, paragraph 613 [Regulation 3].

2.4 APPROPRIATE METERS

2.4.1

In choosing which meter to install the water undertaker is to have regard to the expected operating conditions [Regulation 4]. It is generally expected that a supply of water for domestic purposes to a house will dictate a class D meter, given the likely low flow rates when the house has an indirect plumbing system. Where direct plumbing systems are installed a class C meter may be considered appropriate.

2.4.1.1

It is considered that a suitable meter would be one that ensures sufficient accuracy at all flow rates for the particular domestic purpose be it direct or indirect application. The application will dictate the ‘turn down ratio’ necessary to ensure that the meter accuracy from minimum flowrate to nominal flowrate and for short periods of time to maximum flowrate is appropriate. This is more difficult to achieve for meters with large “turn down ratios”.

2.4.1.2

It is recommended that, for meters with a nominal diameter of 15mm, a suitable meter should ensure sufficient accuracy over a flowrange that at least encompasses that defined by:

- (i) Nominal flowrate $Q_n=1.0 \text{ m}^3/\text{h}$ (Class D) for use with an indirect water supply system; or
- (ii) Nominal flowrate $Q_n=1.0 \text{ m}^3/\text{h}$ (Class C) for use with a direct water supply system.

It is recommended that, for meters with a nominal diameter of 20mm, a suitable meter should ensure sufficient accuracy over a flowrange that at least encompasses that defined by:

- (i) Nominal flowrate $Q_n=1.5 \text{ m}^3/\text{h}$ (Class D) for use with an indirect water supply system; or
- (ii) Nominal flowrate $Q_n=2.5 \text{ m}^3/\text{h}$ (Class D) for use with a direct water supply system.

For the relationship between minimum flow rate and nominal capacity ie ‘turn down ratio’, for class C and D meters please refer to Table 2 in Section 5.2.

2.4.1.3

It is recognised that, at the point of initial verification and when the meter is installed, it may be difficult to determine whether the property has a direct or an indirect water supply system. In order to address this potential difficulty and also to negate any need for a new meter to be installed should the water supply system be changed at a later date from a direct to an indirect system, it is recommended that a suitable meter according to (i) above should be specified for all water supply system types.

2.4.2

It should be noted that an inspector has power to prosecute for failure to comply with Regulation 4 [Section 15(3) of the Act].

2.5 PATTERN APPROVAL

2.5.1

Before meters can be produced with a view to use for trade, as covered by the Regulations, the pattern or design must be approved. The class of meter determines the manufacturer's choice as to the approval to be obtained and the approving authority, according to Table 1 below.

Table 1

	Class of meter	
	A, B or C	D
Approval available	EEC or national	National
Approving authority	NMO or the metrological service of another Member State	NMO

Note: National pattern approval obtained in another Member State is not acceptable for the purposes of these Regulations. See, however, paragraph 9.1 below.

The pattern approval only covers the metrological characteristics of meters; a separate application to the WRC Water Byelaws Advisory Service must be made for water byelaws approval.

2.5.2

Cold-water meters are classified according to criteria related to their flow rates, which are expressed as "Q values". Table 2 below sets out the various Q values for the different classes of meters. It is based on the Directive and BS 5728: Part 1: 1979 (as amended in July 1986).

(Q values for meters with nominal flow rates equal to or greater than 15 cubic metres per hour are given in the Directive.)

Table 2

Class	Nominal flowrate $Q_n < 15 \text{ m}^3/\text{h}$
A - Value of: Q_{min}	0.04 Q_n
Q_t	0.10 Q_n
B - Value of: Q_{min}	0.02 Q_n
Q_t	0.08 Q_n

C - Value of: Qmin	0.01 Qn
Qt	0.015 Qn
D - Value of: Qmin	0.0075 Qn
Qt	0.0115 Qn
Qs	< 0.5 Qmin

2.5.3

A major part of the pattern examination process is the performance testing which will be carried out as set out in the Directive irrespective of the approval sought. NMO does not have testing facilities for cold-water meters; testing will be carried out on behalf of the Laboratory by other approved test houses.

2.5.4

Due to the very large number of combinations of configuration, display and peripherals the recognition of what constitutes a basic pattern is not a simple matter. However, the heart of a pattern is the measuring element, and usually this forms the principal part of the approval with other pieces being treated as variants or authorised alternatives. Where a full test is carried out the numbers of meters to be submitted are as follows:

- Class D 12 samples
- Class A, B or C to be discussed with NMO

In all cases where there are alternative displays, remote readouts etc the submitter should contact NMO to discuss what additional testing, if any, will be required and how many further samples are to be submitted.

Variants and alternatives may also be considered for approval subsequent to the approval of the basic pattern: manufacturers should contact NMO to discuss the matter.

2.5.5

Manufacturers are urged to submit test results with their applications for pattern approval. Where acceptable such test results will considerably speed up the process of examination. Document TE-12, 'Acceptance Criteria for Test Results' gives guidance on this point and can be found on the NMO website at www.bis.gov.uk/nmo.

2.6 INITIAL VERIFICATION

2.6.1

The Regulations provide for 100% testing followed by application of the prescribed stamp and, as an alternative under specified circumstances, for statistical sampling of meters already marked with the manufacturer's mark [Regulations 6 and 7]. It is not permissible, on passing as fit for use for trade, to stamp a meter bearing a manufacturer's mark or any other mark

which may be mistaken for the stamp [Regulation 9(2)]. For further details about the manufacturer's mark, see 6.7 below. The manufacturer's mark on meters, which have been passed as fit for use for trade, has the same legal status as the prescribed stamp affixed by the inspector [Regulation 8(2)].

2.6.2

Whichever mode the manufacturer chooses, the meters for test must be checked for compliance with the certificate of pattern approval and tested. Testing is comprised of determining the meter error at three flow rates [Regulation 6(3)] and the pressure drop (head loss). The meter errors must fall within limits set by the error envelope [Regulation 10] and comply with the requirement of Regulation 8(1)(a)(ii). Also the pressure drop must not exceed that stated in the pattern approval certificate. In the case of 100% testing, the pressure drop test may be carried out on a sampling basis as recommended in clause 10.2.2.5 in BS5728: Part 3: 1984 using the same sampling plans and criteria as specified in Regulation 7(3)(a) or 7(3)(b) as appropriate.

Meters may be tested in series if desired. If this method is employed, the exit pressure of all the meters should be sufficient to prevent cavitation; and special measures may be required to prevent interference between meters.

2.6.3

A prerequisite of adoption of full statistical testing is satisfaction of the conditions listed in Regulation 7(2). The information specified in Regulation 7(2)(c) should be generated as part of the production quality system, but the inspector should liaise with the manufacturer to agree the format and content of records necessary to give adequate confidence that the required standard has been met. When using statistical sampling for all tests the principle of "percent defective" should be used e.g. a meter which was outside the limits of error and failed the pressure drop test would count as one defective for the purpose of the test. Where statistical methods are in operation on a series of submitted groups, Regulation 7(3) (a) applies and the switching rules may be used. The inspector is recommended to start testing by adopting general level II and normal inspection. For isolated batches Regulation 7(3)(b) applies. Where the results taken from a sample indicate that the batch should not be passed as fit for use for trade, the manufacturer will have to take back the batch and sift it for non-conforming meters before re-submitting it. The sifting is permitted under Regulation 7(2)(c), which refers to "subsequent action taken by the manufacturer". It is not permissible to mix meters from a non-conforming batch with another batch.

2.6.4

Before the commencement of testing for accuracy the meters should be full of water (there must be no air pockets in the system) to ensure that subsequent registration is solely due to passage of water and to provide adequate lubrication. A sufficiently large quantity of water must be passed during the test to rotate the pointer or drum of the verification scale through one or more revolutions [Regulation 6(2)].

2.6.5

The working standards and test equipment used to perform the accuracy tests and the pressure drop test should conform to the appropriate NMO Specifications 7314 and 7333 and regulations (SI 1990/2626 as amended).

2.6.6

In the case of meters submitted for initial verification within the UK but manufactured and tested elsewhere guidance on the acceptance of test results is given in paragraphs 9.2 to 9.2.4 inclusive in these Notes.

2.6.7

The manufacturer's mark is defined in Regulation 2. Application for authorisation of a manufacturer's mark should be made to NMO: it would be expected to incorporate all of the three items and to be unique, e.g. not contain elements used previously as a trade or other mark.

2.7 IN-SERVICE TESTING OF METERS

2.7.1

In the ordinary course of events a customer who thinks the meter is incorrectly recording the volume of water supplied should first contact the water undertaker who will arrange to test the meter in accordance with the Water (Meters) Regulations 1988, SI 1988/1048, and if necessary repair or replace it. However customers who remain dissatisfied despite action by the water undertaker, or who might have other grounds for concern can refer the matter to an inspector, in the same way as they can for any other weighing or measuring equipment in use for trade.

2.7.2

It is likely to prove mutually beneficial for inspectors and water undertakers to discuss at an early stage of the tests arrangements for exchanging information on complaints, or the results of any testing carried out.

2.7.3

Depending on the circumstances in the premises the inspector will probably have a choice of test equipment, which could be used: gravimetric, volumetric using capacity standards and volumetric using a reference meter. A study carried out by the Water Research Centre showed that the most practical method for the straightforward case of a Class C or D meter used a reference meter, and these Notes assume that this method will be employed. The equipment used by an inspector should comply with the appropriate NMO Specifications 7314 and 7333 and regulations (SI 1990/2626; as amended).

Annex 1 sets out the recommended procedure. Annex 2 contains a model form for recording the results - if produced in self-carboning sets of three this would provide copies for the customer and water undertaker [Regulation 6(2) and (4)].

2.7.4

The powers of the inspector to obliterate the stamp or manufacturer's mark are set out in Regulation 11. Paragraph 2 deals with inaccurate meters and requires the inspector to give the "proprietor or person in charge" a notice requiring rectification within a period not exceeding 28 days. Immediate obliteration is not provided for in these circumstances, as continued charging for the water supplied through the meter would constitute an offence under section 11(2) of the Act (using unstamped equipment for trade). The period of notice given should allow sufficient time for the water undertaker to attend to test and/or replace the meter.

2.7.5

Paragraph 3 requires the inspector to obliterate the stamp or manufacturer's mark on a meter, which has been the subject of one of the occurrences listed.

2.7.6

Paragraph 4 gives the inspector discretion to obliterate the stamp or manufacturer's mark in certain other circumstances.

2.7.7

Where a stamp or manufacturer's mark is obliterated the inspector is required by paragraph 5 to give prompt notice of that fact. The notice is to be given to the "proprietor or person in charge": this is the water undertaker, never the customer, as the latter does not have legal possession of the meter.

2.8 LINKS WITH THE EEC

2.8.1

The Directive has been implemented into UK law since February 1979 by SI 1979/80 (now incorporated in the Measuring Instruments (EEC Requirements) Regulations 1988, SI 1988/145). It covers meters of classes A, B and C only. A list of patterns, which have received EEC pattern approval, is available from NMO on request.

2.8.2

A manufacturer of meters of class A, B or C may apply in any Member State for EEC pattern approval and, once approval is obtained, may seek EEC initial verification of production items. This is all governed in the UK by the EEC Regulations. It should be noted that initial verification would be 100% - there is no provision for sampling.

2.8.3

As an alternative Regulation 5(2)(a) allows meters of class A, B or C with EEC pattern approval to be submitted for initial verification on a statistical sampling basis under these Regulations, provided the requirements of Regulation 7 are met.

2.8.4

Meters of class D are not covered by the Directive and therefore fall only within these Regulations. Unless there are special circumstances it is assumed that class A, B or C meters will receive EEC pattern approval only, thus giving the right to export to other Member States, and class D meters national pattern approval in accordance with these Regulations. If and when the Directive is amended to include class D it is expected that national pattern approval will be convertible to EEC pattern approval without further testing.

2.9 ACCEPTANCE OF TEST RESULTS

2.9.1

For the purposes of pattern approval required by Regulation 5(2)(b), tests performed in other Member States of the European Community by bodies recognised in those States need not be repeated in the United Kingdom, if such tests are equivalent to those performed on measuring equipment in the United Kingdom and if the results of such tests are, or may at their request be made available to the UK Authorities.

2.9.2

Although section 75(1) of the Act forbids an inspector to stamp equipment without duly testing it, the Commission has taken the view that where 'equivalent' tests have already been carried out, for example on a cold-water meter made in another Member State and exported to the UK, they should not be repeated 'unnecessarily' here. The following paragraphs apply to the acceptance of such test results -

- (a) submitted in support of meters being passed as fit for use for trade; and
- (b) supplied by or with the approval of the authorities responsible for the metrological control of cold-water meters in another Member State.

2.9.2.1 Equivalent

Tests should be regarded as 'equivalent' if they provide the requisite measurement data stipulated in Regulations or associated documentation by an appropriate test method.

2.9.2.2 Unnecessarily

Following equivalent testing in another Member State it will not normally be necessary to repeat the tests in the UK. The inspector will however need to satisfy himself of -

- (a) their currency; if there is reason to believe that the metrological performance of the items concerned may have changed since the tests were performed, for example due to drift or instability;
- (b) their relevance; if the relevance of the results is doubted due, for example, to a metrological feature being geographically dependent; while the calibration of a load cell might change under significantly different local accelerations due to gravity, a water meter would not be so affected;
- (c) their identity; if there is doubt as to whether the test results apply to the items concerned perhaps because of inadequate identification, meters should be identified (e.g. by serial number) on the test certificate;
- (d) the ability of the laboratory or testing body concerned to offer guarantees of technical and professional expertise and independence equivalent to those which would be required if the tests had been performed by the UK authorities. Equivalent levels of confidence are most readily assured by a system of third party accreditation against internationally accepted criteria, particularly where any agreement of mutual recognition exists between the relevant accreditation authorities.

2.9.2.3

It is not the Commission's intention that first-party test results (i.e. those from the manufacturer's own test facilities) need be accepted for verification purposes in another Member State - though in due course separate guidelines may be necessary to cover reciprocal acceptance of self-verification.

In any of the above cases spot checks may be sufficient to determine the need for full repeat testing.

However, the UK authorities may take any reasonable steps to satisfy themselves of the validity of any test results.

2.9.2.4 Note

Notwithstanding 9.2.2(a) above, Article 8(3) of Directive 71/316/EEC implies a maximum one-year validity for initial verification tests.

2.10 REPAIR OF METERS

2.10.1

Three types of meters removed from service for repair can be distinguished:

- (a) those bearing the mark of EEC initial verification;
- (b) those bearing a manufacturer's mark (see paragraph 6.7 above) or the prescribed (crown) stamp;
- (c) those with no mark or stamp.

If following repair any such meter is to be re-used it will need to pay heed to the requirements of the Regulations according to the application timetable [Regulation 3(1)].

2.10.2

For those meters not previously stamped or marked (paragraph 10.1(a)) the water undertaker (or manufacturer if returned to him for repair or other repairer) will have to consider whether they comply or can be made to comply with a pattern approval EEC or national as the case may be. At the very least the probable consequence will be the affixing of the pattern approval identification to the meter, together with any other markings required by the relevant certificate or Regulations [Regulations 5(2)(a) or (b)].

2.10.3

Meters in classes A, B or C complying with a certificate of EEC pattern approval and previously bearing the mark of EEC initial verification (paragraph 10.1(a) above) can either proceed to EEC initial verification again in accordance with the EEC Regulations (see paragraph 8.2 above) or be submitted for testing under these Regulations (see section 6 above). In either case the testing will be on a 100% basis because in the first instance the Directive does not recognise statistical sampling and in the second instance the requirements of Regulation 7(1) cannot be met by repaired meters. Where repaired meters successfully pass the tests under these Regulations, they will be stamped with the prescribed (crown) stamp [Regulation 9(3)].

2.10.4

Meters in class D complying with a certificate of approval and previously bearing the prescribed (crown) stamp or a manufacturer's mark (paragraph 10(1)(b) above) can be submitted for testing under these Regulations (see section 6 above). The testing will be on a 100% basis because the requirements of Regulation 7(1) cannot be met by repaired meters. Whether previously stamped or marked with the manufacturer's mark, repaired meters which successfully pass the tests will be stamped with the prescribed (crown) stamp [Regulation 9(3)].

2.10.5

Arrangements would be made with the inspector for testing/verification of repaired meters [Section 11(4) of the Act].

This publication was withdrawn on 7 January 2021.

ANNEX 1

(2) RECOMMENDED PROCEDURE FOR THE INSITU TESTING OF DOMESTIC METERS USING A REFERENCE METER

- 1 Identify the nature of the customer's complaint and note if the customer has carried out their own test and if so the method employed and the result of it.
- 2 Check the installation of the meter for compliance with BS 6700, BS 5728, Weights and Measures Regulations and Pattern Approval Certificate, and note compliance or otherwise.
- 3 Note the meter serial number, make, and Certificate Number.
- 4 Ensure that there is no internal use of water by visual inspection and by either shutting off internal stop-taps or tying up the floats of ball valves and making sure that all internal water fittings are shut off.
- 5 When it is certain that there is no internal use of water, check for leakage by taking two meter readings at five-minute intervals. Note the readings.
- 6 If there is any difference in the readings, this will be an indication of leakage; advise the customer to have it repaired and terminate the check.
- 7 Identify an accessible cold-water tap fed directly from mains pressure and attach a reference meter using a suitable adaptor.
- 8 Set the flow at the tap at a high rate between $1/4 Q_n$ and $1/2 Q_n$ as measured by the reference meter and allow the tap to run for 2 minutes. Check the flow rate by filling a 200 ml or 500 ml cylinder, noting the time taken to fill. Note visually the flow of water (which must be steady and free from air) and the rotation rate of the meter register.
- 9 Stop the flow and take initial readings on the customer's and reference meters and note.
- 10 Set the tap to approximately the flow rate and check as in 8 above and allow to run for five minutes.
- 11 Stop the flow and note the final readings from both meters.
- 12 Calculate the consumption on both meters and compare. Calculate the average flow rate and note.
- 13 If the flow rate is outside the required range repeat the test by adjusting the flow rate.
- 14 Repeat the test from 8 above at a flow rate between Q_t and $5Q_t$ and test for twenty minutes.

- 15 Give the customer a copy of the results sheet.
- 16 Where floats of ball valves have been tied up, untie them and revert to original status all steps taken for the purpose of the test.

This publication was withdrawn on 7 January 2021.

ANNEX 2
MODEL FORM TEST REPORT FORM

Address of premises including post code		
Name of customer		
Customer's telephone number		
Nature of customer's complaint		
Result and method of any test by customer		
Compliance of installation with BS 6700, BS 5728 and SI 1988/997		
Meter serial no:	Make:	Model:
Meter pattern approval no:	Qn:	Qt:
Leakage check	reading 1:	reading 2:
Flowrate test 1 (1/4 Qn to 1/2 Qn) - (5 minutes duration)		
	Customer's meter	Ref meter
Final readings	.....m ³	.....m ³
Initial readings	.....m ³	.....m ³
Quantities indicated by meters	.....m ³ (A)	.....m ³ (B)
Observed flowrate = B x 12 =	.....m ³	
Ref meter error from correction chart (read at flowrate as above)	..... % (E)	
Corrected value of B = B {1+E/100} =	.....(C)	
Observed meter error = $\frac{A - C}{C} \times 100 =$	..... %	(Limit = 2.5%)
Flowrate test 2 (Qt to 1/2 Qt) - (20 minutes duration)		
	Customer's meter	Ref meter
Final readings	.....m ³	.....m ³
Initial readings	.....m ³	.....m ³
Quantities indicated by meters	.....m ³ (A)	.....m ³
Observed flowrate = B x 3 =	.....m ³	
Ref meter error from correction chart (read at flowrate as above) % (E)	
Corrected value of B = B {1+E/100} =(C)	
Observed meter error = $\frac{A - C}{C} \times 100 =$ %	(Limit = 2.5%)



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