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Issue 5

WELMEC

European cooperation in legal metrology

Directive 90/384/EEC: Common Application

Non-automatic weighing instruments

May 2009

WELMEC

European cooperation in legal metrology

WELMEC is a cooperation between the legal metrology services of the Member States of the European Union and EFTA. This document is one of a number of Guides published by WELMEC to provide guidance to manufacturers of measuring instruments and to Notified Bodies responsible for conformity assessment of their products. The Guides are purely advisory and do not themselves impose any restrictions or additional technical requirements beyond those contained in relevant EC Directives. Alternative approaches may be acceptable, but the guidance provided in this document represents the considered view of WELMEC as to the best practice to be followed.

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DIRECTIVE 90/384/EEC: COMMON APPLICATION
NON-AUTOMATIC WEIGHING INSTRUMENTS

CONTENTS

FOREWORD

This revised guide is intended to provide guidance to all those concerned with the application of Council Directive 90/384/EEC, as amended by Directive 93/68/EEC, on Non-automatic Weighing Instruments (NAWIs).

At the time of publishing this guide, a "codified" version of the Directive 90/384/EEC was under discussion but had not been published. All references in this guide to the Directive are therefore to the "non-codified" version.

This Guide provides a record of the continuing work of WELMEC Working Group 2 in the area of the common application of the Directive itself and in addition seeks to provide information which is specific to individual member countries.

This Guide is one of a number of Guides published by WELMEC to provide guidance to manufacturers of measuring instruments and to Notified Bodies responsible for conformity assessment of their products. The Guides are purely advisory and do not themselves impose any restrictions or additional technical requirements beyond those contained in relevant EC Directives. Alternative approaches may be acceptable, but the guidance provided in this document represents the considered view of WELMEC as to the best practice to be followed.

EN45501 and R76:

When Issues 1 to 4 of this guide were produced, the European Standard EN45501 and the OIML Recommendation R76-1 had almost identical text and section numbers. There were many references in this guide to sections of EN45501/R76, but a revised version of R76 was published in 2006 and, at the time of the publication of this present issue of this guide, the revised version of EN45501 has not yet been published.

References to EN45501/R76 in this guide have therefore been replaced by just EN45501, and these references apply only to the present version of EN45501 published in 1992 and amended in 1994.

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1 EC type approval certificate (TAC) and certificate number format

A draft document covering the requirements of Directive 90/384/EEC Annex II.1.4. is shown for the EC certificate of type approval. It is intended that the document contains the Certificate, preferably on a single page, followed by the Descriptive Annex.

The structure presented below is an example of what is considered to be a suitable format; however, other structures may be applied.

CERTIFICATE OF EC TYPE APPROVAL NO .....

(name and designation of the type)

[Note: although this is given further down the page, the repetition was considered an aid to clarity]

Issued by	(Name of Notified Body) (address - optional)
in accordance with	(Regulation implementing Directive .....)
issued to	(manufacturer and/or authorised agent holding approval, name and address)
in respect of	(name and type of instrument, brief detail of characteristics; for example, for a weighing instrument: accuracy class, Max, Min, e, temperature range (if different from -10 °C to +40 °C))
valid until	(date)

The principal characteristics, approval conditions and special conditions, if any, are set out in the Appendix hereto, which forms part of the approval documents and consists of ... pages.

Signature:

Name and address of Notified Body:

DESCRIPTIVE ANNEX TO CERTIFICATE OF EC TYPE-APPROVAL N0....

1 Name and type of instrument

2 Functional description of the instrument (including photographs, schematic views, exploded views, a list of devices etc.)

3 Technical data (including Table of load cells and list of drawings of mechanical construction)

4 Peripheral devices and interfaces

5 Approval conditions (for example: special inscriptions)

6 Special conditions for verification

7 Location of seals and verification marks

8 Location of CE mark of conformity and inscriptions

CONTENT OF DOCUMENTATION TO BE HELD BY THE NOTIFIED BODY

1 Product specification

Contents:
- Description
- Drawings
- Block diagrams
- Flow charts
- Circuit diagrams

2 Examination report

(including an explanation of how the Essential Requirements are to be met)

3 Test results

NAWI EC Type Approval Certificate Number Format

The following table shows the form of the certificate identification numbers.

COUNTRY	NUMBER FORMAT	REMARKS
AUSTRIA	A 0445/XXXX/YYYY	(A XXXX/YY before 2006)
BELGIUM	B-YY-MMMXXX	-
BULGARIA	BG_1YYXX	BIM, NB 1957, 1 = NAWI
	BG–TAC–XXX/ D.M. YYYY	Megacommerce Ltd., NB 1863
CYPRUS	CY-YY-XX	-
CZECH REPUBLIC	TCM 128/YY-XXXX	128 = NAWI
DENMARK	DK 0199.XXXX DK 0200.XXXX	0199 & 0200 = Notified Body Number
ESTONIA	-	-
FINLAND	FI YY.1.X	1 = NAWI Before 1 January 1997 was FI X.1.YY
FRANCE	F-YY-A-XXX LNE - XXXX	(until end of 2006) LNE: A = NAWI (from beginning of 2007)
	YY.00.620.XXX.0	SDM: 00 = SDM for legal metrology; 620 = NAWI; 0 = European validity
GERMANY	D YY-09-XXX	09 = NAWI
GREECE	Φ2-XXX/YY	-
HUNGARY	Th-XXXX/Z/YY	-
ICELAND	-	-
IRELAND	IRLXXX/YY	-
ITALY	I YY-XXX	-
LATVIA	-	-
LITHUANIA	-	-
LUXEMBOURG	-	-
MALTA	MT XXX.YY	-
NETHERLANDS	TXXXX	-
NORWAY	NXX/YY	-
POLAND	PL YY XXX	-
PORTUGAL	-	-
SLOVAKIA	SK YY-XXX SK YY G-XXX	- G = in case of EC unit verification
SLOVENIA	SI YY-05-XX	05 = AWI and NAWI
SPAIN	E YY-00-XXX E YY-02-XXX	00 = Centro Español de Metrología (CEM) 02 = Generalitat de Cataluña
SWEDEN	S-MMMM XX	-
SWITZERLAND	CH-WV-YYXXX-EE	W1 and W2 = NAWI
UK	UK XXXX	-

Note: YYYY = year; YY = last two digits of year; X→ = sequential numeric identifier; MMM = Manufacturer Number; Z = mailing or revision number, V = sub specification, EE = certificate supplements.

2 Criteria for additions to the EC type approval

2.1 The requirements relating to modifications to the approved type are set out in 1.7 of Annex II to the Directive. The Directive requires the applicant to keep the Notified Body who issued the type approval certificate informed of any modification to the approved type.

2.2 Not all modifications to the approved type will require an addition to the EC type approval certificate.

2.3 The opinion expressed by the Working Group in general terms is that any replacement of a part, device or sub-assembly etc which has a function in the measurement path must receive additional approval ie load receptor to display and printout.

Where that replacement is of an analogue part this must be tested in addition to receiving approval eg load cells, analogue PCBs (including A to D convertors). Test results previously obtained will be taken into account.

3 Decisions of common application

The following is a list of decisions reached of common application under the Essential Requirements. (In most sections, a reference is given to a relevant WELMEC Working Group 2 meeting number and either the Point number in the Minutes or the Decision number.)

3.1 General

Summary

3.1.20 Portable weighbridges
3.1.21 Accidental repetition of a weighed item
3.1.22 Preliminary Observation of Annex I of Directive 90/384/EEC
3.1.23 Marking of Test Certificate number on module or peripheral
3.1.24 Declaration of Conformity
  3.1.24.1 Declaration of Conformity and 1.2(b) application
  3.1.24.2 Declaration of Conformity - manufacturer's responsibility
  3.1.24.3 Declaration of Conformity - compatibility documents
3.1.25 Weighing of liquids used in air-conditioning
3.1.26 Sealing arrangements - footprints
3.1.27 Test Certificates for software
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3.1.29 Electrical testing and high-resolution mode
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3.1.36 Multiple-range NAWI automatic changeover at Max_i + 9e
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3.1.40 Number of scale intervals for NAWI and for module
3.1.41 Weighbridges below -10°C
3.1.42 Data storage device having Test Certificate
3.1.43 Warm-up time test
3.1.44 Span stability test
3.1.45 Accuracy of zero and tare setting
3.1.46 Eccentricity (eccentric loading) test
3.1.47 Disturbance tests
3.1.48 Level indicator - limiting value
3.1.49 Immunity of interfaces
3.1.50 Significant fault detection
3.1.51 Securing of access to service functions via menu
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3.1.54 Vehicle weighing by summation of individual wheel load NAWIs ("axle weighers")
3.1.55 Body mass indicators
3.1.56 Display of preset tare for direct sales to the public
3.1.57 GPS device to adjust calibration
3.1.58 Retail NAWI or POS with totalisation - requirement for printer
3.1.59 Retail NAWI installed in a fixed position in a checkout
3.1.60 Eccentricity test of weighbridge
3.1.61 EN45501 and OIML R76
3.1.62 Access to data plate and markings
3.1.63 Battery supply – low voltage detection
3.1.64 Concealed primary indications
3.1.65 Medical weighing – tare facility

Decisions

3.1.1 Stable equilibrium

3.1.1.1 Indication of unstable equilibrium (BCR inter-comparison - see Section 4)

The use of a flashing units sign, as an indication that the equilibrium is unstable, is only considered acceptable on instruments not intended for direct selling to the public, and then preferably only on instruments for laboratory use.

3.1.1.2 Stable equilibrium test (Meeting 20, Point 7; BCR inter-comparison - see Section 4)

The test given in Section A.4.12 of EN45501 is open to different interpretations, and is becoming more of a problem as A/D converters become faster. The manual disturbance should be maintained during initiating the command for printing or data storage. This applies also to the tests of the stable equilibrium of the zero-setting and tare devices. A check of the documentation is not considered sufficient.

3.1.2 Calculated weight (Meeting 10, Decision 10)

Where the indication represents an actual determination of the weight then the indication must respect the error allowance and be presented in the correct format.

When gross, net and tare are printed together, weight may be calculated from two actual determinations of weight. In the case of a multi-interval instrument it would be allowed to print a calculated value with the least significant digit which need not be rounded to the relevant scale interval.

Any printout of the calculated weight values should be identified as calculated weight values.

(See also Sections 3.1.16 and 3.1.54)

3.1.3 Class I instruments; d<0.1 mg (Meeting 10, Decision 11)

For Class I instruments where d<0.1 mg the instrument need not be marked with differentiated digits where the instruments are used for an Article 1.2(a) application other than indent 1 or indent 6. The limitation should be included in the EC type approval certificate.

3.1.4 Use of slashed zeros (Meeting 10, Decision 12)

The use of slashed zeros is generally acceptable so long as the presentation is unambiguous.

3.1.5 Unauthorised translations of EC type approval certificates (Meeting 10, Decision 13)

It is the responsibility of the manufacturer to make the EC Type Approval Certificate (TAC) available in the language necessary to enable EC verification to take place. The manufacturer may make unauthorised translations; however the official version remains the version produced by the Notified Body which granted the EC type approval.

All translations should use the terminology specified in EN45501. Refer also to the language markings in Section 9.

3.1.6 Load cells

(Note that throughout this guide, "load cells" refers to analogue load cells rather than digital load cells unless stated otherwise.)

3.1.6.1 Barometric pressure tests for load cells (Meeting 8, Decision 6)

Where a load cell design makes it unnecessary to test for the effect of barometric pressure, the test may be declared not applicable and the test certificate shall state the reason for not testing.

3.1.6.2 Non-humidity (NH) tested load cells (Meeting 11, Decision 4)

When using the modular construction route a load cell marked NH may not be authorised for inclusion in a TAC unless humidity testing to EN45501 has been conducted on the load cell, the complete measuring instrument or the measuring element.

3.1.6.3 Digital load cells - compatibility forms (Meeting 17, Point 7)

Digital load cells from different manufacturers differ in their interfacing arrangements, and cannot necessarily be exchanged. At present, therefore, compatibility forms should be limited to analogue load cells. Digital load cells should only be approved in combination with their indicators.

3.1.6.4 R60 Certificates of Conformity (Meeting 18, Point 19; Meeting 21, Point 25)

Section 1 of Clause A.5 of WELMEC 2.4 is interpreted to mean that, for the modular approach, only R60 Certificates issued by a Notified Body responsible for type examination under Directive 90/384/EEC are acceptable, despite mutual recognition agreements having been made by some Notified Bodies with organisations outside the WELMEC area.

3.1.6.5 Minimum output dead load return (multi-interval or multiple range) (Meeting 9, Decision 8)

The requirement of Section 4.12.2 of EN45501 is relaxed for multi-interval and multiple range instruments by applying the following formula for minimum dead load output return:

$$Z = \frac{E_{max}}{(2\ DR)} \quad \geq \quad \text{either} \quad \frac{max_r}{e_1} \quad \text{for multi-interval instruments}$$

$$\text{or} \quad \frac{0.4\ max_r}{e_1} \quad \text{for multiple range instruments}$$

3.1.6.6 Q-factor in Compatibility forms (Meeting 19, Point 16)

The following was agreed as a possible approach to calculating the approximate Q-factor.

EN45501 Section 4.12.1 "Maximum capacity of the load cell" states that the correction factor Q>1 considers the possible effects of eccentric loading, dead load of the load receptor, initial

zero-setting range and non-uniform distribution of the load. It is used to calculate whether the load cell capacity is sufficient for the purpose, ensuring that the load cell is not overloaded.

In many conventional weighing instruments, where the manufacturer has allowed 2-3 times overload security for the load cell, the Q-factor is unimportant. However, in some types of instrument, for example fork lift scales where the front end load cells can be subjected to overloading, the Q factor is essential as there is a risk of non-uniform distribution of the load. The following formula includes a component for this non-uniform distribution (NUD):

$$Q = \frac{Max + deadload + additive\ tare + initial\ zero\ setting\ range + NUD}{Max}$$

Typical values for NUD might be 50% of Max for fork lift scales and weighbridges, and 20% of Max for other conventional instruments.

For example, if:

deadload ~ 20% of Max,
additive tare ~ 10% of Max,
initial zero range ~ 20% of Max,
and NUD ~ 50% of Max (fork lift scale)

then: $$Q = \frac{\text{Max} + 0.2\ \text{Max} + 0.1\ \text{Max} + 0.2\ \text{Max} + 0.5\ \text{Max}}{\text{Max}} = 2$$

3.1.6.7 Hermetically sealed load cells (Meeting 20, Point 18)

All load cells that are not marked “NH” must undergo humidity testing, regardless of whether or not they are believed to be “hermetically sealed”.

3.1.6.8 Load cell inaccessible at verification (Meeting 21, Point 15)

With many NAWIs, it is not possible to check that the correct load cell has been fitted without partially dismantling the NAWI.

For EC verification, the manufacturer declares conformity and the verifier tests. There is therefore no need for the verifier to inspect the load cell.

Periodic verification or market surveillance comes under national legislation, and conformity to type might, or might not, be covered. The instrument can be opened if there is a suspicion that the incorrect load cell is fitted.

3.1.6.9 Securing of load cell junction boxes (Meeting 23, Point 5)

Analogue load cell junction boxes shall be secured, and details of the securing shall appear in the Type Approval Certificate.

Digital load cell junction boxes shall be secured if necessary.

3.1.6.10 Load cell cable length (Meeting 23, Point 17)

If a junction box is used, then the load cell cable is defined as the cable from the load cell itself to the junction box, and the indicator is considered to include the cable from the indicator to the junction box.

The temperature compensation circuitry of the load cell is matched to the standard length of cable with which the load cell is manufactured. This cable should not be cut, extended or modified, as the temperature compensation may then no longer be correct.

This guidance does not apply to digital load cells, or to 6-wire load cells used with an appropriate indicator.

3.1.6.11 Load cell cable connected to indicator by plug and socket (Meeting 26, Point 7)

Section 8.5 of Annex I of Directive 90/384 requires that components that may not be dismantled or adjusted by the user shall be secured against such actions.

In the case of a load receptor where

- the user does not have access to the load cell cables (realised eg. by a sealed junction box), and

- where the output cable connects to the (sealed) indicator by means of a plug and socket arrangement,

security of the connection is normally considered to be reached if tamper-evident labels are provided on both the load receptor and the indicator having a common serial number or cross reference between the indicator and load receptor that identifies the verified combination that must be used.

The TAC may contain alternative provisions to ensure continued integrity of the combination (eg mechanically coded plugs, identification chip that can be polled, or special sealing provisions).

3.1.7 Instruments having a mode of operation not in conformity with the Essential Requirements and use of “red M” (Meeting 11, Point 4; Meeting 23, Point 12)

The following example provides an acceptable solution:

Class I and II instruments which are not to be used for direct sale to the public may include an indication of weight based on a % value which does not meet the Essential Requirements provided that the restrictive use symbol (“red M”) referred to in Article 12 of the Directive is illuminated whenever the % mode is in operation.

The manufacturer declares in the operator’s manual that the % mode of operation is not available for 1.2(a) applications under the Directive.

Note that this concept is not considered acceptable for Class III or Class IIII instruments.

3.1.8 Verification marks

3.1.8.1 Application of green M sticker and red M symbol (Meeting 11, Decision 3)

Refer to Sections 3 and 10 of WELMEC 2.7 guide (previously WELMEC 5 and then WELMEC 3.1) "Directive 90/384/EEC: Explanation and Interpretation" for further information.

The green M sticker need not physically be a sticker but may be of an alternative form as long as it remains clearly visible, easily legible and indelible.

3.1.8.2 "Green M" stickers, POS systems and peripherals (Meeting 17, Point 20; WELMEC 2.7 guide)

A weighing instrument may be connected to a POS system which itself may be connected to many devices, for example displays, keyboards, printers cash drawers and barcode scanners. Past advice was that on such a system, when verified, a single "green M" sticker, on the POS itself, would be sufficient, and that if a data storage device was connected, then this should also bear its own "green M" sticker.

However, the WELMEC 2.7 guide makes it clear that this is no longer considered to be correct, and that a single "green M" should be applied to the main weighing instrument only. "Green M" stickers should not be applied to peripherals or to POS hardware.

3.1.8.3 Indicator with "green M" (Meeting 17, Point 20)

An indicator should only bear a "green M" if it is part of a verified weighing system. An indicator sold on its own should not therefore bear a "green M" and neither should an indicator being used only for non-trade purposes.

3.1.9 AWI/NAWI; aid to classification (Meeting 11, Decision 8; Meeting 25, Point 4; Meeting 26, Point 14; Meeting 28, Point 7)

The following interpretation of the definition of a non-automatic weighing instrument (NAWI) or an automatic weighing instrument (AWI) is intended to be used only when doubt exists in applying the definitions contained in Directive 90/384/EEC and the OIML recommendations.

> 'An instrument capable of performing consecutive weighing cycles without any intervention of an operator is always regarded to be an AWI. If an instrument needs the intervention of an operator, it is regarded to be a NAWI only if the operator is required to determine or verify the weighing result.
>
> Determining the weighing result includes any intelligent action of the operator that affects the result, such as deciding when an indication is stable or adjusting the weight of the weighed product.
>
> Verifying the weighing result means making a decision regarding the acceptance of each weighing result on observing the indication. The weighing process allows the operator to take an action which influences the weighing result in the case where the weighing result is not acceptable.

Note: the necessity to give an instruction to start the weighing process or to release a load is not relevant in deciding the category of instrument.

A weigh-price labeller where the operator places the item on the load receptor, the instrument determines stability and prints a label automatically, and the operator then takes the label, removes the item and affixes the label, is a NAWI.

A filling instrument where the operator places the container on the weighing instrument, the fill is done automatically, and the weighing instrument then displays the filled weight allowing the operator to checkweigh and remove the container, may be considered as a NAWI or an AWI. It was agreed that the applicant should choose, and the Notified Body should then apply the appropriate legislation.

An approved NAWI to which one or more robot operators have been added so that no human operator is now involved, is an AWI.

3.1.10 Identification of software stored on EPROM (Meeting 12, Decision 3.1)

For a complete instrument:

- conformity to type is now covered by the declaration of conformity from the manufacturer,
- there is no danger of access by the user to software on EPROM,
- there is no obligation for software identification on EPROM for a complete instrument.

Concerning modules however, there is no declaration of conformity procedure. Therefore where Test Certificates (TCs) are involved there is a need for the identification of software stored on EPROM. Refer to the "Identification of software on EPROM" section of the WELMEC 2.5 guide.

3.1.11 Visibility of CE marking (Meeting 13, Point 1.1)

CE marking addresses the market surveillance bodies of the member states, and aims at facilitating their surveillance tasks by visibly demonstrating conformity. Visibility means that the CE marking is easily accessible for the market surveillance authorities. In exceptional circumstances due to the installation and manner of use of an instrument, this could mean that the CE marking is located on the instrument in a place accessible to the surveillance authorities and that its position is indicated clearly in the TAC.

3.1.12 Currency symbols (Meeting 13, Point 1.1; Meeting 18, Point 16)

The currency symbols to be used on weighing instruments are of the form normally used for trade, examples being shown in Section 8 of this guide. The three-letter currency codes commonly used in currency exchange transactions are not acceptable for this purpose in some countries.

3.1.13 Vehicle-mounted non-automatic weighing instruments

3.1.13.1 Tilt testing (Meeting 13, Decision 5; Meeting 22, Point 17))

Vehicle-mounted non-automatic weighing instruments may be tilted to a higher inclination than 5% when used on site. In this case, the requirement for immunity to tilt as set out in Section 7.1 of Annex 1 of Directive 90/384/EEC is not adequately met by an instrument

which is inside the mpe only up to a tilt of 5% as required by Section 3.9.1.1 of EN45501. EC Type Approval will therefore be issued only under the following conditions:

- The manufacturer defines the upper limit of tilting up to which the error of indication, at any load, is within the mpe.

- Tilt testing should be carried out up to 10% unless the instrument display is blanked out, and the print-out and data transmission is inhibited at a lesser value. This may be achieved by means of an inclination switch (creating a switch signal at a certain degree of tilting) or an inclination sensor.

- Where a sensor (measuring the tilt angle) is used to compensate the effect of tilting on the weighing result, the sensor is regarded as an essential part of the weighing instrument. It should therefore be submitted to the essential tests such as temperature, humidity and EMC, during the approval procedure. When the sensor is regarded as a module, the p_i factor shall be determined at the type approval stage.

- In any case, the correct functioning of a sensor should be checked within the scope of the approval procedure and at the time of verification of every individual instrument. The tilting tests to be performed at verification shall be described within the Type Approval Certificate under "Special conditions for verification". The tests at verification should be performed with a significant load (not necessarily standard weights). The instrument shall be tilted in all four directions. No matter what the degree of tilting is, any displayed weight value shall be within the corresponding error limits. Since tilt sensors often have a non-linear behaviour (eg depending on ambient temperature) it should be useful to check the correct operation of the sensor at different tilt angles but only one tilting direction even at verification.

- In the case of tilt switches which inhibit the indication and printing of weighing results it should be checked at verification that they inhibit displaying and printing weighing results when the maximum degree of tilting is exceeded. The same may be applicable to instruments using tilt sensors if the indicator uses the signal of the sensor not only to compensate errors but also to decide whether the maximum tilting is exceeded and thus the displayed weight value has to be blanked out.

Note: This does not apply to retail counter scales which are used for direct sales to the public.

3.1.13.2 Waste collection vehicles (Meeting 20, Point 22; Meeting 21, Point 18)

With some of these vehicles it is difficult, or impossible, to perform the normal Eccentricity (eccentric loading) test. If necessary, this test should be performed by other means (for example hanging weights) to produce testing having an effect as close as possible to the requirements of EN45501 Section 3.6.2. It might, or might not, be possible for the Eccentricity test to be performed on two points instead of the usual four, but the Notified Body issuing the Type Approval Certificate should determine the requirements for both Type Approval and verification.

Obviously the safety of the personnel performing testing is paramount, and the safety requirements of the Machinery Directive are relevant. Directive 90/384/EEC, in Section 8.6 of

the Essential Requirements, states that “Instruments shall be designed to permit ready execution of the statutory controls laid down by this Directive”. This includes verification.

(See also Section 3.1.13.1)

3.1.13.3 Weighing instruments powered by vehicle supply (Meeting 21, Point 5)

EN45501 does not at present include extra electrical disturbance testing of weighing instruments (or indicators) powered by a vehicle supply. The standards ISO 7637 and ISO 11452 contain suitable susceptibility tests. Notified Bodies performing type approval can recommend that the susceptibility tests in these standards be done, but cannot insist on it.

3.1.14 More than one mode of operation (eg single range, multiple range and multi-interval range) (Meeting 13, Decision 6)

Under 3.3 of Annex 1 of Directive 90/384/EEC, an instrument may contain different modes of operation, for example single range, multiple range and multi-interval, provided that there is no interference between the different modes of operation. The following is an example:

0 to 15 kg x 5 g (single range)	0 to 6 kg x 2 g (multi-interval range) 6 to 15 kg x 5 g

In this example, selection between the modes only takes place at switch-on. The operative range must be clearly identified on the instrument near to, or on, the display.

3.1.15 Max, Min, e and d, and other markings/inscriptions (Meeting 14, Point 2; Meeting 13, Decision 7; Meeting 19, Point 18; Meeting 28, Point 15)

Where the inscriptions Max, Min, e and d are provided near to, or on, the display, it is not necessary for them to be additionally marked on the dataplate. (Although EN45501, in its Section 7.1.3, appears to require that all the descriptive markings be grouped together, Annex IV of the Directive 90/384/EEC solely requires the CE marking and the ID number of the Notified Body to be grouped together.)

In the following table, the different types of “presentation” are as follows:

A = Data must be presented on a data plate (ie by hardware)
B = Data may be presented either on a data plate (ie by hardware) or in the display (ie by software). In the latter case the data must be permanently displayed, but it is acceptable for the Max, Min, e (and d if appropriate) to be permanently displayed scrolling sequentially.
C = Data may be presented either on a data plate (ie by hardware) or in the display (ie by software). In the latter case the data may be displayed on request of the user.

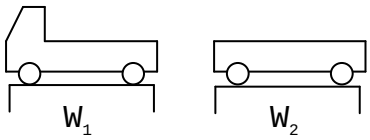
Marking / Inscription	90/384/EEC, Annex IV	Presentation
- CE conformity marking	1.1 (a)	A
- Year of affixing the CE marking		A
- Identification No of Notified Body		A
- Green 'M' sticker	1.1 (b)	A
- Type Approval Certificate No	1.1 (c)	A
- Manufacturer's mark or name		A
- Accuracy class		B
- Serial number		C
- Scale interval d, if d ≠ e		C
- Max. tare effect T (additive, subtractive)		C
- Max. safe load *Lim* (if ≠ *Max*)		A
- Special temperature limits		B
- *Max*, *Min*, *e*, (*d*) near display	1.4	B

Software containing these markings/inscriptions must be secured from unauthorised access or changes. Details of the markings/inscriptions contained in software must be declared in the TAC.

3.1.16 Combined and multi-plate weighbridges (Meeting 14, Point 4, Meeting 15, Point 2 and Meeting 18, Point 9)

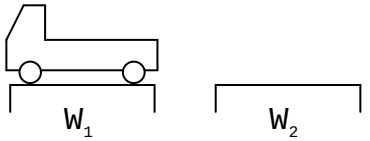
This concerns weight obtained by using adjacent weighbridges. Acceptable solutions, with examples, are shown below:

Two weighbridges, each with its own indicator:

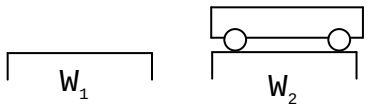


W_1 = 30 t x 10 kg
W_2 = 30 t x 10 kg
(Two indicators; simultaneous indication necessary)
Calculated weight 60 t x 10 kg
(mpe does not apply to calculated weight)

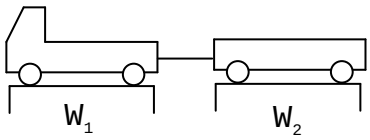
Multi-plate weighbridge with one indicator:



W_1 = 30 t x 10 kg



W_2 = 30 t x 10 kg



W_{1+2} = 60 t x 20 kg

W_{1+2} is a weighing range (Compatibility of modules and mpe must be satisfied for it)

(See also Sections 3.1.2 and 3.1.54)

3.1.17 Type Approval Certificate - validity date and prolongation (Meeting 15, Point 8; Meeting 23, Point 10; Meeting 29, Point 6)

In relation to the validity date of an EC Type Approval Certificate (normally 10 years from date of approval), this original date should remain the validity date even when any additions to, or revisions of, the TAC are issued.

When an application is made to the Notified Body for the prolongation (renewal) of a TAC, it is possible that the guidance given by WELMEC in its guides may have changed since the TAC was issued. Nevertheless, an instrument that complied with Directive 90/384/EEC when the TAC was issued, must still be regarded as complying, regardless of any subsequent WELMEC guidance. Note that for any requirement of the Directive itself that has changed, for example as in the use of Imperial units of weight (see Section 3.1.19 of this guide), the instrument must comply with the present requirement.

However, as the intention of the ten-year limit on NAWI approvals was to ensure a reassessment after that time, the Notified Body performing the renewal of the certificate needs to re-assess the instrument, although it is possible that this might only be a paperwork exercise.

There is no need for the Notified Body to ensure that the instrument still complies with the original technical documents, as the manufacturer has to declare conformity to the approval for every instrument brought into use. If any modifications to the instrument have been made, then these should have been approved under the existing certificate.

The form of the renewal varies between Notified Bodies. For example it might be a single sheet extending the validity of the certificate, or the entire certificate might be issued with the new validity date, or a new certificate might be issued referring to the old certificate number. Regardless of which method is used, it is essential that all the information remains available.

3.1.18 Weight barcodes (Meeting 15, Point 9)

In relation to NAWIs which produce weight barcodes, this must always be in addition to the normal printout of the weight. Only when a POS forms part of a NAWI and manually entered weights (either hand entered or by barcode entry) are accepted must the customer's receipt clearly distinguish those entries from actual weighed entries.

3.1.19 Supplementary indications in Imperial units (Meeting 16, Point 4; updated)

(See also Section 9)

In Directive 90/384/EEC, the units of mass NAWIs must use are covered in Annex 1, paragraph 1, and are:

- SI units: kg; µg; mg; g; t;
- Imperial units: pound; ounce (avoirdupois); troy ounce;
- other non-SI units: metric carat, if weighing precious stones

Of the three imperial units:

- The troy ounce, in accordance with Chapter II of the Annex to Directive 80/181/EEC, may continue in use for transactions in precious metals indefinitely in those member states where it was authorised on 21 April 1973. (The troy ounce is not considered further in this section).
- The pound and the ounce (avoir), in accordance with Chapter IV of the Annex, was allowed to continue in use for goods sold loose from bulk until 31 December 1999.

Directive 80/181/EEC also makes provision for "supplementary indications", which are defined in Article 3 as "one or more indications of quantity expressed in units of measurement not contained in Chapter I of the Annex accompanying an indication of quantity expressed in a unit contained in that Chapter". Chapter I contains the SI or metric units. Article 3.2 provided for the use of supplementary indications only until 31 December 1999. However, this was extended until 31 December 2009, and at the time of publication of this present guide it is possible that this deadline might be extended further or removed altogether.

For supplementary indications in Imperial units on NAWIs which are primarily metric instruments, any method is acceptable, subject to type examination, which:

- meets the requirements of predominance in Directive 80/181/EEC Article 3.4, and
- allows both indications to be seen at the same time.

The reason for the second of these is that Article 3.1 states that the supplementary indication *accompanies* the metric indication. The supplementary indication could not accompany the metric indication if it replaced, or was in substitution for, the metric indication, even momentarily.

NOTE: It is not possible to renew EC type approval certificates for instruments that have Imperial units as the primary indication as they no longer meet the requirements of Directive 90/384/EEC.

3.1.20 Portable weighbridges (Meeting 16, Decision 1)

Portable weighbridges shall be identified as such in the Type Approval Certificate.

The manufacturer's declared requirement for the mounting surface for the weighbridge shall be noted in the Type Approval Certificate. If relevant, the user shall be adequately informed.

Suggested additional tests to be performed during type approval:

- At a site agreed with the manufacturer:
    - to examine the evenness of the reference area (all points of support of the bridge are at the same level) and then, to perform an accuracy test and an eccentricity test
    - to realise several reference areas with some different faults in the evenness (values of these faults are to be equal to the limits given by the manufacturer) and then, to perform an eccentricity test for each configuration

- On a particular site of use:

    - to examine the conformity to the requirements for the mounting surface

    - to examine the installation and perform tests to establish conformity to the Essential Requirements of the Directive 90/384/EEC.

3.1.21 Accidental repetition of a weighed item (Meeting 17, Point 8)

Some form of interlock is necessary to prevent the accidental repetition of a weighed item. Although the detection of weight disturbance is the ideal form of interlock, any alternative method, such as the necessity of re-entering the Price-Look-Up (PLU) code, may be acceptable but must be stated in the approval certificate.

3.1.22 Preliminary Observation of Annex I of Directive 90/384/EEC (Meeting 17, Point 14)

This English version of the Directive states that:

> "Where an instrument includes or is connected to more than one indicating or printing device used for the applications listed in Article 1 2(a), those devices which repeat the results of the weighing operation and which cannot influence the correct functioning of the instrument shall not be subject to the Essential Requirements if the weighing results are printed or recorded correctly and indelibly by a part of the instrument which meets the Essential Requirements and the results are accessible to both parties concerned by the measurement. However, in the case of instruments used for direct sales to the public, display and printing devices for the vendor and the customer must fulfil the Essential Requirements."

In this, it is not clear whether the text "...correctly and indelibly by a part of the instrument which meets the Essential Requirements..." refers to "printed or recorded" or just to "recorded".

It shall be understood to refer to "printed or recorded", so that either the printing or the recording (or both) must be performed by a part (or parts) which meet the Essential Requirements.

3.1.23 Marking of Test Certificate number on module or peripheral (Meeting 14, Point 8)

The marking of the Test Certificate number on a module or peripheral is optional, and it is for the manufacturer to decide whether or not to provide this information.

3.1.24 Declaration of Conformity

(See also Section 12)

3.1.24.1 Declaration of Conformity and 1.2(b) application (Meeting 14, Point 11)

A manufacturer who provides a Declaration of Conformity for an instrument which can only be used for a 1.2(b) application is implying that the instrument meets the technical requirements leading to the application of the CE marking. This is misleading and incorrect, and contrary to the provisions of the Directive.

3.1.24.2 Declaration of Conformity - manufacturer's responsibility (Meeting 17, Point 9; Meeting 26, Point 6)

Under the New Approach Directives such as 90/384/EEC, it is the manufacturer who draws up the Declaration of Conformity and not the Notified Body. The Declaration of Conformity is for production control and not for verification or approval.

Although, obviously, the Declaration of Conformity must relate to the type of instrument concerned, it is not necessary for it to reflect the actual type covered by revisions or additions to the Type Approval Certificate, as it might not be practical to update the Declaration of Conformity after every revision or addition.

The manufacturer may affix the CE-mark, year and green M before the conformity assessment has been done, as these markings only become valid when all the conformity procedures have been completed.

The manufacturer remains responsible for completing conformity assessment.

3.1.24.3 Declaration of Conformity - compatibility documents (Meeting 20, Point 6)

Each time a Type Approval Certificate is issued that takes advantage of the modular approach, the Notified Body issuing it should repeat a clear message to the manufacturer that special attention should be given to the necessary compatibility documents to be prepared.

Manufacturers need to remain aware of the responsibility they bear in this respect.

3.1.25 Weighing of liquids used in air-conditioning (Meeting 17, Point 6)

If a country has legislation which controls the recording of amounts of air-conditioning liquid used or discarded, and if this is done by using non-automatic weighing instruments, then these instruments must be controlled.

3.1.26 Sealing arrangements - footprints (Meeting 18, Point 17)

Directive 90/384/EEC states that "components that may not be dismantled or adjusted by the user shall be secured against such actions." Tamper-resistant screws are not, on their own, sufficient, as the breaking of a seal should leave a "footprint".

3.1.27 Test Certificates for software (Meeting 18, Point 18; Meeting 20, Point 14; Meeting 25, Point 14; Meeting 30, Point 12)

Test Certificates for NAWI software may only be issued to the WELMEC 2.3 guide. Test Certificates for free-programmable PC-based POS modules including software may only be issued following software examination in accordance with the WELMEC 2.3 guide.

(The WELMEC 7.1 and 7.2 guides do not apply to NAWIs, and software examination to only the Essential Requirements of Directive 90/384/EEC is not considered sufficient.)

Type approval certificates for free-programmable NAWIs, or Test Certificates for free-programmable POS hardware, must either include details of the software or must refer to specific Test Certificates for the software. Test Certificates for POS systems should now only be

issued for the combination of hardware and software, as described in the WELMEC 2.2 guide Issue 3.

3.1.28 CE marking - year of affixing (Meeting 18, Point 26)

Directive 90/384/EEC, amended by Directive 93/69/EEC, says that the instrument must bear the last two digits of the year in which the CE marking was affixed.

It is not acceptable for the year to be shown as four digits.

3.1.29 Electrical testing and high-resolution mode (Meeting 19, Point 22; Meeting 24, Point 6)

During the disturbance tests, it is the performance of the instrument in normal operating mode that is usually the main concern. If possible, therefore, any special high-resolution mode (d<e) should be switched off for these tests.

However, when testing an indicator, it may be advantageous to perform these tests in high-resolution mode.

3.1.30 Multiple indicators in a Type Approval Certificate (Meeting 19, Point 24; Meeting 20, Point 13)

It is not acceptable for an EC Type Approval Certificate to allow any unnamed indicator having a Test Certificate to be used.

It is acceptable for several different indicators (not necessarily related or even from the same manufacturer), each having its own Test Certificate, to be included in one EC Type Approval Certificate as long as the Type Approval Certificate names the indicators and their Test Certificate numbers.

3.1.31 Disabled buttons (Meeting 20, Point 10)

The tare, print, or any other approved function button may be disabled without this possibility being mentioned in the type approval certificate.

3.1.32 Non-weighing weight values on print-outs (Meeting 20, Point 15)

If a print-out includes weight values that are not the direct result of the weighing operation, then these must be clearly marked to differentiate them from the weighing results.

3.1.33 Multiple manufacturers - indicators (Meeting 21, Point 4)

In many WELMEC countries, it is common practice for the manufacturer of an indicator to gain a Type Approval Certificate (TAC) for a NAWI using their indicator and a variety of load cells, and then to sell the indicator to another “ultimate” manufacturer who in turn buys load cells directly from the load cell manufacturer. Having bought the indicator and load cells from different sources, the “ultimate” manufacturer then builds a NAWI in line with the TAC obtained by the manufacturer of the indicator.

For the purposes of making the EC Declaration of Conformity and/or the EC Declaration of Type Conformity (self-verification), either:

- the original manufacturer of the indicator should regard the "ultimate" manufacturer as an agent, or

- the "ultimate" manufacturer should request a TAC, using information provided by, and with permission from, the original indicator manufacturer. If, in this case, the indicator manufacturer later decides that he no longer wishes the "ultimate" manufacturer to use his indicator, the indicator manufacturer has no right to request the Notified Body to modify the TAC to remove his indicator from it.

3.1.34 Verification - recording of results (Meeting 21, Point 7)

It is common practice for the Notified Body performing testing for EC verification to record the test results, but this is not mandatory unless the Notified Body has a quality system that insists on it.

If, as a result of testing, the Notified Body decides not to complete the verification, the reason for rejection must be given to the applicant. The Notified Body should preferably also supply the test results to the applicant, although this is not mandatory.

3.1.35 Digital indicators (Meeting 21, Point 8)

Annex 6 to the WELMEC 2.1 guide (Issue 4) "Computer used as indicator" should also apply to purely digital weighing indicators.

3.1.36 Multiple-range NAWI automatic changeover at $Max_i + 9e$ (Meeting 21, Point 12)

On a multiple-range NAWI, EN45501 Section 4.10 allows automatic changeover "from a smaller to a greater weighing range when the load exceeds the maximum gross weight of the range being operative" (Max_i).

However, EN45501 Section 4.2.3 states that "there shall be no indication above Max + 9e", obviously allowing indications up to 9e above Max.

Although it is preferable for a multiple-range NAWI with automatic changeover to change from a smaller to a greater weighing range when the load exceeds Max_i, it is acceptable for it to change at $Max_i + 9e$ (or any intermediate value) if this is clearly stated in the Type Approval Certificate.

3.1.37 Euro price rounding (Meeting 22, Point 6)

New type approvals for price-computing instruments using the Euro currency should only be issued for instruments that calculate and display in 0.01 Euro increments.

Some already-approved instruments have been converted from national currencies to the Euro and cannot show the price in 0.01 Euro increments. This is a national enforcement matter, but it might be considered acceptable for these instruments to be tolerated until they can either be modified or replaced.

3.1.38 Automatic self-calibration (Meeting 22, Point 16)

The process used by an instrument having an internal calibration weight, to calibrate itself while its load receptor is mechanically disconnected, is not considered to be zero-setting, and this mechanism is therefore not considered to be an automatic zero-setting device.

3.1.39 Postal NAWIs (Meeting 22, Point 20)

A postal NAWI used by an organisation (eg a company) to weigh letters/parcels that are then stamped by that organisation, rather than by a postal service, are not regarded as being used in a 1.2(a) application.

3.1.40 Number of scale intervals for NAWI and for module (Meeting 23, Point 4)

When testing a complete weighing instrument, the maximum number of scale intervals authorised in the Type Approval Certificate shall be based on the results obtained during the testing of the complete instrument irrespective of the components in its manufacture. The Notified Body issuing the Type Approval Certificate shall agree with the applicant the technical documentation needed to support the application for type-approval.

When using the modular approach, the number of scale intervals authorised in a Type Approval Certificate for an instrument shall not be greater than the number of intervals for which the module having the lowest number of intervals is certified.

3.1.41 Weighbridges below -10°C (Meeting 23, Point 9)

Weighing equipment must not be used at temperatures outside its approved temperature range, but it would be possible for an approval to be granted for temperatures lower than -10°C if supported by the necessary testing.

An alternative acceptable solution is to provide load cell heaters and for the indicator to be positioned inside a heated kiosk, to ensure that all the weighing equipment remains within its approved temperature range

3.1.42 Data storage device having Test Certificate (Meeting 23, Point 14)

For a data storage device having a Test Certificate, if advantage is to be taken of the modular approach of the WELMEC guides, then the following text must be in the Test Certificate:

> "A data storage device (DSD) having a Test Certificate (TC) may be connected to a NAWI if, at conformity assessment for putting into service for an Article 1.2(a) application, it is checked that the requirements 6.1, 6.2, 6.4, 6.5 and 6.6 of WELMEC 2.5 are met."

This text may also be put into the Type Approval Certificate (TAC) if thought necessary.

3.1.43 Warm-up time test : EN45501 Section A.5.2 (BCR inter-comparison - see Section 4)

EN45501 Section A.5.2 states that “an instrument using electric power shall be disconnected from the supply for a period of at least 8 hours prior to the test”. This period of disconnection must not be reduced to a smaller time.

Every individual measurement, taken 0, 5, 15 and 30 minutes after switch-on, shall be corrected for the zero error at that time, and not for the zero error taken immediately after switch-on.

3.1.44 Span stability test : EN45501 Section B.4 (BCR inter-comparison - see Section 4)

It is not necessary for all of the performance tests to be done within 28 days. However, the temperature test, the damp heat test, and the two periods in which the instrument is disconnected from its supply, must all be within this 28-day period.

The minimum number of eight measurements shall be distributed fairly evenly over the 28 days, and not accumulated into one or two days.

3.1.45 Accuracy of zero and tare setting : EN45501 Sections A.4.2 and A.4.6 (BCR inter-comparison - see Section 4)

These tests shall be performed by loading the instrument to an indication as close as possible to a switch-over point, then initiating the zero setting or tare balancing function, and checking for accurate zero (within 0.25 e).

3.1.46 Eccentricity (eccentric loading) test : EN45501 Section A.4.7 (BCR inter-comparison - see Section 4)

The indication at each measurement shall be corrected for the zero error determined immediately prior to the measurement.

3.1.47 Disturbance tests : EN45501 Section B.3 (BCR inter-comparison - see Section 4)

All tests shall be conducted with only one test load, instead of two different test loads.

Prior to any test, the internal error of indication shall be set as close as possible to zero: the allowed variation of up to 1 e will then actually correspond to an analogue error of 1.5 e.

If there are interfaces on the instrument, an appropriate peripheral device shall be connected during the tests.

3.1.48 Level indicator - limiting value : EN45501 Section 3.9.1.1 (BCR inter-comparison - see Section 4)

The "Note" to EN45501 Section 3.9.1.1 shall be interpreted such that on a bubble level, the "limiting value of tilting" shall always be a displacement of 2 mm of the bubble, irrespective of the radius of a ring which might indicate the centre of the level. (R76 already includes this interpretation.)

3.1.49 Immunity of interfaces : EN45501 Section 5.3.6.1 (BCR inter-comparison - see Section 4)

No physical test procedure is available to verify compliance with the requirements of Section 5.3.6.1. Therefore a specific declaration of the manufacturer is considered sufficient.

3.1.50 Significant fault detection : EN45501 Sections 4.14.9 and 5.2 (BCR inter-comparison - see Section 4)

As this is purely optional, the documentation should contain information about the form of the reaction to the detection of a fault. Confusion with other error messages, display blanking etc should be avoided.

No tests to trigger these reactions are intended.

3.1.51 Securing of access to service functions via menu (BCR inter-comparison - see Section 4)

Service functions which may be used to modify metrological parameters or the adjustment of the instrument must be secured, for example by a dip-switch which is secured, and may not be accessible by password unless it automatically becomes evident that a change has taken place (eg automatically displaying a new code number on switch on after each change has taken place which can be compared with a durably marked code number on the data plate representing the last set-up).

3.1.52 Marking of range of tare device : EN45501 Section 7.1.2 (BCR inter-comparison - see Section 4)

If the maximum subtractive tare effect is equal to Max, or is equal to the actual range of indication (which may be up to Max + 9 e), then it need not be mentioned on the descriptive plate.

3.1.53 EMC Report lacking measuring instrument results (Meeting 24, Point 6)

An EMC Test Report issued by an accredited laboratory, and submitted to a Notified Body for consideration in its examination of an instrument, should include test values, and not simply conclusions. For example, it is not sufficient for the report simply to state that the test was passed, or that the difference between the indications with and without the disturbance did not exceed e.

The scope of the accreditation must include EN45501 and/or R76.

It is recommended that Test Reports follow the format of R76-2.

Note also the requirement of Section 3.1.47 for the instrument to be set into the mid-point of the scale interval for these tests.

3.1.54 Vehicle weighing by summation of individual wheel load NAWIs ("axle weighers") (Meeting 25, Point 9)

If the total weight of a vehicle is calculated automatically by summing the individual weight values produced by individual wheel load NAWIs ("axle weighers"), the system is not to be regarded as being one single NAWI. The mpe does not apply to calculated weight.

(See also Sections 3.1.2 and 3.1.6)

3.1.55 Body mass indicators (Meeting 27, Point 5)

Body Mass Index (BMI) = the weight (kg) divided by the square of the height (m)

If a body mass index indicator is used for medical diagnosis and displays and/or prints the weight, then it requires approval under the NAWI Directive. This need for approval cannot be avoided by having a label near the display of weight saying that this weight is not to be used for diagnosis.

A body mass index indicator that measures the weight, but does not display or print it, is not regarded as being a weighing instrument and does not require approval under the NAWI Directive, even if it is used for medical diagnosis.

3.1.56 Display of preset tare for direct sales to the public (Meeting 27, Point 9)

EN45501 Paragraph 4.14.4, which applies only to direct sales to the public, says:

"A PRESET TARE DEVICE may be provided if the PRESET TARE VALUE is indicated as a PRIMARY INDICATION on a separate display which is clearly differentiated from the weight display"

It is not therefore acceptable for the preset tare value to be shown temporarily on the weight display instead of on a separate display.

3.1.57 GPS device to adjust calibration (Meeting 27, Point 14)

The concept of a NAWI, for example a vehicle-mounted weighing instrument, using a GPS (Global Positioning System) device and a gravity database to adjust its calibration would be acceptable if the Notified Body concerned could be sure that the system is secure.

3.1.58 Retail NAWI or POS with totalisation - requirement for printer (Meeting 27, Point 15)

Directive 90/384/EEC states, in its Annex 1, Clause 14:

> Instruments used for direct sales to the public with a maximum capacity not greater than 100kg: additional requirements
> ...
> Price computing instruments may perform functions other than per-article weighing and price computation only if all indications related to all transactions are printed clearly, unambiguously and conveniently arranged on a ticket or label for the customer.

Therefore, a price computing NAWI (or POS) used for direct sales to the public which may also perform functions other than per-article weighing and price computation, for example totalisation, must produce a printout for the customer.

If the printer is unable to print out the data relating to the totalising, then the totalising feature should be inhibited.

3.1.59 Retail NAWI installed in a fixed position in a checkout (Meeting 27, Point 17)

A retail flush-mounted NAWI simply sitting in a well in a checkout surface without being bolted in position can be regarded as being "installed in a fixed position" (as in Section 3.9.1 of EN45501). This is commonly done so that it can temporarily be lifted out for cleaning.

As it is regarded as being "installed in a fixed position", it does not need to have a level indicator. However, if it does not have a level indicator it should then be verified in its fixed position in the checkout, unless the verifier (or manufacturer if declaring conformity) has a suitable procedure to ensure that verification elsewhere will result in the requirements being met when it is installed into the well.

If the manufacturer chooses not to have a level indicator, then the manufacturer must take responsibility for the instrument being installed correctly unless it has been tested and approved to an angle of 5%.

For an instrument without a level indicator, intended to be "installed in a fixed position", there is no requirement for tilt testing during examination for type approval. For an instrument having a level indicator, EN45501 Section 3.9.1.1 requires that the level indicator be in a place clearly visible to the user. However, there is no such requirement in the NAWI Directive, and it is therefore acceptable for the level indicator on any NAWI to be fitted in a place where it is easily accessible but not normally visible, for example, beneath the load receptor if that can easily be removed.

3.1.60 Eccentricity test of weighbridge (Meeting 27, Point 21)

If it is possible that a weighbridge might be used to weigh a range of differently-sized vehicles (or both vehicles and objects), then eccentricity testing should be performed during verification to EN45501 Sections A.4.7.1 or A.4.7.2 (eccentric load), and also to Section A.4.7.4 (rolling load). However, if it is documented that the weighbridge will only be used to weigh vehicles of similar size, then the test of Section A.7.4 (rolling load) is considered sufficient.

3.1.61 EN45501 and OIML R76 (Meeting 27, Point 23)

There are now some differences between the requirements of EN45501 and OIML R76. The purpose of EN45501 is to support the NAWI Directive. If any requirements of R76 exceed those of EN45501, then testing to R76 may be done.

3.1.62 Access to data plate and markings (Meeting 29, Point 8)

Some NAWIs have their data plates hidden from view. For example, many that are flush-mounted into checkout surfaces have their data plate hidden below the load receptor, it being difficult or impossible to locate it anywhere else.

This is actually a non-conformity according to the NAWI Directive, and although it is readily accepted in some countries if the position of the data plate is shown in the approval certificate, manufacturers should be aware that it might not be acceptable in other countries.

3.1.63 Battery supply – low voltage detection (Meeting 29, Point 14)

If the supply to a battery-powered NAWI decreases in voltage until the instrument no longer meets its accuracy requirements, the display must not display a weight value, regardless of how fast or slow the decrease in voltage is. It is not acceptable for the instrument to show a "frozen" weight value.

3.1.64 Concealed primary indications (Meeting 30, Point 14)

On some equipment, for example some incubators having a weighing function, the primary indication of weight is concealed within the housing, and is therefore not normally visible.

Although it is obviously preferable for the primary indication to be visible in normal use, it is acceptable for it to be hidden if there is easy access to it.

3.1.65 Medical weighing – tare facility (Meeting 30, Point 24)

With a weighing function built into a bed, there may be a need to modify the tare without removing the patient from the bed, for example when blankets are added or removed, or during dialysis. Although this does not meet the requirements of EN45501, it is acceptable if it meets the essential requirements of the NAWI Directive and if it is fully described in the Type Approval Certificate.

3.2 EURO currency in price-indication during transition period (Meeting 16, Point 11)

This relates to weighing instruments with price indication and price printing during a transition period up to the introduction of the EURO

In the meeting on 3/4 February 1998, WELMEC WG2 agreed that it is not necessary to amend existing Type Approval Certificates (TACs) to accommodate the EURO in line with the rules given hereafter, unless an additional display not already covered by the TAC is necessary.

It was also agreed that new TACs, or amendments to TACs, may be granted to reflect the use of the EURO.

Basic notes regarding the conversion to EURO may be gathered from the Council regulation (EC) *No. 1103/97* of 17 June 1997 on certain provisions relating to the introduction of the EURO (articles 4 and 5). Additional information may be obtained via the internet address "http://euro.eu.int". Details, however, are subject to the national regulations of the individual member states.

Along with other things, the member states may also determine the beginning and end of a transition period during which, most likely, price indications and cash payments will be permitted in both currencies.

As regards weighing instruments with price indication and price printing, the WELMEC member states would accept the following arrangements during the transition period:

(NCU = National Currency Unit)

3.2.1 Basic principles

3.2.1.1 Prices (unit prices, prices-to-pay, totals) may be indicated in either NCU, EURO or in NCU and EURO.

3.2.1.2 Use or indication of the official conversion rate with 6 significant digital places (eg 1 EURO = 1,23456 NCU).

3.2.1.3 The conversion rate stored in the weighing instrument shall be correct. The security requirements of No 8.5 of Annex 1 of Directive 90/384/EEC need not be applied to the conversion rate.

3.2.1.4 Calculation with this conversion rate according to the following rules:

EURO amount = NCU amount divided by the official conversion rate
NCU amount = EURO amount multiplied by the official conversion rate

3.2.1.5 Accurate rounding of the converted EURO amount to 1 Cent (1/100 EURO) according to article 5 of the above-mentioned EC regulation. If the said rounding falls exactly in the middle it shall be rounded up. This applies equally to the rounding of a converted NCU amount.

(See Section 3.1.37 for converted instruments.)

3.2.1.6 The recommended way of expressing the unit of currency is the symbol "€" or "EUR" or "EURO". NAWIs that are modified to express the unit of currency may use "EURO", "Euro", EUR", "Eur" or "€".

3.2.2 Indicating devices

3.2.2.1 The indicating device may be so designed as to permit the switching between both currencies (NCU and EURO). Alternatively, an additional indicating device for the second currency may be provided.

3.2.2.2 When switching over between NCU and EURO, it shall not be possible to display the unit price and price-to-pay with different currency units. If the unit price is also indicated in the informative currency, the price-to-pay in that currency is calculated from that unit price.

3.2.2.3 If an additional indicating device is provided it will suffice if only the price-to-pay or the price total is additionally indicated in the other currency.

3.2.2.4 For the purchaser, the currency in which the prices are indicated must be clearly recognisable. The following alternative possibilities as regards the indication of the currency symbol would be permitted:

- Indicated directly in the display.
- Marking next to the display and control by a related indicator (eg LED).
- If the NCU/kg and NCU symbol is permanently affixed to the display, a note shall appear in the text indication (or if necessary in the weight display field): "Indication in EURO" or simply "EURO". In case of 7-segment displays the abbreviation "E" instead of EURO is also allowed to be displayed together with the unit price and the price-to-pay.

3.2.3 Printing

For printouts, there is the choice between NCU and EURO. If only one of the two currencies is printed, it must be the one in which the prices were also indicated by the weighing instrument.

If the prices are printed in both currencies, the following applies:

3.2.3.1 The unit price must be printed out in addition to the price-to-pay in at least one of the two currencies.

3.2.3.2 Next to the unit price and the price-to-pay in the one currency, the price-to-pay and/or the total may be printed in addition in the other currency. If the unit price is printed in both currencies, the prices-to-pay are to be computed on the basis: weight multiplied by the relevant unit price.

3.2.3.3 The currency symbols must be printed out so that they can be ascribed unambiguously to all unit prices and prices-to-pay and price totals shown.

3.2.3.4 If only the price total is printed in the second currency, that total is to be calculated on the basis of the total indicated in the first currency.

3.2.3.5 If single values and totals of single values are printed out in both currencies, the single values in the second currency are to be calculated from the single values in the first currency. Totals are to be calculated from the related single values in each of the two currencies.

3.2.3.6 A printout of the conversion rate is permitted but is not mandatory. If printed out, this must be done in the form of, for example "1 EURO = 1,23456 NCU" (or "EURO 1 = NCU 1,23456"), with all 6 official digital places. Instead of "EURO", the official abbreviations recommended may also be used, eg "EUR" or "€".

3.3 Gravity zones (Meeting 16, Point 3; Meeting 17, Point 4; Meeting 25, Point 18)

The intention of this section of the guide is to allow anyone, including manufacturers and member states, to devise gravity zones that, if designed correctly, should be acceptable to any member state.

Gravity information for each of the WELMEC countries is given on the WELMEC website: www.welmec.org

3.3.1 Preliminary remarks

3.3.1.1 The issue of geographical zones (called "gravity zones") for weighing instruments that are sensitive to gravity variations has been discussed several times within WELMEC WG2 since the 10th meeting in May 1995. The major objective was to find a harmonised way of marking/identifying gravity values/zones in all WELMEC member states that is acceptable to both manufacturers and Notified Bodies. As an outcome of the 3 years of discussion the principles described hereafter have been agreed upon by all WELMEC WG2 members.

3.3.1.2 The legal basis of the new "gravity concept" is Directive 90/384/EEC, Annex II, No 5.1 and 5.2. It mentions that gravity zones may be established by the member states on their territories. Existing national regulations with regard to gravity marking/identifying are not intended to be repealed by the new concept described in Section 3.3.2. The new harmonised concept should however be regarded as equivalent to existing national regulations.

3.3.1.3 The new concept primarily aims at EC verification[1)] performed at a location - e.g. the manufacturer's works- other than the intended place of use of the instrument. The EC verification - and hence the final adjustment of the instrument - may, of course, be carried out at the actual place of use. In either case these regulations must be in conformity with Directive 90/384/EEC, in particular, the error introduced by the estimated value of gravity at the place of use should not lead to a total error that exceeds the maximum permissible error (*mpe*) on EC verification (see Section 3.3.2.3).

3.3.1.4 The new gravity concept is intended to provide an ***optional system*** for identifying/marking gravity values/zones for a weighing instrument. If this option is chosen by a manufacturer, however, it will normally be accepted in all WELMEC member states in view of EC verification.

3.3.2 The new gravity concept

3.3.2.1 A weighing instrument that is sensitive to gravity shall indicate within the *mpe* on EC verification at the time of EC verification - whether in one or two stages, carried out either by a Notified Body or the manufacturer himself.

3.3.2.2 If the EC verification is carried out at a location other than the intended place of use, the instrument must be finally adjusted to the *g* value of that place of use.

[1)] EC verification in this document is used as a generic term for all comparable procedures mentioned in Directive 90/384/EEC, Annex II.

Alternatively the instrument may be finally adjusted to the (fictitious) reference value in the centre of a specified gravity zone encompassing the intended place of use.

3.3.2.3 A gravity zone is defined by the boundaries for both the geographical latitude φ (boundary values φ_1 and φ_2) and the altitude above sea level, a (boundary values a_1 and a_2). The boundary values shall be chosen as integer multiples of 1° (exceptionally 0,5° is also allowed) and 100 m, respectively.

Gravity zones may be chosen by the manufacturer such that the differences of gravity acceleration, Δg_φ and Δg_a, between the value of any place of use within that zone and the reference value of gravity, g_R, for that zone, will not result in an absolute value of variation of any indication of the instrument greater than 1/3 of the *mpe* on EC verification. The manufacturer will adjust the instrument, using the gravity formula in eq. (2) and one of the appropriate conditions, eq. (1a), (1b) or (1c), such that it respects the *mpe* on EC verification at any place of use within the chosen zone:

$$n\,(\Delta g_\varphi + \Delta g_a) / g_R \le mpe / (3e)\ ^{2)} \qquad (1a)$$

with:

$\Delta g_\varphi = 1/2\,|g(\varphi_1,a_m) - g(\varphi_2,a_m)|$ max. variation due to a change in φ [3)]

$a_m = 1/2\,(a_1 + a_2)$ mean value of altitude a

$\Delta g_a = 1/2\,|g(\varphi_m,a_1) - g(\varphi_m,a_2)|$ maximum variation due to a change in a

$\varphi_m = 1/2\,(\varphi_1 + \varphi_2)$ mean value of latitude φ

$g_R = g(\varphi_m,a_m)$ reference value of gravity in the zone

$n =$ number of verification scale intervals e of the weighing instrument

mpe = maximum permissible error on EC verification at *Max*, expressed in e

Condition (1a) is, strictly speaking, valid only for $1000 \le n \le 2000$ and $n \ge 3000$ (class III instruments), where $n = Max / e$. In the other cases, condition (1a) has to be modified:

$$500\,(\Delta g_\varphi + \Delta g_a) / g_R \le 0{,}5e / (3e)$$

$$\Leftrightarrow \quad (\Delta g_\varphi + \Delta g_a) / g_R \le 1 / 3000 \qquad \text{if } 500 \le n < 1000 \qquad (1b)$$

and

$$2000\,(\Delta g_\varphi + \Delta g_a) / g_R \le 1{,}0e / (3e)$$

$$\Leftrightarrow \quad (\Delta g_\varphi + \Delta g_a) / g_R \le 1 / 6000 \qquad \text{if } 2000 < n < 3000 \qquad (1c)$$

The same applies by analogy to the other accuracy classes.

3.3.2.4 For the calculation of the reference value, g_R, and the maximum variations, Δg_φ and Δg_a, and for the final adjustment of the weighing instrument, depending on the

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[2)] Relative deviations of real gravity values from the gravity values calculated with eq. (2) are not taken into account, because they do normally not exceed 5×10^{-5} and can be neglected.

[3)] In order to be correct even for unusual applications, it is mentioned that if the gravity zone includes the equator ($\varphi = 0°$) the maximum variation due to φ must be calculated from
$\Delta g_\varphi = 1/2\,[g(\varphi_{max}, a_m) - g(\varphi{=}0, a_m)]$, with φ_{max} equal to φ_1 or φ_2 whichever is the greater value.

actual g value at the place of EC verification, the "standardised" gravity formula according to /1/ in combination with the theoretical vertical gradient of gravitational acceleration in free air /2/ is used:

$$g = 9{,}780\ 318\ (1 + 0{,}005\ 3024 \sin^2\varphi - 0{,}000\ 0058 \sin^2 2\varphi) - 0{,}000\ 003085\ a \quad \text{m s}^{-2} \qquad (2)$$

In this formula, the latitude φ must be entered in degrees (°) and the altitude a in meters (m).

3.3.2.5 With an instrument adjusted to a gravity zone, a suitable identification of that zone shall be provided. The identification may be either

(i) the reference value, g_R, of the gravity zone, together with the lower and upper limits of gravity values for the zone, or

(ii) a code designation in the form φ_1-$\varphi_2 \equiv a_1$-a_2 (alternatively φ_1-φ_2**:**a_1-a_2) that is used uniformly for all WELMEC member states,

e.g. 49-52≡0-200 (alternatively 49-52**:**0-200),

which would indicate that the weighing instrument had been adjusted for a mean g value in the zone between latitudes 49° and 52° and altitudes 0 m to 200 m, the fictitious reference "point" being at the latitude φ_m = 50,5° and the altitude a_m = 100 m.

Note 1: a_1 may exceptionally be a negative number. In that particular case a code designation of eg. 49-52≡-100-200 would indicate that the weighing instrument had been adjusted for a mean g value in the zone between latitudes 49° and 52° and altitudes -100 m to +200 m.

Note 2: In addition to the code designation in the form φ_1-$\varphi_2 \equiv a_1$-a_2 a manufacturer is allowed to present additional qualifying information concerning the place (region) of use (eg. a defined city or the administrative territory like a department, province, region, etc) provided that the latter is completely located in the gravity zone specified by the latitude and altitude values φ_1, φ_2 and a_1, a_2 , respectively.

The identification may be presented by an inscription or any document accompanying the weighing instrument, or be available on the display by a procedure described in the operating manual.

3.3.2.6 Existing requirements for securing of adjustment devices apply equally to gravity compensating or correcting devices, including the indication of the gravity information on the display. Details are to be mentioned in the type approval certificate of the weighing instrument.

3.3.3 Practical Procedure, Example

- Given the following weighing instrument to be EC verified:
  Retail scale, Class III, *Max* =15 kg, $e = d = 5$ g, $n = 3000$, *mpe* (*Max*) = 1,5 *e*

- The EC verification shall be carried out in one stage at the manufacturer's works that are assumed to be located in Braunschweig, $\varphi = 52{,}3°$, $a = 80$ m, the g value for Braunschweig being

  g (Braunschweig) = 9,812 484 m s^{-2}

calculated with Eq. (2).

The designated place of use shall be Uppsala in Sweden with $\varphi = 59{,}9°$
and $a = 150$ m (estimated values using a map).

The manufacturer chooses the following gravity zone according to the rules mentioned in Section 3.3.2.3 which comprises the designated place of use:

59-61≡0-500

Therefore, the boundary values are $\varphi_1 = 59°$, $\varphi_2 = 61°$, $a_1 = 0$ m, $a_2 = 500$ m.

- With the mean values of geographical latitude and altitude,

$$\varphi_m = 1/2\,(\varphi_1 + \varphi_2) = 60°$$

$$a_m = 1/2\,(a_1 + a_2) = 250 \text{ m}$$

and the maximum variations

$$\Delta g_\varphi = 1/2\,|g(\varphi_1,a_m) - g(\varphi_2,a_m)| = 0{,}000\,785 \text{ m s}^{-2}$$

$$\Delta g_a = 1/2\,|g(\varphi_m,a_1) - g(\varphi_m,a_2)| = 0{,}000\,771 \text{ m s}^{-2}$$

and the reference value

$$g_R = g(\varphi_m,a_m) = 9{,}818\,399 \text{ m s}^{-2}$$

it is confirmed that condition (1a) is met:

$$n\,(\Delta g_\varphi + \Delta g_a) / g_R \le mpe / 3e$$

$$3000\,(0{,}000\,785 + 0{,}000\,771) / 9{,}818\,399 \le 1{,}5e / 3e$$

$$0{,}48 \le 0{,}5$$

- Finally, in the last phase of the EC verification in Braunschweig, the retail scale is adjusted to the calculated reference value g_R.

3.3.4 References

/1/ Bulletin OIML No 94, 1984, 23-25; supplemented by:
Bulletin OIML No 127, 1992, 45

/2/ Kohlrausch, F.: Praktische Physik, Band 1, 24. Aufl., Stuttgart: Teubner 1996

3.4 Software securing (sealing) (Meeting 17, Point 10)

The term "software securing" (sometimes also called "software sealing") is often used in different connections. In order to avoid misunderstandings it is stated that in the following it is exclusively used in the sense of Directive 90/384/EEC, Annex I, No 8.5, and EN 45501, No 4.1.2.4, respectively, thus meaning provisions for securing components and pre-set controls to which access or adjustment is prohibited.

In order to harmonise EC type approvals with regard to software securing methods which, completely or partially, replace conventional "hardware" securing measures (eg wire and lead, or control marks), the following principles and guidelines are proposed:

3.4.1 By analogy with conventional sealing methods, the legal status of the instrument must be recognisable to the user or any other person responsible at the instrument itself.

Examples of acceptable technical solutions:

a. An event counter, ie. a non-resettable[1)] counter, that increments each time a protected operational mode of the instrument is entered and one or more changes are made to device-specific parameters (see also WELMEC 2.3 guide). The reference number of the counter at the time of (initial or subsequent) verification is fixed and secured by appropriate hardware means at the instrument itself.

[1)] The term "non-resettable" implies that if the counter has reached its maximum number it will not continue to zero without the intervention of an authorised person.

or

b. An event logger, ie. a file containing a series of records where each record contains at least the number from the event counter and the date corresponding to the change of a device-specific parameter (see also WELMEC 2.3). Optionally, further information may be recorded, eg. the identification of the parameter that was changed and the new value of the parameter. The reference number of the counter or the date at the time of (initial or subsequent) verification is fixed and secured by appropriate hardware means at the instrument itself.

Note:
The indication that an unauthorised change of protected device-specific parameters has happened need not necessarily be shown on or near the instrument’s display. The latter method may, however, be chosen as an additional option. It is sufficient if the weighing instrument can, by a simple procedure, present the relevant actual data for comparison with the reference data recorded at the last verification in order to inform the user or any other person responsible about the legal status of the instrument. **Details have to be described in the operating manual, and in either the Type Approval Certificate of the instrument or the Test Certificate of its module (indicator).**

3.4.2 Software securing methods must guarantee a sufficient protection and long-term storage of the data registered.

The following protection measures are considered to be adequate for event counters and event loggers:

- All entries (the counter number in case of an event counter or the data registered by an event logger) must be protected against intentional and unintentional changes in the sense of WELMEC 2.3. It is guaranteed by appropriate means that the event counter (event logger) *automatically* increments (registers) each time a protected operational mode of the instrument is entered and a device-specific parameter is changed, and there is no possibility to fraudulently change the counter (registered data) in either mode, and

- the hardware medium used for storing these data must be protected against unauthorised replacement, or an unauthorised replacement is obvious or can be made evident by appropriate means.

Example of an acceptable technical solution:

The chip for storing the event counter (event logger) data is soldered onto the circuit board inside the instrument and the board itself is protected against unauthorised exchange.

Note:
As a rule, the hard disk of a PC is not considered to provide sufficient protection of event counter or event logger data.

3.4.3 An instrument making use of a software securing method shall have adequate facilities either for affixing of the reference data on or near the main plate by an authorised person or body, or for showing this data on the instrument's display on demand.

The following then apply:

3.4.3.1 Reference data on or near the main plate

Examples of acceptable technical solutions:

a. Inscription of the reference number (data) on or near the main plate in accordance with Directive 90/384/EEC, Annex IV, 1.2.

b. Adjustable (hardware) counter that is firmly mounted to the instrument and that can be secured after it has been adjusted to the actual counter number at the time of (initial or subsequent) verification.

3.4.3.2 Reference data displayed

Where this displayed data can be altered by means of software access, the instrument must have adequate facilities within a protected log to hold, at least, the following data:

> Relevant reference data and changes, date and time of intervention, identity of authorised person or body.

This data must be saved in the instrument for a period of time commensurate with the requirements of the member state. The identity of the authorised person or body must be guaranteed.

(This acceptance of the showing of the data on the display was recorded at Meeting 28, Point 3, following discussion at Meeting 27, Point 19.0

4 BCR inter-comparison on Non-automatic Weighing Instruments (NAWI)

In about 1992, the BCR 172 Working Group produced a list of recommendations following the BCR inter-comparison exercise. Those recommendations, previously listed separately in this section of Issues 1 to 3 of this guide, have been incorporated into Section 3.

The recommendations were included in OIML R76-1 by Amendment 1, and are in the current version. However, at the time of publishing this guide EN45501 has not yet been amended.

The reference of the BCR Report for the project is EUR 15303 EN.

5 Guides and decisions on modular assessment

The WELMEC 2.5 guide gives details of the Modular Approach, and of the testing of PCs and other digital peripheral devices.

Testing Indicators

The WELMEC 2.1 guide covers the testing of an indicator as a module. It deals with the scope, purpose of the tests, specifications to be considered, the test set-up, the metrological and technical requirements met and the certification of the test results.

Testing Point of Sale (POS) Devices

The WELMEC 2.2 guide covers the testing of a POS device as a module. It deals with the scope, test set-up, documentation, technical requirements, tests, securing, certification of test results and tests for verification.

Note that Type Approval Certificates for free-programmable NAWIs, or Test Certificates for free-programmable POS hardware, must either include details of the software or must refer to specific Test Certificates for the software. (see Section 3.1.27)

Examining Software

The WELMEC 2.3 guide covers the examination of software for free-programmable, PC-based modules or peripheral devices which are linked to, or form part of, a NAWI. It deals with the scope, terminology, software requirements, report on software examination and required specifications in Certificates. In addition, test certificates can be issued provided that the software examination is carried out in accordance with WELMEC 2.3.

Testing load cells

The WELMEC 2.4 guide covers load cells as modules.

6 Classification

Member States are not restricted to a common application in relation to the classification of instruments therefore the class of instrument required or permitted in one Member State may be different from that in another Member State.

For permitted uses the classification may take one of the following forms:

- Any class
- Any class other than Class I
- Any class other than Class IIII
- Only Class I and II

Other methods of restricting the use of instruments may be imposed by Member States eg limiting the maximum verification scale interval.

7 Language markings

The information in this section is provided as a guide to markings and legends that are commonly used in member countries. The list is neither exhaustive nor exclusive. Alternatives may be required to be used.

For Austria, see German.

For Cyprus, see Greek.

For Ireland, see English.

For Luxembourg, see French.

For Malta, see English or Maltese.

For Switzerland, see French or German or Italian as appropriate for the part of Switzerland.

The use of 'pictograms' is permitted in most member countries. For many of the markings and legends listed, 'pictograms' have been developed by CECIP (European Committee for Constructors of Weighing Instruments) and are shown in their publication “Pictograms for Scales”.

English	Bulgarian	Czech	Danish
Not to be used for direct sale to the public	Забранена за директна продажба	Nesmí se používat pro přímý prodej veřejnosti	Ikke tilladt til direkte salg til publikum
For postal use only	За определяне на пощенски тарифи	Pouze pro určování přepravního tarifu na poštách	Må kun anvendes til postekspedition
Weight	Маса	Závaží	Vægt
Unit price	Единична цена	Jednotková cena	Enhedspris
Price to pay	Цена за плащане	Cena k zaplacení	Pris
Total, sub-total	Обща сума, междинна сума	Součet, mezi-součet	Ialt, delresultat
Gross, net	Бруто, нето	Brutto, netto	Brutto, netto
Tare, preset tare	Тара, предварително зададена тара	Tára, předvolená tára	Tara, indkodet tara
Zero	Нула	Nula	Nul
Print	Печат	Tisk	Print
Set point	Точка на настройване	Nastavovací bod	Sætpunkt
Date, time	Дата, време	Datum, čas	Dato, tidspunkt
Unstable weight	Нестабилно измерване	Nestabilní zátěž	Ustabilt vejeresultat
Weight below Min	Измерване под Min	Zatížení pod Min	Vejning under Min
No weight change	Не променена маса	Žádná změna zatížení	Ingen ændring af vejeresultat
Error	Грешка	Chyba	Fejl
Cash, cheque, credit, change	Плащане в брой, с чек, кредит, обмяна	Hotovost, šek, kredit, k vrácení	Kontant, check, kredit, byttepenge
Transactions	Продажби, транзакции	Transakce	Transaktioner
Customer	Клиент	Zákazník	Kunde
Vendor, operator	Продавач, оператор	Prodávající, obsluha	Sælger, Operatør
Non-weighed article	Неизмерен артикул	Nevážené zboží	ikke vejet produkt
Weighed article	Измерен артикул	Vážené zboží	vejet produkt
Clear	Изчистване	Výmaz	slet
Weighing range	Измервателен обхват	Vážicí rozsah	vejeområde

English	Dutch	Estonian	Finnish
Not to be used for direct sale to the public	Niet voor rechtstreekse verkoop aan het publiek	Mitte kasutada kaupade otsemüügil	Ei saa käyttää myytäessä suoraan kuluttajalle
For postal use only	Uitsluitend gebruik voor de Post	Ainult postiteenuse osutamiseks	Ainoastaan postimaksujen määräämiseen
Weight	Gewicht	Mass	Paino
Unit price	Eenheidsprijs	Ühiku hind	Yksikköhinta
Price to pay	Te betalen	Makstav summa	Maksu
Total, sub-total	Totaal, sub-totaal	Summa, kokku	Summa, välisumma
Gross, net	Bruto, netto	Bruto, Neto	Brutto, netto
Tare, preset tare	Tarra, voorinstel-tarra	Taara	Taara, esiaseteltava taara
Zero	Nul	Null	Nolla
Print	Afdruk	Trüki (Trükk)	Tulostus
Set point	Instelpunt	Sättepunkt	Asetusarvo
Date, time	Datum, tijd	Kuupäev, Aeg	Päivämäärä, kellonaika
Unstable weight	Instabiele aanwijzing	Ebastabiilne koormus	Epävakaa kuorma
Weight below Min	Gewicht beneden Min	Koormus on väiksem kui Min	Paino alle Min
No weight change	Geen verandering van gewicht	Muutumatu kaalutis	Muuttumaton paino
Error	Fout	Viga	Virhe
Cash, cheque, credit, change	Contant, cheque, creditcard, wisselgeld	Sularaha, tšekk, krediit, raha tagasi	Käteinen, shekki, luotto, vaihtoraha/takaisin
Transactions	aantal transacties	Tehing	Kauppatapahtuma
Customer	Klant	Klient	Asiakas
Vendor, operator	Verkoper	Müüja, Operaator	Käyttäjä
Non-weighed article	Niet gewogen artikel	Kaalumata toode	Punnitsematon tuote
Weighed article	Gewogen artikel	Kaalutud toode	Punnittu tuote
Clear	Uitwissen	Kustuta, Tühista	Korjaus
Weighing range	Weegbereik	Mõõtepiirkond	Punnitusalue

English	French	German	Greek
Not to be used for direct sale to the public	Interdit pour la vente directe au public	Nicht zulässig in *offenen Verkaufsstellen *In Austria: öffentlichen	ΑΠΑΓΟΡΕΥΕΤΑΙ Η ΧΡΗΣΗ ΓΙΑ ΤΗΝ ΑΜΕΣΗ ΠΩΛΗΣΗ ΠΡΟΣ ΤΟ ΚΟΙΝΟ
For postal use only	Réservé à l'usage postal	Nur für Postzwecke	ΜΟΝΟ ΓΙΑ ΤΑΧΥΔΡΟΜΙΚΗ ΧΡΗΣΗ
Weight	Poids	Gewicht	ΒΑΡΟΣ
Unit price	Prix unitaire	Grundpreis	ΤΙΜΗ ΜΟΝΑΔΑΣ
Price to pay	Prix à payer	Verkaufspreis	ΠΛΗΡΩΤΕΟ ΠΟΣΟ
Total, sub-total	Total, sous-total	Summe, Teilsumme	ΣΥΝΟΛΟ, ΜΕΡΙΚΟ ΣΥΝΟΛΟ
Gross, net	Brut, net	Brutto, Netto	ΜΕΙΚΤΟ ΒΑΡΟΣ, ΚΑΘΑΡΟ ΒΑΡΟΣ
Tare, preset tare	Tare, tare prédéterminée	Tara, Taraeingabewert	ΑΠΟΒΑΡΟ, ΠΡΟΚΑΘΟΡΙΣΜΕΝΟ ΑΠΟΒΑΡΟ
Zero	Zéro	Null	ΜΗΔΕΝ
Print	Impression	Abdruck, Druck	ΕΚΤΥΠΩΣΗ
Set point	Point de consigne	Schaltpunkt	ΣΗΜΕΙΟ ΡΥΘΜΙΣΗΣ ΒΑΡΟΥΣ
Date, time	Date, heure	Datum, Zeit	ΗΜΕΡΟΜΗΝΙΑ, ΩΡΑ
Unstable weight	Poids instable	Kein Gleichgewicht	ΑΣΤΑΘΗΣ ΕΝΔΕΙΞΗ ΒΑΡΟΥΣ
Weight below Min	Poids inférieur à Min	Gewicht kleiner als Min	ΒΑΡΟΣ ΜΙΚΡΟΤΕΡΟ ΑΠΟ ΤΗΝ ΕΛΑΧΙΣΤΗ ΔΥΝΑΜΙ ΚΟΤΗΤΑ Min
No weight change	Poids inchangé	Kein Gewichtswechsel, Ohne Gewichtswechsel	ΚΑΜΙΑ ΑΛΛΑΓΗ ΒΑΡΟΥΣ
Error	Erreur	Messabweichung, Fehler	ΣΦΑΛΜΑ
Cash, cheque, credit, change	Comptant, chèque, carte (ou crédit), rendu	Bargeld, Scheck, Kredit, Wechselgeld	ΜΕΤΡΗΤΑ, ΕΠΙΤΑΓΗ, ΠΙΣΤΩΣΗ, ΡΕΣΤΑ
Transactions	Transactions	Vorgang	ΣΥΝΑΛΛΑΓΕΣ
Customer	Client	Kunde	ΠΕΛΑΤΗΣ
Vendor, operator	Vendeur, opérateur	Verkäufer, Bediener	ΧΡΗΣΤΗΣ
Non-weighed article	Article non pesé	Nicht gewogene Artikel	ΜΗ ΖΥΓΙΖΟΜΕΝΟ ΕΙΔΟΣ
Weighed article	Article pesé	Gewogener Artikel	ΖΥΓΙΖΟΜΕΝΟ ΕΙΔΟΣ
Clear	Effacer	Löschen	ΔΙΟΡΘΩΣΗ
Weighing range	Etendue de pesage	Wägebereich	ΠΕΡΙΟΧΗ ΖΥΓΙΣΗΣ

English	Hungarian	Icelandic	Italian
Not to be used for direct sale to the public	Vásárlók közvetlen kiszolgálására nem használható	Ekki til nota við beina sölu til almennings	Vietato per la vendita diretta al pubblico
For postal use only	Csak postai használatra	Aðeins til vigtunar á pósti	Esclusivamente per uso postale
Weight	Tömeg	Þyngd	Peso
Unit price	Egységár	Einingarverð	Prezzo unitario
Price to pay	Fizetendő ár	Verð	Importo
Total, sub-total	Összeg, részösszeg	Samtals, alls	Totale, sub totale
Gross, net	Bruttó, nettó	Brúttó, nettó	Lordo, netto
Tare, preset tare	Tára, beadott tára	Tara, forstillt tara	Tara, tara predeterminata
Zero	Nulla	Núll	Zero
Print	Nyomtatás	Prenta	Stampa
Set point	Kapcsolási pont	Stilligildi	Punto di regolazione
Date, time	Dátum, idő	Dags., tími	Data, ora
Unstable weight	Tömegkijelzés nem stabil	Óstöðug þyngd	Peso instabile
Weight below Min	A terhelés Min alatt van	Undir lágmarksþyngd	Peso inferiore a Min
No weight change	Tömeg változatlan	Óbreytt þyngd	Peso stabile
Error	Hiba	Villa	Errore
Cash, cheque, credit, change	Készpénz, csekk, hitel, aprópénz	Staðgreitt, tékki, greiðslukort, til baka	Contante, assegno, credito resto
Transactions	Tranzakció	Færslur	Transazione
Customer	Vevő	Viðskiptavinur	Cliente
Vendor, operator	Eladó	Sölumaður, starfsmaður	Venditore, operatore
Non-weighed article	Méretlen tétel	Ekki vegin vara	Articolo non pesato
Weighed article	Mért tétel	Selt eftir vigt	Articolo pesato
Clear	Törlés	Eyða	Correzione
Weighing range	Mérési tartomány	Vigtarsvið	Campo di pesatura

English	Latvian	Maltese	Norwegian
Not to be used for direct sale to the public	Nav lietojami tirdzniecības vietās	Mhux għall-bejgħ lill-pubbliku dirett	Ulovlig ved salg direkte til publikum
For postal use only	Pasta svari	Għal użu postali biss	Kun lovlig ved postveiing
Weight	Svars	Piż	Lodd
Unit price	Vienības cena	Prezz ta’ unita’	Enhetspris
Price to pay	Samaksa	Hlas	Pris ä betale
Total, sub-total	Summa	Total, total parzjali	Sum, del sum
Gross, net	Bruto, neto	Gross, nett	Brutto, netto
Tare, preset tare	Tara, taras svara uzstāde	Piż tal-vojt, piż tal-vojt prideterminat	Tara, Forhåndsinnstilt tara
Zero	Nulle	Żero	Null
Print	Izdruka	Stampa	Utskrift
Set point	Uzstādes punkts	Punt tal-bidu	Set pimlt
Date, time	Datums, laiks	Data, ħin	Data, tid
Unstable weight	Nestabils svars	Piż instabbli	Usabil vekt
Weight below Min	Svars mazāks par *Min*	Piż inqas mill-minimu	Last under Min
No weight change	Nemainīgs svars	Piż stabbli	Ingen endring ov veieresultatet
Error	Kļūda	Żball	Feil
Cash, cheque, credit, change	Skaidra nauda, čeks, kredīts, atlikums	Flus kontanti, ċekk, kreditu, bqija	Kontant, sjckk, krcdit, vckscl
Transactions	Darījums	Transazzjoni	Transaksjon
Customer	Pircējs	Klijent	Kunde
Vendor, operator	Pārdevējs, operators	Bejjiegħ, operator	Selger, operatφr
Non-weighed article	Nesvērta gabalprece	Oġġett mhux mwieżen	Ikke veid vare
Weighed article	Svērta gabalprece	Oġġett mwieżen	Veid vare
Clear	Izdzēsts	Korrezzjoni	Slett
Weighing range	Svēršanas diapazons	Limiti ta’ l-użin	Vcieområde

English	Polish	Portuguese	Romanian
Not to be used for direct sale to the public	Waga nie może być stosowana w bezpośrednim obrocie handlowym	Interdito para a venda directa ao público	Interzisă utilizarea pentru vânzarea directă la public
For postal use only	Tylko do opłat pocztowych	Só para uso postal	Numai pentru utilizare poştală
Weight	Masa	Peso	Masă
Unit price	Cena	Preço unitario	Preț unitar
Price to pay	Należność	Preço a pagar	Preț de plată
Total, sub-total	Należności całkowita, Należność częściowa	Total, sub-total	Total, subtotal
Gross, net	Brutto, netto	Bruto, liquido	Brut, net
Tare, preset tare	Tara, Tara zadana	Tara, tara pré determinada	Tară, tară predeterminată
Zero	Zero	Zero	Zero
Print	Wydruk	Impressao	Imprimare
Set point	Punkt włączenia	Ponto do ajuste	Punct de reglare
Date, time	Data, czas	Data, hora	Dată, oră
Unstable weight	Niestabilne położenie równowagi	Peso instavel	Masă instabilă
Weight below Min	Masa poniżej Min	Peso abaixo de Min	Masă mai mică decât Min
No weight change	Stabilne położenie równowagi	Peso estavel	Masă neschimbată
Error	Błąd	Erro	Eroare
Cash, cheque, credit, change	Gotówka, czek, karta kredytowa, reszta	Dinheiro, cheque, crédito	Numerar, cec, carte de credit, rest
Transactions	Umowa sprzedaży	Transacçoes	Tranzacţii
Customer	Kupujący	Cliente	Client
Vendor, operator	Sprzedawca	Vendedor, operador	Vânzător, operator
Non-weighed article	Artykuł nieważony	Artigo nao pesado	Articol necântărit
Weighed article	Artykuł ważony		Articol cântărit
Clear	Kasowanie	Corrigir	Ştergere
Weighing range	Zakres ważenia	Gama de pesagem	Domeniu de cântărire

English	Slovak	Slovene	Spanish
Not to be used for direct sale to the public	Neprípustné používať na priamy predaj verejnosti	Ne sme se uporabljati za neposredno prodajo v javnosti	Prohibido para la venta directa al público
For postal use only	Len na poštové účely	Samo za poštno uporabo	Uso postal exclusivo
Weight	Hmotnosť / Zaťaženie	Masa	Peso
Unit price	Jednotková cena	Cena	Precio unitario
Price to pay	Predajná cena	Znesek	Importe
Total, sub-total	Súčet, medzisúčet	Seštevek, delni seštevek	Total-subtotal
Gross, net	Brutto, netto	Bruto, neto	Bruto, neto
Tare, preset tare	Tara, predvolená tara	Tara, prednastavljena tara	Tara, tara predeterminada
Zero	Nula	Ničla	Cero
Print	Tlač	Tiskanje	Impresión
Set point	Bod nastavenia	Nastavljiva vrednost	Punto de ajuste
Date, time	Dátum, čas	Datum, čas	Fecha, hora
Unstable weight	Nestabilné zaťaženie	Nestabilna meritev	Peso inestable
Weight below Min	Zaťaženie pod Min	Masa manjša od Min	Peso por debajo de Min
No weight change	Bez zmeny zaťaženia	Stabilna meritev	Peso estable
Error	Chyba	Napaka / Pogrešek	Error
Cash, cheque, credit, change	Hotovosť, šek, kredit, vydať	Gotovina, ček, kredit, vračilo	En efectivo, cheque (talón), crédito (tarjeta), cambio
Transactions	Transakcia	Postopek / Transakcija	Transacciones
Customer	Zákazník	Stranka	Cliente
Vendor, operator	Predávajúci, obsluha	Prodajalec, operater	Vendedor, operario
Non-weighed article	Nevážený druh tovaru	Netehtano blago	Artículo no pesado
Weighed article	Vážený druh tovaru	Tehtano blago	Artículo pesado
Clear	Vymazať	Brisanje	Corrección (borrado)
Weighing range	Vážiaci rozsah	Območje tehtanja	Rango de pesaje

English	Swedish
Not to be used for direct sale to the public	Får inte användas vid försäljning direkt till enskild konsument
For postal use only	Endast för postalt bruk
Weight	Vikt
Unit price	Enhetspris
Price to pay	Betalpris
Total, sub-total	Total sub-total
Gross, net	Brutto, netto
Tare, preset tare	Tara, förinställd tara
Zero	Noll
Print	Utskrift
Set point	Inställningsvärde
Date, time	Datum, tid
Unstable weight	Ostabilt viktvärde
Weight below Min	Vikt under Min
No weight change	Ingen viktändring
Error	Fel
Cash, cheque, credit, change	Kontant, check kredit växel
Transactions	Transaktioner
Customer	Kund
Vendor, operator	Försäljare, operatör
Non-weighed article	Icke-vägd vara
Weighed article	Vägd vara
Clear	Korrigering
Weighing range	Vägningsområde

8 Currency markings

At the time of publication of this issue of this guide, the following countries were using the Euro currency: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain.

EURO CURRENCY

For the indication and printing of the EURO currency, both during and after a transition period, refer to Section 3.2 of this guide.

Monetary divisions commonly in use:

0,01 €/kg for the unit price

0,01 € for the price to pay

The € symbol may be placed before or after the amount (eg €1,23 or 1,23 €)

The decimal separator may be a comma "," or a point ".".

(See Section 3.1.37 on Euro price rounding)

BULGARIA

The currency in Bulgaria is the BG Lev (or Лев, лв.), which is divided into 100 stotinki (or стотинки).

For unit price: xx,xx лв./kg

For price to pay: xx,xx лв.

The separator is comma.

CZECH REPUBLIC

Currency: Česká koruna or Kč

Unit price: Kč/kg

Price to pay: Kč

The symbols are placed to the right, above or under the numerical values.

Unit price: xxx,x Kč/kg

Price to pay: xxx,x Kč (Separator is comma)

DENMARK

Currency is the Kroner; monetary symbols Kr or KR and øre (no abbreviation exists). 1 krone is divided in 100 øre (1 øre = 0,01Kr). The smallest value is 50 øre.

Unit price: XXX,XX Kr/kg or XXX,XX Kr/100 g. Price to pay: XXX,XX Kr. Rounding to the lowest coin is permitted. Symbols may be placed above, below or to the right of the figures.

ESTONIA

The Estonian price units are „kroon“ (EEK or kr) and „sent“ (s). 1 kroon is divided in 100 senti. The smallest coin is officially 5 senti (at present in practice 10 senti).

Unit price: kr/kg	xxx.xx kr/kg (could be separated also with comma)
Price to pay: kr	xxx.xx kr

The total sum of price to pay could be rounded off to 10 cents (in case of payment in cash); card payments shall not be rounded.

HUNGARY

The currency is the Forint (Ft) , international symbol HUF

unit price	du=1Ft
price to pay	dp=1Ft

ICELAND

Currency is the “Krónur” and monetary symbols are Kr or KR and “aurar”.

1 Kr is divided into 100 “aurar” (100 aurar = 1 Kr).

There is no monetary symbol or abbreviation for aurar.
The smallest coin is 1 Kr.

The minimum interval of “Unit price” is 0,01 Kr/”mass unit”.
The interval for the “Price to pay” is rounded to the nearest Kr.

LATVIA

The currency is the “Lats” and monetary symbols “Ls” and “santīms” (no abbreviation exists). 1 lats is divided in 100 santīmi (1 santīms = 0,01 Ls). The smallest value is 1 santīms.

Unit price: XXX,XX Ls/kg

Price to pay: XXX,XX Ls.

Rounding to the lowest coin is permitted.

The Ls symbol may be placed before the amount.

NORWAY

The Norwegian price units are "krone" and "øre". 1 krone is divided in 100 øre. The smallest value is 50 øre.

For an instrument used for direct sales to the public with price indication Norway has the following regulations:

The interval of unit price is a minimum 1 øre (0,01 kr) and for the sum of goods in a transaction the interval is 50 øre.

The abbreviation for krone is "kr".

There is no abbreviation for øre.

The price symbols on the display of a weighing instrument could be placed immediately before, after or above the figures.

POLAND

Currency: złoty.

Unit price: zł/kg
Price to pay: zł

The symbols are placed to the right, above or under the numerical values.

Unit price: xxx,xx zł/kg
Price to pay: xxx,xx zł (Separator is comma)

ROMANIA

The currency in Romania is the Leu (plural: Lei), which is divided into 100 bani.

Monetary divisions commonly in use:

0,01 Lei/kg for the unit price
0,01 Lei/kg for the price to pay

The decimal separator is a comma “,”

SWEDEN

The Swedish price units are "krona" and "öre". 1 krona is divided in 100 öre. The smallest value is 50 öre.

For an instrument used for direct sales to the public with price indication Sweden has the following regulations:

The interval of unit price and price to pay shall be at minimum 1 öre (0,01 kr). The price interval of the total sum of one or more transactions shall be at minimum 50 öre (0,50 kr).

Allowed abbreviations:

Krona "kr" or "KR" (if only capital letters are possible)

Öre Shall not be abbreviated (if it is used)

The price symbols on the display of a weighing instrument could be placed immediately before, after or above the figures.

SWITZERLAND

1 Fr. = 100 Rp.	1 fr. = 100 ct.	1 fr. = 100 ct.
Franken, Rappen	franc, centime	franco, centisimo

Unit price: Currency symbol can be "CHF" or "Fr." or "fr." in following forms

CHF/kg ; CHF/100g ; CHF/100g

CHF/Stück ; CHF/pièce ; CHF/pezzo

Price to pay: Fr. xxx,xx or fr. xxx,xx or CHF xxx,xx

The price interval of the total sum of one or more transactions shall be 5 Rp./ct. (0,05 Fr./fr./CHF).

The interval of unit price and price to pay can be on special request 1 Rp./ct. (0.01 Fr./fr./CHF), but is usually 5 Rp/ct (0,05 Fr./fr./CHF).

(Separator is comma or point)

UNITED KINGDOM

Monetary Symbols £ (pound); p (pence)

Unit Price	£/kg;	£/100 g;	£/item
	p/kg;	p/100 g;	p/item

Alternative presentation: £ per kg; p per kg

The symbols in relation to numeric data may be above, below or alongside the value. Where the symbol is alongside it should be in the following form:

£X.XX/kg; Xp/kg

Where fractional pricing is used then it is acceptable to present the data on the display in the following form:

£ per		p per	
X.XX		X	
•	•	•	•
kg	100 g	kg	100 g

Minimum unit price interval	£0.01;	1p
Maximum value	∞ ;	999p

Price to Pay

The symbols in relation to numeric data may be above, below or alongside the value. Where the symbol is alongside it should be in the following form:

£X.XX; Xp

The price to pay must be presented as a single interval not multi-interval.

Price to pay interval	£0.01;	1p
Maximum value	∞ ;	999p

9 Imperial requirements

(See also Section 3.1.19)

9.1 The permitted units of Imperial measurement have the following symbols:

(i) pound (lb)
(ii) ounce (oz)
(iii) Troy ounce (oz tr)

[Note:- All symbols are singular and in lower case letters]

Where the Imperial value for a metric scale interval falls between two ranges in the Table 1 or Table 2 of Annex I to Directive 90/384/EEC then the value should be taken as belonging to the lower range

eg In Table 1 for a Class III instrument where e = $^1/_8$ oz then the minimum value for `n' is 100.

9.2 The units of measurement must be identified either in full or by the permitted symbol. Where a letter of a symbol can be confused with the numeric data there should be a clear space between the data and the symbol (eg 0.01 lb).

9.3 Vulgar fractions shall be clear, unambiguous and compatible with the size of the relevant integer digit. The numerator and denominator of the fraction must be smaller in size than the integer digit and shall be presented in a normal fractional form ie $^1/_8$ or $^1/_2$. The numerator shall not be on the same line as the denominator.

If clarity is maintained the line separating the numerator from the denominator may be omitted.

9.4 Where the pound (lb) and ounce (oz) are used together the pound (lb) must have a unit integer digit whereas the ounce (oz) may additionally have vulgar fractions eg 5 lb $3^1/_8$ oz not decimal fractions.

9.5 The scale interval shall have one of the following forms:-

(i) 1×10^n, 2×10^n or 5×10^n, the index n being a positive or a negative whole number or zero, or

(ii) 8 oz, 4 oz, 2 oz, 1 oz, ½ oz, ¼ oz etc, or
½ lb, ¼ lb etc.

9.6 The numeric data for the indication of ounces (oz) shall be suitable and clearly separated from the digits for the indication of pounds, eg by a blank space equivalent to one digit or a colon.

[Note:- this occurs where the units of measurement are above or below the numeric data.]

9.7 The overall figure for the printing of a vulgar fraction must not be less than 2 mm high, however the numerator and denominator themselves may be less provided that clarity of printout is maintained. The fraction must be of a compatible size to the integer digits.

9.8 Instruments with Imperial to Metric switching must have an adequate internal resolution to correctly convert from one unit of measurement to the other eg decimal pound to metric. Switching back to the Imperial mode should be carried out such that no further rounding of the result takes place.

[Note:- if subsequent rounding takes place cumulative errors may occur and result in a change of indication].

9.9 A multi-range instrument may have ranges in any one of the permitted units of measurement

eg 15 kg x 5 g
30 lb x $^{1}/_{8}$ oz
30 lb x 0.01 lb

9.10 Imperial units may only be used as supplementary indications (See Section 3.1.19).

10 Contents and structure of the documentation (EC type examination)

This section describes the contents and the structure of the documentation to be submitted for EC type examination of a non-automatic weighing instrument.

The structure follows Annex III of Directive 90/384/EEC. Numbers in slashes /../ refer to EN45501. These references are however not exhaustive.

10.1 General description of type, explanations necessary to understand the functioning of the instrument

10.1.1 Intended purpose of use, kind of instrument (e.g. platform plus-minus-scale, price labeller)

10.1.2 General characteristics (manufacturer; Class, Max, Min, e, n; single-/multi-interval, multiple range; range of temperature, voltage ...) /7.1/

10.2 List of descriptions and characteristic data of all devices incorporated in the instrument

10.2.1 Means for securing components, controls etc. /4.1.2/
Place for application of CE and related marks /7.2/

10.2.2 Adjustment devices /4.1.2.5/

10.2.3 Auxiliary, or extended indicating device /3.4, 4.4.3, 4.14.7/

10.2.4 Multiple use of indicating devices /4.4.4/

10.2.5 Printing devices /4.4.5/, printing of weighing results /4.6.11, 4.7.3/ and other values /4.15.4, 4.17/

10.2.6 Memory storage device /4.4.6/

10.2.7 Zero-setting, zero-tracking devices /4.5, 4.6.9, 4.14.2/

10.2.8 Tare devices /4.6, 4.10, 4.14.3/

10.2.9 Preset tare devices /4.7, 4.14.4/

10.2.10 Locking devices /4.8, 4.14.5/

10.2.11 Levelling device and level indicator, maximum value of tilt /3.9.1/

10.2.12 Auxiliary verification device /4.9/

10.2.13 Selection of weighing ranges (on multiple range instruments) /4.10/

10.2.14 Devices to connect different load receptors to different load measuring devices /4.11/

10.2.15 Functions of price-calculating instruments (e.g. for direct sales to the public) /4.15/

- special applications /4.15.4/
- self-service application /4.15.5/
- price labelling /4.17/

10.2.16 Interfaces

- Type(s), intended use, immunity to external influences instructions /5.3.6/
- peripheral devices presented to be connected for the disturbance tests /5.4.2/

10.2.17 Peripheral devices, e.g. printers, remote displays, that are to be included in the type approval certificate

10.2.18 Other devices or functions, e.g. for purposes other than determination of mass (not subject to conformity assessment)

10.3 Information concerning special cases

10.3.1 Subdivision of the instrument in modules - e.g. load cells, mechanical system, indicator, display - indicating the functions of each module and the fractions p_i of the maximum permissible errors.

For modules that have already been approved, reference to test certificates or type approval certificates /3.5.4/

For load cells, reference to evaluation under R60 /4.12/
- See also point 10.8 -

10.3.2 Special operating conditions /3.9.5/

10.3.3 Reaction of the instrument to significant faults /5.1.1, 5.2, 4.14.9/

10.3.4 Functioning of the display after switch-on /5.3.1/

10.3.5 Any other special information

10.4 Conceptual designs, drawings and plans of components, sub-assemblies, electric circuits etc. in particular of:

- load receptor
- lever systems and material of the levers, if not designed according to /6.3.2 - 6.3.4/
- devices to apply the force to the load cells
- electrical connection elements, e.g. for connecting load cells to the indicator
- load cells, if not presented as modules under 3.1

- indicator: block diagram
  schematic circuit
  keyboard with function assigned to any key

- drawing of the main plate /7.1/

- samples of all intended printouts, see also point 2.5
- presentation of the instrument (drawing or photo) showing where verification and securing marks are to be applied
- cf. points 2.1, 2.14. Size not larger than 210 x 297 mm (DIN A 4)

10.5 Declarations whether EN 45501 has been fully applied. For deviations, reference should be made to the corresponding points in Annex I of the Directive, and in the EN, and also to the corresponding points in sections 2 and 3 of the documentation.

10.6 Results of tests performed by the manufacturer, on protocols from R 76-2, including proof of competence.

10.7 Test reports from other laboratories, as per point 6.

10.8 Certificates of other EC-type approvals or separate tests, relating to modules or other parts mentioned in the documentation, together with test protocols where possible - see also point 10.3.1.

11 Compatibility of modules

According to EC-Directive 90/384/EEC Annex II No 3 as amended by EC-Directive 93/68/EEC, the manufacturer who is intending to submit an instrument for EC verification must ensure and declare that the instrument is in conformity with the type as described in the EC type approval certificate and satisfies the requirements of the Directive which apply to it.

Where the EC type approval certificate covers a variety of modules and/or allows the construction of a series of weighing instruments with different maximum capacities and/or measuring ranges it is necessary for the manufacturer to demonstrate before initial verification that the incorporated modules are compatible to each other and to the weighing instrument.

The relevant quantities and characteristics identified which together establish the compatibility have been included on the following forms. These forms cover the complete instruments, the electronic indicator and the load cell(s), plus 4 conditions referred to in EN 45501 and another 6 conditions which are for technical reasons as a result of the section itself. The tables, where the data shall be entered allow for an easy decision to be taken as to whether or not they are satisfied.

The manufacturer of the weighing instrument can check and prove this compatibility by filling in the forms given in the following pages.

It is intended that the forms should be attached to the formal Declaration of Conformity or by other means held ready to be presented to a Notified Body responsible for initial verification or subsequent metrological control. They should also accompany an application for EC type examination or EC unit verification, as part of the supporting documentation.

Compatibility of modules spreadsheets have been produced by DELTA (Denmark) and by PTB (Germany), and are available in English, free of charge, from their websites at:

DELTA: www.delta.dk/weighing

PTB: www.ptb.de [follow the links to their Working Group 1.12 (weighing instruments)]

If you cannot find the spreadsheets on these websites, please contact the relevant organisation.

Both these organisations also have their spreadsheets available in French and German.

Compatibility of Modules
Data sheet
Non-automatic weighing instrument

(All data to be taken from test certificate, type approval certificate or instrument in question)

Manufacturer:

Type: Serial number:

Number of EC-type approval certificate:

issued by: dated:

Metrological and technical Data :

Weighing instrument	- accuracy class	*class*		
	- maximum capacity (multi-interval / multiple range)	*Max* (Max_1) (Max_2) (Max_3)		g, kg, t
	- verification scale interval (multi-interval / multiple range)	*e* (e_1) (e_2) (e_3)		g, kg, t
	- number of verification scale intervals n = Max / e (multi-interval / multiple range $n_i = Max_i / e_i$)	*n* (n_1) (n_2) (n_3)		-
	- reduction ratio	*R*		-
	- number of load cells	*N*		-
	- correction factor	*Q*		-
	- dead load of load receptor	*DL*		g, kg, t
	- lower limit of temperature range	T_{min}		°C
	- upper limit of temperature range	T_{max}		°C
	- connecting system -- 4-wire- or 6-wire-system	*WS*		-
	-- length of connecting cable	*L*		m
	-- cross section of wire	*A*		mm^2

Electronic indicator Type :	- suitable for accuracy class of the weighing instrument	*class*		-
Manufacturer :	- maximum number of verification scale intervals	n_{ind}		-
.....	- load cell excitation voltage	U_{exc}		V
..... Test Certificate N^{o} or	- minimum input voltage per verification scale interval	$\Delta u_{\min}$		µV, mV
Type-approval N^{o} :	- minimum load cell resistance	$R_{L\min}$		Ω
.....	- maximum load cell resistance	$R_{L\max}$		Ω
issued by :	- lower limit of temperature range	$T_{\min}$		°C
dated :	- upper limit of temperature range	$T_{\max}$		°C
	- fraction of the maximum permissible error	p_{ind}		-
	4-wire-system : - maximum value of cable length per wire cross section	$(L/A)_{4\max}$		m/mm^2
	6-wire-system : - maximum value of cable length per wire cross section	$(L/A)_{6\max}$		m/mm^2

Load cell	- maximum capacity	$E_{\max}$		g, kg, t
Type :	- minimum dead load	$E_{\min}$		g, kg, t
	- accuracy class			
Manufacturer :	- rated output	C		mV/V
....	- maximum number of verification scale intervals	n_{LC}		-
Test Certificate N^{o} or Type approval N^{o} :	- minimum verification scale interval or the ratio $Y = E_{\max}/v_{\min}$	$v_{\min}$ Y		g, kg,t -
.....	- minimum dead load output return or the ratio $Z = E_{\max}/(2 \bullet DR)$	DR Z		g, kg, t -
issued by :	- input resistance of single load cell	R_{LC}		Ω
.....	- lower limit of temperature range	$T_{\min}$		°C
dated :	- upper limit of temperature range	$T_{\max}$		°C
	- fraction of the maximum permissible error	p_{LC}		

Connecting elements	- fraction of the maximum permissible error	p_{con}		-

Condition (1)

Accuracy classes						
Load cell(s)		Indicator	equal or better than	**Weighing instrument**	**passed**	**failed**
	&					

Condition (2)

Temperature limit	Load cell		Indicator		**Weighing instrument**	**passed**	**failed**
T_{min}		&		≤			
T_{max}		&		≥			

Condition (3)

$(p_{LC})^2$	+ $(p_{con})^2$	+ $(p_{ind})^2$	=	Σp_i^2	≤ 1	**passed**	**failed**
			=				

Condition (4) **Single scale interval instrument :**

n_{ind}	≥	***n = Max / e***	**passed**	**failed**

Multi-interval or multiple range instrument (i = number of range):

i	n_{ind}	≥	$n_i = Max_i / e_i$	**passed**	**failed**

Condition (5)

Q•Max•R/N			≤	E_{max}	**passed**	**failed**
	=					

where Q may be derived from:

$$Q = \frac{Max + deadload + additive\ tare + initial\ zero\ setting\ range + NUD}{Max}$$

and NUD is the “Non-Uniform Distribution” factor (see Section 3.1.6.6)

Condition (6a) **Single scale interval instrument :**

n_{LC}	≥	***n = Max / e***	**passed**	**failed**

Multi-interval or multiple range instrument (i = number of range):

i	n_{LC}	≥	$\boldsymbol{n_i = Max_i / e_i}$	**passed**	**failed**

Condition (6b) **Multi-interval instrument**

DR	$Z = E_{max} / (2 \bullet DR)$	≥	$\boldsymbol{Max_r / e_1}$	**passed**	**failed**

($Z = n_{LC}$ if neither *DR* nor *Z* are given in the load cell test report)

Condition (6c) **Multiple range instrument**

DR	$Z = E_{max} / (2 \bullet DR)$	≥	$\boldsymbol{0{,}4 \bullet Max_r / e_1}$	**passed**	**failed**

($Z = n_{LC}$ if neither *DR* nor *Z* are given in the load cell test report)

Condition (6d)

$DL \bullet R / N$	≥	$\boldsymbol{E_{min}}$	**passed**	**failed**

Condition (7)

$e \bullet R / \sqrt{N}$			≥	$\boldsymbol{v_{min} = E_{max} / Y}$	**passed**	**failed**
	=					

($Y = n_{LC}$ if neither v_{min} nor *Y* are given in the load cell test report)

(e = e_1 for a multi-interval instrument or for a multiple range instrument)

Condition (8)

Δu	≥	Δu_{min}	**passed**	**failed**

Δu calculated from following formula :

$$\Delta u = \frac{C}{E_{max}} \bullet U_{exc} \bullet \frac{R}{N} \bullet e$$

Condition (9)

R_{L}min	≤	R_{LC} / N	≤	R_{L}**max**	**passed**	**failed**

Condition (10) 4-wire-system

L	I	A	=	$(L/A)_4$	≤	$(L/A)_{4max}$	**passed**	**failed**
	I		=					

6-wire-system

L	I	A	=	$(L/A)_6$	≤	$(L/A)_{6max}$	**passed**	**failed**
	I		=					

Proof of the compatibility of the metrological and technical data of weighing instrument, load cell(s) and electronic indicator.

Condition (1): Accuracy class of weighing instrument, compatible to class of indicator and load cell(s)

Condition (2): Temperature limits of the weighing instrument compared with the temperature limits of the load cell(s) and the electronic indicator

Condition (3): Sum of the squares of the fractions p_i of the maximum permissible errors of load cell(s), connecting elements and indicator (EN 45501, No. 3.5.4) must not exceed 1

Condition (4): Number of verification scale intervals of the weighing instrument must not exceed maximum number of verification scale intervals of the electronic indicator

Condition (5): Maximum capacity of load cell(s) must be compatible to Max of the weighing instrument (EN 45501, N^{o} 4.12.1). (Explanation of "NUD" and suggested equation for Q are given in Section 3.1.6.6.)

Condition (6a): Compatibility of the maximum number of verification scale intervals of load cell(s) to the number of verification scale intervals of the weighing instrument (EN 45501, N^{o} 4.12.2)

Condition (6b): Compatibility of minimum dead load output return of the load cell to the verification scale interval of a **multi interval instrument**
(Condition corresponding to EN45501, N^{o}4.12.2, as agreed by WELMEC WG2 Decision 8 dated 23 November 1994)

Condition (6c): Compatibility of minimum dead load output return of the load cell to the verification scale interval of a **multiple range instrument**
(Condition corresponding to EN45501, N^{o}4.12.2, as agreed by WELMEC WG2 Decision 8 dated 23 November 1994)

Condition (6d): Compatibility of minimum dead load of the load cells to the actual dead load of the load receptor.

Condition (7): Minimum load cell scale interval (EN 45501 N^{o} 4.12.3) must be compatible to verification scale interval of the weighing instrument

Condition (8): Actual input voltage per verification scale interval must not be less than the minimum input voltage per verification scale interval for the electronic indicator

Condition (9): Actual load cell impedance must be within the allowed range of load cell impedance for the electronic indicator

Condition (10): Cable length per wire cross section of the connection cable between the junction box for the load cell(s) and the indicator must not exceed the value specified for the indicator

12 Conformity documents

This section sets out examples of conformity documents required to be presented with a instrument at various stages in the conformity assessment procedures of Annex II of Directive 90/384/EEC.

Example A1

Declaration of Conformity - For completion by the manufacturer or his authorised representative if the manufacturer operates a quality system and declares conformity in accordance with Annex II.2 of Directive 90/384/EEC.

The form, which may be included in the operator's manual of the instrument, is recommended to be available at the site of installation.

In the case of EC declaration of conformity procedure in two stages, the validity of the declaration of conformity may depend on evidence (or proof) of the carrying out of the second stage of the procedure.

Example A2

Declaration of Conformity - For completion by the manufacturer or his authorised representative if the manufacturer operates a quality system and declares conformity in accordance with Annex II.2 of Directive 90/384/EEC.

The form, which may be included in the operator's manual of the instrument, is recommended to be available at the site of installation.

This is a two-stage EC declaration of conformity procedure where the validity of the declaration of conformity depends on evidence (signature) of the carrying out of the second stage of the procedure.

Example A3

Declaration of Conformity - For completion by the manufacturer or his authorised representative prior to verification following the EC verification procedure in Annex II.3 or the EC declaration of conformity procedure in two stages where the second stage is performed by a Notified Body.

The form, which may be included in the operator's manual of the instrument, is recommended to be available at the site of installation.

This declaration includes a statement indicating that it is only valid with a certificate of conformity issued by a Notified Body.

Example B1

Certificate of Conformity - For completion by the Notified Body at the time of verification (EC unit verification and EC verification) and presented to the manufacturer or his authorised representative.

The manufacturer or his authorised representative is required to make the certificate available on request.

A certificate of conformity may be used for many instruments of same type by including all serial numbers.

Example B2

Certificate of Conformity – Two stages - For completion by the Notified Body at the time of verification (EC unit verification and EC verification) and presented to the manufacturer or his authorised representative.

The manufacturer or his authorised representative is required to make the certificate available on request.

A certificate of conformity may be used for many instruments of same type by including all serial numbers.

Example D

Certificate on tests of the 1st stage and 2nd stage - For completion by the manufacturer or his authorised representative for performing a two-stage procedure (EC declaration of type conformity) together with example A1. This certificate must be presented with the instrument at the time of 1st and 2nd stage verification.

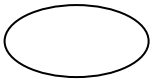
Example A1

CE Konformitätserklärung
Declaration of conformity
Déclaration de conformité

Kennnummer der benannten Stelle, die die EG-Überwachung nach der Richtlinie 90/384/EWG durchgeführt hat *Identification number of the notified body that has carried out the EC surveillance referred to the Directive 90/384/EEC* Numéro d'identification de l´organisme notifié, qui a effectué la surveillance CE en conformité avec la directive 90/384/CEE	....

Name und Anschrift des Herstellers oder seines authorisierten Vertreters
Name and address of manufacturer or his authorised representative
Nom et adresse du fabricant ou de son représentant autorisé

Die nichtselbsttätige Waage
The non-automatic weighing instrument
L'instrument de pesage à fonctionnement non automatique



Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	

entspricht dem in der Bescheinigung über die Bauartzulassung beschriebenen Baumuster, sowie den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung und den Anforderungen folgender EG-Richtlinien:
corresponds to the production model described in the EC type-approval certificate and to the requirements of the Directive 90/384/EEC as amended and to the requirements of the following EC directives:
correspond au modèle décrit dans le certificat d'approbation CE de type, aux exigences de la directive 90/384/CEE modifiée et aux exigences des directives CE suivantes:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Unterschrift *Signature* Signature	Datum *Date* Date

Nur gültig mit einer ausgefüllten Bescheinigung über Prüfungen in der 1.und 2. Stufe
Only valid with a completed Certificate of tests on 1st stage and 2nd stage
Seulement valable avec une attestation remplis des essais de la 1ère et 2eme étape [4]

[4] Only necessary for 2 stage procedure

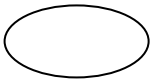
Example A2

CE Konformitätserklärung
Declaration of conformity
Déclaration de conformité

Kennnummer der benannten Stelle, die die EG-Überwachung nach der Richtlinie 90/384/EWG durchgeführt hat *Identification number of the notified body that has carried out the EC surveillance referred to the Directive 90/384/EEC* Numéro d'identification de l´organisme notifié, qui a effectué la surveillance CE en conformité avec la directive 90/384/CEE	....

Name und Anschrift des Herstellers oder seines authorisierten Vertreters
Name and address of manufacturer or his authorised representative
Nom et adresse du fabricant ou de son représentant autorisé

Die nichtselbsttätige Waage
The non-automatic weighing instrument
L'instrument de pesage à fonctionnement non automatique



Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	
Seriennummer(n): *Serial number(s):* Numéro(s) de série:	

entspricht dem in der Bescheinigung über die Bauartzulassung beschriebenen Baumuster, sowie den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung und den Anforderungen folgender EG-Richtlinien:
corresponds to the production model described in the EC type-approval certificate and to the requirements of the Directive 90/384/EEC as amended and to the requirements of the following EC directives:
correspond au modèle décrit dans le certificat d'approbation CE de type, aux exigences de la directive 90/384/CEE modifiée et aux exigences des directives CE suivantes:

Prüfungen und Tests nach EN 45501 Nr. 8.2 mit Ausnahme folgender Prüfungen in der 1. Stufe ausgeführt:
Performed examinations and tests referred to in EN 45501 - 8.2 on 1st stage, with the exception of the following tests:
Les examens et essais accomplis dans la 1ère étape en conformité avec la norme européenne EN 45501 - 8.2, à l'exception des essais suivants:

Unterschrift *Signature* Signature	Datum *Date* Date

In der 2. Stufe ausgeführte Prüfungen:
Tests completed on 2nd stage:
Essais accomplis dans la 2eme étape:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Unterschrift *Signature* Signature	Datum *Date* Date

Nur gültig mit 2 Unterschriften Only valid with 2 signatures Seulement valable avec 2 signatures

Example A3

CE Konformitätserklärung
Declaration of conformity
Déclaration de conformité

Name und Anschrift des Herstellers oder seines authorisierten Vertreters
Name and address of manufacturer or his authorised representative
Nom et adresse du fabricant ou de son représentant autorisé

Die nichtselbsttätige Waage
The non-automatic weighing instrument
L'instrument de pesage à fonctionnement non automatique

Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	

entspricht dem in der Bescheinigung über die Bauartzulassung beschriebenen Baumuster, sowie den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung und den Anforderungen folgender EG-Richtlinien:
corresponds to the production model described in the EC type-approval certificate and to the requirements of the Directive 90/384/EEC as amended and to the requirements of the following EC directives:
correspond au modèle décrit dans le certificat d'approbation CE de type, aux exigences de la directive 90/384/CEE modifiée et aux exigences des directives CE suivantes:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Unterschrift *Signature* Signature	Datum *Date* Date

Nur gültig mit einer von einer Benannten Stelle erteilten Konformitätsbescheinigung
Only valid with a Certificate of Conformity issued by a Notified Body
Seulement valable avec une Attestation de Conformité délivré par une organisme notifié

Example B1

Konformitätsbescheinigung
Certificate of conformity
Attestation de conformité

Name, Anschrift und Kennnummer der benannten Stelle *Name, address and identification number of the notified body* Nom, adresse et numéro d'identification de l´organisme notifié	....

Die Übereinstimmung der nichtselbsttätigen Waage
The conformity of the non-automatic weighing instrument
La conformité de l'instrument de pesage à fonctionnement non automatique

Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	
Seriennummer(n): *Serial number(s):* Numéro(s) de série:	

mit den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung wurde durch Prüfungen und Tests nach EN 45501 Nr. 8.2 festgestellt:
with the requirements of the Directive 90/384/EEC as amended was established by examinations and tests referred to in EN 45501 - 8.2:
avec les exigences de la directive 90/384/CEE modifiée a été constatée par les examens et essais en conformité avec la norme européenne EN 45501-8.2:

Die EG-Eichung wurde für folgende(n) Aufstellungsort / Gebrauchsort / Gebrauchszone durchgeführt:
The EC-verification is valid for the following place of installation / location / area of use:
La vérification CE est valide pour l'emplacement / l'endroit d'utilisation / sphère d'utilisation suivant:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Unterschrift *Signature* Signature	Datum *Date* Date

Example B2

Konformitätsbescheinigung
Certificate of conformity
Attestation de conformité

Die Übereinstimmung der nichtselbsttätigen Waage
The conformity of the non-automatic weighing instrument
La conformité de l'instrument de pesage à fonctionnement non automatique

Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	
Seriennummer(n): *Serial number(s):* Numéro(s) de série:	

mit den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung wurde durch Prüfungen und Tests nach EN 45501 Nr. 8.2 mit Ausnahme folgender Prüfungen festgestellt:
with the requirements of Directive 90/384/EEC as amended was established by examinations and tests referred to in EN 45501 - 8.2, with the exception of the following tests:
avec les exigences de la directive 90/384/CEE modifiée a été constatée par les examens et essais en conformité avec la norme européenne EN 45501 - 8.2, à l'exception des essais suivants:

Name, Anschrift und Kennnummer der benannten Stelle *Name, address and identification number of the notified body* Nom, adresse et numéro d'identification de l´organisme notifié	....
Unterschrift / *Signature* / Signature	Datum / *Date* / Date

In der 2. Stufe ausgeführte Prüfungen:
Tests completed on 2nd stage:
Essais accomplis dans la 2eme étape:

Die EG-Eichung wurde für folgende(n) Aufstellungsort / Gebrauchsort / Gebrauchszone durchgeführt:
The EC-verification is valid for the following place of installation / location / area of use:
La vérification CE est valide pour l'emplacement / l'endroit d'utilisation / sphère d'utilisation suivant:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Name, Anschrift und Kennnummer der benannten Stelle *Name, address and identification number of the notified body* Nom, adresse et numéro d'identification de l´organisme notifié	....
Unterschrift *Signature* Signature	Datum *Date* Date

Example D

Bescheinigung über Prüfungen
Certificate on tests
Attestation des essais

Name und Anschrift des Herstellers oder seines autorisierten Vertreters
Name and address of manufacturer or his authorised representative
Nom et adresse du fabricant ou de son représentant autorisé

Kennnummer der benannten Stelle, die die EG-Überwachung nach der Richtlinie 90/384/EWG durchgeführt hat *Identification number of the notified body that has carried out the EC surveillance according to Directive 90/384/EEC* Numéro d'identification de l´organisme notifié, qui a effectué la surveillance CE en conformité avec la directive 90/384/CEE.	....

Die Übereinstimmung der nichtselbsttätigen Waage
The conformity of the non-automatic weighing instrument
La conformité de l'instrument de pesage à fonctionnement non automatique

Hersteller: *Manufacture*r: Fabricant:	
Typ/Modell: *Type/Mode*l: Type/modèle:	
Nr. der EG-Bauartzulassung (gegebenenfalls): *No of the EC type-approval certificate (where applicable):* Nº du certificat d'approbation CE de type (le cas écheant):	
Seriennummer(n): *Serial number(s):* Numéro(s) de série:	

mit den Anforderungen der Richtlinie 90/384/EWG in der geltenden Fassung wurde durch Prüfungen und Tests mit Ausnahme folgender Prüfungen festgestellt:
with the requirements of the Directive 90/384/EEC as amended was established by examinations and tests with the exception of the following tests:
avec les exigences de la directive 90/384/CEE modifiée a été constatée par les examens et essais à l'exception des essais suivants:

Unterschrift *Signature* Signature	Datum *Date* Date

In der 2. Stufe ausgeführte Prüfungen:
Tests completed on 2nd stage:
Essais accomplis dans la 2eme étape:

verwendete g: / *utilised g:*/ valeur de g:	m/s^2

Unterschrift *Signature* Signature	Datum *Date* Date

Nur gültig mit 2 Unterschriften
Only valid with 2 signatures
Seulement valable avec 2 signatures

13 Revisions of this guide

(Changes of previous issues not listed)

Issue	Date	Significant changes from previous issue
4	June 2004	Modifications or additions to the following sections: 3.1.6.4, 3.1.7, 3.1.12, 3.1.13.1, 3.1.15, 3.1.17, 3.1.19, 3.1.20, 3.1.29. New sections added: 3.1.1.2, 3.1.6.7, 3.1.6.8, 3.1.6.9, 3.1.6.10, 3.1.13.2, 3.1.13.3, 3.1.24.3, 3.1.26, 3.1.27, 3.1.28, 3.1.29, 3.1.30, 3.1.31, 3.1.32, 3.1.33, 3.1.34, 3.1.35, 3.1.36, 3.1.37, 3.1.38, 3.1.39, 3.1.40, 3.1.41, 3.1.42, 3.1.43, 3.1.44, 3.1.45, 3.1.46, 3.1.47, 3.1.48, 3.1.49, 3.1.50, 3.1.51, 3.1.52, 3.1.53. Section 4; BCR decisions moved into Section 3. Additional or modified country information in Sections 1, 7, 8. References to “Q” and “NUD” added to Section 11. New map on front cover.
5	May 2009	Modifications or additions to the following sections: 1 (certificate number format: Austria, Bulgaria, France, Slovakia, Switzerland). 3.1.8.2, 3.1.9, 3.1.15, 3.1.17, 3.1.19, 3.1.24.2, 3.1.27, 3.1.28, 3.1.33, 3.3, 3.4.3, 5 7 (languages: Bulgarian, Estonian, Latvian, Maltese, Polish, Romanian, Slovak) 8 (currency: Bulgaria, Cyprus, Denmark, Estonia, Latvia, Malta, Romania, Slovakia, Slovenia, Switzerland). Section 12 has been completely rewritten, with new conformity documents. New sections added: 3.1.6.11, 3.1.54, 3.1.55, 3.1.56, 3.1.57, 3.1.58, 3.1.59, 3.1.60, 3.1.61, 3.1.62, 3.1.63, 3.1.64, 3.1.65. New map on front cover. Change of WELMEC Secretariat details.

(end of guide)