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COUNCIL DIRECTIVE

of 26 July 1971

on the approximation of the laws of the Member States relating to meters for liquids other than water

(71/319/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof;

Having regard to the proposal from the Commission;

Having regard to the Opinion of the European Parliament[1];

Having regard to the Opinion of the Economic and Social Committee[2];

Whereas in the Member States the construction and methods of control of liquid meters are subject to mandatory provisions which differ from one Member State to another and consequently hinder trade in such instruments; whereas it is therefore necessary to approximate these provisions;

Whereas the Council Directive of 26 July 1971[3] on the approximation of the laws of the Member States relating to provisions for both measuring instruments and methods of metrological control has laid down the EEC pattern approval and EEC initial verification procedures; whereas, in accordance with that Directive, the technical requirements for the design and functioning of volumetric meters for liquids other than water should be laid down;

Whereas, to ensure that these instruments can be used directly in measuring systems for liquids, approximation of national provisions concerning the maximum permissible errors for such assemblies should be undertaken immediately;

HAS ADOPTED THIS DIRECTIVE:

Article 1

This Directive applies to volumetric meters for liquids other than water in which the liquid causes the movement of mobile walls of measuring chambers and which permit the measurement of any volumes.

Article 2

1. 'Volumetric meter for liquids' means an instrument composed solely of a measuring device and an indicating device. It generally forms part of a measuring system.

2. 'Measuring system for liquids' means a measuring instrument comprising, as well as the meter itself and the ancillary equipment which may be accociated with it, all the devices necessary for ensuring correct measurement and any devices which have been added in order, in particular, to facilitate the operations. Measuring systems will be the subject of a separate directive.

Article 3

Those volumetric meters which may bear EEC marks and symbols are described in Chapter I of the Annex. They shall be subject to EEC pattern approval and shall be submitted to EEC initial verification under the conditions laid down in items 1 and 2 of Annex II to the Directive on the approximation of the laws of the Member States relating to provisions for both measuring instruments and methods of metrological control, and under the conditions which will be laid down by the separate directive on measuring assemblies.

[1] OJ No C 25, 28.2.1970, p. 76.
[2] OJ No C 26, 4.3.1970, p. 2.
[3] OJ No L 202, 6.9.1971, p. 1.

Article 4

No Member State may refuse, prohibit or restrict the placing on the market or entry into service of volumetric meters for liquids other than water bearing the EEC pattern approval symbol and the EEC initial verification mark.

Article 5

When measuring assemblies for liquids which incorporate volumetric meters for liquids bearing EEC marks and symbols are subject to initial verification, the maximum permissible errors shall be those laid down in Chapter II of the Annex.

Article 6

1. Member States shall put into force the laws, regulations and administrative provisions needed in order to comply with this Directive within eighteen months of its notification, and shall forthwith inform the Commission thereof.

2. Member States shall ensure that the texts of the main provisions of national law which they adopt in the field covered by this Directive are communicated to the Commission.

Article 7

This Directive is addressed to the Member States.

Done at Brussels, 26 July 1971.

For the Council

The President

A. MORO

ANNEX

CHAPTER I

SPECIFICATIONS FOR METERS FOR LIQUIDS OTHER THAN WATER

1. **Definitions**

1.1. 'Minimum delivery' means the smallest volume of liquid which may be measured by a particular pattern.

1.2. 'Cyclic volume' means the volume of liquid corresponding to the operating cycle of the measuring device, that is to say to the whole of the movements at the end of which all the internal moving parts of the measuring device return, for the first time, to their original position.

1.3. 'Periodic variation' means the maximum difference, during one working cycle, between the volume displaced by the moving components and the corresponding volume shown by the indicator, the latter being connected to the measuring device without play or slip and in such a way that it indicates at the end of the cycle and for this cycle a volume equal to the cyclic volume. This difference may be reduced by a suitable calibration device.

2. **Indicating mechanisms**

2.1. Meters must incorporate an indicating mechanism showing the measured volume in cubic centimetres or millilitres, in cubic decimetres or litres or in cubic metres.

2.2. In an indicating mechanism having one or more elements, that which is marked with the smallest scale intervals is called the 'first element'.

2.3. The drive between the indicating mechanism and the measuring device must be reliable, durable and effected by means of a mechanical connection or by a permanent magnet device.

2.4.1. Reading of the indications must be reliable, easy and unambiguous.

2.4.2. If the indicating mechanism incorporates several elements, the indicating mechanism as a whole must be so constructed that the reading of the indication can be performed by simple juxtaposition of the indications of the different elements.

2.5. The maximum capacity of the indicating mechanism must be of the form 1×10^n, 2×10^n or 5×10^n authorised units of volume, n being a whole positive or negative number, or zero.

2.6. The movement of an element may be either continuous or discontinuous.

2.7. When the moving part of an element has a continuous movement, a graduated scale and a datum mark must enable the measured quantity to be determined for every position at which the element might come to rest.

2.8. Scale intervals on the first element must be in the form 1×10^n, 2×10^n or 5×10^n authorised units of volume.

2.9. Except for the element which corresponds to the maximum capacity of the indicating mechanism, the value of one revolution of an element must be of the form 10^n authorised units, when the graduated scale on this unit is completely visible.

2.10. When an element consists of a fixed circular scale and a rotating pointer, the direction of rotation of this pointer must be clockwise.

2.11. On an indicating mechanism having several elements, each rotation of the moving part of the elements of which the graduation is entirely visible must correspond to the value of the scale interval of the next element.

2.12. On an indicating mechanism having several elements, the indication of an element with a discontinuous movement, other than the first element, must move forward by one figure while the preceeding element moves through not more than one-tenth of its revolution. This forward movement must cease when the preceding element indicates zero.

2.13. When an indicating mechanism has several elements and when only a part of the scale of the second and subsequent elements is visible in the windows, the movement of the latter elements must be discontinuous. The movement of the first element may be continuous or discontinuous.

2.14. If the indication is given by figures in-line and if the movement of the first element is discontinuous, the marking of one or more fixed zeros to the right of this element is permissible.

2.15. When the first element has only a portion of its scale visible in a window and has a continuous movement, there can be a resulting ambiguity in the reading which should be eliminated so far as is possible. To this end, and in order to allow for reading by interpolation, the relevant window must have, parallel to the movement of the scale, a dimension not less than 1·5 times the distance between the centre lines of two consecutively numbered graduation marks, in such a way that at least two graduation marks of which one will have a figure, are always visible. The window may be assymmetrical relative to the datum mark.

2.16. On scales having graduation marks, the marks must have the same thickness, constant along the length of the mark, which shall not exceed one quarter of the distance between the centre lines of two consecutive marks.

Marks corresponding to 1×10^n, 2×10^n or 5×10^n authorised units shall only be distinguished by difference in their lengths.

2.17. The actual or apparent distance between the axes of two consecutive graduation marks must not be less than 2 millimetres.

2.18. The actual or apparent height of the figures must not be less than 4 millimetres.

3. **Calibrating devices**

3.1. Meters must incorporate a calibrating device which can vary the relationship between the indicated and actual volumes of liquid passing through the meter.