

A NEW EUROPEAN DIRECTIVE ON NOISE EMISSION BY EQUIPMENTS FOR USE OUTDOORS

PACS REFERENCE: ???????

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ABSTRACT

The European Parliament and the Council in July 2000 have enacted the Directive 2000/14/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors covering 63 types of equipment. The following requirements have to be fulfilled when these equipment are placed on the market or put into service in the Community:

- the manufacturer shall subject each type of equipment to a conformity assessment procedure, which is different for the different types,
- all equipment shall bear the CE marking of conformity accompanied by the indication of the guaranteed sound power level,
- 22 types of equipment have to meet noise limits generally depending on the installed power or similar power related data.

The directive should have been transposed in national law no later than 3 July 2001, and the Member States should have applied the measures with effect from 3 January 2002. The directive is presented and discussed.

INTRODUCTION

Activities concerning noise emission of construction machines became necessary in the late 1970ies as some Member States in the European Community had national legislation on noise emission from construction machines or wanted to prepare such legislation. Six product related Directives on the approximation of the laws of the Member States relating to the noise emission of construction plant and equipment have been adopted for Europe-wide use covering

- compressors
- tower cranes
- welding generators
- power generators
- hand-held concrete breakers and picks
- hydraulic excavators, rope-operated excavators, dozers, loaders, and excavator-loaders

This European legislation had the principal aim to contribute to the smooth functioning of the internal market, environmental issues had a lower priority. Noise limits were set in such a way,

that most of the products in the market were able to meet them and therefore only some products were excluded from the market.

THE “OUTDOOR – DIRECTIVE”

The EU Green Paper on Future Noise Policy [1] stated that environmental noise was one of the main environmental problems in Europe. Around 20% of the EU's citizens were said to be exposed to noise levels that scientists and health experts consider unacceptable, at which most people become annoyed, sleep is said to be disturbed and health may be at risk. It recommended a double tracked approach based on protecting individuals exposed to noise and on the reduction of noise at source, respectively. In 1997 the European Parliament approved the general approach proposed in the Green Paper and requested that a Directive should be developed to amend and replace the existing legislation on construction machines preparing a Directive concerning outdoor equipment.

A proposal for such a directive has been discussed for more than three years (1995 – 1997) in the working group “Noise from construction plant and equipment” of the Directorate-General XI (Environment) of the European Commission. Members of this working group were experts of the Member States, experts from European manufacturer's associations and manufacturers. All interested parties had the opportunity – and some of them took it - to make their point of view clear in bilateral meetings with the Commission. Thus industry was involved of the process of legislation making from the very beginning.

During the discussion within the Commission all Directorates-General affected (e.g. “Industry” and “Small and Medium Enterprises”) have been consulted. The result was the ‘Proposal of the Commission to the European Parliament and the Council’ dated 18 February 1998.

It took another two years to pass the proposal through the European Parliament and the Council. The European Parliament in its first reading approved the proposal without any amendments. The Council, however, in its “Working party on economic questions” discussed the proposal in several meetings in detail and amended it in several points (especially concerning conformity assessment procedures). The directive in the first reading was adopted by the Council on 24 January 2000.

After all this, second reading in European Parliament and Council was only a formal act: as the Environment Committee of the European Parliament made no comments, Parliament agreed without discussion and no further Council approval was needed. The Directive was approved on 8 May 2000 and entered into force on 3 July 2000 by publication in the Official Journal of the European Communities as Directive 2000/14/CE (the “outdoor directive”) [2]. The directive had to be transposed in national legislation by the Member States by 3 July 2001, and the provisions of the directive had been to be applied by 3 January 2002.

Directive 2000/14/CE does not replace the European Machinery Directive (98/37/CE) [3] regulating security aspects of machines and amongst other things dealing with noise – mainly at the workstation. It is a “Specific Community Directive” in the sense of Art. 1 (4) of the Machinery Directive dealing with noise emission in the environment of a limited number of equipment.

PROVISIONS OF THE DIRECTIVE

The provisions of the Directive are valid in that moment when equipment covered by the Directive is placed on the market or put into service in the European market. “Placing on the market” is the initial action of making a product available for the first time on the Community market, with a view to distribution or use in the Community (either for payment or free of charge). “Putting into service” takes place at the moment of first use within the Community by the end user. The provisions are not valid for equipment that have been in use in Europe. However, used products imported from third countries must meet the provisions of the Directives.

The directive lays down obligations concerning 63 types of equipment produced for use outdoors. The types of equipment are listed in Art. 12 and 13, and there is a definition for all of them in Annex I of the Directive.

All types of equipment shall bear the CE marking of conformity (consisting of the initials "CE") which shall be accompanied by the indication of the guaranteed sound power level. "Guaranteed sound power level" means a sound power level (determined in accordance with the measurement methods laid down in Annex III) which includes the uncertainties due to production variation and measurement procedures and where the manufacturer confirms that according to the technical instruments applied and referred to in the technical documentation it is not exceeded.

22 of these types of equipment additionally have to meet "permissible sound power levels" (noise limits). There are two sets of noise limit values: the first one (stage I) to be met from 3 January 2002, the second one (stage II, about 3 dB(A) lower than stage I) from 3 January 2006. In most cases these noise limits in a certain range are linearly depending on the logarithm of a power related quantity P (installed power, electric power, mass of equipment): $L_{\text{limit}} = L_{\text{base}} + B \log P$, where L_{base} and B are characteristic numbers for the different equipment.

As noise emission values are strongly influenced by the measurement method used, the directive in Annex III lays down these measurement methods for each type of equipment covered. Annex III on the one hand contains general provisions (basic noise emission standards including number and coordinates of microphone positions, measuring distances, averaging of noise levels, test areas) valid for all types of equipment, on the other hand there are special operating conditions to be used during tests for each equipment.

Before placing on the market or putting into service any equipment the manufacturer shall subject each type of equipment to one of the conformity assessment procedures laid down in Annexes V to VIII:

- If the equipment is not subject to limits, that means if only labelling is required, manufacturers may use the "internal control of production" procedure. The manufacturer may do the measurements by himself or may engage a third party to do the measurements.
- For all equipment covered by noise limits the manufacturer has to involve a third party (so called notified body) which may either examine measurements made by the manufacturer (plausibility tests or in case of doubts measurements) or do these measurement by itself. In addition, the notified body supervises the production process concerning noise emission. This kind of assessment may not be applied if each product is tested individually or if the manufacturer runs a full quality assurance system.

Based on these measurements the manufacturer on his own responsibility (taking into account uncertainties by production and measurement) determines the sound power level he is able to guarantee, and indicates this value on his product in a visible, legible, and indelible form. These values given on the equipment are subject to verification by the notified bodies or other bodies appointed by the Member States in the frame of market surveillance. Manufacturers will have to label their equipment in such a way that they will pass verification tests with a high probability. It will be necessary that Member States lay down statistical procedures for the evaluation of labelled noise values and that manufacturers use international recognised and Europe-wide harmonised methods checking their production concerning noise. Indications which procedure may be used are given in EN ISO 4871:1996 [4] and the EN ISO 27574 series [5], respectively.

The manufacturer shall, in order to certify that an item of equipment is in conformity with the provisions of the Directive, draw up an EC declaration of conformity for each type of equipment manufactured. This declaration of conformity shall give the measured and the guaranteed noise emission value. The manufacturer shall send a copy of the EC declaration of conformity for each type of equipment to the responsible authority of the Member State where he resides and to the European Commission. The Commission shall collect and evaluate the data .

Member States shall not prohibit, restrict or impede the placing on the market or putting into service of equipment which bears the EC marking and the indication of the guaranteed sound power level. On the other hand they shall take appropriate measures to ensure that equipment covered by the Directive may be placed on the market or put into service only if it conforms with the provisions of the Directive; this includes market surveillance measures.

Member States may regulate the use of equipment covered by the Directive in areas which they consider sensitive, including the possibility of restricting the working hours of the equipment.

Evaluating the Directive the Commission shall be assisted by a Committee which exchanges information and experiences concerning the implementation and practical application of the Directive and discusses matters of common interest in those fields. It shall also assist the Commission in the adaptation to technical progress of the Directive and give advice to the Commission concerning reports to be presented to the European Parliament and the Council.

CONSEQUENCES FOR THE MANUFACTURER OF “OUTDOOR EQUIPMENT”

Manufacturers producing equipment which is mainly used outdoor in the future have to

- Check whether their equipment is covered by the Outdoor Directive,
- Check whether the equipment has only to be labelled or has to meet noise limits, additionally,
- Subject the equipment to an appropriate conformity assessment procedure,
- Determine the noise emission using the measurement procedures of the Directive,
- Determine the guaranteed sound power level,
- Put the CE mark and the indication of the guaranteed sound power level on each item of equipment,
- Draw up an EC declaration of conformity for each type of equipment and enclose a copy of the EC declaration of conformity to each product;
- Send a copy of the EC declaration of conformity of each type of equipment to the responsible authority of the Member State and to the Commission.
- Evaluate their production concerning noise emission by statistical procedures in order to be sure that they will pass market surveillance test or tests made by their notified body.

CONSEQUENCES FOR THE CONSUMERS

Consumers in the future will get better information on the noise emission by equipment used outdoors; there will be a better transparency of the market and the consumer will be able to look for low noise products. In the remote future the forces of the market will compel manufacturers to offer more and more low noise equipment. Noisy products will disappear from the market.

GLOBAL CONSEQUENCES

The provisions of the new directive lays down provision that have to be followed putting equipment on the European market. The European market with its 375 Million citizens is a very big and interesting one, and is not only served by European industry. The provisions of the Directive have to be met also by manufacturers from other continents, including Japan and the United States of America. However, only a few of these manufacturers are aware of the new European legislation, most of the others did not care about the legal development in Europe in the past and are now surprised to be confronted with legal requirements that ask them to meet certain noise limits. For them these requirements may be a big challenge because of the very short time they have to develop equipment which meets the limits.

The European Commission will continue in its progressive noise legislation. In the future problems may be avoided if manufacturers from outside Europe will from the very beginning observe European noise legislation and will actively and constructively take part in the

discussions. In the future a better cooperation between European and non-European manufacturers and the institutions of the European Commission is urgently needed to minimise problems arising due to further European legislation.

REFERENCES

- [1] Commission of the European Communities, Directorate General XI. Future Noise Policy. European Commission Green paper. Brussels 1996
- [2] Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors (OJ L 162, 3.7.2000, p. 1)
- [3] Directive 98/37/CE of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery (OJ L 207, 23.7.1998, p. 1)
- [4] EN ISO 4871:1996 "Acoustics – Declaration and verification of noise emission values of machinery and equipment"
- [5] EN ISO 27574:1988 part 1-4 "Acoustics; Statistical methods for determining and verifying stated noise emission values of machinery and equipment"