



SLOVENSKI STANDARD
SIST EN 14861:2004/prA1:2007

01-september-2007

Gozdarski stroji - Stroji z lastnim pogonom - Varnostne zahteve

Forest machinery - Self propelled machinery - Safety requirements

Forstmaschinen - Selbstfahrer - Sicherheitsanforderungen

Machines forestieres - Machines automotrices - Prescriptions de sécurité

Ta slovenski standard je istoveten z: EN 14861:2004/prA1

ICS:

65.060.80 Gozdarska oprema Forestry equipment

SIST EN 14861:2004/prA1:2007 en

ICS 65.060.80

English Version

Forest machinery - Self propelled machinery - Safety requirements

Machines forestières - Machines automotrices -
Prescriptions de sécurité

Forstmaschinen - Selbstfahrer - Sicherheitsanforderungen

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 144.

This draft amendment A1, if approved, will modify the European Standard EN 14861:2004. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN 14861:2004/prA1:2007) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

1 Modification to Clause 1

Delete the 3rd paragraph and the note and replace with the following text to read as follows:

" The following significant hazards are excluded:

- thrown objects, that may occur on a particular machine;
- . vibration."

2 Modification to Clause 2

Add the following new references:

EN ISO 3744:1995, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*

EN ISO 4871:1996, *Acoustics – Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 11201:1995, *Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions - Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)*

EN ISO 11688-1:1998, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning (ISO/TR 11688-1:1995)*

ISO 5131:1996, *Acoustics -- Tractors and machinery for agriculture and forestry -- Measurement of noise at the operator's position -- Survey method*

3 Modification to Clause 4

Add the new following sub-clause:

"4.19 Noise

4.19.1 Noise reduction as a safety requirement

4.19.1.1 Noise reduction by design at source and by protective measures

The machine shall generate a noise level as low as practicable. The methodology for designing low-noise machinery described in EN ISO 11688-1:1998 shall be used.

NOTE EN ISO 11688-2:2000 gives useful information on noise generation mechanisms in machinery.

The main sources causing noise in self-propelled forestry machinery include e.g.:

- power source
- travelling function
- loader
- harvesting equipment cutting saw

The noise reduction measures by design include e.g.:

- selecting low noise components e.g. engine;
- selecting proper materials;
- selecting proper thickness and coating of surfaces;
- selecting the cutting saw configuration;
- proper maintain of the cutting saw;
- selecting low noise exhaust system;
- encapsulation of noisiest components of the machine.

4.19.1.2 Noise reduction by information

If after taking all possible technical measures for reducing noise at the design stage a manufacturer considers that further protection of the operator is necessary, the adequate information shall be listed in the instruction handbook, see Clause 5.1.

4.19.1.3 Verification of requirements for noise

For the determination of the sound power level and of the emission sound pressure level at the operator's position the measurement method given in Annex B shall be used."

4 Modification to 5.1

At the end of 5.1, add the following text:

- "v) recommend the use of low-noise operating modes, and/or limited time operation;
- x) give a warning of the noise level and recommend the use of hearing ear protection;
- z) the instruction handbook and the technical documentation describing the machine prepared by the manufacturer for the information of the potential users shall:
 - give the declared noise emission values of the machinery as follows:
 - the A-weighted sound pressure level at workstations, where this exceeds 70 dB. Should this sound pressure level not exceed 70 dB, this fact shall be indicated;
 - the A-weighted sound power level emitted by the machine, where the A-weighted emission sound pressure level at any workstation exceeds 80 dB.

5 Modification to Annex A

After 3.1, add the following text:

Nr	Hazard	Location or event	Clause/sub-clause of this document
4.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness), accidents due to interference with auditory warning signals and speech communication	Hearing damage due to the working machine	4.19

6 Addition of new Annex B

Add the new Annex B as follows:

Annex B (normative)

Noise test code – (engineering method grade 2)

B.1 Scope

This noise test code specifies all the information necessary for carrying out efficiently and under standardised conditions the noise emission values of self-propelled forestry machinery.

Noise emission characteristics include emission sound pressure levels at the operator's station and the sound power level. The determination of these quantities is necessary for:

- manufacturers to declare the noise emitted;
- comparing the noise emitted by machines in the family concerned;
- purposes of noise control at the source at the design stage.

The use of this noise test code ensures reproducibility of the determination of noise emission values within specified limits determined by the grade of accuracy of the basic noise standard for the determination of noise emission values used. Methods for the determination of these noise emission values according to this normative annex are engineering methods (Grade 2).

For low-noise design, noise emission values in frequency bands are useful and the basic European Standards EN ISO 3744 and EN ISO 11201 may be used for determining noise emission quantities in frequency bands.

B.2 Emission sound pressure level determination at the operator's station

B.2.1 Emission sound pressure levels shall be measured in accordance with EN ISO 11201.

B.2.2.1 The following emission sound pressure levels shall be determined at the operator's station:

- 'A'-weighted time-averaged sound pressure level.

B.2.2.2 The operator shall be present during the emission sound pressure level determination. The microphone shall be head-mounted 20,0 cm \pm 2 cm from the median plane of the head on the louder side and in line with the eyes. Standing operators shall be 1,75 m \pm 0,05 m tall, including shoes. Overall operator height when seated shall be 0,93 m \pm 0,05 m measured from the plane of the seat's cushion.

B.2.2.3 The operator shall be positioned in the driver's position as specified by the manufacturer in the operator's instruction handbook. The position shall be recorded, reported and declared.

B.3 A-weighted sound power level determination

B.3.1 The preferred method for determining sound power is that described in EN ISO 3744. EN ISO 9614-2:1996 with Grade 2 accuracy may also be used.

B.3.2 When using EN ISO 3744, ten microphones shall be used on a hemispherical surface (see EN ISO 3744:1995, Annex B).

Alternatively six microphones may be used providing that preliminary investigations have shown that the resulting sound power level value is within ± 1 dB of that determined with the array prescribed (according to EN ISO 3744:1995, 7.4.2).

In this case, the microphone positions shall be the following:

Table B.1 – Microphone positions

X/r	Y/r	Z
0,7	0,7	1,5 m
-0,7	0,7	1,5 m
-0,7	-0,7	1,5 m
0,7	-0,7	1,5 m
-0,27	0,65	0,71r
0,27	-0,65	0,71r

B.3.3 The hemisphere radius shall be at least twice the longest side of the reference parallelepiped, see EN ISO 3744: it shall be 4 m or 10 m or 16 m.

B.3.4 The value to be determined is the A-weighted sound power level over a specified work cycle of the machine.

B.3.5 The operator shall be present during the sound power level determination. The standing operator shall be $1,75 \text{ m} \pm 0,05 \text{ m}$ tall including shoes.

B.4 Installation and mounting conditions

B.4.1 The installation and mounting conditions as specified by the manufacturer in the instruction handbook shall be applied.

B.5 Operating conditions

B.5.1 The operating conditions shall be strictly the same for the determination of both sound power level and emission sound pressure level at specified conditions unless otherwise stated below.

B.5.2 Unless otherwise specified, all machines shall be stationary with the tools operating, unloaded, idling at the manufacturer's maximum rated engine speed. The machine shall be properly warmed up and stabilized at the normal operating temperature before testing starts.

Adjustments should be made to ensure that no tools cause additional noise through an unintentional mechanical contact.

B.5.3 In the case of machines with work cycles, the noise emission values shall be determined on a complete working cycle relevant to that machine. The manufacturer shall choose a work cycle and describe it in the test report and declare it in the noise declaration.