

# SLOVENSKI STANDARD

**SIST EN 61029-  
1:2000/A11:2004**

marec 2004

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## **Varnost prenosnih električnih orodij - 1. del: Splošne zahteve**

Safety of transportable motor-operated electric tools - Part 1: General requirements; Amendment A11

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**Safety of transportable motor-operated electric tools**  
**Part 1: General requirements**

Sécurité des machines-outils  
électriques semi-fixes  
Partie 1: Règles générales

Sicherheit transportabler  
motorbetriebener Elektrowerkzeuge  
Teil 1: Allgemeine Anforderungen

**iTeh STANDARD PREVIEW**

This amendment A11 modifies the European Standard EN 61029-1:2000; it was approved by CENELEC on 2002-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

[SIST EN 61029-1:2000/A11:2004](#)

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

This amendment to the European Standard EN 61029-1:2000 was prepared by the Technical Committee CENELEC TC 61F, Safety of hand-held and transportable motor-operated electric tools.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as A11 to EN 61029-1:2000 on 2002-10-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2003-12-01
  - latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 2005-10-01
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**Replace** the existing 13.2 by:

## **13.2 Noise**

### **13.2.1 Noise reduction**

Noise reduction at tools is an integral part of the design process and shall be achieved by particularly applying measures at source to control noise, see for example EN ISO 11688-1. The success of the applied noise reduction measures is assessed on the basis of the actual noise emission values in relation to other machines of the same family with comparable non acoustical technical data.

The major sound sources of tools are given in the relevant Part 2.

### **13.2.2 Noise emission measurement (general)**

Noise emission values like the emission sound pressure level  $L_{pA}$  and the sound power level  $L_{WA}$  to be quoted in the user instructions as required by 7.13 shall be measured by the test procedure described in 13.2.3 to 13.2.6.

The overall noise emitted is influenced by both the process noise and method of operation. The load conditions for particular tools are therefore specified in the relevant Part 2.

The noise emission values obtained under the measurement conditions described in this standard will not necessarily correspond to the diverse noise levels produced under the operational conditions of practical use.

**NOTE** It is not possible to simulate all conditions of practical use. A statement of process noise could therefore

- be misleading and cause faulty assessment of the risk in individual cases,
- discourage the development of more silent machines,
- lead to low repeatability of measurements and thus cause problems when verifying stated noise values,
- make the comparison of the noise emission from different tools difficult.

### **13.2.3 Instrumentation and preparation of test samples**

The instrumentation for the measurement of acoustic values shall be in accordance with EN ISO 3744.

Sound level meters shall comply with the requirements of IEC 60651 Type 1 and shall be used with frequency weighting "A" and response level "S".

Measurements shall be carried out on a new tool, additional to that required by other tests.

All speed setting devices shall be adjusted to the highest figure.

Tools shall be run-in for a period of 5 min before starting test. The supply voltage of mains powered tools is measured at the plug of the cable or cord supplied, not at the plug of any extension cable or cord.

### **13.2.4 Operating conditions**

Tools are tested under the two operating conditions "no load" and "load".

The measurement under "load" shall be carried out during processing of a work piece or under external mechanical load equivalent to normal operation.

If the tool is intended to be used on a bench then it shall be in accordance with the test bench shown in Figure 12.

If the tool is intended to be used with a bench or stand recommended by the manufacturer then it is tested with that bench or stand.

Care shall be taken that the location of the work piece on its support does not adversely affect the result of the test.

Three consecutive tests for no-load or five for load shall be carried out and the resulting sound power level  $L_{WA}$  of the test shall be the arithmetic mean, rounded to the nearest decibel, of the three or five tests.

Measurement time shall be 15 s or at least 1 work cycle as defined in the relevant Part 2.

### 13.2.5 Sound power level determination

The determination of the sound power level shall be carried out according to EN ISO 3744, thus requiring an essentially free field over a reflecting plane as measurement environment.

The microphone positions shall be located in the centre of each lateral surface and the top surface of the measurement cubic surface which envelops the source. For the exact location of the 5 microphone positions and the dimensions of the cubic measurement surface see Figure 13. The machine to be tested shall be so positioned, either placed on the test bench (Figure 12) or with the accompanying bench, that its centre of gravity lies on the line given by the projection of the upper measurement point 5 on the ground floor. The machine shall be so orientated that its front edge is parallel to one of the horizontal side edges of the measurement cube. Any shielding of microphones by the presence of an operator must be avoided.

Measurements are only valid if the difference between the background noise and the tool under test is > 15 dB.

The surface sound pressure level,  $\bar{L}_{pAf,1m}$ , shall be calculated in accordance with the following equation:

$$\bar{L}_{pAf,1m} = 10 \lg \left[ \frac{1}{5} \sum_{i=1}^5 10^{0,1 L'_{pAi}} \right] - K_{1A} - K_{2A}$$

where

$\bar{L}_{pAf,1m}$  is the A-weighted 1 meter surface sound pressure level, in decibels with respect to 20  $\mu$ Pa

$L'_{pAi}$  is the A-weighted sound pressure level, recorded at the  $i^{\text{th}}$  microphone position, in decibels with respect to 20  $\mu$ Pa

$K_{1A}$  is the A-weighted background noise correction

NOTE 1 If the difference between the background noise and the tool noise under test is > 15 dB the background noise correction is negligible.

$K_{2A}$  is the A-weighted environmental correction

NOTE 2 The A-weighted environmental correction can be neglected if it is less than or equal to 0,5 dB.

The sound power level,  $L_{WA}$  shall be calculated in accordance with the following equation:

$$L_{WA} = \bar{L}_{pAf,1m} + 10 \lg S/S_0$$

where

$L_{WA}$  is the A-weighted sound power level, in decibels with respect to 1 pW

$S_0 = 1 \text{ m}^2$

$S$  = area of the measurement surface according to Figure 13

The area  $S$  of the measurement surface according to Figure 13 is given by the formula

$$S = 5 \times (2 \text{ m} \times 2 \text{ m}) = 20 \text{ m}^2$$

### 13.2.6 Emission sound pressure level determination

The emission sound pressure level shall be determined according to EN ISO 11201. It shall be determined under the same operating conditions as for the determination of the sound power level.

For machines measured under load and run by an operator the microphone shall be located  $0,20 \text{ m} \pm 0,02 \text{ m}$  to the side of the centre plane of the operator's head, on a line with the eyes, with its axis parallel to the operator's line of vision, and on that side where the higher value of the A-weighted sound pressure level,  $L_{pA}$  is observed.

For machines measured under no load condition and without the operator being present the microphone shall be located at a reference point on the ground plane on which the operator normally stands. If not specified in the machine relevant Part 2 documents this reference point is located 1 m from the centre of the machine on the side where the operator normally stands. The microphone shall be located directly above the reference point at a specified height in the range of  $1,55 \text{ m} \pm 0,075 \text{ m}$ .

$L_{pCpeak}$  shall be determined at the operator's position if required according to A.1.7.4f of EN 292-2.

### 13.2.7 Declaration and verification of noise emission values

The declaration of the noise emission values shall be made as a dual number noise emission declaration according to EN ISO 4871.

It shall declare the noise emission values  $L$  (e.g.  $L_{pA}$ ,  $L_{WA}$  respectively  $L_{pCpeak}$ ) and the respective uncertainties  $K$  ( $K_{pA}$ ,  $K_{WA}$  respectively  $K_{pCpeak}$ ) according to A.1.7.4f of EN 292-2 and this standard.

The uncertainties  $K_{pA}$ ,  $K_{WA}$  and  $K_{pCpeak}$  are expected to be equal to 3 dB.

The noise declaration shall state that the noise emission values have been obtained according to this noise test code. If this statement is not true, the noise declaration shall indicate clearly what the deviations are from this noise test code and/or from the basic standards.

If undertaken, verification shall be done according to EN ISO 4871 by using the same mounting, installation and operating conditions as those used for the initial determination of noise emission values.

**7.13 Add:**

## f) Emissions

- 1) a noise emission declaration according to A.1.7.4f of EN 292-2 (determined in accordance with 13.2.7);
- 2) the vibration level, if applicable, according to A.2.2 of EN 292-2 (measured in accordance with 13.3);
- 3) a recommendation for the operator to wear hearing protection.

**Figure 13**

**Delete** the tool axis and **add** a small circle for the measurement point 5.

**Annex A**

**Add** the following normative references:

EN ISO 4871	1996	Acoustics - Declaration and verification of noise emission values of machinery and equipment
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

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