



SLOVENSKI STANDARD
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Električna ročna orodja - Varnost - 1. del: Splošne zahteve

Hand-held motor-operated electric tools - Safety - Part 1: General requirements

Handgeführte motorbetriebene Elektrowerkzeuge - Sicherheit - Teil 1: Allgemeine Anforderungen -

Outils électroportatifs à moteur - Sécurité - Partie 1: Règles générales

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ICS

English version

**Hand-held motor-operated electric tools -
Safety -
Part 1: General requirements**

Outils électroportatifs à moteur -
Sécurité -
Partie 1: Règles générales

Handgeführte motorbetriebene
Elektrowerkzeuge -
Sicherheit -
Teil 1: Allgemeine Anforderungen -

This draft amendment prAB, if approved, will modify the European Standard EN 60745-1:2009; it is submitted to CENELEC members for CENELEC enquiry.
Deadline for CENELEC: 2013-05-10.

It has been drawn up by CLC/TC 116.

If this draft becomes an amendment, 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.

This draft amendment was established by CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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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.

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CENELEC

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

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Foreword

2 This document [EN 60745-1:2009/prAB:2012] has been prepared by CLC/TC 116 "Safety of motor-
3 operated electric tools".

4 This document is currently submitted to the Enquiry.

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

7 This amendment was developed to set out general requirements for a measurement procedure for
8 dust, i.e. for those tools where silica dust is expected.

9 Clauses, subclauses, notes, tables and figures which are additional to those in IEC 60745-1:2006 are
10 prefixed "Z".

11 **Text of prAB to EN 60745-1:2009**

12 **1 Scope**

13 *Add the following to the end of the 5th paragraph:*

14 Specifications for the measurement of the concentration for inhalable and respirable dust emitted by
15 hand-held electric tools are given in Annex ZC.

16 **Annexes**

17 *Add the following new Annex:*

18 **Annex ZC**
19 **(normative)**

20
21

Dust measurement

22 **ZC.1 Scope**

23 If the manufacturer gives information on the tool's dust emission, the requirements of Annex ZC apply.

24 The test results may be used for an initial risk assessment at the workplace and to help determine any
25 necessary personal protective equipment (PPE).

26 **ZC.2 Normative references**

27 EN 481, *Workplace atmospheres – Size fraction definitions for measurement of airborne particles*

28 EN 1093-9, *Safety of machinery – Evaluation of the emission of airborne hazardous substances –*
29 *Part 9: Pollutant concentration parameter, room method*

30 EN 13205, *Workplace atmospheres – Assessment of performance of instruments for measurement of*
31 *airborne particle concentrations*

32 **ZC.3 Terms and definitions**

33 **ZC.3.1**

34 **dust**

35 distribution of solid materials in gases, generated by mechanical processes

36 **ZC.3.2**

37 **inhalable dust**

38 dust fraction which can be taken up over the respiratory system in accordance with EN 481

39 **ZC.3.3**

40 **respirable dust**

41 dust fraction which can reach the alveoli and bronchia in accordance with EN 481

42 ZC.3.4**43 dust sampler**

44 device for collecting the respirable and inhalable dust portion by aspirating a measured amount of
45 dust-laden air and deposition of the dust on an integrated filter

46 ZC.3.5**47 dust extraction unit**

48 suction device, connected to the dust/chip outlet of the tool or a dust capturing attachment, for
49 collecting dust emitted from the tool during working, being either an external one (such as vacuum
50 cleaner) or an integral one

51 ZC.3.6**52 quartz**

53 mineral derived from crystalline silica

54 ZC.3.7**55 maximum air flow rate**

56 maximum air flow rate, delivered by the dust extraction unit, including the specified hose, no tool
57 attached

58 ZC.3.8**59 maximum vacuum**

60 maximum vacuum level, delivered by the dust extraction unit, including the specified hose with end of
61 hose blocked and no bypass

62 ZC.4 Test procedure**63 ZC.4.1 General**

64 Tests are performed under working conditions, including appropriate rest periods, in the test room
65 specified in EN 1093-9 and measurements of dust emission are made in accordance with that
66 standard.

67 The inhalable dust shall be measured and analysed. For tools intended to be used with materials likely
68 to contain quartz, also the respirable dust shall be measured and analysed.

69 The operator shall be skilled and able to operate the machine properly, i.e. the operator shall be
70 experienced in the use of the tool.

71 ZC.4.2 Test room and equipment

72 The tests are carried out in a test room which fulfils the following criteria:

- 73 – no other sources of fixed air-polluting material in the room;
- 74 – no room ventilation during the dust measurement;
- 75 – size of the room $200 \text{ m}^3 \pm 10 \%$ with a height between 3,0 m and 4,5 m;
- 76 – large enough to ensure a distance between the tool and the walls of at least 2,0 m.

77 NOTE A smaller distance may lead to higher values of measured dust concentration.

78 During the test, (a) dust sampler(s) is (are) carried by the operator on the upper chest zone. For the
79 respirable dust, one sampler shall be used on each side of the upper chest zone. If the tests are done
80 by robotic means, the dust sampler(s) shall be placed at a place to replicate the upper chest zone of
81 an operator. The dust sampler(s) shall remain working throughout the entire time of each test as
82 defined in ZC.4.3.

83 The dust sampler(s) shall comply with EN 13205 and shall be suitable for the determination of the
84 concentration of inhalable and, if required, for respirable dust, as specified in EN 481.

85 The test room and the equipment shall be cleaned before each test, so that there is no influence to the
86 test result from previous tests.

87 **ZC.4.3 Operating conditions**

88 For tools to be used in combination with an external dust extraction unit, the tool is connected to the
89 dust extraction unit as specified by the manufacturer in accordance with Z.6.

90 Every test consists of five test cycles of 10 min working time and 2 min rest time each. During each
91 test, a given task shall be achieved as specified in the relevant Part 2.

92 The dust extraction unit shall be maintained and operated as specified by the manufacturer's
93 instruction manual, and it shall be placed in the test room. If necessary, any emptying shall be done
94 during a rest period of a test cycle and outside the test room.

95 – Emptying of a separate dust extraction unit shall be done at the earliest after three test cycles.

96 – Integrated dust extraction units may be emptied in shorter intervals. If necessary the test may be
97 split into ten test cycles of 5 min working time and 1 min rest time. The dust container shall be
98 changed inside of the test room.

99 The dust extraction unit shall be weighted before starting working and before each emptying to
100 determine the amount of dust collected during the measuring period.

101 The tool shall be operated under working conditions. The material used for the test shall be
102 appropriate for the intended use of the tool. The tool bit/cutter/abrasive etc. to be used shall be as
103 specified by the manufacturer for the material to be worked.

104 Tests shall be carried out at rated voltage and frequency and at maximum speed setting, if any.

105 The tool and the workpiece shall be placed such that the distance between the tool and the
106 walls/ceiling is at least 2,0 m.

107 Three tests shall be carried out. The result shall be one concentration value for each test and dust
108 type. For the respirable dust the mean value of the two samplers at the person shall be taken. Each
109 test shall be of sufficient duration to achieve a reasonably low detection limit with the dust sampler
110 type used. The dust samplers shall operate during the entire time needed for each of the three tests.

111 **ZC.5 Test report**

112 The test report shall include at least the following data:

113 a) details of the tool tested (i.e. manufacturer, model, type, etc.);

114 b) information about attachments or accessories used (such as type, manufacturer);

115 c) information about the material used for the test (such as type, manufacturer, composition);

116 d) operating and testing conditions (voltage, speed setting, etc.);

117 e) description of the dust extraction unit (e.g. type, hose data, operating data and air volume flow
118 rate);

119 f) description of the test room, its dimensions and positions of the tool and the dust sampler(s)
120 during the test;

121 g) list and information of the measuring instruments used (such as type, manufacturer, measuring
122 procedure, detection limit of dust sampler systems);

123 h) environmental data (temperature, humidity);

- 124 i) for all tests and every operating condition required by the relevant Part 2: calculated dust
125 concentrations in mg/m^3 for all samplers;
- 126 j) for every operating condition required by the relevant Part 2: mean value in mg/m^3 , calculated
127 from all dust samplers for the same dust fraction and all three tests for the concentration of the
128 inhalable and, if required, of the respirable dust;
- 129 k) measuring institution (e.g. laboratory, manufacturer);
- 130 l) date of measurement and name of the person responsible for the test;
- 131 m) additional remarks, if necessary;
- 132 n) information about the performance of the tool, as specified in the relevant Part 2.

133 **ZC.6 Additional instructions**

134 The instructions shall include the following:

- 135 – mean value for the dust concentration of the inhalable and, if required, for the respirable dust,
136 in mg/m^3 ;
- 137 – information about the performance of the tool, as specified in the relevant Part 2;
- 138 – information that the dust concentration has been measured in accordance with this standard and
139 may be used in a preliminary assessment of exposure;
- 140 – warning that the dust concentration during actual use of the power tool can differ from the declared
141 dust concentration value depending on the use of the tool and the condition at the workplace;
- 142 – information that the mean value of the respirable dust can be used to calculate the quartz
143 concentration from the percentage of quartz in the basic material;
- 144 – for tools to be used in combination with an external dust extraction unit:
- 145 – either the type of dust extraction unit along with instructions how to maintain the dust
146 extraction efficiency, if needed;
- 147 or
- 148 – the minimum specifications of the dust extraction unit needed to ensure the dust extraction
149 efficiency, such as maximum air flow rate and maximum vacuum;
- 150 – for tools with integral dust extraction: instructions how to maintain the dust extraction efficiency,
151 if needed.