



SLOVENSKI STANDARD

SIST EN 50144-2-6:1999

01-julij-1999

Nadomešča:
SIST HD 400.2F S1:1995

Safety of hand-held electric motor operated tools - Part 2-6: Particular requirements for hammers

Safety of hand-held electric motor operated tools -- Part 2-6: Particular requirements for hammers

Sicherheit handgeführter motorbetriebener Elektrowerkzeuge -- Teil 2-6: Besondere Anforderungen an Hämmer

Sécurité des outils électroportatifs à moteur -- Partie 2-6: Règles particulières pour les marteaux

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ICS:

25.140.20 Električna orodja Electric tools

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50144-2-6

February 1996

ICS 25.140.20; 25.120.10

Supersedes HD 400.2F S1:1980 and its amendment

Descriptors: Hand-held electric motor operated tools, hammers, safety requirements, protection against electric shocks, fire protection, protection against mechanical hazards

English version

Safety of hand-held electric motor operated tools Part 2-6: Particular requirements for hammers

Sécurité des outils électroportatifs
à moteur
Partie 2-6: Règles particulières
pour les marteaux

Sicherheit von handgeführten
motorbetriebenen Elektrowerkzeugen
Teil 2-6: Besondere Anforderungen
für Hämmer

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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 European Standard 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 European Standard has been prepared by the Technical Committee 61F, Hand-held and transportable electric motor operated tools.

The text of the draft was submitted to the Unique Acceptance Procedure (UAP) in December 1993 and was approved by CENELEC as EN 50144-2-6 on 1994-10-04.

A draft for an amendment was submitted to the Unique Acceptance Procedure in April 1994 and was approved by CENELEC on 1994-10-04 for inclusion into the European Standard.

This European Standard replaces HD 400.2F S1:1980 + A1:1994.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1996-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1996-12-01

As far as certification is concerned, CENELEC Memorandum 6 applies.

This standard is divided into two parts:

Part 1: General Requirements, comprising clauses of a general character.

Part 2: Particular Requirements, dealing with particular types of appliances. The clauses of these particular requirements supplement or modify the corresponding clauses in Part 1. Where the text of Part 2 indicates an "addition" to, a "modification" or "replacement" of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of the standard. Where no change is necessary, the words "This clause of Part 1 is applicable" are used in Part 2.

Subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 101.

NOTE - In this standard the following print types are used:

- Requirements proper: in roman type;
- *Test specification: in italic type;*
- Explanatory matter: in smaller roman type.

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1 Scope

This clause of Part 1 is applicable except as follows:

1.1 Addition:

This standard applies to hammers including rotary hammers.

2 Definitions

This clause of Part 1 is applicable except as follows:

2.2 Replacement:

18 normal load: The load obtained when the hammer, mounted in an apparatus as shown in figure 101, is operated intermittently, each cycle comprising a period of operation of 30 s and a rest period of 90 s with the hammer switched off, an axial force just sufficient to ensure steady operation of the hammer mechanism being applied to the hammer through a resilient medium.

3 General requirements

This clause of Part 1 is applicable.

4 General conditions for the tests

This clause of Part 1 is applicable.

5 Rating

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable.

7 Marking

This clause of Part 1 is applicable except as follows:

7.13.1 Addition:

If the hammer is fitted with a device which allows the connection of external dust collection equipment, information shall be given in the instruction sheet as to how to connect such a device.

8 Protection against electric shock

This clause of Part 1 is applicable.

9 Starting

This clause of Part 1 is applicable.

10 Input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows:

11.2 Addition:

If it is not possible to attain rated input when operating the hammer as specified for normal load, the hammer is loaded by means of a brake adjusted so as to attain rated input, the hammer mechanism being not engaged or removed.

11.6 Addition:

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The temperature rise limit specified for the external enclosure does not apply to the hammer mechanism

12 Leakage current

This clause of Part 1 is applicable.

13 Environmental requirements

This clause of Part 1 is applicable except as follows:

13.1 Addition:

If rotary hammers are fitted with integral collection devices or devices which allow the connection of external collection equipment, the tests under working conditions shall be in accordance with the following:

Material	Concrete block 800 mm x 500 mm x 200 mm
Feed-speed	Just sufficient force to ensure steady working
Depth of cut	80% of usable drill bit length or 180 mm, whichever is the shorter
Width of cut-off	Not applicable

Tool bit/cutter/abrasive Type as specified by the manufacturer which is as close as possible to table 101:

Table 101 - Drill bit size

Tool mass kg	Up to 3,5	Over 3,5 up to 5	Over 5 up to 7	Over 7 up to 10	Over 10 up to 18	Over 18
Drill diameter mm	10	16	20	25	32	40
Usable drill length mm	100	100	200	200	250	250

A new or sharpened drill to be used at the start of the test period.

Integral collection (if any) Emptied as required during a pause in the test cycle

Orientation Drilling in a horizontal direction across the cabin with the airflow from left to right of the tool.
Holes drilled to be within 90 cm to 150 cm of the floor

Test cycle 1 hole every 4 min

Test period 60 min total
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13.2 Addition:

Test requirements for hammers without rotary action are not covered by this standard.

NOTE - In EU countries test requirements are given in Directive 84/537/EEC.

13.2.2 Replacement of paragraph 2 :

For hammers with rotary action the speed setting shall be that recommended by the manufacturer for the drill bit size defined for the test for drilling into concrete.

13.2.3 Replacement of paragraphs 1, 2 and 3 :

Rotary hammers are tested under load as shown in figure 102 and in accordance with the conditions shown in tables 102, 103 and 104.

Table 102 - Test conditions for rotary hammers

Orientation	Drilling vertically downwards into a concrete block having the formulation specified in table 103, the dimensions 500 mm x 500 mm x 200 mm and supported on resilient material
Tool bit	Drill bit as recommended by the manufacturer for drilling in concrete and of the size defined in table 104
Feed force	1,5 times the mass of the tool but not less than 80 N
Test cycle	Measurement starts when the drill has reached a depth equal to its diameter and stops when the depth has reached 80% of its usable length or 180 mm, whichever is the shorter

Table 103 - Concrete formulation (per cubic metre)

Cement	Water	Aggregate	
330 kg	99 kg	1844 kg	
		Particle size	Fraction (%)
		0 to 2 mm	38 ± 3
		0 to 8 mm	50 ± 5
		0 to 16 mm	80 ± 5
		0 to 32 mm	100
Compressive strength after 28 days to be 40 N/mm ²			

Table 104 - Drill bit size for rotary hammer test

Mass of hammer kg	Up to 3,5	Over 3,5 up to 5	Over 5 up to 7	Over 7 up to 10	Over 10 up to 18	Over 18
Nominal diameter of drill bit mm	10	16	20	25	32	40
Usable length of drill bit mm	100	100	200	200	250	250

13.3.4 Replacement of paragraph 2:

For hammers without rotary action all speed setting devices shall be adjusted to the highest value. For hammers with rotary action the speed setting shall be that recommended by the manufacturer for the drill bit size defined for the test for drilling into concrete.