SLOVENSKI STANDARD
SIST EN 60745-2-2:2010

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Nadomešča:

SIST EN 60745-2-2:2003

SIST EN 60745-2-2:2003/A1:2009

SIST EN 60745-2-2:2003/A11:2007

SIST EN 60745-2-2:2003/A12:2010

Električna ročna orodja - Varnost - 2-2. del: Posebne zahteve za vijačnike in udarne vijačnike (IEC 60745-2-2:2003, spremenjen + A1:2008)

Hand-held motor-operated electric tools - Safety - Part 2-2: Particular requirements for screwdrivers and impact wrenches (IEC 60745-2-2:2003, modified + A1:2008)

Handgeführte motorbetriebene Elektrowerkzeuge - Sicherheit - Teil 2-2: Besondere Anforderungen für Schrauber und Schlagschrauber (IEC 60745-2-2:2003, modifiziert + A1:2008)

Outils électroportatifs à moteur - Sécurité - Partie 2-2: Règles particulières pour les visseuses et les clés à chocs (CEI 60745-2-2:2003, modifiée + A1:2008)

Ta slovenski standard je istoveten z: **EN 60745-2-2:2010**

ICS:

25.140.20	Električna orodja	Electric tools

SIST EN 60745-2-2:2010 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60745-2-2

March 2010

ICS 25.140.20; 25.140.30

Supersedes EN 60745-2-2:2003 + A1:2009 + A11:2007 + A12:2009

English version

Hand-held motor-operated electric tools - Safety - Part 2-2: Particular requirements for screwdrivers and impact wrenches

(IEC 60745-2-2:2003, modified + A1:2008)

Outils électroportatifs à moteur - Sécurité - Partie 2-2: Règles particulières pour les visseuses et les clés à chocs (CEI 60745-2-2:2003, modifiée + A1:2008)

Handgeführte motorbetriebene Elektrowerkzeuge - Sicherheit - Teil 2-2: Besondere Anforderungen für Schrauber und Schlagschrauber (IEC 60745-2-2:2003, modifiziert + A1:2008)

This European Standard was approved by CENELEC on 2010-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of the International Standard IEC 60745-2-2:2003, prepared by SC 61F (transformed into IEC TC 116, Safety of hand-held motor-operated electric tools), together with the common modifications prepared by the Technical Committee CENELEC TC 61F (transformed into TC 116) was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60745-2-2 on 2002-12-01.

A number of amendments to EN 60745-2-2 have since been voted on and published as amendments A11, A1 and A12.

A further draft amendment (FprAD) including improvements to the vibration test code was submitted to the Unique Acceptance Procedure.

The combined texts were approved by CENELEC as a new edition of EN 60745-2-2 on 2010-02-01.

This European Standard supersedes EN 60745-2-2:2003 + A11:2007 + A1:2009 + A12:2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2011-02-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-02-01

This standard is divided into two parts:

Part 1: General requirements which are common to most hand-held electric motor-operated tools (for the purpose of this standard referred to simply as tools) which could come within the scope of this standard;

Part 2: Requirements for particular types of tools which either supplement or modify the requirements given in Part 1 to account for the particular hazards and characteristics of these specific tools.

This European Standard has been prepared under a mandate given to CEN and CENELEC by the European Commission and the European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive 2006/42/EC. See Annex ZZ.

Compliance with the clauses of Part 1 together with this Part 2 provides one means of conforming with the essential health and safety requirements of the Directives concerned.

CEN/TC 255 is producing standards for non-electric screwdrivers and impact wrenches (EN 792-6).

Warning: Other requirements and other EC Directives can be applicable to the products falling within the scope of this standard.

The standard follows the overall requirements of EN ISO 12100-1 and EN ISO 12100-2.

This Part 2-2 is to be used in conjunction with EN 60745-1:2009. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

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

Annexes, subclauses, tables and figures which are additional to those in IEC 60745-2-2 are prefixed “Z”.

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

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

Endorsement notice

The text of the International Standard IEC 60745-2-2:2003 + A1:2008 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

2 Normative references

Replace the text by:

This clause of Part 1 is applicable, except as follows :

Additional normative reference:

EN ISO 28927-2:200X [1], *Hand-held portable power tools – Test methods for evaluation of vibration emission – Part 2: Wrenches, nut runners and screwdrivers* (ISO 28927-2:200X [1])

6 Void

Replace by:

6 Environmental requirements

This clause of Part 1 is applicable except as follows:

6.1.2.4 *Modification:*

Screwdrivers are suspended. The bit holder shall be horizontal.

Impact wrenches are held and used as specified in 6.1.2.5.

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[1] At draft stage.

6.1.2.5 *Modification:*

Screwdrivers are tested at no-load.

Impact wrenches are tested under load. The load is applied by means of a brake system, so that the socket driving the brake rotates at a test speed of (45 ± 5) min^{-1} and the impact mechanism is caused to operate continuously. The brake as shown in Figure Z101 is supported on a resilient material and mounted on a bench such that the geometric centre of the tool is 1 m above the reflecting plane. The details of the brake system are given in EN ISO 28927-2:200X, Annex C.

To prevent chattering noise from items 2, 3 and 5 of the brake shown in EN ISO 28927-2:200X, Figures C.1 and C.2, these parts may be insulated between each other by material such as rubber.

The feed force shall be just sufficient to obtain a stable operation.

The measurement time shall be approximately 10 s.

6.2 Vibration

6.2.4.2 Location of measurement

Addition:

Figures Z102 and Z103 show the positions for different screwdrivers and impact wrenches

6.2.6.3 Operating conditions

Modification:

Table Z101 — Operating conditions for screwdrivers without impact mechanism

Orientation	Screwdrivers are tested at no-load. The screwdriver is hold horizontally during the test.
Tool bit	Tool bit of medium length and size.
Grip force	Hold the machine with normal gripping force, avoiding excessive gripping force.
Test cycle	One test cycle is given when the tool is switched on for no load at max. speed for more than 10 s and then switched off again. The measurement is conducted during 10 s within this period.

NOTE As it is difficult to measure load applications of screwdrivers in laboratories and results have shown that the load has no influence on the vibration results, the measurements are conducted with no-load only.

Table Z102 — Operating conditions for screwdrivers with impact mechanism and impact wrenches

Orientation	The tools are tested under load. Either a hexagon head bolt is screwed into a nut or a hexagon nut is screwed onto a bolt using a steel plate as part of a test fixture according to Figure Z104. The test fixture shall be either mounted on the floor or on a concrete block at least the size of the test fixture with a minimum thickness of 200 mm. NOTE Figure Z104 shows an example for mounting the test fixture. The bolts or nuts are of the biggest capacities of the tool under test. The screw case is a hard joint with one steel washer under the head. The initial setting of the bolt or nut shall provide 10 mm of exposed length from the steel plate to provide the run up. The test fixture shall not turn or move during the test. The steel plate shall be long enough to accept 5 fixings with a clearance between each fixing of at least the dimension of the head of the bolt or nut or a dimension distance which does not cause interference with the adjacent fixing.
Tool bit	Hex head sockets of the size and depth needed for the bolts or nuts defined above.
Feed force	Provide sufficient grip and feed force to maintain safe control. Avoid excessive grip and feed force.
Test cycle	The test cycle will be one fixing for the specified bolt or nut for a period of run down and 5 s from first impact (one test series contains five cycles). The measurement starts from switch on of the tool with the socket / bit engaged with the bolts or nuts to the end of 5 s of impact with continuous operation. This includes the time to cover run up of 10 mm.

6.2.7.2 Declaration of the vibration total value

Addition:

The vibration total value a_h of the handle with the highest emission and the uncertainty K shall be declared and:

- for screwdrivers usable without impact
  the work mode description “screw driving without impact”;

- for screwdrivers with impact mechanism and impact wrenches
  the work mode description “impact tightening of fasteners of the maximum capacity of the tool”.

21 Construction

Replace by:

This clause of Part 1 is applicable except as follows:

21.Z1 This subclause of Part 1 is not applicable.

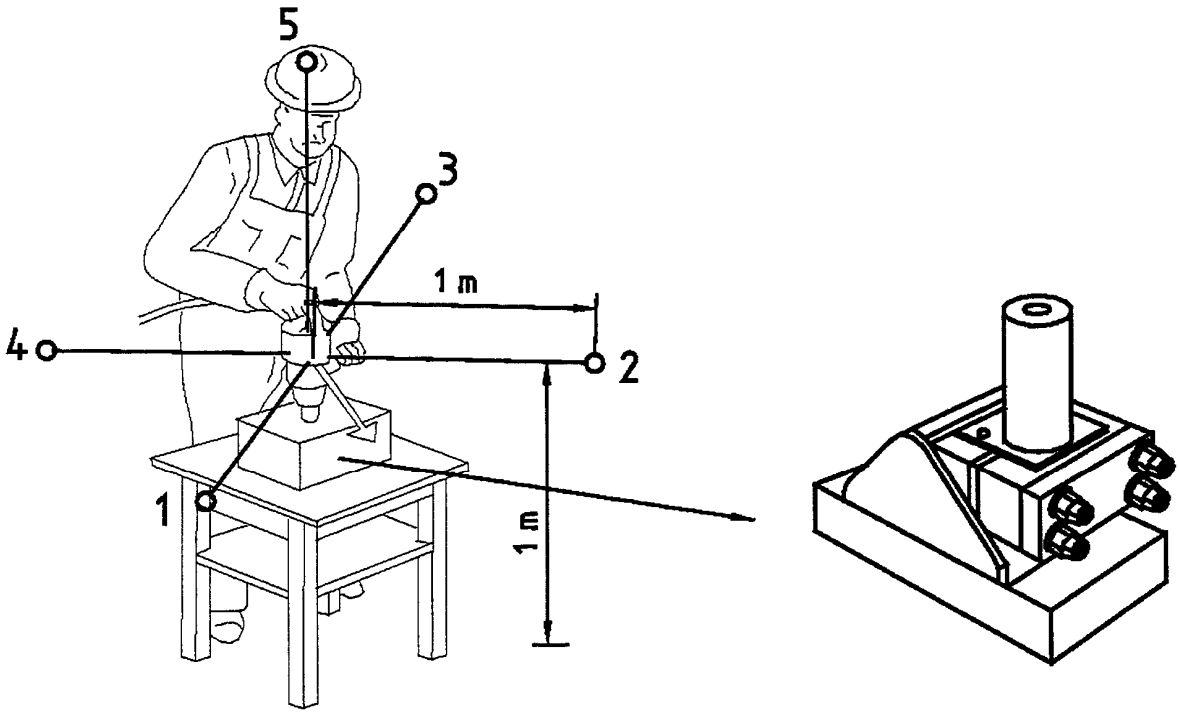


Figure Z101 – Brake

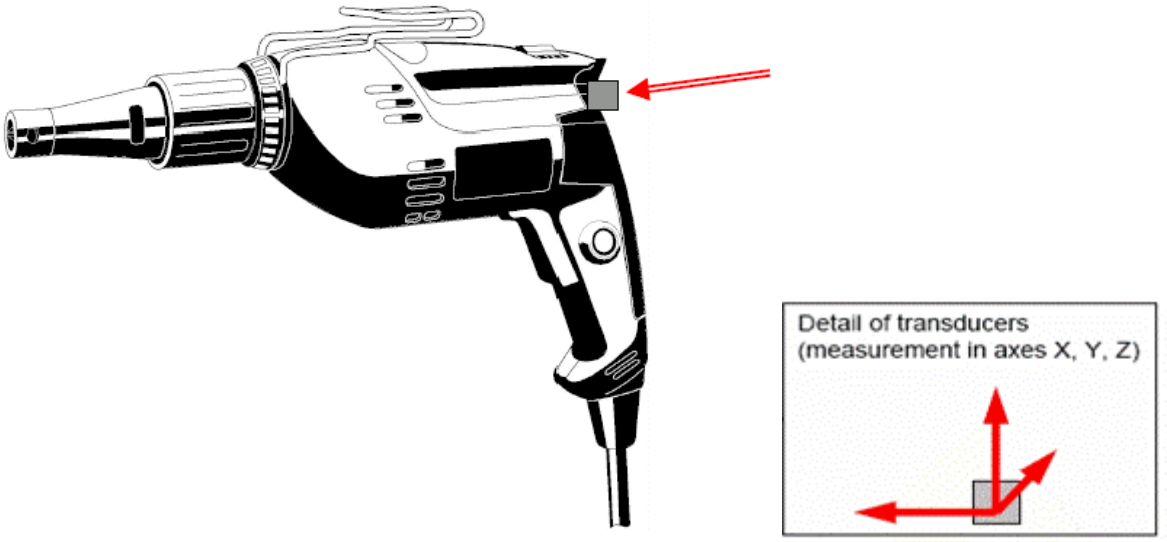


Figure Z102 – Position of transducer for screwdrivers

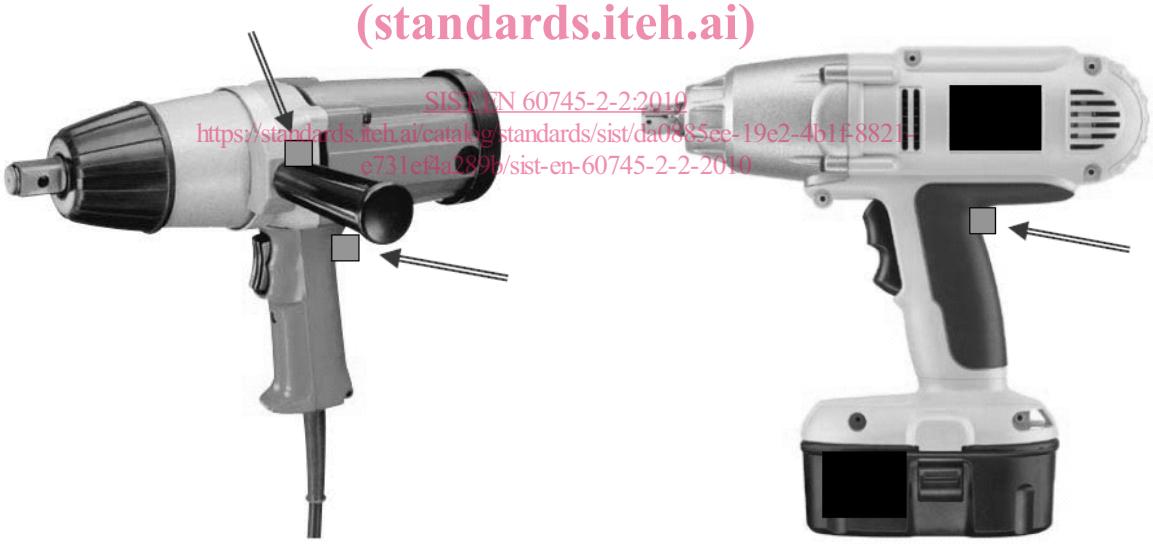
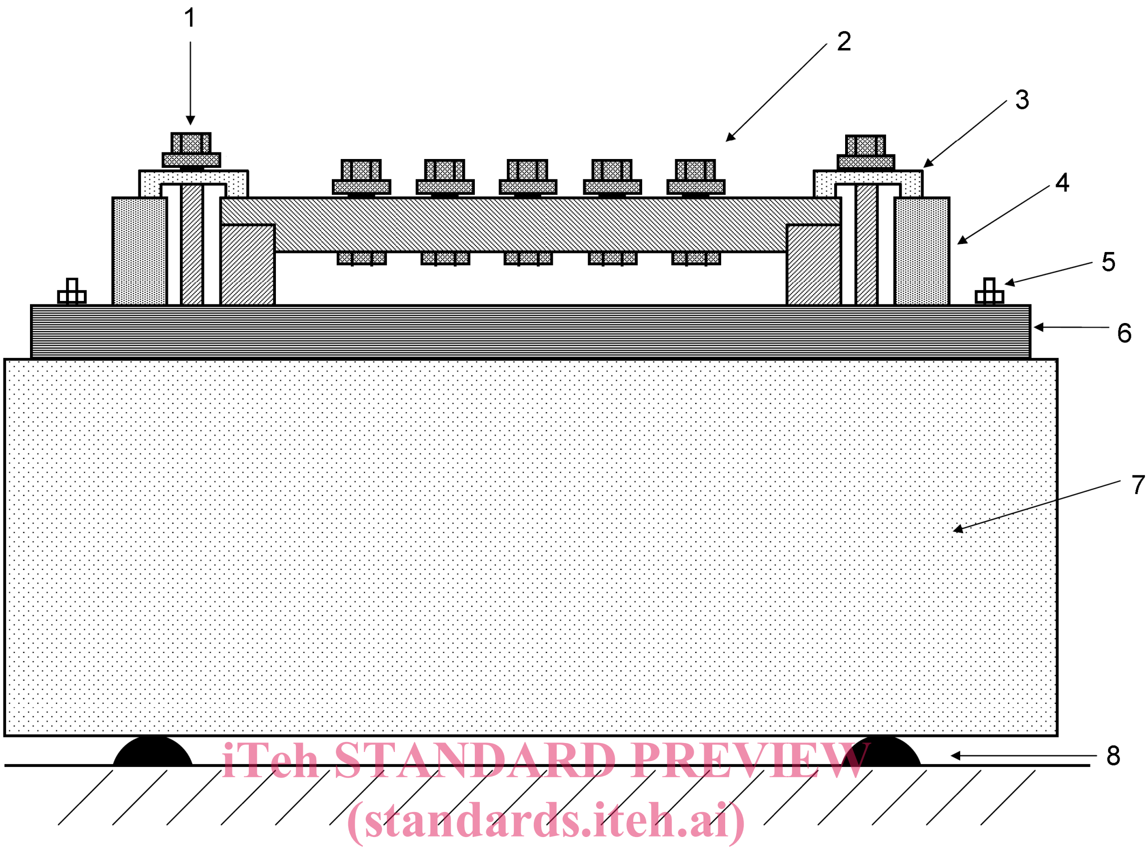


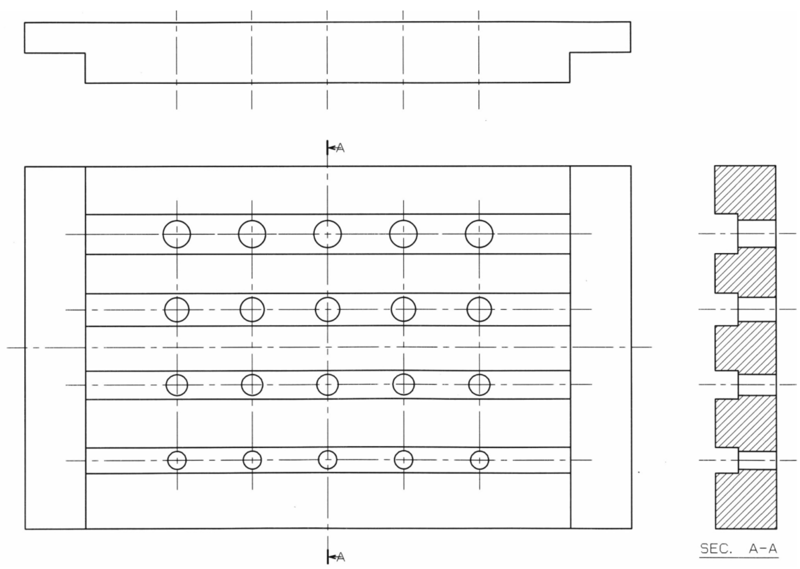
Figure Z103 – Positions of transducers for impact wrenches



Key

1. bolt
2. loading device (bolts or nuts, washers, steel plate)
3. steel block (clamp)
4. steel block (support)
5. anchor
6. steel plate
7. concrete block or floor
8. resilient material (in the case a block is used)

a) Typical example of the test fixture



b) Loading device steel plate

Figure Z104 – Test fixture options for screwdrivers with impact mechanism and impact wrenches

Annex ZZ
(informative)

Coverage of Essential Requirements of Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant Essential Requirements as given in EC Directive 2006/42/EC (Machinery Directive).

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.