BS EN IEC 62841-4-5:2021+A11:2021
Incorporating corrigendum January 2024

BSI Standards Publication

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery — Safety

Part 4-5: Particular requirements for grass shears

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Full document details: BS EN IEC 62841-4-5:2021+A11:2021

National foreword

This British Standard is the UK implementation of EN IEC 62841-4-5:2021. It is identical to IEC 62841-4-5:2021, incorporating corrigendum January 2024.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by [A11] ⟨A11⟩.

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The UK participation in its preparation was entrusted to Technical Committee CPL/116, Safety of motor-operated electric tools.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Date	Text affected
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62841-4-5:2021 +AC:2024-01

January 2024

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English Version

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 4-5: Particular requirements for grass shears (IEC 62841-4-5:2021)

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses - Sécurité - Partie 4-5: Exigences particulières pour les cisailles à gazon (IEC 62841-4-5:2021)

Elektrische motorbetriebene handgeführte Werkzeuge, transportable Werkzeuge und Rasen- und Gartenmaschinen - Sicherheit - Teil 4-5: Besondere Anforderungen für Grasscheren (IEC 62841-4-5:2021)

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Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 116/495/FDIS, future edition 1 of IEC 62841-4-5, prepared by IEC/TC 116 "Safety of motor-operated electric tools" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62841-4-5:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-06-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-09-28

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For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of EN IEC 62841-4-5:2021/A11:2021.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62841-4-5:2021 was approved by CENELEC as a European Standard without any modification.

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European foreword to amendment A11

This document (EN IEC 62841-4-5:2021/A11:2021) has been prepared by CLC/TC 116 “Safety and environmental aspects of motor-operated electric tools”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2022-06-07
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This series is divided into four parts.

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

Part 2, 3 or 4: 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.

The Part 4-5 is to be used in conjunction with EN 62841-1:2015 and its amendments.

The Part 4-5 supplements or modifies the corresponding clauses in EN 62841-1:2015, so as to convert it into the European Standard: Particular requirements for grass shears.

Where a particular subclause of Part 1 is not mentioned in the Part 4-5, that subclause applies as far as relevant. When this document states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

— requirements; in roman type;

— *test specifications: in italic type*;

— notes: in smaller roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

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

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62841-4-5:20XX are prefixed “Z”.

This document follows the overall requirements of EN ISO 12100.

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

Compliance with the clauses of Part 1 together with Part 4-5 provides one means of conforming with the essential health and safety requirements of the Directive concerned.

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Endorsement notice to corrigendum January 2024

The text of the corrigendum IEC 62841-4-5:2021/COR1:2024 was approved by CENELEC as EN IEC 62841-4-5:2021/AC:2024-01 without any modification.

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Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Annex ZA of EN 62841-1:2015 is applicable, except as follows:

Publication	Year	Title	EN/HD	Year
Addition:				
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60664-4	-	Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress	EN 60664-3	2006
ISO 354	2003	Acoustics – Measurement of sound absorption in a reverberation room	EN ISO 354	2003
ISO 22868	2011	Forestry and gardening machinery – Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)	EN ISO 22868	2011
Replacement:				
IEC 60664-1	-	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
ISO 3744	2010	Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane	EN ISO 3744	2010
ISO 3864-2	2016[1]	Graphical symbols - Safety colours and safety signs – Part 2: Design principles for product safety labels	-	-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	EN ISO 7010	2012
			+ A1 + A2 + A3 + A4 + A5 + A6 + A7	2014 2014 2014 2014 2015 2016 2017
ISO 11203	2009	Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level	EN ISO 11203	2009

[1] Dated as no equivalent European Standard exists.

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Annex ZZ
(informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC [2006 OJ L157] aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	Clause(s) / subclause(s) of this EN	Remarks / Notes:
1.1.2 (Principles of safety integration)	4	-
1.1.3 (Materials and products)	5, 6.1, 21.6, K.5, L.5, L.21	-
1.1.5 (Design of machinery to facilitate its handling)	19.101, 19.102, 19.105, K.21.301, L.21.301	-
1.1.6 (Ergonomics)	5, 19.5, 21.18.101, 21.101, K.5, L.5, L.21	-
1.2.1 (Safety and reliability of control systems)	5, 18.6, 18.8, 23.1.6, 23.1.10, 23.1.11, 23.3, K.5, K.18.6, K.18.8, K.23.1.10, K.23.1.201, L.5, L.18, L.23.1.10	-
1.2.2 (Control devices)	5, 8.5, 8.9, 8.10, 8.11, 21.1, 21.2, 21.4, 21.17, 21.18.101 to 21.18.103, K.5, K.21.17.1.2, L.5, L.21	-
1.2.3 (Starting)	5, 21.17, K.5, K.21.17.1.2, L.5, L.21	-
1.2.4.1 (Normal stop)	5, 21.17, K.5, K.21.17.1.2, L.5, L.21	-
1.2.6 (Failure of the power supply)	5, 21.18.101, 23.3, K.5, L.5, L.21	-
1.3.2 (Risk of break-up during operation)	5, 8.14.2 c), 13.1, 14.4, 17, 20, 21.23, 24.11, 24.12, 24.13, 27, K.5, K.13.1, K.17, K.20, K.24.201, K.24.301, K.27.1, L.5, L.13.1, L.17, L.20, L.21, L.24.201	-

Documents
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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s) / subclause(s) of this EN	Remarks / Notes:
1.3.3 (Risk due to falling or ejected objects)	5, 18.1, 18.3, K.5, L.5, L.18	-
1.3.4 (Risks due to surfaces, edges or angles)	19.2, 19.104, 19.105, 21.24, L.21	-
1.3.7 (Risks related to moving parts)	5, 19.1, 19.103, 19.104, K.5, L.5	-
1.3.8.1 (Moving transmission parts)	5, 19.1, K.5, L.5	-
1.3.8.2 (Moving parts involved in the process)	5, 19.1, 19.103, 19.104.1, K.5, L.5	-
1.4.1 (General requirements (for guards and protective devices))	5, 19.1, 19.103 to 19.105, 20.1, 20.2, 20.3, 20.4, 21.22, K.5, K.20.1, K.20.3, L.5, L.20, L.21	-
1.4.2.1 (Special requirements for fixed guards)	5, 19.1, 19.9, K.5, L.5	-
1.5.1 (Risks due to electricity supply)	5, 7, L.7.1, 9, 10, 11, 12, 14, 15, 16, 17, 18.1 to 18.7, 20.5, 21.3, 21.5 to 21.16, 21.19 to 21.22, 21.25 to 21.34, 22, 23.1.1 to 23.1.5, 23.1.7 to 23.1.9, 23.2, 23.4, 23.5, 24, 25, 26, 27, 28, K.5, K.7, K.9, K.10, K.11, K.12, K.14, K.16, K.17, K.18.1 to K.18.7, K.21.5 to K.21.16, K.21.19 to K.21.22, K.21.25 to K.21.34, K.22, K.24, K.25, K.26, K.27.1, K.28.1, K.28.2, L.5, L.9, L.10, L.11, L.12, L.14, L.16, L.17, L.18, L.20, L.21, L.22, L.24, L.25, L.26, L.28.1, Annex C	-
1.5.4 (Risks due to errors of fitting)	5, 8.7, 8.8, 8.13, 8.14.2, 21.7, 21.8, 21.19, 27.1, K.5, K.8.7, K.8.8, K.19.201, K.21.201, K.21.203, K.27.1, L.5, L.19.201, L.21	-
1.5.5 (Risks due to extreme temperatures)	5, 12.5, K.5, K.12.1, L.5	-
1.5.6 (Risks due to fire)	5, 13, 18.1, 18.2, 18.4, 18.6, 28.1, K.5, K.12.201, K.13, K.18.1, K.18.6, K.18.201, K.18.202, K.18.203, K.20.1, K.20.3, K.21.201, K.21.203, K.23.201, K.23.202, K.28.1, L.5, L.12.201, L.13, L.18, L.20.201, L.20.202, L.21.201, L.21.203, L.23.201, L.23.202, L.28.1, L.28.201	-
1.5.7 (Risks due to explosion)	5, K.5, K.12.201, K.18.201, K.18.202, K.18.203, K.19.202, K.20.1, K.20.3, K.21.202, K.21.203, L.5, L.12.201, L.18.202, L.18.203, L.18.204, L.19.202, L.20.201, L.20.202, L.21.202, L.21.203	-
1.5.8 (Noise reduction)	I.2.Z1	-
1.5.9 (Vibration reduction)	I.3.Z1	-

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s) / subclause(s) of this EN	Remarks / Notes:
1.5.10 (Risks due to radiation)	5, 6.1, 6.3, K.5, L.5	-
1.5.11 (Risks due to external radiation)	5, 18.8, K.5, K.18.8, L.5, L.18.8	-
1.5.12 (Risks due to laser radiation)	6.2	-
1.6.1 (Machinery maintenance)	24.1, K.21.18.Z101, L.21.18.Z101	-
1.6.3 (Isolation of energy sources)	24.1, K.21.18.Z101, K.21.302, K.24.302, L.21.18.Z101, L.21.302, L.24.301	-
1.7.1 (Information and warnings on machinery)	8.1, 8.2, 8.4, 8.6, K.8.1, K.8.4, L.8.1, L.8.4	-
1.7.2 (Warning of residual risks)	8.2, 8.4, K.8.4, L.8.4	-
1.7.3 (Marking of machinery)	8.3, 8.4, 8.12, K.8.3, K.8.4, L.8.3, L.8.4	-
1.7.4.1 (General principles for drafting of instructions)	8.14	-
1.7.4.2 (Contents of the instructions)	8.14, 8.14.1, 8.14.2, K.8.14.1.1, K.8.14.1.101, K.8.14.2, L.8.14.1.1, L.8.14.1.101, L.8.14.2	
1.7.4.3 (Sales literature)	-	Not covered
2.2.1 (General requirements for portable hand-held and/or hand-guided machinery)	5, 19.101, 19.102, 19.5, 21.18.101, 21.18.103, K.5, L.5, L.21	-
2.2.1.1 (Instructions for portable hand-held and/or hand-guided machinery)	5, 8.14.2 Za) 3), I.3.6.2, K.5, L.5	-

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 8
4 General requirements 11
5 General conditions for the tests 11
6 Radiation, toxicity and similar hazards 12
7 Classification 12
8 Marking and instructions 12
9 Protection against access to live parts 14
10 Starting 14
11 Input and current 14
12 Heating 14
13 Resistance to heat and fire 15
14 Moisture resistance 15
15 Resistance to rusting 15
16 Overload protection of transformers and associated circuits 15
17 Endurance 16
18 Abnormal operation 16
19 Mechanical hazards 16
20 Mechanical strength 28
21 Construction 35
22 Internal wiring 38
23 Components 38
24 Supply connection and external flexible cords 38
25 Terminals for external conductors 40
26 Provision for earthing 40
27 Screws and connections 40
28 Creepage distances, clearances and distances through insulation 40
Annexes 45
Annex I A11 (normative) A11 Measurement of noise and vibration emissions 45
Annex K (normative) Battery tools and battery packs 53
Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources 62
Annex AA (normative) Safety signs for safety instructions and warnings 67
Annex BB (informative) Example of a material and construction fulfilling the requirements for an artificial surface 69
Bibliography 71

Figure 101 – Cutting device with one cutter blade and shear plate 9
Figure 102 – Cutting device with two cutter blades 10

AVA Documents
Document Sharing Hub

Full document details: BS EN IEC 62841-4-5:2021+A11:2021

Figure 103 – Examples of grass shears 11
Figure 104 – Measurement of handle dimensions 18
Figure 105 – Measurement of handle dimensions for machines fitted with an extension shaft 19
Figure 106 – Minimum radial clearance around the power switch 19
Figure 107 – Examples of handle attachment and measurement of distance for hand protection 22
Figure 108 – Measurement of distance for hand protection for machines with a front hand barrier 24
Figure 109 – Measurement of distance for hand protection for machines with bail or closed handles or centrally supported (i.e. T-type) handles without a front hand barrier 25
Figure 110 – Projection incorporated as an integral part of a cutter blade 26
Figure 111 – Projection incorporated as an integral part of a shear plate 27
Figure 112 – Projection as a separate stationary plate 28
Figure 113 – Grass shear positions for drop test 31
Figure 114 – Impact test apparatus for handle insulation 33
Figure 115 – Cutting device strength test 34
Figure 116 – Example of a lock-off device located within the gripping surface of a handle 37
Figure 117 – Example of an operator presence sensor 38
Figure 118 – Test assembly for accessibility of attachment plug blades 39
Figure I.101 – Microphone positions on the hemisphere (see Table I.101) 45
Figure I.102 – Positions of transducers for grass shears 51
Figure AA.1 – Safety sign illustrating – "DANGER – Keep hands away from blade" 67
Figure AA.2 – Alternative safety sign illustrating – "DANGER – Keep hands away from blade" 67
Figure AA.3 – Safety sign illustrating – "Do not expose to rain" 68
Figure AA.4 – Safety sign illustrating – "Remove plug from the mains immediately if the cable is damaged or cut" 68
Figure AA.5 – Safety sign illustrating – "Wear ear protection" 68
Figure BB.1 – Sketch of the measurement surface covered with an artificial surface 70

Table 4 – Required performance levels 16
Table 7 – Switch trigger force 35
Table 12 – Minimum creepage distances and clearances 42
Table I.101 – Coordinates of microphone positions 47
Table I.102 – Absorption coefficients 47
Table 301 – Pull and torque value 58
Table K.1 – Minimum creepage distances and clearances between parts of different potential 59
Table K.2 – Minimum total sum of creepage distances and clearances to accessible surfaces 60

Documents
Document Sharing Hub
Full document details: BS EN IEC 62841-4-5:2021+A11:2021

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 4-5: Particular requirements for grass shears

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 62841-4-5 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools. It is an International Standard.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
116/495/FDIS	116/502/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

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This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This Part 4-5 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 4-5 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for grass shears.

Where a particular subclause of Part 1 is not mentioned in this Part 4-5, that subclause applies as far as relevant. Where this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

– requirements: in roman type;
– *test specifications: in italic type*;
– notes: in small roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

Subclauses, notes, tables and figures which are additional to those in Part 1, except as described for Annex K and Annex L below, are numbered starting from 101.

Subclauses, notes, tables and figures in Annex K and Annex L which are additional to those in the main body of this Part 4-5 are numbered starting from 301.

A list of all parts of the IEC 62841 series, under the general title: *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

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Full document details: BS EN IEC 62841-4-5:2021+A11:2021

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

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ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 4-5: Particular requirements for grass shears

1 Scope

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

Addition:

This document applies to **grass shears** with a maximum **cutting width** of 200 mm designed primarily for cutting grass.

This document does not apply to hedge trimmers.

NOTE 101 Hedge trimmers are covered by IEC 62841-4-2.

〈A11〉 This document covers all significant hazards, hazardous situations or hazardous events relevant for machines covered by this document.

NOTE Z101 Essential requirements not mentioned in Table ZZ.1 are deemed to be not applicable, because the corresponding hazards are either not relevant for machines covered by this standard or do not require specific action by the designer. 〈A11〉

2 Normative references

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

Addition:

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

ISO 354:2003, *Acoustics – Measurement of sound absorption in a reverberation room*

ISO 22868:2011[1], *Forestry and gardening machinery – Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)*

Replacement:

ISO 3744:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*

[1] Withdrawn.

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3 Terms and definitions

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

3.101
blade tooth
part of the **cutter blade** which is sharpened to perform the shearing action

Note 101 to entry: See Figure 101 and Figure 102.

3.102
cutter blade
part of the **cutting device** having **blade teeth** which cut by shearing action either against other **blade teeth** or against a **shear plate**

Note 101 to entry: See Figure 101 and Figure 102.

3.103
cutting device
part of the assembly of **cutter blade** and **shear plate** or of two **cutter blades** together with any supporting part which performs the cutting action

Note 101 to entry: See Figure 101 and Figure 102.

3.104
cutting width
effective width of cut of the **cutting device** measured from the inside edge of the first **blade tooth** or **shear plate** tooth to the inside edge of the last **blade tooth** or **shear plate** tooth, whichever is the greater

Note 101 to entry: See Figure 101 and Figure 102.

3.105
extension shaft
shaft which enables the operator to cut grass while in a standing position, which is either permanently attached to or removable from the machine

3.106
grass shear
hand-held scissors type grass-cutting machine with either one or two **cutter blades** where either one or both **cutter blade(s)** reciprocate along a straight or curved path

Note 101 to entry: See Figure 103.

Note 102 to entry: These machines are intended to be held in the hand during **normal use**, including machines which will not maintain their operating position unless supported, possibly with an **extension shaft** and/or assisted by wheel(s), skid(s) or similar.

3.107
maximum speed
highest **cutting device** speed attainable under all conditions of **normal use**, including no-load

3.108
operator presence sensor
device to detect the presence of an operator’s hand

3.109
projection
part of the **cutter blade** or **shear plate** or a separate component which extends beyond the shearing portion of the **cutting device**

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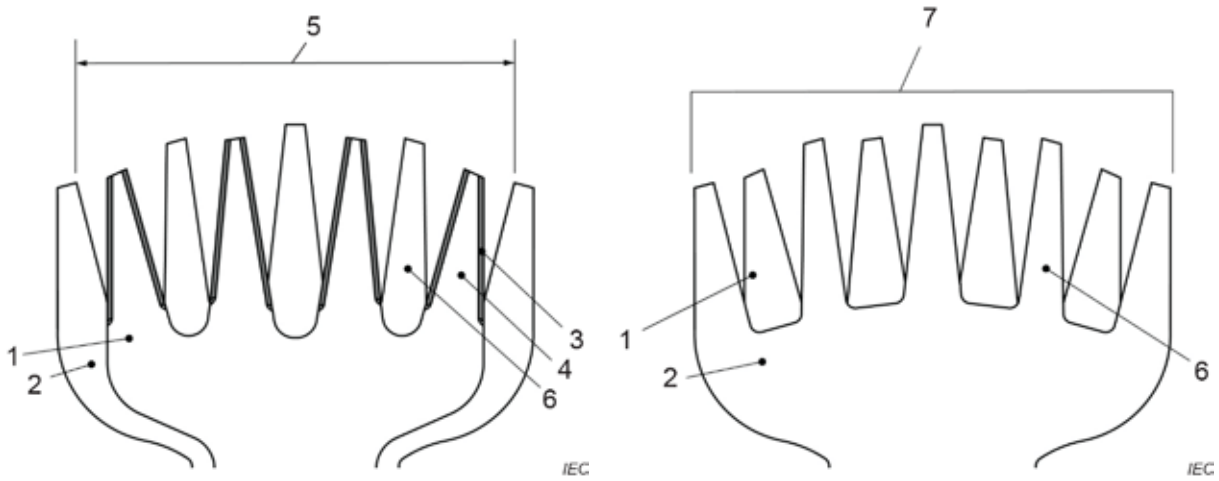
Note 101 to entry: See Figure 110, Figure 111 and Figure 112.

3.110
shear plate
moving or stationary unsharpened part of the **cutting device** which assists cutting by shearing action against a **cutter blade**

Note 101 to entry: See Figure 101.



Top view **Bottom view**

Key

1 **cutter blade**
2 **shear plate** with **projections**
3 sharpened edge of **blade tooth**
4 **blade tooth**
5 **cutting width**
6 portion of **shear plate** which assists cutting by shearing action against a **cutter blade**
7 **cutting device**

Figure 101 – Cutting device with one cutter blade and shear plate

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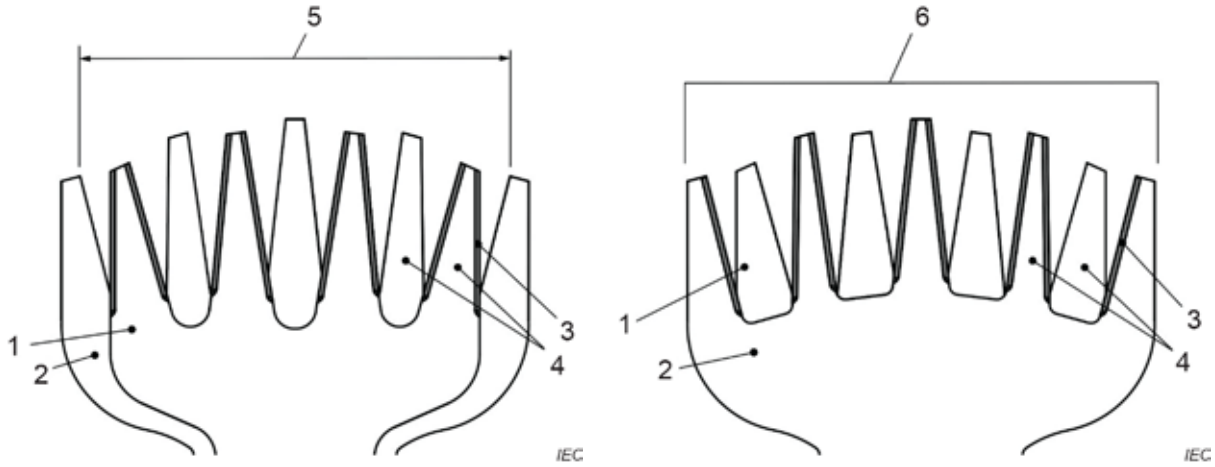

Top view **Bottom view**

Key

1 **cutter blade** (top)

2 **cutter blade** (bottom) with **projections**

3 sharpened edge of **blade tooth**

4 **blade tooth**

5 **cutting width**

6 **cutting device**

Figure 102 – Cutting device with two cutter blades

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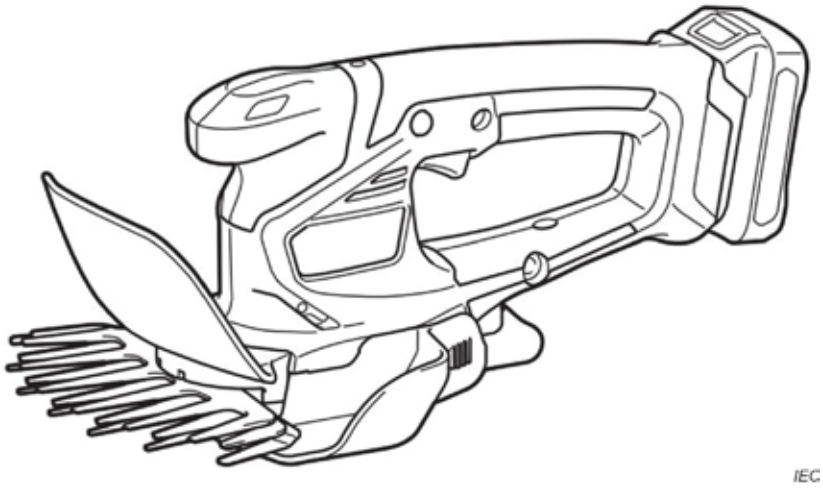
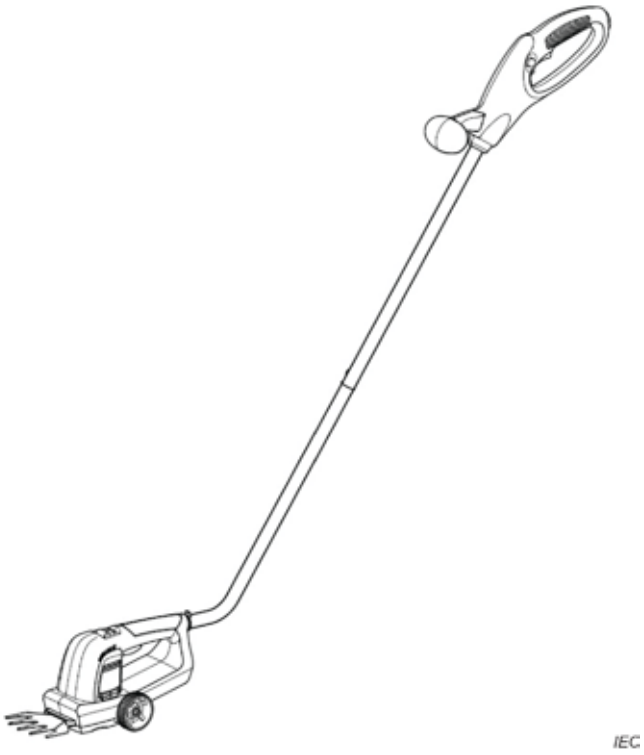


a) Grass shear without extension shaft



b) Grass shear with extension shaft

Figure 103 – Examples of grass shears

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

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

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5.8 *Addition:*

*If different **cutting devices** for cutting grass can be mounted on the machine in accordance with 8.14.2 a) and 8.14.2 b), the **cutting devices** are regarded as **attachments**.*

5.17 *Addition:*

*The mass of the machine excludes the **cutting device** cover.*

5.101 *The tests are carried out on the machine as supplied. However, a machine constructed as a single machine but supplied in a number of units is tested after assembly in accordance with 8.14.2.*

5.102 *Unless otherwise specified, for Clauses 19 and 21, machines are tested in each operating configuration as described in 8.14.2.*

5.103 *For machines that do not attain **maximum speed** under no load conditions, the manufacturer shall provide samples with special hardware and/or software in order to perform the required tests.*

6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

7 Classification

This clause of Part 1 is applicable.

8 Marking and instructions

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

8.2 *Addition:*

Grass shears shall be marked with the following safety information, as applicable, which shall be written in one of the official languages of the country in which the machine is to be sold or marked with the appropriate symbol.

For all machines:

– “Wear ear protection”, a relevant safety sign of ISO 7010 or the safety sign specified in Figure AA.5. This marking may be omitted if the measured emission sound pressure level at the operator’s ear in accordance with Annex I does not exceed 85 dB(A); and

– "⚠DANGER – Keep hands away from blade"; or

– the safety sign specified in Figure AA.1; or

– the safety sign specified in Figure AA.2.

The DANGER marking or symbol shall be readily visible to the user and shall not be located on the underside of the machine.

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Full document details: BS EN IEC 62841-4-5:2021+A11:2021

For all machines with a degree of protection of less than IPX4:

– "⚠WARNING – Do not expose to rain"; or
– the safety sign specified in Figure AA.3.

For mains supplied machines:

– "⚠WARNING – Remove plug from the mains immediately if the cable is damaged or cut"; or
– the safety sign specified in Figure AA.4.

8.12 *Replacement of the first paragraph:*

Markings required by the standard shall be legible and durable. Signs shall be in contrast such as colour, texture, or relief, to their background such that the information or instructions provided by the signs are clearly legible when viewed with normal vision from a distance of (500 ± 50) mm. Signs need not be in accordance with the colour requirements of ISO 3864-2.

If markings are embossed, stamped or moulded, contrasting colours are not required.

8.14.1 *Addition:*

The additional safety instructions as specified in 8.14.1.101 shall be given for all mains supplied **grass shears**. This part may be printed separately from the "General Machine Safety Warnings".

NOTE 101 "General Machine Safety Warnings" are referred to as "General Power Tool Safety Warnings" in Part 1.

8.14.1.1 *Addition to item 2) c):*

For machines classified at least IPX4, the warning may be replaced as specified below.

c) **Do not operate the machine in rain or wet conditions.** *Water entering the machine may increase the risk of electric shock or malfunction that could result in personal injury.*

8.14.1.101 Safety instructions for grass shears

For **grass shears** that can be converted to a Category 1 hedge trimmer, the term “grass shear” may be replaced by alternate wording (e.g. “grass shear/hedge trimmer” or “grass shear/shrub shear”). For this case, the verbatim warnings below need not be repeated for the two configurations.

Grass shears safety warnings:

a) **Do not use the grass shear in bad weather conditions, especially when there is a risk of lightning**. *This decreases the risk of being struck by lightning*.

b) **Keep all power cords and cables away from cutting area**. *Power cords or cables may be hidden and can be accidentally cut by the blade*.

c) **Wear ear protection.** *Adequate protective equipment will reduce the risk of hearing loss.*

NOTE 101 This warning can be omitted if the measured emission sound pressure level at the operator’s ear in accordance with Annex I does not exceed 85 dB(A).

d) **Hold the grass shear by insulated gripping surfaces only, because the blade may contact hidden wiring or its own cord**. *Blades contacting a "live" wire may make exposed metal parts of the grass shear "live" and could give the operator an electric shock*.

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e) **Keep all parts of the body away from the blade. Do not remove cut material or hold material to be cut when blades are moving**. *Blades continue to move after the switch is turned off. A moment of inattention while operating the grass shear may result in serious personal injury*.

f) **When clearing jammed material or servicing the grass shear, make sure the power switch is off and the power cord is disconnected**. *Unexpected actuation of the grass shear while clearing jammed material or servicing may result in serious personal injury*.

g) **Carry the grass shear by the handle with the blade stopped and taking care not to operate the power switch**. *Proper carrying of the grass shear will decrease the risk of inadvertent starting and resultant personal injury from the blades*.

h) **When transporting or storing the grass shear, always use the blade cover**. *Proper handling of the grass shear will decrease the risk of personal injury from the blades*.

8.14.2 a) *Addition:*

101) If applicable, information on **cutting devices** and **attachments** permitted to be used with the **grass shear**, e.g. an **extension shaft**;

102) Instructions for configuring the machine, including any handle, ground supporting devices, **accessories** or **attachments**.

8.14.2 b) *Addition:*

101) Advice to check for foreign objects, e.g. debris and hidden wiring;

102) Recommendation for the use of a **residual current device** with a tripping current of 30 mA or less;

103) Identification of gripping surfaces of handle(s) required by 19.101 through 19.103;

104) Instruction to hold the **grass shear** properly;

105) Advice that the **grass shear** is intended to be used by the operator at ground level and not on ladders or any other unstable support;

106) Advice that before operating the **grass shear**, the user should make sure the **extension shaft**, if any, is in the locked position;

107) Instructions for location and use of the **power switch** for the operation of the **grass shear**;

108) For **grass shears** with an adjustable handle in accordance with 19.102, instruction to adjust the handle only while the **cutting device** is not operating.

9 Protection against access to live parts

This clause of Part 1 is applicable.

10 Starting

This clause of Part 1 is applicable.

11 Input and current

This clause of Part 1 is applicable.

12 Heating

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

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12.2.1 *Replacement:*

The load conditions for the heating test of 12.2 are as follows:

*The machine is operated with a torque load applied such that **rated input** or **rated current** is drawn. The machine is operated for 30 min in its most unfavourable configuration in accordance with 8.14.2 a) 102). During this period, the torque load is adjusted as necessary to maintain **rated input** or **rated current**.*

13 Resistance to heat and fire

This clause of Part 1 is applicable.

14 Moisture resistance

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

14.2.1 *Replacement:*

The machine is not connected to the supply.

The machine is placed in its normal rest position on a perforated turntable. The turntable is then turned continuously at (1 ± 0,1)/min during the test.

***Detachable parts** are removed and subjected, if necessary, to the relevant treatment with the main part. Movable covers that are non-**detachable parts** and are not self-restoring are placed in the most unfavourable position.*

NOTE Examples of self-restoring covers include those that are spring loaded or close by gravity.

14.2.2 *Replacement of the last paragraph:*

*Immediately after the appropriate treatment, the machine shall withstand the electric strength test of Annex D between **live parts** and **accessible parts**, the test voltage being 2 500 V. Then the machine is connected to the supply. It shall not start with the **power switch** in the "off" position.*

*Afterwards, inspection shall show that there is no trace of water on insulation which could result in a reduction of **creepage distances** between bare conductors of different potential below the values specified in 28.1. For all instances where **creepage distances** could be reduced below the values specified in 28.1, a short circuit is introduced between adjacent conductors simultaneously. The machine is then evaluated for*

– *the risk of fire in accordance with item a) of 18.6.1; and*
– *the loss of any **SCF**, unless the machine is rendered into a safe state.*

15 Resistance to rusting

This clause of Part 1 is applicable.

16 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

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