

Edition 1.1 2022-05 CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

Part 4-2: Particular requirements for hedge trimmers

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – da log/standards/sist/347e4afe-a 155-4d73-aa62-38803b689950/iec-

Partie 4-2: Exigences particulières pour les taille-haies





THIS PUBLICATION IS COPYRIGHT PROTECTED Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat Tel.: +41 22 919 02 11

3, rue de Varembé info@iec.ch CH-1211 Geneva 20 www.iec.ch

Switzerland

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



Edition 1.1 2022-05 CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

Part 4-2: Particular requirements for hedge trimmers

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – la log standards/sist/347e4a/c-a/155-4d73-aa62-38803b689950/lec-

Partie 4-2: Exigences particulières pour les taille-haies

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 25.140.20 ISBN 978-2-8322-0230-2

Warning! Make sure that you obtained this publication from an authorized distributor.

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

iTeh STANDARD PREVIEW (standards.iteh.ai)

IEC 62841-4-2:2017 tps://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec



Edition 1.1 2022-05 CONSOLIDATED VERSION

REDLINE VERSION

VERSION REDLINE



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

Part 4-2: Particular requirements for hedge trimmers

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – talog/standards/sist/347e4afe-a155-4d73-aa62-38803b689950/iec-

Partie 4-2: Exigences particulières pour les taille-haies



CONTENTS

FOF	REWORD	5	
INTI	RODUCTION	7	
1	Scope	8	
2	Normative references	8	
3	Terms and definitions	9	
4	General requirements	10	
5	General conditions for the tests	10	
6	Radiation, toxicity and similar hazards	11	
7	Classification	11	
8	Marking and instructions	11	
9	Protection against access to live parts	15	
10	Starting	15	
11	Input and current	15	
12	Heating	15	
13	Resistance to heat and fire		
14	Moisture resistance	15	
15	Resistance to rusting	16	
16	Overload protection of transformers and associated circuits	16	
17	Endurance	16	
18	Abnormal operation		
19 h	Mechanical hazardstala.g/standards/sist/3.47a4afs1554.473a.6238803h689950/ia.		
20	Mechanical strength62841-4-2-2017.	31	
21	Construction		
22	Internal wiring	37	
23	Components	38	
24	Supply connection and external flexible cords		
25	Terminals for external conductors	41	
26	Provision for earthing	41	
27	Screws and connections	41	
28	Creepage distances, clearances and distances through insulation	41	
Ann	exes	68	
Ann	ex I (informative) Measurement of noise and vibration emissions	69	
	ex K (normative) Battery tools and battery packs	78	
	ex L (normative) Battery tools and battery packs provided with mains connection on-isolated sources	92	
Ann	ex AA (normative) Safety signs for safety instructions and warnings	99	
	ex BB (informative) Example of a material and construction for fulfilling the uirements for an artificial surface	104	
•	iography		
Figu	ure 101 – Pictorial representation of some definitions	46	
_	Figure 102 – Pictorial representation of some definitions		

Figure 103 – Measurement of cutting length	47
Figure 104 – Handles positioning	48
Figure 105 – Measurement of handle gripping length	50
Figure 106 – Adjustable front handle limits for side to side handle rotation	50
Figure 107 – Adjustable rear handle limits for side to side handle rotation	51
Figure 108 – Measurement of reach distance	52
Figure 109 – Front hand barrier dimensions	53
Figure 110 – Front hand barrier width for category 3a with adjustable cutting device	53
Figure 111 – Examples of compliant/non-compliant handle distances and handle attachments for category 1	54
Figure 112 – Measurement of distance from the cutter blade to handles and grasping surfaces	55
Figure 113 – Measurement method for minimum length of blunt extensions along the axis of the cutting device	56
Figure 114 – Cutting device configuration examples for categories 1 and 2 (see Table 101 and Table 102)	57
Figure 115 – Cutting device configuration example for categories 3a and 3b (see Table 101 and Table 102)	57
Figure 116 – Cutting device configuration example for category 4 (see Table 101 and Table 102)	58
Figure 117 – Adjustable cutting device side to side limits	
Figure 118 – Lower barrier	59
Figure 119 – Measurement of the force necessary to maintain an extended-reach hedge trimmer in a horizontal orientation	60
Figure 120 – Hedge trimmer positions for drop test of 20.3.1	62
Figure 121 – Additional drop test of 20.3.1 for extended-reach hedge trimmers	63
Figure 122 – Impact test -apparatus fixture for handle insulation	64
Figure 123 – Mounting and application of force for the test of 20.101.3.3	65
Figure 124 – Example of an operator presence sensor	65
Figure 125 – Test assembly for accessibility of attachment plug blades	66
Figure 126 – Application of steel rod when rotated around the rear handle	66
Figure 127 – Application of steel rod when applied in the direction perpendicular to the rear handle axis	67
Figure I.101 – Microphone positions on the hemisphere (see Table I.101)	69
Figure I.102 – Positions of transducers for hedge trimmers, except for extended-reach hedge trimmers	75
Figure I.103 – Positions of transducers for extended-reach hedge trimmers	76
Figure AA.1 – Safety sign illustrating – "DANGER – Keep hands away from blade"	99
Figure AA.2 – Alternative safety sign illustrating – "DANGER – Keep hands away from blade"	. 100
Figure AA.3 – Safety sign illustrating – "Do not expose to rain"	. 100
Figure AA.4 – Safety sign illustrating – "Remove plug from the mains immediately if the cable is damaged or cut"	. 101
Figure AA.5 – Safety signs illustrating – "Wear eye protection"	. 102
Figure AA.6 – Optional safety sign illustrating – "Wear eye and head protection"	.102
Figure AA.7 – Safety sign illustrating – "Wear ear protection"	. 103

iTeh STANDARD PREVIEW (standards.iteh.ai)

IEC 62841-4-2:2017

https://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec-62841-4-2-2017

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 4-2: Particular requirements for hedge trimmers

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62841-4-2 edition 1.1 contains the first edition (2017-12) [documents 116/346/FDIS and 116/352/RVD], its corrigendum (2018-06) and its amendment 1 (2022-05) [documents 116/578/FDIS and 116/586/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

-6-

International Standard IEC 62841-4-2 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 4-2 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 4-2 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hedge trimmers.

Where a particular subclause of Part 1 is not mentioned in this Part 4-2, 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 4-2 as well as Annex K and Annex L of Part 1 are numbered starting from 301.

https://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec-

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 the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under webstore.iec.ch in the data related to the specific publication. At this date, the publication 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.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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.

The holder of this patent right has assured IEC that s/he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from the patent database available at patents.iec.ch.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those in the patent database. IEC shall not be held responsible for identifying any or all such patent rights.

iTeh STANDARD PREVIEW (standards.iteh.ai)

https://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec-62841-4-2-2017

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

Part 4-2: Particular requirements for hedge trimmers

1 Scope

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

Addition:

This standard applies to hand-held **hedge trimmers** which are designed for use by one operator for trimming hedges and bushes, including **extended-reach hedge trimmers** with a maximum length of 3,5 m.

NOTE 101 The measurement of the length for extended-reach hedge trimmers is specified in 21.101.

This standard is not applicable to **hedge trimmers** with a rotating blade.

This standard is not applicable to scissors type grass shears.

NOTE 102 Scissors type grass shears are covered by IEC 60335-2-94 or IEC 62841-4-5.

2 Normative references

https://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec-This clause of Part 1 is applicable, except as follows:

Addition:

IEC 60664-3:2016, Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution

IEC 60664-4:2005, Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress

IEC 61672-1, Electroacoustics – Sound level meters – Part 1: Specifications

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

ISO 11684, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles

ISO 22868:2011, 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

3 Terms and definitions

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

3.101

blade control

device activated by the operator's hand or fingers in order to start or stop the operation of the **cutting device**

3.102

blade stopping time

elapsed time from the release of the **blade control** until the moving parts of the **cutting device** stop

3.103

blade tooth

part of the **cutter blade** which is sharpened or has sharp edges to perform the shearing action (see Figures 101 and 102)

3.104

blunt extension

blunt part of the **cutting device** or a part of an unsharpened plate fitted to the **cutting device** which extends beyond the **blade teeth** (see Figures 101 and 102)

3.105

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** (see Figures 101 and 102)

3.106

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, which may be either single or double sided (see Figures 101, 102, 104 a) and 104 b))

3.107

cutting length

effective cutting length 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 (see Figure 103)

Note 1 to entry: Where both **cutter blades** move, the **cutting length** is measured when the first and last **blade teeth** are furthest apart.

3.108

extended-reach hedge trimmer

hedge trimmer with a fixed or adjustable elongated construction, including additional separable extensions, if any, such that the **cutting device** is distanced from the handles or grasping surfaces during use

3.109

front handle

grasping surface located at or towards the cutting device (see Figure 104)

3.110

hedge trimmer

hand-held machine provided with a linearly reciprocating **cutting device** intended for trimming bushes and hedges

3.111

maximum speed

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

- 10 -

highest steady-state cutting device speed attainable under all conditions of normal use, including no-load, when adjusted in accordance with the manufacturer's specifications and/or instructions

Note 101 to entry: The steady-state **cutting device** speed excludes transients such as overshoot that may occur before attaining a steady-state condition.

3.112

operator presence sensor

device to detect the presence of an operator's hand

3.113

rear handle

grasping surface located furthest from the cutting device (see Figure 104)

3.114

shaft

fixed or extendable element of an extended-reach hedge trimmer that distances the cutting device from the rear handle

3.115

shear plate

moving or stationary unsharpened part of the **cutting device** which assists cutting by shearing action against a **cutter blade** (see Figure 101)

4 General requirements IEC 62841-4-3

https://standards.iteh.ai/catalog/standards/sist/347e4afc-a155-4d73-aa62-38803b689950/iec-This clause of Part 1 is applicable.

5 General conditions for the tests

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

5.8 Addition:

If different **cutting devices** can be mounted on the **hedge trimmer** 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 and shoulder harness, if any, but includes:

- the auxiliary handle, if any;

and

- for extended-reach hedge trimmers, the auxiliary extension shaft attachment, if any.
- **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.

IEC 62841-4-2:2017+AMD1:2022 CSV - 11 - © IEC 2022

- **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:

Hedge trimmers shall be marked with safety information 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 hedge trimmers:

- the safety sign specified in Figure AA.1: or 4-2-2017
- the safety sign specified in Figure AA.2.
- "Wear ear protection", a relevant safety sign of ISO 7010 or the safety sign specified in Figure AA.7. 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.

For all **hedge trimmers** with a degree of protection of less than IPX4:

- "AWARNING Do not expose to rain"; or
- the safety sign specified in Figure AA.3.

For mains supplied machines:

- "AWARNING Remove plug from the mains immediately if the cable is damaged or cut";
- the safety sign specified in Figure AA.4.
- " $ilde{oldsymbol{ol}}}}}}}}}}}$
- " WARNING Remove plug from the mains immediately if the cable is damaged or cut" or the safety sign specified in Figure AA.4.