
Elektromotorna ročna orodja, prenosna orodja ter stroji za trato in vrt - Varnost - 4-2. del: Posebne zahteve za škarje za živo mejo - Dopolnilo A1

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 4-2: Particular requirements for hedge trimmers

Elektrische motorbetriebene handgeführte Werkzeuge, transportable Werkzeuge und Rasen- und Gartenmaschinen - Sicherheit - Teil 4-2: Besondere Anforderungen für Heckenscheren

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Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses - Sécurité - Partie 4-2: Exigences particulières pour les taille-haies

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ICS:

25.140.20	Električna orodja	Electric tools
65.060.70	Vrtnarska oprema	Horticultural equipment

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116/499/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 62841-4-2/AMD1 ED1

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CLOSING DATE FOR VOTING:

2021-07-23

SUPERSEDES DOCUMENTS:

116/498/RR

IEC TC 116 : SAFETY OF MOTOR-OPERATED ELECTRIC TOOLS	
SECRETARIAT: United States of America	SECRETARY: Mr Joseph Harding
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Amendment 1 - Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 4-2: Particular requirements for hedge trimmers

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

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1

FOREWORD

2 This amendment has been prepared by IEC technical committee 116: Safety of motor-
3 operated electric tools.

4 The text of this amendment is based on the following documents:

FDIS	Report on voting
116/XXX/FDIS	116/XXX/RVD

5

6 Full information on the voting for the approval of this amendment can be found in the report
7 on voting indicated in the above table.

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

- 12 • reconfirmed,
- 13 • withdrawn,
- 14 • replaced by a revised edition, or
- 15 • amended.

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

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

22

23 Foreword

24 *Delete item 9) of the Foreword.*

25 Introduction

26 *Add the following new Introduction:*

27

INTRODUCTION

28 The International Electrotechnical Commission (IEC) draws attention to the fact that it is
29 claimed that compliance with this document may involve the use of patents concerning
30 prevention of inadvertent starting given in subclause 21.18.102.

31 IEC takes no position concerning the evidence, validity and scope of this patent right.

32 The holders of these patent rights have assured the IEC that they are willing to negotiate
33 licences under reasonable and non-discriminatory terms and conditions with applicants
34 throughout the world. In this respect, the statements of the holders of these patent rights are
35 registered with IEC. Information may be obtained from:

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42 SE-561 82 Huskvarna
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45 Robert Bosch GmbH
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49 Attention is drawn to the possibility that some of the elements of this document may be the
50 subject of patent rights other than those identified above. IEC shall not be held responsible
51 for identifying any or all such patent rights.

52 ISO (www.iso.org/patents) and IEC (<http://patents.iec.ch>) maintain on-line data bases of
53 patents relevant to their standards. Users are encouraged to consult the data bases for the
54 most up to date information concerning patents.

55 2 Normative references

56 *Add the following new normative references:*

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

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

61 5 General conditions for the tests

62 *Add the following new subclause:*

63 **5.103** *For machines that do not attain **maximum speed** under no load conditions, the*
64 *manufacturer shall provide samples with special hardware and/or software in order to perform*
65 *the required tests.*

66 8 Marking and instructions


67 *Replace the existing text of 8.2 with the following new text:*

68 **8.2** *Addition:*

69 **Hedge trimmers** shall be marked with the following safety information which shall be written
70 in one of the official languages of the country in which the machine is to be sold or marked
71 with the appropriate symbol.


72 For all **hedge trimmers**:

73 – “Wear ear protection”, a relevant safety sign of ISO 7010 or the safety sign specified in
74 Figure AA.7. This marking may be omitted if the measured emission sound pressure level
75 at the operator’s ear in accordance with Annex I does not exceed 85 dB(A); and


76 – “ DANGER – Keep hands away from blade” or the safety sign specified in Figure AA.1 or
77 the safety sign specified in Figure AA.2.

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

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

81 – “ WARNING – Do not expose to rain” or the safety sign specified in Figure AA.3.


82 For mains supplied machines:

83 – “ WARNING – Remove plug from the mains immediately if the cable is damaged or cut”;
84 or the safety sign specified in Figure AA.4.

85 For all **hedge trimmers** except for Category 1 in Table 101:

86 – “Wear eye protection” or a relevant safety sign of ISO 7010 or one of the safety signs
87 specified in Figure AA.5.

88 Additionally, for **extended-reach hedge trimmers**:

89 – “ DANGER – Keep sufficient distance away from electrical power lines” or symbol
90 C.2.30 of ISO 11684.

91 – “Wear head protection” or a relevant safety sign of ISO 7010.

92 A combination of ISO safety signs, such as eye and head protection, is allowed. In addition, a
93 combination of safety signs as specified in Figure AA.6 is allowed.

94 Add the following new subclause:

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95 **8.14.1.1** Addition for item 2) c):

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

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

99 *Replace the existing text of 8.14.1.101 with the following new text:*

100 **8.14.1.101 Safety instructions for hedge trimmers**

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

105 **Hedge trimmer safety warnings:**

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

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

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

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

113 d) **Hold the hedge trimmer by insulated gripping surfaces only, because the blade may**
114 **contact hidden wiring or its own cord.** *Blades contacting a “live” wire may make*
115 *exposed metal parts of the hedge trimmer “live” and could give the operator an electric*
116 *shock.*

- 117 e) **Keep all parts of the body away from the blade. Do not remove cut material or hold**
 118 **material to be cut when blades are moving.** *Blades continue to move after the switch is*
 119 *turned off. A moment of inattention while operating the hedge trimmer may result in*
 120 *serious personal injury.*
- 121 f) **When clearing jammed material or servicing the hedge trimmer, make sure all power**
 122 **switches are off and the power cord is disconnected.** *Unexpected actuation of the*
 123 *hedge trimmer while clearing jammed material or servicing may result in serious personal*
 124 *injury.*
- 125 g) **Carry the hedge trimmer by the handle with the blade stopped and taking care not to**
 126 **operate any power switch.** *Proper carrying of the hedge trimmer will decrease the risk of*
 127 *inadvertent starting and resultant personal injury from the blades.*
- 128 h) **When transporting or storing the hedge trimmer, always use the blade cover.** *Proper*
 129 *handling of the hedge trimmer will decrease the risk of personal injury from the blades.*

130 *Replace the existing text of 8.14.1.102 with the following new text:*

131 **8.14.1.102 Additional safety instructions for extended-reach hedge trimmers**

132 **Extended-reach hedge trimmer safety warnings:**

- 133 a) **Always use head protection when operating the extended-reach hedge trimmer**
 134 **overhead.** *Falling debris can result in serious personal injury.*

135 NOTE 101 Alternate wording for "extended-reach" is possible, e.g. "pole" or "long reach".

- 136 b) **Always use two hands when operating the extended-reach hedge trimmer.** *Hold the*
 137 *extended-reach hedge trimmer with both hands to avoid loss of control.*

- 138 c) **To reduce the risk of electrocution, never use the extended-reach hedge trimmer**
 139 **near any electrical power lines.** *Contact with or use near power lines may cause serious*
 140 *injury or electric shock resulting in death.*

141 **14 Moisture resistance**

142 *Replace the existing text of 14.2.1 with the following new text:*

143 **14.2.1 Replacement:**

144 *The machine is not connected to the supply.*

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

147
 148 **Detachable parts** are removed and subjected, if necessary, to the relevant treatment with the
 149 **main part.** **Movable covers that are non-detachable parts** and are not self-restoring are
 150 **placed in the most unfavourable position.**

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

152 *Replace the existing text of 14.2.2 with the following new text:*

153 **14.2.2 Addition:**

154 *Alternatively, **extended-reach hedge trimmers** may be subjected to the test described in*
 155 *14.2.3 b) or 14.2.4 b) of IEC 60529:2013, as applicable.*

156 *Replacement of the last paragraph:*

157 *Immediately after the appropriate treatment, the machine shall withstand the electric strength*
 158 *test of Annex D between **live parts** and **accessible parts**, the test voltage being 2 500 V.*

159 *Then the machine is connected to the supply. It shall not start with the **power switch** in the*
160 *“off” position.*

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

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

168 **17 Endurance**

169 *Replace the existing text of 17.2 with the following new text:*

170 **17.2 Modification:**

171 This subclause of Part 1 is applicable as for **hand-held tools**.

172 *Addition:*

173 *The machine is operated in its most unfavourable configuration in accordance with*
174 *8.14.2 b) 108).*

175 *Care shall be taken to avoid (overheating the **cutting device**) by operating continuously and*
176 *therefore appropriate interruptions for cooling and lubrication may be introduced.*

177 **19 Mechanical hazards**

178 *Replace the existing text of 19.1 with the following new text:*

179 **19.1 Replacement of the first paragraph:**

180 All power-driven hazardous parts (e.g. gears), other than those moving parts (e.g. **cutting**
181 **device**), barriers and covers which are separately covered by 19.102, 19.103, 19.105 and
182 19.106, shall be so positioned or enclosed to provide adequate protection. The requirements
183 of this subclause apply to all operating configurations as described in 8.14.2.

184 *Replace the existing text of the third paragraph of 19.101.1.1 with the following new text:*

185 The handles shall be designed in such a way that each one can be grasped with one hand.
186 Handles shall be suitably shaped to be grasped securely and have a perimeter between
187 65 mm and 170 mm as illustrated in Figure 105 a), 105 b) or 105 c). The perimeter is
188 determined by a chain measurement with the **blade control**, if any, fully depressed. The
189 gripping length of the handle(s) shall be at least 100 mm, except for handle(s) on a Category
190 **1 hedge trimmer** that do not incorporate a **blade control**.

191 *Replace the existing text of the first paragraph of 19.101.1.2 with the following new text:*

192 On bail or closed handles (U-shaped handles) the gripping length is related to the inner length
193 of the gripping surface. There shall be a minimum radial clearance of 25 mm around the
194 gripping length. In addition, for a handle incorporating a **blade control**, there shall be a
195 minimum radial clearance of 25 mm around the **blade control** actuator with the **blade control**
196 not depressed.

197 *Add, after the first paragraph of 19.101.1.3, the following new paragraph:*

198 In addition, for a handle incorporating a **blade control**, there shall be a minimum radial
199 clearance of 25 mm around the **blade control** actuator with the **blade control** not depressed.

200 *Replace the existing text of the fourth paragraph of 19.101.2.1 with the following new text:*

201 The handles shall be designed in such a way that each one can be grasped with one hand.
202 Handles shall be suitably shaped to be grasped securely and have a perimeter P between
203 65 mm and 170 mm as illustrated in Figure 105 a), 105 b) or 105 c). The perimeter P is
204 determined by a chain measurement with the **blade control**, if any, fully depressed. The
205 gripping length of the **front handle** and the **rear handle** shall be at least 100 mm long. In
206 addition, for a handle incorporating a **blade control**, there shall be a minimum radial
207 clearance of 25 mm around the **blade control** actuator with the **blade control** not depressed.

208 *Replace the existing text of the first paragraph of 19.101.2.2 with the following new text:*

209 On bail or closed handles (U-shaped handles), the gripping length is related to the inner
210 length of the gripping surface. There shall be a minimum radial clearance of 25 mm around
211 the gripping length. In addition, for a handle incorporating a **blade control**, there shall be a
212 minimum radial clearance of 25 mm around the **blade control** actuator with the **blade control**
213 not depressed.

214 *Add, after the first paragraph of 19.101.2.3, the following new paragraph:*

215 In addition, for a handle incorporating a **blade control**, there shall be a minimum radial
216 clearance of 25 mm around the **blade control** actuator with the **blade control** not depressed.

217 *Replace the existing text of 19.101.3.2 with the following new text:*

218 **19.101.3.2** Any adjustable handle shall have a defined centre position. The handle shall
219 have a locking detent at the centre position and at any other intended handle adjustment
220 position of operation as described in 8.14.2. These other operating positions shall not locate
221 the handle further than 95° from the centre position about their axis of rotation. See
222 Figures 106 and 107. The handle movement, when locked by the detent and subjected to a
223 torque of $(2 \pm 0,1)$ Nm, shall be limited to 5° rotation. The handle shall have a handle release
224 control as required in 19.101.3.3 that releases the handle from the detent position.

225 The handle shall automatically lock into each detent position when adjusting the handle,
226 unless the handle release control is operated.

227 *Compliance is checked by inspection and by measurement.*

228 *Replace the existing text of the third paragraph of 19.101.3.6 with the following new text:*

229 *The handle release control is actuated in accordance with 8.14.2 b) 108) a total of*
230 *2 000 times, engaging all locking detent positions over the full range of travel of the*
231 *adjustable handle, in both directions.*

232 *Replace the existing text of 19.102.2.1 with the following new text:*

233 **19.102.2.1** The **front handle** shall be located so that the distance from the nearest cutting
234 edge of the **cutter blade** to the furthest side of any handle, except for Category 1, is not less
235 than 120 mm as shown in Figure 108 a) and Figure 108 b).

236 For Category 1, the shortest distance between the front of the handle grip and the nearest
237 **blade tooth** shall be at least 120 mm (see Figure 111). The distances shall be measured

238 along the shortest path from the front of the handle grip to the nearest cutting edge of the
239 **cutter blade**.

240 For all categories in Table 101, if there is a front hand barrier, then the x_1 and x_2 distances in
241 Figure 108 a) and Figure 108 b) shall be measured along the shortest path from the furthest
242 side of the handle, via the edge of the front hand barrier, to the nearest cutting edge of the
243 **cutter blade**. The front hand barrier shall not have any openings with a minor dimension
244 larger than 10 mm.

245 Additionally, for category 3a **hedge trimmers**, the front hand barrier shall have a minimum
246 shape described by:

- 247 – a height y_1 of 90 mm measured perpendicularly from the cutting plane; and
- 248 – a width y_2 of 50 mm on either side of the centreline of the **cutting device**.

249 Both the y_1 and y_2 measurements are made with the **cutting device** in the 0° position, if
250 axially rotatable. See Figure 109.

251 *Compliance is checked by inspection and by measurement.*

252 *Replace the existing text of 19.103.2.4 with the following new text:*

253 **19.103.2.4 Hedge trimmer category 4 (see Figure 116)**

254 The minimum depth of the **blunt extensions**, if required in accordance with 19.103.2.1, shall
255 be no less than 8 mm as shown in Figure 116 a).

256 In addition, the distance between the **blade teeth** and the side of a $(120 \begin{smallmatrix} +1 \\ -0 \end{smallmatrix})$ mm test cylinder
257 shall not be less than 4 mm when the test cylinder is positioned perpendicular to the plane of
258 the **cutting device** and between two **blunt extensions** as shown in Figure 116 a).

259 For machines with **blunt extensions** that are not an integral part of the **cutting device**, the
260 following additional requirement shall be met:

261 The distance between the end of the cutting plane between the **cutter blades** and the side of
262 the test cylinder shall not be less than 4 mm when the test cylinder is positioned as shown in
263 Figure 116 a) and then tilted around the ends of the **blunt extensions** up to an angle of 40°
264 as shown in Figure 116 b).

265 **Blunt extensions** are not required for category 4 **hedge trimmers** with a blade configuration
266 where there are only two handles and the **front handle** is permanently fixed to the smooth
267 side of a single sided **cutting device**.

268 *Compliance is checked by inspection and by manual test.*

269 *Replace the existing text of 19.103.3.4 with the following new text:*

270 **19.103.3.4** An adjustable **cutting device** shall be provided with a momentary **cutting device**
271 release control to disengage the **cutting device** from a locked position. A handle in
272 accordance with 8.14.2 b) 108) shall be provided for adjusting the position of the **cutting**
273 **device** such that contact with the **cutting device** is not required. The requirements of 21.30
274 shall not apply to the **cutting device** adjusting handle.

275 *Compliance is checked by inspection and by manual test.*

276 *Replace the existing text of the third paragraph of 19.103.3.6 with the following new text:*

277 *The **cutting device** release control is actuated in accordance with 8.14.2 b) 108) a total of*
 278 *2 000 times, engaging all locking detent positions over the full range of travel of the*
 279 *adjustable **cutting device**, in both directions.*

280 *Replace the existing text of the first paragraph of 19.104.2 with the following new text:*

281 **19.104.2** *The **hedge trimmer** shall be mounted and instrumented in such a manner that the*
 282 *results of the test are not affected.*

283 **20 Mechanical strength**

284 *Replace the existing text of the fourth paragraph of 20.3.1 with the following new text:*

285 *Each drop shall be conducted on a separate sample, unless a single sample can be subjected*
 286 *to multiple drops without failure. If a sample has been subjected to multiple drops and fails,*
 287 *then the drop in the orientation that resulted in the failure is repeated using a new sample. If*
 288 *the new sample passes the test for the drop in that orientation, then the requirements for the*
 289 *drop in that orientation are considered to be fulfilled. The test is continued in this manner until*
 290 *all drops in each of the four orientations are completed.*

291 **21 Construction**

292 *Add the following new subclause:*

293 **21.17.1** *Addition:*

294 This subclause of Part 1 is also applicable for an **operator presence sensor** whose motion is
 295 mechanically obstructed and either functions as a lock-off device or is locked off as a switch.

296 *Add the following new subclause:*

297 **21.17.1.3** *Replacement of Table 7:*

298 **Table 7 – Switch trigger force**

Trigger type	Force N
Single finger trigger (trigger length < 30 mm)	100
Multi finger trigger (trigger length ≥ 30 mm)	150
Operator presence sensor	100

299

300

301 *Replace the existing text of 21.18.102.3 with the following new text:*

302 **21.18.102.3** The **hedge trimmer** shall be provided with a **blade control** having a lock-off
303 device such that at least two separate and dissimilar actions are required before drive to the
304 **cutting device** is possible. It shall not be possible to achieve these actions with a single
305 grasping motion or a straight line motion within any grasping surface identified in accordance
306 with 8.14.2 b) 6).

307 Drive to the **cutting device** shall only be enabled when the lock-off device is operated prior to
308 the **power switch**.

309 It shall not be necessary to sustain the actuation of the lock-off device until the **blade control**
310 is activated, provided

- 311 – the **blade control** or an **operator presence sensor** (if any) is activated within 5 s of the
312 release of the lock-off device; and
- 313 – there is a visual or audible indication as soon as the lock-off actuator is released and
314 continues at least until the **blade control** or an **operator presence sensor** (if any) is
315 activated;

316 or

- 317 – an **operator presence sensor** (if any) is activated prior to the release of the actuator of
318 the lock-off device.

319 NOTE The visual or audible indication is intended to only indicate the state of the **hedge trimmer**.

320 The **hedge trimmer** shall return to the original locked state within 5 s when the **blade control**
321 is released (i.e. at least two separate and dissimilar actions are required before drive to the
322 **cutting device** is possible), unless

- 323 – an **operator presence sensor** is provided, and
- 324 – the hand is not released from the **operator presence sensor**.

325 The operator presence sensing function may be achieved by any combination of mechanical,
326 electrical or electronic means.

327 *Compliance is checked by inspection, by measurement and by manual test.*

328 *Additionally, for lock-off devices that are actuated in a direction generally perpendicular to the*
329 *longitudinal vertical plane of the machine, (see Figure 124), and that are located within any*
330 *grasping surface of handle(s) or grasping surface(s) identified in accordance with*
331 *8.14.2 b) 103), in order to determine if it is possible to actuate the **blade control** and the lock-*
332 *off device with a single grasping motion or a straight line motion, compliance is checked by*
333 *the following test:*

334 *With the **blade control** in the "off" position, a 25 mm diameter x 75 mm long steel rod with a*
335 *force not exceeding 20 N is applied to the lock-off device in any direction. The steel rod shall*
336 *be applied such that its cylindrical surface bridges the surface of the lock-off device and any*
337 *surface adjacent to the lock-off device. During the test, it shall not be possible to actuate the*
338 ***blade control** with a force not exceeding 20 N.*

339 *Replace the existing text 21.30.101 with the following new text:*

340 **21.30.101 Extended-reach hedge trimmers** are considered to be machines likely to cut into
341 concealed wiring or their own cord and shall meet the following requirements:

342 Handles and grasping surfaces of **extended-reach hedge trimmers**, as specified in 8.14.2 b)
343 6), shall be formed of insulating material or, when of metal, shall be either adequately covered
344 by insulating material having a thickness of at least 1 mm or their **accessible parts** shall be

345 isolated by insulating barrier(s) from accessible metal parts that may become live by the
346 **cutting device**. These insulating barriers are not to be regarded as **basic insulation**,
347 **supplementary insulation** or **reinforced insulation**.

348 An insulated, stick type, auxiliary handle shall be provided with a flange having a height not
349 less than 12 mm above the handle and covering at least 2/3 of the periphery to provide a
350 barrier to minimize the likelihood of the hand from slipping onto surfaces that are not suitably
351 insulated or isolated.

352 A grasping surface formed by sections of the **shaft** of an **extended-reach hedge trimmer**
353 shall be provided with a flange at each end to minimize the likelihood of the hand from
354 slipping onto surfaces that are not suitably insulated or isolated. Both flanges shall have a
355 height not less than 6 mm above the grasping surface and shall cover at least 2/3 of the
356 periphery.

357 The flange nearest to the **rear handle** may be omitted if the **shaft** insulation extends from the
358 **rear handle** to the grasping surface.

359 The flange nearest to the **cutting device** may be omitted if the **shaft** insulation combined with
360 the grasping surface extends to a location at least 1,2 m from the **blade control** in the **rear**
361 **handle**.

362 *Compliance is checked by inspection, by measurement and by the tests of 20.5.*

363 **23 Components** iTeh STANDARD PREVIEW

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364 *Add, at the end of 23.3, the following new paragraph:*

365 This subclause is not applicable for machines fitted with two **blade controls** that require
366 simultaneous actuation.

<https://standards.iteh.ai/catalog/standards/sist/1203e76a-9267-40a0-aab9-65e5546264a4/sist-en-62841-4-2-2019-oprA1-2021>

367 **28 Creepage distances, clearances and distances through insulation**

368 *Replace the existing text of Clause 28 with the following new text:*

369 *Replacement:*

370 **28.1 Creepage distances and clearances** shall not be less than the values in millimetres
371 shown in Table 12. The values specified in the table do not apply to cross-over points of
372 motor windings.

373 The values in Table 12 are equal or larger than the values required by IEC 60664-1, when

- 374 – an overvoltage category II;
 - 375 – a material group III;
 - 376 – a pollution degree 1 for parts protected against deposition of dirt and for lacquered or
377 enamelled windings;
 - 378 – a pollution degree 3 for other parts;
 - 379 – inhomogeneous electric field;
 - 380 – transient overvoltages originating in the equipment not exceeding 4 000 V
- 381 are applied.

382 Protection against deposition of dirt may be achieved through the use of