



# SLOVENSKI STANDARD

## oSIST prEN 50735-1:2023

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### Elektromotorna ročna orodja, prenosna orodja ter stroji za trato in vrt - Okoljski vidiki - 1. del: Zahteve za popravljivost

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Environmental aspects - Part 1: Requirements for reparability

iTeh STANDARD PREVIEW  
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Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses - Aspects liés à l'environnement - Partie 1: Exigences de réparabilité

<https://standards.iteh.ai/catalog/standards/sist/ef0f858b-5b7a-4639-8275-10697e01f5/osist-pr-en-50735-1-2023>

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25.140.20	Električna orodja	Electric tools
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English Version

**Electric motor-operated hand-held tools, transportable tools and  
lawn and garden machinery - Environmental aspects - Part 1:  
Requirements for repairability**

To be completed

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This draft European Standard is submitted to CENELEC members for enquiry.  
Deadline for CENELEC: 2023-09-22.

It has been drawn up by CLC/TC 116.

If this draft becomes a European Standard, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CENELEC in three official versions (English, French, German).  
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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## 26 European foreword

27 This document (prEN 50735-1:2023) has been prepared by CLC/TC 116 “Safety and environmental aspects of  
28 motor-operated electric tools”.

29 This document is currently submitted to the Enquiry.

30 The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dor + 6 months
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

31 This document has been prepared in order to specify the requirements laid down in EN 45554:2020.

32 The following print types are used:

33 — requirements; in roman type;

34 — *test specifications*; in italic type;

35 — notes: in smaller roman type.

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

## 37 1 Scope

38 This document provides **product** group specific guidance for a common understanding of measures, given by  
39 any legislation, to define **product** specific information on the repairability and the **reuse** of used **parts** of motor-  
40 operated hand-held tools, transportable tools, lawn and garden machinery. It is based on the following aspects:

- 41 • the inherent technical possibility/features to repair a **product**;
- 42 • the ability of the person repairing the **product** (skill level and **tools**);
- 43 • the possibility to **reuse** used **parts** of a **product**;
- 44 • the ability during **repair** for software updates.

45 The decision whether a **product** should be repaired is dependent on a range of factors such as health and  
46 safety, **intended use** as well as economic, legal, and environmental aspects. However, the question of whether  
47 it is reasonable to repair the **product** or **reuse** of used **parts** is outside of the scope of this document. This  
48 document does not cover software (firmware and application software) or hardware modifications that change  
49 the **intended use** of the **product**. Other risks making **products** non-compliant with safety standards are also  
50 not covered by this document. The safety of the repairer during the **repair** is out of scope of this document.

## 51 2 Normative references

52 There are no normative references in this document.

## 53 3 Terms and definitions

### 54 3.1

#### 55 **accidental breakdown**

56 failure of a **product** by unintentional action, inadvertence, a mistake or a misuse by the user

### 57 3.2

#### 58 **commercially available tool**

59 **tool** that is available for purchase

### 60 3.3

#### 61 **core product**

62 **part** of **parts** of a **product** which expose(s) dangerous **parts** during **disassembly**

### 63 3.4

#### 64 **disassembly**

65 process whereby a **product** is taken apart in such a way that it can subsequently be reassembled and made  
66 operational

67 [SOURCE: IEC 62542 definition 6.1, modified by changing “an item” into “a **product**” and deleting the note].

### 68 3.5

#### 69 **intended use**

70 use of a **product** and **parts** in accordance with the information provided by the manufacturer

### 71 3.6

#### 72 **part**

73 hardware, software (firmware and application software) constituent of a **product**

74 Note 1 to entry: A **part** can be an assembly of several **parts**.

75 **3.7**76 **product**

77 any good that is placed on the market and/or put into service and includes **parts** intended to be incorporated  
78 into it

79 Note 1 to entry: **Products** covered by this standard which are placed on the market and/or put into service as individual  
80 parts for users and of which the environmental performance can be assessed independently.

81 **3.8**82 **reassembly**

83 process by which a **product**, a **spare part** or a fastener is reassembled so as to fulfil its functional role and be  
84 made operational

85 **3.9**86 **remote assistance**

87 any system that is intended to facilitate the search for information in the event of a breakdown, information how  
88 to identify the origin of a breakdown, or information how to carry out the **repair**

89 Note 1 to entry: **Remote assistance** services include information (website, FAQs, etc.), remote diagnostic support (phone  
90 call line, chat, application included in the equipment, interactive decision tree, etc.) and **repair** support (phone call line, video  
91 call, remote control of the equipment, etc.).

92 **3.10**93 **repair**

94 process of returning a faulty **product** to a condition where it can fulfil its **intended use**

95 Note 1 to entry: **Repair** does not include maintenance (operation to be carried out as described in the instruction manual).

96 **3.11**97 **reuse**

98 any operation by which a **part** extracted from a **product** at the end of its life is used in another **product** for the  
99 same purpose for which it was intended

100 **3.12**101 **safety-critical spare part**

102 **spare part** that fulfils a safety-critical function

103 Note 1 to entry: Potentially needs special attention, skills or testing during the **assembly/disassembly**.

104 **3.13**105 **spare part**

106 separate **part** that can replace a **part** with the same function

107 **3.14**108 **special tool**

109 **tool** that is generally only available to a manufacturer or a trained person

110 Note 1 to entry: Special measuring devices are included, i.e. devices for failure detection and testing after **repair** that can  
111 only be handled by a trained person (level 2 professional repairer or a level 3 authorized professional repairer).

112 **3.15**113 **step**

114 operation that finishes with a change of **tool** or with the removal and installation of a **part** when referring to  
115 dismantling, **disassembly**, or **reassembly**

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116 **3.16**  
 117 **tool**  
 118 any physical object (hardware) or non-physical object (software) which supports the **disassembly, reassembly,**  
 119 **repair** or replacement process

120 **4 Prerequisites for repair**121 **4.1 General**

122 The repairability of a **product** is conditioned by a number of prerequisites, which, often by law, shall be met in  
 123 advance of the **repair** process. The following list is a non-exhaustive overview over some of the general aspects  
 124 which shall be taken into consideration.

125 NOTE In order to determine a comparable index of repairability, it makes sense to distinguish between possible **repairs**  
 126 and those that are not permitted to be performed by the end user due to safety legislation.

127 **4.2 Skill level required for repair**

128 **Repairs** are distinguished according to their complexity level as follows:

129 Complexity level of the **repair A**: No **tools** are needed or only **commercially available tools**. No **safety-critical**  
 130 **spare parts** and no special tests or calibration needed when the **repair** is carried out in accordance with the  
 131 instruction manual. Opening of the **core product** is not necessary.

132 Complexity level of the **repair B**: **Special tools**, but no **safety-critical spare parts** and no calibration needed  
 133 when the **repair** is carried out in accordance with the **repair** manual. Opening of the **core product** might be  
 134 necessary.

135 Complexity level of the **repair C**: **Special tools**, **safety-critical spare parts** and, if necessary, calibration  
 136 needed when the **repair** is carried out in accordance with the **repair** manual. Opening of the **core product**  
 137 might be necessary.

138 The skill levels of repairers are defined as follows: prEN 50735-1:2023

139 Level 1 end user: person that can only perform the **repair** as described in the instruction manual.

140 NOTE For safety reasons, the **repair** of certain **products** or **parts** is not permitted to be performed by the end user,  
 141 including, without limitation, the following:

- 142 • Reset an immobilizer system or security-related electronic modules;
- 143 • Reprogram any electronic processing units or electric motor control units;
- 144 • Change any equipment or electric motor settings negatively affecting safety compliance;
- 145 • Download or access the source code of any proprietary firmware or software;
- 146 • **Repair** of battery packs and related **parts**.

147 Level 2 professional repairer: person with a technical education (e.g. educated electrical specialist) who  
 148 provides services of professional **repair** by means of an undertaking in an appropriate working environment.

149 Level 3 authorized professional repairer: level 2 professional repairer who has received a written mandate from  
 150 the manufacturer to perform services of professional **repair** on his behalf in an appropriate working environment.

151 Table 1 below shows the necessary skill level of the repairer based on the complexity level of **repair**.



152

Table 1 — Skill level

Complexity level of the repair	Minimum skill level of repairer
A	1
B	2
C	3

153 Nevertheless, the manufacturer may define the complexity level of a **repair** and by whom the **repair** may be  
 154 done according to the safety relevance and complexity of the **repair**.

#### 155 4.3 Identification of spare parts

156 The manufacturer shall support the customer with a list of **spare parts** which may be amended by the  
 157 manufacturer over the lifecycle of the **product** based on for example

- 158 • the likelihood of failure of the **part**;
- 159 • the functionality of the **part** (single **part** or assembly);
- 160 • customer returns (e.g. field data);
- 161 • **accidental breakdowns** can be considered a source of **part** failure;
- 162 • wear-out under **intended use** shall also be considered a source of **part** failure.

163 NOTE A general **spare parts** list is impossible to create due to the high variance in the design of different power tools  
 164 or garden machinery equipment and their applications. As a minimum, legally prescribed **spare parts** will be included, if  
 165 they are present (e.g. in the case of another technical solution).

#### 166 4.4 Identification of safety-critical spare parts

167 The list of **spare parts** mentioned in 4.3 may include **safety-critical spare parts**.

168 Since per legal situation, end users might not be able to perform **repairs** including **safety-critical spare parts**  
 169 or **repairs** inside the **core product**, manufacturers might highlight the difference in the list or provide specific  
 170 lists of **spare parts** according to the skill level required for the **repair**.

171 A **spare part** is considered to be a **safety-critical spare part**, if at least one of the following conditions applies:

- 172 • the need to carry out standardized safety inspections after **repair** or after software/firmware-adaption  
 173 (safety standards for **product** need to be fulfilled);
- 174 • the need to calibrate the **product** after replacement (e.g. measuring devices);
- 175 • specific **repair** skills and procedure (e.g. torque);
- 176 • specific working environment, conditions (e.g. ESD = electrostatic discharge), and **tools**.

177 Only **safety-critical spare parts** (hardware and/or software/firmware) that are approved/released by the  
 178 manufacturer shall be used for the **repair** of a **product**.

179 **Safety-critical spare parts** will need to be fixed in a special manner and may need to be handled by a  
 180 professional repairer or an approved **repair** specialist.

#### 181 4.5 Fastening systems

182 Fasteners play an important role in the assessment of the repairability of a **product**.

183 The various types of fasteners are described below:

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- 184 • reusable: an original fastening system that can be completely reused;
- 185 • removable: an original fastening system that is not reusable but can be removed without causing damage  
186 to the **product**;
- 187 • not removable: an original fastening system which is not removable as defined above;
- 188 • not reusable: an original fastening system which is not reusable as defined above.

189 NOTE When fasteners are mentioned in this subclause, they also include connectors.

190 If the fastening systems are either “removable”, “not removable” or “not usable”, the manufacturer shall provide  
191 information, whether a **repair** is possible and how it can be performed.

## 192 5 Prerequisites for the reuse of used parts

193 When used **parts** are reused as **spare parts**, they shall meet safety standards and all safety related technical  
194 specifications. This is particularly true for **safety-critical spare parts**.

195 NOTE Ideally, the manufacturer approves the **reuse** of a used **spare part** or defines the technical specifications that  
196 used **spare parts** need to fulfil in order to be reused.

197 In case of **reuse** of a software-related **part** or **product**, it shall be possible to reset all settings and personal  
198 data to original manufacturer settings.

## 199 6 Repair process

### 200 6.1 General

201 The **repair** process described below is applicable to new **spare parts** as well as reused **spare parts**.

### 202 6.2 Failure description and repair option

203 The instruction manual shall include criteria to assess, if an end user is allowed to carry out certain **repairs** or if  
204 a professional repairer and/or an approved **repair** specialist is required.

205 This may be done with the list of **spare parts** as mentioned in 4.3.

### 206 6.3 Disassembly process

207 Figure 1 below shows a **disassembly** process in a basic manner.