



SLOVENSKI STANDARD
oSIST prEN IEC 61558-2-5:2023
01-junij-2023

**Varnost transformatorjev, dušilk, napajalnikov in kombinacij teh elementov - 2-5.
del: Posebne zahteve in preskusi za transformatorje za brivnike in napajalnike
brivnikov**

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-5:
Particular requirements and test for transformer for shavers, power supply units for
shavers and shaver supply units

STANDARD PREVIEW
(standards.iteh.ai)

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des
combinaisons de ces éléments - Partie 2-5: Règles particulières et essais pour les
transformateurs pour rasoirs, blocs d'alimentation incorporant un transformateur pour
rasoirs et blocs d'alimentation pour rasoirs

Ta slovenski standard je istoveten z: prEN IEC 61558-2-5:2023

ICS:

29.180	Transformatorji. Dušilke	Transformers. Reactors
97.170	Oprema za nego telesa	Body care equipment

oSIST prEN IEC 61558-2-5:2023 **en**



COMMITTEE DRAFT FOR VOTE (CDV)

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IEC TC 96 : TRANSFORMERS, REACTORS, POWER SUPPLY UNITS, AND COMBINATIONS THEREOF	
SECRETARIAT: Germany	SECRETARY: Mr Andre Lühring
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 3C,TC 14,TC 22,SC 22E,SC 34C,TC 51,TC 55,TC 61,SC 62A,TC 64,TC 66,TC 77,TC 85,TC 97,TC 106,TC 108,TC 109,TC 111,TC 112	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>	

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- any relevant "in some countries" clauses to be included should this proposal proceed. Recipients are reminded that the enquiry stage is the final stage for submitting "in some countries" clauses. See AC/22/2007.

TITLE:

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-5: Particular requirements and test for transformer for shavers, power supply units for shavers and shaver supply units

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY OF TRANSFORMERS, REACTORS,
POWER SUPPLY UNITS AND COMBINATIONS THEREOF –****Part 2-5: Particular requirements and tests for transformers for shavers,
power supply units for shavers and shaver supply units**

FOREWORD

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- 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.

International standard IEC 61558-2-5 has been prepared by IEC technical committee 96: Transformers, reactors, power supply units and combinations thereof.

This third edition cancels and replaces the second edition published in 2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) adjustment of structure and references in accordance with IEC 61558-1:2017;
- b) new symbol for power supply unit with linearly regulated output voltage.

93 The text of this document is based on the following documents:

Draft	Report on voting
96/XXX/FDIS	96/XXX/RVD

94
95 Full information on the voting for its approval can be found in the report on voting indicated in
96 the above table.

97 The language used for the development of this document is English.

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

102 It has the status of a group safety publication in accordance with IEC Guide 104.

103 This document is to be used in conjunction with IEC 61558-1:2017.

104 This document supplements or modifies the corresponding clauses in IEC 61558-1:2017, so as
105 to convert that publication into the IEC standard: *Particular requirements and tests for*
106 *transformers for shavers, power supply units for shavers and shaver supply units*.

107 A list of all parts in the IEC 61558 series published under the general title *Safety of transformers,*
108 *reactors, power supply units and combinations thereof*, can be found on the IEC website.

109 Future standards in this series will carry the new general title as cited above. Titles of existing
110 standards in this series will be updated at the time of the next edition.

111 Where this document states "*addition*", "*modification*" or "*replacement*", the relevant text of
112 IEC 61558-1:2017 is to be adopted accordingly.

113 In this document, the following print types are used: c-61558-2-5-2023

114 – requirements proper: in roman type;

115 – *test specifications: in italic type;*

116 – explanatory matter: in smaller roman type.

117 In the text of this document, the words in **bold** are defined in Clause 3.

118 Subclauses, notes, figures and tables additional to those in IEC 61558-1:2017 are numbered
119 starting from 101; supplementary annexes are entitled AA, BB, etc.

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

- 123 • reconfirmed,
- 124 • withdrawn,
- 125 • replaced by a revised edition, or
- 126 • amended.

127

128

INTRODUCTION

129 IEC TC 96 has a group safety function in accordance with IEC Guide 104 for transformers other
130 than those intended to supply distribution networks, in particular transformers and power supply
131 units intended to allow the application of protective measures against electric shock as defined
132 by TC 64, but in certain cases including the limitation of voltage and horizontal safety function
133 for SELV, in accordance with IEC 60364-4-41.

134 The group safety function (GSF) is used because of responsibility for example for safety extra-
135 low voltage (SELV) in accordance with IEC 61140:2016, 5.2.6 and IEC 60364-4-41:2005,
136 414.3.1 or control circuits in accordance with IEC 60204-1:2016, 7.2.4.

137 The group safety function is used for each part of IEC 61558-2 because different standards of
138 the IEC 61558 series can be combined in one construction but in certain cases with no limitation
139 of rated output power.

140 For example an auto-transformer in accordance with IEC 61558-2-13 can be designed with a
141 separate SELV-circuit in accordance with the particular requirements for IEC 61558-2-6 relating
142 to the general requirements of IEC 61558-1.

143

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[oSIST prEN IEC 61558-2-5:2023](https://standards.iteh.ai/catalog/standards/sist/cae04b87-7ea2-4211-ba81-31db0d4900ef/osist-pren-iec-61558-2-5-2023)

<https://standards.iteh.ai/catalog/standards/sist/cae04b87-7ea2-4211-ba81-31db0d4900ef/osist-pren-iec-61558-2-5-2023>

144 **SAFETY OF TRANSFORMERS, REACTORS,**
145 **POWER SUPPLY UNITS AND COMBINATIONS THEREOF –**
146

147 **Part 2-5: Particular requirements and tests for transformers for shavers,**
148 **power supply units for shavers and shaver supply units**
149
150

151 **1 Scope**

152 *Replacement*

153 This part of IEC 61558 deals with the safety of **shaver transformers, power supply units**
154 incorporating a **shaver transformer**, and **shaver supply units**. **Shaver transformers**
155 incorporating **electronic circuits** are also covered by this document.

156 NOTE 1 Safety includes electrical, thermal and mechanical aspects.

157 Unless otherwise specified, from here onward, the term **transformer** covers **shaver**
158 **transformers** and **power supply units** incorporating **shaver transformers** and **shaver supply**
159 **units**.

160 For **power supply units** (linear) this document is applicable. For **switch mode power supply**
161 **units** IEC 61558-2-16 is applicable together with this document. Where two requirements are
162 in conflict, the most severe take precedence.

163 This document is applicable to **stationary**, single-phase, air-cooled (natural or forced)
164 **independent or associated dry-type transformers**. The windings can be encapsulated or non-
165 encapsulated.

166 The **rated supply voltage** does not exceed 250 V AC and the **rated supply frequency** and the
167 **internal operating frequencies** do not exceed 500 Hz.

168 The **rated output** is not less than 20 VA and does not exceed 50 VA.

169 The **no-load output voltage** does not exceed 275 V AC and the **rated output voltage** does
170 not exceed 250 V AC.

171 This document is not applicable to external circuits and their components intended to be
172 connected to the input and output terminals or socket-outlets of the **transformers**.

173 NOTE 3 **Transformers** covered by this document are only used in applications where double or reinforced
174 insulation between circuits is required by the installation rules for bathrooms and similar locations, or by the appliance
175 specifications.

176 NOTE 4 Transformers covered by this document can be flush or surface mounted or incorporated in luminaires,
177 mirrors, and other equipment containing one or more socket-outlet(s).

178 Attention is drawn to the following, if necessary:

- 179 – for **transformers** intended to be used in vehicles, on board ships, and aircraft, additional
180 requirements (from other applicable standards, national rules, etc.);
- 181 – measures to protect the **enclosure** and the components inside the enclosure against
182 external influences such as fungus, vermin, termites, solar-radiation, and icing;
- 183 – the different conditions for transportation, storage, and operation of the **transformers**;
- 184 – additional requirements in accordance with other appropriate standards and national
185 rules can be applicable to **transformers** intended for use in special environments.

186 Future technological development of **transformers** can necessitate a need to increase the
187 upper limit of the frequencies. Until then this document can be used as a guidance document.

188 This group safety publication focusing on safety guidance is primarily intended to be used as a
189 product safety standard for the products mentioned in the scope but is also intended to be used
190 by technical committees in the preparation of publications for products similar to those
191 mentioned in the scope of this group safety publication, in accordance with the principles laid
192 down in IEC Guide 104 and ISO/IEC Guide 51.

193 One of the responsibilities of a technical committee is, wherever applicable, to make use of
194 basic safety publications and/or group safety publications in the preparation of its publications.

195

196 **2 Normative references**

197 This clause of IEC 61558-1:2017 is applicable except as follows:

198 *Addition*

199 IEC 60068-2-62:1991, *Environmental testing – Part 2: Test methods – Test Ef: Impact,*
200 *pendulum hammer*¹

201 IEC 60670 (all parts), *Boxes and enclosures for electrical accessories for household and similar*
202 *fixed electrical installations*

203 IEC 61558-1:2017, *Safety of transformers, reactors, power supply units and combinations*
204 *thereof – Part 1: General requirements and tests*

205 IEC 61558-2-16:2021, *Safety of transformers, reactors, power supply units and combinations*
206 *thereof - Part 2-16: Particular requirements and tests for switch mode power supply units and*
207 *transformers for switch mode power supply units for general applications*

208

209 **3 Terms and definitions**

210 For the purposes of this document, the terms and definitions given in IEC 61558-1:2017 apply,
211 except as follows:

212 ISO and IEC maintain terminological databases for use in standardization at the following
213 addresses:

- 214 • IEC Electropedia: available at <http://www.electropedia.org/>
- 215 • ISO Online browsing platform: available at <http://www.iso.org/obp>

216 *Addition*

217 **3.1.101**

218 **shaver transformer**

219 **isolating transformer** for fixed installation and with a limited output, designed to supply electric
220 shavers, toothbrushes, and similar appliances rated 50 VA or less used in a bathroom. It
221 supplies only one shaver, or the like, at a time

¹ This publication was withdrawn and replaced by IEC 60068-2-75 (1997), but for the purposes of this standard, the IEC 60068-2-62 is cited.

222 **3.1.102**
223 **shaver supply unit**
224 accessory embodying a **shaver transformer** or a **power supply unit** incorporating a **shaver**
225 **transformer**, and one or more socket outlets allowing the use of only one plug at a time

226

227 **4 General requirements**

228 This clause of IEC 61558-1:2017 is applicable.

229

230 **5 General notes on tests**

231 This clause of IEC 61558-1:2017 is applicable.

232

233 **6 Ratings**

234 This clause of IEC 61558-1:2017 is applicable except as follows:

235 *Addition*

236 **6.101** The **rated output voltage** shall not exceed 250 V AC.

237 For **independent transformers**, this **output voltage** limitation applies even when **output**
238 **windings**, not intended for interconnection, are connected in series.

239 **6.102** The **rated output** shall not be less than 20 VA and shall not exceed 50 VA.

240 **6.103** The **rated supply frequency** and the **internal operating frequencies** shall not
241 exceed 500 Hz.

242 **6.104** The **rated supply voltage** shall not exceed 250 V AC.

243 *Compliance with the requirements of 6.101 to 6.104 is checked by inspection of the marking.*

244

245 **7 Classification**

246 This clause of IEC 61558-1:2017 is applicable except as follows:

247 **7.2**

248 *Replacement*

249 According to short-circuit characteristic or protection against abnormal use:

- 250 – **inherently short-circuit proof transformers;**
- 251 – **non-inherently short-circuit proof transformers;**

252 **7.8**

253 *Replacement*

254 According to their transient overvoltage condition:

- 255 – **overvoltage category II**

256

257 **8 Marking and other information**

258 This clause of IEC 61558-1:2017 is applicable except as follows:

259

260 **8.1** h)

261 *Replacement*

262 Replace the content up to the first semi-colon by the following:

263 relevant graphical symbols shown in Table 101 that indicate the kind of **transformer**

264

265 n)

266 *Modification*

267 indication of the degree of protection (IP code) for **transformers**, if higher than IP00;

268 indication of the degree of protection (IP code) for **shaver supply units**, if higher than IP21.

269

270 **8.7**

271 *Addition*

272 For **shaver supply units** provided with a single-pole switch, the switched pole shall be
273 connected to the line.

274

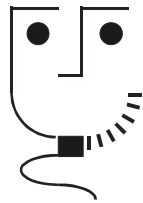

275 **8.11**

276 *Addition*

277 The symbol for linear **power supply units** shall be used in conjunction with the symbol
278 indicating the kind of **transformer**.

279

Table 101 – Symbols indicating the kind of transformer

Symbol or graphical symbol	Explanation or title	Identification
	Shaver supply units and shaver transformers	IEC 60417-5225:2002-10
	Power supply unit, linear	IEC 60417-6210:2013-10