



SLOVENSKI STANDARD
oSIST prEN IEC 60317-0-3:2023

01-oktober-2023

Specifikacije za posebne vrste navijalnih žic - 0-3. del: Splošne zahteve - Emajliran okrogel aluminijev vodnik

Specifications for particular types of winding wires - Part 0-3: General requirements - Enamelled round aluminium wire

Technische Lieferbedingungen für bestimmte Typen von Wickeldrähten - Teil 0-3: Allgemeine Anforderungen - Lackisolierte Runddrähte aus Aluminiumdraht

Spécifications pour types particuliers de fils de bobinage - Partie 0-3: Exigences générales - Fil de section circulaire en aluminium émaillé

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<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting 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. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Specifications for particular types of winding wires - Part 0-3: General requirements - Enamelled round aluminium wire

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

This new 4th edition proposes simple amendments to the springiness and cut-through requirements in accordance with Decision 2022-08 in 55/1936/DL, and with 55/1912A/INF.

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SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

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Part 0-3: General requirements – Enamelled round aluminium wire

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FOREWORD

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112 IEC 60317-0-3 has been prepared by IEC technical committee 55: Winding wires. It is an
113 International Standard.

114 This fourth edition cancels and replaces the third edition published in 2008, Amendment 1:2013
115 and Amendment 2:2019. This edition constitutes a technical revision.

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

118 a) Revision to clause 7, designating the test as inappropriate

119 b) Revision to clause 10, designating the test as inappropriate

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

121
122 Full information on the voting for its approval can be found in the report on voting indicated in
123 the above table.

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

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

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

- 132 • reconfirmed,
- 133 • withdrawn,
- 134 • replaced by a revised edition, or
- 135 • amended.

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INTRODUCTION

138 The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed
139 that compliance with this document may involve the use of a patent. IEC takes no position
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146 subject of patent rights other than those in the patent database. IEC shall not be held
147 responsible for identifying any or all such patent rights.

148 This part of IEC 60317 is one of a series that deals with insulated wires used for windings in
149 electrical equipment. The series has three groups describing

- 150 1) winding wires and test methods (IEC 60851);
- 151 2) specifications for particular types of winding wires (IEC 60317);
- 152 3) packaging of winding wires (IEC 60264).

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SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 0-3: General requirements – Enamelled round aluminium wire

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161 **1 Scope**

162 This part of IEC 60317 specifies the general requirements of enamelled round aluminium
163 winding wires with or without a bonding layer.

164 The range of nominal conductor diameters is given in the relevant specification sheet.

165 **2 Normative references**

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

170 IEC 60172, *Test procedure for the determination of the temperature index of enamelled winding*
171 *wires*

172 IEC 60317 (all parts), *Specifications for particular types of winding wires*

173 IEC 60851 (all parts), *Winding wires – Test methods*

174 ISO 3, *Preferred numbers – Series of preferred numbers*

175 ASTM B233-97, *Standard Specification for Aluminum 1350 Drawing Stock for Electrical*
176 *Purposes*

177 EN 1715-2, *Aluminium and aluminium alloys – Drawing stock – Part 2: Specific requirements*
178 *for electrical applications*

179 **3 Terms, definitions, general notes, and appearance**

180 For the purposes of this document, the following terms and definitions apply.

181 ISO and IEC maintain terminology databases for use in standardization at the following
182 addresses:

- 183 • IEC Electropedia: available at <https://www.electropedia.org/>
- 184 • ISO Online browsing platform: available at <https://www.iso.org/obp>

185 **3.1 Definitions**

186 **3.1.1**

187 **bonding layer**

188 material which is deposited on an enamelled wire, and which has the specific function of
189 bonding wires together

- 190 **3.1.2**
191 **class**
192 the thermal performance of a wire expressed by the temperature index and the heat shock
193 temperature
- 194 **3.1.3**
195 **coating**
196 material which is deposited on a conductor or wire by a suitable means and then dried and/or
197 cured
- 198 **3.1.4**
199 **conductor**
200 the bare metal after removal of the insulation
- 201 **3.1.5**
202 **crack**
203 opening in the insulation which exposes the conductor to view at the stated magnification
- 204 **3.1.6**
205 **dual coating**
206 insulation composed of two different materials, an underlying and a superimposed coating
- 207 **3.1.7**
208 **enamelled wire**
209 wire coated with an insulation of cured resin
- 210 **3.1.8**
211 **grade**
212 the range of thickness of the insulation of a wire
- 213 **3.1.9**
214 **insulation**
215 coating or covering on the conductor with the specific function of withstanding voltage
- 216 **3.1.10**
217 **nominal conductor dimension**
218 designation of the conductor size in accordance with the IEC 60317 series
- 219 **3.1.11**
220 **normal vision**
221 20/20 vision, with corrective lenses, if necessary
- 222 **3.1.12**
223 **winding wire**
224 wire used for winding a coil to provide a magnetic field
- 225 **3.1.13**
226 **wire**
227 conductor coated or covered with an insulation
- 228 **3.2 General notes**
- 229 **3.2.1 Methods of test**
- 230 All methods of test to be used for this part of IEC 60317 are given in IEC 60851.
- 231 The clause numbers used in this standard are identical with the respective test numbers of
232 IEC 60851.

233 In case of inconsistencies between the publication on methods of test and this standard,
234 IEC 60317-0-3 shall prevail.

235 Where no specific range of nominal conductor diameters is given for a test, the test applies to
236 all nominal conductor diameters covered by the specification sheet.

237 Unless otherwise specified, all tests shall be carried out at a temperature from 15 °C to 40 °C
238 and a relative humidity of 25 % to 75 %. Before measurements are made, the specimens shall
239 be preconditioned under these atmospheric conditions for a time sufficient to allow the
240 specimens to reach stability.

241 The wire to be tested shall be removed from the packaging in such a way that the wire will not
242 be subjected to tension or unnecessary bends. Before each test, sufficient wire should be
243 discarded to ensure that any damaged wire is not included in the test specimens.

244 **3.2.2 Winding wire**

245 See the relevant specification sheet.

246 In addition, when reference is made to a winding wire according to a standard of the IEC 60317
247 series mentioned under Clause 2, the following information is given in the description:

- 248 • reference to IEC specification;
- 249 • nominal conductor diameter in millimetres;
- 250 • grade.

251 EXAMPLE IEC 60317-1 – 0,500 Grade 2

252 **3.3 Appearance**

253 The film coating shall be essentially smooth and continuous, free from streaks, blisters and
254 foreign material when examined with normal vision, as wound on the original spool or reel.

255 When agreed upon between the user and supplier, examination using 6× to 10× magnification
256 shall be used for wires with a nominal diameter less than 0,10 mm.

257 **4 Dimensions**

258 **4.1 Conductor diameter**

259 The series of preferred nominal conductor diameters shall correspond to series R 20 according
260 to ISO 3. The actual values and their tolerances are given in Table 1 and Table 2.

261 The series of intermediate diameters from which the user may select intermediate nominal
262 conductor diameters, when required for technical reasons, shall correspond to series R 40
263 according to ISO 3. The actual values and their tolerances are given in Annex A.

264 The conductor diameter shall not differ from the nominal diameter by more than the limit given
265 in Table 1 or Table 2.

266 For intermediate nominal conductor diameters, the minimum increase figure corresponding to
267 the next larger nominal conductor diameter applies.