



SLOVENSKI STANDARD
oSIST prEN IEC 60352-7:2024

01-september-2024

Spoji brez spajke - 7. del: Objemka vzmetnih spojk - Splošne zahteve, preskusne metode in praktični napotki

Solderless connections - Part 7: Spring clamp connections - General requirements, test methods and practical guidance

Lötfreie Verbindungen - Teil 7: Federklemmverbindungen - Allgemeine Anforderungen, Prüfverfahren und Anwendungshinweise

Connexions sans soudure - Partie 7: Connexions à ressort - Règles générales, méthodes d'essai et guide pratique

Ta slovenski standard je istoveten z: prEN IEC 60352-7:2024

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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.
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TITLE:

Solderless connections - Part 7: Spring clamp connections - General requirements, test methods and practical guidance

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SOLDERLESS CONNECTIONS –

Part 7: Spring clamp connections – General requirements, test methods and practical guidance

FOREWORD

- 126 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising
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128 co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and
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158 IEC 60352-7 has been prepared by SC 48B: Electrical connectors, of IEC technical committee
159 48: Electrical connectors and mechanical structures for electrical and electronic equipment. It
160 is an International Standard.

161 This third edition cancels and replaces the second edition published in 2020. This edition
162 constitutes a technical revision.

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

- 165 a) Addition of tests for resiliency in metallic parts to compensate for any shrinkage or yielding
166 of insulating material with regards to contact pressure transmitted via insulating material
167 (CoPI);

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

Draft	Report on voting
48B/XX/FDIS	48B/XX/RVD

- 169
170 Full information on the voting for its approval can be found in the report on voting indicated in
171 the above table.
- 172 The language used for the development of this International Standard is English.
- 173 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
174 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
175 at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
176 described in greater detail at www.iec.ch/publications.
- 177 A list of all parts in the IEC 60352 series, published under the general title *Solderless*
178 *connections*, can be found on the IEC website.
- 179 The committee has decided that the contents of this document will remain unchanged until the
180 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
181 specific document. At this date, the document will be
- 182 • reconfirmed,
183 • withdrawn,
184 • replaced by a revised edition, or
185 • amended.
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INTRODUCTION

188 This part of IEC 60352 covers spring clamp connections and includes requirements, tests and
189 practical guidance information.

190 Two test schedules are provided.

191 a) The basic test schedule applies to spring clamp connections which conform to all
192 requirements of Clause 5. These requirements are derived from experience with successful
193 applications of such spring clamp connections.

194 b) The full test schedule applies to spring clamp connections which do not fully conform to all
195 requirements of Clause 5, for example which are manufactured using materials or finishes
196 not included in Clause 5.

197 This approach permits cost and time effective performance verification using a limited basic
198 test schedule for established spring clamp connections and an expanded full test schedule for
199 spring clamp connections requiring more extensive performance validation.

200 The values given in this specification are minimum values, which are harmonized with other
201 IEC documents. Other standards may specify other values.

202 The test procedure for resiliency in metallic parts to compensate for any shrinkage or yielding
203 of insulating material with regards to contact pressure transmitted via insulating material (CoPI)
204 has been derived from of IEC 60947-7-4:2019.

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SOLDERLESS CONNECTIONS –

Part 7: Spring clamp connections – General requirements, test methods and practical guidance

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213 1 Scope

214 This part of IEC 60352 is applicable to spring clamp connections made with stripped wire of the
215 following types and sizes according to IEC 60228:2023 or IEC 60189-3, without further
216 preparation (later described “unprepared”):

- 217 – solid conductors (e.g. class 1 of IEC 60228:2023) of 0,32 mm to 3,7 mm nominal diameter
218 (0,08 mm² to 10 mm² cross-section), or
- 219 – stranded conductors (e.g. class 2 of IEC 60228:2023) of 0,08 mm² to 10 mm² cross-section,
220 or
- 221 – flexible conductors (e.g. class 5 or 6 of IEC 60228:2023) of 0,08 mm² to 10 mm² cross-
222 section,

223 for use in electrical and electronic equipment and components.

224 Information on materials and data from industrial experience is included in addition to the test
225 procedures to provide electrically stable connections under prescribed environmental
226 conditions.

227 The object of this document is to determine the suitability of spring clamp connections under
228 specified mechanical, electrical and atmospheric conditions.

229 NOTE IEC Guide 109 advocates the need to minimize the impact of a product on the natural environment throughout
230 the product life cycle. It is understood that some of the materials permitted in this document may have a negative
231 environmental impact. As technological advances lead to acceptable alternatives for these materials, they will be
232 eliminated from this document.

233 2 Normative references

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

238 IEC 60050-581, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical
239 components for electronic equipment*

240 IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

241 IEC 60189-3:2007, *Low frequency cables and wires with PVC insulation and PVC sheath –
242 Part 3: Equipment wires with solid or stranded conductor, PVC insulated, in singles,
243 pairs and triples*

244 IEC 60228:2023, *Conductors of insulated cables*

245 IEC 60512-1, *Connectors for electronic equipment – Tests and measurements – Part 1: Generic
246 specification*

247 IEC 60512-1-1, *Connectors for electronic equipment – Tests and measurements – Part 1-1:
248 General examination – Test 1a: Visual examination*

- 249 IEC 60512-1-2, *Connectors for electronic equipment – Tests and measurements – Part 1-2:*
250 *General examination – Test 1b: Examination of dimension and mass*
- 251 IEC 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1:*
252 *Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level*
253 *method*
- 254 IEC 60512-2-2, *Connectors for electronic equipment – Tests and measurements – Part 2-2:*
255 *Electrical continuity and contact resistance tests – Test 2b: Contact resistance – Specified test*
256 *current method*
- 257 IEC 60512-2-5, *Connectors for electronic equipment – Tests and measurements – Part 2-5:*
258 *Electrical continuity and contact resistance tests – Test 2e: Contact disturbance*
- 259 IEC 60512-6-4, *Connectors for electronic equipment – Tests and measurements – Part 6-4:*
260 *Dynamic stress tests – Test 6d: Vibration (sinusoidal)*
- 261 IEC 60512-9-2, *Connectors for electronic equipment – Tests and measurements – Part 9-2:*
262 *Endurance tests – Test 9b: Electrical load and temperature*
- 263 IEC 60512-9-5, *Connectors for electrical and electronic equipment - Tests and measurements - Part*
264 *9-5: Endurance tests - Test 9e: Current loading, cyclic*
- 265 IEC 60512-11-1, *Connectors for electrical and electronic equipment – Tests and measurements*
266 *– Part 11-1: Climatic tests – Test 11a – Climatic sequence*
- 267 IEC 60512-11-4, *Connectors for electronic equipment – Tests and measurements – Part 11-4:*
268 *Climatic tests – Test 11d: Rapid change of temperature*
- 269 IEC 60512-11-7, *Connectors for electronic equipment – Tests and measurements – Part 11-7:*
270 *Climatic tests – Test 11g: Flowing mixed gas corrosion test*
- 271 IEC 60512-11-9, *Connectors for electronic equipment – Tests and measurements – Part 11-9:*
272 *Climatic tests – Test 11i: Dry heat*
- 273 IEC 60512-11-10, *Connectors for electronic equipment – Tests and measurements – Part 11-*
274 *10: Climatic tests – Test 11j: Cold*
- 275 IEC 60512-16-20, *Electromechanical components for electronic equipment – Basic testing*
276 *procedures and measuring methods – Part 16: Mechanical tests on contacts and terminations*
277 *– Section 20: Test 16t: Mechanical strength (wired termination of solderless connections)*
- 278 IEC 61984:2008, *Connectors – Safety requirements and tests*

279 **3 Terms and definitions**

280 For the purposes of this document, the terms and definitions given in IEC 60050-581, IEC
281 60512-1 and the following apply.

282 ISO and IEC maintain terminology databases for use in standardization at the following
283 addresses:

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

286 **3.1**

287 **spring clamp termination**

288 part of the contact or terminal to which one single conductor only is connected by means of a
289 spring