



SLOVENSKI STANDARD
oSIST prEN 50575:2012
01-marec-2012

Elektroenergetski, krmilni in komunikacijski kabli - Kabli za splošno uporabo za gradbena dela glede na zahteve za odpornost proti požaru

Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements

Starkstromkabel und -leitungen, Steuer- und Kommunikationskabel - Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten

Câbles d'énergie, de commande et de communication - Câbles pour applications générales dans les ouvrages de construction soumis aux exigences de réaction au feu

Ta slovenski standard je istoveten z: prEN 50575:2012

ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
29.060.20	Kabli	Cables

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en

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ICS

English version

**Power, control and communication cables -
Cables for general applications in construction works
subject to reaction to fire requirements**

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iTeh STANDARD PREVIEW

This draft European Standard is submitted to CENELEC members for CENELEC enquiry.
Deadline for CENELEC: 2012-06-15.

It has been drawn up by CLC/TC 20.

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). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

CENELEC

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

48 This document (prEN 50575:2012) has been jointly prepared by CLC/TC 20 "Electric cables",
49 CLC/TC 46X "Communication cables" and its sub-committees and CLC/TC 86A "Optical fibre
50 and optical fibre cables".

51 It is currently submitted to the CENELEC Enquiry.

52 This document has been prepared under a mandate given to CENELEC by the European
53 Commission and the European Free Trade Association, and supports essential requirements
54 of EU Directives CPD (89/106/EEC) and LVD (2006/95/EC).

55 For the relationship with EU Directives 89/106/EEC and 2006/95/EC, see informative
56 Annexes ZZA and ZZB, which are an integral part of this document.

57 Annex ZZA, which is informative, details the aspects of performance to be examined in order
58 to satisfy the Essential Requirements, as defined by the Construction Products Directive
59 89/106/EEC and amplified by the appropriate Interpretative Document.

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61 1 Scope

62 This European Standard specifies reaction to fire performance requirements, test and
63 assessment methods for power, control and communication cables used for the supply of
64 electricity and for control and communication purposes, which are intended for use in
65 construction works.

66 This European Standard only covers the reaction to fire and release of dangerous substances
67 performance requirements.

68 NOTE 1 This European Standard does not replace the electrical, mechanical and environmental requirements
69 that are essential to demonstrate compliance with other applicable cable standards/specifications.

70 This European Standard covers:

- 71 – power cables – insulated conductors and cables for use in e.g. the supply of electricity;
- 72 – control and communication cables – wires, symmetric cables, and coaxial cables with
73 metallic conductors for use in e.g. telecommunication, data transmission, radio frequency,
74 video communication and signalling and control equipment;
- 75 – optical fibre cables – for use in e.g. in telecommunication, data transmission, radio
76 frequency, video communication and signalling and control equipment.

77 NOTE 2 Performance characteristics other than those covered by the standard may be subject to the provisions
78 of other relevant directives, e.g. the Low Voltage Directive.

79 2 Normative references

80 The following referenced documents are indispensable for the application of this document.
81 For dated references, only the edition cited applies. For undated references, the latest edition
82 of the referenced document (including any amendments) applies.

83 prEN 13501-6¹⁾, *Fire classification of construction products and building elements – Part 6:*
84 *Classification using data from reaction to fire tests on electric cables*

85 EN 50267-2-3, *Common test methods for cables under fire conditions – Tests on gases*
86 *evolved during combustion of material from cables — Part 2-3: Procedures – Determination of*
87 *degree of acidity of gases for cables by determination of the weighted average of pH and*
88 *conductivity*

89 EN 50399, *Common test methods for cables under fire conditions – Heat release and smoke*
90 *production measurement on cables during flame spread test – Test apparatus, procedures,*
91 *results*

92 EN 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test*
93 *for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-*
94 *mixed flame (IEC 60332-1-2)*

95 EN 61034-2, *Measurement of smoke density of cables burning under defined conditions –*
96 *Part 2: Test procedure and requirements (IEC 61034-2)*

97 CLC/FprTR 50576²⁾, *Electric cables – Extended application of test results*

98 EN ISO 1716, *Reaction to fire tests for building products – Determination of the gross heat of*
99 *combustion (calorific value) (ISO 1716)*

1) Under preparation in CEN/TC 127.

2) Under preparation in CLC/TC 20.

100 **3 Terms and definitions**

101 For the purposes of this document, the terms and definitions given in the standards referred
102 to in Clause 2 and the following apply.

103 **3.1**

104 **power cable**

105 assembly comprising one or more insulated conductor(s), together with any coverings and protective
106 layers, used for the transmission or supply of electrical energy

107 **3.2**

108 **control cable**

109 assembly comprising insulated conductors, together with any coverings and protective layers used for
110 the transmission of control, measuring and indication signals in electric installations

111 **3.3**

112 **communications cable**

113 assembly of suitably insulated coaxial conductors or twisted pairs of insulated conductors fabricated to
114 meet transmission, mechanical and environmental requirements, and sufficient to allow conveyance of
115 information between two points with the minimum of radiation

116 **3.4**

117 **optical fibre cable**

118 assembly comprising one or more optical fibres or fibre bundles inside a common covering designed
119 to protect them against mechanical stresses and other environmental influences while retaining the
120 transmission quality of the fibres

121 NOTE May also contain metallic conductors.

122 [IEV 731-04-01]

123 **4 Requirements**

124 **4.1 Reaction to fire**

125 The contribution of power, control and communication cables to the development of fire shall
126 be verified according to the test methods relevant for the claimed class as indicated in
127 Clause 5.

128 Test results shall be classified according to prEN 13501-6.

129 The contribution to the development of fire is classified regarding gross calorific potential,
130 flame spread, total heat release, peak heat release rate and Fire Growth Rate Index (FIGRA)
131 and is completed by additional classifications regarding smoke production, flaming
132 droplets/particles and acidity.

133 **4.2 Release of dangerous substances**

134 Power, control and communication cables shall not release any dangerous substances in
135 excess of the maximum permitted levels established by national regulations of the Member
136 State of destination.

137 **5 Test methods for reaction to fire classes**

138 Table 1 gives the reference to the European Standard containing the test methods to be used
139 for the corresponding reaction to fire class.

140

Table 1 – Test methods for reaction to fire classes

Class	Test methods				
	EN ISO 1716	EN 50399 ^a	EN 60332-1-2	EN 61034-2	EN 50267-2-3
A_{ca}	X	-	-	-	-
B1_{ca}	-	X ^b	X	X	X
B2_{ca}	-	X	X	X	X
C_{ca}	-	X	X	X	X
D_{ca}	-	X	X	X	X
E_{ca}	-	-	X	-	-
F_{ca}	No performance determined				
^a EN 50399 contains all the information previously referred to as FIPEC ₂₀ Scenario 1 and FIPEC ₂₀ Scenario 2.					
^b Special conditions of test apply in EN 50399 to Class B1 _{ca} .					

141

142 6 Evaluation of conformity

143 6.1 General

144 The compliance of power, control and communication cables with the requirements of this
 145 European Standard and with the declared values (including classes) shall be demonstrated
 146 by:

- 147 – initial type testing,
- 148 – factory production control by the manufacturer, including product assessment

149 The manufacturer shall always retain the overall control and shall have the necessary means
 150 to take responsibility for the product.

151 6.2 Initial type testing

152 6.2.1 General

153 Initial type testing shall be performed to demonstrate compliance with this European
 154 Standard.

155 All essential characteristics for which the manufacturer declares performances are subject to
 156 Initial Type Testing.

157 Tests previously performed in accordance with the provision of this European Standard may
 158 be taken into account providing that they were made to the same test method, under the same
 159 system of attestation of conformity on the same product or products of similar design,
 160 construction and functionality such that the results are applicable to the product in question.

161 NOTE 1 Same system of attestation of conformity means testing by, or testing witnessed or supervised by, an
 162 independent third party under the responsibility of a product certification body (for products under attestation of
 163 conformity system 1+), or by an independent test laboratory (for products under attestation of conformity system 3).

164 For the purpose of reaction to fire testing, the manufacturer's products may be grouped into
 165 families, where it is considered that the results for one or more characteristics from any one
 166 product within the family are representative for all particular cables within that family.

167 NOTE 2 Reference should be made to the Extended Application (EXAP) rules given in CLC/FprTR 50576 for the
 168 applicability of test results to products other than those tested.

169 In addition, initial type testing shall be performed for all characteristics included in the
170 standard for which the manufacturer declares performances:

- 171 – at the beginning of the production of a new or modified power, control and communication
172 cable type (unless a member of the same family) or
- 173 – at the beginning of a new or modified method of production (where this may affect the
174 declared performance); or
- 175 – they shall be repeated for the appropriate characteristic(s), whenever a change occurs in
176 the power, control and communication cable design, in the raw material or in the supplier
177 of the components, or in the production process (subject to the definition of a family),
178 which would affect significantly one or more of the characteristics.

179 Products marked in accordance with appropriate harmonized European specifications may be
180 presumed to have the performances stated with that marking, although this does not replace
181 the responsibility on the power, control and communication cables designer to ensure that the
182 power, control and communication cables as a whole is correctly designed.

183 **6.2.2 Test samples**

184 Test samples shall be representative of the current production.

185 **6.2.3 Test reports**

186 All Initial Type Tests and their results shall be documented in test reports. All test reports
187 shall be retained by the manufacturer for at least 10 years after the last date of production of
188 the power, control and communication cables to which they relate.

189 **6.3 Factory production control (FPC)**

190 **6.3.1 General**

191 The manufacturer shall establish, document and maintain an FPC system to ensure that the
192 products placed on the market comply with the declared performance characteristics.

193 The FPC system shall consist of procedures, regular inspections, tests and/or assessments
194 and the use of the results to control raw and other incoming materials or components,
195 equipment, the production process and the product. All the elements, requirements and
196 provisions adopted by the manufacturer shall be documented in a systematic manner in the
197 form of written policies and procedures.

198 This production control system documentation shall ensure a common understanding of
199 conformity evaluation and enable the achievement of the required product characteristics and
200 the effective operation of the production control system to be checked. Factory production
201 control, therefore, brings together operational techniques and all measures allowing
202 maintenance and control of the compliance of the product with this European Standard.

203 **6.3.2 Requirements**

204 **6.3.2.1 General**

205 The manufacturer is responsible for organizing the effective implementation of the FPC
206 system. Tasks and responsibilities in the production control organization shall be documented
207 and this documentation shall be kept up-to-date.

208 The responsibility, authority and the relationship between personnel that manages, performs
209 or verifies work affecting product conformity, shall be defined. This applies in particular to
210 personnel that need to initiate actions preventing product non-conformities from occurring,
211 actions in case of non-conformities and to identify and register product conformity problems.
212 Personnel performing work affecting product conformity shall be competent on the basis of
213 appropriate education, training, skills and experience for which records shall be maintained.

214 In each factory, the manufacturer may delegate the action to a person having the necessary
215 authority to:

- 216 – identify procedures to demonstrate conformity of the product at appropriate stages;
- 217 – identify and record any instance of non-conformity;
- 218 – identify procedures to correct instances of non-conformity.

219 The manufacturer shall draw up and keep up-to-date documents defining the factory
220 production control. The manufacturer's documentation and procedures should be appropriate
221 to the product and manufacturing process. The FPC system should achieve an appropriate
222 level of confidence in the conformity of the product. This involves:

- 223 a) the preparation of documented procedures and instructions relating to factory production
224 control operations, in accordance with the requirements of the technical specification to
225 which reference is made;
- 226 b) the effective implementation of these procedures and instructions;
- 227 c) the recording of these operations and their results;
- 228 d) the use of these results to correct any deviations, repair the effects of such deviations,
229 treat any resulting instances of non-conformity and, if necessary, revise the FPC to rectify
230 the cause of non-conformity.

231 Where subcontracting takes place, the manufacturer shall retain the overall control of the
232 product and ensure that he receives all the information that is necessary to fulfil his
233 responsibilities according to this European Standard.

234 If the manufacturer has part of the product designed, manufactured, assembled, packed,
235 processed and/or labelled by subcontracting, the FPC of the subcontractor may be taken into
236 account, where appropriate for the product in question.

237 A manufacturer who subcontracts all of his activities may in no circumstances pass these
238 responsibilities on to a subcontractor.

239 NOTE Manufacturers having an FPC system which complies with EN ISO 9000 series standards and which
240 addresses the requirements of this European Standard are recognized as satisfying the FPC requirements of the
241 Council Directive 89/106/EEC.

242 **6.3.2.2 Equipment**

243 **6.3.2.2.1 Testing**

244 All weighing, measuring and testing equipment shall be calibrated and regularly inspected
245 according to documented procedures, frequencies and criteria.

246 **6.3.2.2.2 Manufacturing**

247 All equipment used in the manufacturing process shall be regularly inspected and maintained
248 to ensure use, wear or failure does not cause inconsistency in the manufacturing process.
249 Inspections and maintenance shall be carried out and recorded in accordance with the
250 manufacturer's written procedures and the records retained for the period defined in the
251 manufacturer's FPC procedures.

252 **6.3.2.3 Raw materials and components**

253 The specifications of all incoming raw materials and components shall be documented, as
254 shall the inspection scheme for ensuring their compliance.

255 **6.3.2.4 Design process**

256 The factory production control system shall document the various stages in the design of
257 products, identify the checking procedure and those individuals responsible for all stages of
258 design. During the design process itself, a record shall be kept of all checks, their results, and
259 any corrective actions taken.

260 This record shall be sufficiently detailed and accurate to demonstrate that all stages of the
261 design phase, and all checks, have been carried out satisfactorily.

262 **6.3.2.5 Traceability and marking**

263 Individual cable batches shall be identifiable and traceable with regard to their production
264 origin. The manufacturer shall have written procedures ensuring that processes related to
265 affixing traceability codes and/or markings are inspected regularly.

266 **6.3.2.6 Controls during manufacturing process**

267 The manufacturer shall plan and carry out production under controlled conditions, appropriate
268 to the particular manufacturing process.

269 **6.3.2.7 Product testing and evaluation**

270 The manufacturer shall establish procedures to ensure that the stated values of the
271 characteristics that he declares are maintained. The characteristics, and the means of control,
272 are:

- 273 – reaction to fire characteristics shall be subject to the tests indicated in Clause 5 at least
274 once per year for each family of power, control and communication cables for which the
275 manufacturer declares performance.

276 **6.3.2.8 Non-complying products**

277 The manufacturer shall have written procedures which specify how non-complying products
278 shall be dealt with. Any such events shall be recorded as they occur and these records shall
279 be kept for the period defined in the manufacturer's written procedures.

280 **6.3.2.9 Corrective action**

281 The manufacturer shall have documented procedures that instigate action to eliminate the
282 cause of non-conformities in order to prevent recurrence.

283 **6.3.2.10 Handling, storage and packaging**

284 The manufacturer shall have procedures providing methods of product handling and shall
285 provide suitable storage areas preventing damage or deterioration.

286 **6.3.3 Product specific requirements**

287 The FPC system shall:

- 288 – address this European Standard, and
289 – ensure that the products placed on the market comply with the declared performance
290 characteristics.