

SLOVENSKI STANDARD

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Nadomešča:

SIST HD 629.2 S2:2006

SIST HD 629.2 S2:2006/A1:2009

Preskusne zahteve za pribor, ki se uporablja na elektroenergetskih kablji za naznačene napetosti od 3,6/6(7,2) kV do vključno 20,8/36(42) kV - 2. del: Kabli, izolirani z impregniranim papirjem

Test requirements for accessories for use on power cables of rated voltage from 3,6/6 (7,2) kV up to 20,8/36(42) kV - Part 2: Cables with impregnated paper insulation

Prüfanforderungen für Kabelgarnituren für Starkstromkabel 12 mit einer Nennspannung von 3,6/6(7,2) kV bis 20,8/36(42) kV 13 Teil 2: Kabel mit massegetränkter Papierisolierung

Prescriptions relatives aux essais sur les accessoires des câbles d'énergie pour des tensions assignées de 3,6/6(7,2) kV à 20,8/36(42) kV - Partie 2: Câbles isolés au papier imprégné

Ta slovenski standard je istoveten z: prHD 629.2 S3

ICS:

29.035.10	Papirni in kartonski izolacijski materiali	Paper and board insulating materials
29.060.20	Kabli	Cables

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English Version

Test requirements for accessories for use on power cables of rated voltage from 3,6/6(7,2) kV up to 20,8/36(42) kV - Part 2: Cables with impregnated paper insulation

To be completed

Prüfanforderungen für Kabelgarnituren für Starkstromkabel 12 mit einer Nennspannung von 3,6/6(7,2) kV bis 20,8/36(42) kV Teil 2: Kabel mit massegetränkter Papierisolierung

This draft Harmonization Document is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2023-04-07.

It has been drawn up by CLC/TC 20.

If this draft becomes a Harmonization Document, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

This draft Harmonization Document 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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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prHD 629.2 S3:2022 (E)68 **European foreword**

69 This document (prHD 629.2 S3:2022) has been prepared by CLC/ TC 20 “Electric cables”.

70 This document is currently submitted to the Enquiry.

71 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)

72 This document will partially supersede HD 629.2 S2:2006 and all of its amendments and corrigenda (if any).

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73 Introduction

74 This document has been written as part of a series of standards to satisfy the Public Procurement Directive,
75 and is complementary to HD 621, which covers impregnated paper insulated power cables from 3,6/6(7,2) kV
76 to 20,8/36(42) kV, inclusive.

77 This document defines the requirements which can be called up for joints, stop ends, separable connectors,
78 indoor and outdoor terminations when used with impregnated paper insulated power cables covered by
79 HD 621. The equivalent requirements for extruded power cables are given in HD 629.1 S2.

80 The test methods for these accessories are given in EN 61442.

81 The equivalent requirements for transition joints, when used between extruded insulated power cables and
82 impregnated paper insulated power cables covered by HD 620 and HD 621 or other relevant standards are
83 given in HD 629.3 S1.

84 Formerly, approvals of such products have been achieved on the basis of national standards and specifications
85 and/or the demonstration of satisfactory service performance. The publication of this document does not
86 invalidate existing approvals. However, products approved to such earlier standards or specifications cannot
87 claim approval to this document unless specifically tested to it.

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prHD 629.2 S3:2022 (E)88 **1 Scope**89 **1.1 General**

90 This document specifies performance requirements for type tests for cable accessories for use on impregnated
91 paper insulated power cables as specified in HD 621.

92 It is not necessary to repeat these tests, once successfully completed, unless changes are made in the
93 materials, design or manufacturing process, which might affect the performance characteristics.

94 Accessories for special applications such as submarine cables, ships cables or hazardous situations (explosive
95 environments, fire resistant cables or seismic conditions) are not included.

96 Test methods are included in EN 61442:2005.

97 NOTE It might be possible, subject to agreement between supplier and purchaser, and/or the relevant conformity
98 assessment body, to demonstrate that conformity to the earlier standard can be used to claim conformity to this document,
99 provided an assessment is made of any additional type testing that might need to be carried out. Any such additional
100 testing that is part of a sequence of testing cannot be done separately.

101 **1.2 Type of accessories**

102 The accessories covered by this document are listed below:

- 103 — indoor and outdoor terminations of all designs, including terminal boxes;
- 104 — straight joints, branch joints and stop end joints of all designs, suitable for use underground or in air;
- 105 — screened or unscreened plug-in type or bolted-type separable connectors capable of interfacing with
106 bushing profiles as specified in EN 50180 and EN 50181.

107 **1.3 Rated voltage**

108 The rated voltages U_0/U_m of the accessories covered by this document are 3,6/6(7,2) - 3,8/6,6(7,2) -
109 6/10(12) - 6,35/11(12) - 8,7/15(17,5) - 12/20(24) - 12,7/22(24) - 18/30(36) - 19/33(36) - 20,8/36(42) kV where:

110 **2 Normative references**

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

114 EN IEC 61238-1-3, *Compression and mechanical connectors for power cables - Part 1-3: Test methods and*
115 *requirements for compression and mechanical connectors for power cables for rated voltages above 1 kV (U_m*
116 *= 1,2 kV) up to 36 kV (U_m = 42 kV) tested on non-insulated conductors (IEC 61238-1-3)*

117 EN 61442:2005, *Test methods for accessories for power cables with rated voltages from 6 kV (U_m = 7,2 kV)*
118 *up to 36 kV (U_m = 42 kV) (IEC 61442:2005)*

119 HD 621.S1, *Medium voltage impregnated paper insulated distribution cables*

120 EN 50655 (series), *Electrical cables - Accessories - Material characterization*

121 IEC 60050-461, *International Electrotechnical Vocabulary - Chapter 461: Electric cables*

122 3 Terms and definitions

123 For the purposes of this document, the terms and definitions given in IEC 60050-461 and the following apply.

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

125 — ISO Online browsing platform: available at <https://www.iso.org/obp>

126 — IEC Electropedia: available at <https://www.electropedia.org/>

127 3.1

128 connector

129 device for connecting a conductor to an equipment terminal or for connecting two or more conductors to each
130 other

131 [SOURCE: EN IEC 61238-1 (IEV 461-17-03, modified)]

132 3.2

133 termination

134 device fitted to the end of a cable to ensure electrical connection with other parts of the system and to maintain
135 the insulation up to the point of connection

136 [SOURCE: IEV 461-10-01]

137 3.3

138 indoor termination

139 termination intended for use where it is not exposed to either solar radiation or weathering

140 [SOURCE: IEV 461-10-13]

141 3.4

142 outdoor termination

143 termination intended for use where it is exposed to either solar radiation or weathering or both-

144 [SOURCE: IEV 461-10-14]

145 3.5

146 terminal box

147 air- or compound-filled box fully enclosing a termination

148 [SOURCE: IEV 461-10-03 modified]

149 3.6

150 shrouded termination

151 indoor termination with additional insulation at the bushing connection and used in an air-filled terminal box

152 [SOURCE: IEV 461-10-21]

153 3.7

154 joint

155 accessory suitable for use in air or underground which makes a connection between two or more insulated
156 power cables to form a continuous circuit

157 3.7.1

158 type I joint

159 joint suitable for use where an impact resistance withstand is not required

160 3.7.2

161 type II joint

162 joint which has an impact resistance withstand in accordance with this document

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- 163 **3.8**
164 **straight joint**
165 accessory making a connection between two cables to form a continuous circuit
- 166 [SOURCE: IEC 60384-11-01]
- 167 Note 1 to entry: For types of joint see 3.7.1 and 3.7.2.
- 168 **3.9**
169 **branch joint**
170 accessory making a connection of a branch cable to a main cable
- 171 [SOURCE: IEC 60384-11-17]
- 172 Note 1 to entry: For types of joint see 3.7.1 and 3.7.2.
- 173 **3.10**
174 **radial field joint**
175 joint where the individual cores are screened throughout the joint
- 176 Note 1 to entry: For types of joint see 3.7.1 and 3.7.2.
- 177 **3.11**
178 **non-radial field joint**
179 joint which does not contain individual core screens
- 180 Note 1 to entry: For types of joint see 3.7.1 and 3.7.2.
- 181 **3.12**
182 **stop end**
183 accessory providing a means of insulating the unconnected end of an energized cable
- 184 [SOURCE: IEC 60384-10-07 modified]
- 185 **3.13**
186 **separable connector**
187 fully insulated termination permitting the connection and the disconnection of a cable to other equipment
- 188 **3.14**
189 **screened separable connector**
190 separable connector which does not have a screened external surface
- 191 [SOURCE: IEC 60384-10-15]
- 192 **3.15**
193 **unscreened separable connector**
194 separable connector which does not have an external screen
- 195 [SOURCE: IEC 60384-10-15]
- 196 **3.16**
197 **plug-in type separable connector**
198 separable connector in which the electrical contact is made by a sliding device
- 199 [SOURCE: IEC 60384-10-17]

200 **3.17**
 201 **bolted-type separable connector**
 202 separable connector in which the electrical contact is made by a bolted device

203 [SOURCE: IEC 461-10-18]

204 **3.18**
 205 **tracking**
 206 progressive formation of conductive paths, which are produced on the surface or within a solid insulating
 207 material, due to the combined effects of electric stress and electrolytic contamination

208 Note 1 to entry: Tracking usually occurs due to surface contamination.

209 [SOURCE: IEC 212-11-56]

210 **3.19**
 211 **erosion**
 212 wearing away of insulating material by the action of electric discharges [SOURCE: IEC 212-11-55]

213 **3.20**
 214 **metallic housing**
 215 metal enclosure in intimate contact with the outer screen of a separable connector and having at least the
 216 same current carrying capacity to earth as the metallic screen of the cable with which the separable connector
 217 is to be used

218 **3.21**
 219 U_0
 220 rated power-frequency voltage between conductor and earth or metallic screen, for which the cable accessory
 221 is designed

222 **3.22**
 223 U
 224 rated power-frequency voltage between conductors for which the cable accessory is used

225 **3.23**
 226 U_m
 227 maximum value of the 'highest system voltage' for which the cable accessory is used

228 4 Current

229 The continuous current rating of a termination or joint for impregnated paper insulation power cables shall be
 230 in accordance with the appropriate cable specified in HD 621 and shall be suitable for operation at the rated
 231 current and under short circuit fault conditions at the temperatures stated therein.

232 The current rating of a separable connector is governed by the current rating of the mating bushing, (see EN
 233 50180 and EN 50181).

234 5 Components

235 5.1 Connectors

236 Connectors used within the accessory shall comply with EN IEC 61238-1-3 where applicable, or with another
 237 relevant standard or specification.

238 Users should be aware that accessory performances and compatibility shall be checked if the connector
 239 installed in the accessory is different from that used for the accessory qualification. Compliance is given only
 240 with the connector used in the tests.

prHD 629.2 S3:2022 (E)241 **5.2 Materials**

242 It is not a pre-requirement for compliance with this performance standard but, if component material
243 characterization is required, the relevant part of EN 50655 (series) shall be used.

244 **6 Test assemblies**245 **6.1 Identification**246 **6.1.1 Cables**

247 The cables used for testing shall comply with HD 621.S1 as applicable.

248 Constructional details of the cables shall be identified as given in Annex A.

249 **6.1.2 Connectors**

250 Connectors used within the accessories shall be identified by the specification with which they comply.

251 Connectors used within the accessories shall be identified as in Annex B.

252 **6.1.3 Accessories**

253 Accessories to be tested shall be correctly identified with respect to

254 — name of manufacturer or supplier,

255 — type, designation, manufacturing date or code,

256 — minimum and maximum cross-sections, material and shape of cable conductor,

257 — minimum and maximum cable insulation diameters,

258 — connector type(s),

259 — rated voltage (see 1.3),

260 — installation instructions (reference and date),

261 — list of kit contents.

262 **6.2 Cable conductor cross-section**

263 Unless otherwise specified, the conductor cross-section shall be

264 — for terminations, joints or stop ends; 120 mm² or 150 mm² or 185 mm² or 240 mm²,

265 — for separable connectors, as indicated in Table 1 for each rating, using either aluminium or copper
266 conductors.

267 **6.3 Assembly**

268 Accessories shall be assembled in the manner specified in the manufacturer's instructions, with the grade and
269 quantity of materials supplied. A joint designed for crossed cores shall be so assembled.

270 **6.4 Terminations**

271 Terminations shall be tested using the arrangement and with the number of samples detailed in Figure 1.