



SLOVENSKI STANDARD
oSIST prEN 50626-1:2017
01-april-2017

Nadomešča:
SIST EN 61386-24:2010

Podzemni kanalski sistem za zaščito in upravljanje izoliranih električnih ali komunikacijskih kablov - 1. del: Splošne zahteve

Conduit systems buried underground for the protection and management of insulated electrical cables or communication cables - Part 1: General requirements

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Systèmes de conduits enterrés dans le sol pour la protection et la gestion des câbles électriques isolés ou des câbles de communication - Partie 1: Exigences générales

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ICS:

29.120.10	Inštalacijske cevi za električne namene	Conduits for electrical purposes
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EUROPEAN STANDARD
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prEN 50626-1

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English Version

Conduit systems buried underground for the protection and management of insulated electrical cables or communication cables - Part 1: General requirements

Systèmes de conduits enterrés dans le sol pour la protection et la gestion des câbles électriques isolés ou des câbles de communication - Partie 1: Exigences générales

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2017-04-21.

It has been drawn up by CLC/TC 213.

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).
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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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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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prEN 50626-1:2017 (E)

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36 European foreword

37 This document (prEN 50626-1:2017) has been prepared by CLC/TC 213, "Cable management
38 systems".

39 This document is currently submitted to the Enquiry.

40 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)

41 This document has been prepared under a mandate given to CENELEC by the European Commission
42 and the European Free Trade Association, and supports essential requirements of EU Directive(s).

43 For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this
44 document.

45 A conduit systems buried underground that conforms to this European Standard is deemed to be safe
46 for use.

47 This is a European Standard for cable management products used for electro-technical purposes. It
48 relates to the Council Directives on the approximation of laws, regulations and administrative
49 provisions of the Member States relating to Low Voltage Directive 2014/35/EU through consideration
50 of the essential requirements of this directive.

51 This European Standard is supported by separate standards to which references are made.

prEN 50626-1:2017 (E)**52 1 Scope**

53 This European Standard specifies general requirements and tests for conduit systems buried
54 underground for the protection and management of insulated conductors and/or power cables or
55 communication cables.

56 This European Standard is applicable to conduits with circular cross section.

57 The requirements described in this standard are applicable to all conduits

58 — installed individually or installed as a part of an assembly;

59 — where the cable is installed by pulling or pushing.

60 prEN 50626-2 specifies particular requirements and tests that are required for special applications.

61 NOTE Examples of special applications include special pipe installation techniques, and alternative cable
62 installation techniques are trenchless installation.

63 2 Normative references

64 The following documents, in whole or in part, are normatively referenced in this document and are
65 indispensable for its application. For dated references, only the edition cited applies. For undated
66 references, the latest edition of the referenced document (including any amendments) applies.

67 EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

68 EN 60695-2-11:2014, *Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-*
69 *wire flammability test method for end-products (IEC 60695-2-11:2014)*

70 EN 60695-11-2:2014, *Fire hazard testing - Part 11-2: Test flames - 91 kW nominal pre-mixed flame -*
71 *Apparatus, confirmatory test arrangement and guidance (IEC 60695-11-2:2013)*

72 ISO 2768-1:1989, *General tolerances - Part 1: Tolerances for linear and angular dimensions without*
73 *individual tolerance indications*

74 3 Terms and definitions

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

76 3.1**77 conduit system**

78 cable management system consisting of conduits and conduit fittings for the protection and
79 management of insulated conductors and/or cables in electrical or communication installations,
80 allowing them to be drawn in and/or replaced, but not to be inserted laterally

81 3.2**82 conduit**

83 part of conduit system of circular cross-section for insulated conductors and/or cables in electrical or
84 communication installations, allowing them to be drawn in and/or replaced

85 3.3**86 conduit fitting**

87 device designed to join components of a conduit system, or for them to change direction

88 3.4**89 terminating conduit fitting**

90 conduit fitting that terminates a conduit system

91 **3.5**92 **metallic conduit and/or conduit fitting**

93 conduit or conduit fitting which consists of metal only

94 **3.6**95 **non-metallic conduit and/or conduit fitting**96 conduit or conduit fitting which consists uniquely of non-metallic material and which has no metallic
97 components whatsoever98 **3.7**99 **composite conduit and/or conduit fitting**

100 conduit or conduit fitting comprising both metallic and non-metallic materials

101 **3.8**102 **non-flame propagating conduit and/or conduit fitting**103 conduit or conduit fitting which is liable to catch fire as a result of an applied flame, but in which the
104 flame does not propagate, and which extinguishes itself within a limited time after the flame is
105 removed106 **3.9**107 **plain conduit**

108 conduit in which the profile is even in the longitudinal section (see note to 3.10)

109 **3.10**110 **corrugated conduit**

111 conduit in which the profile is corrugated in the longitudinal section

112 Note 1 to entry: Both annular and helical corrugated conduits are permissible, and a combination of both
113 corrugated and plain conduit is possible.[oSIST prEN 50626-1:2020](https://standards.iteh.ai/catalog/standards/sist/5cc0cc7d-af9d-441c-ba98-a09bedd7074f/osist-pren-50626-1-2020)114 **3.11**115 **rigid conduit**116 conduit which cannot be bent, or which can only be bent with the help of a mechanical aid, with or
117 without special treatment118 **3.12**119 **pliable conduit**120 conduit which can be bent by hand with reasonable force, and which is not intended for frequent
121 flexing122 **3.13**123 **external influence**

124 factors which may affect the conduit system

125 Note 1 to entry: Examples of such factors are a presence of water, oil or building materials, low and high
126 temperatures, and corrosive or polluting substances.127 **3.14**128 **hygroscopic material**129 material having the characteristic of enabling attraction or holding water greater than 1,0 % by weight
130 of the material from the surrounding environment at 23 °C and 50 % relative humidity131 **4 General requirements**132 **4.1** Conduit and conduit fittings shall be so designed and constructed that in normal use their
133 performance is reliable and they provide protection to the user or surroundings.

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134 When assembled in accordance with manufacturer's instructions as part of a conduit system, conduits
 135 and conduit fittings shall provide mechanical and, where required, electrical protection of the insulated
 136 conductors and cables contained therein.

137 **4.2** The protective properties of the joint between the conduit and conduit fitting shall not be less
 138 than that declared for the conduit system.

139 **4.3** Conduit and conduit fittings shall withstand the stresses likely to occur during transport, storage,
 140 recommended installation practice and application.

141 **4.4** *Compliance is checked by carrying out all specified tests.*

142 5 General conditions for tests

143 Tests in accordance with this standard are type tests. Conduit systems, having the same classification,
 144 which can vary in colour only, shall be the same product type.

145 Where the conduit entries are part of the detachable or loose type conduit fitting, the detachable
 146 conduit fitting shall be capable of being assembled again, after the test, according to the
 147 manufacturer's instructions without loss of the declared properties according to Clause 6.

148 When toxic or hazardous processes are used, precautions shall be taken to safeguard the test
 149 personnel.

150 Unless otherwise specified in this standard,

151 — three samples are subjected to the tests, and the requirements are satisfied if the tests are met. If
 152 only one of the samples does not satisfy a test, due to an assembly or a manufacturing defect,
 153 that test and any preceding one which may have influenced the result of the test shall be
 154 repeated, and also the tests which follow shall be carried out in the required sequence on another
 155 full set of samples, all of which shall comply with the requirements;

156 NOTE 1 If the additional set of samples is not submitted at the same time, a failure of one sample will
 157 entail a rejection. The applicant, when submitting the first set of samples, can also submit an additional set of
 158 samples which can be used, should one sample fail. The testing station will then, without further request, test
 159 the additional set of samples and will reject them only if a further failure occurs.

160 — the tests shall be carried out within 1 min after conditioning and at an ambient temperature of
 161 $(20 \pm 5) ^\circ\text{C}$;

162 — each test shall be made on three new samples, which may be taken from one length;

163 NOTE 2 Certain tests, for instance the checking of dimensions, do not affect a change in the property of
 164 the samples; therefore, these samples are considered as new samples and can be used for further tests.

165 — samples of conduits and conduit fittings shall be conditioned for at least 24 h, at a temperature of
 166 $(23 \pm 2) ^\circ\text{C}$. Samples of conduits and conduit fittings made of material with hygroscopic behaviour
 167 shall be conditioned for at least 240 h, at a temperature of $(23 \pm 2) ^\circ\text{C}$ and a relative humidity
 168 between 40 % and 60 %;

169 — the samples for each test shall be in a clean and new condition, with all parts in place and
 170 mounted as in normal use. After checking dimensions in accordance with Clause 8, and unless
 171 otherwise specified in the relevant test, the conduit fittings shall be assembled with the lengths of
 172 conduit of the type for which they are intended, as defined in the relevant test. Due regard shall
 173 be taken of the manufacturer's instructions, especially where force is required in the assembly of
 174 the joint.

175 NOTE 3 Where similarities are claimed, the selection of representative fittings for test purposes can be
 176 agreed between the manufacturer, or responsible vendor, and the testing station.

177 **6 Classification**

178 **6.1 According to mechanical properties**

179 **6.1.1 Resistance to compression**

180 **6.1.1.1 Type 250 (code 250)**

181 NOTE A conduit system according to 6.1.1.1 is intended to be installed with additional precautions as specified
182 in the relevant national regulations.

183 **6.1.1.2 Type 450 (code 450)**

184 NOTE A conduit system according to 6.1.1.2 is intended to be directly buried underground without additional
185 precautions.

186 **6.1.1.3 Type 750 (code 750)**

187 NOTE A conduit system according to 6.1.1.3 is intended to be directly buried underground without additional
188 precautions.

189 **6.1.2 Resistance to impact**

190 **6.1.2.1** Light (code L)

191 **6.1.2.2** Normal (code N)

192 **6.1.3 Resistance to bending**

193 **6.1.3.1** Rigid <https://standards.iteh.ai/catalog/standards/sist/5cc0cc7d-af9d-441c-ba98-a09bedd7074f/osist-pren-50626-1-2020>

194 **6.1.3.2** Pliable

195 **6.2 According to resistance to external influences**

196 **6.2.1 Protection against ingress of solid objects:**

197 minimum of IP3X

198 **6.2.2 Protection against ingress of water:**

199 minimum of IPX0

200 **6.2.3 Resistance against corrosion (only applicable to metallic and composite system
201 components)**

202 **6.2.3.1** Without protection

203 **6.2.3.2** With protection as detailed in Table 4

204 **6.3 According to resistance to flame propagation**

205 **6.3.1 Non-flame propagating**

206 **6.3.2 Flame propagating**

207 NOTE Conduit systems to this part 1 are normally flame propagating. Non-flame propagating conduit
208 systems might be required for some applications.

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209 **7 Marking and documentation**210 **7.1** Each conduit shall be marked with:

211 — the manufacturer's or responsible vendor's name or trade mark or identification mark;

212 — a product identification mark, which may be, for example, the code of this standard, a catalogue
213 number, a symbol or the like, in such a way that it can be identified in the manufacturer's or
214 responsible vendor's literature;

215 — the code "L" or "N" according to 6.1.2;

216 — the code "250", "450" or "750" according to 6.1.1. This code shall be marked immediately after
217 the code "L" or "N".218 **7.1.2** The manufacturer shall be responsible for indicating the compatibility of parts within a conduit
219 system.220 **7.1.3** The manufacturer shall provide in his literature its classification in accordance with Clause 6
221 and all information necessary for the proper and safe transport, storage, installation and use.222 **7.2** The conduit fitting shall be marked in accordance with 7.1, on the product wherever possible, but,
223 where this is impractical, then the mark may be on a label attached to the product, or on the smallest
224 supplied package.225 **7.3** Conduits shall be marked according to 7.1 at regular intervals along their length of preferably 1 m
226 but not longer than 3 m.227 **7.4** *Compliance with 7.1 and 7.2 is checked by inspection. Compliance with 7.3 is checked by*
228 *inspection and measurement.*229 **7.5** The marking shall be durable and clearly legible.230 *Compliance is checked by inspection, using normal or corrected vision, without additional*
231 *magnification and by rubbing the marking for 15 s with a piece of cotton cloth soaked with water and*
232 *again for 15 s with a piece of cotton cloth soaked with n-hexane 95 % (Chemical Abstracts Service*
233 *Registry Number, CAS RN, 110-54-3).*234 NOTE n-hexane 95 % (Chemical Abstracts Service Registry Number, CAS RN, 110-54-3) is available from a
235 variety of chemical suppliers as a high pressure liquid chromatography (HPLC) solvent.236 *When using the liquid specified for the test, precautions as stated in the relative material safety*
237 *datasheet provided by the chemical supplier shall be taken to safeguard the laboratory technicians.*238 *Laser marking directly on the product and marking made by moulding, pressing or engraving are not*
239 *subjected to this test.*240 *Products complying with a previous edition of the standard need not be tested again as this*
241 *requirement does not have impact on the safety of the product.*242 *The marking surface to be tested shall be dried before rubbing the marking with n-hexane 95 %*
243 *solvent.*244 *Rubbing shall commence immediately after soaking the piece of cotton, applying a compression force*
245 *of (5 ± 1) N at a rate of about one cycle per second (a cycle comprising a forward and backward*
246 *movement along the length of the marking). For markings longer than 20 mm, rubbing can be limited*
247 *to a part of the marking, over a path of at least 20 mm length.*248 *The compression force is applied by means of a test piston which is wrapped with cotton comprising of*
249 *cotton wool covered by a piece of cotton medical gauze.*

250 *The test piston shall have the dimensions given in Figure 1 and shall be made of an elastic material*
251 *which is inert against the test liquids and has a Shore-A hardness of 47 ± 5 (for example synthetic*
252 *rubber).*

253 *When it is not possible to carry out the test on the specimens due to the shape/size of the product, a*
254 *suitable piece having the same characteristics as the product can be submitted to the test.*

255 *After the test, the marking shall be legible.*

256 **7.6** The manufacturer shall provide in his literature all information necessary for the proper and safe
257 installation and use.

258 In addition, for conduit systems according to 6.1.1.1, the manufacturer shall give instruction for
259 installation precautions following the relevant national technical rules, if any.

260 **7.7** In assemblies of identical conduits manufactured in the same extrusion process, at least one
261 conduit shall be marked with the above information.

262 NOTE Wrapping for transportation and installation is not considered as a protective conduit.

263 In assemblies of non-identical conduits manufactured both in the same process or in a different
264 process, each individual conduit shall be marked with the above information. As an alternative, in
265 assemblies comprising conduits of small size inside another conduit, all the required could be marked
266 on the external conduit.

267 **8 Dimensions**

268 Conduit dimensions should preferably be according to Table 1.

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