



SLOVENSKI STANDARD
oSIST prEN 50483-2:2024

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Zahteve za preskušanje pribora za nizkonapetostne izolirane nadzemne kable - 2. del: Napenjalne in vzmetne objemke, zatezne in nosilne sponke za samonosilne sisteme

Test requirements for low voltage aerial bundled cable accessories - Part 2: Tension and suspension clamps, fittings and brackets for self supporting system

Prüfanforderungen für Bauteile für isolierte Niederspannungsfreileitungen - Teil 2: Abspann- und Tragklemmen für selbsttragende isolierte Freileitungsseile

Prescriptions relatives aux essais des accessoires pour réseaux aériens basse tension torsadés - Partie 2: Matériels d'ancrage et de suspension pour réseaux aériens en conducteurs isolés torsadés auto-portés

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ICS:

29.240.20 Daljnovodi Power transmission and distribution lines

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English Version

**Test requirements for low voltage aerial bundled cable
accessories - Part 2: Tension and suspension clamps, fittings
and brackets for self supporting system**

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Niederspannungsfreileitungen - Teil 2: Abspann- und
Tragklammern für selbsttragende isolierte Freileitungsseile

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2025-01-03.

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.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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20 European foreword

21 This document [prEN 50483-2:2024] has been prepared by WG 11 of CLC/TC 20 "Electric Cables".

22 This document is currently submitted to the Enquiry.

23 The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dav + 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) dav + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dav + 36 months (to be confirmed or modified when voting)

24 This document will supersede EN 50483-2:2009 and all of its amendments and corrigenda (if any).

25 prEN 50483-2:2024 includes the following significant technical changes with respect to EN 50483-2:2009:

26 This is Part 2 of CENELEC standard EN 50483 "Test requirements for low voltage aerial bundled cable
27 accessories", which has six parts:

28 — Part 1: Generalities;

29 — Part 2: Tension and suspension clamps, fittings and brackets for self supporting system;

30 — Part 3: Tension and suspension clamps for neutral messenger system;

31 — Part 4: Connectors;

32 — Part 5: Electrical ageing test;

33 — Part 6: Environmental testing.

prEN 50483-2:2024 (E)**34 Introduction**

35 The objective of the EN 50483 series is to provide a method of testing the suitability of accessories when used
36 under normal operating conditions with low voltage aerial bundled cables (ABC) complying with HD 626.

37 This European Standard does not invalidate existing approvals of products achieved on the basis of national
38 standards and specifications and/or the demonstration of satisfactory service performance. However, products
39 approved according to such national standards or specifications cannot directly claim approval to this
40 European Standard. It may be possible, subject to agreement between the customer and the manufacturer
41 and/or the supplier, and/or the relevant conformity assessment body, to demonstrate that conformity to the
42 earlier standard can be used to claim conformity to this standard, provided an assessment is made of any
43 additional type testing that may need to be carried out. Any such additional testing that is part of a sequence
44 of testing cannot be done separately.

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45 1 Scope

46 EN 50483 series applies to overhead line fittings for tensioning, supporting and connecting aerial bundled
47 cables (ABC) of rated voltage $U_0/U (U_m)$: 0,6/1 (1,2) kV.

48 This Part 2 applies to tensioning devices consisting of tension and suspension clamps, fittings and brackets
49 designed to be used for installation of self supporting ABC defined in HD 626.

50 Tests described in this document are type tests.

51 2 Normative references

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

55 prEN 50483-1:2024, *Test requirements for low voltage aerial bundled cable accessories — Part 1:*
56 *Generalities*

57 prEN 50483-6:2024, *Test requirements for low voltage aerial bundled cable accessories — Part 6:*
58 *Environmental testing*

59 HD 626, *Overhead distribution cables of rated voltage $U_0/U(U_m)$: 0,6/1 (1,2) kV*

60 IEC 60050-461, *International Electrotechnical Vocabulary (IEV) — Part 461: Electric cables*

61 3 Terms and definitions

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

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

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

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

66 3.1

67 **aerial bundled cable (ABC)**

68 aerial cable consisting of a group of insulated conductors which are twisted together including, or not, a non
69 insulated conductor

70 [SOURCE: IEC 461-08-02, modified]

71 Note 1 to entry: The terms bundled conductors, bundled cables, bundled cores, conductor bundles and bundle could be
72 used as equivalent to the term aerial bundled cable (ABC).

73 3.2

74 **aerial insulated cable**

75 insulated cable designed to be suspended overhead and outdoors

76 [SOURCE: IEC 461-08-01]

77 3.3

78 **angle of deviation**

79 complementary angle to the angle defined by the two parts of the cable on both sides of the suspension clamp

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80 **3.4**
81 **clamp bolt**
82 bolt which tightens two parts of a clamp together

83 **3.5**
84 **conductor insulation**
85 insulation applied on a conductor

86 [SOURCE: IEV 461-02-02, modified]

87 **3.6**
88 **conductor (of a cable)**
89 part of a cable which has the specific function of carrying current

90 [SOURCE: IEV 461-01-01]

91 **3.7**
92 **core**
93 assembly comprising conductor and its own insulation

94 [SOURCE: IEV 461-04-04, modified]

95 **3.8**
96 **bracket (or fitting)**
97 device for attaching ABC tension or/and suspension clamps to a pole or to a wall

98 **3.9**
99 **insulation (of a cable)**
100 insulating materials incorporated in a cable with the specific function of withstanding voltage

101 [SOURCE: IEV 461-02-01]

102 **3.10**
103 **minimum breaking load (MBL)**
104 minimum breaking load of the conductor given by HD 626 or the cable manufacturer if not defined in the
105 standard, or minimum breaking load of the clamp given by the clamp manufacturer

106 **3.11**
107 **self supporting system**
108 aerial insulated system where all the cores of the ABC contribute to its support

109 **3.12**
110 **sheath**
111 uniform and continuous tubular covering of metallic or non-metallic material, generally extruded

112 [SOURCE: IEV 461-05-03]

113 **3.13**
114 **suspension clamp**
115 device which attaches an aerial insulated cable to a bracket in order to carry its weight and any specified
116 loading

117 [SOURCE: IEV 461-18-02, modified]

118 **3.14**
119 **tension clamp**
120 device which firmly attaches an aerial insulated cable to a support and is designed to transmit the specified
121 mechanical tension in the cable or messenger to the supporting structure

122 [SOURCE: IEC 461-18-01,]

123 **3.15**

124 **service clamp**

125 device which firmly attaches an aerial insulated cable to a support and is designed to transmit a mechanical
126 tension in the cable or messenger to the supporting structure lower than the ABC MBL

127 **3.16**

128 **standard load clamp**

129 device which firmly attaches an aerial insulated cable to a support and is designed to transmit a normal
130 mechanical tension in the cable or messenger to the supporting structure

131 **3.17**

132 **type test**

133 test required to be made before supplying a type of material covered by this standard on a general
134 commercial basis, in order to demonstrate satisfactory performance characteristics to meet the intended
135 application

136 Note 1 to entry: These tests are of such a nature that, after they have been made, they need not be repeated unless
137 changes are made to the accessory materials, design or type of manufacturing process which might change the
138 performance characteristics.

139 **3.18**

140 **bracket (or fitting)**

141 device for attaching ABC tension or/and suspension clamps to a pole or to a wall

142 **4 Symbols**

g_{15} slippage after 15 cycles

g_{250} slippage after 250 cycles

D circumscribed diameter of conductor bundle (mm)

ρ resistivity (Ωm)

α maximum angle ($^{\circ}$) of deviation of a suspension clamp as recommended by the manufacturer
and/or supplier or specified by the customer

T tension (N)

F sliding force (N)

143 **5 Characteristics**

144 These fittings shall be capable of supporting the tensile loads applied to the ABC for which they are designed
145 in accordance with the following tests.

146 Tension and suspension equipment shall be designed to avoid any direct or accidental contact between
147 conductors and between any phase and metallic parts of the clamp.

148 **6 Marking**

149 See Clause 6 of prEN 50483-1:2024.

prEN 50483-2:2024 (E)150 **7 General test conditions**151 **7.1 Mechanical tests**

152 See Clause 9 of prEN 50483-1:2024.

153 **7.2 Temperature**

154 See Clause 9 of prEN 50483-1:2024.

155 **8 Type tests**156 **8.1 Type tests for tension clamps**157 **8.1.1 General**

158 The performance characteristics of all tension clamps shall be proven by satisfactorily undergoing the range of
 159 tests listed below. Each clamp shall be tested for the smallest and largest bundled conductor size for which it
 160 is marked.

161 The following type tests shall be carried out.

Test	Subclause
Tensile test at ambient temperature	8.1.2
Breaking load test	8.1.3
Tensile test at high temperature	8.1.4
Tensile test at low temperature	8.1.5
Dielectrical voltage test (clamp)	8.3.1
Dielectrical voltage test (ABC)	8.3.2
Clamp bolt tightening test	8.4
Environmental tests	8.5

162 NOTE The test procedures for 3 core and 4 core ABC are similar.

163 **8.1.2 Tensile test at ambient temperature**164 **8.1.2.1 Principle**

165 The tension clamps shall be subjected to high mechanical loads at ambient temperature in order to ensure
 166 that they are capable of sustaining loads likely to be encountered in service without being damaged or
 167 damaging the conductor.

168 The test may be carried out on samples which have been subjected to the climatic ageing test (see 8.6.2).

169 **8.1.2.2 Test arrangement**

170 Two tension clamps shall be assembled on to the ABC, in accordance with the manufacturer's instructions,
 171 and fitted into a tensile testing machine as shown in Figure 1. The length of tails on the unloaded side of the
 172 clamps shall be a minimum of 350 mm and with a minimum radius of 250 mm.

173 For bolt tightened clamp, the tested clamp should be tightened at the minimum torque. If the clamp is
 174 equipped with shearheads, the tightening torque should be at the minimum of the manufacturer's declared
 175 shearhead range.

176 The span between the two clamps shall be a minimum of $100 \times D$, where D is the circumscribed diameter of
 177 the ABC.