



**SLOVENSKI STANDARD**  
**oSIST prEN 50483-3:2024**

**01-december-2024**

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**Zahteve za preskušanje pribora za nizkonapetostne izolirane nadzemne kable - 3. del: Napenjalne in vzmetne objemke za sisteme z nosilnim nevtralnimi vodnikom**

Test requirements for low voltage aerial bundled cable accessories - Part 3: Tension and suspension clamps for neutral messenger system

Prüfanforderungen für Bauteile für isolierte Niederspannungsfreileitungen - Teil 3: Abspann- und Tragklemmen für Systeme mit Nullleiter-Tragseil

Prescriptions relatives aux essais des accessoires pour réseaux aériens basse tension torsadés - Partie 3: Matériels d'ancrage et de suspension pour réseaux aériens en conducteurs isolés torsadés avec neutre porteur

**Ta slovenski standard je istoveten z: prEN 50483-3**

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**ICS:**

29.240.20      Daljnovodi      Power transmission and distribution lines

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**en**



EUROPEAN STANDARD  
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**DRAFT**  
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## Test requirements for low voltage aerial bundled cable accessories - Part 3: Tension and suspension clamps for neutral messenger system

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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  
Europäisches Komitee für Elektrotechnische Normung

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## 18 European foreword

19 This document [prEN 50483-3:2024] has been prepared by WG 11 of CLC/TC 20 "Electric cables".

20 This document is currently submitted to the Enquiry.

21 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)

22 This document will supersede EN 50483-3:2009 and all of its amendments and corrigenda (if any).

23 prEN 50483-3:2024 includes the following significant technical changes with respect to EN 50483-3:2009:

24 This is Part 3 of CENELEC standard EN 50483 "Test requirements for low voltage aerial bundled cable  
25 accessories", which has six parts:

26 — Part 1: Generalities;

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

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

29 — Part 4: Connectors;

30 — Part 5: Electrical ageing test;

31 — Part 6: Environmental testing.

## 32 Introduction

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

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

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## 43 1 Scope

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

46 This Part 3 applies to tensioning devices consisting of tension and suspension clamps, and tension and  
47 suspension assemblies used for the installation of ABC with either insulated or bare neutral messenger.

48 The tension and suspension clamps are designed to be installed on neutral conductors of ABC defined in  
49 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*

56 prEN 50483-2:2024, *Test requirements for low voltage aerial bundled cable accessories*

57 prEN 50483-6:2024, *Test requirements for low voltage aerial bundled cable accessories*

58 HD 626 S1:1996, *Overhead distribution cables of rated voltage  $U_0/U(U_m)$ : 0,6/1 (1,2) kV*

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

## 60 3 Terms and definitions

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

### 62 3.1

#### 63 **aerial bundled cable (ABC)**

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

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

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

### 69 3.2

#### 70 **aerial insulated cable**

71 insulated cable designed to be suspended overhead and outdoors

72 [SOURCE: IEC 461-08-01]

### 73 3.3

#### 74 **angle of deviation**

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

### 76 3.4

#### 77 **clamp bolt**

78 bolt which tightens two parts of a clamp together

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- 79 **3.5**  
80 **conductor insulation**  
81 insulation applied on a conductor
- 82 [SOURCE: IEV 461-02-02, modified]
- 83 **3.6**  
84 **conductor (of a cable)**  
85 part of a cable which has the specific function of carrying current
- 86 [SOURCE: IEV 461-01-01]
- 87 **3.7**  
88 **core**  
89 assembly comprising conductor and its own insulation
- 90 [SOURCE: IEV 461-04-04, modified]
- 91 **3.8**  
92 **bracket (or fitting)**  
93 device for attaching ABC tension or/and suspension clamps to a pole or to a wall
- 94 **3.9**  
95 **insulation (of a cable)**  
96 insulating materials incorporated in a cable with the specific function of withstanding voltage
- 97 [SOURCE: IEV 461-02-01]
- 98 **3.10**  
99 **messenger**  
100 wire or rope, the primary function of which is to support the cable in aerial installations, which may be separate  
101 from or integral with the cable it supports
- 102 [SOURCE: IEV 461-08-03]
- 103 **3.11**  
104 **minimum breaking load (MBL)**  
105 minimum breaking load of the conductor given by HD 626 or the cable manufacturer if not defined in the  
106 standard or minimum breaking load of the clamp given by the clamp manufacturer
- 107 **3.12**  
108 **mobile link**  
109 device linking the suspension clamp to the bracket
- 110 **3.13**  
111 **neutral messenger system**  
112 aerial insulated system where only the neutral messenger supports the ABC
- 113 **3.14**  
114 **sheath**  
115 uniform and continuous tubular covering of metallic or non metallic material, generally extruded
- 116 [SOURCE: IEV 461-05-03]
- 117 **3.15**  
118 **suspension clamp**  
119 device which attaches an aerial insulated cable to a bracket in order to carry its weight and any specified  
120 loading



121 [SOURCE: IEC 461-18-02, modified]

122 **3.16**

123 **suspension or tension assembly**

124 clamp with mobile link, or not, and associated bracket

125 **3.17**

126 **tension clamp**

127 device which firmly attaches an aerial insulated cable to a bracket and is designed to transmit the specified  
128 mechanical tension in the cable or messenger to the supporting structure

129 [SOURCE: IEC 461-18-01, modified]

130 **3.18**

131 **type test**

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

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

138 **4 Symbols**

$g_2$  slippage after 2 cycles

$g_{15}$  slippage after 15 cycles

$g_{250}$  slippage after 250 cycles

$g_{500}$  slippage after 500 cycles

$d$  diameter of core

$\alpha$  maximum angle (°) of deviation of a suspension clamp as recommended by the manufacturer or  
specified by the customer

139 **5 Characteristics**

140 These fittings shall be capable of supporting the tensile loads applied to the ABC for which they are designed,  
141 referring to the neutral messenger specified MBL, in accordance with the following tests.

142 Tension and suspension equipment shall be designed to avoid any direct or accidental contact between any  
143 phase conductor and metallic parts of the clamp.

144 **6 Marking**

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

146 **7 General test conditions**

147 **7.1 Mechanical tests**

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

149 Where an assembly is to be tested, each bracket should be secured in accordance with the manufacturer's  
150 installation instructions.

**prEN 50483-3:2024 (E)**151 **7.2 Temperature**

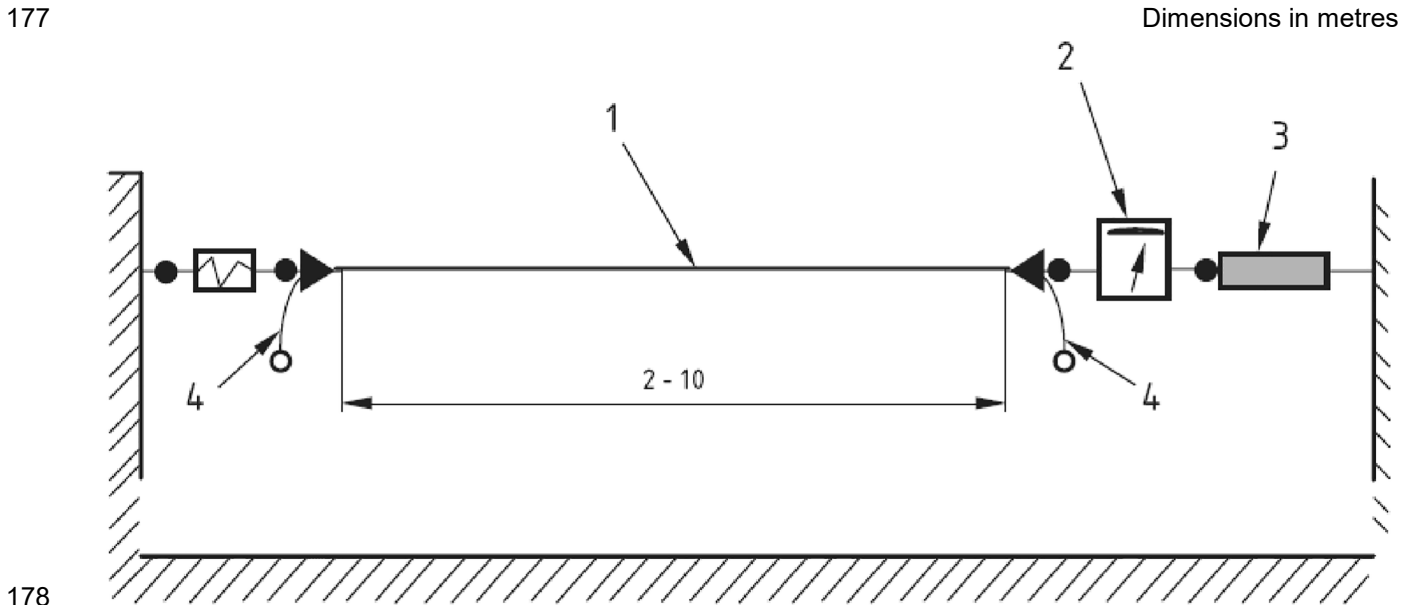
152 See Clause 9 of prEN 50483-1:2024.

153 **8 Type tests**154 **8.1 General**155 Each clamp shall be tested for the smallest and largest messenger size except for environmental tests where  
156 only the largest size is used.157 **8.2 Type tests for tension clamps**158 **8.2.1 General**

159 The following type tests shall be carried out.

Test	Applicability	Subclause
Tensile test at ambient temperature	insulated and bare neutral messenger	8.2.2
Tensile test at high temperature	insulated neutral messenger only	8.2.3
Tensile test at low temperature	insulated neutral messenger only	8.2.4
Environmental tests	insulated and bare neutral messenger	8.2.5
Clamp bolt tightening test	common for both suspension and tension clamps	8.3.1

160 If a cable breaks beyond any part of the tension clamp, the test result shall be declared void without  
161 discrediting the tension clamp. Tests shall be repeated using a new tension clamp and a new cable.162 In order to find the possible cause of the failure, the test shall be repeated with a reference tension clamp as  
163 specified in HD 626 S1:1996, Part 2, 2.3.1.164 When agreed between the manufacturer and the customer, the mechanical test loads may be defined by the  
165 smallest cable for the clamp but in this case the clamp may only be considered to conform to this standard for  
166 the smaller cable size.167 **8.2.2 Tensile test at ambient temperature (and breaking load test)**168 **8.2.2.1 Principle**169 The tension clamps shall be subjected to high mechanical loads at ambient temperature in order to ensure  
170 that they are capable of sustaining loads likely to be encountered in service without being damaged or  
171 damaging the conductor.172 The test shall be carried out for the maximum and minimum insulated neutral messenger cross-sections, for  
173 which the clamp is designed.174 **8.2.2.2 Test arrangement**175 Figure 1 shows a typical test arrangement. The test configuration can differ from this arrangement as long as  
176 it complies with the neutral messenger lengths.



179 **Key**

1	neutral messenger	◀	tension clamp
2	mechanical load measurement device	●	mechanical junction allowing rotation
3	tensioning device	○	current source connection
4	minimum 1 m	⏏	mechanical tension adjustment

180

**Figure 1 — Test arrangement**

181 **8.2.2.3 Procedure**

182 For the maximum and minimum neutral messenger cross-sections, for which the clamp is designed, a tension  
 183 clamp shall be installed at a minimum of 1 m from the end of the cable sample. The tension clamp shall be  
 184 secured to a device similar to the one used for its attachment to the support. At the other end, which is not  
 185 stripped for insulated messenger, an appropriate tension device shall be attached to the neutral messenger by  
 186 means of a tension clamp or other appropriate device.

187 A different distance between the clamps (from 2 m to 10 m), may be agreed between the manufacturer and  
 188 the customer.

189 A load shall be applied and increased until it reaches 80 % of MBL of the messenger. The load shall then be  
 190 reduced to 20 % of MBL of the messenger.

191 The neutral messenger shall then be marked where it leaves the clamp so that any slippage can be seen with  
 192 respect to the clamp.

193 The load shall then be increased to 90 % of MBL of the messenger for both insulated and bare neutral  
 194 messenger. This load shall be maintained for 60 s.

195 The speed of load application is defined in prEN 50483-1:2024, 9.1.5.

196 **8.2.2.4 Requirements**

197 The clamp shall not slip by more than 10 mm with respect to the mark on the neutral messenger.

198 No damage shall occur which could affect the correct function of the tension clamp.