



SLOVENSKI STANDARD
oSIST prEN IEC 60851-5:2025
01-julij-2025

Navijalne žice - Preskusne metode - 5. del: Električne lastnosti

Winding wires - Test methods - Part 5: Electrical properties

Wickeldrähte - Prüfverfahren - Teil 5: Elektrische Eigenschaften

Fils de bobinage - Méthodes d'essai - Partie 5: Propriétés électriques

Ta slovenski standard je istoveten z: prEN IEC 60851-5:2025

ICS:

29.060.10 Žice <https://standards.sist.ai/c/standards/sist/acc9b357-0499-bd4f-f749c98b0700/osist-pren-iec-60851-5-2025> Wires

oSIST prEN IEC 60851-5:2025

en



55/2066/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 60851-5 ED5	
DATE OF CIRCULATION: 2025-06-13	CLOSING DATE FOR VOTING: 2025-09-05
SUPERSEDES DOCUMENTS: 55/2061/CD, 55/2064/CC	

IEC TC 55 : WINDING WIRES	
SECRETARIAT: United States of America	SECRETARY: Mr Mike Leibowitz
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 2, TC 14	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Safety	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

<https://standards.iteh.ai/catalog/standards/sist/acc9b357-04a8-4109-bd4f-f749c98b0700/osist-pren-iec-60851-5-2025>

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Winding wires - Test methods - Part 5: Electrical properties

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

CONTENTS

1	1	Scope	8
2	2	Normative references	8
3	3	Test 5: Electrical resistance	8
4	4	Test 13: Breakdown voltage	9
5	4.1	Principle	9
6	4.2	Equipment	9
7	4.3	Enamelled round wire	10
8	4.3.1	Grade 1 to grade 3 with a nominal diameter up to and including 0,500 mm	10
9	4.3.2	Grade of FIW 3 to FIW 9 with a nominal conductor diameter up to and including 1,600 mm	11
10	4.4	Enamelled round wire with a nominal conductor diameter over 0,100 mm up to and including 2,500 mm, grade 1 to grade 3	12
11	4.4.1	Test at room temperature	12
12	4.4.2	Test at elevated temperature	13
13	4.5	Round wire with a nominal conductor diameter over 2,500 mm	14
14	4.5.1	Test at room temperature	14
15	4.5.2	Test at elevated temperature	16
16	4.6	Fibre wound round wire	16
17	4.6.1	Test at room temperature	16
18	4.6.2	Test at elevated temperature	17
19	4.7	Rectangular wire	17
20	4.7.1	Test at room temperature	17
21	4.7.2	Test at elevated temperature	18
22	4.8	Overview of breakdown voltage specimen preparation	18
23	5	Test 14: Continuity of insulation (applicable to enamelled round and tape wrapped round wire)	19
24	5.1	General	19
25	5.2	Low-voltage continuity (nominal conductor diameter up to and including 0,050 mm, grade 1 to grade 3)	20
26	5.3	High-voltage continuity (nominal conductor diameter over 0,050 mm up to and including 1,600 mm, grade 1 to grade 3, and over 0,035 mm, up to and including 1,600 mm, grade 3 of FIW 3 to FIW 9)	21
27	5.3.1	Principle	21
28	5.3.2	Equipment	21
29	5.3.3	Procedure	26
30	5.3.4	Result	27
31	5.4	Inline high-voltage continuity (wires in accordance with grade of FIW 3 to FIW 9 with nominal conductor diameter over 0,035 mm up to and including 1,600 mm)	27
32	5.4.1	Principle	27
33	5.4.2	Equipment	28
34	5.4.3	Procedure	28
35	5.4.4	Result	29
36	5.5	Inline high-voltage continuity (enamelled rectangular wire)	29
37	6	Test 19: Dielectric dissipation factor (applicable to enamelled wire and bunched wire)	29
38	6.1	Principle	29
39	6.2	Equipment	29
40	6.3	Specimen	31
41	6.3.1	Specimen for a metal bath electrode	31

54	6.3.2 Specimen for a conductive suspension electrode	31
55	6.4 Procedure	31
56	6.5 Result	31
57	7 Test 23: Pin hole test.....	31
58	Annex A (informative) Dissipation factor methods	33
59	A.1 Tangent delta – Intersection point	33
60	A.2 Test methods	33
61	A.2.1 Method A	33
62	A.2.2 Method B – Wire coated with a conductive film	34
63	A.3 Interpretation of results	34
64	A.3.1 General	34
65	A.3.2 Linear method	34
66	A.3.3 Logarithmic method	35
67		
68	Figure 1 – Arrangement of cylinder and specimen for the breakdown voltage test	11
69	Figure 2 – Device for twisting the specimen for breakdown voltage test	13
70	Figure 3 – U-bend specimen for the breakdown voltage test (specimen placed in shot	
71	bath)	15
72	Figure 4 – Coil-wound specimen for the breakdown voltage test	17
73	Figure 5 – Apparatus for testing the low-voltage continuity of covering	20
74	Figure 6 – High-voltage d.c. continuity – Pulleys for wire size 0,050 mm to 0,250 mm	23
75	Figure 7 – Pulley dimensions and spacing for wire size 0,250 mm to 1,600 mm	23
76	Figure 8a – Graphite fibre single brush electrode assembly	24
77	Figure 8b – Graphite fibre dual brush electrode assembly	25
78	Figure 8 – Graphite fibre single or dual brush electrode assembly	25
79	Figure 9 – Suitable electrode arrangement for testing the dielectric dissipation factor	30
80	Figure A.1 – Example of linear method for sole coating	35
81	Figure A.2 – Example of logarithmic method for sole coating	35
82		
83	Table 1 – Rates of test voltage increase	9
84	Table 2.1 – Loads applied to enamelled wire	10
85	Table 2.2 – Loads and diameters of test cylinders applied to wire	12
86	Table 3 – Loads applied to the wire and number of twists	13
87	Table 4.1 – Off-line HVC test voltages for grades 1 – 3	26
88	Table 4.2 – Off-line HVC test voltages for grade of FIW 3 – FIW 9	27
89	Table 5 – In-line HVC test voltages	29

90

91

92