

© Copyright SEK. Reproduction in any form without permission is prohibited.

Kopplingsutrustningar för högst 1000 V växelspänning eller 1500 V likspänning –

Del 5: Särskilda fordringar på kabelskåp och lågspänningsfördelningar i nätstationer

*Low-voltage switchgear and controlgear assemblies –
Part 5: Assemblies for power distribution in public networks*

Som svensk standard gäller europastandarden EN 61439-5:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61439-5:2011.

Nationellt förord

Europastandarden EN 61439-5:2011

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61439-5, First edition, 2010 - Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 61439-1.

Tidigare fastställd svensk standard SS-EN 60439-5, utgåva 2, 2006, gäller ej fr o m 2016-01-03.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English version

**Low-voltage switchgear and controlgear assemblies -
Part 5: Assemblies for power distribution in public networks
(IEC 61439-5:2010)**

Ensembles d'appareillage
à basse tension -
Partie 5: Ensembles pour réseaux de
distribution publique
(CEI 61439-5:2010)

Niederspannungs-
Schaltgerätekombinationen -
Teil 5: Schaltgerätekombinationen in
öffentlichen Energieverteilungsnetzen
(IEC 61439-5:2010)

This European Standard was approved by CENELEC on 2011-01-03. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 17D/422/FDIS, future edition 1 of IEC 61439-5, prepared by SC 17D, Low-voltage switchgear and controlgear assemblies, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61439-5 on 2011-01-03.

This European Standard supersedes EN 60439-5:2006.

This EN 61439-5:2011 includes the following significant technical changes with respect to EN 60439-5:2006:

- alignment on EN 61439-1 regarding the structure and technical content, as applicable;
- introduction of new verifications, accordingly;
- harmonisation of the requirements of substation cable distribution boards and cable distribution cabinets, thereby eliminating the need to identify and define two categories of assembly;
- simpler standard as a result of a reduction in the number of assembly types defined and the acronyms used to identify the different assemblies.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2011-10-03
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2016-01-03

This standard is to be read in conjunction with EN 61439-1. The provisions of the general rules dealt with in EN 61439-1 (hereinafter referred to as Part 1) are only applicable to this standard insofar as they are specifically cited. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

Subclauses that are numbered with a 101 (102, 103, etc.) suffix are additional to the same subclause in Part 1.

Tables and figures in this Part 5 that are new are numbered starting with 101.

New annexes in this Part 5 are lettered AA, BB, etc.

In this standard, terms written in small capitals are defined in Clause 3.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 2004/108/EC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61439-5:2010 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Annex ZA of Part 1 applies with the following additions.

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60269-1	-	Low-voltage fuses - Part 1: General requirements	EN 60269-1	-
IEC 60695-11-10	1999	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999
IEC 61439-1 (mod)	2009	Low-voltage switchgear and controlgear assemblies - Part 1: General rules	EN 61439-1	2009
ISO 6506-1	-	Metallic materials - Brinell hardness test - Part 1: Test method	EN ISO 6506-1	-
ISO 9223	1992	Corrosion of metals and alloys - Corrosivity of atmosphere - Classification	-	-

CONTENTS

1	Scope.....	5
2	Normative references.....	6
3	Terms and definitions.....	6
4	Symbols and abbreviations.....	7
5	Interface characteristics	7
6	Information	7
7	Service conditions	8
8	Constructional requirements	8
9	Performance requirements.....	11
10	Design verification	11
11	Routine verification.....	24
	Annex AA (normative) Cross-section of conductors	25
	Figure 101 – Typical distribution network	5
	Figure 102 – Diagram of test to verify resistance to shock load of a PENDA-O.....	14
	Figure 103 – Diagram of test to verify impact force withstand of a PENDA-O	15
	Figure 104 – Diagram of test to verify the resistance to static load.....	16
	Figure 105 – Sandbag for test to verify the resistance to shock load	17
	Figure 106 – Diagram of test to verify resistance to torsional stress of a PENDA-O	18
	Figure 107 – Diagram of test to verify the mechanical strength of doors	21
	Figure 108 – Striker element for test of resistance to mechanical shock impacts induced by sharp-edged objects.....	22
	Figure 109 – Typical test arrangement for mechanical strength of base.....	23
	Table 101 – Values of assumed loading.....	7
	Table 102 – Axial load to be applied to the inserts	21
	Table AA.1 – Minimum and maximum cross-section of copper and aluminium conductors, suitable for connection (see 8.8).....	25
	Table AA.2 – Standard cross-sections of round copper conductors and approximate relationship between mm ² and AWG/kcmil sizes (see 8.8 of Part 1).....	26

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

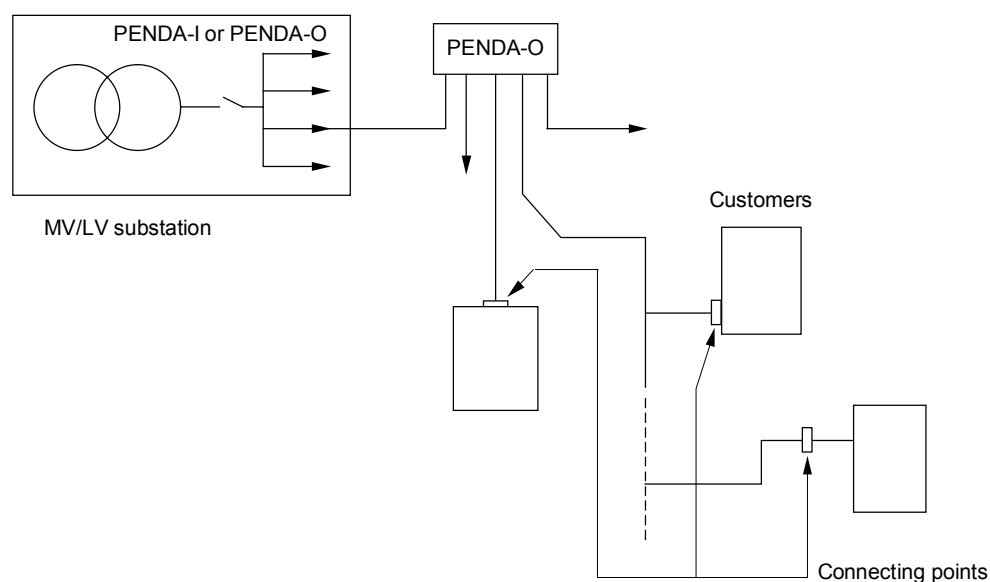
Part 5: Assemblies for power distribution in public networks

1 Scope

This clause of Part 1 applies with the following additions.

Addition:

This standard gives specific requirements for public electricity network distribution assemblies (PENDAs), which are stationary assemblies verified by verification tests, as defined in this standard. These ASSEMBLIES are used for the distribution of electrical energy in three-phase systems (see Figure 101 for a typical distribution network). Open type ASSEMBLIES are not covered by this standard.



IEC 2568/10

Figure 101 – Typical distribution network

The object of this standard is to state the definitions and to specify the service conditions, construction requirements, technical characteristics and tests for PENDAs. Network parameters may require tests at higher performance levels.

NOTE 1 If a PENDA is equipped with additional equipment (for example meters), in such a way that the main function is changed considerably, then other standards may also apply as agreed between user and manufacturer (see 8.5).

NOTE 2 Where local regulations and practices permit, a PENDA according to this standard may be used in other than public networks.

PENDAs are suitable for installation in places where only skilled persons have access for their use, however, outdoor types may be installed in situations that are accessible to ordinary persons.

2 Normative references

This clause of Part 1 applies with the following additions.

Addition:

IEC 60269-1, *Low-voltage fuses – Part 1: General requirements*

IEC 60695-11-10:1999, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 61439-1:2009, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

ISO 6506-1, *Metallic materials – Brinell hardness test – Part 1: Test method*

ISO 9223:1992, *Corrosion of metals and alloys – Corrosivity of atmospheres – Classification*