SLOVENSKI STANDARD
SIST EN 50152-2:2008

01-marec-2008

Nadomeģ a:
SIST EN 50152-2:1998

Ģelezniģke naprave - Stabilne naprave elektriļ ne vleke - Posebne zahteve za stikalne naprave za izmeniļ ni tok - 2. del: Enofazna loļ ilna stikala, ozemljilna stikala in moļ nostna stikala z Un nad 1 kV

Railway applications - Fixed installations - Particular requirements for a.c. switchgear -- Part 2: Single-phase disconnectors, earthing switches and switches with Un above 1 kV

Bahnanwendungen - Ortsfeste Anlagen - Besondere Anforderungen an Wechselstrom-Schaltanlagen -- Teil 2: Einphasige Trennschalter, Erdungsschalter und Lastschalter mit Un über 1 kV

Applications ferroviaires - Installations fixes - Spécifications particulières pour appareillage à courant alternatif -- Partie 2: Sectionneurs monophasés, sectionneurs de terre et commutateurs avec Un supérieur à 1 kV

Ta slovenski standard je istoveten z: **EN 50152-2:2007**

ICS:

29.130.99	Druge stikalne in krmilne naprave	Other switchgear and controlgear
29.280	Elektriļ na vleļ na oprema	Electric traction equipment

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50152-2

December 2007

ICS 29.280; 45.020

Supersedes EN 50152-2:1997

English version

Railway applications - Fixed installations - Particular requirements for a.c. switchgear - Part 2: Single-phase disconnectors, earthing switches and switches with U_n above 1 kV

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Bahnanwendungen - Ortsfeste Anlagen - Besondere Anforderungen an Wechselstrom-Schaltanlagen - Teil 2: Einphasige Trennschalter, Erdungsschalter und Lastschalter mit U_n über 1 kV

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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.

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CENELEC

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

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Foreword

This European Standard was prepared by SC 9XC, Electric supply and earthing systems for public transport equipment and ancillary apparatus (fixed installations), of Technical Committee CENELEC TC 9X, Electric and electronic applications for railways.

This European Standard supersedes EN 50152-2:1997 and has been prepared taking into account the changes that have been made in the high voltage switchgear and controlgear Standards of IEC TC 17 and in EN 50124-1/A2:2005.

This document is technically equivalent to EN 50152-2:1997 except for the normative references which have changed and the revised classification of rated insulation voltages according to Table A.2 of EN 50124-1/A2:2005.

The text of the draft was submitted to the unique acceptance procedure and was approved as EN 50152-2 on 2007-07-01.

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) 2008-07-01

– latest date by which the national Standards conflicting with the EN have to be withdrawn (dow) 2010-07-01

This Part 2 is to be used in conjunction with EN 62271-102, and/or EN 60265-1, depending from the equipment involved.

Contents

Page

Tables

Introduction

EN 50152 series is divided as follows:

Part 1: Single-phase circuit breakers with U_n above 1 kV.

Part 2: Single-phase disconnectors, earthing switches and switches with U_n above 1 kV.

Part 3-1: Measurement, control and protection devices for specific use in a.c. traction systems – Application guide.

Part 3-2: Measurement, control and protection devices for specific use in a.c. traction systems – Single-phase current transformers.

Part 3-3: Measurement, control and protection devices for specific use in a.c. traction systems – Single-phase voltage transformers.

EN 50152-2 has to be used in conjunction with EN 62271-102 and EN 60265-1.

Where a particular Clause of EN 62271-102 and EN 60265-1 is not mentioned in this standard, that Clause applies as far as reasonable. Where requirements relate exclusively to three-phase systems or to voltages outside those in use in traction systems, they are not applicable. Where this standard states "addition" or "replacement", the relevant text of EN 62271-102 and EN 60265-1 is to be adapted accordingly.

The numbering of clauses in EN 60694, EN 62271-102 and EN 60265-1 is not used in this European Standard. The numbering in square brackets refers to the numbering of clauses in EN 60694, EN 62271-102 and EN 60265-1.

NOTE 1 Where terms defined in EN 62271-102 and EN 60265-1 conflict with definitions of same terms as given in IEC 60050-811:1991, or the other railway applications documents listed in the normative references, the definitions used in EN 62271-102 and EN 60265-1 are to be used.

NOTE 2 The suffix N which appears in this Standard for rated values is not used in EN 62271-102 and EN 60265-1.

1 Scope

This EN 50152-2 is applicable to single-phase a.c. one-pole disconnectors, earthing switches and switches (switch-disconnectors and general purpose switches) designed for indoor or outdoor fixed installations for operation at frequencies of 16,7 Hz and 50 Hz on traction systems having an U_{Nm} above 1 kV up to 52 kV.

This EN 50152-2 is also applicable to two-pole disconnectors, earthing switches and switches (switch-disconnectors and general purpose switches) connected in the following manner either:

a) one pole supplying the connection to the contact line of the track, the other supplying the connection to the feeder cable which runs alongside the same track and is used to boost the track voltage at regular intervals in combination with autotransformers;

or

b) the two poles of the disconnector, earthing switch or switch (switch-disconnector or general purpose switch) are connected in series to provide secure isolation (i.e. two breaks in series).

2 Normative references

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.

EN 50124-1:2001 + A2:2005, *Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment*

EN 50152-1, 2007, *Railway applications - Fixed installations - Particular requirements for a.c. switchgear - Part 1: Single phase circuit breakers with U_n above 1 kV*

EN 50163:2004, *Railway applications - Supply voltages of traction systems*

EN 60265-1:1998, *High voltage switches - Part 1: Switches for rated voltages above 1 kV and less than 52 kV* (IEC 60265-1:1998)

EN 60507:1993, *Artificial pollution tests on high voltage insulators to be used in a.c. systems* (IEC 60507:1991)

EN 60694:1996, *Common specifications for high-voltage switchgear and controlgear standards* (IEC 60694:1996)

EN 60721 (all parts), *Classification of environmental conditions* (IEC 60721 all parts)

EN 62271-100:2001, *High-voltage switchgear and controlgear - Part 100: High-voltage alternating current circuit-breakers* (IEC 62271-100:2001)

EN 62271-102:2002, *High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches* (IEC 62271-102:2001)

IEC 60050-811:1991, *International Electrotechnical Vocabulary (IEV) - Chapter 811: Electric traction*

3 Definitions

For the purpose of this document, the terms and definitions given in EN 60265-1 and EN 62271-102 and the following apply:

3.1
disconnecting device
general term covering circuit-breakers, disconnectors, earthing switches, switches, including switch-disconnectors and general purpose switches

3.2
single-pole disconnecting device
disconnecting device with one electrically separated conducting path for the main circuit suitable for use in a single phase circuit

NOTE The construction arrangement of this device is in principle identical to one phase of a three-phase disconnecting device.

3.3
two-pole disconnecting device
disconnecting device with two independent electrically separated conducting paths for the main circuit

NOTE 1 The two paths may be connected in series for use in a single phase circuit where the establishment of the two paths is simultaneous. The construction arrangement of this device is in principle identical to two phases of a three phase disconnecting device.

NOTE 2 This device is intended to be suitable to interrupt or establish simultaneously a single phase circuit in two different points.

4 Normal and special service conditions [2]

Clause 2 of EN 62271-102 and EN 60265-1 is applicable except as follows:

Addition:

The equipment covered by this standard shall be suitable for installation in trackside locations subject to vibrations from passing trains, airborne iron dust contamination from train brakes and shall meet the electromagnetic compatibility (EMC) requirements.

For special service conditions, agreement is necessary between purchaser and supplier.

5 Rating [4]

5.1 General

Clause 4 of EN 62271-102 and EN 60265-1 is applicable except as follows:

5.2 Rated voltage (U_{Ne})

The rated voltage U_{Ne} shall be chosen taking into consideration the maximum voltage level suitable to be permanently applied to the disconnecting device (i.e. highest permanent voltage U_{max1} as defined in EN 50163).

5.3 Nominal voltage (U_n)

The nominal voltage U_n shall be one of the voltages listed in Table 1 of EN 50163.

5.4 Rated insulation voltage (U_{Nm}) [4.2]

The values of the rated insulation voltage U_{Nm}, of the rated impulse withstand voltage U_{Ni} and of the power-frequency withstand voltage U_a shall be as given in Table 1, taken from the values listed in EN 50124-1.

Table 1 — Nominal voltages (U_n), rated impulse voltages (U_{Ni}) and short-duration power-frequency (a.c.) test levels (U_a) for circuits connected to the contact line

U_n	U_{Nm}	U [a]	OV	U_{Ni} (1,2/50 µs)		U_a [b, c]	
				A	B	A	B
kV	kV	kV		kV	kV	kV	kV
EN 50163	EN 50124	(EN 60694)	EN 50124-1				
15	17,5	(24,0)	3	95	110	38 or 50	50 or 60
			4	125	145	50	60
		(36,0)	3	145	165 [d]	70	80
			4	170	195 [d]	70 or 95	95 or 110
25	27,5 [b]	not applicable	3	170	200 [b]	70 or 95	95 or 110
			4	200 [b]	220 [b]	95	110
		(52,0)	3	200 [b]	220 [b]	95	110
			4	250	290 [d]	95	110
see Note 3	52,0	(72,5)	3	250	290 [d]	95	110
			4	300	375	140	160

NOTE 1 The choice of the different values of U_{Ni} given for the same U_n, depends upon the highest non permanent voltages (such as U_{max2} of EN 50163) actually appearing in the system.

NOTE 2 OV3 and OV4 are overvoltage levels depending on the system configuration and degree of overvoltage control (inherent control or protective control) as given in EN 50124-1.

NOTE 3 Take care that in those cases in which for circuit reasons it may happen that a higher voltage is applied to the disconnecting device terminals in transient conditions, a higher rated insulation voltage between contacts might be necessary (e.g. U_{Nm} = 52 kV for U_n = 25 kV).

[a] The values in brackets give the rated voltages according to Table 1a of EN 60694 having the nearest equivalence in test withstand voltages with the values for single-phase equipment given in this Table.

[b] These values are used in railway application only and are not of wide industrial use.

[c] Alternative values are left to purchaser choice or by agreement.

[d] Values derived from EN 60694.

A To earth and between poles.

B Across the isolating distance (not applicable to earthing switches).

5.5 Rated short-time withstand current [4.5]

Subclause 4.5 of EN 62271-102 and 4.5 of EN 60265-1 are applicable.