SLOVENSKI STANDARD
SIST EN 62230:2008

01-december-2008

Nadomeġļa:
SIST EN 50356:2002

Elektriļ ni kabli - Preskusna metoda z iskriġļ em (IEC 62230:2006)

Electric cables - Spark-test method

Kabel und isolierte Leitungen - Durchlaufspannungsprüfung

Câbles électriques - Méthode d'essai au défilement à sec (sparker)

Ta slovenski standard je istoveten z: **EN 62230:2007**

ICS:

29.060.20 Kabli Cables

SIST EN 62230:2008 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62230

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Supersedes EN 50356:2002

English version

Electric cables - Spark-test method
(IEC 62230:2006)

Câbles électriques -
Méthode d'essai
au défilement à sec (sparker)
(CEI 62230:2006)

Kabel und isolierte Leitungen -
Durchlaufspannungsprüfung
(IEC 62230:2006)

This European Standard was approved by CENELEC on 2007-08-01. 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.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 62230:2007 E

Foreword

The text of the International Standard IEC 62230:2006, prepared by IEC TC 20, Electric cables, was submitted to the formal vote and was approved by CENELEC as EN 62230 on 2007-08-01 without any modification.

This European Standard supersedes EN 50356:2002.

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)	2008-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-08-01

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Endorsement notice

The text of the International Standard IEC 62230:2006 was approved by CENELEC as a European Standard without any modification.

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Câbles électriques – Méthode d'essai au défilement à sec (sparker)

Electric cables – Spark-test method

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC CABLES – SPARK-TEST METHOD

FOREWORD

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International Standard IEC 62230 has been prepared by IEC technical committee 20: Electric cables.

This standard, based on the European Norm EN 50356 (2002), was prepared by CENELEC technical committee 20: Electric cables. It was submitted to the national committees for voting under fast track procedure.

The text of this standard is based on the following documents:

FDIS	Report on voting
20/810/FDIS	20/816/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

The practice of using spark-testers to detect defects in the insulation or sheathing layers of electric cables has been developed over many years of practical experience.

The operation of the equipment using the verification method described in this standard has proved to be satisfactory. This method employs an artificial fault simulator and its performance has been shown to be comparable to that using operational efficacy tests involving the detection of artificially prepared defects (i.e. faults in the insulation/sheathing material) in lengths of cable.

ELECTRIC CABLES – SPARK-TEST METHOD

1 Scope

The spark-test method specified in this standard is intended for the detection of defects in the insulation or sheathing layers of electric cables. For single core cables with no outer metallic layer, the general process is accepted as being equivalent to subjecting samples of those cables to a voltage test in water.

This standard specifies the operational requirements for the spark-test equipment, as well as the principal characteristics, functional parameters and calibration procedures for each type of test equipment.

2 Types of voltage waveform

For the purposes of this standard, the types of voltage waveform used for spark-testing are divided into the following groups:

a.c. an alternating current (a.c.) voltage of approximately sine-wave form, at the industrial frequency of 40 Hz to 62 Hz;

d.c. a direct current (d.c.) voltage;

h.f. an alternating current (a.c.) voltage of approximately sine-wave form, at frequencies between 500 Hz and 1 MHz;

pulsed a voltage waveform comprising a fast rise time and highly damped wave-tail, as defined in 4.2.

NOTE Provided the manufacturer can demonstrate equivalent effectiveness, h.f. voltages at frequencies below 500 Hz may be used.

3 Procedure

The insulated conductor or sheathed cable shall be passed through an electrode energized at the test voltage. The method detailed in this standard provides for the application of a.c., d.c., h.f. and pulsed voltages.

The requirements for voltage waveform, frequency and test voltage are given in 4.2 and Clause 5. The maximum speed at which the cable shall pass through the electrode is determined by the minimum residence time specified in 4.6.

When used as an alternative to a voltage test in water, it is recommended that the test be restricted to layer thicknesses not greater than 2,0 mm and to a.c. and d.c. test voltages.

The requirements are not applicable to cable insulation having a rated voltage (U_0) greater than 3 kV.

Annex A provides recommended voltages for each voltage waveform, to be used in the absence of any alternative voltages in the relevant cable standard.

4 Equipment

4.1 Safety

To limit the effect of electric shock to personnel, for all types of voltage source, the equipment shall be constructed in such a way that the short-circuit current is limited to less than 10 mA r.m.s. or equivalent.

This requirement is additional to, or may be superseded by, any national regulation that prevails at the time.

NOTE Guidance on the limiting of shock currents can be found in IEC 60479-1 and IEC 60479-2.

Further aspects of operational safety are given in Annex C.

4.2 High voltage source

The high-voltage electrode shall be supplied in one of the following forms, as defined in Clause 2: a.c., d.c., h.f. or pulsed.

For a d.c. test, connection to the test electrode shall be by means of a low capacitance unscreened lead. For d.c. and pulsed voltage testing, the test electrode may be either positive or negative polarity, the other pole being earthed.

The requirements for pulsed waveforms are presented in Figures 1, 2 and 3.

For pulsed waveforms, the rise time of the wave front shall reach 90 % of the specified peak value in less than 75 µs – see Figure 1. Fluctuations of the actual peak value, due to variations of input power into the generator, shall not exceed ±2 % of the specified peak value – see Figure 2. The peak value shall not show more than 5 % reduction in the event of an increase of capacitive load of 50 pF, during the operation, from an initial load of 25 pF between electrode and instrument ground. The time that each pulse remains at a voltage greater than 80 % of the specified peak voltage shall be between 20 µs and 100 µs – see Figure 3. The pulse repetition frequency shall be greater than 170 per second and less than 500 per second. This corresponds to pulse separations between 2 000 µs and 5 880 µs. Visible or audible corona shall be evident in the electrode structure when operating at the specified voltage.