SLOVENSKI STANDARD
SIST IEC/TR 61916:1999

01-april-1999

Electrical accessories - Harmonization of general rules

Electrical accessories - Harmonization of general rules

Petit appareillage - Harmonisation des règles générales

Ta slovenski standard je istoveten z: **IEC/TR 61916**

ICS:

29.120.01	Elektriļ na dodatna oprema na sploġno	Electrical accessories in general

SIST IEC/TR 61916:1999 **en**

RAPPORT TECHNIQUE – TYPE 3

TECHNICAL REPORT – TYPE 3

CEI
IEC
61916

Première édition
First edition
1998-09

Petit appareillage – Harmonisation des règles générales

Electrical accessories – Harmonization of general rules

International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland
Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site http: //www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE U

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL ACCESSORIES – HARMONIZATION OF GENERAL RULES

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

The main task of the IEC technical committees is to prepare International standards. In exceptional circumstances, a technical committee may propose the publication of a technical report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

Technical reports of types 1 standards 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

IEC 61916 which is a technical report of type 3 has been prepared by IEC technical committee 23: Electrical accessories.

The text of this technical report is based on the following documents:

Committee draft	Report on voting
23/239/CDV	23/245/RVC

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

INTRODUCTION

Many rules in the Standards established by TC 23 and its eight subcommittees are identical. An harmonization is required as far as principle and redaction are concerned.

During the general meeting of TC 23, held in Stockholm in June 1980 (see PV2341/TC23 item VIII), the question of "General Rules" in TC 23 was discussed. It was decided to create a Coordinating Group which would have as main task to harmonize the so-called "General Rules". This work was carried out during the ensuing years by TC 23, following proposals by the Coordinating Group, during the meetings of Zurich (26 Jan, 1984/RM2661/TC23 item V), Rome (27/29 Nov, 1985/RM2879/TC23 items VIII and IX), Brussels (9 Apr, 1987/RM3073/TC23 annex AI), Adelaide (28 Oct, 1988/RM3118/TC23 appendix A), Beijing (26 Oct, 1990/ RM3520/TC23 item VII). This document was modified by document 23/239/CDV and approved after voting (see 23/245/RVC)

The purpose of this work is to gain time and avoid repeating discussions within TC 23 and its subcommittees and finally, to have harmonized rules on the same subjects in all the Standards published by TC 23 and its subcommittees.

These recommendations are meant as a guide. Consequently, each subcommittee may use whole or part of the document which is not meant to be compulsory.

In publishing these recommendations, TC 23 wishes to spread the information so that other committees of the IEC may use these recommendations, if necessary.

ELECTRICAL ACCESSORIES – HARMONIZATION OF GENERAL RULES

1 General

1.1 Scope

This technical report provides recommendations and test requirements applicable to electrical accessories. It aims to harmonize general rules for the preparation of international standards in this field. It gives to that effect recommendations which are intended to be used as a guide.

1.2 Reference documents

IEC 60051 (all parts), *Direct acting indicating analogue electrical measuring instruments and their accessories*

IEC 60068-2-32:1975, *Basic environmental testing procedures – Part 2: Tests. Test Ed: Free fall* Amendment 2 (1990)

IEC 60112:1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*

IEC 60228:1978, *Conductors of insulated cables*

IEC 60584-1:1995, *Thermocouples – Part 1: Reference tables*

IEC 60669-1:1993, *Switches for household and similar fixed-electrical installations – Part 1: General requirements*

IEC 60695-2-1/0:1994, *Fire hazard testing – Part 2: Test methods – Section 1/sheet 0: Glow-wire test methods – General*

IEC 60695-2-1/1:1994, *Fire hazard testing – Part 2: Test methods – Section 1/sheet 1: Glow-wire end product test and guidance*

IEC 60898:1995, *Electrical accessories – Circuit breakers for overcurrent protection for household and similar installations*

IEC 60998-1:1990, *Connecting devices for low voltage circuits for household and similar purposes – Part 1: General requirements*

IEC 60998-2-1:1990, *Connecting devices for low voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

IEC 60999 (all parts), *Connecting devices – Safety requirements for screw-type and screwless-type clamping units for electrical copper conductors*

ISO 1456:1988, *Metallic coatings – Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium*

ISO 2081:1986, *Metallic coatings – Electroplated coatings of zinc on iron or steel*

ISO 2093:1986, *Electroplated coatings of tin – Specification and test methods*

ISO 4046:1978, *Paper, board, pulp and related terms – Vocabulary*

2 Resistance to heat

The following guiding document which, after study by the Co-ordinating Group and TC 23 (see RM2879/TC23 item VIII), was circulated as 23(Sec)143, is applicable to the clauses covering requirements and tests to determine the resistance to heat of accessories. These recommendations are in accordance with IEC 60669-1: *Switches for household and similar fixed electrical installations – Part 1: General requirements.* 2nd ed.,1993.

The text includes two clauses:

– Requirements (clause 2.1)
– Tests (clause 2.2)

For editing purposes the order and the numbers may be altered if necessary

2.1 Requirements

Accessories including enclosures, if any, shall be sufficiently resistant to heat.

Compliance is checked by the tests of clause 2.2.

2.2 Tests

Verification of resistance to heat

a) for accessories, with the exception of the parts, if any, covered by items b) and c), by the tests of 2.2.1, 2.2.2 and 2.2.4

b) for boxes, separable covers and cover plates, by the test of 2.2.2. This test is unnecessary if there is an ageing test.

c) for accessories having an enclosure made of natural or synthetic rubber or a mixture of both, by the test of 2.2.4

2.2.1 *The specimens are kept for 1 h in a heating cabinet at a temperature of (100 ± 2) °C.*

During the test, they shall not undergo any change impairing their further use, and sealing compound, if any, shall not flow to such an extent that live parts are exposed.

After the test, the specimens are allowed to cool down to approximately room temperature. When the standard finger, as shown in figure 2.1, is applied with a force not exceeding 5 N, there shall be no access to live parts when the accessories are mounted as for normal use.

After the test, marking shall still be legible.

Discolouration, blisters or slight displacements of the sealing compound are disregarded provided that safety is not impaired.

2.2.2 *The specimens are submitted to a test, which is identical to the one described in 2.2.1, the only difference being that the specimens are kept for 1 h in a heating cabinet at a temperature of (70 ± 2) °C.*

2.2.3 *Parts of insulating material necessary to retain current-carrying parts and parts of the earthing circuit in position are subjected to a ball-pressure test by means of the apparatus shown in figure 2.1, except that insulating parts to retain the earthing terminals on a box shall be tested as specified in 2.2.4.*

Before the test is started, the ball and the support on which the specimen shall be placed, are brought to the temperature specified. The part under test shall be placed on a 3 mm thick steel plate in direct contact with it, so as to be supported to withstand the test force.

NOTE – When it is not possible to carry out the test on the specimens, the test should be carried out on a piece at least 2 mm thick which is cut out of the specimen. If this is not possible, up to and including four layers, each cut out of the same specimen, may be used, in which case the total thickness of the layers should be not less than 2,5 mm.

The surface of the part to be tested is placed in the horizontal position and a steel ball of 5 mm diameter is pressed against the surface with a force of 20 N.

The test lead and the supporting means shall be placed within the heating cabinet for a sufficient time to ensure that they have attained the stabilized testing temperature before the test commences.

The test is made in a heating cabinet at a temperature of (125 ± 2) °C.

After 1 h, the ball is removed from the specimen which is then cooled down within 10 s to approximately room temperature by immersion in cold water.

The diameter of the impression caused by the ball is measured and shall not exceed 2 mm.

2.2.4 *Parts of insulating materials not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though they are in contact with them, are subjected to a ball-pressure test in accordance with 2.2.3, but the test is made at a temperature of (75 ± 2) °C, or (40 ± 2) °C plus the highest temperature rises determined for the relevant part during the test of clause "Temperature rise test", whichever is the higher.*

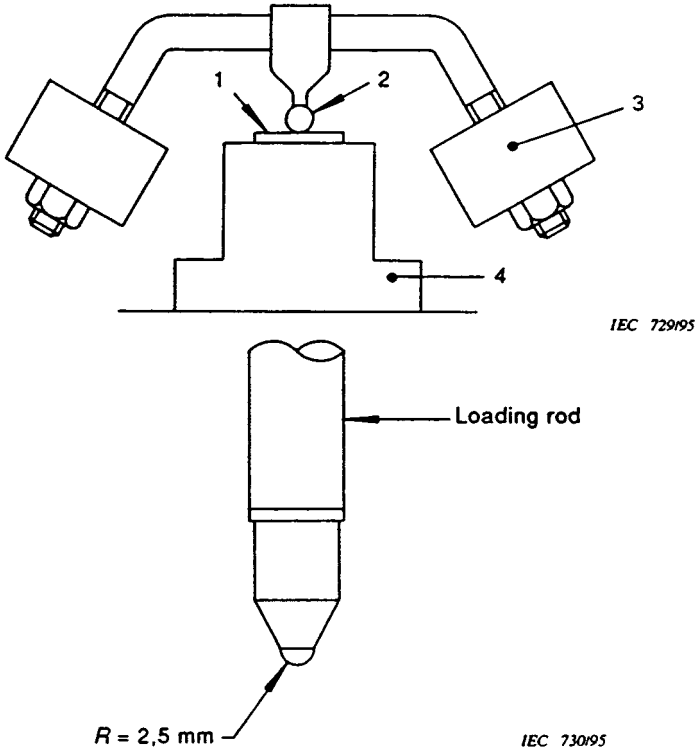
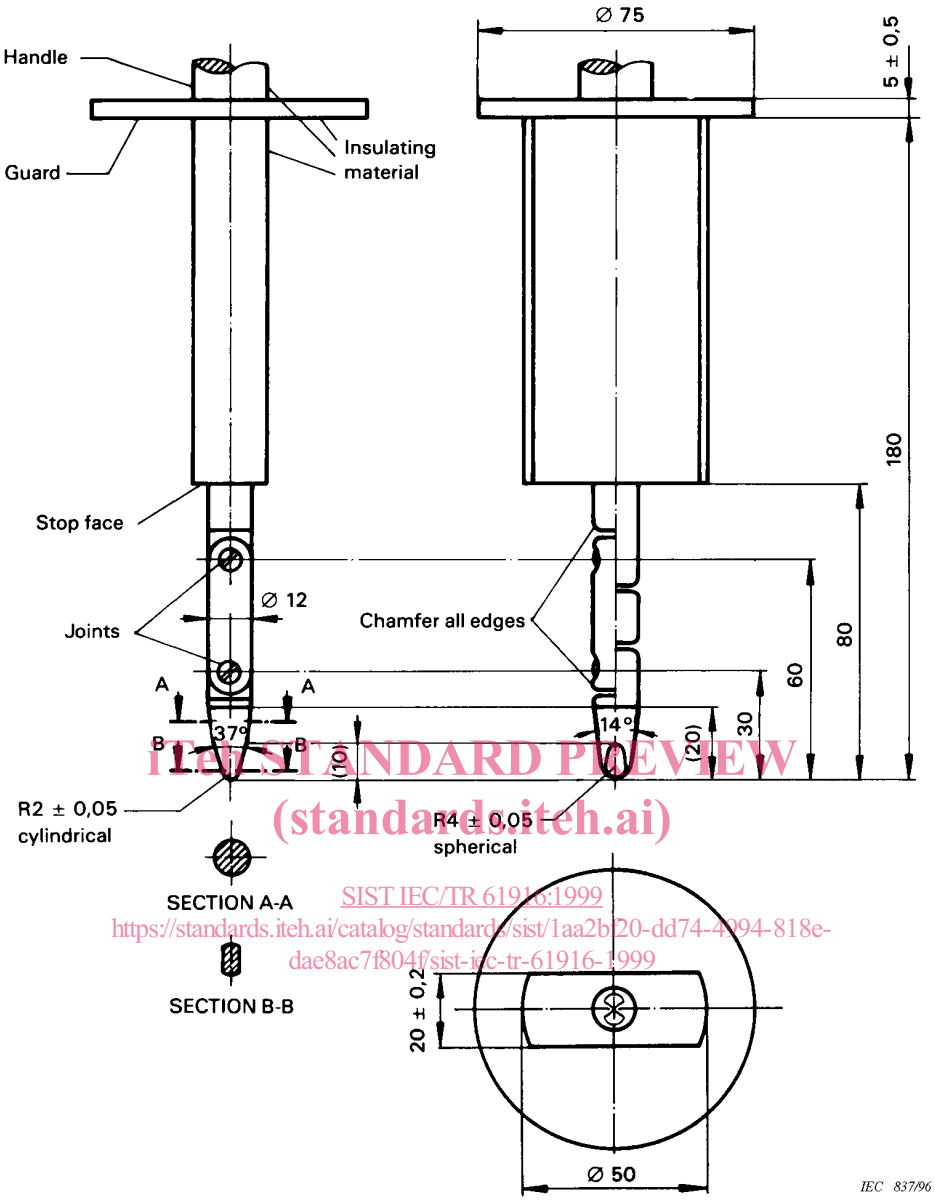


Figure 2.1 – Ball-pressure test apparatus

This figure is extracted from IEC 60695-10-2, 1st ed. 1995-08, p. 10.



Material: metal, except where otherwise specified

Linear dimensions in millimetres

Tolerances on dimensions without specific tolerance:

on angles $^{1}_{-10}$,

on linear dimensions: up to 25 mm: $^{0}_{-0,05}$

over 25 mm: ±0,2

Both joints shall permit movement in the same plane and the same direction through an angle of 90° with a 0° to +10° tolerance.

Dimensions in millimetres

Figure 2.2 – Jointed test finger

This figure is extracted from IEC 60529, 2nd ed., 1989-11, p. 58.

3 Screws, current carrying parts and connections (electrical and mechanical)

The following guiding document, which after study by the Coordinating Group and TC 23 (see RM2879/TC23 item VIII), was circulated as 23(Sec)144, is applicable to the clauses covering the requirements and tests of screws, current carrying part and connections (electrical and mechanical) of accessories. These recommendations are in accordance with IEC 60669-1: *Switches for household and similar fixed-electrical installations – Part 1: General requirements,* and IEC 60898: *Circuit breakers for overcurrent protection of household and similar installations*, 2nd ed. 1995.

The text includes three clauses as follows:

– Definitions (clause 3.1)
– Requirements (clause 3.2)
– Tests (clause 3.3)

For editing purposes, the order and numbers may be altered, if necessary.

3.1 Definitions

3.1.1 Tapping for thread-forming screw

A tapping screw having an uninterrupted thread which by screwing-in forms a thread by displacing material in the cavity.

An example of a thread-forming screw is shown in figure 3.1.

Figure 3.1 – Thread-forming screw

3.1.2 Tapping for thread-cutting screw

A screw having an interrupted thread which, by screwing-in, makes a thread by removing material from the cavity.

An example of thread-cutting screw is shown in figure 3.2.

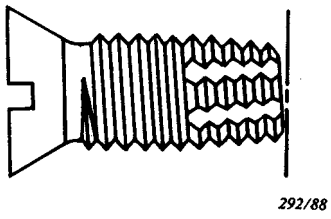


Figure 3.2 – Thread-cutting screw