### SLOVENSKI STANDARD

### SIST EN 60999-2:2003

december 2003

Povezovalne naprave – Varnostne zahteve za vijačne in brezvijačne pritrdilne enote za električne bakrene vodnike – 2. del: Posebne zahteve za pritrdilne enote za vodnike nad 35 mm2 do vključno 300 mm2 (IEC 60999-2:2003)

Connecting devices - Electrical copper conductors - Safety requirements for screwtype and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm up to 300 mm (included) (IEC 60999-2:2003)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 60999-2:2003</u> https://standards.iteh.ai/catalog/standards/sist/fd9ccd2a-f069-4e0d-87fe-8b285e27ce07/sist-en-60999-2-2003

ICS 29.120.20

Referenčna številka SIST EN 60999-2:2003(en)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

### EUROPEAN STANDARD

### EN 60999-2

### NORME EUROPÉENNE

### **EUROPÄISCHE NORM**

July 2003

ICS 29.120.20:29.130.20

**English version** 

### Connecting devices – Electrical copper conductors -

Safety requirements for screw-type and screwless-type clamping units Part 2: Particular requirements for clamping units for conductors above 35 mm<sup>2</sup> up to 300 mm<sup>2</sup> (included)

(IEC 60999-2:2003)

Dispositifs de connexion -Conducteurs électriques en cuivre -Prescriptions de sécurité pour

organes de serrage à vis et sans vis partie 2: Prescriptions particulières pour

les organes de serrage pour conducteurs (s. ite Teil 2: Besondere Anforderungen für

au-dessus de 35 mm² et jusqu'à 300 mm² (inclus)

Verbindungsmaterial -Elektrische Kupferleiter -Sicherheitsanforderungen für

Schraubklemmstellen und schraubenlose

Klemmstellen

Klemmstellen für Leiter über 35 mm² bis

SIST EN 60999-2:2003einschließlich 300 mm²

(CEI 60999-2:2003) s://standards.iteh.ai/catalog/standards/sist/fd9(IEC 60999-2:2003) 8b285e27ce07/sist-en-60999-2-2003

> This European Standard was approved by CENELEC on 2003-07-01. 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.

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

### **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

#### **Foreword**

The text of document 17B/1274/FDIS, future edition 2 of IEC 60999-2, prepared by SC 17B, Lowvoltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60999-2 on 2003-07-01.

This part of EN 60999 should be read in conjunction with EN 60999-1:2000.

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) 2004-04-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2006-07-01

As the AWG sizes are not used in Europe the following apply:

- Clause 6: delete the note:
- Table 1: delete columns 4, 5 and 6;
- Table 1: delete the text of the note after "IEC 60228A";
- Table 2: delete column 2:
- Table C.2: delete Table C.2 completely; DARD PREVIEW
- Bibliography: delete the bibliography completely. (standards.iteh.ai)

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given for information only. In this standard, annexes B, C and ZA are normative and annex A is informative. Annex ZA has been added by CENELEC. 80285e27ce07/sist-en-60999-2-2003

**Endorsement notice** 

The text of the International Standard IEC 60999-2:2003 was approved by CENELEC as a European Standard without any modification.

## Annex ZA (normative)

## Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60228 (mod) A1	1978 1993	Conductors of insulated cables	HD 383 S2 -	1986 -
IEC 60228A (mod)	1982	Conductors of insulated cables - First supplement: Guide to the dimensional limits of circular conductors	HD 383 S2	1986
IEC 60999-1	1999 https://st	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)	EN 60999-1	2000

# iTeh STANDARD PREVIEW (standards.iteh.ai)

## NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI IEC 60999-2

Deuxième édition Second edition 2003-05

PUBLICATION GROUPÉE DE SÉCURITÉ GROUP SAFETY PUBLICATION

Dispositifs de connexion – Conducteurs électriques en cuivre – Prescriptions de sécurité pour organes de serrage à vis et sans vis –

#### Partie 2:

Prescriptions particulières pour les organes de serrage pour conducteurs au-dessus de 35 mm<sup>2</sup> et jusqu'à 300 mm<sup>2</sup> (inclus)

#### SIST EN 60999-2:2003

https://Connectingodevices/ft/)ccd2a-f069-4e0d-87fe-

Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units

#### Part 2:

Particular requirements for clamping units for conductors above 35 mm<sup>2</sup> up to 300 mm<sup>2</sup> (included)

© IEC 2003 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

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



Q

CODE PRIX PRICE CODE

### CONTENTS

FΟ	REWORD	5
INT	FRODUCTION	9
1	Scope	11
2	Normative references	
3	Definitions	11
4	General	13
5	General notes on tests	
6	Main characteristics	13
7	Connection of conductors	13
8	Constructional requirements	
9	Tests	17
An	nex A (informative) Relationship between mm <sup>2</sup> and AWG/kcmil sizes	29
	nex B (normative) Conductor rated cross-section and corresponding gauges	
	nex C (normative) Construction of stranded and flexible conductors	
	iTeh STANDARD PREVIEW	•
Bib	oliography(standards.iteh.ai)	35
Fig	gure 1 – Test apparatus according to 9.4 N 60999-2-2003	27
Fig	gure 2 — Gauges of form Alahd form Blog/standards/sist/fd9ccd2a-f069-4e0d-87fe- 8b285e27ce07/sist-en-60999-2-2003	27
Та	ble 1 – Relationship between rated cross-section and diameter of conductors	15
Ta	ble 2 – Test values for flexion and pull-out tests for round copper conductors	21
	ble 3 – Tightening torques for the verification of the mechanical strength of screw-	23
٠.	ble A.1 – Approximate relationship between mm <sup>2</sup> and AWG/kcmil sizes	
	ble B.1 – Rated cross-section and corresponding gauges	
	ble C.1 – Construction of stranded and flexible conductors according to rated	
	oss-sections	33
	ble C.2 – Construction of stranded and flexible conductors according to VG/kcmil sizes	33

#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

# CONNECTING DEVICES – ELECTRICAL COPPER CONDUCTORS – SAFETY REQUIREMENTS FOR SCREW-TYPE AND SCREWLESS-TYPE CLAMPING UNITS –

Part 2: Particular requirements for clamping units for conductors above 35 mm<sup>2</sup> up to 300 mm<sup>2</sup> (included)

#### **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 specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification TEC 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.

International Standard IEC 60999-2 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This second edition of IEC 60999-2 cancels and replaces the first edition published in 1995. This second edition is the necessary consequence of the publication of the second edition of IEC 60999-1.

It has the status of a group safety publication in accordance with IEC Guide 104.

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

FDIS	Report on voting
17B/1274/FDIS	17B/1280/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.

This part of IEC 60999 should be read in conjunction with IEC 60999-1.

The committee has decided that the contents of this publication will remain unchanged until 2009. At this date, the publication will be

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

# iTeh STANDARD PREVIEW (standards.iteh.ai)

### INTRODUCTION

This safety standard is a continuation of IEC 60999-1 and covers clamping units for copper conductors above 35 mm $^2$  up to and including 300 mm $^2$ . The scope of IEC 60999-1 is limited up to 35 mm $^2$ . This standard gives guidance to technical committees using clamping units above 35 mm $^2$  up to 300 mm $^2$ .

# iTeh STANDARD PREVIEW (standards.iteh.ai)