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**Thermocouples - Part 3: Extension and compensating cables - Tolerances and identification system**

Thermocouples -- Part 3: Extension and compensating cables - Tolerances and identification system

Thermopaare -- Teil 3: Thermoleitungen und Ausgleichsleitungen - Grenzabweichungen und Kennzeichnungssystem

Couples thermoélectriques -- Partie 3: Câbles d'extension et de compensation - Tolérances et système d'identification

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**SIST HD 446.3 S1:2001**  
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**Ta slovenski standard je istoveten z: HD 446.3 S1:1993**

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**ICS:**

17.200.20	Instrumenti za merjenje temperature	Temperature-measuring instruments
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**SIST HD 446.3 S1:2001****en**

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HARMONIZATION DOCUMENT

HD 446.3 S1

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

February 1993

UDC 621.362-1.015:537.32:681.52

Descriptors: Thermocouples, compensating cables, extension cables,  
tolerances, identification system

## ENGLISH VERSION

## Thermocouples

Part 3: Extension and compensating cables

Tolerances and identification system

(IEC 584-3:1989, modified)

Couples thermoélectriques  
Troisième partie: Câbles  
d'extension et de compensation  
Tolérances et système  
d'identification  
(CEI 584-3:1989, modifiée)

## Thermopaare

Teil 3: Thermoleitungen und

Ausgleichsleitungen

Grenzabweichungen und

Kennzeichnungssystem

(IEC 584-3:1989, modifiziert)

(standards.iteh.ai)

SIST HD 446.3 S1:2001

[https://standards.iteh.ai/catalog/standards/sist/ee59d265-31bf-4525-b5d7-](https://standards.iteh.ai/catalog/standards/sist/ee59d265-31bf-4525-b5d7-474292c7a033/sist-hd-446-3-s1-2001)[474292c7a033/sist-hd-446-3-s1-2001](https://standards.iteh.ai/catalog/standards/sist/ee59d265-31bf-4525-b5d7-474292c7a033/sist-hd-446-3-s1-2001)

This Harmonization Document was approved by CENELEC on 1992-12-09.  
CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations  
which stipulate the conditions for implementation of this Harmonization Document  
on a national level.

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

This Harmonization Document exists in three official versions (English, French,  
German).

CENELEC members are the national electrotechnical committees of Austria, Belgium,  
Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,  
Netherlands, Norway, Portugal, 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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 584-3:1989 could be accepted without textual changes, has shown that some common modifications were necessary for the acceptance as Harmonization Document.

The reference document together with common modifications was submitted to the CENELEC members for formal vote.

The text of the draft was approved by CENELEC as HD 446.3 S1 on 9 December 1992.

The following dates were fixed:

- latest date of announcement  
of the HD at national level (doa) 1993-06-01
- latest date of publication of  
a harmonized national standard (dop) 1993-12-01
- latest date of withdrawal of  
conflicting national standards (dow) 1993-12-01

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For products which have complied with the relevant national standard before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.



ENDORSEMENT NOTICE

The text of the International Standard IEC 584-3:1989 was approved by CENELEC as a Harmonization Document with agreed common modifications as given below.

## COMMON MODIFICATIONS

Subclause 4.4 - Modify the table as follows :

Thermocouple type	Colour of positive conductor and sheath insulation
T	Brown
E	Violet
J	Black
K	Green
R	Orange
S	Orange
B	Grey
N	Pink

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New Subclause 4.5 to be added as follows :

[SIST HD 446.3 S1:2001](https://standards.iteh.ai/catalog/standards/sist/ee59d265-31bf-4525-b5d7-474292c7a033/sist-hd-446-3-s1-2001)

**4.5 Connectors** <https://standards.iteh.ai/catalog/standards/sist/ee59d265-31bf-4525-b5d7-474292c7a033/sist-hd-446-3-s1-2001>

*The connectors, if any, used in conjunction with thermocouples and compensating or extension cables, shall be coloured as given in the table in Subclause 4.4.*

*This colouring may be a mass colouring or a coloured dot on the connector's surface.*

## ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

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

IEC Publication	Date	Title	EN/HD	Date
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304	1982	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	1984
584-1	1977	Thermocouples - Part 1: Reference tables	HD 446.1 S1	1984

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**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**584-3**

Première édition  
First edition  
1989-07

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**Couples thermoélectriques**

**Troisième partie:**

Câbles d'extension et de compensation –  
Tolérances et système d'identification

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**Thermocouples**

**Part 3:**

SIST HD 446.3 S1:2001

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**Extension and compensating cables –  
Tolerances and identification system**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## THERMOCOUPLES

Part 3: Extension and compensating cables -  
Tolerances and identification system

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

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**PREFACE**

This standard has been prepared by Sub-Committee 65B: Elements of systems, of IEC Technical Committee No. 65: Industrial-process measurement and control.

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

Six Months' Rule	Reports on Voting
65B(C0)62 65B(C0)63	65B(C0)67 65B(C0)68

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

*The following IEC publications are quoted in this standard:*

Publications Nos. 304 (1982): Standard colours for insulation for low-frequency cables and wires.

584-1 (1977): Thermocouples, Part 1: Reference tables.



## THERMOCOUPLES

Part 3: Extension and compensating cables -  
Tolerances and identification system

## 1. Scope

This standard specifies, in Section One, manufacturing tolerances for extension and compensating cables other than mineral insulated cables provided directly to users of industrial processes. These tolerances are determined in accordance with the e.m.f.-temperature relationship of Part 1 of the standard.

This standard specifies, in Section Two, the method for identification of insulated thermocouple extension and compensating cables other than mineral insulated cables.

SECTION ONE - TOLERANCES FOR EXTENSION AND  
COMPENSATING CABLES

## iTeh STANDARD PREVIEW

## 2. Definitions

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Extension and compensating cables are used for the electrical connection between the open ends of a thermocouple and the reference junction in those installations where the conductors of the thermocouple are not directly connected to the reference junction.

2.1 *Extension cables*

Extension cables are manufactured from conductors having the same nominal composition as those of the corresponding thermocouple. They are designated by a letter "X" following the designation of the thermocouple, for example "JX".

2.2 *Compensating cables*

Compensating cables are manufactured from conductors having a composition different from the corresponding thermocouple. They are designated by a letter "C" following the designation of the thermocouple, for example "KC". Different alloys may be used for the same thermocouple type, they are distinguished by additional letters such as, for example, KCA and KCB.

2.3 *Tolerance*

The tolerance of an extension or compensating cable is the maximum additional deviation in microvolts caused by the introduction of the extension or compensating cable into the measuring circuit.