

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Mineral insulated metal-sheathed thermocouple cables and thermocouples

Câbles et couples thermoélectriques à isolation minérale dits "chemisés"





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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions	7
4 General principles	8
4.1 A MIMS thermocouple	8
4.2 Electromotive force	9
4.3 Materials and their properties	9
4.3.1 Sheath.....	9
4.3.2 Conductors	9
4.3.3 Insulation materials.....	9
4.4 Maximum operating temperature.....	9
4.5 Dimensions	9
4.5.1 Transverse section of MIMS thermocouple cables and thermocouples.....	9
4.5.2 Transverse section of simplex cable and thermocouple	10
4.5.3 Transverse section of duplex cable and thermocouple	11
4.5.4 Transverse section of triplex cable and thermocouple	12
5 Requirements and verification tests.....	12
5.1 General.....	12
5.2 MIMS thermocouple cables: requirements and verification tests	13
5.2.1 Structure and mechanical properties.....	13
5.2.2 Electrical characteristics and performance.....	14
5.3 MIMS thermocouples: requirements and verification tests	16
5.3.1 Structure and mechanical properties.....	16
5.3.2 Electrical characteristics and performance.....	18
6 Delivery condition for thermocouple cables.....	20
7 Packaging	20
8 Marking	20
9 Certification.....	20
Annex A (informative) Alternative adjacent conductor configurations.....	21
A.1 General.....	21
A.2 Duplex cable and thermocouple.....	21
A.3 Triplex cable and thermocouple	21
Annex B (informative) Mineral insulation material chemical composition.....	24
Annex C (informative) Indicative upper temperature limits.....	25
Figure 1 – Transverse section of simplex.....	10
Figure 2 – Transverse section of duplex	11
Figure 3 – Transverse section of triplex.....	12
Figure 4 – Longitudinal section of a grounded junction.....	16
Figure 5 – Longitudinal section of an insulated junction	17
Figure A.1 – Alternative adjacent conductor configuration for duplex.....	21
Figure A.2 – Alternative adjacent conductor configuration for triplex (1)	22

Figure A.3 – Alternative adjacent conductor configuration for triplex (2)	22
Figure A.4 – Alternative adjacent conductor configuration for triplex (3)	23
Table 1 – Dimensional specifications of simplex	10
Table 2 – Dimensional specifications of duplex.....	11
Table 3 – Dimensional specifications of triplex.....	12
Table 4 – Tests for MIMS thermocouple cables and thermocouples.....	13
Table 5 – Test voltage for dielectric strength	15
Table 6 – Minimum insulation resistance at ambient temperature (MIMS cables)	15
Table 7 – Insulation resistance at elevated temperatures (MIMS cables)	16
Table 8 – Minimum insulation resistance at ambient temperature	19
Table 9 – Insulation resistance at elevated temperatures (MIMS thermocouples).....	19
Table B.1 – Example values of recommended magnesia (MgO) – Chemical composition in weight percent	24
Table B.2 – Example values of recommended alumina (Al ₂ O ₃) – Chemical composition in weight percent	24
Table C.1 – Indicative temperature limits of MIMS thermocouple sheath and conductor combinations	25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MINERAL INSULATED METAL-SHEATHED
THERMOCOUPLE CABLES AND THERMOCOUPLES**

FOREWORD

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International Standard IEC 61515 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 1995. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Duplex and triplex are standardized.
- b) Specification of insulation resistance is revised so that the user can choose the best product to fit for the purpose.
- c) “Table 2 Recommended maximum operating temperatures” in the previous version is expanded significantly including newly developed sheath material and it is moved to Annex C.
- d) Test items and their methods are expanded and a guide table (Table 4) is added for userfriendliness.

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

FDIS	Report on voting
65B/1034/FDIS	65B/1038/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 stability date indicated on the IEC website 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

This new edition of IEC 61515 reflects recent developments in production technology, sheath materials and insulation materials. It aims to be a flexible standard allowing suppliers to provide fit-for-purpose products at an acceptable cost.

It includes informative guidance to help users choose the products that meet their needs.

Annex A gives alternative adjacent conductor configurations for duplex and triplex MIMS thermocouple cables and thermocouples.

Annex B gives recommendations to suppliers with respect to insulation composition.

Annex C gives guidelines to users with regard to temperature limits of operation.

MINERAL INSULATED METAL-SHEATHED THERMOCOUPLE CABLES AND THERMOCOUPLES

1 Scope

This International Standard establishes the requirements for simplex, duplex and triplex mineral-insulated metal-sheathed thermocouple cables and thermocouples, which are intended for use in general industrial applications. The abbreviation MIMS (for “mineral-insulated metal-sheathed”) will be used hereafter. It covers thermocouple cables and thermocouples with only base-metal conductors of Types T, J, E, K and N. The specifications in this standard apply to new thermocouple cables and thermocouple units as delivered to the user. They do not apply to the product after use.

External seals, terminations, connections and other accessories are not within the scope of this International Standard.

This standard does not apply to precious metal thermocouple cables and thermocouples. The special requirements for nuclear primary loop applications are dealt with in the other standards.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60584-1, *Thermocouples: Part 1 – EMF specifications and tolerances*

ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60584-1 and the following apply.

3.1

mineral insulated metal-sheathed thermocouple cable

bendable cable consisting of one or more pairs of thermocouple conductors encapsulated in a metal protecting sheath, insulated from each other and from the sheath by a compacted mineral material

Note 1 to entry: Abbreviation MIMS for “mineral insulated metal-sheathed” is used hereafter.

3.2

MIMS thermocouple

thermocouple manufactured from mineral-insulated metal-sheathed thermocouple cable

Note 1 to entry: This note applies to the French language only.