

# INTERNATIONAL STANDARD



**Specifications for particular types of winding wires –  
Part 82: Polyesterimide enamelled rectangular copper wire, class 200**

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# INTERNATIONAL STANDARD



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Part 82: Polyesterimide enamelled rectangular copper wire, class 200

INTERNATIONAL  
ELECTROTECHNICAL  
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## CONTENTS

|                                                         |    |
|---------------------------------------------------------|----|
| FOREWORD.....                                           | 3  |
| INTRODUCTION.....                                       | 5  |
| 1 Scope.....                                            | 6  |
| 2 Normative references .....                            | 6  |
| 3 Terms, definitions, general notes and appearance..... | 6  |
| 3.1 Terms and definitions.....                          | 6  |
| 3.2 General notes .....                                 | 6  |
| 3.2.1 Methods of test.....                              | 6  |
| 3.2.2 Winding wire.....                                 | 7  |
| 3.3 Appearance .....                                    | 7  |
| 4 Dimensions.....                                       | 7  |
| 5 Electrical resistance .....                           | 7  |
| 6 Elongation .....                                      | 7  |
| 7 Springiness .....                                     | 7  |
| 8 Flexibility and adherence.....                        | 7  |
| 9 Heat shock .....                                      | 7  |
| 10 Cut-through .....                                    | 7  |
| 11 Resistance to abrasion .....                         | 7  |
| 12 Resistance to solvents.....                          | 8  |
| 13 Breakdown voltage .....                              | 8  |
| 14 Continuity of insulation .....                       | 8  |
| 15 Temperature index .....                              | 8  |
| 16 Resistance to refrigerants.....                      | 8  |
| 17 Solderability .....                                  | 8  |
| 18 Heat or solvent bonding .....                        | 8  |
| 19 Dielectric dissipation factor.....                   | 8  |
| 20 Resistance to transformer oil .....                  | 8  |
| 21 Loss of mass .....                                   | 8  |
| 23 Pin hole test.....                                   | 8  |
| 30 Packaging.....                                       | 9  |
| Bibliography.....                                       | 10 |

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

#### Part 82: Polyesterimide enamelled rectangular copper wire, class 200

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**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

International Standard IEC 60317-82 has been prepared by IEC technical committee 55: Winding wires.

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

This International Standard is to be used in conjunction with IEC 60317-0-2:2020.

A list of all parts in the IEC 60317 series, published under the general title *Specifications for particular types of winding wires*, can be found on the IEC website.

The numbering of clauses in this document is not continuous from Clauses 21 through 30 in order to reserve space for possible future wire requirements prior to those for wire packaging.

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## INTRODUCTION

This part of IEC 60317 forms an element of a series of standards which deals with insulated wires used for windings in electrical equipment. It is composed of the following series:

- 1) *Winding wires – Test methods* (IEC 60851 series);
- 2) *Specifications for particular types of winding wires* (IEC 60317 series);
- 3) *Packaging of winding wires* (IEC 60264 series).

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## SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

### Part 82: Polyesterimide enamelled rectangular copper wire, class 200

#### 1 Scope

This part of IEC 60317 specifies the requirements of enamelled rectangular copper winding wires of class 200 with a sole coating based on polyesterimide resin, which can be modified provided it retains the chemical identity of the original resin and meets all specified wire requirements.

NOTE A modified resin is a resin that has undergone a chemical change or contains one or more additives to enhance certain performance or application characteristics.

The range of nominal conductor dimensions covered by this document is:

- width: min. 2,0 mm max. 16,0 mm;
- thickness: min. 0,80 mm max. 5,60 mm.

Wires of grade 1 and grade 2 are included in this specification and apply to the complete range of conductors.

The specified combinations of width and thickness as well as the specified width/thickness ratio are given in IEC 60317-0-2.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60317-0-2:2020, *Specifications for particular types of winding wires – Part 0-2: General requirements – Enamelled rectangular copper wire*

#### 3 Terms, definitions, general notes and appearance

##### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60317-0-2 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.2 General notes

###### 3.2.1 Methods of test

Subclause 3.2 of IEC 60317-0-2:2020 applies. In case of inconsistencies between IEC 60317-0-2 and this document, the latter shall prevail.

### **3.2.2 Winding wire**

Class 200 is a thermal class that requires a minimum temperature index of 200 and a heat shock temperature of at least 220 °C.

The temperature in degrees Celsius corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated, and this will depend on many factors including the type of equipment involved.

### **3.3 Appearance**

Subclause 3.3 of IEC 60317-0-2:2020 applies.

## **4 Dimensions**

Clause 4 of IEC 60317-0-2:2020 applies.

## **5 Electrical resistance**

Clause 5 of IEC 60317-0-2:2020 applies.

## **6 Elongation**

Clause 6 of IEC 60317-0-2:2020 applies.

NOTE When the value of the proof strength of the copper is specified between minimum and maximum limits, the requirements are agreed upon between the purchaser and supplier. The description of the term "proof strength" and the method of determination are given in ISO 6892-1.

## **7 Springiness**

Clause 7 of IEC 60317-0-2:2020 applies.

## **8 Flexibility and adherence**

Clause 8 of IEC 60317-0-2:2020 applies.

## **9 Heat shock**

Clause 9 of IEC 60317-0-2:2020 applies, where the minimum heat shock temperature shall be 220 °C.

## **10 Cut-through**

Clause 10 of IEC 60317-0-2:2020 applies.

## **11 Resistance to abrasion**

Test inappropriate.

## 12 Resistance to solvents

Clause 12 of IEC 60317-0-2:2020 applies.

## 13 Breakdown voltage

Clause 13 of IEC 60317-0-2:2020 applies, where the elevated temperature shall be 200 °C.

## 14 Continuity of insulation

Test inappropriate.

## 15 Temperature index

Clause 15 of IEC 60317-0-2:2020 applies, where the minimum temperature index shall be 200.

## 16 Resistance to refrigerants

Test inappropriate.

## 17 Solderability

Test inappropriate.

## 18 Heat or solvent bonding

Test inappropriate.

## 19 Dielectric dissipation factor

Test inappropriate.

## 20 Resistance to transformer oil

~~Test requirements under consideration.~~

Test inappropriate.

## 21 Loss of mass

Test inappropriate.

## 23 Pin hole test

Test inappropriate.

### **30 Packaging**

Clause 30 of IEC 60317-0-2:2020 applies.

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## Bibliography

IEC 60264 (all parts), *Packaging of winding wires*

IEC 60317 (all parts), *Specifications for particular types of winding wires*

IEC 60851 (all parts), *Winding wires – Test methods*

ISO 6892-1:2016, *Metallic materials – Tensile testing – Part 1: Method of test at room temperature*

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## CONTENTS

|                                                         |   |
|---------------------------------------------------------|---|
| FOREWORD.....                                           | 3 |
| INTRODUCTION.....                                       | 5 |
| 1 Scope.....                                            | 6 |
| 2 Normative references .....                            | 6 |
| 3 Terms, definitions, general notes and appearance..... | 6 |
| 3.1 Terms and definitions.....                          | 6 |
| 3.2 General notes .....                                 | 6 |
| 3.2.1 Methods of test.....                              | 6 |
| 3.2.2 Winding wire.....                                 | 7 |
| 3.3 Appearance .....                                    | 7 |
| 4 Dimensions.....                                       | 7 |
| 5 Electrical resistance .....                           | 7 |
| 6 Elongation .....                                      | 7 |
| 7 Springiness .....                                     | 7 |
| 8 Flexibility and adherence.....                        | 7 |
| 9 Heat shock .....                                      | 7 |
| 10 Cut-through .....                                    | 7 |
| 11 Resistance to abrasion .....                         | 7 |
| 12 Resistance to solvents.....                          | 8 |
| 13 Breakdown voltage .....                              | 8 |
| 14 Continuity of insulation .....                       | 8 |
| 15 Temperature index .....                              | 8 |
| 16 Resistance to refrigerants.....                      | 8 |
| 17 Solderability .....                                  | 8 |
| 18 Heat or solvent bonding .....                        | 8 |
| 19 Dielectric dissipation factor.....                   | 8 |
| 20 Resistance to transformer oil .....                  | 8 |
| 21 Loss of mass .....                                   | 8 |
| 23 Pin hole test.....                                   | 8 |
| 30 Packaging.....                                       | 8 |
| Bibliography.....                                       | 9 |

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## SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

### Part 82: Polyesterimide enamelled rectangular copper wire, class 200

#### 1 Scope

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NOTE A modified resin is a resin that has undergone a chemical change or contains one or more additives to enhance certain performance or application characteristics.

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- thickness: min. 0,80 mm max. 5,60 mm.

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##### 3.2 General notes

###### 3.2.1 Methods of test

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### **3.2.2 Winding wire**

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The temperature in degrees Celsius corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated, and this will depend on many factors including the type of equipment involved.

### **3.3 Appearance**

Subclause 3.3 of IEC 60317-0-2:2020 applies.

## **4 Dimensions**

Clause 4 of IEC 60317-0-2:2020 applies.

## **5 Electrical resistance**

Clause 5 of IEC 60317-0-2:2020 applies.

## **6 Elongation**

Clause 6 of IEC 60317-0-2:2020 applies.

NOTE When the value of the proof strength of the copper is specified between minimum and maximum limits, the requirements are agreed upon between the purchaser and supplier. The description of the term "proof strength" and the method of determination are given in ISO 6892-1.

## **7 Springiness**

Clause 7 of IEC 60317-0-2:2020 applies.

## **8 Flexibility and adherence**

Clause 8 of IEC 60317-0-2:2020 applies.

## **9 Heat shock**

Clause 9 of IEC 60317-0-2:2020 applies, where the minimum heat shock temperature shall be 220 °C.

## **10 Cut-through**

Clause 10 of IEC 60317-0-2:2020 applies.

## **11 Resistance to abrasion**

Test inappropriate.