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BSI Standards Publication

Electric cables – Thermosetting insulated, non-armoured, fire-resistant, single core non-sheathed cables of rated voltage 450/750 V, having low emission of smoke and corrosive gases when affected by fire – Specification

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 16, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 March 2016. It was prepared by Subcommittee GEL/20/17, *Low voltage cables*, under the authority of Technical Committee GEL/20, *Electric cables*. A list of organizations represented on these committees can be obtained on request to their secretary.

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Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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0 Introduction

This British Standard addresses a market need to standardize non-armoured, single core non-sheathed cables as a result of the proliferation of designs and requirements in the market.

Performance under fire conditions is assessed on the basis of tests which measure, under defined conditions, fire resistance, flame propagation and emission of smoke and corrosive gases.

1 Scope

This British Standard specifies requirements and test methods for the construction and performance of non-armoured, single core non-sheathed cables which:

a) have a thermosetting insulation of rated voltage 450/750 V;

b) provide resistance to fire (circuit integrity), including mechanical shock, as measured by performance in a standard test;

c) emit limited amounts of smoke and corrosive gases when burned as measured by a standard test;

d) are flame retardant; and

e) are primarily, but not exclusively, intended for use inside metal enclosures such as steel conduit.

This British Standard is applicable to cables for use in fixed installations in industrial areas, buildings and similar applications, where maintenance of power supply during a fire is required for a defined period of time.

NOTE 1 Attention is drawn to the fact that the ability of a given cable to meet the test in this standard refers only to the test conditions stated, and the level of performance achieved in a particular installation can be influenced by actual installation conditions.

The insulation and other components are suitable to permit operation of the cables at a maximum sustained conductor temperature of 90 °C and for a maximum short-circuit conductor temperature of 250 °C (for a maximum of 5 s).

NOTE 2 Annex A gives recommendations for the selection, installation and operation of cables. Annex B gives notes on type tests.

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.

BS EN 50363-5, *Insulating, sheathing and covering materials for low voltage energy cables – Part 5: Halogen-free, cross-linked insulating compounds*

BS EN 50395, *Electrical test methods for low voltage energy cables*

BS EN 50396, *Non electrical test methods for low voltage energy cables*

BS EN 60228, *Conductors of insulated cables*

BS EN 60332-1-2:2004+A1:2015, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*