BS 7846:2015

BSI Standards Publication

Electric cables – Thermosetting insulated, armoured, fire-resistant cables of rated voltage 600/1 000 V for fixed installations, 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 iv, pages 1 to 42, 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 30 November 2015. It was prepared by Technical Committee GEL/20, *Electric cables*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 7846:2009, which will be withdrawn on 1 December 2016.

Information about this document

This is a full revision of the standard, and introduces the following principal changes.

a) Interlocked tape armour has been removed as it no longer has market relevance.

b) 48 core auxiliary cables have been removed as they are no longer market relevant.

c) The marking requirements have been updated and clarified.

d) The guide to use given in Annex A has been updated to reflect modern installation practice and the recommendations in BS 8519:2010.

e) Test methods have been updated in accordance with the latest BS EN standards.

The new edition takes account of:

- BS EN 50363 (replacing certain parts of BS 7655) on materials;
- BS EN 50395 (replacing Annex K of BS 7846:2009) on electrical tests;
- BS EN 50396 (replacing Annex D of BS 7846:2009) on thickness measurement;
- BS EN 60332-1-2 (replacing BS EN 50265-2-1);
- BS EN 60332-3-24 (replacing BS EN 50266-2-4);
- BS EN 62230 (replacing BS EN 50356 and BS 5099) on spark testing.

Product certification/inspection/testing

Users of this British Standard are advised to consider the desirability of third-party certification/inspection/testing of product conformity to this British Standard. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

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.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies requirements for construction and performance of thermosetting insulated, armoured, fire-resistant cables of rated voltage 600/1 000 V having low emission of smoke and corrosive gases when affected by fire.

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

This British Standard specifies requirements for the following types of cables:

a) wire armoured and oversheathed cables with two-, three-, four- or five-cores, and with stranded copper conductor;

b) multicore auxiliary cables, wire armoured and oversheathed, with stranded copper conductor.

This British Standard specifies four categories of cables based on their performance in tests which assess separately resistance to fire, resistance to fire with water spray and resistance to fire with mechanical shock (Category F2) and which assess resistance to fire with direct mechanical impact and water jet in combination (Categories F30, F60 and F120).

This British Standard is applicable to cables that are designed for 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 1 Limitation on the temperature of the cables might be imposed in situations where they may be touched or where they could touch other materials.

NOTE 2 Annex A gives the guide to use, Annex B gives armour wire tests, Annex C gives compatibility test, Annex D gives abrasion test, Annex E gives insulation resistance constant test on oversheath, Annex F gives resistance of conductor and armour, Annex G gives gross cross-sectional area of armour, Annex H gives a test for shrinkage of oversheath, Annex I gives the fire resistance test for category F2 – additional provisions for cables with a diameter over 20 mm, and Annex J 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 6387, *Test method for resistance to fire of cables required to maintain circuit integrity under fire conditions*

BS 7655-1.2, *Specification for insulating and sheathing materials for cables – Part 1: Cross-linked elastomeric insulating compounds – Section 2: General 90°C application*

BS 7655-1.3, *Specification for insulating and sheathing materials for cables – Part 1: Elastomeric insulating compounds – Section 3: XLPE*

BS 7655-6.1, *Specification for insulating and sheathing materials for cables – Part 6: Thermoplastic sheathing compounds having low emission of corrosive gases, and suitable for use in cables having low emission of smoke when affected by fire – Section 1: General application thermoplastic types*

BS 7671, *Requirements for electrical installations – IET Wiring Regulations – Seventeenth edition*