BS 7870-4.10:2011+A1:2016

BSI Standards Publication

LV and MV polymeric insulated cables for use by distribution and generation utilities

Part 4: Specification for distribution cables with extruded insulation of rated voltages of 11 kV to 33 kV

Section 4.10: Single-core 11 kV to 33 kV cables

(Implementation of HD 620)

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Publishing and copyright information

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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 24, an inside back cover and a back cover.

Foreword

Publishing information

This section of BS 7870 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2011. It was prepared by Subcommittee GEL/20/16, *Medium/High 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.

Supersession

BS 7870-4.10:2011+A1:2016 supersedes BS 7870-4.10:2011, which is withdrawn.

Relationship with other publications

BS 7870 implements the nationally applicable parts of Harmonization Documents HD 603, 605, 620, 626 and 627 published by the European Committee for Electrotechnical Standardization (CENELEC) in accordance with the decision of the CENELEC Technical Board.

BS 7870 applies to cables for fixed installations having a rated voltage U_0/U up to and including 19/33 kV, and is published as a series of separate parts and sections, as listed in the table in the foreword of BS 7870-1.

This section of BS 7870 implements Part 10O and Part 11O of HD 620 S2, and is to be read in conjunction with BS 7870-1 and BS 7870-2.

Information about this document

BS 7870-4.10:2011 was a full revision of the standard, and brought the standard up to date in accordance with current practice in the industry.

The start and finish of text introduced or altered by Amendment No. 1 is indicated in the text by tags [A1] 〈A1〉. Minor editorial changes are not tagged.

A general guide to use for the types of cables specified in BS 7870 is given in BS 7870-1 and specific details for the types of cables specified in this section of BS 7870 are given in Annex A.

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.

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1 Scope

This section of BS 7870 specifies requirements for the construction, dimensions and mechanical and electrical properties of 6.35/11(12) kV to 19/33(36) kV single-core cables having either aluminium or copper conductors, cross-linked polyethylene (XLPE) or ethylene propylene rubber (EPR) extruded insulation, a copper wire metallic screen and an oversheath of one of the following compounds:

a) medium density polyethylene (MDPE) compound type DMP 5 (Type A cables);

b) thermoplastic compound type DMZ 4 for cables with having a low emission of smoke and corrosive gases when affected by fire (Type B cables).

The standard also specifies requirements for 11 kV cables laid up in a triplex formation.

This section of BS 7870 is applicable to cables that are designed for a maximum continuous conductor operating temperature of 90 °C and for a maximum short-circuit conductor temperature of 250 °C.

NOTE Information to be supplied by the purchaser, and items to be agreed between the purchaser and the manufacturer at the time of enquiry and/or order are given in Annex B. Guidance on type testing is given in Annex C.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS 3988:1970+A3:1989, *Specification for wrought aluminium for electrical purposes – Solid conductors for insulated cables*

BS 7870-1, *LV and MV polymeric insulated cables for use by distribution and generation utilities – Part 1: General*

BS 7870-2, *LV and MV polymeric insulated cables for use by distribution and generation utilities – Part 2: Methods of test*

BS EN 50267-2-1, *Common test methods for cables under fire conditions – Tests on gases evolved during combustion of materials from cables – Part 2-1: Procedures – Determination of the amount of halogen acid gas*

BS EN 60228:2005, *Specification for conductors in insulated cables and cords*

BS EN 60332-1-2:2004, *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*

BS EN 60332-3-24:2009, *Tests on electric and optical fibre cables under fire conditions – Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C*

BS EN 60811-1-2, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-2: General application – Thermal ageing methods*

BS EN 60811-1-3, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-3: General application – Methods for determining the density – Water absorption tests – Shrinkage test*