

BS 7870-3.21:2011

Incorporating Corrigendum No. 1



BSI Standards Publication

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

Part 3: Specification for distribution
cables of rated voltage 0.6/1 kV

Section 3.21: XLPE insulated split
concentric cables with copper or
aluminium conductors

(Implementation of HD 603)



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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

This section of BS 7870 supersedes BS 7870-3.21:2001, which is withdrawn.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.

BS 7870-3.21 specifies a range of XLPE insulated split concentric service cables; it implements Part 5S of HD 603 S1 A2, and is to be read in conjunction with BS 7870-1 and BS 7870-2.

BS 7870-3.20 specifies a range of split concentric service cables with PVC insulation.

BS 7870-3.22 is a new section that specifies a similar range of split concentric service cables which have XLPE insulation and low emission of smoke and corrosive gases when affected by fire.

Information about this document

This is a full revision of the standard, and brings the standard up to date in accordance with current practice in the industry.

The start and finish of text introduced or altered by Corrigendum No. 1 is indicated in the text by tags **[C1]** and **[C1]**.

A general guide to use for the types of cable specified in BS 7870 is given in BS 7870-1 and specific details for the types of cable 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.

1 Scope

This section of BS 7870 specifies requirements for the construction, dimensions and mechanical and electrical properties of split concentric service cables having a rated voltage of 0.6/1(1.2) kV.

It specifies requirements for the following types of cable:

- a) single phase or 3-phase;
- b) stranded copper or solid aluminium conductors;
- c) XLPE insulation and PVC oversheath.

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.

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 60228, *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 60811-1-1, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*

BS EN 60811-1-2, *Common test methods for 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*

3 Voltage designation

Cables shall be designated by the voltages U_0 , U and U_m , expressed in the form $U_0/U (U_m)$.

The voltage designation of cables in this standard shall be 0.6/1(1.2) kV.

The rated voltage of the cable shall be at least equal to the nominal voltage of the system for which it is intended.