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Technical Specification 43-92

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Overhead line fittings

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Operations Directorate
Energy Networks Association
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52 Horseferry Rd
London
SW1P 2AF

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Amendments since publication

Issue	Date	Amendment
Issue 4	April, 2004	Major revision to reflect the adoption of BS EN 61284, *Overhead Lines – Requirements and tests for Fittings*.
Issue 5	January, 2018	Minor revision to reflect a withdrawal of a referenced standard and to take into account modifications in practice that have been introduced in the light of on-going operating experience. This issue includes the following principal technical changes. Foreword: Text added that the document does not cover fittings for lines with Aerial Bundled Conductors (ABC) specified in ENA TS 43-14 and lines with XLPE covered conductors specified in ENA TS 43-120. Clause 1: Text added that the document also does not cover fittings for lines with Aerial Bundled Conductors (ABC) specified in ENA TS 43-14. Clause 2: References updated, deleted or added as relevant. Clause 5.3: Reference to ENA EREC L38 added. Clause 5.6.2: Reference to obsolete ENA TS 41-16 deleted. Additional requirements for jumper palms to be supplied complete with bolt assemblies when specified by the purchaser. Clause 5.6.5: Wording ‘Unless specified by the purchaser…’ added to allow purchasers to specify bails without integral non-tension tee joints. Clause 6.2: List item ii: Wording ‘Unless specified by the purchaser…’ added to allow purchasers to specify auxiliary eye with different size to 16 mm specified. List item iii: Requirement added for the installation torque values to be indelibly marked on the fitting in newton-metres (Nm). Clause 6.3.2: Additional design requirements relating to materials, shank length, moving parts, conductor size to be accommodated and position of conductor entry.

		Clause 6.3.3: Wording ‘Unless specified by the purchaser…’ added to allow purchasers to specify bails without integral joints or taps. Clause 7.1: Requirements added (i) Label to include information detailed in ENA TS 43-15, (ii) Helical conductor fittings to be colour coded as per ENA TS 43-15, (ii) Helical stay fittings to be colour coded as per ENA TS 43-91. Clause 8.2.2: split into 3 sub-clauses: 8.2.2.1 Helical conductor fittings. Existing test requirements retained. 8.2.2.2 Helical stay fittings. Reference to TS 43-91, Clause 9.3 for the test requirements. 8.2.2.3 Helical insulator binds. Reference to TS 43-15, Appendix E for the test requirements. Table 3 (Issue 5, Table 8.3): Addition of statement of test requirements for factory formed helical fittings. Annex A: Self Certification Conformance Declaration table expanded to require a declaration to be made for every sub-clause of TS 43-92. Details of all other technical, general and editorial amendments are included in the associated Document Amendment Summary for this Issue (available on request from the Operations Directorate of ENA).

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Foreword

This Technical Specification (TS) is published by the Energy Networks Association (ENA) and comes into effect from the date of publication. It has been prepared under the authority of the ENA Engineering Policy and Standards Manager and has been approved for publication by the ENA Electricity Networks and Futures Group (ENFG). The approved abbreviated title of this engineering document is "ENA TS 43-92".

This document replaces and supersedes ENA TS 43-92 Issue 4 2004.

In general, the approach of TS 43-92 is to interpret BS EN 61284, *Overhead Lines – Requirements and tests for Fittings* and clarify requirements for those parts of BS EN 61284, where alternative arrangements are permitted, such that existing practices, which have proven to provide satisfactory field performance, are maintained. Where BS EN 61284, offers options, for example in terms of the test requirements, TS 43-92 has been structured to allow these to be agreed between purchaser and supplier where mutual benefit can be attained.

The document does not cover fittings for lines with:

- Aerial Bundled Conductors (ABC), which are specified in ENA TS 43-14, *Insulated Aerial Bundled Conductors for Low Voltage Overhead Distribution Systems – Conductor Fittings and Associated Apparatus*
- XLPE covered conductors, which are specified in ENA TS 43-120, *Fittings for covered conductors for overhead lines (having rated voltages U0/U greater than 0.6/1 kV up to and including 19/33 kV)*.

Annex A of the document includes 'Self Certification Conformance Declaration' sheets tables to enable manufacturers to declare conformance or otherwise, clause by clause, with the relevant parts of the document.

Where the term "shall" or "must" is used in this document it means the requirement is mandatory. The term "should" is used to express a recommendation. The term "may" is used to express permission.

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

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1 Scope

This Technical Specification specifies overhead line fittings for lines up to and including 132 kV on wood poles other than those for insulated Aerial Bundled Conductors (ABC), which are covered in ENA TS 43-14 [N1], and those for XLPE covered conductors, which are specified in ENA TS 43-120 [N5].

2 Normative references

The following referenced documents, in whole or part, 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.

Standards publications

BS EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods*

BS EN 20273, *Fasteners Clearance holes for bolts and screws*

BS EN 60372, IEC 60372, *Locking devices for ball and socket couplings of string insulator units: dimensions and tests*

BS EN 61284, *Overhead Lines - Requirements and tests for fittings*

BS EN 61466-1, *Composite string insulator units for overhead lines with a nominal voltage greater than 1000 V. Standard strength classes and end fittings*

BS 3288-2, *Insulator and conductor fittings for overhead power lines Part 2: Specification for a range of insulator fittings*

CENELEC HD 474 S1, *Dimensions of ball and socket couplings for string insulator units*

Other publications

[N1] ENA TS 43-14, *Insulated Aerial Bundled Conductors for Low Voltage Overhead Distribution Systems – Conductor Fittings and Associated Apparatus*

[N2] ENA TS 43-15, *Insulator binds and equivalent helical fittings for overhead lines*

[N3] ENA TS 43-91, *Stay strands and stay fittings for overhead lines*

[N4] ENA TS 43-93, *Line Insulators*

[N5] ENA TS 43-120, *Fittings for covered conductors for overhead lines (having rated voltages U0/U greater than 0.6/1 kV up to and including 19/33 kV)*

[N6] ENA EREC L38, *Overhead line conductors - protection against corrosion by the application of anti-corrosion grease during manufacture*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
auxiliary eye
part of a tension termination allowing the attachment of tools for the erection and sagging of conductor