

Specification for

Copper terminal ends for crimping to electric cables with copper conductors

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Foreword

This British Standard has been prepared at the request of the Aerospace Industry to give details of the requirements for copper terminal ends suitable for crimping to aircraft electric cables with copper conductors.

Details of the requirements for aluminium terminal ends for crimping to aircraft electric cables with aluminium conductors are given in BS G 184 to BS G 188, *Aluminium terminal ends and in-line connectors for hexagonal crimping to aircraft aluminium electrical cables*.

This standard should be read in conjunction with BS G 178, *Crimped joints for aircraft electric cables and wires*, and makes reference to the following British Standards:

BS A 125-A 168, *Stiffnuts (unified threads) for aircraft*.

BS 2G 100, *General requirements for electrical equipment and indicating instruments for aircraft*.

BS G 177, *Nyvin type electrical cables for aircraft*.

BS G 189, *Tersil type electrical cables for aircraft*.

BS G 192, *Efglas type electric cables with copper conductors for aircraft*.

BS G 203, *Unified screws with captive facing and locking washers*.

BS 1432, *Copper for electrical purposes. Strip with drawn or rolled edges*.

BS 9001, *Sample procedures and tables for inspection by attributes for electronic parts of assessed quality*.

NOTE In Table 1 either inch or metric dimensions may be regarded as the standard. In all other cases the values in British units are to be regarded as the standard. A table is given in Appendix C to provide a ready means of calculating the millimetre equivalents of the inch dimensions. More accurate conversions should be based on the tables in BS 350, “*Conversion factors and tables*”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

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This British Standard, having been approved by the Aerospace Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 29 December 1967

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The following BSI references relate to the work on this standard.
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Section 1. Design requirements

1 Scope

1.1 This British Standard gives details of the dimensional and other requirements for copper terminal ends, of the ring-tongue type, suitable for crimping to aircraft electrical cables with copper conductors to form joints which satisfy the requirements of BS G 178.

1.2 Two classes of terminal ends are listed:

Class 1 (at present restricted to terminal ends for size 12 cables and smaller), intended for future use, and designed to be crimped with any suitable approved crimping tool. To achieve this, precise requirements are stipulated for dimensions, material and finish.

Class 2, based on existing designs, and with comparatively wide tolerances on some dimensions. Certain dimensions (i.e. barrel diameter and bore before crimping) are not specified, but the maximum dimensions at any point across the section of the crimp or insulation grip after crimping is specified. (See also Note 6 to Figure 2).

2 Definitions

For the purposes of this British Standard the definitions in BS G 178 apply.

3 Material

3.1 Class 1 terminal ends shall be made from high-conductivity copper complying with the appropriate requirements of BS 1432, Grades C.101 or C.102. Grain size shall not exceed 0.040 mm.

3.2 Class 2 terminal ends may be made from any grade of copper or copper alloy, but the material used shall be declared, as required by Clause 11.

4 Finish and hardness

4.1 Class 1 terminal ends shall be plated with either tin, silver, nickel or gold as appropriate for the cable and temperature conditions.

| There shall be no visible defect.

4.2 The finish shall be such that all terminations covered by the declaration required by Clause 11 shall be capable of meeting the appropriate requirements of BS G 178.

4.3 The material hardness of complete Class 1 terminal ends shall be within the range of 60–100 V.P.N.

5 Dimensions and construction

5.1 The dimensions of Class 1 terminal ends, before and after crimping, shall conform to the requirements of Table 1 and Figure 1.

5.2 The dimensions of Class 2 terminal ends, after crimping, shall conform to the requirements of Table 2 and Figure 2 or Table 3 and Figure 3, as appropriate.

5.3 The palm surfaces shall be parallel within 0.005 in (0.1 mm) total indicator reading, and flat over the area of the palm width and linear dimension *W* (see Figure 1).

5.4 Stud holes shall be free from burrs and rough edges.

5.5 The design of the terminal end shall be such that adequate engagement of the cable conductor in the completed joint can be readily established.

6 Insulation support

6.1 Terminal ends for cables of sizes 27–12 inclusive shall include a barrel or part of a barrel so designed that it will enclose and support the outside of the cable insulation.

6.2 The length of the cable insulation support barrel for Class 1 terminal ends shall be in accordance with the relevant dimensions in Table 1.

6.3 The length of the cable insulation support barrel for Class 2 terminal ends shall be such that, after crimping, a length of cable insulation is enclosed within the barrel.

7 Pre-insulated terminal ends

7.1 On pre-insulated terminal ends the insulation, after crimping, shall extend beyond the cable insulation support barrel (i.e. beyond the dimension *L* shown in Figure 1, Figure 2 or Figure 3) for a distance of:

0.05 in to 0.15 in (1.3 mm to 3.8 mm) for Class 1 terminal ends.

0.05 in minimum (1.3 mm) for Class 2 terminal ends.

7.2 Class 1 pre-insulated terminal ends shall be colour coded as specified in Table 1.

8 Bending test on terminal ends

When terminal ends are made from material in strip, sheet or tube form, a bending test as described in Appendix A shall be applied to at least 3 terminal ends of each material, finish, type and size.