

Specification for

Minyvin* type electric cables for aircraft

*To be pronounced “mīnyivin”.

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 27 June 1966

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The following BSI references relate to the work on this standard:
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Foreword

This British Standard has been prepared to provide a range of cables for use where a degree of flexibility greater than that of standard Nyvin cable complying with BS G 177¹⁾ is required, and where a reduction of weight compared with the standard Nyvin cable is necessary. The improvement in flexibility and reduction in weight are made possible by:

- a) The use of a more flexible type of nylon
- b) The use of a finer glass braid
- c) Thinner PVC insulation
- d) The use of flat copper strip braids on the Minyvinmetsheath versions, and an overall extruded nylon sheath.

To enable them to be readily distinguished from standard Nyvin cables, the cables covered by this specification will be marked “MINYVIN 22”, etc.

The standard makes reference to the following British Standards:

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

BS G 212, *General requirements for aircraft electrical cables*.

BS 872, *Abrasive papers and cloths (technical products)*.

BS 2004, *PVC-insulated cables and flexible cords for electrical power and lighting*.

BS 2571, *Flexible PVC compounds*.

BS 2746, *PVC insulation and sheath of electric cables*.

BS 3360, *Copper conductors in insulated cables and cords*.

NOTE The values in British units are to be regarded as the standard. Where metric equivalents are given they are approximate and for information only. In Table 1 and Table 2 such equivalents are shown only for the more essential features of the cables, i.e. the nominal conductor areas, the overall diameters of the finished cables and the weights of the cables. Equivalents of other values in these tables and more accurate conversions of the metric values which are quoted 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.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover 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.

¹⁾ BS G 177, “*Nyvin type electrical cables for aircraft*”.

1 Scope

a) This British Standard states the requirements for “Minyvin” type cables for aircraft wiring. The cables are suitable for use in circuits in which the voltage between conductors, between a conductor and a metal braid surrounding it, and between a conductor and the aircraft structure, nowhere exceeds 300 volts r.m.s., and in which the frequency does not exceed 1 600 c/s. The cables will withstand a transient voltage of up to 1 500 volts.

The cables are suitable for use where, in continuous service, no combination of ambient temperature and conductor current produces a stabilized conductor temperature in excess of 105 °C. They are suitable for fixed wiring in aircraft at temperatures down to – 75 °C, but are not suitable for severe flexing at temperatures below – 30 °C.

The cables do not support combustion but they do not comply with the requirements of BS 2 G 100 in respect of fire resistance.

The cables are suitable for use in areas where ester-base fluids are present.

A test and limit for the pliability of the cables is included in this standard (see Clause 21).

b) The generic name “Minyvin” is applicable only to cables covered by this British Standard and complying with all its requirements.

c) The standard includes the following ranges of cables:

- i) *Minyvin*. Cable with a tinned copper conductor and an insulation of PVC compound and glass braid, with an outer protective covering of nylon.
- ii) *Minyvinmetsheath*. Similar to the Minyvin range but with the addition of a metal strip braid and an overall nylon sheath.
- iii) *Duminyvin and Triminyvin*. Two- or three-core cables consisting of two or three Minyvin cables twisted together.

d) The cables are classified and identified by a series of numbers indicative of the conductor cross-sectional area. The numbers correspond to those used for equivalent American cables.

e) The maximum current ratings for Minyvin cables are quoted in Appendix A.

Section 1. Requirements

2 Materials

a) *Copper conductors and wires*. Copper conductors and wires shall be in accordance with BS 3360, as far as applicable. Wires taken from conductors shall meet the requirements for maximum tensile strength and minimum elongation at break specified in Clause 31 of this British Standard.

b) *PVC insulation*. The PVC insulation shall be white, high temperature grade insulation of such quality that the finished cable complies with all the test requirements of this British Standard.

c) *Glass braid*. The free alkali content of the glass shall not exceed one per cent. The glass shall be of such quality that the finished cable complies with all the test requirements of this British Standard.

d) *Nylon sheath*. The nylon shall be stabilized and free from ingredients likely to cause staining or discoloration of the cable. It shall be of such a quality that the finished cable complies with all the test requirements of this British Standard.

Specimens of the nylon sheath removed from the finished cable shall comply with Clause 18.

e) *Tinned copper strip for braiding*. The nominal characteristics of the flat tinned copper strip are as follows:

Tinned copper strip

Size		Breaking load		Elongation at break	Resistance (ohms/1 000 yards)
in	mm	lbf	kgf	per cent	
0.018 × 0.002	0.46 × 0.05	1.8	0.8	1	771
0.025 × 0.002	0.64 × 0.05	2.5	1.1	1	555