



AEROSPACE STANDARD

AS6506™/1

Issued 2021-07

Superseding MA5405/1

Fusion Splice for Aerospace Fiber Optic Cables

RATIONALE

Aerospace fiber optic cables frequently need to be spliced, both for original installation and for repair. Standards exist for mechanical splices in fiber cables, but none has yet been created for fusion spliced cables. Fusion splices can offer superior performance in insertion loss, return loss, and mechanical and environmental stability, suitable for long-term/permanent installation in aircraft. The industry needs agreed-upon performance standards for fiber optic cable fusion splices in aerospace service.

1. SCOPE

This specification includes detailed requirements for a fiber optic cable splice compliant with AS6506.

Every requirement of the parent standard, AS6506, which applies to this detail specification is identified below by the word “applicable.” In any case in which a requirement of this specification varies from that of the parent standard, the alternate requirement is described. If a parent standard requirement does not apply, the words used are “not applicable.”

2. REFERENCES

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS-DTL-23053/4 Insulation Sleeving, Electrical, Heat Shrinkable, Polyolefin, Dual Wall, Outer Wall Crosslinked

AMS-DTL-23053/18 Insulation Sleeving, Electrical, Heat Shrinkable, Modified Fluoropolymer, Crosslinked

AS6506 Fusion Splice for Aerospace Fiber Optic Cables

3. SAFETY

Applicable.

4. TECHNICAL REQUIREMENTS

The following detailed specifications refer to AS6506 requirements, Section 4:

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Documents

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4.1 Design and Marking

AS6506/1-00x per Table 1, and manufacturer identification per AIR1351 shall be on the splice and/or its packaging.

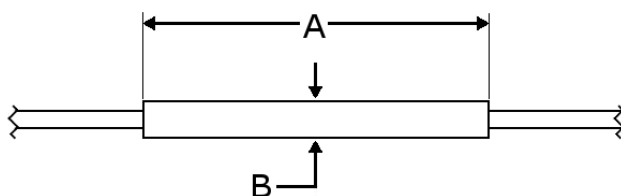


Figure 1

Table 1 - Dimensions in millimeters (inches) (see Figure 1)

Part Number	A	B	Designed for Cable	Outer Sleeve Material
AS6506/1-001	83 ± 3 (3.25 ± 0.13)	3 ± 1.3 (0.12 ± 0.05)	2.0 mm ± 0.2 mm dia with aramid and/or fiberglass strength members	Polyolefin compliant with AMS-DTL-23053/4
AS6506/1-002	102 ± 3 (4 ± 0.13)	4 ± 1.3 (0.16 ± 0.05)	2.74 mm ± 0.2 mm dia with aramid and/or fiberglass strength members	Crosslinked fluoropolymer compliant with AMS-DTL-23053/18

This detail specification defines a user-installed component comprising the fibers fusion spliced protected inside a completed cable restoration, in other words a “fusion splice, fiber optic, for aerospace simplex cable.” It is the result of a process, defined in AS6506, performed by a user with tools, parts, and materials specified and supplied by a Supplier.

4.2 Condition of Listing

Applicable.

4.3 Visual and Mechanical Examination

4.3.1 Materials

The splice shall contain no metallic parts and shall be in compliance with the manufacturer’s engineering drawing.

The interior components shall be defined by the Supplier in such a way as to meet the performance requirements of this standard. The outer/final (exposed) layer shall be as defined in Table 1.

4.3.2 Design and Dimensions

Design, dimensions, and markings shall be as specified in Figure 1. If the outer/final component of the splice/restoration (identified by dimensions A and B) is black, the identification markings shall be on the packaging.

4.4 Assembly Instructions

Applicable, except that piece part numbers are not necessary because no part can be replaced after assembly.