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AEROSPACE STANDARD

AS 1492

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Revised

INTERLINE AIR CARGO PALLET NETS

1. PURPOSE: The purpose of this document is to establish minimum requirements for nets used to secure cargo on aircraft pallets meeting the requirement of AS 1491.

The minimum essential criteria are identified by the use of the key word "shall". Recommended criteria are identified by the use of the key word "should", and while not mandatory are considered to be of primary importance in providing serviceable, economical, and practical air transport pallet nets. Deviation from the recommended criteria should occur only after careful consideration, extensive testing, and thorough service evaluation have shown alternate methods to be satisfactory.

1.1 Reference Documents:

1.1.1 SAE AS 1491, Interline Air Cargo Pallets.

1.1.2 NAS3610, Minimum Airworthiness Requirements & Test Conditions for Air Cargo Unit Load Devices, Aerospace Industries Association of America, Inc., 1725 Desales Street, N.W., Washington, D. C. 20046.

1.1.3 IATA 50/2, Aircraft Pallet Net Specification, International Air Transport Assoc., 2000 Peel Street, Montreal, Quebec, Canada H3A 2R4.

1.1.4 IATA Specification 50/0, General Technical Requirements & Serviceability Limits, International Air Transport Assoc., 2000 Peel Street, Montreal, Quebec, Canada H3A SR4.

1.1.5 SAE AIR 1490, Environmental Degradation of Textiles Used in Air Cargo Restraint Equipment.

1.1.6 MS33601A, Track & Stud Fitting for Cargo Transport Aircraft, Standard Dimensions for.

2. SCOPE: This specification establishes dimensional, structural and environmental requirements for interline pallet nets.

2.1 Nominal Sizes:

2.1.1 The pallet net sizes are:

NAS 3610 Code Size	Pallet Size (AS 1491)
A	2235 mm x 3175 mm (88 x 125 in.)
B	2235 mm x 2743 mm (88 x 108 in.)
M1 & M2	2438 mm x 3175 mm (96 x 125 in.)

2.2 Basic Net Configuration:

2.2.1 Contours: Contours, nets shall restrain loads over various approved industry contours as defined in IATA Spec. 50/0. The net mesh and hardware shall not extend further than 25 mm (1 inch) beyond these contours, except for a Zone between 15 & 76 cm (6 x 30 in.) above the pallet where a 5 cm (2 in.) extension of the contour is permissible (See Fig. 1).

2.2.2 Adjustment: Nets used over bulk cargo shall be adjustable for variable heights from 610 mm to 2438 mm (24 to 96 in.).

2.2.3 Nets Used Only Over Containers or Load Formers (Igloos): Nets used only over containers or load formers shall have minimum adjusting hardware which allows a minimum range of 150 mm (6 in.) takeup and shall be located so that when assembled on the containers or load formers, the hardware shall be within the dimensions shown in Figure 1.

3. CONSTRUCTION:

3.1 General Construction: The net assembly shall include netting, adjustment hardware, and pallet attachment fittings. Attachment locations and details are defined in Figures 1 through 3, AS 1491 for code size A, B and M1 Nets and Figure 3A for code size M2 net.

3.2 Mesh Configuration: Net design objectives shall be to provide a minimum installation time and a configuration that shall minimize the possibility of improper installation. The net shall be constructed in such a manner that netting entanglement during installation and storage is minimized. Netting shall be adequately treated to minimize shrinkage.

3.3 Materials: The material to be used for netting and hardware shall meet the appropriate regulatory standards for cargo aircraft restraint.

3.4 Hardware and Tensioning:

3.4.1 The net hardware shall be so designed and constructed that it can be easily operated in confined areas.

3.4.2 All hardware shall be securely sewn into the netting or otherwise attached to prevent loss. Loose netting ends that pass through adjusting buckles (if used) shall be equipped with stops.

3.4.3 Provision shall be incorporated to enable the net to be tensioned evenly over the cargo. If a mechanical advantage facility is provided to achieve this tension, the release of the tensile force shall be achieved by an operating force not greater than 16% of the tension force.

3.5 Tie Down Fittings: All net fittings shall incorporate tie down stud(s) per MS33601A for attachment to pallets and shall resist a force of at least 8.9 kN* (2000 lbs) per stud in all directions, horizontally to a vertical force of 11.1 kN (2500 lbs). The force application point shall be 21 mm (0.83 in.) or less from the head of the stud.

3.6 Color: Color of the material shall be optional. However, contrasting colors may be used to distinguish net components for simplifying the installation of the net to the pallet.

3.7 Special Marking: The net shall be clearly marked to facilitate rigging on the pallet. If the net operation is not omni-directional, top and bottom, inside and outside shall be indicated. Character marking or color coding may be used to facilitate rapid attachment of net fittings to the pallet.

3.8 Fraying: All netting ends shall be treated to prevent fraying.

3.9 An additional 1.8 m (6 feet) of the primary load netting material should be attached to the net for periodic strength sampling purposes. The sample should be attached in a location which will not interfere with net operation nor shall it dangle loosely.

3.9.1 The sample shall be marked, "TEST SAMPLE."

4. DESIGN LOADS:

4.1 Table of Loads:

* 1 N = 0.1 Kgf = 0.225 lbf
  1kN = 10^3 N

4.1.1 The net will be able to restrain the loads listed below:

NAS 3610 Code Size	Pallet Size	Max. Gross Mass
A	2235 mm x 3175 mm (88 x 125 in.)	6033 kg (13,300 lb)
B	2235 mm x 2743 mm (88 x 108 in.)	3629 kg (8,000 lb)
M1 & M2	2438 mm x 3175 mm (96 x 125 in.)	6804 kg (15,000 lb)

4.2 Load Retention: The net assembly shall be so constructed that it adequately encompasses the pallet load with all fittings attached to the pallet in the locations shown in Figures 1 through 3, AS 1491 for code size A, B and M1 nets and Figure 3A for code size M2 nets.

4.3 The net shall meet the critical performance design and load requirements in accordance with NAS3610 for Class II systems defined therein.

4.4 Allowance for Deterioration: Allowance shall be made for deterioration in the performance capability during the service life of the net appropriate to the material from which it is constructed.

A design strength factor applied to the ultimate strength factor for the netting materials should be at least 1.25.

5. ENVIRONMENTAL CRITERIA:

5.1 The net assembly shall be designed and constructed using materials which will provide maximum serviceability under intended environmental conditions.

5.2 The net assembly shall maintain its structural and operational integrity in a temperature range of -54°C to +71°C (-65°F to +160°F).

5.3 All components of the net shall be protected against deterioration or loss of strength in service due to weathering, corrosion, abrasion or other causes where the type of material used requires such protection (also see 4.4).

5.4 The net shall be so designed that it will withstand handling common to air-land freight terminal operations.