

Interline Air Cargo Pallet Nets**RATIONALE**

AS1492B has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

This document establishes dimensional, structural, and environmental requirements for two types of interline pallet nets. Type II covers NAS 3610 code sizes and Type III covers other sizes not currently included in NAS 3610.

1.1 Nominal Sizes (See Tables 1 and 2):**TABLE 1 - Type II Pallet Net Sizes**

NAS 3610 Code Size	Pallet Size (AS1491)
A	2235 mm x 3175 mm (88 x 125 in.)
B	2235 mm x 2743 mm (88 x 108 in.)
M1, M2 & M3	2438 mm x 3175 mm (96 x 125 in.)
L	1534 mm x 3175 mm (60.4 x 125 in.)
K	1534 mm x 1562 mm (60.4 x 61.5 in.)

TABLE 2 - Type III Pallet Net Sizes

Size	Pallet Size (AS1491)
III	1562 x 2438 mm (61.5 x 96 in.)

1.2 Basic Net Configuration:

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

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2012 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

**SAE values your input. To provide feedback
on this Technical Report, please visit
<http://www.sae.org/technical/standards/AS1492B>**

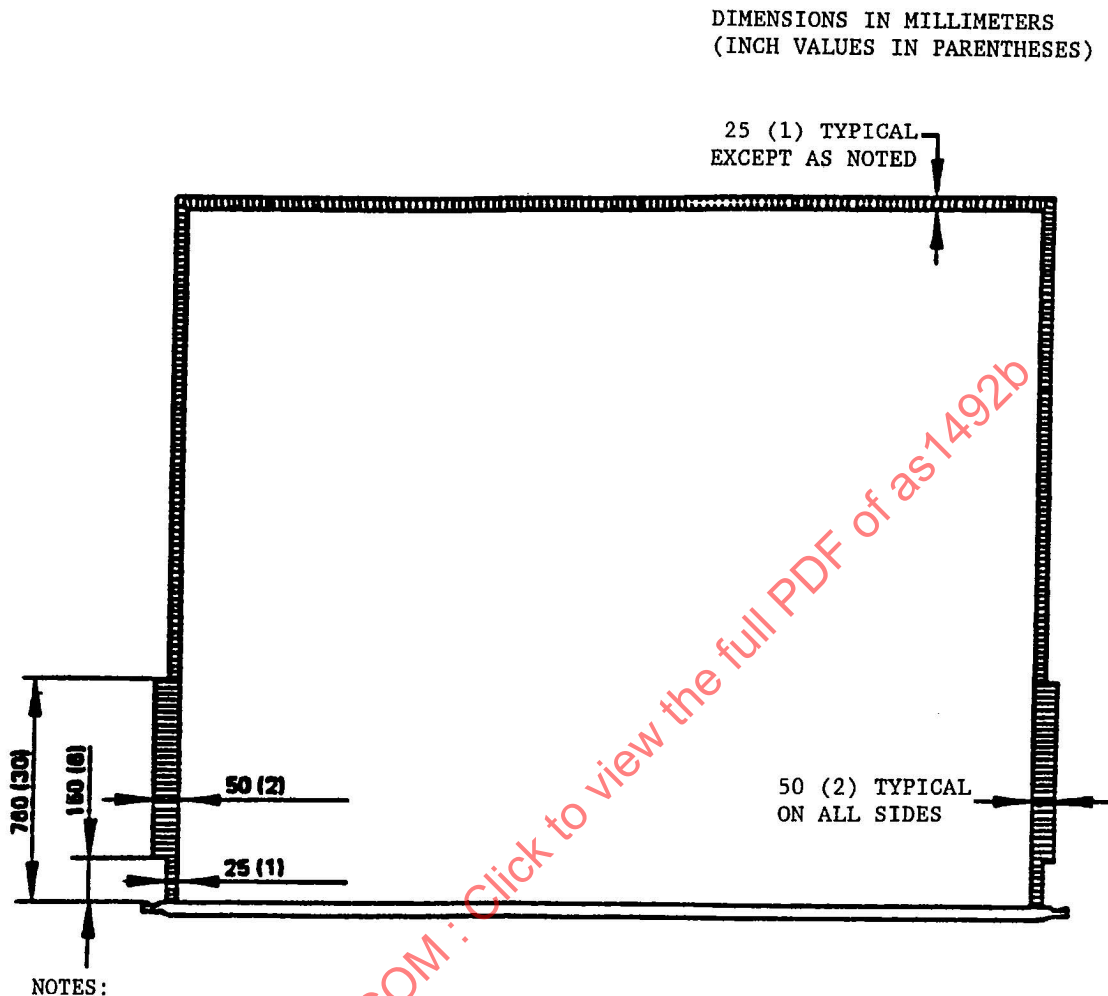


FIGURE 1

- 1.2.2 Adjustment: Nets used over bulk cargo shall be adjustable for variable heights from 610 mm (24 in) to maximum contour height.
- 1.2.3 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.

1.3 Purpose:

The purpose of this document is to establish minimum requirements for nets used to secure cargo on aircraft pallets meeting the requirements of AS1491.

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.

2. REFERENCES:

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AIR1490A Environmental Degradation of Textiles

A51491A Interline Air Cargo Pallets

2.2 NAS Standards: Available from Aerospace Industries Association, 1250 Eye Street NW, Washington, DC 20005.

NAS 3610 Minimum Airworthiness Requirements and Test Conditions for Air Cargo Unit Load Devices

2.3 IATA Standards: Available from International Air Transport Association, 2000 Peel Street, Montreal, Quebec, Canada H3A 2R4.

IATA Standard Specification Number 50/0, Condition Requirements for Interlining of ULDS

IATA Standard Specification Number 50/2, Aircraft Pallet Net

2.4 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MS33601A Track and Stud Fitting for Cargo Transport Aircraft, Standard Dimensions for

Federal Aviation Regulation (FAR) Part 25, United States Department of Transportation

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 AS1491, Figures 1 through 3 for code size A, B, and M1 Nets, Figure 3A for code size M2 nets, Figure 4 for code size L nets, and Figure 6 for size III nets.

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 per Federal Aviation Regulation (FAR) 25.

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 kN¹ (2000 lb) per stud in all directions, horizontally to a vertical force of 11.1 kN (2500 lb). The force application point shall be 21 mm (0.83 in) or less from the head of the stud.

¹ 1 N = 0.225 lbf

1 kN = 10³ N

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 omnidirectional, 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 Strength Sample:

An additional 1.8 m (6 ft) 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:

4.1.1 The Type II net shall be able to restrain the loads listed in Table 3.

TABLE 3 - Type II Net loads

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)	4536 kg (10 000 lb)
M1 & M2 & M3	2438 mm x 3175 mm (96 x 125 in)	6804 kg (15 000 lb)
L	1534 mm x 3175 mm (60.4 x 125 in)	3175 kg (7 000 lb)
K	1534 mm x 1562 mm (60.4 x 61.5 in)	1588 kg (3 500 lb)

4.1.2 The Type III net shall be able to restrain the load listed in Table 4.

TABLE 4 - Type III Net loads

Code Size	Pallet Size	Max Gross Mass
III	1562 x 2438 mm (61.5 x 96 in)	2510 kg (5535 lb)