MIL-S-16626D
14 August 1984
SUPERSEDING
MIL-S-16626C
11 May 1971

MILITARY SPECIFICATION

SLINGS, CARGO NET: (NYLON OR MANILA)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers three sizes of cargo net slings made of manila rope, nylon rope or nylon braided cord.

1.2 Classification. The cargo net slings shall be the following sizes and grades, as specified (see 6.2):

Size I	- 14 by 14 feet.
Size II	- 20 by 30 feet.
Size III	- 20 by 40 feet.
Grade A	- Manila Rope.
Grade C	- Nylon Rope.
Grade D	- Nylon Braided Cord.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research and Development Center, ATTN: STRBE-DS, Fort Belvoir, VA 22060-5606 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 3940

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

L-P-378	- Plastic Sheet and Strip, Thin Gauge Polyolefin.
T-R-605	- Rope, Manila and Sisal.
T-T-616	- Treatment: Mildew Resistant, for Rope and Cord.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-621	- Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-B-640	- Boxes, Fiberboard, Corrugated, Triple-Wall.
PPP-B-1055	- Barrier Material, Waterproofed, Flexible.
PPP-T-60	- Tape: Packaging, Waterproof.

MILITARY

MIL-C-7515	- Cord, Nylon, Coreless.
MIL-R-17343	- Rope, Nylon.

STANDARDS

MILITARY

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-130	- Identification Marking of US Military Property.

(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials 1916 Race Street, Philadelphia, PA 19103.)

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Description. The cargo net slings, hereinafter referred to as "slings", shall consist of meshed cargo net interiors spliced to border frames, which have bights attached to each corner, as shown in figure 1 and as specified herein.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

3.3 Material. Material shall be as specified herein. However, when a definite material is not specified, a material shall be used which will enable the slings to meet the performance requirements of this specification. Acceptance of any constituent material shall not be construed as a guaranty of the acceptance of the finished product. All material shall be new and unused.

3.3.1 Material deterioration and control. The sling shall be fabricated from compatible materials, inherently deterioration resistant or treated to provide protection against the various forms of deterioration that may be encountered in any of the applicable storage and operating environments to which the item may be exposed.

3.3.1.1 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and sub-components, and shall make information available, upon request, to the contracting officer or designated representative.

3.3.2 Manila rope. Manila rope shall conform to T-R-605, type M.

3.3.3 Nylon rope. Nylon rope shall conform to MIL-R-17343.

3.3.4 Nylon braided cord. Nylon braided cord shall conform to MIL-C-7515.

3.4 Capacities.

3.4.1 Safe working loads. The cargo capacities of the slings shall conform to the physical characteristics and the safe working loads (SWL) specified in table I.

TABLE I. Safe working loads.

Size	Rope Circumference (Inches)		SWL (in pounds)		
	Mesh rope	Peripheral rope	Manila rope	Nylon rope	Nylon braided cord
I	2.5	3	1300	3060	3100
II	2.5	3	1300	3060	3100
III	3	3.75	1800	4650	5000

3.4.2 Physical characteristics of nylon braid. The nylon braid shall have a thickness of 0.152 ± 0.005 inch and a width of 0.75 inch.

3.4.3 Proof loads. Proof loads for the slings shall be five times the SWL specified in table I.

3.5 Construction.

3.5.1 Border frames. The border frames of the slings shall be formed as an endless piece of material made continuous by splicing. The length of the border frames shall extend entirely around the full perimeter of the meshed cargo net and shall include sufficient material at each corner for attachment of bights. The rope net shall be constructed of peripheral rope as shown in table I. Nylon braided net shall be double the thickness specified in 3.4.2.

3.5.2 Meshed cargo net. The meshed cargo net shall have meshes, 8.5 inches square, formed by vertical and horizontal ropes or cords. The vertical and horizontal net ropes or cords shall be attached to the border frames by encirculing the border frame and splicing back into its own body. At each intersection forming a mesh, one strand of the vertical net rope or cord shall be passed under one strand of the intersecting horizontal net rope or cord without

altering either rope or cord's shape. On nylon braided cord, the intersection design shall not contain knots or additional materials added to the cord, such as weldments, patches or swages, nor shall sewing be the primary means of holding the intersection together. The center lines of the intersecting cords shall remain coplaner. Intersection strength shall be compatible with table I.

3.5.3 Bights. Bights shall be formed as an endless rope or cord of the same size as the border frame and shall be made continuous by splicing.

3.5.3.1 Bight attachment. Bights shall be attached to the border frame corners by a lark's head knot as shown in figure 2.

3.5.4 Splices.

3.5.4.1 Border frame splices. Border frame splices shall be five tuck, consisting of three full tucks and two half-strand tucks. Prior to making the last two tucks of each strand, the strands shall be reduced in thickness by one-half to taper the splice. The end of each strand shall extend beyond the last tuck by not less than 0.75 inch. Splices in border frames shall be limited to one splice, located at the midpoint of one of the longest sides of size II and III slings. Splices of nylon rope or cord shall have the extended strand ends fused by heating.

3.5.4.1.1 Border frame splices on braided nylon cord. Splices on braided nylon are achieved by pulling the cord through the center of the opposite end by a hand needle and pulling both sides until it locks. Splices shall be no less than 10 inches in length on the border and shall be limited to one splice, located at the midpoint of one of the longest sides of size II and III slings.

3.5.4.2 Bight splices. Bight splices shall be as specified for border frame splices, except that bight splices shall not be located within 2.0 feet of the attachment to the border frame or the diametrically opposed (lifting attachment) point on the bight.

3.5.4.3 Meshed cargo net splices. Meshed cargo net splices shall be three full tucks after encircling the border frame main body. One strand of the net rope or cord shall be passed under a strand of the border frame rope or cord as shown in figure 2, before splicing, without altering the shape of either. Strand ends shall extend beyond the last tuck by not less than 0.50 inch nor more than 1.0 inch. Splices of nylon rope or cord shall have the extended strand ends fused by heating.

3.5.4.3.1 Meshed cargo net splices for braided nylon net. The braided nylon cord shall be terminated at the border cord by passing through the center by means of a hand needle and back through the border cord to secure the body cord position. Splices of body cords shall be not less than 8.5 inches. Body cord splices shall be achieved by using a hand needle pulling the braid through the center of the adjoining braid then pulling both cords to interlock the braids.

3.6 Performance. The slings shall exhibit no evidence of broken strands or separation of splices when subjected to the test specified in 4.5.2.1.

3.7 Mildew-resistant treatment. All manila rope used in grade A slings shall be mildew-resistant treated in accordance with T-T-616 before manufacture of the slings.

3.8 Dimensions.

3.8.1 Cargo nets. The dimensions of the cargo nets, assembled to the border frames, shall be as shown in figure 3.

3.8.2 Bight lengths. The stretched length of bights, before attachment to the corners of the border frames, shall be 6.0 feet, and 4.0 inches for size I slings and 10.0 feet, and 6.0 inches for size II and III slings.

3.9 Color.

3.9.1 Grade A sling color. Grade A slings shall have the natural color of new manila rope, tinted by the mildew-resistant treatment specified in 3.7.

3.9.2 Grade C and D sling colors. Grade C and D slings shall be colored olive drab.

3.10 Identification marking. Identification marking of the slings shall be in accordance with MIL-STD-130. A metal tag shall be securely attached to each sling with wire. The metal tag shall be corrosion resistant and have a minimum thickness of 0.016 inch. The wire shall be corrosion-resistant and shall have a minimum diameter of 0.047 inch. The tag shall have the following information etched or embossed thereon in block letters:

1. Nomenclature: Sling, Cargo Net, (kind of material)
2. Specification: MIL-S-16626, Size (I, II, or III)
3. Grade: (A, C or D) NSN: _____
4. Safe working load: _____ pounds.
5. Contract no. and date: _____

3.11 Workmanship. The finished slings shall be clean and free from dirt or other extraneous materials. All rope and braided cord shall be sound and free from severed, torn, twisted or kinked yarns or strands. Splices shall be neatly made, snuggly and securely tucked, and free of any loose strands. Splicing shall cause no severed, torn, twisted or kinked yarns or strands. Heat fusing of nylon strand ends shall not damage any adjacent ropes or cords.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined and tested in accordance with referenced specifications and standards, as applicable.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.3).

b. Quality conformance inspection (see 4.4).

c. Inspection of packaging (see 4.6).

4.3 First article inspection.

4.3.1 Examination. The first article sling shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.3.2 Test. The first article sling shall be tested as specified in 4.5.2. Failure of the test shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Sampling. Sampling for examination and test shall be in accordance with MIL-STD-105, inspection level S-3.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined as specified in 4.5.1. AQL shall be 1.5 percent defective for major defects and 6.5 percent for minor defects.

4.4.3 Test. Samples selected in accordance with 4.4.1 shall be tested as specified in 4.5.2. Failure of the test shall be cause for rejection of the entire lot represented by the sample.

4.5 Inspection procedure.

4.5.1 Examination. The sling shall be examined as specified herein for the characteristics listed in table II.

TABLE II. Examination schedule (requirements).

Number	Characteristic	Requirement paragraph
101.	Material not as specified.	3.3
102.	Materials not resistant to deterioration or treated to be made resistant to deterioration for the applicable storage and operating environment.	3.3.1
103.	Contractor does not have documentation available for identification of material, material finishes or treatments.	3.3.1.1
104.	Nylon braid thickness not as specified.	3.4.2
105.	Construction of sling not as specified.	3.5
106.	Manila rope not mildew-resistant treated as specified.	3.7
107.	Dimensions not as specified.	3.8
108.	Workmanship not as specified.	3.11
Minor		
201.	Color not as specified.	3.9
202.	Identification marking missing, incorrect or illegible.	3.10

4.5.2 Test.

4.5.2.1 Proof load test. The sling shall be tested to the proof load specified in 3.4.3. The load lifted by the sling shall be of a type and bulk so that even distribution of the load is obtained within the sling.

A hoisting device shall be attached to the four bights of the sling and the sling with proof load shall be lifted to a height of not less than 3.0 feet. The proof load shall be suspended in the sling for not less than 2.5 hours. Failure of the sling, or evidence of broken strands or separation of any splice, shall constitute failure of this test.

4.6 Inspection of packaging.

4.6.1 Quality conformance inspection of pack.

4.6.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

109.	Materials or containers not as specified for level A or B. Each incorrect material or container shall constitute one defect.
110.	Each sling not folded or rolled, tied and preserved as specified for level A or commercial.
111.	Slings of unlike description packed together for level A or B.
112.	Quantities packed together exceed the weight limitation of the box for level A or B.
113.	Marking illegible, incomplete, incorrect, or missing for level A, B or commercial.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or commercial as specified (see 6.2).

5.1.1 Level A. Each sling, with the corner loops folded toward the center of the sling, shall be folded or rolled into a compact bundle. The bundle shall then be secured with tape, twine, or other suitable securing method. Each bundle shall be further protected by one of the following methods:

a. Wrapped with barrier material conforming to PPP-B-1055, class E-1 or E-2 and each fold, lap and seam sealed with tape conforming to PPP-T-60, type IV, class 1.

b. Wrapped with polyethylene material conforming to L-P-378, type II, class 1, grade optional, finish 1, film thickness 0.0060 inch and each fold, lap and seam sealed by a heat seal or by the tape specified herein.

5.1.2 Commercial. Each sling, with the corner loops folded toward the center of the sling, shall be folded or rolled into a compact bundle. The bundle shall then be secured with tape or twine. Additional preservation shall be as specified in ASTM D 3951.

5.2 Packing. Packing shall be level A, or B, or commercial as specified (see 6.2).

5.2.1 Level A. Slings of like description preserved as specified in 5.1, shall be packed together in a close fitting box conforming to PPP-B-601, overseas type, style optional or PPP-B-621, class 2, style optional, in quantities not to exceed the weight limitations of the applicable box specification. Box closure and strapping shall be as specified therein.

5.2.2 Level B. Slings of like description, preserved as specified in 5.1, shall be packed together in a close fitting box conforming to PPP-B-636, V3c, V11c, or V15c, or in boxes conforming to PPP-B-640, class 2, style optional. The gross weight or size of each box shall not exceed the limitations of the applicable box specification. Box closure and strapping shall be in accordance with the appendix to applicable box specification.

5.2.3 Commercial. The slings, preserved as specified in 5.1 shall be packed in accordance with ASTM D 3951.

5.3 Marking.

5.3.1 Military. Marking for military levels of protection (level A or B) shall be in accordance with MIL-STD-129.

5.3.2 Commercial. Marking for commercial packaging shall be in accordance with ASTM D 3951. In addition, weight and cube data shall be marked on the shipping container.

6. NOTES

6.1 Intended use. The slings are intended for use in loading and discharging cargo, rigging between ship and dock or ship and ship to restrain cargo, and lashing overside of ships for rescue operations.

6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number and date of this specification.

b. Size and grade of sling required (see 1.2).

c. When a first article is required for inspection and approval and number of units required (see 3.2).

d. Degree of preservation and degree of packing required (see 5.1 and 5.2).

6.3 First article. When a first article inspection is required, the item will be tested and should be an initial production model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangement for examinations, test and approval of the document's first article.

Custodians:
Army - ME
Air Force - 99

Review activities:
Navy - MC, CG
Air Force - 84

Preparing activity:
Army - ME

Project 3940-0172

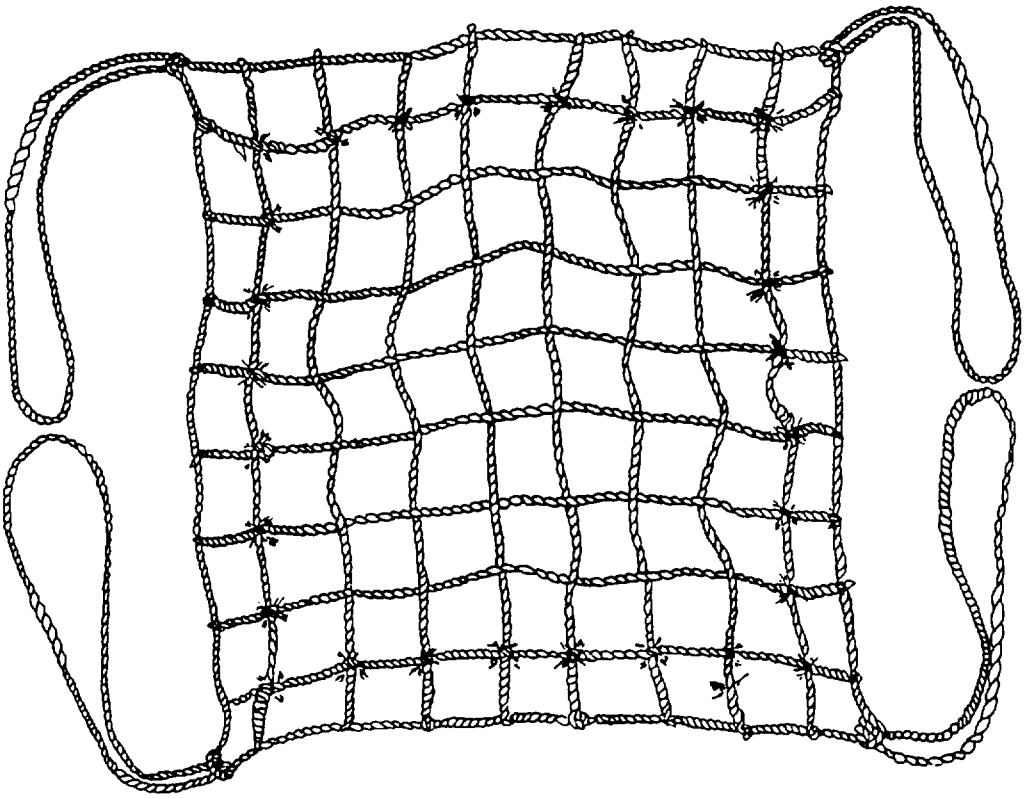
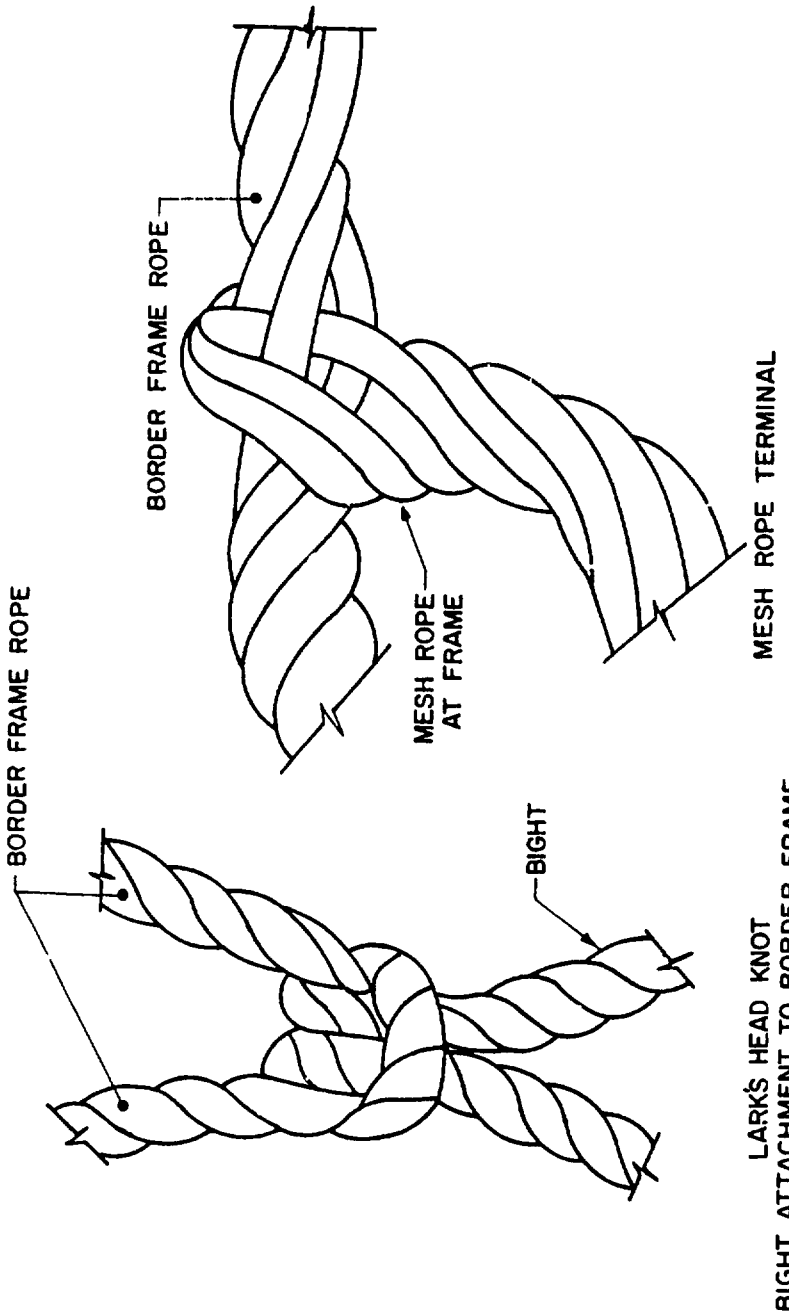


FIGURE 1. Cargo net sling.(Grade a sling only is illustrated.)

X-2024A



X-2025A

FIGURE 2. Details of attachments.

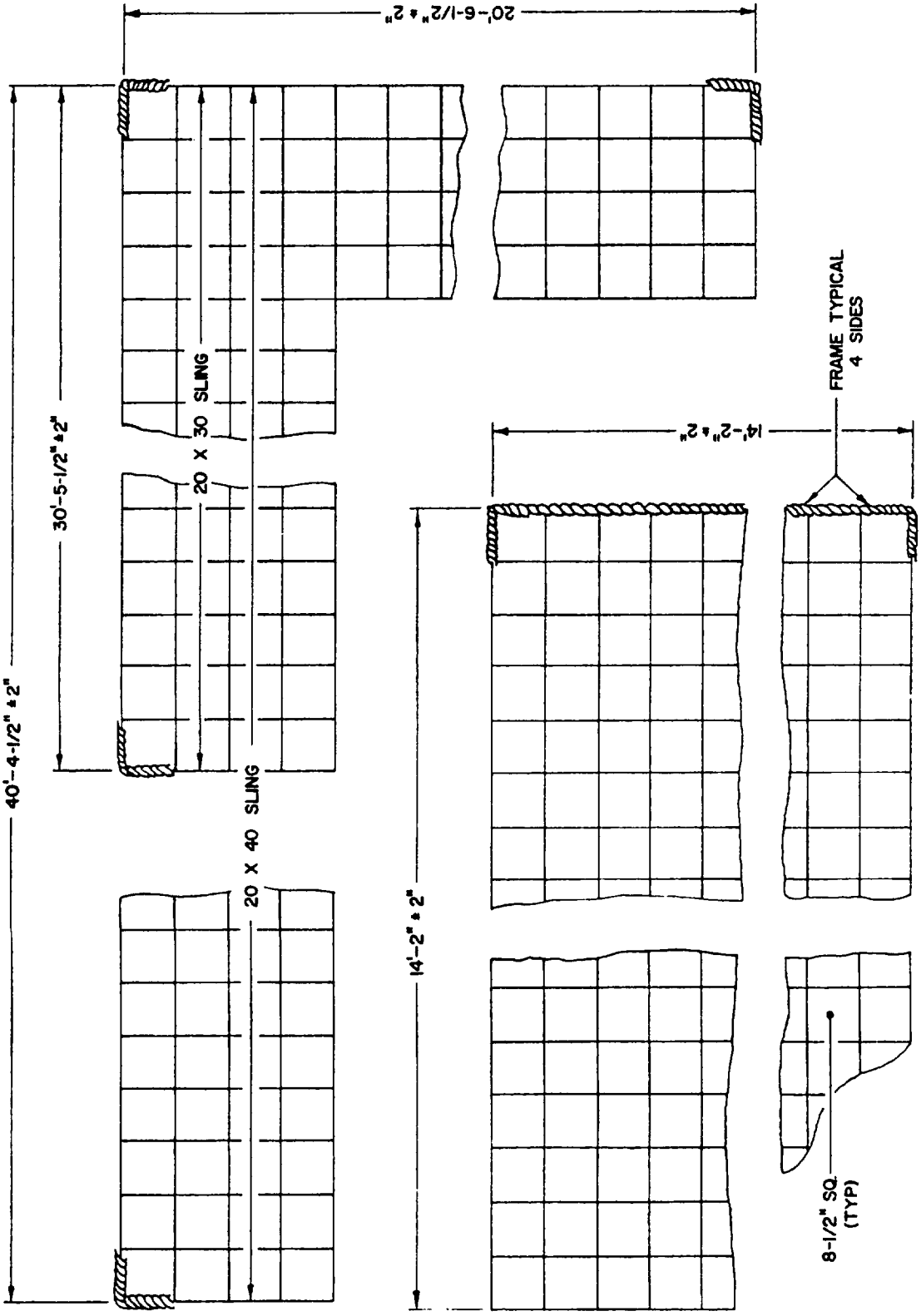


FIGURE 3. Sling, cargo, net, dimensions and tolerances. X-2023A

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document*(s)* or to amend contractual requirements.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-S-16626D	Slings, Cargo Net: (Nylon or Manila)

3a. NAME OF SUBMITTING ORGANIZATION

b. ADDRESS *(Street, City, State, ZIP Code)*

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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