12.8 Synthetic Webbing Slings – Selection, Use and Maintenance

This section applies to slings fabricated by sewing of woven synthetic webbing of nylon or polyester type yarns, for the purpose of hoisting, lifting, and general material handling.

12.8.1 Construction

12.8.1.1 Webbing

Webbing should be of fabric woven of high tenacity synthetic yarns, offering suitable characteristics for use in the fabrication of web slings. Webbing shall have the following characteristics.

(a) Sufficient certified tensile strength to meet the sling manufacturer's requirements.
(b) Uniform thickness and width.
(c) Full woven width, including selvage edges.
(d) Webbing ends shall be sealed by heat, or other suitable means, to prevent raveling.

12.8.1.2 Thread

The thread used in the manufacture of synthetic web slings shall be of the same generic type yarn as the sling webbing.

12.8.1.3 Stitching

(a) Stitching shall be the only method used to fabricate synthetic web slings within the scope of this standard.
(b) The stitching pattern and length of stitching shall be in accordance with the manufacturer's standard practice.

12.8.1.4 Fittings

(a) The material selected shall be compatible with the mechanical and environmental requirements imposed on the fitting. Material selected should be carbon steel, alloy steel, aluminum, or other suitable material.
(b) Fitting shall have sufficient strength to sustain twice the rated load of the sling without permanent deformation and a minimum breaking strength equal to five times the rated load of the sling.
(c) All surfaces shall be cleanly finished and sharp edges removed so as not to cause damage to the webbing.
(d) Slings incorporating aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustic, or acids are present.
(e) The eye opening in the fitting shall be the proper shape and size to insure that the fitting will seat properly in the hook or other attachment.

12.8.1.5 Marking (Sling identification)

Each sling shall be permanently marked to show.

(a) Name of trademark or manufacturer.
(b) Manufacturer's code or stock number.
(c) Rated loads for types of hitches used.
(d) Type of synthetic web material.

12.8.2 Design Factor

The design factor for synthetic web slings shall be a minimum of 5.

12.8.3. Rated Load

(a) A sling shall not be used at a load greater than that shown on its tags. Slings shall be used in accordance with the manufacturer's recommendations.
(b) Each manufacturer shall make available on request test data to justify these recommended rated loads.

12.8.4 Proof Test

When specified by the purchaser, web slings of all types shall be proof loaded:

(a) The proof load for single leg slings and endless slings shall be two times the vertical rated load.
(b) The proof load for multiple leg bridle slings shall be applied to the individual legs and shall be two times the vertical rated load of a single leg sling.

12.8.5 Effects of Environment

(a) Chemically active environments, such as acids and caustics, can affect the strength of slings the manufacturer should be consulted before slings are used in chemically active environments.
(b) Nylon and polyester slings shall not be used at temperatures in excess of 194°(F) 90°(C).

12.8.6 Inspection

(a) Initial Inspection. Before using any new or repaired sling, it shall be inspected to insure that the correct sling is being used as well as to determine that the sling meets the requirements of this standard.
(b) Frequent Inspection. This inspection should be made by the person handling the sling each day the sling is used.

(c) Periodic Inspection. This inspection should be conducted by the Competent Person. Frequency of inspection should be based on:
    (1) Frequency of sling use;
    (2) Severity of service conditions; and
    (3) Experience gained on the service life of slings used in similar applications
(d) Periodic inspections should be conducted at least annually.

12.8.7 Removal Criteria

A sling shall be removed from service if damage such as the following is visible and shall only be returned to service when approved by a Qualified Person.

(a) Acid or caustic burns
(b) Melting or charring of any part of the sling
(c) Holes, tears, cuts or snags
(d) Broken or worn stitching in load bearing splices
(e) Excessive abrasive wear
(f) Knots in any part of the sling
(g) Excessive pitting or corrosion, or cracked, distorted, or broken fittings
(h) Other visible damage that causes doubt as to the strength of the sling.

12.8.8 Repairs

(a) Slings shall be repaired only by a sling manufacturer or a Qualified Person. When repaired, a sling shall be permanently marked to identify the repair agent.
(b) Temporary repairs of either webbing, fittings, or stitching shall be not permitted.
(c) Repaired sling shall be proof tested to two times its assigned rated load before being put back into service.

12.8.9 Operating Practices

(a) The weight of load shall be within the rated load of the sling.
(b) Slings shall not be shortened or lengthened by knotting or other methods not approved by the sling manufacturer.
(c) Slings that appear to be damaged shall not be used unless inspected and accepted as usable under Section 12.7.6.
(d) Sling shall be hitched in a manner providing control of the load.
(e) Sharp corners in contact with the sling should be padded with material of sufficient strength to minimize damage to the sling.
(f) Personnel should stand clear of the suspended load.
(g) Personnel shall not ride the sling.
(h) Shock loading should be avoided.
(i) Slings should not be pulled from under a load when the load is resting on the sling.
(j) Slings should be stored in a cool dry, and dark place to prevent environmental damage.
(k) Twisting and kinking the legs shall be avoided.
(l) Load applied to the hook should be centered in the base (bowl) of hook to prevent point loading on the hook.
(m) During lifting, with or without load, personnel shall be alert for possible snagging.
(n) In a basket hitch, the load should be balanced to prevent slippage.
(o) The sling's legs should contain or support the load from the sides above center of gravity when using a basket hitch.
(p) Slings should be long enough so that the rated load is adequate when the angle of the legs is taken into consideration.
(q) Slings should not be dragged on the floor or over an abrasive surface.
(r) In a choker hitch, slings shall be long enough so the choker fitting chokes on the webbing and never on the other fitting.

(s) Nylon and polyester slings shall not be used at temperatures in excess of 194°(F) 90°(C).
(t) When extensive exposure to sunlight or ultraviolet light is experienced by nylon or polyester web slings, the sling manufacturer should be consulted for recommended inspection procedure because of loss in strength.

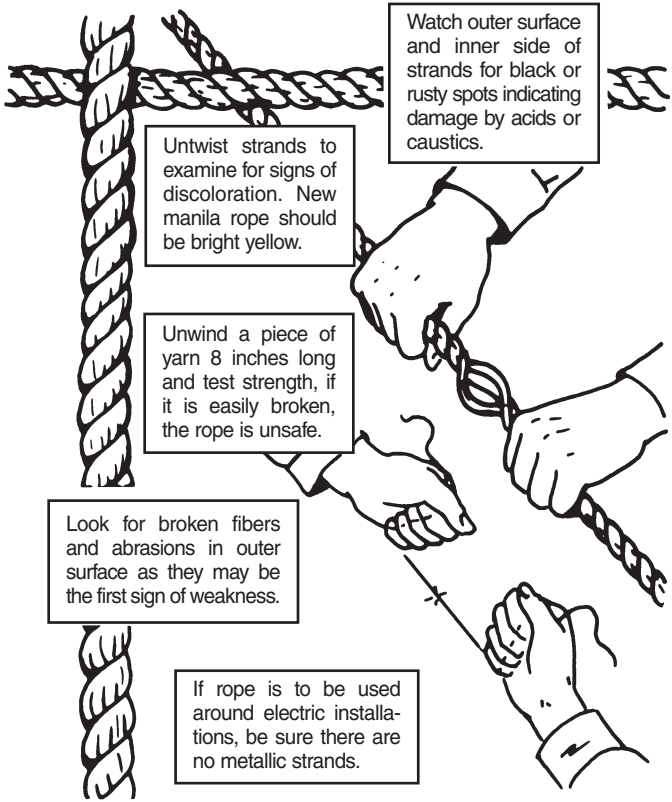
12.9 Beam Clamps

(a) A beam clamp used for rigging shall be engineered to properly support the expected load.
(b) Before moving extremely heavy loads, check with your Superintendent/Manager who shall obtain the maximum load the beam will support.
(c) Do not use a choker through the eye of the beam clamp while hoisting.
(d) Do not load the lower flange to more than 50% of the beam's capacity.
(e) Beam clamps shall be properly sized for the beam to which it is attached.
(f) Use only case-hardened bolts with lock nuts or nuts with lock washers for the beam clamp assembly.

Figure 12ad

Figure 12ae

INSPECTING MANILA ROPE



Safe Practice Rules

1. Frozen fiber rope shall not be used in load carrying service.
2. Fiber rope that has been subjected to acids or excessive heat shall not be used for load carrying purposes.
3. Fiber rope shall be protected from abrasion by padding where it is fastened or drawn over square corners or sharp or rough surfaces.