

# LIFTING SLING INSPECTION CRITERIA

## Synthetic Web Slings

### Conditions to avoid when using synthetic web slings:

- Nylon stretches approx 8-10% at rated capacity and is not suitable for use with acids and bleaching agents
- Polyester stretches approx 3% at rated capacity and is not suitable for use with concentrated sulfuric acids or alkalis
- No synthetic web sling should be used at temperatures exceeding 194°F (90°C)



Knots compromise the strength of all slings by not allowing all fibers to contribute to the overall strength as designed. Knotted slings have potential to fail up to 50% below their original rated capacity. NEVER tie knots in and slings NEVER use slings that are knotted.



All fibers of a synthetic web sling contribute to the strength and integrity of a sling. When a significant number of fibers have been damaged, the strength of the sling will be impacted. For this reason, any slings with a cut on the face or edge of a web sling, should be removed from service.



Never use a sling that has any cuts along the edges or face of the sling. ALWAYS protect the sling by placing wear pads or other devices between the webbing and the load.



Not knowing how much damage has been done to the inner load bearing fibers unless a break test is performed, a sling with a Snag/Hole may have internal damage and therefore it is recommended that it be removed from service.



Abrasion causes the webbing to appear and feel fuzzy caused by the fibers breaking after being subject to contact with a rough surface. NEVER drag slings along the ground and NEVER pull a sling out from under a load.



Heat and chemical damage can look similar and they both have the effect of damaging sling fibers that could affect sling strength. Look for fibers that appear to be fused together and often feel hard or crunchy.

## Wire Rope Slings

### Conditions to avoid when using wire rope slings:

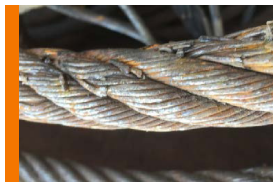
- Wire rope slings typically made of 6x19 or 6x36 class wire rope has a high heat threshold but should not be used in environment exceeding 400°F.
- When using in basket hitch, DO NOT use wire rope slings where the diameter of the object being lifted is less than 25 times the diameter of the sling rope.



Wire rope slings must be removed from service when you find 10 or more broken wires in one rope lay or 5 or more broken wires in one strand of one rope lay. Wires can break in many ways including fatigue and overload. NEVER pull rope across edges or protrusions.



Slings with bent strands of wire standing out from their regular position in the body of the sling must be removed from service. ALWAYS protect the rope from sharp edges with wear pads or other devices. NEVER shock load a wire rope sling.



Absence of lubrication and discoloration of rope are signs of corrosion or heat damage. ALWAYS hang slings away from moisture and DO NOT use wire rope slings above 400° F or fiber core slings above 180° F



A section of rope that is flattened, where the cross section is no longer round means the wire has been crushed. NEVER allow loads to be set up on top of slings.



Worn areas of wire rope slings appear flat. When wires have lost 1/3 or more of its original diameter, the sling must be taken out of service. NEVER drag wire rope slings on the ground. NEVER pull slings out from under a load.

### OTHER REASONS TO REMOVE WIRE ROPE SLINGS FROM SERVICE:

- Capacity information is missing or illegible
- End attachments, including hooks, are cracked, deformed or obviously worn
- Hook throat opening is increased more than 15%
- Hook is twisted out of plane by more than 10%

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## Round Slings

### Conditions to avoid when using Polyester Round Slings:

- Do not expose to strong alkalis at elevated temperatures, and never use at temperatures above 194°F (90°C) or below -40°F (-40°C).
- Avoid sling contact with any kind of sharp surfaces.
- Do not overload any sling beyond its rated capacity.



Knots compromise the strength of all slings by not allowing all fibers to contribute to the lift as designed. NEVER tie knots in slings and never use slings that are knotted!



Cuts to the outer jacket, along the edges or face, exposing the internal yarns - the amount of damage done to the core yarns and the sling strength can not be determined without breaking the sling. Therefore the sling must be taken out of service.



Broken fibers of equal length indicate that the sling has been cut by an edge. ALWAYS protect the synthetic slings from being cut by corners and edges by using wear pads.



Holes/Snags/Pulls exposing internal core yarns means any number of internal core yarns can be damaged. Sling strength can not be determined without breaking the sling. AVOID all sling contact with protrusions during lifts or storing



Areas of the sling that look and feel fuzzy indicate that the fibers have been broken by being subject to contact and movement against a rough surface. DO NOT drag slings along the ground. NEVER pull slings out from under loads.



Heat and chemical damage can look similar and they both have the effect of damaging sling fibers that could effect sling strength. Look for fibers that appear to be fused together and often feel hard or crunchy.

## Chain Slings

### Simple precautions to observe when using chain slings:

- Free all twists or bends
- Center load on hook
- Avoid sudden jerks when lowering or lifting
- Balance all loads
- Never overload
- Use pads around sharp corners
- DO NOT drop loads on chains



OSHA 1915.112 (c) (4) states: Chain slings shall be removed from service when, due to stretch, the increase in length of a measured section EXCEEDS FIVE (5) percent.



Chain slings shall be removed from service when wear or damage to any part of a chain link exceed that of which is shown in the below table.



A chain sling that includes any link that is bent to any degree beyond a straight 90° indicates there was an excessive amount of pressure placed on a single point from a load corner. ALWAYS pad a chain sling at corners.



Chain slings shall be removed from service when wear exceeds that of which is shown in below table

Chain size (inches)	Max. allowable wear infractions
9 / 32	3 / 64
3 / 8	5 / 64
1 / 2	7 / 64
5 / 8	9 / 64
3 / 4	5 / 32
7 / 8	11 / 64
1	3 / 16
1-1 / 4	1 / 4
1-1 / 2	5 / 16

### OSHA guidelines regarding lifting sling inspections Synthetic Sling and Wire Rope Sling

Inspection Standards 1910.184(d) Inspections. Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

### Chain Sling Inspection Standards

1910.184(e)(3)(i) In addition to the inspection required by paragraph (d) of this section, a thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis, to be determined on the gained on the service life of slings used in similar circumstances. Such inspections shall in no event be at intervals greater than once every 12 months.

1910.184(e)(3)(iii) The thorough inspection of alloy steel chain slings shall be performed by a competent person designated by the employer, and shall include a thorough inspection for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling shall be immediately removed from service.

1910.184(e)(4) Proof testing. The employer shall ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, shall be proof tested by the sling manufacturer or equivalent entity, in accordance with paragraph 5.2 of the American Society of Testing and Materials Specification A391-65, which is incorporated by reference as specified in Sec. 1910.6 (ANSI G61.1-1968). The employer shall retain a certificate of the proof test and shall make it available for examination.