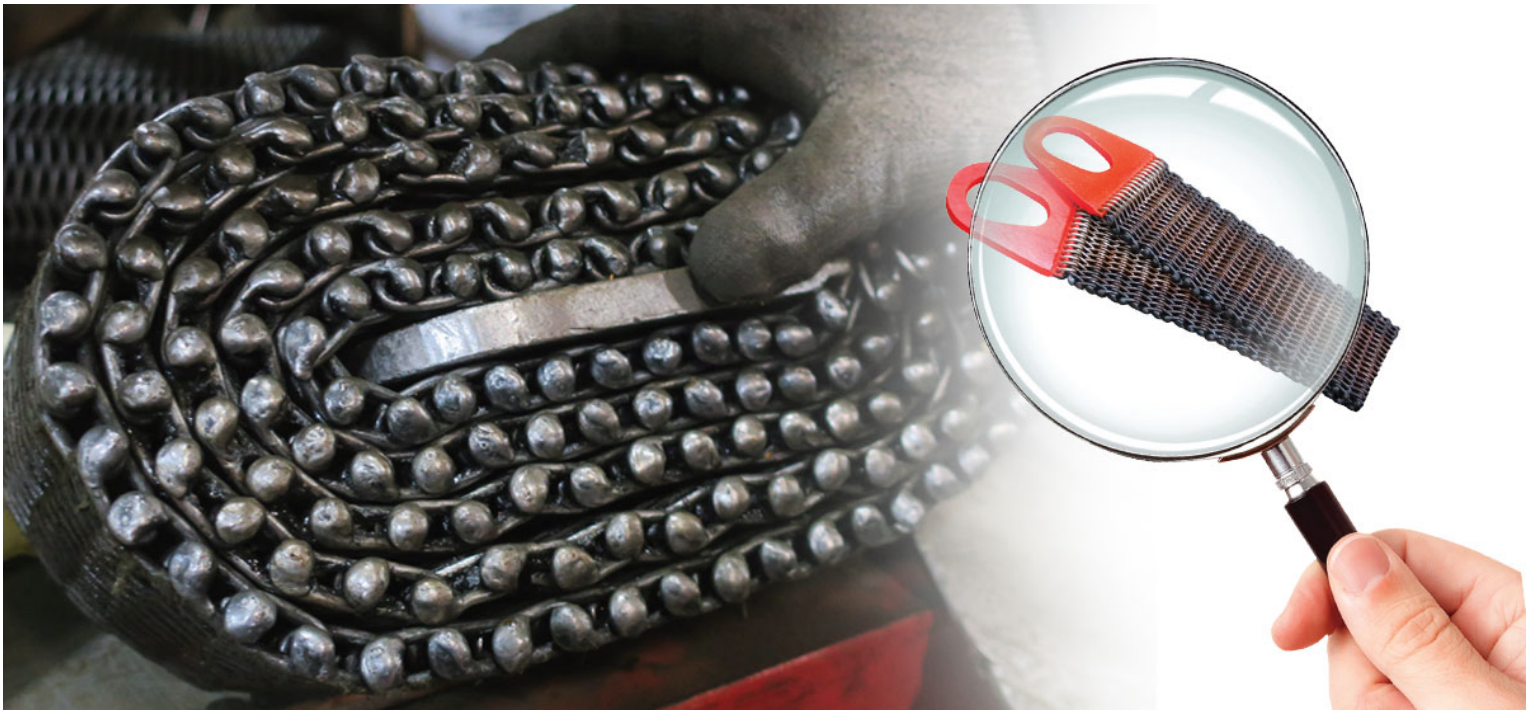
Who Performs Metal Mesh Inspections & How Often?

All inspections shall be performed by a Designated Person with any deficiencies further examined by a Qualified Person to identify hazards and determine what additional steps need to be taken to address the hazard.

There are two industry standards that exist to provide the end-user with guidelines for inspection and criteria that warrants removal from service: OSHA 1910.184 and ASME B30.9.



Initial Inspection (Prior to Initial Use):

Best practice is to inspect the metal mesh sling upon receiving it from the manufacturer. Double-check the sling identification to make sure it's what you ordered and that the rated capacity meets all of your project specifications and lifting requirements.

Frequent (Daily or Prior to Use):

Designate a Competent Person to perform a daily visual inspection of slings and all fastenings and attachments for damage, defects, or deformities. The inspector should also make sure that the metal mesh sling that was selected meets the specific job requirements it's being used for.

However, users can't rely on a once-a-day inspection if the sling is used multiple times throughout the day. Shock loads, severe angles, edges, and excessive heat can quickly cause damage to the material, so best practice is to perform a visual inspection prior to each use.

Periodic Inspection:

A documented periodic inspection is performed by either a professional service provider, or by a Qualified person every 12 months (at a minimum) and monthly to quarterly in more severe service conditions. The following are all determining factors in scheduling the frequency of a periodic inspection:

- Frequency of use
- Severity of service conditions
- Nature of the lifts being performed
- Experience gained on the service life of wire rope slings used in similar applications

ASME provides these additional periodic inspection guidelines based on the service of the metal mesh sling:

- Normal Service – Yearly
- Severe Service – Monthly to Quarterly
- Special Service – As recommended by a Qualified person

Depending on the severity of the operating environment and frequency of use, your business may decide that a more thorough inspection should occur more often than the minimum yearly requirement.

Periodic inspections are required to be documented per ASME B30.9 and records retained.

The employer is required to maintain a record of the most recent thorough sling inspection. Failure to maintain and retain inspection records is one of the most common issues we see that can prevent a company from reaching full OSHA compliance.

Metal Mesh Sling Identification Tag Requirements

Per ASME B30.9 ...

Each metal mesh sling shall be marked by the manufacturer to include:

- Name or trademark of the manufacturer, or if repaired, the entity performing the repair
- Rated load for at least one hitch type and the angle upon which it is based
- Individual sling identification (ex: serial number)

It is the responsibility of the user ...

To maintain the sling identification—ensuring it remains legible during the life of the sling. If the identification is missing or illegible, it should be removed from service.

Metal Mesh Fabric Construction Specifications

The table below can be found in 9-3.2.1 Fabric Construction: Metal Mesh Slings from ASME B309-2018.

Specification	Heavy Duty	Medium Duty	Light Duty
Nominal spiral turns per foot mesh width	35	43	59
Approx. spiral wire size	10 gage	12 gage	14 gage
Equivalent decimal size	0.135 in.	0.105 in	0.080 in.
Nominal cross rods per foot of fabric length	21	30	38
Approx. size of cross rods	8 gage	10 gage	14 gage
Equivalent decimal size	0.162 in.	0.135 in.	0.080 in.
Nominal fabric thickness	1/2 in.	3/8 in.	5/16 in.


10 GAGE
12 GAGE
14 GAGE

Basic Metal Mesh Sling Inspection Criteria

The goal of a sling inspection is to evaluate remaining strength in a sling which has been used previously to determine if it is suitable for continued use. When inspecting metal mesh slings, daily visual inspections are intended to detect serious damage or deterioration which would weaken the strength and integrity of the sling.

If during any point of the inspection the following is observed, the metal mesh sling should be removed from service and be discarded, according to ASME B30.9 standards:

Missing or illegible sling identification

Broken weld or a broken brazed joint along the sling edge

Broken wire in any part of the mesh

Reduction in wire diameter of 25% due to abrasion or 15% due to corrosion

Lack of flexibility due to distortion of the mesh

Distortion of the choker fitting so the depth of the slot is increased by more than 10%

Distortion of either end fitting so the width of the eye opening is decreased by more than 10%

15% reduction of the original cross-sectional area of any point around the hook opening of the end fitting

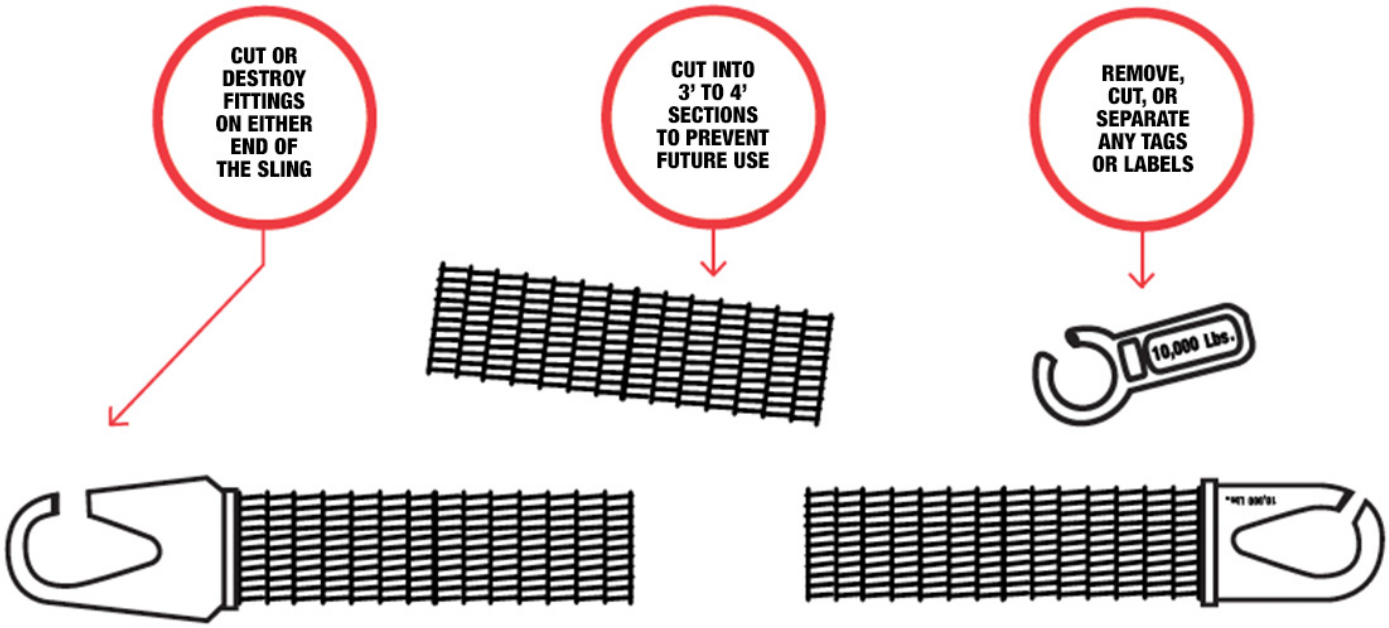
Visible distortion of either end fitting out if its plane

Slings in which the spirals are locked or without free articulation shall not be used

Cracked end fittings, or fittings that are pitted, corroded, cracked, bent, twisted, gouged, or broken

Disposal of Damaged / Failed Metal Mesh Slings

When performing a metal mesh sling inspection, you'll want to identify a potential issue and take action on it before the sling is connected to any rigging hardware. Broken welds, broken wires, visible distortion, or damage to either fitting can compromise the strength and lifting capabilities of the sling when under load. Therefore, the sling must be removed from service immediately.



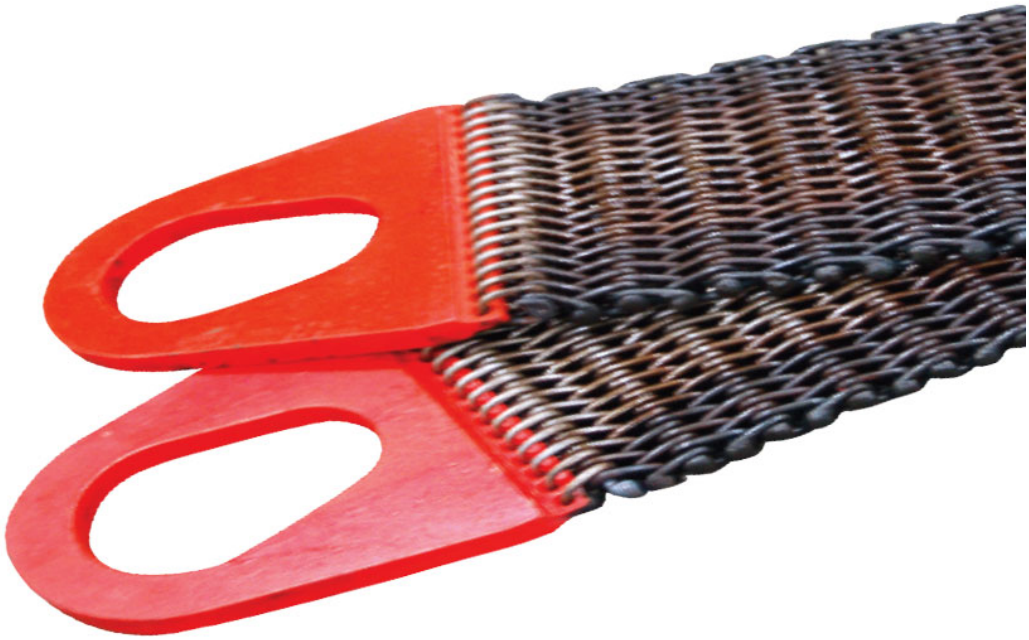
If it is determined that a metal mesh sling meets the removal from service criteria, then the following actions need to be taken to discard and render the sling unusable:

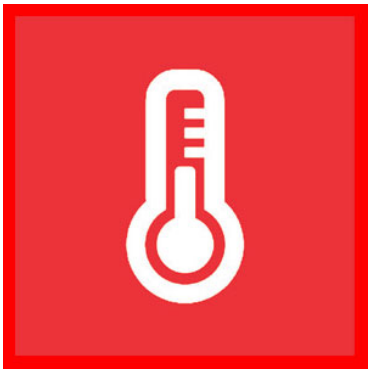
- Cut into smaller 3' to 4' sections to prevent use of any salvageable lengths of the sling
- Use a chop saw or torch to cut or destroy fittings on either end of the sling
- Use proper PPE when handling pieces of cut wires—cutting can leave sharp edges and metal burrs
- Remove, or separate, any tags and labels
- Place scrap into your facility's metal recycling bins and coordinate pickup or delivery

Best Practices for Maintaining Metal Mesh Slings

Maintaining a metal mesh sling during and in between uses is the best way to help extend the life of it and help to ensure that it stays in service. Inspections are easier to perform—and probably more thorough—when slings are easily accessible and organized, kept off of the ground, and stored in a cool and dry environment.

Hang your slings or keep them in a designated locker or rigging box where they are off of the ground and will not be subjected to mechanical damage, corrosive action, moisture, or kinking.





Temperature

When slings are used at temperatures above 550°F / 228°C or below –20°F / –29°C, the sling manufacturer should be consulted.

If the sling contains any coatings that change the temperature range of the sling, the manufacturer shall provide a revised temperature range.

Chemically Active Environments

The strength of metal mesh slings may be degraded by chemically active environments. This includes exposure to chemicals in the form of solids, liquids, gases, vapors, or fumes. The sling manufacturer or a Qualified Person should be consulted before slings are used in chemically active environments.

Edge and Cut Protection

Slings in contact with edges, corners, or protrusions, should be protected with a material of sufficient strength, thickness, and construction to prevent damage. Edge protection and cut protection should be used on all edges and corners—even the ones that aren’t load-bearing surfaces.

Keep Your Slings Clean

Continual exposure to dust, dirt, and moisture can degrade the materials and cause corrosion—shortening the life expectancy of the product. Wipe grease or oil off of your slings and try to keep them clean of dirt, chemicals, or other particulates which can break down the material over time.

Avoid Misuse and Abuse

Use rigging best practices when lifting a load with metal mesh slings. Avoid the following before, during, and after an overhead lift to prevent damage to the sling:

- Avoid shock loads
- Loads should not be rested on the sling
- Slings should not be pulled from under a load if a load is resting on a sling
- Be aware of possible snagging during load-handling activities
- Slings should not be dragged on the floor or over an abrasive surface
- Slings should not be constricted, bunched, or pinched by the load, hook, or any fittings
- Avoid twisting and kinking of the sling