WIRE ROPE SLING
TYPES & TERMS GUIDE

WIRE ROPE SLING CONFIGURATIONS

Single-Part

Single-part slings are the most common traditional wire rope sling offering. Single-part slings are popular because they're strong and durable, and come in a wide range of lengths, diameters, and capacities. Single-part slings are more susceptible to kinking, distortion, and dog legs, which may make the sling unruly and difficult to rig. However, they offer greater resistance to abrasion than multi-part slings.

Multi-Part

Multi-part wire rope slings can be made in equal capacities as any single-part sling, but offer greater flexibility and fatigue resistance. Multi-part slings may be more prone to broken wires and abrasion and may not be the best option for harsh or demanding lift environments.

Endless / Grommet

Endless configurations, also known as grommets, offer a lifting capacity above the capabilities of a traditional eye and eye sling. Endless slings can be used in applications where headroom is an issue because they can be manufactured smaller than an eye and eye sling. Also, endless configurations can be used in choker, basket, and vertical hitch configurations.

Hand-Tucked

Mechanically Spliced

Eye Types

FLEMISH EYE

A flemish eye splice is created when the wire rope is opened, and the strands are laid out into two parts. The two strands are looped in opposite directions and then laid back together—forming an eye at one end of the wire rope cable. The strands are then rolled back around the rope body and a metal sleeve fitting is slipped over the splice and swaged using hydraulic machinery. This splicing method provides the most efficient use of rope capacity and is highly economical.

TURNBACK EYE

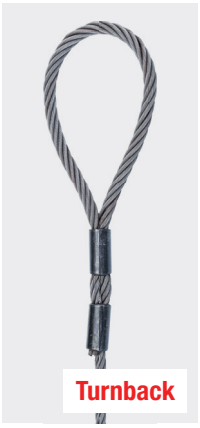
Turnback eye splices are made by bending the rope against the live portion to the free end by means of a steel or aluminum sleeve properly set in place under a hydraulic swaging machine. These slings are also referred to as "fold back loop," "returned-loop," or "double-back eye."

While they have high efficiency ratings, the concern with turnback eyes is that the lifting capacity of the sling depends 100% upon the integrity of the sleeve. Should the sleeve fail, the entire eye will fail and the load will fall.

HAND-TUCKED EYE

A hand-tucked splice is formed when the shorter "dead" end is tucked into the longer "live" end of the wire rope—forming an eye. These types of splices allow for easier inspection of the wire rope wires and strands.

Flemish



Turnback

Hand-Tucked

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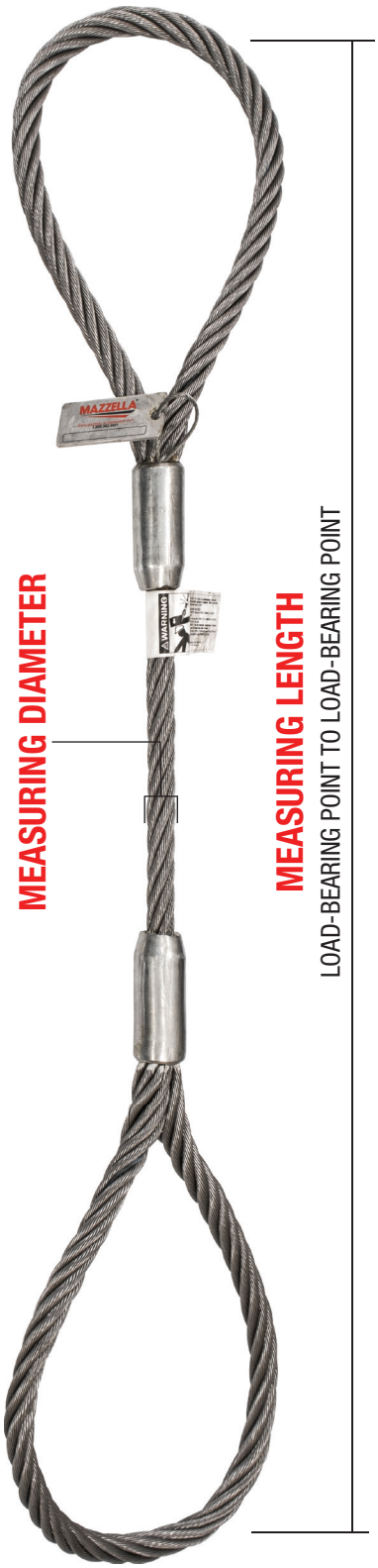

WIRE ROPE SLING LENGTH

Wire rope sling length is determined by measuring from the top load-bearing point to the bottom load-bearing point. An eye and eye sling length is measured from load-bearing point to load-bearing point of the eyes.

Endless wire rope sling length is measured by pull to pull. See example below.

WIRE ROPE SLING DIAMETER

Wire rope slings can be made from any size component rope between 1/8" and 2-3/4" component rope—providing vertical capacities ranging anywhere from 1.2 tons to over 400 tons.

EYE TYPE

- Flemish eye
- Turnback eye
- Hand-tucked eye

* Thimbles can be added to flemish and turnback eye slings.

HITCHES

Wire rope slings can be used in the following hitch orientations:

VERTICAL CHOKER BASKET

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WIRE ROPE BRIDLE LENGTH

Multi-leg sling assemblies, or single-leg slings with fittings, are measured from the load-bearing point of any rings, hooks, or fittings.

* Sling length is the distance between the extreme bearing points of the sling assembly, except that the length dimension for wire rope slings excludes the gathering ring or master link in the sling dimension.

MASTER LINK

- Oblong (Oval) Master Link
- Pear-Shaped Master Link
- Round (Circle) Master Link

MULTI-LEG ASSEMBLIES

- 2-Leg Wire Rope Bridle
- 3-Leg Wire Rope Bridle
- 4-Leg Wire Rope Bridle

END FITTINGS

- Hooks
- Other hardware as specified

GOOD-FIT APPLICATIONS

Good-fit applications for wire rope slings include:

- Construction
- Heavy manufacturing
- Mining
- Oil & gas
- Ship building
- Steel mills

BAD-FIT APPLICATIONS

If you're concerned about protecting a delicate load from damage during lifts, web slings or other types of synthetic slings might be a better fit. Also, you should consider the weight of a wire rope sling when calculating the total weight of the load and the capacity of your lifting equipment.

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WIRE ROPE SLING PROTECTION

Sling protection should always be used if a wire rope sling is going to be exposed to an edge or abrasive surface. For wire rope slings, a tubular sleeve is common, and this thin layer of padding can go around abrasive edges and soften the contact between the sling and the load.

When the end of a rope is turned back and formed into an eye, a thimble is often used to keep the shape of the eye, prevent the rope from being crushed, and keep the rope from being bent at a diameter smaller than the rope manufacturer's recommendations (maintain proper D/d ratio).


Swatch Sleeve


Thimble

Slip-Through Thimble


Wrapped Eyes

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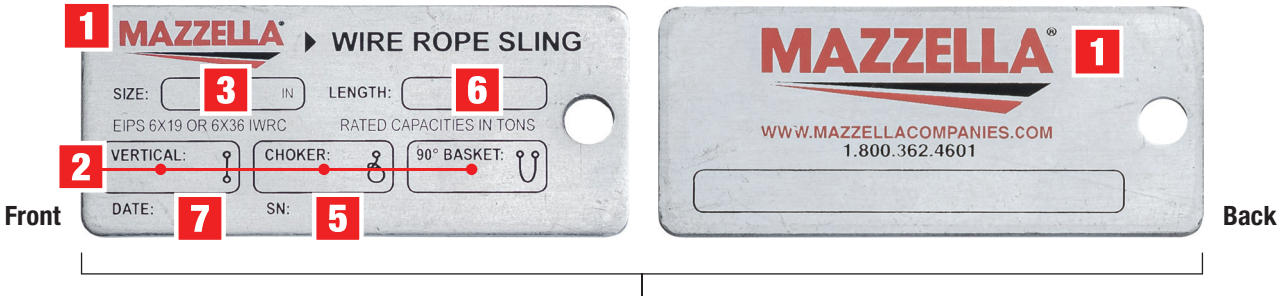
HOW TO READ A MAZZELLA WIRE ROPE SLING TAG

Per *ASME B30.9*, each wire rope sling shall be marked by the manufacturer to include:

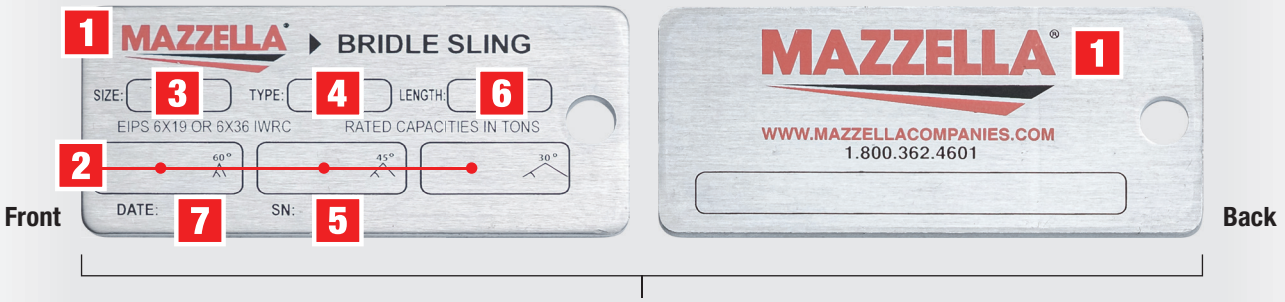
1. Name or trademark of the manufacturer, or if repaired, the entity performing the repair
2. Rated load for at least one hitch type and the angle at which it is based
3. Diameter / size
4. Number of legs, if more than one

Mazzella single- and multi-part wire rope sling tags also contain the following information:

5. Manufacturer's code or stock number
6. Length
7. Date of creation



Single-Part Wire Rope Sling Tag



Single-Part Wire Rope Bridle Sling Tag

7-Part Wire Rope Sling Tag