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Based on OSHA 1910.184
Objectives

Participants will:

Understand the most commonly used rigging material & hitch types

Understand capacity differences in the most commonly used rigging hitch types

Understand what sling stress is

Be able to determine the amount of sling stress placed into a sling

Slings

- Synthetic slings
- Alloy steel chain slings
- Wire rope slings

Alloy Steel Chains 1910.184(e)

- Annual inspections by a competent person are required
- Employer shall make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected
**Wire Rope** 1910.184(f)(5)(i)

Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay.

**Wire Rope** 1910.184(f)(5)(i)

- Kinking
- Crushing
- Bird Caging
- Heat Damage

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**Synthetic Slings** 1910.184(g)(1)

Marked or coded to show the rated capacities

**Synthetic Slings** 1910.184(i)(9)

Removal from Service if any of the following are present:

- Burns
- Snags, tears punctures or cuts
- Broken/worn stitches
**Synthetic Slings**

Always use softeners when rigging around sharp edges.

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**Hitch Types**

- Vertical Hitch
- Choker Hitch
- Basket Hitch
- Bridle Hitch

@ 60 Degrees

75% 200%

173%

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**Vertical Hitch**

Forms a 90 degree angle between the hitch and the load.

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**Choker Hitch**

- **NOT CORRECT**
- **CORRECT**

SHACKLES
**Basket Hitch**

A basket hitch with both legs at 90 degrees effectively doubles the capacity of the sling.

**Bridle Hitch**

The bridle hitch consists of two or more vertical hitches attached to the same hook, master link, or bull ring.

**Multiple Leg Bridle Hitch**

A multiple leg bridle hitch is always considered to have only two of the legs supporting the majority of the load and the rest of the legs balancing it.

**Sling Stress**

Sling Stress

The total amount of force exerted on a sling. This includes forces added as a result of sling angle. Sling stress applies to all types of slings.

Sling Angle

The angle of an attached sling when pulled in relation to the load.
Sling Stress

Two buckets of water weighing 40 LBS

@ 5 degrees from horizontal = 240 LBS

@ 30 degrees from horizontal = 80 LBS

Sling Stress

@ 5 degrees from horizontal = 240 LBS

@ 30 degrees from horizontal = 80 LBS

Sling Stress

Two buckets of water weighing 40 LBS

@ 5 degrees from horizontal = 240 LBS
How to determine sling tension

![Diagram showing how to determine sling tension](image-url)
**Activity**
Determine sling Tension

Length of sling = 30 feet  
Height from load = 25 feet  
Total load weight = 100,000 lbs  

What is the sling tension in each sling?

**D/d Ratio For Wire Rope Slings**

Questions?
More Information?
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Questions?

Safety Resources

- AISC Safety Website – www.aisc.org/safety  
- Sample Safety Program Elements  
- Safety Awards Program  
- Sample Safety Forms  
- Top 10 OSHA Citations  
- OSHA Interpretations  
- Safety Product Reviews  
- Safety Details or ‘Tool Box Talks’  
- Daily Safety Focus  
- And more
Thank You

Please take our survey at the conclusion of the webinar.
We appreciate your feedback!

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