Tech Tips - *a periodic newsletter*

THIMBLES & WIRE ROPE SLINGS

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There are a number of ways to terminate a wire rope sling. A simple loop eye is the most common and provides a large sling eye to place on a crane hook. But certain applications require a thimble to be placed in the sling eye.

This Tech Tip is not so much about the benefits of having thimbles in sling eyes, but on the importance of installing thimbles correctly. Our goal is to help you determine that only quality products make their way to your job site.

Thimbles provide a couple of important attributes;
1) They protect the wire from contact with edges that may damage the wires.
2) They can increase the sling's breaking strength since the formed sling eye will not be subject to sharp bends under load.

Wire rope is formed by strands of wires that are laid helically around a center core. This important characteristic allows the strands to slide and adjust, but also affects how a wire rope bends when forming a small eye required for thimbles.

Notice how the thimble in the sling eye above is tight. The pressed metal sleeve is close to the base of the sling eye, and the wires form nicely around the thimble's small diameter.

During installation of a thimble it's important that the rope's strands remain in position and in tight contact with the small diameter thimble. It is equally important that the rope's strands stay in position as the pressed metal sleeve is installed. A few taps from a mallet are often required to get the sleeve in proper position and to hold the thimble tight. Strands that are not held in place during this installation can easily be moved out of position.

Tech Tip Continued:

Notice the strands in the thimble sling eye below. The high strand is a result of the strands not being held in position when the pressed metal sleeve was applied. Because the sharp bend causes the strands to be of different lengths at the base of the eye splice, a strand can be pushed upward when the sleeve is applied. The result is the "high strand" you see in the picture below.

Most rigging shops use a horizontal vice to secure the strands when the metal sleeve is being applied. The horizontal vice applies pressure on both sides and the top of the eye at the same time. This three way pressure enables the swage sleeve to be applied while the wire rope strands remain tightly held around the thimble.

A horizontal vice is a practical necessity when wire rope diameters are in the range of 5/8-inch and above. Without this pressure it's difficult to hold the strands in their position, and just as difficult to ensure that the thimble is tightly held in the eye.

Many slings have become damaged during use when a loose thimble starts to peel out of the eye. When you have the sharp edges of the thimble bearing on the sling wires the result is cut wires and a possible loss of load.

Thimble sling eyes should be checked frequently to ensure the thimbles are tight and not subject to any movement under load. If you find any slings with high-stranding in the sling eye the sling should be removed from service.

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