

Wire ropes are used quite frequently in our industry and they are often misused. Some things to consider when dealing with wire rope.

1. Importance to hoisting
2. What will be the ropes main use?
3. What environment will the wire rope be used in?
4. Choosing vendors
5. How do I determine the quality of wire rope?
6. Signs of damage and taking a rope out of service
7. Rope preparation
8. Where can you obtain information about wire rope?

Importance of Wire Rope

Wire rope is generally the primary support line for use in suspended scaffold applications. Damaged cables that will snap at any moment are usually quite obvious. However, marginal wire ropes are often overlooked.

The condition of wire rope can determine how successfully the suspended platform ascends or descends to its work site. Typically that work site is well above the ground and every assurance must be made that the wire rope will support the platform and the personnel safely high above the ground.

Wire rope is responsible for holding the platform, and must pass through the traction hoist that climbs it. For this reason the rope must be of uniform size and sturdy construction. The nature of all traction hoists is that they grab the wire rope and squeeze it. Good quality rope must be resistant to the force of a traction hoist.

Use of Wire Rope

Wire rope is used for many things within our industry:

- *Hoisting*
- *Tiebacks*
- *Stabilization*
- *Perimeter lines*
- *Trolley lines*

Depending on the use that you need, you may be able to purchase several different qualities and constructions of wire rope. One rope will not satisfy the needs of every application. Therefore you must first identify your application. Then do some research as to what regulations that there might be concerning that application. If that application involves other pieces of equipment, consult the manufacturer of the equipment for their guidelines.

Environment where the Wire Rope will be used

Wire rope is typically purchased as galvanized or bright (Black). Where you use the equipment might be the biggest decision-maker as to which surface you choose.

Galvanized wire rope is plated with a zinc-galvanizing compound that makes it more resistant to corrosion than bright wire rope. Corrosion resistance is especially valued in coastal areas where salt water is present and in industrial applications where caustic materials may be found.

If galvanized rope is of lower quality it can present certain problems, like hoist idling. This happens when the zinc coating begins to flake off as it passes through the hoist. When it flakes off it is deposited into the traction sheave, decreasing the friction between the rope and the sheave.

Bright or black rope is usually purchased because it is less expensive than galvanized. It may also be selected because bright rope is generally 10% stronger than a galvanized rope of the same grade and construction. Bright rope can be less susceptible to problems like idling in a traction hoist. They are more sensitive to the accumulation of rust, which is extremely harmful to wire rope and require more maintenance than does the galvanized, however they both require lubrication.

Rust damages wire rope in two main ways. Rust is corrosive and removes strength from the rope. Rust also binds together the individual wires that make up the rope. When the strands of the wire rope become rusted together, the rope no longer wants to rotate as it passes through the traction hoist. If wire rope does not rotate, certain problems like birdcaging develop, which could eventually lead to a rope jam.

Vendor Choice

1. Select a vendor with a good reputation
2. Select one that is knowledgeable about their products and about your application
3. Vendor must stand behind the product
4. Expect that your vendor should be able to provide certification for individual wire rope lots

Future Issues

- Determining quality of wire rope?
- Signs of damage
- When should it be taken out of service?
- Rope preparations
- Resources for information about rope
- What rope can be used in Power Climber hoists?

Did You Know?

- Wire rope is a mechanical piece of equipment
- Wire rope has moving parts
- Wire rope must be lubricated

For questions or comments, contact Customer Service at 1-800-560-CLIMB (2546) or customerservice@safeworks.com.