Take Charge Of Your Wire Rope For Greater Productivity And Better Results

Allied® WINCH

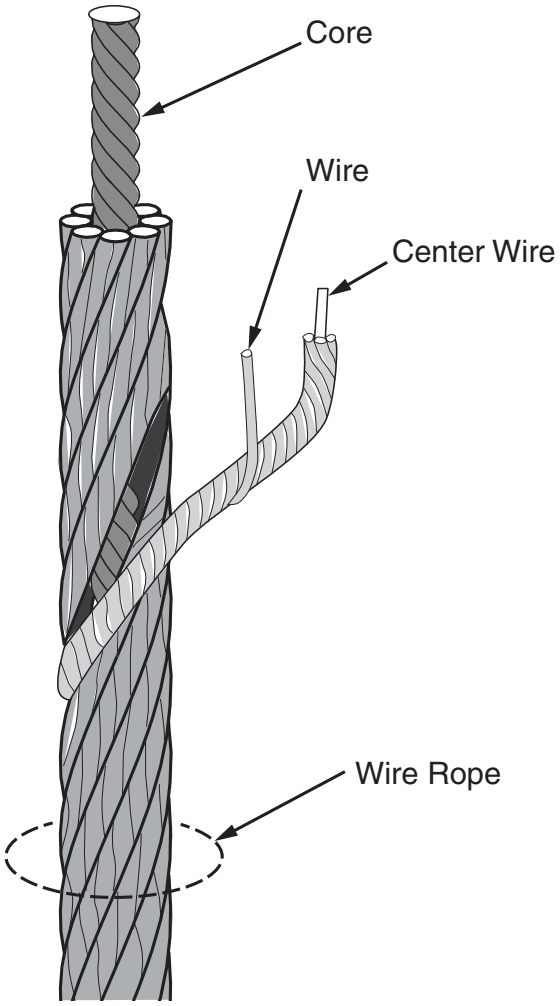
When it comes to using a winch in demanding applications such as pipeline construction, it's easy to focus on the winch and all its features. However, there needs to be a strong focus on the wire rope as well. It may come as a surprise that the wire rope is also a well-designed piece of machinery that demands careful use. Take care of that wire and you'll see longer wire life, easier winching, and increased productivity.

MADE IN USA

86-695
Rev 11/13/2018

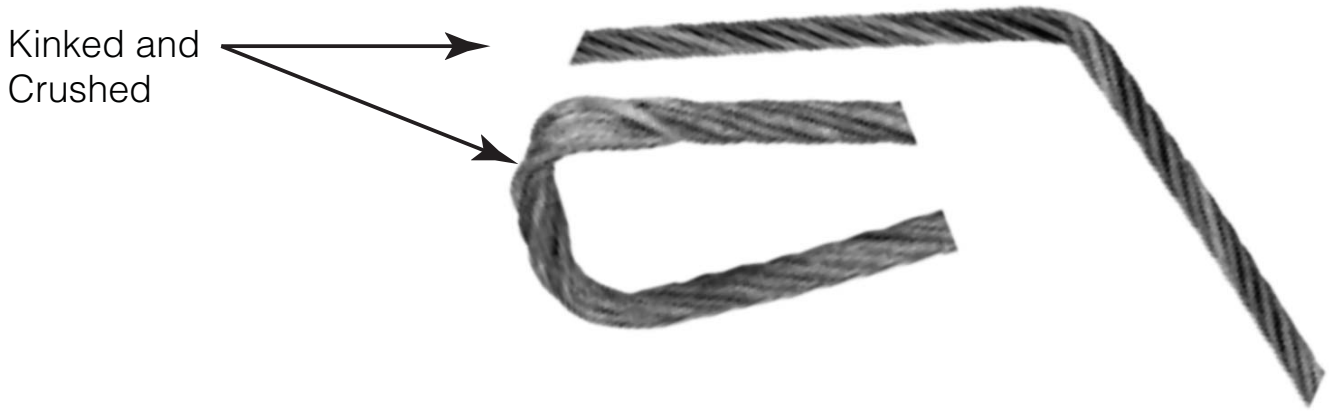
What Harms Your Wire Rope?

Enemy No.1: Kinking
The design of wire rope is no accident. The braiding and spiral wrap of the strands of individual wire contribute to the flexibility and overall life of the wire rope. However, that braiding comes with a natural tendency to coil, creating loops when the wire rope is not under load. Spooling a loop onto the drum will kink, or severely bend, the wire rope, which is generally a fatal accident for the wire rope. If a kink goes unnoticed, the consequences for future use at high loading could be a sudden and catastrophic failure.



Enemy No. 2: Mechanical Damage
The most common forms of mechanical damage result from crushing and fatigue. Crushing of the wire rope changes its cross-section from round to oval. A crush results in an immediate reduction of breaking strength. Crushing can occur when wire rope is not level wound, causing wire rope to cross over an adjacent wrap. Fatigue occurs when the wire rope is repeatedly bent around a small diameter object under tension, gradually leading to small fractures of the individual strands of wire that progressively reduce the breaking strength of the wire rope.

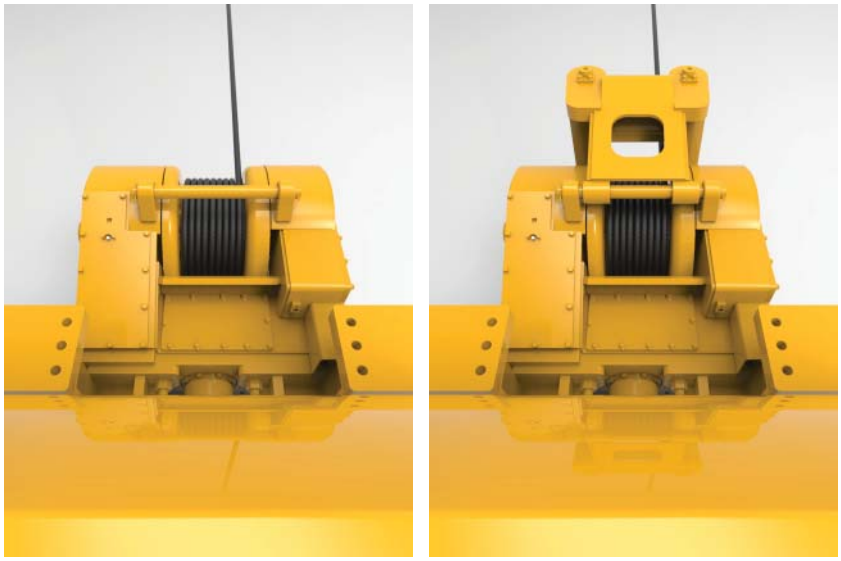
Enemy No. 3: Abrasive Wear
In normal use the wire rope is in contact with other hard surfaces that wear off a bit of steel at each pass. The most likely points of abrasion are against the winch drum flanges and sliding up and down against the fairlead rollers. This wear is generally unavoidable, but the degree of wear can be managed and minimized.



How to Conquer these Enemies?

No. 1: Eliminate Kinks Reaching the Drum

The best way to avoid damage from kinked rope is to watch the wire carefully as it approaches the winch drum. Visibility is the key here. Using a fairlead greatly reduces the operator's view of the drum, so the best solution is to select a winch without a fairlead.



No Fairlead
Wire Rope Clearly Visible

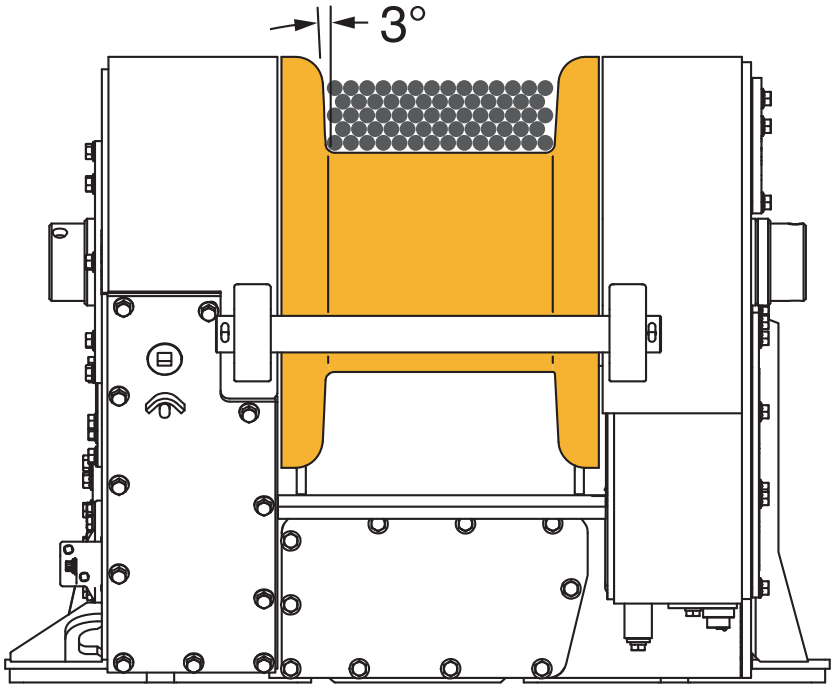
With Fairlead
Limited View of Wire Rope

No. 2: Eliminate Crushing and Fatigue

The solution to crushing is to spool the wire using the level wind technique, with no wraps ever crossing another layer. Again, visibility is key. When level winding, the fairlead is counterproductive due to the reduced visibility of the drum. There is an increased occurrence of fatigue damage in the wire rope when the operator becomes overly dependent on the fairlead and allows bending of the wire over the small radius of the fairlead rollers. Spooling with the wire against the fairlead roller stacks the wraps against the drum flange, causing crushing. Proper alignment of the dozer is the better solution.

No. 3: Eliminate Abrasion

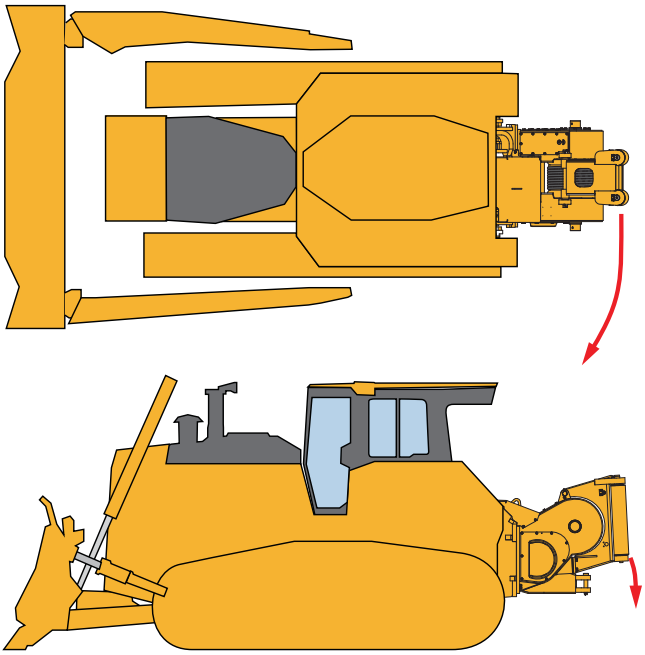
The most likely places for abrasion are the flanges of the winch drum and the hardened fairlead rollers. Unlike other winches, the drum on the Allied winch is wider at the outsides edges of the flange than at the base, at an angle of about 3 degrees. This is the perfect angle for level wind. When spooling correctly, the wire rope will bear only slightly on the drum flanges. Keeping the wire off of the fairlead rollers is also essential to reduced wear. The best solution is to not have them there in the first place, so that the operator is not lulled into a false impression that they can be used without consequences.



Fairlead Considerations

In considering the potential disadvantages of a fairlead to your wire rope, do not forget that the fairlead adds both weight and length to the most rearward part of the dozer. The result is a change in balance, making the dozer more prone to tipping. The added length makes the dozer less stable in the event that a side pull is required. While a side pull over a fairlead roller can reduce wire rope damage it also moves the line of force further from the winch, reducing dozer stability and maximum line pull.

For best results, always align the dozer to the load and ensure visibility to the drum to minimize risk of crossing wire rope layers or spooling kinks onto the drum. Use fairleads only if there are significant numbers of side pulls and the operator cannot align the dozer to the load.



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