

How to extend rope service life

How long will your rope last? There is not a simple answer but, rather, there are several factors involved, including:

- > The manner in which you install and “break in” your new rope.
- > The operating technique and work habits of the machine operators.
- > Physical maintenance of the rope throughout its service life.
- > Physical maintenance of the system in which your rope operates.

RECOMMENDED PRACTICES

We’ve outlined several recommended practices you may use to extend your rope’s useful life. It’s also important to note that all sections of this handbook, in some respect, also review ways to help you get greater useful life from your rope, and that’s why you need to thoroughly understand all the material here.

INSTALL YOUR ROPE CORRECTLY

The primary concern when installing a new rope is to not trap any twist in the rope system. Proper handling of the rope from the reel or coil to your equipment will help avoid this situation. Another important step on smooth faced drums is to spool with wraps tight and close together on the first layer. This layer forms the foundation for succeeding layers. Finally, spool the remaining rope on the drum with tension approximating 1% to 2% of the rope’s minimum breaking force.

BREAK IN YOUR NEW ROPE PROPERLY

When you install a new operating rope, you should first run it for a brief period of time with no load. Then, for best results, run it under controlled loads and speeds to enable the wires and strands in the rope to adjust to themselves.

“CONSTRUCTIONAL” STRETCH

When first put into service, new ropes normally elongate while strands go through a process of seating with one another and with the rope core. This is called “constructional” stretch because it is inherent in the construction of the rope, and the amount of elongation may vary from one rope to another. For standard ropes, this stretch will be about 1/4% to 1% of the rope’s length.

When constructional stretch needs to be minimized, ropes may be factory prestretched. Please specify when placing your order.

Another type of stretch, “elastic” stretch, results from recoverable deformation of the metal itself.

CUT OFF ENDS TO MOVE WEAR POINTS

If you observe wear developing in a localized area, it may be beneficial to cut off short lengths of rope. This may require an original length slightly longer than you normally use. When severe abrasion or numerous fatigue breaks occur near one end or at any one concentrated area – such as drag ropes on draglines or closing lines in clamshell buckets, for example – the movement of this worn section can prolong rope life.



AVOID TWISTING OF NEW WIRE ROPE DURING INSTALLATION

- > Handle the rope properly from the reel or coil to your equipment and, on smooth-faced drums, spool with wraps tight and close together on the first layer.

CLEAN AND LUBRICATE REGULARLY TO REDUCE WEAR

We lubricate our wire rope during manufacture so that the strands – as well as the individual wires in the strands – may move and adjust as the rope moves and bends. But no wire rope can be lubricated sufficiently during manufacture to last its entire life. That's why it's important to lubricate periodically throughout the life of the rope.

The surface of some ropes may become covered with dirt, rock dust or other material during their operation. This can prevent field-applied lubricants from properly penetrating into the rope, so it's a good practice to clean these ropes before you lubricate them.

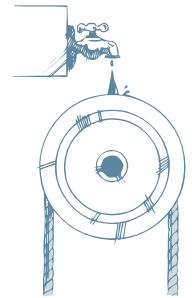
The lubricant you apply should be light-bodied enough to penetrate to the rope's core. You can normally apply lubricant by using one of three methods: drip it on rope, spray it on or brush it on. In all cases, you should apply it at a place where the rope is

bending such as around a sheave. We recommend you apply it at the top of the bend because that's where the rope's strands are spread by bending and more easily penetrated. In addition, there are pressure lubricators available commercially. Your rope's service life will be directly proportional to the effectiveness of the method you use and the amount of lubricant that reaches the rope's working parts.

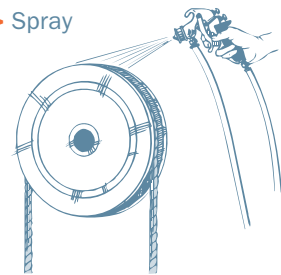
A proper lubricant must reduce friction, protect against corrosion and adhere to every wire. It should also be pliable and not crack or separate when cold – yet not drip when warm. Never apply heavy grease to the rope because it can trap excessive grit, which can damage the rope. Nor should you apply used "engine oil" because it contains materials that can damage the rope. For unusual conditions, you can specify special lubricants that we can apply at the factory.

THREE METHODS OF APPLYING LUBRICATION:

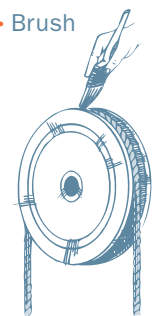
> Drip



> Spray



> Brush



Wire breaks from vibration fatigue occur at end terminations, so short lengths cut off there with reattachment of the socket may prolong the rope's life. When broken wires are found, you should cut off sections of rope. In the case of a socket, you should cut off at least five or six feet. In the case of clips or clamps, you should cut off the entire length covered by them.

Where there is an equalizing sheave, such as that found in many overhead cranes, fatigue is localized at rope tangency points to the equalizing sheave. Rope life will be increased if you shift this point by cutting off a short length at the end of one of the drums. Be sure to make this cutoff

before significant wear occurs at the equalizing sheave, and always do so at the same drum.

REVERSING ENDS

Frequently, the most severe deterioration occurs at a point too far from the end or is too long to allow the worn section to be cut off. In such cases, you may turn the rope end for end to bring a less worn section into the area where conditions are most damaging. This practice is beneficial for incline rope and draglines. The change must be made well before the wear reaches the removal criteria. When changing ends, be careful to avoid kinking or otherwise damaging the rope.