



**A**ll wire ropes will wear out eventually and gradually lose work capability throughout their service life. That's why periodic inspections are critical. Applicable industry standards such as ASME B30.2 for overhead and gantry cranes or federal regulations such as OSHA refer to specific inspection criteria for varied applications.

## HOW OFTEN

All wire ropes should be thoroughly inspected at regular intervals. The longer it has been in service or the more severe the service, the more thoroughly and frequently it should be inspected. Be sure to maintain records of each inspection.

## APPOINT A QUALIFIED PERSON TO INSPECT

Inspections should be carried out by a person who has learned through special training or practical experience what to look for and who knows how to judge the importance of any abnormal conditions they may discover. It is the inspector's responsibility to obtain and follow the proper inspection criteria for each application inspected.

**For information on inspection methods and techniques, our Techreport 107: Wire Rope Inspection, is available on the [unionrope.com](http://unionrope.com) website for download. If you need further assistance with our ropes, contact our Product Engineering Department.**

## THREE PURPOSES FOR INSPECTION

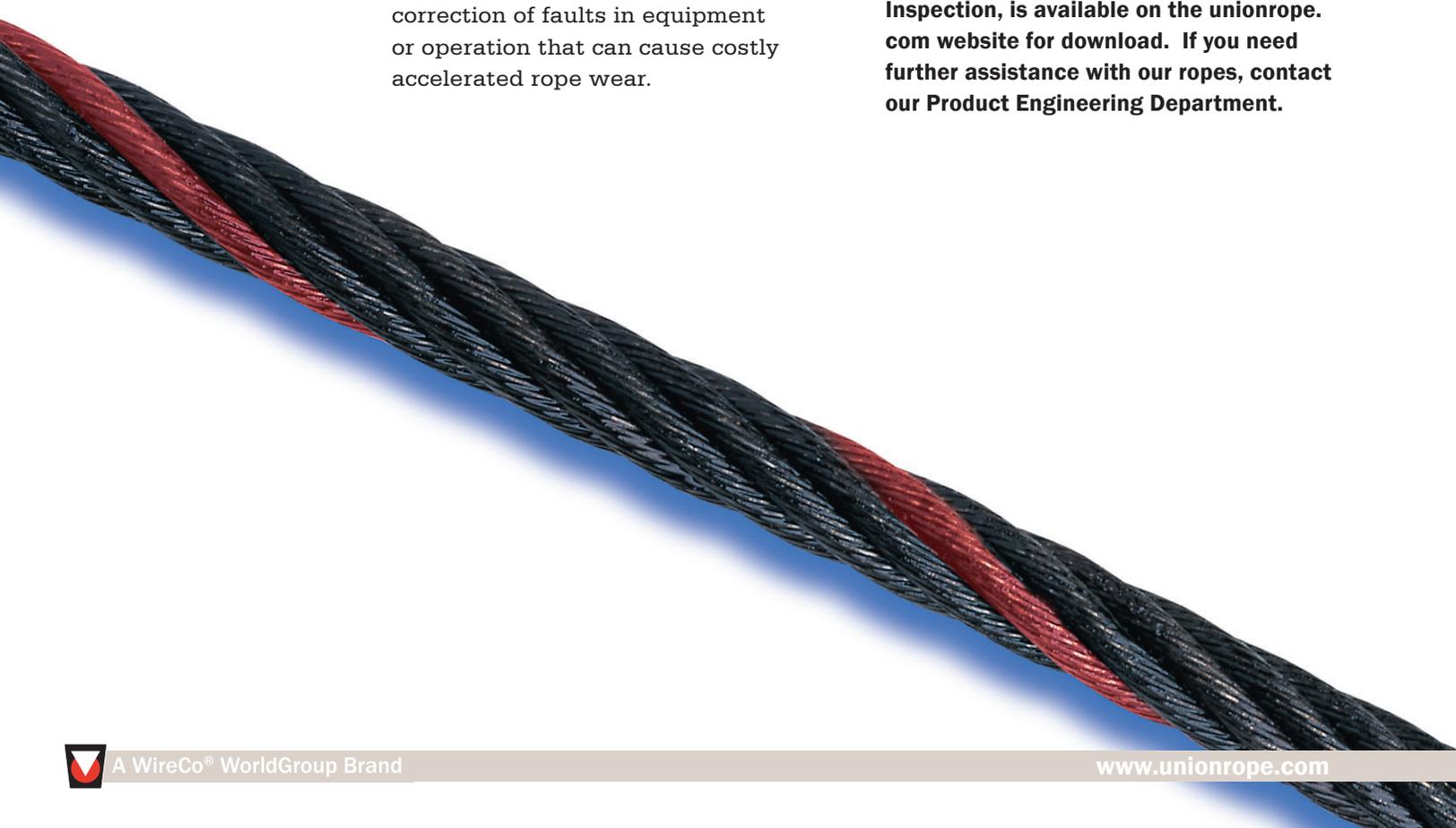
Regular inspection of wire rope and equipment should be performed for three good reasons:

- > It reveals the rope's condition and indicates the need for replacement.
- > It can indicate if you're using the most suitable type of rope.
- > It makes possible the discovery and correction of faults in equipment or operation that can cause costly accelerated rope wear.



## INSPECT YOUR WIRE ROPE REGULARLY

- > Inspection should be performed by a person with special training or practical experience.



# Wire rope inspection

## WHAT TO LOOK FOR



Here's what happens when a **wire breaks** under tensile load exceeding its strength. It's typically recognized by the "cup and cone" appearance at the point of failure. The necking down of the wire at the point of failure to form the cup and cone indicates failure has occurred while the wire retained its ductility.



This is an example of **fatigue failure** of a wire rope subjected to heavy loads over small sheaves. The breaks in the valleys of the strands are caused by "strand nicking." There may be crown breaks, too.



Here you see a single strand removed from a wire rope subjected to **strand nicking**. This condition is a result of adjacent strands rubbing against one another. While this is normal in a rope's operation, the nicking can be accentuated by high loads, small sheaves or loss of core support. The ultimate result will be individual wire breaks in the valleys of the strands.



This is a wire with a distinct **fatigue break**. It's recognized by the square end perpendicular to the wire. This break was produced by a torsion machine that's used to measure the ductility. This break is similar to wire failures in the field caused by fatigue.



Shown here is a wire rope that has been subjected to repeated bending over sheaves under normal loads. This results in **fatigue breaks** in individual wires – these breaks are square and usually in the crown of the strands.