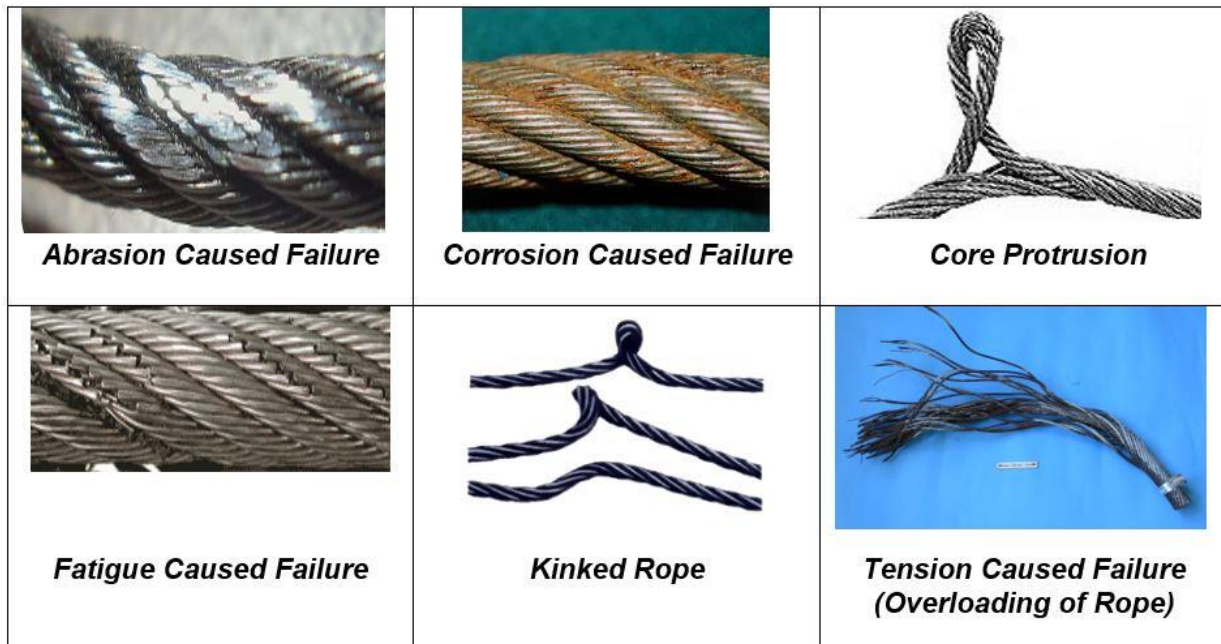




## WHAT CAN CAUSE A WIRE ROPE TO BREAK?



- Wear on areas that are in contact with hoist sheaves and drums.
- Corrosion from lack of lubrication and exposure to heat or moisture (e.g., wire rope shows signs of pitting). A fibre core rope will dry out and break at temperatures above 120°C (250°F).
- Fatigue from repeated bending even under normal operating conditions.
- Overloading the safe working load limit. Follow manufacturers' charts.
- Mechanical abuse - crushing, cutting or dragging of rope.
- Being used when frozen - if work is performed at lower than 15.5°C, the use of the sling should follow the manufacturer's recommendations.
- Kinks from the improper installation of new rope, the sudden release of a load or knots made to shorten a rope. A kink cannot be removed without creating a weak section. Discarding kinked rope is best.



Properly trained and experienced personnel must inspect the wire rope on hoists on a regular basis.

In addition, the operator is responsible to complete visual inspections before each shift and before lifting a load.



## HOW DO YOU VISUALLY INSPECT WIRE ROPES?

- ✓ Use the "rag-and-visual" method to check for external damage. Grab the rope lightly and with a rag or cotton cloth, move the rag slowly along the wire. Broken wires will often "porcupine" (stick out) and these broken wires will snag on the rag. If the cloth catches, stop and visually assess the rope. It is also important to visually inspect the wire (without a rag). Some wire breaks will not porcupine.
- ✓ Measure the rope diameter. Compare the rope diameter measurements with the original diameter. If the measurements are different, this change indicates external and/or internal rope damage.
- ✓ Visually check for abrasions, corrosion, pitting, and lubrication inside the rope.

*Replace wire rope if one of the following conditions exists;*



- Broken wires or excessive wear
- 12 randomly broken wires in one lay of rope
- 4 broken wires in one strand in one lay
- 1 outer wire is broken at the contact point with the core, which has worked its way out
- Wear on individual wires to of  $\frac{1}{3}$  of original diameter
- Kinks
  - Tight kinks – Shortens lay
  - Open kinks – Opens the lay – Caused by sudden release of the load – Hoist operating in restricted area.

Wear beyond the nominal diameter- The rope diameter for a given rope size, measured across the high points of the rope. \*Replace wire rope if the diameter reduction is greater than the allowable reduction listed below.