



# Wire Rope Inspections

Safe operation is assured with routine wire rope inspections

## Equipment

Cranes  
 All Terrain/Hydraulic Carry Deck  
 Boom Trucks - Stand Up, Swing Cab, Tractor Mounted  
 Conventional Truck  
 Crawler/Dragline  
 Rough Terrain  
 Tower  
 Asphalt Paving Equipment  
 Compaction Equipment  
 Excavators  
 Forestry Equipment  
 Forklifts  
 Loader Backhoes  
 Motor Graders  
 Mowers  
 Tractor and Truck Mounted  
 Off-Highway Trucks  
 Trailers - Drop Deck, Tag  
 Skid Steers  
 Sweepers/Brooms  
 Wheel Loaders

## Services

Technical on-site field service by factory trained technicians  
 Product and parts support  
 OSHA Inspections  
 NCCCO training, testing, certification  
 Operator safety training seminars  
 Preventive maintenance programs  
 Rental Equipment  
 Used Equipment  
 Consignments  
 Custom hydraulic hoses  
 Financing assistance

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- Spot signs of wear with daily inspections by operators and monthly inspections by a wire rope inspector
- Use the best wire rope for your application
- Stephenson Equipment carries an extensive inventory of wire rope

## Wire Rope Basics

**Construction**—A wire rope normally consists of a core member, and several multiwired strands that are laid or bent around the core. There are two general types of cores: wire rope fiber cores, made from natural or synthetic fibers, and wire cores, which consist of an Independent Wire Rope Core (IWRC), or a Strand Core (SC).

During operation, the core provides support and maintains the position of the outer strands.

The number of multiwired strands that are laid around the core can vary, but a popular configuration is six strands, which provides optimum balance. There are between 3 and 91 wires per strand. Most wire ropes have 7, 19 or 37 wires per strand, however.

**Lay**—The lay of a wire rope describes how the wires and strands are placed within the rope. Wire ropes are most often constructed as right lay, regular lay. Right lay means that the strands pass from left to right across the rope. The wire in the strands is placed in the opposite direction as the strands with regular lay. Other lay specifications are usually considered exceptions and must be requested when ordering.

## Extend Rope Life with Proper Maintenance

Proper maintenance of the drums and sheaves over which ropes operate is important in maximizing rope life. For example, worn grooves or poorly aligned sheaves can shorten service life for wire rope. The wire rope inspection should include a review of the drums and sheaves to look for maintenance issues.





## Inspection Requirements

An inspection determines whether the rope may be unsafe and requires replacement. The inspector judges the rope's existing condition and determines if it may result in a failure or will be safe until the next scheduled inspection. Daily inspections assure that alerts for wire rope replacement are not delayed.

## Daily Visual Inspection by the Operator

Any rope that will be used during the day's operations should be visually inspected by the equipment operator. The inspection should focus on gross damage that presents an immediate hazard, such as:

- Rope distortion such as kinking, crushing, unstranding, birdcaging, main strand displacement, or core protrusion
- Corrosion
- Broken or cut strands.

## Monthly/Periodic Inspections by a Wire Rope Inspector

A qualified wire rope inspector should conduct monthly inspections of running ropes for overhead and gantry cranes and periodic inspections for any other types of cranes. Documentation includes the inspection date, the signature of the inspector and detailed descriptions of the ropes inspected. These inspection reports need to be retained. This inspection does not require a breakdown of the crane, but the hook block(s) should be lowered to the floor or lowest attainable position, so that the rope can be inspected.

A visual inspection of running ropes is conducted to reveal any condition that might result in an appreciable loss of strength, constituting a safety hazard. Examples of these types of conditions are:

- Reduction of rope diameter due to a loss of core support, internal or external corrosion, or outside wire wear
- Broken or worn outside wires
- Corroded or broken wires at end connections
- Corroded, cracked, bent, worn, or improperly applied end connections
- Severe kinking, crushing, cutting, or unstranding



**Schedule your inspection today!**

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