

Hoist Lines

15.25 Wire Rope Rejection Criteria

Wire rope must be permanently removed from service if

- (a) in running wire ropes, there are 6 or more randomly distributed wires broken in one rope lay or 3 or more wires are broken in one strand in one lay,
- (b) in stationary wire ropes, such as guylines, there are 3 or more broken wires in one lay in sections between end connections, or more than one broken wire within one lay of an end connection,
- (c) wear, or the effects of corrosion, exceed $\frac{1}{3}$ of the original diameter of outside individual wires,
- (d) there is evidence of kinking, bird-caging or any other damage resulting in distortion of the rope structure,
- (e) there is evidence of heat or arc damage, or
- (f) there are reductions of normal rope diameter, from any cause, in excess of
 - (i) 0.4 mm ($\frac{1}{64}$ in) for diameters up to and including 8 mm ($\frac{5}{16}$ in),
 - (ii) 1 mm ($\frac{3}{64}$ in) for diameters greater than 8 mm ($\frac{5}{16}$ in) up to and including 19 mm ($\frac{3}{4}$ in),
 - (iii) 2 mm ($\frac{1}{16}$ in) for diameters greater than 19 mm ($\frac{3}{4}$ in) up to and including 29 mm ($1\frac{1}{8}$ in), or
 - (iv) 3 mm ($\frac{3}{32}$ in) for diameters greater than 29 mm ($1\frac{1}{8}$ in).

15.26 Non-Rotating Wire Rope

Wire rope with non-rotating construction must be removed from service if

- (a) the rejection criteria in section 15.25 are met,
- (b) there are 2 randomly distributed broken wires in 6 rope diameters, or
- (c) there are 4 randomly distributed broken wires in 30 rope diameters.
- (b) in stationary wire ropes, such as guylines, there are 3 or more broken wires in one lay in sections between end connections, or more than one broken wire within one lay of an end connection,
- (d) there is evidence of kinking, bird-caging or any other damage resulting in distortion of the rope structure,

15.15 Wraps Required

At least 2 full wraps of rope must remain on winding drums when the load hook is in the lowest position.

15.7 Wire Rope on Mobile Cranes

The minimum design factor based on breaking strength for wire rope on a mobile crane, unless otherwise specified by the crane or wire rope manufacturer, is

- (a) for conventional wire rope
 - (i) 2.5 for pendant lines, 3 for boom hoist reeving and 3.5 for load lines, during erection, and
 - (ii) 3 for pendant lines, 3.5 for boom hoist reeving and 3.5 for load lines, at all times except during erection, and
- (b) 5 for wire rope of non-rotating construction.

Blocks, Overhaul Balls, Hooks & Sheaves

15.17 Sheaves

A sheave must

- (a) be correctly sized for the rope,
- (b) have a device to retain the rope within the groove, and
- (c) be removed from service if it has a damaged groove or flange.

15.10 Open Hook Restriction

- (1) A hook must have a safety latch or other means that will retain slings, chains, or other similar parts, under slack conditions.
- (2) A hook used in an application where manipulation of a safety latch or other retaining means may cause a hazard to a worker or where there is no hazard to a worker if the load becomes dislodged is exempt from the requirements of subsection (1).

15.29 Hook Rejection Criteria

A worn or damaged hook must be permanently removed from service if:

- (a) the throat opening, measured at the narrowest point, has increased by more than 15% of the original opening,
- (b) the hook has twisted more than 10° from the original plane of the hook,
- (c) the hook has lost 10% or more of its cross-sectional area,
- (d) the hook is cracked or otherwise defective, or
- (e) wear or damage exceeds any criteria specified by the manufacturer.

Rigging Design Factors

Table 15-1: Minimum design factors for rigging

Component	Min. Design Factor
Nylon fibre rope sling	5
Polyester rope sling	5
Polypropylene rope sling	5
Alloy steel chain sling	4
Wire rope sling	5
Metal mesh sling	5
Synthetic web sling	5
Synthetic roundsling	5
Chain fittings	4
Wire rope sling fittings	5
Other fittings	<i>as specified by manufacturer</i>
Non-rotating wire rope	<i>as specified by manufacturer but not less than 5</i>
Conventional wire rope	5