

## 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  $\frac{1}{8}$  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  $10^\circ$  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 roundslings    | 5  |
| Chain fittings           | 4  |
| Wire rope sling fittings | 5  |
| Other fittings           | as specified by manufacturer                     |
| Non-rotating wire rope   | as specified by manufacturer but not less than 5 |
| Conventional wire rope   | 5  |