

## Rope fasteners/rope connections

The safe functioning of the rope drive depends to a large extent on the rope fastenings on the winch and on the load. Rope connections and ropes themselves have to be checked at regular intervals by competent persons. The following rope connections are permissible for use with lifting equipment:

### Non-releasable rope connections

#### Aluminium press-on connection with thimbles

in combination with safety eye hooks or screw shackles provide a simple and safe means of suspending loads.

#### Splice connections DIN 3089 (uncoated)

in combination with thimbles, hooks, etc.

In the most unfavourable situation, splice connections can lead to a reduction in the breaking load of the rope line of up to 40%.

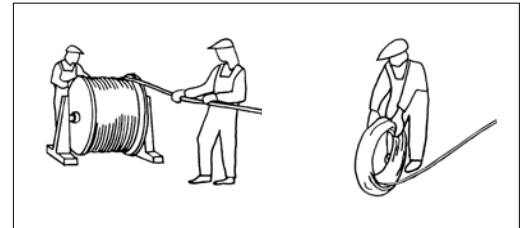
**Pressed and splice connections may only be produced by specialist firms or rope manufacturers.**

### Releasable rope connections:

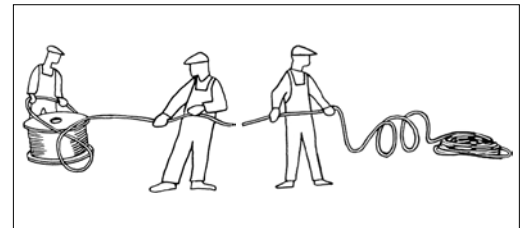
#### Rope clips

- The end which is not under load must never be fastened to the load-bearing line.
- The length of the unloaded rope end should be at least 20 times the diameter of the rope and not less than 150 mm.
- Clips may no longer be used once the rope has worn by more than 10%.
- Wire rope clamps may not be used for rope connections for lifting equipment, with the exception of fastening equipment which is manufactured for non-recurring, special purposes!

## Handling of ropes – Unwinding



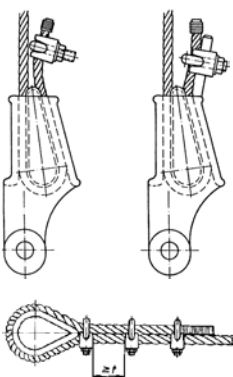
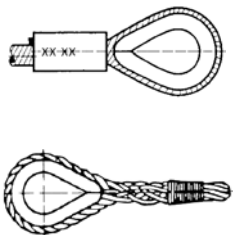
RIGHT



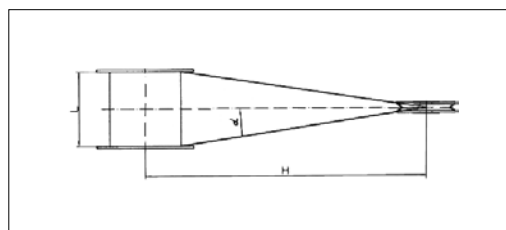
WRONG

## Care of ropes

"Running ropes" in particular will only offer optimum service lives if they are well lubricated. The use of steel ropes without grease will cause them to wear quickly and the load bearing mechanism will have to be replaced early.



## Notes on the installation of winches:



The distance between rope drum and sheave must be selected in a way that the maximum deflection angle for the type of rope used is not exceeded:

**Standard rope – Deflection angle < 3°**  
(Minimum distance = Drum width x 10 )

**Special rope – Deflection angle < 1,5°**  
(Minimum distance = Drum width x 20)

- To prevent the wire rope from becoming slack when unloaded it should always have an additional rope weight when used with lifting equipment.
- Guided loads must be monitored with a slack rope cut-out.
- To prevent the rope from becoming damaged, steel wire ropes must never be guided:
  - over edges
  - over deflection radii which are too small or
  - over rope sheaves with grooves which are too small.
- High dynamic forces can lead to sudden breaks or crashes of the load. It is therefore imperative that loads are never brought to a dead stop ("on block") and that loads are never allowed to drop into the rope.