

Natural Fiber & Synthetic Rope WLL Formulas

The sequence of rope construction:

- Fibers are combed into slivers.
- Slivers are twisted into yarns.
- Yarns are twisted into strands.
- Strands are twisted into the finished rope.

$$\text{WLL} = \text{Diameter} \times \text{Diameter} = \text{WLL in kg's}$$

Defects:

- Heat, the rope has been exposed to more than 65 degrees Celsius
- Sun rot, the rope will be dirty grey, outside fibers brittle
- Mildew, open the lay, a musty smell is present
- Exposed to acid, the outside will be faded, yellow or brown
- Overloaded, the fibers are shorter, the diameter decreases, the lay increased
- Over worked on sheaves, open lay, a fine powder will be present
- High stranding, one strand is proud of the others
- Kinks, the outer fibers will be broken on the spot of kinking
- Cuts, easy to detect
- Knots. reduce the WLL at best by 50%