

Materials Handling

Materials Handling - Fibre Rope Slings

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What types of fibres are used to make rope slings?

Fibres used to make rope slings generally fall into two categories:

- Natural such as abaca (Manila) fibre.
- Synthetic, including: nylon, polyester, polypropylene, and Kevlar.

Choose the sling material that best matches the needs of the job being done.

What are the characteristics of natural fibre rope slings?

Natural fibres are:

- Flexible
- Shock absorbent
- Non-abrasive
- Long life
- Can be easily cut and have a low resistance to abrasion
- Are damaged by long exposure to humidity, sunlight and ultraviolet radiation

- Poor resistance to acids and alkalis
 - Temperature resistant
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What are the characteristics of synthetic fibre rope slings?

Synthetic fibres are:

- Flexible
- Higher strengths than natural rope
- Resistant to humidity and mildew
- Depending on the material used, the slings can be damaged by exposure to acids (e.g., nylon slings) or bases (e.g., polyester slings)
- Stronger than the natural fibre slings
- Light-weight
- Good resistance to abrasion
- Temperature resistant

For more information about the characteristics of the synthetic slings, visit [Synthetic Web Slings](#) page.

What to look for when inspecting natural and synthetic fibre rope slings?

Inspect the slings each day before use. Remove the sling from service if you notice any of the following defects:

- Absence of sling identification
- Wear and abrasions. Wear or damage at 10% of the rope diameter should be replaced
- Broken or cut fibres
- Powdered fibre between strands
- Discoloration or rotting
- Excessive dirt in the interior of the rope
- Damaged hardware (cracked, corroded, distorted, broken, etc.)
- Loss of flexibility (including stiffness or brittle), kinks, distortion
- Melted or charred areas

How should you use fibre rope slings safely?

- Select the correct sling and hitching type for the job. Read the manufacturer's specifications for rated load for the type of hitches and the angle they are based upon, and the type of material and its construction.
- Make sure that the ropes are not twisted.
- Protect the slings from sharp or rough edges when hoisting.
- Do not overload the sling.
- Do not drag a sling on the ground – dragging causes damage, and dirt will fill the surfaces of the rope.
- Do not use when slings present any of the above listed defects.
- Use safe operating slinging practice described in [Slinging on Overhead Crane Hooks](#).

How should you care for fibre rope slings?

- Clean fibre slings with water and allow to dry naturally.
- Store the rope slings by hanging them from hooks.
- Store the slings away from exposure to sun, in a dry and not contaminated environment.

What should you avoid when using natural and synthetic fibre slings?

- Do not wrap a rope sling at a smaller diameter than that recommended by the manufacturer.
- Do not use the fibre rope slings in contact to lift loads at temperatures higher than 82.2°C (180°F).
- Do not use fibre rope slings at temperatures lower than -28.8°C (-20°F) or at temperatures stated by the sling manufacturer.
- Follow the manufacturer's recommendation for use of rope slings outside the recommended temperature or if ropes have been frozen.
- Do not expose the rope slings to heat, sparks or flames.
- Do not expose rope slings to chemicals.
- Do not splice ropes by making knots.

- Do not use repaired fibre ropes.
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