Care and maintenance guidelines for Dynex ropes

Safety

- In absence of Safety Factor (SF) for the operation determine the Safe Working Load by following formula: **SWL** = **Breaking strength** divided by **72/d + 3** and were d is rope the diameter.

  Example:

  Dynex 75 12 mm has the breaking strength 16, 4 ton. SWL is then 16,4 / (72/12 +3) = 1,8 ton

- When lifting sensitive equipment one should not use lower SF than 7 and when lifting over or lifting people a SF of least 12 should be used.

Using rope on winches:

- Secure even alignment of rope on winch drum.
- Avoid loose winding on winch drum as successive layers could be with higher pulling force resulting in rope burying down leading to rope blockage when the rope is to be pulled out next time.
- Take care of drum inside flange surface and specially the flange edge. Rusty, rough or sharp flange edges can cut into rope or create excessive abrasion.

Using rope in blocks:

- Preferably the block should be U-shaped and about 10% larger than the rope diameter.
- Block diameter should be preferably 10 x the diameter of the rope but ratio down to 5 x is usable but it will both decrease the rope lifetime and strength.
- Blocks with V-shape should be avoided.
- The block track should be clean and smooth. Rusty or rough track will abrade the rope very fast.

Pulling:

- Severe twist in braided ropes, while its being loaded, can affect the strength. Never use braided rope connected in-line with twisted or laid wire rope or fibre rope. Under tension the laid rope / steel wire will give off some twists which are transferred on the braided rope and decreasing its strength.

Spicing and joining of ropes

- Always use splice for Dynex ropes. Recommended splices are Shoemaker splice and Tuck splice. Tapering of splice end is very important for the splice strength. A professionally made splice will only reduce the strength by some 10%.

- Never use knots as it will reduce the strength by 50-70%.

Abrasion and surface wear:

- Polyfibre ropes develop fluffy surface during ordinary use. This is perfectly normal and does not have noticeable impact on abrasion resistance.

- Where there is a risk of abrasion damage the rope needs to be protected, for example by putting a leather or synthetic sleeve around the part under strain.

- Avoid pulling over sharp exposed edges or rough surfaces.

Avoiding creep

- Avoid using ropes made of Dyneema in static application for longer time, usually many months or years, and were high force is present, like is the case for mast stay. The rope will show creep, which is constant lengthening of the rope until a sudden break occurs after 15-25% permanent elongation.

- Creep occurs typically when the static force is higher than 20% of rope strength for a prolonged time like many months or years. Excessive and constant temperature over 40°C can accelerate this phenomenon.

Discard criteria

- During use the rope strength will decrease and it is mostly due to abrasion so the warning signs are very visible.

- If rope strands are distorted or broken rope should be replaced.

- If creep is evident and exceeding 10% rope should be taken out of use.

- In cases were fatigue can appear, like were there is high frequency of repeated loadings and/or the rope is under constant vibration, the useful lifetime should be predetermined.

Storage

- Do not store in excessive hot storages where the temperature is above 40°C for a prolonged time.

- Avoid storing or letting the rope rest on hot surfaces. Dark surfaces in direct sun can get extremely hot and damaging.

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