Tensioning Device

Description

Technical Field

[0001] The present invention relates to subsea lifting operations to overcome challenges with spooling tension when using light weight material for the lifting rope. More specifically, the invention relates to a method and device for reducing the rope bend fatigue compared to alternative solutions and provides easy integration in lifting structures such as cranes, A-frames, moonpool towers etc.

[0002] The invention can also be beneficial for other type of ropes and cables (steel wire, umbilicals, etc) and other type of operations than subsea lifting operations (mining, subsea intervention, pipe lay operations / A&R operations (Abandonment and Recovery operations (A&R)), well intervention, etc).

Background Art

[0003] The core challenge when recovering an empty hook with a light weight lifting rope using a normal drum winch is that the rope will be spooled onto the drum at low tension. When a subsequent deployment (or retrieval from more shallow water depths) of a heavy payload is done, there is a risk that rope at high tension will squeeze into the loosely spooled on rope layers beneath creating risk of damage to the rope and abortion of the operation.

[0004] To overcome this problem, traction units like the applicant' s own US 6.182.915, has been developed. The device of US ' 915 comprises of a number of traction sheave that can be installed between a payload and a storage drum to provide low variations of spooling tension for a wide range of loads. Some of the benefits of this solution are:

- Handling of flexible ropes/cables with low slippage between tension device and rope/cable during tensioning/de-tensioning process.
- Ability to handle splices and objects in the rope.
- De-tensioning of rope before spooled onto a winch drum to a tension level acceptable for the rope (e.g. vs. Creep or crushing of fibers) and the drum.
- No twisting of the rope (assures zero fleeting angle).

[0005] This solution is also characterized by some features that are not optimum