

# PRODUCT BULLETIN



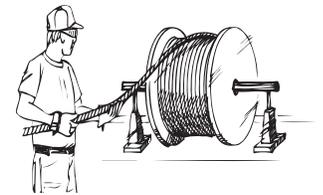
A WireCo® WorldGroup Brand

## Guidance for a Twist-free Crane Hoist Rope Installation

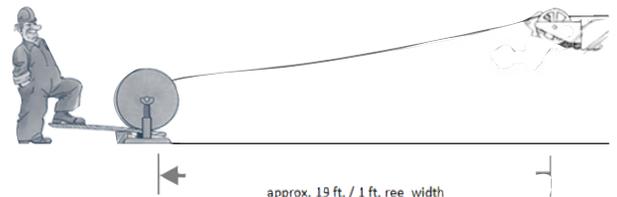
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Normal spooling and handling can induce twist into a wire rope. If this twist becomes trapped in the rope during installation, it can lead to spooling problems, operational problems (i.e. block rotation), or permanent rope damage conditions such as kinks.

The preferred method to avoid trapped twist in an application is to remove the entire rope from the shipping reel and pull it straight out on the ground in front of the installation point. This is done by mounting the reel on a shaft supported by two jacks, a roller payoff, or unreeling stand. The rope is then removed from the reel by grasping the end and walking away while keeping the rope straight. This allows for any trapped twist to work itself out as the rope is being pulled onto the application's drum.



In areas of limited space, it is most common to install directly from the shipping reel to the application's drum. This can result in trapped twist. Mounting the reel on a shaft supported by two jacks on the ground will allow for a direct transfer. To minimize the possibility of trapping twist, it is recommended that the shipping reel be placed as close as possible to 19 feet, or more, in front of the first contacted sheave for each one foot of width across the shipping reel. This keeps the rope's fleet angle from reel-to-sheave within the common recommended range and also gives substantial length along the rope for twist to work itself out.



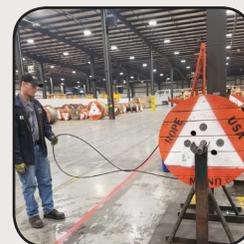
Attach the end of the rope to the application's drum. Unspool 15 to 20 feet of rope behind the shipping reel, holding the resulting loop in your hand. If the rope is relaxed, not crossing itself as depicted in Figure 1 below, it does not contain any twist. Installation may proceed. To prevent over-rotation of the reel, apply a brake to the flange of the shipping reel while spooling rope onto the application's drum (see above). Never apply a brake against the rope itself or pass the rope between a pair of blocks used as a caliper brake. This will damage the rope and may make it unusable. Install the rope focusing on thread laying it on the drum.



**Figure 1:** Relaxed  
(no twist)



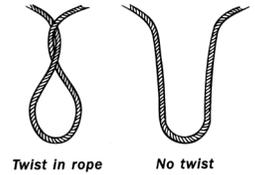
**Figure 2:** One half loop  
(one half twist)



**Figure 3:** One full loop  
(one full twist)

Rope containing twist will cross itself when checked as described above. One-half turn of twist, as depicted in Figure 2, is the preferred upper limit and will likely work itself out when following the above outlined steps and recommendations. Figure 3 depicts a rope with one full turn of twist. This is the maximum amount acceptable with the rope remaining within specification. Additional steps will need to be followed to remove this level of twist from the rope prior to normal operations. If the level of twist present in a rope exceeds this amount, the rope manufacturer should be contacted for further advice as there may be other situation specific sources of twist involved.

Before proceeding with reeving, make a final check for twist that may still be trapped in the rope (this is particularly important with direct-from-shipping reel installation). Pull enough rope off the drum to allow it to hang slack from a horizontal position. If the rope wraps together and does not form a smooth “U” shape, there is twist trapped in the rope.



To remove twist found in a single part line, extend the boom to maximum length and raise it to its highest point. While fully extended, pay out the rope with only the overhaul ball attached and let it hang just off the ground until the twist works itself out. Twist may also be removed by pulling the rope straight off the drum onto the ground. If this method is used, the end of the rope must be completely straight. Cut off any “dogleg” present from an end termination. Allow the end of the rope to rotate as twist comes out when the rope is spooled back onto the crane’s drum.

One method for removing twist found in a multiple part line installation requires an active in-line swivel to be attached at the termination point of the live end of the rope. Even parts-of-line string-ups attach at the boom point. Odd parts-of-line string-ups attach at the load block. Unlock the in-line swivel, making it active, and extend the boom to maximum length and raise it to its highest point. While fully extended, continue paying out the rope with only the load block attached and let it hang just off the ground until the twist works itself out through the active in-line swivel. Raise and lower the block several times. The number of cycles will depend on the amount of twist to be removed. Swivels may remain active for Category 1, rotation-resistant ropes and other select low-torque ropes. See ASME B30.30 Ropes for requirements on swivel usage. Active in-line swivels are to be in the locked position for all other rope types.