

# PROFESSIONAL GUIDELINES FOR LAYING OF CABLES



## Cable Handling & Storage

- Great care is taken in the manufacturing of cable to ensure quality at every stage.
  - Handling of cable at site is the next important factor to ensure that by mishandling the cable, the outer sheath and insulation shall not get damaged.
- The handling is generally carried out by unskilled or semi-skilled men, strict supervision should be maintained so that the cables, which can be very easily damaged, is handled with great care.

## Installation & Laying

### Unreeling (Cable Pulling)

- For unreeling cable from a drum it should be mounted on cable jack. The drum should be lifted above the ground with clearance of 50-100 mm so that while unreeling the drum flanges should not touch the ground and get damaged.
- The drum should never be kept flat on its side on the ground and the cable unreeled in coil from the same. This invariably leads to Kinking and bird-caging.
- "Bird-Caging" is a defect caused due to twist of cable during wrong unreeling. It results outersheath crack or cuts and armour swelling. Photograph of bird-caging.



- The technique of pulling cables is also an important, Sub-standard and haphazard handling can cause damage to the cable which may weaken the cable components, and cause a failure in due course. Care must be taken to select a suitable position for the cable drum jacks in order to ensure that the drum may be raised and rotated with full safety. The jacks should therefore be placed on a firm support of thick boards.
- Care should be taken to exert a steady pull avoiding any jerks. Twisting or kinking of cable is very dangerous as this may cause damage to the small size of cable conductors, insulation and sheath, shifting and knife-edging of the armouring and damage to the serving, etc. Care should be taken to avoid short bends and consequent straining of conductors.
- Proper handling of cables is very important both for safety as well as long life of the installation.
- The most common causes of cable failure are due to mishandling of the product at installation stage.
- This can be prevented by unwinding the cable by loading the drum on jacks and pulling in the proper direction with stocking or pulling eye.
- For pulling longer lengths and higher diameter of cables Pulling Eyes can be used.
- In case of smaller lengths, pulling is carried out by manual labour and when the length is longer by means of winches or other mechanical means.
- While pulling with a rope, care is necessary to avoid bending of the cable a close watch should be maintained to ensure the cable runs freely over the cable rollers and passes smoothly without rubbing against any surface.

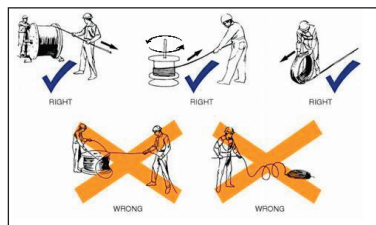
## Unreeling Cable (Bird Caging):

Bird caging/ Kinking is a defect caused due to twist of cable/improper unreeling. It results outer sheath cracks or cuts or armor swelling. The technique of pulling cables from drum plays important role in this case. (Please refer attached image for wrong & correct method of unreeling) Same cable can be used further after performing Insulation resistance test on cable as per IS 1255 for cable laying and installation. If the values found satisfactory, cuts on outer sheath can be repaired by applying heat shrinkable sheath repairing sleeve over the Outer sheath.

Please Scan  
this QR code  
for Video Link.

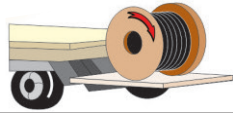


Bird Caging

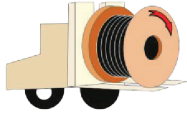


## DO

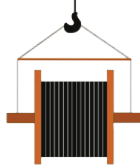
When off loading reels from a truck, lower reels carefully using a hydraulic gate, hoist or forklift truck.



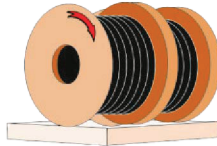
If a forklift is used for handling and shifting the cable drum, the forks shall approach the reel from the flange side. The forks shall be positioned such that the reel is lifted with both reel flanges.



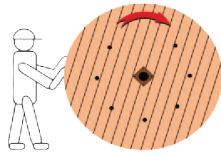
When using a hoist, install a mandrel through the reel arbor holes and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the flanges.



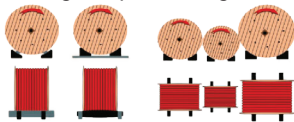
It is always safer to use a strong and well-drained surface for storing drums. If possible, the drums should be raised from the ground by the insertion of wooden planks, etc., below and on both sides of the drums: some check pieces should be placed so as not to allow the drums to be rolled loosely and easily. Cable drums should also be stored away from the direct sun and rains. Reason: Direct sunrays can cause deterioration due to UV rays and rain can cause damage to wooden drum, resulting drum collapse after few months.



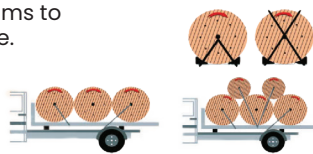
Always use proper stoppers to prevent the drum from rolling.



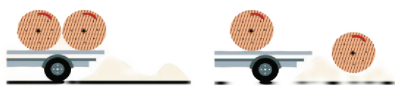
Ensure stoppers for every drum, to prevent mishaps during storage. Place the wedges by the flanges/full width of the drum



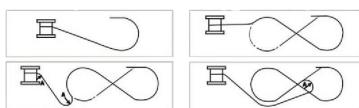
During transportation, fasten drums to the base through the central hole.



Use a winch, forklift or makeshift ramp.

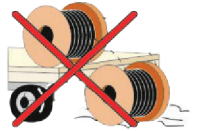


On The Ground Cable can be Flaked in a Figure of Eight Formation



## DON'T

Never drop reels. If reels must be rolled, roll in opposite direction of the cable wraps to keep cable from loosening on the reel.



Do not allow the lift forks to contact the cable. Care must be taken by the forklift operator not to make sudden turns or stops.



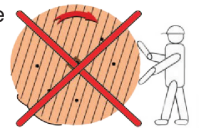
This may lead to the bending of the reel flanges and mashing the cable.



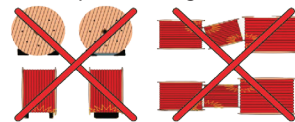
Multiple reels stacked on top of each other ("Pancake" storage) is not recommended for cable or drums. The weight of the stack can total thousands of kgs. creating an enormous load on the bottom reel. Also, damage to the reel and/or cable will likely occur when the reel is flipped for transit. A concentration of stress on the reel flange may cause it to break and subsequently damage the cable.



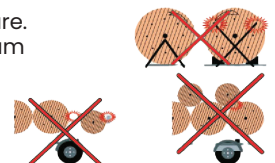
When rolling in the direction of the arrow, never roll for more than 5 meters. Otherwise the cable may become unfit for use.



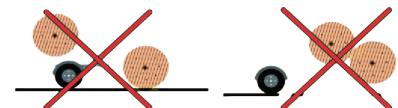
Allow the drums to roll at any cost. Stack the drums on non-triangular/non-square wedges.



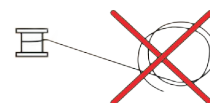
Fasten without taking adequate care. Always use support, and tie the drum from both the front and rear.



Allow one drum to strike another.



Do Not Attempt "coiling" Of Cable On The Ground



Cable drum Loading-Unloading



Shifting of Cable Drums using Forklift



Sheath Repair Procedure for scratch & damage



Lugs Crimping of Electric UG Cables



IR measure test of LT cables



IR measure test of HT cables