

1.0 PURPOSE

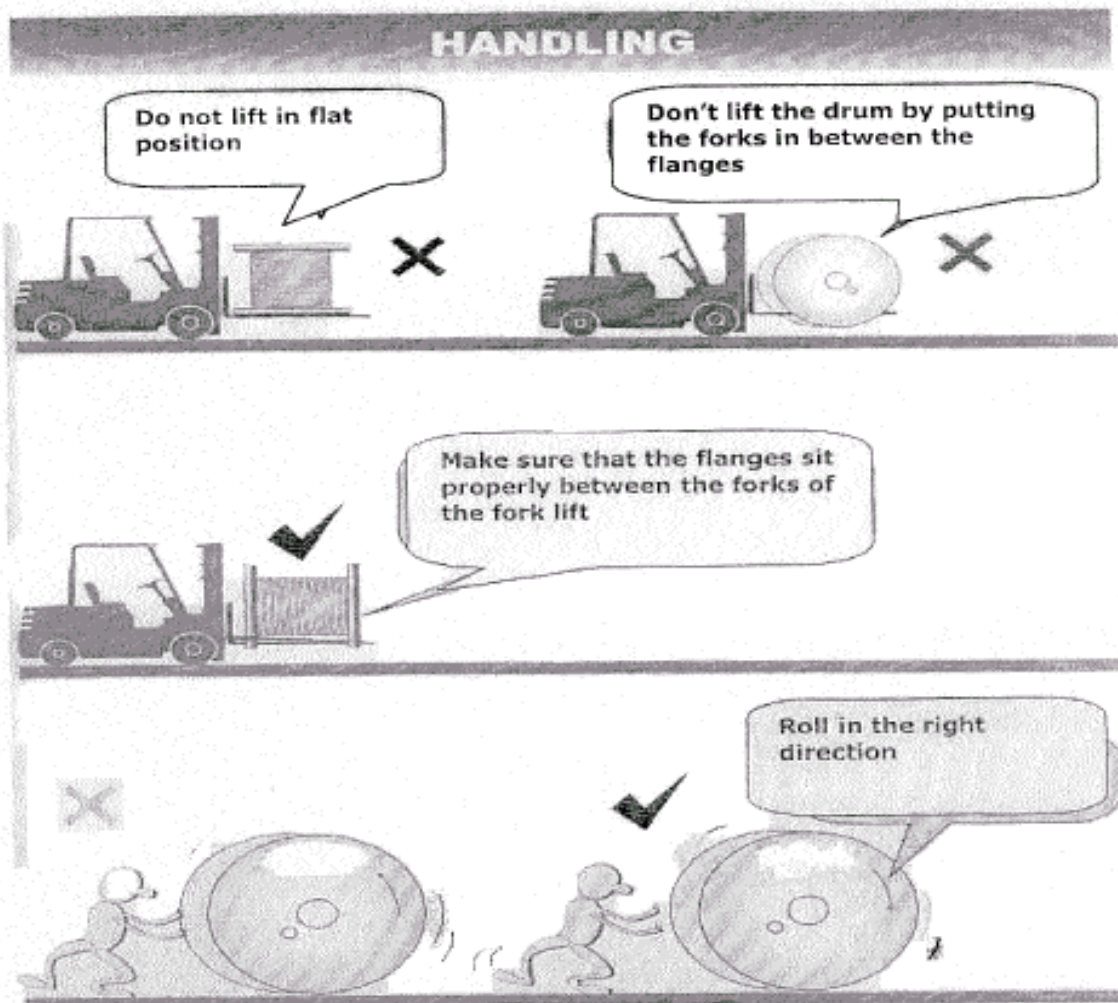
The purpose of this document is to define the procedure for the handling, storing & transportation and installations of cables produced by **Oman Cables Industry (OCI)**.

2.0 SCOPE

This document gives the guidelines for handling, storage & transportation of cable drums.

3.0 Movement of Drums of Cable : DON'TS & DOs

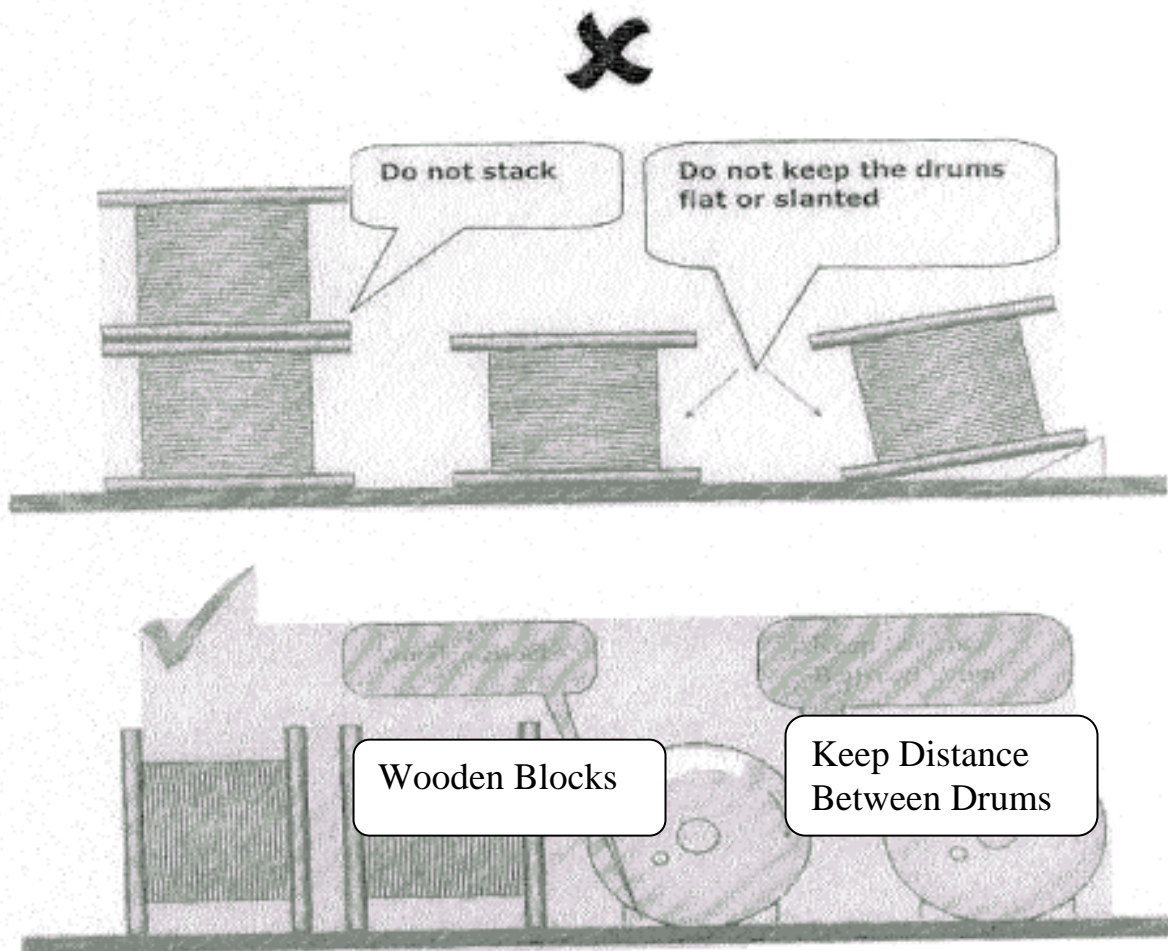
1. Cable Drum must not be dropped from any height, particularly from transporting Equipment.
2. Lift Drums using following methods:
 - (a) In case of crane or boom type equipment ;Insert shaft (heavy rod or pipe) through Drum hubs and lift with slings on shaft and . use spreader or yoke to reduce or avoid sling pressure against Drums flange.
 - (b) Fork lift type of equipment may be used to move smaller, narrower width Drums. Fork tines should be placed so that lift pressure is on Drums flange and not on cable, and must reach all the way across Drums so that lift is against both Drum Flanges.
3. Drums may be moved short distances by rolling. Drums should be rolled in the direction indicated by arrows painted on Drums flanges. Surfaces over which the Drums are to be rolled should be firm, clear of debris, and protruding stones, humps, etc. which might damage the cable if the Drums straddled them.



4.0 PROCEDURE FOR STORAGE & TRANSPORTATION

Storage of Drums of Cable: DON'TS & DOs

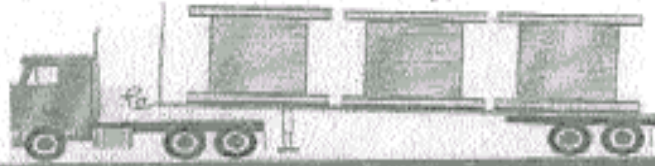
1. Cable ends are sealed prior to shipment. If factory seals are removed or damaged, new tape seals must be applied to prevent moisture entry into cable. Strip cable finishes back 2", down to insulation for braided or non-jacketed constructions. Apply four layers of an insulating tape, criss-cross over the cable end and carry back at least 4" onto cable outer finish end and seal.
2. Whenever possible, the factory applied lagging (protective cover) should be left in place. Additional covering such as tarpaulin, plastic sheeting, etc., may be used if cable is to be stored for long periods outdoors or in excessively dirty, dusty areas.
3. Store Cable Drums on a firm surface if possible, or on plank to prevent settling into soft ground.
4. The storage areas should have good drainage.
5. Use fencing or other barriers to protect cables and Drums against damage by vehicles or other equipment moving about in the storage area.



TRANSPORTATION



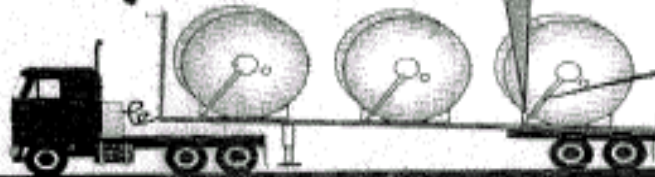
Drums not to be kept flat during transportation



Drums with chain or belt



Wooden blocks between flanges



Tie with chain/belt

Do not drop the drums. Use fork lift



Handling During Installation

- 1 In general most cables can be safely handled without damage if not subjected to temperature lower than 10°F (-12°C)* in the 24 hour period proceeding pulling and bending.. Cold weather handling and pulling-in of cable can be more difficult, depending on the cable construction and installation location. Cold-induced stiffness of cable must be considered along with radius and number of bends in the proposed installation run.

If the store temperatures is anticipated to be below this level during the 24-hour pre-pull period, arrangements should be made to move the Drums, to a warmer area. If no indoor warming area is available, a plastic sheeting-covered shelter may be constructed and heated. The Drums should be held in the warm storage area at a temperature of at least 60°F (16°C) for 24 hours to ensure total warm up. Apply pulling eyes or grips while cable is warming, prior to moving outdoors

2. Always determine the maximum safe pulling tension of the cable and compare this to the tension required for the particular run configuration being considered.
3. Ensure that ducts and conduits are clear of obstructions and properly sized. After swabbing or brushing, a sizing mandrel should be pulled through to ensure the cables will fit w/o jamming.
4. Attachment to the cable can be accomplished with any of the commercially available devices (Kellems grips, Greenlee wire grip, etc.) or by field or factory-made pulling eyes. The choice depends on the tension requirements, specially when long runs or runs with several ends are to be made. If the pull is through wet or damp locations, the cable ends must be positively sealed....
5. Cable end seals may be disrupted during the pulling operations and therefore should be checked and replaced if the cables are not going to be spliced or terminated right after pull-in. This is important for underground runs where cable ends are left in manholes and subject to flooding...
6. In case of installing cables directly buried, a layer of approximately three inches of selected backfill should be placed at the bottom of the open trench prior to installing cables. The cables should be laid into the trench being careful not to twist or kink them. Care should be taken not to abrade or impact the cable surface as it leaves the pay-off equipment and enters the trench. Over-bending the cable to a point less than the recommended minimum bending radius should also be avoided. Cables can become easily over-bend at guide points such as small sheaves or rollers located on the cable laying equipment.

After laying the cables into the trench, they should be covered with a layer of selected backfill to a level of approximately three to four inches above the cable surface(s). "Selected backfill" is defined as either thermal sand or sand-clay-gravel mixture containing some small stones no greater in size than one-quarter inch across at their largest dimension. The remainder of the open trench may then be filled using ordinary backfill.

7. When installing cables in the earth using a cable plow, ensure the bottom of the plow blade has a bore large enough and radius of curvature easily accommodates the cable. During Installation, the plow blade should never be raised suddenly nor the equipment operated in a reverse direction (even for just a short distance). Either of these actions can severely damage the cable.

INSTALLATION PRECAUTIONS

