



DIRECT BURIED CABLE INSTALLATION

Installation of optical cables requires careful planning as it shall cover the cabling, infrastructure, cable routes, potential hazards and installation environment. Also it includes bill of materials, technical requirements for the cable, connectors and closures.

Pay attention to the following specifications of the cable manufacturer. Damage caused by over loading may not be immediately apparent but can lead to failure later in the service life time.

- Minimum Bending Radius
 - Under load
 - Under no load
- Maximum tensile rating

Proper care and handling during installation is critical to the long term reliability of the buried O.F. Cable. Inadequate installation can degrade characteristics and performance of the optical fiber cable. Optical fibre cables are designed so that normal installation practices and equipment can be used wherever possible.

Trenching is one of the most popular methods of installing direct buried cables.

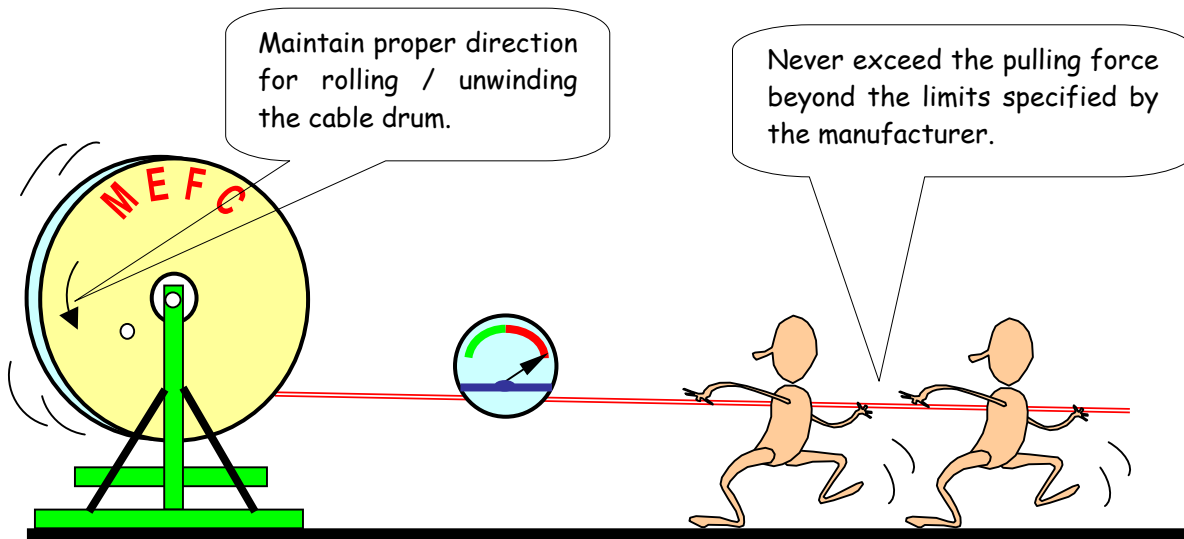
1. Locate and identify installed cables of other utilities to avoid damaging or intersecting while making trench.
2. Review the route to be undertaken before beginning of actual trenching.
3. Open the trench from starting to end. For safety only open single trench at a time.
4. Inspect the trench for undesirable foreign objects such as bricks, rocks .. etc and remove them. The bottom of the cable trench shall offer a firm base.
5. Recommended minimum installation depths are

| Application | Installation Depth (meter) |
|--|-------------------------------|
| High data rate / heavy concentration (trunk) | 0.8 |
| Medium data rate / medium concentration (distribution) | 0.6 |
| Low data rate / low concentration (service / drop) | 0.5 |

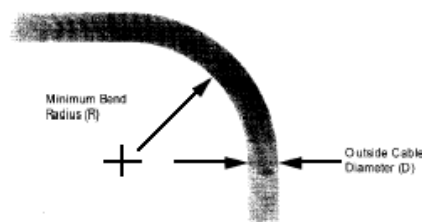
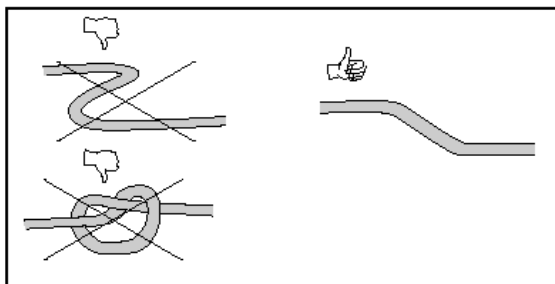
6. If stones are present, add approximately 15cm high sand layer or finely sieved granular soil.



7. Test the cable before starting to lay.
8. Position the cable reel so that the cable is payed off from the bottom of the reel and enters the trench without excess bending.
9. Use well lubricated rollers and large radius sheaves at bends to reduce coefficient of friction.
10. Look for direction of roll arrow on the cable reel and pay off the cable.

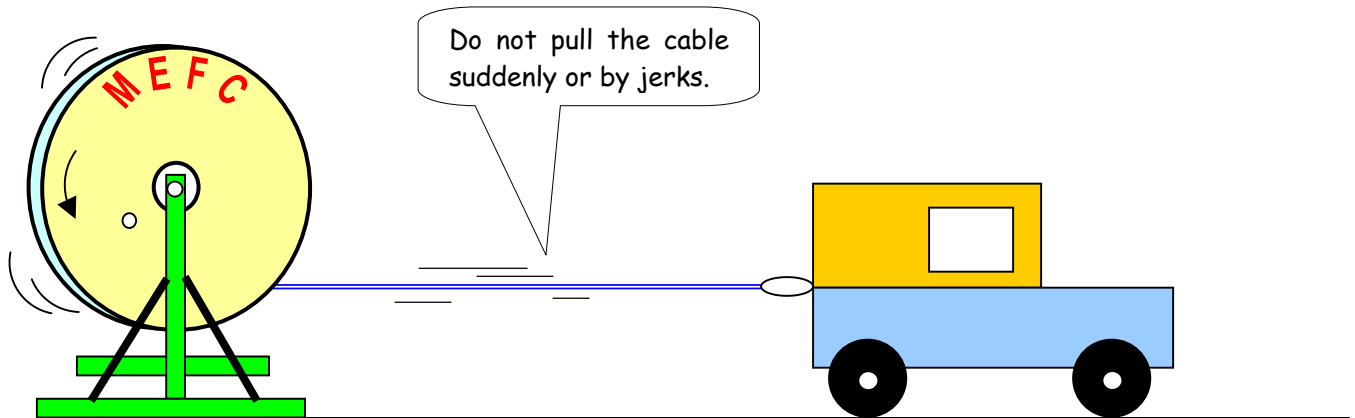


11. Ensure minimum bending radius requirements given by the manufacturer are not exceeded.

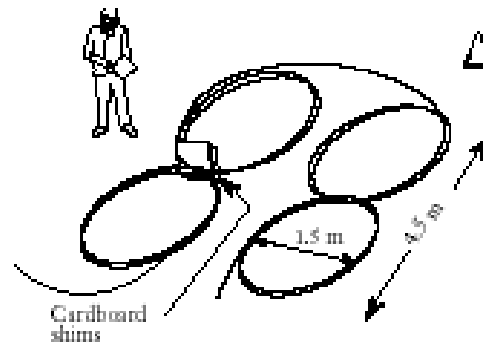




12. Continuously monitor the tension with dynamometer and ensure the maximum tensile load specified cable manufacturer is not exceeded.



13. Avoid twisting of the cable during pulling and paying off. Twisting can damage the cable. To avoid twisting use a pulling swivel between pulling line and pulling grip.
14. Whenever a cable is unreeled for subsequent pulling, make 'Figure-8', patterns as shown below.



15. Place warning strip of corrosion proof material at a distance of 30 to 40 cm above the cable
16. After completion of cable pull, seal the cable ends with thermo shrink sleeves to prevent ingress of water and moisture.
17. Remove all foreign substances like bricks, stones, rocks from the back fill material that might damage the cable. Back fill the trench.
18. Test all the fibers in the cable with OTDR and record the results.