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Recommendations for Installation of round ADSS Cables

This document provides general information for installing all MTFDA series ADSS fibre optic cables. It should be taken into account that each cable installation may vary in its procedure depending on local conditions.

Installation of self-supporting cables is a critical operation on which the overall life of the cable depends. Improper installation of self-supporting optical cables can cause damage, which can become apparent after a long time, most often in the form of a deterioration of transmission parameters or a complete loss of continuity of the optical fibre.

1. Cable sag and tension

The tension in the cable installed between the supports is calculated for the sag specified in the cable specification (usually 1 % of span length) to meet the MOT load under NESC conditions to which the cable may be subjected.

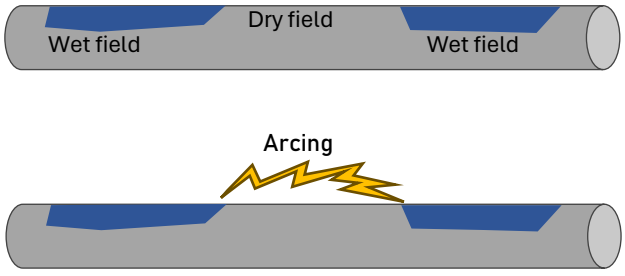
Load	Wind	Ice	Temperature	Added Load (safety factor)
NESC light	95 km/h (430 Pa)	0 mm	-1 °C	0.7 N/m
NESC medium	63 km/h (190 Pa)	6.5 mm	-10 °C	2.5 N/m
NESC heavy	63 km/h (190 Pa)	12.5 mm	-20 °C	4.4 N/m

If it is necessary to install a cable with a different sag, the installation conditions must be adjusted, since the sag depends on the maximum spacing of the supports under the given climatic conditions. With a reduction of the sag, the maximum distance of the supports must be shortened or must be used a different cable construction. With an increase in the installation sag, it is possible to increase the distance of the supports, or increase the resistance of the cable under the given climatic conditions.

2. Tracking effect and corona discharge

One of the most common installations of ADSS fibre optic cables is mounting them on high-voltage masts, as this reduces infrastructure investment. However, with this method of installation, the cable is exposed to an electric field for a long time and can easily be damaged by so-called electrical corrosion (tracking effect, corona) due to the influence of rain and various pollutants.

We recommend using a sheath resistant to tracking effect and corona discharge if the cable will be installed in a place where the spatial potential (not the voltage of the HV line!) is 12 - 25 kV. This is usually the case for overhead lines up to 170 kV. In places where the spatial potential is below 12 kV, i.e. the voltage of the HV outdoor line up to approx. 35 kV, it is possible to use a regular black PE jacket.



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3. Vibration

If the system requires vibration dampers, they must be installed at the same time as the cable, as the cable is most susceptible to vibration within approximately 48 hours of installation.

4. Cable installation

4.1. We recommend to install cables by stationary reel method.

4.2. If there will be a splice in the cable route, place it where it will be easily accessible for maintenance purposes

4.3. Before installing the cable in the route, hang a pull rope of a similar weight and diameter to the installed cable (including pulling through the pulleys) on temporary hangers. The rope should be dielectric.

4.4. Depending on local conditions, use lifting pulleys to guide the cable to the hangers

4.5. The groove depth of all pulleys used should be at least twice the diameter of the cable.

4.6. Place the cable spool at one end of the cable route and the take-up spool at the other end.

4.7. Set the brake device on the stand of the unwinder to the minimum braking force, but at the same time so that it does not unwind by itself during the unwinding of the cable.

4.8. Connect the pulling rope to the cable via a swivel hinge to eliminate torsional twist.

4.9. Pull the cable through the entire section, maintaining a constant tension that must not exceed 35% MAT.

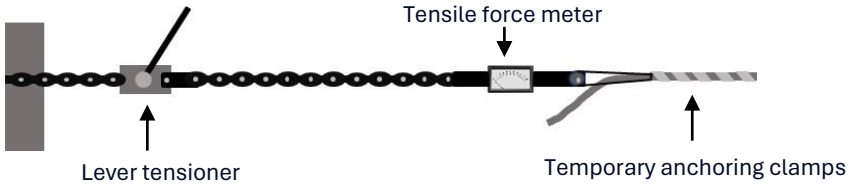
4.10. When pulling the cable, use a device to monitor the level of cable tension

4.11. During cable pulling, constant supervision along the entire route between unwinding and winding is important to avoid mechanical damage to the cable.

4.12. If necessary, pull the cable in several shorter phases.

5. Cable tensioning

5.1. Before starting tensioning, the cable must be secured in temporary anchoring clamps.



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5.2. Use a hoist to tension the cable to the required parameters

5.3. Once the cable is at the desired parameters, fasten the cable to the permanent anchoring clamps

5.4. Release the temporary anchoring clamps

5.5. The cable should now have the required installation parameters

5.6. Repeat the process in the next sections of the cable route

6. Accessories

Suspension elements are designed for specific cable constructions, use only unused elements intended for the respective cable construction. Install all suspension elements and accessories carefully to avoid damaging the cable jacket. If the cable jacket is damaged during installation, replace the cable.

6.1. Suspension clamp

For vertical or horizontal change of cable axis up to 20°. It serves only as a supporting element, not as a tensile element.

6.2. Spiral clamp

For vertical or horizontal change of cable axis over 20°.

6.3. Anchoring clamp

For vertical or horizontal change of cable axis over 20°. For unequal spacing of adjacent fields. For guidance near objects or road crossings where there must be anchoring clamp in each field.

6.4. Spiral vibration damper

The spiral vibration damper absorbs vibration energy and thus protects the cable from damage. The spiral is installed near the spiral clamps by hand "screwing" on the cable. The spiral must not touch the clamp.

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6.5. Downlead clamp

The clamp is used to bring the cables from the top of the pole down into the junction box. It is usually installed with a spacing of 150-250 cm, depending on local conditions.

6.6. Corona ring

It is intended to reduce the electrical stress on the ends of the clamps of the cables installed in the electric field.

7. Location of clamps and accessories