AccessWrap™ Information

Frequently Asked Questions

Q: How quickly can AccessWrap be installed?
A: An experienced crew of 6-8 can normally install two full cassettes of AccessWrap up to 2.5 km (1.5 miles) per day. When higher installation rates are required, multiple installation crews can be deployed.

Q: Can AFL provide a turnkey installation?
A: Yes, the success of the AccessWrap solution resides in the ability of AFL to provide a turnkey solution. Expertise, specialist equipment, technical design and project management experience all go towards an installation package that is executed quickly and cost effectively. AFL has carried out turnkey projects throughout the world selecting, training, managing and overseeing local installation crews. The range of project can vary from a straightforward aerial fibre optic link (including splicing and testing), to a full design and install project including both active and passive end equipment.

Q: What equipment and manpower is needed?
A: For a typical AccessWrap installation AFL will supply two hand pulled wrapping machines, cassettes of AccessWrap cable and all the necessary conductor-attached accessories. The equipment will fit into a vehicle with a load area of approximately 2m x 3m (6 x 10ft). All the installer needs to provide is a crew of 6-8 linesmen plus the normal tools used on overhead line work such as a winch or other lifting tackle, ropes, lanyards, small pulley blocks and four calibrated torque wrenches for fitting the accessories.

Q: Is AccessWrap installation equipment readily available?
A: Yes, most AccessWrap installation equipment is based at AFL's facility in the UK and is shipped to site with the cables and accessories for a designated installation. Some equipment is also located at other facilities in Europe, North America and Africa to support local customers in those regions. Equipment can be leased for long term installation and maintenance projects.

Q: What personnel skills are needed to install AccessWrap?
A: AccessWrap is installed by personnel who are skilled and qualified to work on overhead lines. AFL provides full training for line-crew if they don't have experience working with and installing AccessWrap. Installations are usually carried out by the utility customers own personnel, contractors or a combination of these and AFL Engineers. AFL Engineers are required to adhere to safety regulations and practices laid down by AFL in addition to any customer codes of practice, local regulations and legislation.

Q: Where can personnel and resources be sourced to carry out a AccessWrap installation?
A: Skilled line-crew for an AccessWrap installation can be: The Utility customer's own personnel; personnel provided by a contractor known to the Utility customer and having prior approval to work on the customers assets; or personnel from a 3rd party contractor already equipped with skills in AccessWrap installation and with working on overhead lines, but which may need to be approved in some way by the Utility Customer. Where the selected line crew do not already have AccessWrap installation experience AFL provides this as part of the build-up to the installation work.

Q: What outages are required for AccessWrap installation?
A: AccessWrap is usually installed on the phase conductor of medium voltage power lines, this will obviously require the circuit being wrapped to be switched out. With installation being quick and easy, the outage time is kept to a minimum.

Q: What is the space needed between phase conductors to install AccessWrap?
A: The AccessWrap installation equipment is designed for smaller distribution networks and has a short counter balance arm which has a radius of rotation of 50 cm (1.6 ft). AFL can provide a clash analysis service to assess the spacing requirements on individual networks.

Q: What are the typical installation lengths of AccessWrap?
A: AccessWrap can be installed in lengths of up to 1,400 metres.

Q: Can AccessWrap be installed at jumper locations allowing a break in the electrical circuit without the need for a splice?
A: Yes, AFL has a specifically designed insulator to allow the power to be broken without the need to break the fibre circuit at that point.

Q: Can AccessWrap be installed on phase conductors when one or more full tension splice is present in the span?
A: Yes, the AccessWrap installation equipment is designed to pass over obstructions on the host wire to a maximum diameter of 60mm (2.3") including repair rods and full tension splices.

Q: What conductor diameter can AccessWrap be installed on?
A: AccessWrap fittings are designed to be installed on conductors with diameters between 9 - 60mm. It is possible to install on smaller conductor diameters following analysis by AFL on individual conductor parameters.

Q: Do poles need extra load tolerance or other modifications to install AccessWrap?
A: No, installation of AccessWrap only increases the host conductor weight by about 10 kg per 300 m (22 lbs per 1,000 ft) span which is well within the capacity of most pole structures. AccessWrap does not affect the ground clearance of existing lines so no modification to existing structure is required. If necessary, a structural strength analysis could be carried out prior to installation to ensure that the 55 kg (110 lbs) all-up weight of the installation equipment is acceptable. AFL can assist with these studies.

Q: What environmental conditions will AccessWrap tolerate?
A: AccessWrap is designed to withstand the aggressive environment encountered on overhead lines. The cable and accessories are resistant to lightning, fault current, electric field, vibration, ice, sunlight, rain, pollution and some designs are available for areas at risk of shotgun damage. The operating temperature of AccessWrap cable is -40 to +85°C (-40 to +185°F). AccessWrap can be installed just about anywhere.

Q: Is AccessWrap affected by Lightning?
A: No, Lightning will never 'strike' AccessWrap because the lightning will ground itself directly on the host conductor rather than passing through the dielectric material of AccessWrap. Although large amounts of heat can be generated in the conductor by a lightning strike, thermal transfer between the conductor and AccessWrap is minimal because of the small contact area. Testing has shown AccessWrap remains undamaged following a lightning strike with enough energy to melt 4 strands in an ACSR conductor.

Q: Is AccessWrap damaged by dry-band arcing, corona, or other electric field related effects?
A: No, not at all. Unlike ADSS, AccessWrap is in constant contact with its host conductor along its entire length. This arrangement does not allow electric charge to build up on the dielectric cable and there is nothing to drive currents across the surface of the cable.
Where AccessWrap leaves the protection of an energised host phase conductor - for example to travel down the pole to a joint box - it is protected by a Phase-to-Ground (PTG) insulator that is designed to withstand the electric field environment.

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Q: Can AccessWrap be installed on copper conductors?
A: Yes AccessWrap can be installed on any conductor type.

Q: What hardware is needed to secure AccessWrap to the conductor?
A: AccessWrap is a complete installed cable solution and uses a range of specialised accessories and hardware to safely assist the AccessWrap cable around the structures of the host conductor. Conductor mounted joint cases can be installed on the line every 1.4km (0.8 miles), this enclosure is held at the same electrical potential as the conductor keeping the joint protected by the Faraday Effect. The AccessWrap cable is passed around and kept away from conductor fittings using specially designed bypass accessories and a Section Pole Insulator at jumper locations removing the need for a joint. The cable is passed down the tower to joint enclosures via a specially designed system called Phase-to-Ground. This system provides electrical isolation and mechanical support to transition the AccessWrap cable from phase conductor to tower mounted enclosure.

Q: What is the effect of ice accretion on AccessWrap?
A: AccessWrap remains unaffected by ice build-up on overhead line conductors.

Q: Does AccessWrap accelerate ice build up on overhead lines?
A: Experience has shown that initially ice does build up quickly on the overhead conductor which is equipped with AccessWrap. However, once the layer of ice fully covers the AccessWrap cable, the subsequent rate of build is the same as a non-wrapped conductor. AccessWrap does not cause any gross irregularities in the build-up of ice and therefore does not lead to wind-induced problems or mechanical instabilities in the ice layer.

Q: Does AccessWrap cause conductors to gallop?
A: No, the helical wrapping of AccessWrap cable disturbs laminar airflow over a conductor in the open span of an overhead line. This can actually reduce the tendency for aeolian vibration to develop and may also prevent aerodynamic lift.

Q: Can AccessWrap unwind (un-wrap) during service?
A: No, the AccessWrap installation equipment wraps the AccessWrap cable along the host conductor under constant and controlled tension at a pitch length of about 900mm (3ft). It is the accurate control of installation tension that ensures the AccessWrap cable remains in contact with the host throughout the operating envelop of the overhead line – allowing for thermal expansion and contraction of the host, and it's stretching due to ice and wind loads.

Q: What is the maximum fibre count?
A: A single AccessWrap cable carries a maximum of 48 fibres.

Q: What is the service life of AccessWrap?
A: AccessWrap has a design life of 30 years. AFL's similar product, SkyWrap which is installed on higher voltage transmission lines has recently been checked on some of the oldest installations and have shown it to have suffered no measurable deterioration after more than 20 years in service. The oldest known SkyWrap installation still in service was installed in the UK in 1987.

Q: How does AccessWrap compare to ADSS?
A: AccessWrap and ADSS are not strictly comparable – they are different technologies and are often used to compliment each other. AccessWrap can be used in the same situations as ADSS in the distribution network but can also be used in the following circumstances:

- Towers or poles unable to support the extra load of ADSS cable (especially under ice and wind loads)
- Insufficient ground clearance under the line to allow ADSS to be installed
- When ADSS would clash with other overhead conductors
- Where there is a risk of theft or vandalism to ADSS cables
- When the local environment has high levels of pollution
- When the line is close to the sea (within 20km / 12 miles)
- Where regions have low annual rainfall, with long dry periods and occasional mist or fog
- Access to the line is difficult (mountainous, forested or water-logged terrain, urban areas, high value crops, nature reservations or on military grounds)
- When planning consents for additional aerial cable cannot be obtained

Q: How will AccessWrap affect conductor line maintenance?
A: Normal line maintenance can still be carried out effectively with AccessWrap installed. AFL has developed strategies to introduce slack into the AccessWrap cable to enable it to be moved aside from the conductor while repairs are carried out. The AccessWrap cable does not need to be cut or replaced and will continue to carry traffic throughout the maintenance procedure.

Q: How are repairs to AccessWrap carried out?
A: AFL has a range of tried and tested AccessWrap repair methods and is able to provide assistance and advice on the best solution for a particular scenario. Typically it is necessary to remove the damaged span of AccessWrap using a specially developed AFL recovery device, then install a new span of cable, and a new splice box.

Q: What lifetime support can AFL offer?
A: AccessWrap is very reliable and requires very little maintenance during its life. However, where a customer requires the security of long term maintenance support, AFL offers a range of packages tailored to the size and type of AccessWrap link or network and the needs of the customer.

Support packages typically range from a guaranteed service response, including long term lease of specialist installation equipment with support from AFL Engineers to a simple spares stockholding arrangement. Condition assessment packages can be offered to provide regular reports on the condition of an AccessWrap link.

Q: Can AccessWrap be removed from the overhead line once it has been installed
A: Yes, AccessWrap can easily be removed using equipment provided by AFL. A special device is attached to the front of an installation equipment, which moves along the phase conductor collecting the cable in front of the equipment in loops. The cable, clamps and fittings are cut, unbolted or removed to leave overhead lines clean and unmodified by the AccessWrap installation and removal.