Nexans AmerCable

Tiger Tips

SPLICING NEXANS AMERCABLE MINING CABLES

Procedures for splicing trailing cables are many in number and various in methodology. Of these, some work well, others are average, and some do not hold for long. The requisite of any splice is to remove the damaged portion and rebuild the cable as closely as possible to the original factory manufacture. This involves several key steps that will influence all of the following: cable function, cable reliability, life of the splice itself and subsequent downtime. It is not the purpose of this paper togive detailed step-by-step procedures for splicing. Kit manufacturers provide these. The purpose is to highlight key areas of splicing which are not usually emphasized enough. Some of these items will require a little more splice time and effort initially, but this will pay back dividends in the long run.

Important points to remember are:

1. Cut out all twists, kinks, and crushed spots. If there are several splices close together, remove them all and make one (1) splice. This will eliminate many of the weak spots.
2. When stripping the jacket, make the initial cuts so the ends are tapered. The taper should be six (6) times the jacket thickness, minimum. This taper will promote adhesion with the splice jacket and reduce the possibility of moisture entering the cable. Flat cables have a thinner jacket which does not have to be removed from the splice area, but may be if desired.
3. Always take care to avoid nicking or cutting the underlying components and materials. Whether it is the strand, the insulation, or the shielding, subsequent problems can arise.
4. When trimming back the shielding components of Type SHD cable or Mine Power Feeder, make square, even cuts. Leave no loose threads or sharp points protruding out. These can initiate corona in the splice.
5. Always clean the insulation surface before any taping procedure is done. This especially pertains to Mine Power Feeders where a semi-conductive paint is applied to the insulation surface at the factory. Any cable with a semi-conductive rubber or semi-conductive tape insulation shield should be extra carefully cleaned and checked. Use of aluminum oxide cloth is sometimes necessary to buff out all traces of the semi-conductive material. Do not use regular sandpaper, as it may be conductive. Failure to eliminate semi-conductive residue can result in tracking of high voltage down the insulation surface and subsequent splice failure.
6. Stagger connections on all conductors to reduce bulkiness in the splice and aid in flexibility. If crimp connectors are used make sure they are tight, but not to the point of crushing individual wires.
7. Rebuild the helix of the conductors in all round cables. Running the conductors “straight through” will result in poor fatigue resistance and poor flexibility.
8. Equalize the length on the power conductors when making the crimp connection. Careful measurements and visual observation can achieve this. Attention to detail as each crimp is made will yield good results. The best way to equalize lengths is to make all of the power conductor crimps first, then spread the conductors apart, reinsulated, rebuild shielding, etc.
9. Splice the grounds and ground check back together staggering the points of connection and allowing some slack. The slack will keep tension off of these small conductors.
10. Finish the splice with the new jacket. Make sure the factory jacket is clean and the surface roughened. This will promote adhesion where the jackets overlap, as will the use of adhesive where required by the splice kit manufacturer.

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