

Benefits of Flat Profile Copper/Nylon Braid Shielding for Underground Mining Applications



Many specifications have been in existence for years and extensive field experience has borne out the viability through actual use of these designs. Considering this, the U.S. specification ICEA (Insulated Cable Engineers Association) S-75-381 was originally written and incorporated over 50 years ago. It describes and specifies the flat profile braid shield. These flexible shielded power cables for mining have had and continue to have an extremely good track record on all mining equipment.



The shielding system is designed for mechanical resistance to flexing, torsion, tension, and shear. Nexans AmerCable Type SHD-GC cables are manufactured with composite braids of fabric twine and copper. The wires are pre-assembled on a machine to assure the wires remain parallel when woven onto the single conductor. This non-twisted configuration lays flat on the insulation surface at the time of placement. This spreads the mechanical forces out over the perimeter of the phase insulation surface and particularly at the axial interface of the power conductors. This is the reason that the nylon/copper braid has been so successful in the field. The nylon provides a cushion, eliminates the wear points, and 60 to 80% copper coverage can be

achieved. Longer life is the result. When compared to other materials commonly used in composite braids, Nexans AmerCable nylon is strong and tough and holds up very well. Nexans AmerCable nylon also is resistant to moisture related deterioration, being an inorganic substance.

Nexans AmerCable non-twisted carriers of the braid shield eliminate “high points” of individual wires at the contact points. This minimizes wear due to shear and abrasion better than twisted bunches. Twisted bunches will literally cut adjacent wires, especially when the cable is under tension and/or torsion. Nexans AmerCable Type SHD-GC cables can be flexed and bent in a tight radius (6 times the cable outside diameter). Nexans AmerCable utilizes a short helix of the braiding wires for maximum flexibility and fatigue resistance. Maintaining the short helix yields longer life and the strands will not kink or “bird cage” like competitive cables having a long helix of the shield wires. This provides extended cable life for Nexans AmerCable Tiger[®] Brand SHD-GC cables.