

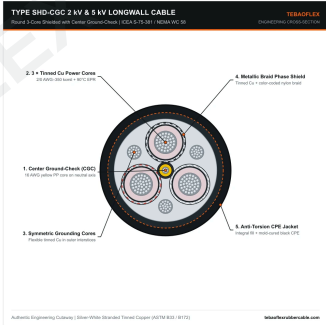
Type SHD-CGC 3/C 2000 V & 5000 V Center Ground-Check Longwall Cable

Type SHD-CGC 2 kV and 5 kV round portable mining cables are engineered specifically for high-cycle underground longwall shearers, articulated automatic cable-handling chains, and monospiral reels. In conventional interstitial SHD-GC cables, rapid reverse S-bending stretches and fatigues the outer ground-check wire; Type SHD-CGC solves this failure mode by cushioning the yellow ground-check conductor along the zero-strain geometric center axis while balancing ground return across symmetric interstitial tinned copper grounds.

1. CABLE CONSTRUCTION

1. Center Ground-Check (1×)	High-flexibility 16 AWG stranded tinned copper pilot conductor insulated with yellow polypropylene and cushioned along the central neutral axis of the cable.
2. Power Conductors (3×)	Flexible rope-lay stranded annealed tinned copper conductors (2/0 AWG, 3/0 AWG, 4/0 AWG, and 350 kcmil; 323 to 888 strands) per ASTM B172 and ASTM B33.
3. Strand Shield & 90°C EPR	Semiconducting strand stress-control layer (standard on 5 kV) beneath 90°C Ethylene Propylene Rubber (EPR): 80–95 mil wall at 2 kV; 110–120 mil wall at 5 kV.
4. Individual Phase Shielding	Tinned copper and color-coded nylon tracer braid shield (Black, White, Red phase identification) applied over each insulated power conductor.
5. Symmetric Grounding Cores	Flexible stranded bare tinned copper grounding conductors (5 AWG to 1 AWG, 133 to 259 strands) laid symmetrically in the outer interstices in contact with the phase shields.
6. Integral Fill & CPE Jacket	Non-conducting separator tape and pure integral torsion-resistant fill beneath a reinforced mold-cured extra-heavy-duty black CPE jacket (205–265 mil wall).

Cross-Section Reference



Type SHD-CGC round longwall cutaway: 16 AWG yellow PP Ground-Check core at the exact geometric center, 3 braided EPR power phases, symmetric bare grounds, and anti-torsion CPE jacket.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated Voltage Classes	Up to 2,000 V AC (2 kV Series) Up to 5,000 V AC (5 kV Longwall Series)
Core Configuration	Round 3 shielded power cores + outer interstitial grounds + 1 center 16 AWG yellow GC core
Maximum Conductor Temperature	+90°C continuous operation +130°C emergency overload +250°C short circuit
Minimum Bending Radius	6 × overall cable diameter (static); 8 × OD inside dynamic longwall cable-handler troughs
Outside Diameter Tolerance	+8% / -5% of nominal overall diameter
Standards & Approvals Ref.	ICEA S-75-381 / NEMA WC 58; ASTM B172 & ASTM B33; MSHA & Pennsylvania DEP flame-resistant reference

3. DIMENSIONAL, GROUNDING & AMPACITY SPECIFICATIONS

Table 1: Type SHD-CGC 3/C 2000 V (2 kV) — Round Center Ground-Check Longwall Cable							
Power + Ground Size	Area (mm²)	Power / Ground Strands	Center GC	Insul. / Jkt (mil)	Nominal OD (in / mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 2/0 AWG + 5 AWG Gnd	67.43	323 / 133	16 AWG	80 / 205	2.09 / 53.1	3,400 / 5,059	243
3 × 3/0 AWG + 4 AWG Gnd	85.01	418 / 259	16 AWG	80 / 205	2.21 / 56.1	3,934 / 5,855	279
3 × 4/0 AWG + 3 AWG Gnd	107.2	532 / 259	16 AWG	80 / 220	2.36 / 59.9	4,860 / 7,231	321
3 × 350 kcmil + 1 AWG Gnd	177.3	888 / 259	16 AWG	95 / 250	2.81 / 71.4	7,400 / 11,012	435

Table 2: Type SHD-CGC 3/C 5000 V (5 kV) — Medium-Voltage Center Ground-Check Longwall Cable							
Power + Ground Size	Area (mm²)	Power / Ground Strands	Center GC	Insul. / Jkt (mil)	Nominal OD (in / mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 2/0 AWG + 5 AWG Gnd	67.43	323 / 133	16 AWG	110 / 220	2.20 / 55.9	3,716 / 5,529	243
3 × 3/0 AWG + 4 AWG Gnd	85.01	418 / 259	16 AWG	110 / 235	2.36 / 59.9	4,130 / 6,146	279
3 × 4/0 AWG + 3 AWG Gnd	107.2	532 / 259	16 AWG	110 / 235	2.50 / 63.5	5,190 / 7,723	321
3 × 350 kcmil + 1 AWG Gnd	177.3	888 / 259	16 AWG	120 / 265	2.95 / 74.9	7,571 / 11,265	435

Custom Longwall Sizes: Additional power gauges (such as 3 × 250 kcmil or 3 × 500 kcmil) and reinforced aramid-core center pilot wires or extra-tough TPU outer sheaths can be manufactured to match OEM shearer cable-handler trough dimensions.