

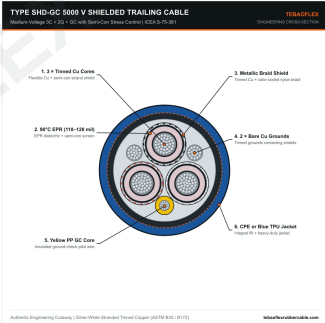
Type SHD-GC 3/C 5000 V Medium-Voltage Shielded Mining Trailing Cable

Type SHD-GC 5000 V medium-voltage portable power cable feeds high-output 2,400 V and 4,160 V underground longwall shearers, high-seam continuous miners, loading shovels, rotary blast-hole drills, and floating cutterhead dredges. Manufactured strictly to ICEA S-75-381 / NEMA WC 58, it upgrades dielectric reliability over 2 kV trailing cables by adding extruded semi-conducting conductor and insulation stress-control shields around a heavy 110–120 mil ozone-resistant EPR wall.

1. CABLE CONSTRUCTION

1. Power Conductors (3×)	Flexible rope-lay stranded annealed tinned copper conductors, 6 AWG (133 strands) through 500 kcmil (1,221 strands), per ASTM B172 and ASTM B33.
2. Conductor Stress Shield	Extruded thermosetting semi-conducting strand shield bonded over each flexible tinned copper conductor to eliminate air-void ionization.
3. 5 kV EPR Insulation	Corona- and ozone-resistant +90°C Ethylene Propylene Rubber (EPR): 110 mil (2.79 mm) wall for 6 AWG–4/0 AWG and 120 mil (3.05 mm) wall for 250–500 kcmil.
4. Insulation Screen & Braid	Extruded/taped semi-conducting insulation shield overlaid with a tinned copper and color-coded nylon tracer braid (minimum 60% metal coverage) on every power core.
5. Grounds (2×) & GC Pilot (1×)	Two uninsulated stranded tinned copper grounding conductors (10 AWG to 4/0 AWG) contacting the phase shields, plus one 8 AWG yellow polypropylene-insulated ground-check core.
6. Outer Jacket (CPE or TPU)	Integral elastomeric fill and reinforcing binder under a heavy 185–280 mil mold-cured black CPE jacket or high-visibility extra-tough TPU jacket.

Cross-Section Reference



Type SHD-GC 5kV cutaway: 3 tinned copper phases with semi-con shields, 110–120 mil EPR, tinned copper braid screens, 2 bare grounds, 8 AWG yellow GC, and CPE/TPU sheath.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated System Voltage	5,000 V AC maximum (100% / 133% insulation level reference for 4.16 kV mine systems)
Conductor Temperature Rating	+90°C continuous operation +130°C emergency overload +250°C short circuit
Ambient Operating Range	-40°C to +90°C (CPE jacket) -50°C to +90°C (TPU jacket)
Minimum Bending Radius	6 × overall cable diameter (static routing); 8–10 × OD on motorized monospiral reels
Diameter Tolerance	+8% / -5% of nominal outside diameter
Design & Compliance Standards	ICEA S-75-381 / NEMA WC 58; ASTM B172 & ASTM B33; CAN/CSA-C22.2 No. 96; MSHA flame-resistant reference

3. DIMENSIONAL, GROUNDING & AMPACITY SPECIFICATIONS

Table 1: Type SHD-GC 3/C 5000 V — Reinforced Mold-Cured CPE Jacket (6 AWG to 500 kcmil)								
Power Cores	Area (mm²)	Power Strands	Grounding 2 × AWG (Strands)	GC Pilot	Insul. / Jkt (mil)	Nominal OD (in / mm)	Approx. Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 6 AWG	13.30	133	2 × 10 (49)	8 AWG	110 / 185	1.56 / 39.6	1,560 / 2,322	93
3 × 4 AWG	21.15	259	2 × 8 (133)	8 AWG	110 / 185	1.68 / 42.7	1,920 / 2,857	122
3 × 2 AWG	33.62	259	2 × 6 (133)	8 AWG	110 / 205	1.87 / 47.5	2,500 / 3,720	159
3 × 1 AWG	42.41	259	2 × 5 (133)	8 AWG	110 / 205	1.95 / 49.5	2,860 / 4,256	184
3 × 1/0 AWG	53.49	266	2 × 4 (259)	8 AWG	110 / 220	2.08 / 52.8	3,390 / 5,045	211
3 × 2/0 AWG	67.43	323	2 × 3 (259)	8 AWG	110 / 220	2.20 / 55.9	3,830 / 5,700	243
3 × 3/0 AWG	85.01	418	2 × 2 (259)	8 AWG	110 / 235	2.36 / 59.9	4,418 / 6,575	279
3 × 4/0 AWG	107.2	532	2 × 1 (259)	8 AWG	110 / 235	2.50 / 63.5	5,300 / 7,887	321
3 × 250 kcmil	126.7	627	2 × 1/0 (266)	8 AWG	120 / 250	2.69 / 68.3	6,450 / 9,599	355
3 × 350 kcmil	177.3	888	2 × 2/0 (323)	8 AWG	120 / 265	2.95 / 74.9	7,880 / 11,727	435
3 × 500 kcmil	253.4	1221	2 × 4/0 (532)	8 AWG	120 / 280	3.31 / 84.1	10,440 / 15,536	536

Table 2: Type SHD-GC 3/C 5000 V — Extra-Tough TPU Jacket (6 AWG to 500 kcmil)								
Power Cores	Area (mm²)	Power Strands	Grounding 2 × AWG (Strands)	GC Pilot	Insul. / Jkt (mil)	Nominal OD (in / mm)	Approx. Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 6 AWG	13.30	133	2 × 10 (49)	8 AWG	110 / 185	1.56 / 39.6	1,342 / 1,997	93
3 × 4 AWG	21.15	259	2 × 8 (133)	8 AWG	110 / 185	1.68 / 42.7	1,629 / 2,424	122
3 × 2 AWG	33.62	259	2 × 6 (133)	8 AWG	110 / 205	1.87 / 47.5	2,228 / 3,316	159
3 × 1 AWG	42.41	259	2 × 5 (133)	8 AWG	110 / 205	1.95 / 49.5	2,447 / 3,642	184
3 × 1/0 AWG	53.49	266	2 × 4 (259)	8 AWG	110 / 220	2.08 / 52.8	2,760 / 4,107	211
3 × 2/0 AWG	67.43	323	2 × 3 (259)	8 AWG	110 / 220	2.20 / 55.9	3,238 / 4,819	243
3 × 3/0 AWG	85.01	418	2 × 2 (259)	8 AWG	110 / 235	2.36 / 59.9	3,792 / 5,643	279
3 × 4/0 AWG	107.2	532	2 × 1 (259)	8 AWG	110 / 235	2.50 / 63.5	4,548 / 6,768	321
3 × 250 kcmil	126.7	627	2 × 1/0 (266)	8 AWG	120 / 250	2.69 / 68.3	5,427 / 8,076	355
3 × 350 kcmil	177.3	888	2 × 2/0 (323)	8 AWG	120 / 265	2.95 / 74.9	7,070 / 10,521	435
3 × 500 kcmil	253.4	1221	2 × 4/0 (532)	8 AWG	120 / 280	3.31 / 84.1	9,407 / 13,999	536

Coupler Sizing Note: Both CPE and TPU versions share identical nominal outside diameters (1.56 in to 3.31 in), allowing standard 5 kV flanged medium-voltage mining cable couplers and strain-relief glands to fit either jacket without adapter modifications.