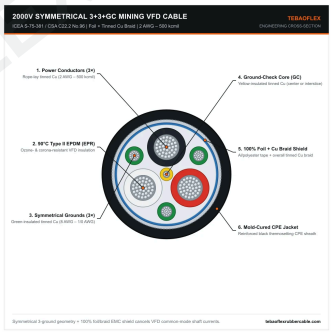
2000 V Symmetrical 3+3+GC Shielded Mining VFD Power Cable

2000 V Symmetrical 3+3+GC Mining VFD Power Cable is purpose-engineered for variable-frequency AC motor drives on underground longwall shearers, armored face conveyors, continuous haulage systems, mine hoist/slurry pump skids, and surface excavator/crusher VFDs. Splitting the equipment ground into three equal green-insulated conductors arranged at 120-degree intervals inside a 100% foil-plus-copper-braid shield balances phase-to-ground capacitance, suppresses reflected voltage spikes, and diverts destructive bearing currents away from mine motor shafts while maintaining continuous MSHA ground-check loop monitoring.

1. CABLE CONSTRUCTION

1. Power Conductors (3×)	Three extra-flexible rope-lay stranded annealed tinned copper conductors (2 AWG to 500 kcmil) per ASTM B172 and ASTM B33.
2. 90°C Type II EPDM Insulation	High-dielectric-strength, ozone- and corona-resistant Type II EPDM (EPR) rubber rated +90°C continuous to withstand repetitive PWM inverter voltage reflections.
3. Symmetrical Grounds (3×)	Three flexible rope-lay stranded tinned copper grounding conductors (8 AWG to 1/0 AWG), insulated and colored Green, placed symmetrically at 120° intervals.
4. Ground-Check Conductor (GC)	Flexible stranded tinned copper pilot conductor with yellow insulation (available as neutral-axis center ground-check or interstitial ≥14 AWG pilot).
5. 100% Foil + Cu Braid Shield	Overall 100%-coverage aluminum/polyester metallic tape combined with a high-coverage flexible tinned copper wire braid shield.
6. Mold-Cured Black CPE Jacket	Reinforced extra-heavy-duty mold-cured thermosetting Chlorinated Polyethylene (CPE) outer sheath (155 mil to 265 mil wall; ±5% OD tolerance).

Cross-Section Reference



2000V 3+3+GC VFD cross-section: 3 Type II EPDM power cores, 3 symmetrical green-insulated grounds, yellow GC pilot, 100% Al/polyester foil + tinned copper braid, and mold-cured CPE jacket.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated Voltage	2,000 V AC continuous (engineered for PWM variable-frequency AC drives up to 2 kV class)
Conductor Architecture	Round symmetrical: 3 power + 3 green insulated grounds + 1 yellow ground-check
Overall EMC Shielding	100% coverage aluminum/polyester tape + overall tinned copper wire braid
Temperature Rating	+90°C maximum continuous conductor temperature | +40°C base ampacity ambient
Manufacturing OD Tolerance	±5% of nominal overall cable outside diameter
Standards Reference	ICEA S-75-381 / NEMA WC 58; ASTM B172 & ASTM B33; CAN/CSA-C22.2 No. 96

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3. DIMENSIONAL, GROUNDING & AMPACITY SPECIFICATIONS

Table 1: 2000 V Symmetrical 3 Power + 3 Ground + Ground-Check VFD Cable — Foil + Braid Shielded CPE

Power Cores	Area (mm²)	Symmetrical Grounds	GC Core	EMC Shield	Jacket Wall (in / mm)	Nominal OD (in / mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 2 AWG	33.62	3 × 8 AWG	Yellow GC	Braid + Foil	0.155 / 3.9	1.43 / 36.3	1,790 / 2,664	159
3 × 1 AWG	42.41	3 × 7 AWG	Yellow GC	Braid + Foil	0.170 / 4.3	1.64 / 41.7	2,150 / 3,199	184
3 × 1/0 AWG	53.49	3 × 6 AWG	Yellow GC	Braid + Foil	0.170 / 4.3	1.74 / 44.2	2,550 / 3,795	211
3 × 2/0 AWG	67.43	3 × 5 AWG	Yellow GC	Braid + Foil	0.190 / 4.8	1.89 / 48.0	3,100 / 4,613	243
3 × 3/0 AWG	85.01	3 × 4 AWG	Yellow GC	Braid + Foil	0.190 / 4.8	2.01 / 51.1	4,050 / 6,027	279
3 × 4/0 AWG	107.2	3 × 3 AWG	Yellow GC	Braid + Foil	0.220 / 5.6	2.17 / 55.1	4,390 / 6,533	321
3 × 250 kcmil	126.7	3 × 3 AWG	Yellow GC	Braid + Foil	0.220 / 5.6	2.40 / 61.0	5,950 / 8,855	355
3 × 350 kcmil	177.3	3 × 1 AWG	Yellow GC	Braid + Foil	0.235 / 6.0	2.68 / 68.1	7,840 / 11,667	435
3 × 500 kcmil	253.4	3 × 1/0 AWG	Yellow GC	Braid + Foil	0.265 / 6.7	3.03 / 77.0	9,730 / 14,480	536

Reel Layer Correction Factors: Base ampacities apply at +90°C conductor temperature in +40°C free air. When wound on mobile reels, multiply ampacity by **0.85** (1 layer), **0.65** (2 layers), **0.45** (3 layers), or **0.35** (4 layers). Center ground-check and custom colored CPE/TPU jackets are available upon request.

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