

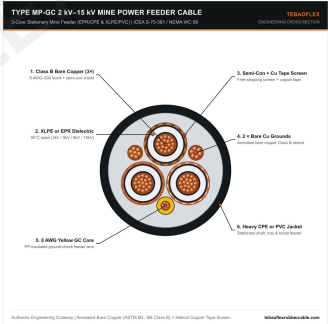
Type MP-GC 3/C 2 kV to 15 kV Stationary Mine Power Feeder Cable

Type MP-GC (Mine Power, Ground-Check) 2 kV through 15 kV cable is the North American standard stationary backbone feeder per ICEA S-75-381 / NEMA WC 58 for fixed and non-flexing mine distribution. Unlike dynamic trailing cables (Type SHD-GC) that require costly rope-lay tinned copper and flexible wire braids, Type MP-GC utilizes concentric Class B annealed bare copper conductors, overlapped copper-tape insulation shields, two bare copper grounds, and an internal yellow ground-check core—cutting feeder installation cost and diameter across mine tunnels, vertical shafts, trays, conduits, and direct burial.

1. CABLE CONSTRUCTION

1. Power Conductors (3×)	Three annealed bare copper conductors with compact or concentric-lay Class B stranding (7 strands on #6–#2 AWG, 19 strands on #1–4/0 AWG, 37 strands on 250–500 kcmil) per ASTM B3, B8, and B496.
2. Conductor Stress Shield	Extruded thermosetting semi-conducting conductor shield smoothly bonded over each stranded copper phase core.
3. 90°C EPR or XLPE Insulation	Choice of corona-resistant Ethylene Propylene Rubber (EPR, 2 kV–15 kV) or Cross-Linked Polyethylene (XLPE, 5 kV–15 kV): 90 mil (5 kV 100%), 115 mil (8 kV 100% / 5 kV 133%), or 175 mil (15 kV 100%).
4. Screen & Copper Tape Shield	Free-stripping extruded semi-conducting insulation shield with phase marker strips (Black, White, Red) beneath helically overlapped annealed bare copper tape screens.
5. Grounds (2×) & GC Core (1×)	Two uninsulated Class B bare annealed copper grounding conductors (10 AWG to 4/0 AWG) in two interstices, plus one 8 AWG yellow polypropylene-insulated bare copper ground-check conductor.
6. Heavy Feeder Outer Jacket	Heavy-duty black Chlorinated Polyethylene (CPE, optional two-layer fiber-reinforced CPE) or flame-/oil-resistant black Polyvinyl Chloride (PVC) outer sheath.

Cross-Section Reference



Type MP-GC feeder cutaway: 3 Class B bare copper phases, semi-con screens, XLPE/EPR dielectric, helically overlapped copper tape shields, 2 bare copper grounds, 8 AWG yellow GC, and CPE/PVC jacket.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated Voltage Classes	2,000 V 5,000 V (100% 90 mil) 8,000 V (100% 115 mil) 15,000 V (100% 175 mil)
Insulation / Jacket Systems	Option A: 90°C EPR Insulation + Heavy Black CPE Jacket Option B: 90°C XLPE Insulation + Heavy PVC Jacket
Conductor Temperature Rating	+90°C continuous normal operation +130°C emergency overload +250°C short circuit
Installation Operating Range	-40°C to +90°C (EPR/CPE) -20°C to +90°C (XLPE/PVC fixed service)
Minimum Bending Radius	12 × overall cable diameter (stationary horizontal, vertical, tray, duct, or direct burial)
Governing Standards	ICEA S-75-381 / NEMA WC 58; ASTM B3, B8 & B496; CAN/CSA-C22.2 No. 96; MSHA flame-resistant reference

3. DIMENSIONAL, GROUNDING & AMPACITY SPECIFICATIONS

Table 1: Type MP-GC 3/C 5,000 V (100% Level, 90 mil Wall; Also Covers Heavy 90-mil 2kV/5kV EPR/CPE & XLPE/PVC)								
Power Cores	Area (mm²)	Class B Strands	Grounds (2 × AWG)	GC Core	Insul. / Jkt (in / mm)	Overall OD (in / mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
3 × 6 AWG	13.30	7	2 × 10 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.30 / 33.0	1,060 / 1,577	93
3 × 4 AWG	21.15	7	2 × 8 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.41 / 35.8	1,441 / 2,144	122
3 × 2 AWG	33.62	7	2 × 6 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.47 / 37.3	1,827 / 2,718	159
3 × 1 AWG	42.41	19	2 × 5 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.54 / 39.1	2,168 / 3,226	184
3 × 1/0 AWG	53.49	19	2 × 4 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.63 / 41.4	2,602 / 3,871	211
3 × 2/0 AWG	67.43	19	2 × 3 AWG	8 AWG	0.090 / 0.110 (2.3 / 2.8)	1.72 / 43.7	3,010 / 4,478	243
3 × 3/0 AWG	85.01	19	2 × 2 AWG	8 AWG	0.090 / 0.140 (2.3 / 3.6)	1.89 / 48.0	3,265 / 4,859	279
3 × 4/0 AWG	107.2	19	2 × 1 AWG	8 AWG	0.090 / 0.140 (2.3 / 3.6)	2.01 / 51.1	4,190 / 6,234	321
3 × 250 kcmil	126.7	37	2 × 1/0	8 AWG	0.090 / 0.140 (2.3 / 3.6)	2.10 / 53.3	4,825 / 7,179	355
3 × 350 kcmil	177.3	37	2 × 2/0	8 AWG	0.090 / 0.140 (2.3 / 3.6)	2.31 / 58.7	6,062 / 9,019	435
3 × 500 kcmil	253.4	37	2 × 4/0	8 AWG	0.090 / 0.140 (2.3 / 3.6)	2.59 / 65.8	8,427 / 12,538	536

Table 2: Type MP-GC 3/C 8,000 V (115 mil Wall) & 15,000 V (175 mil Wall) — ICEA S-75-381 MV Feeder Reference								
Power Cores	Grounds (2 × AWG)	8 kV Insul./Jkt (mil)	8 kV Nominal OD (in / mm)	8 kV Weight (lb/kft / kg/km)	15 kV Insul./Jkt (mil)	15 kV Nominal OD (in / mm)	15 kV Weight (lb/kft / kg/km)	Ampacity (8kV / 15kV)
3 × 2 AWG	2 × 6 AWG	115 / 110	1.63 / 41.4	1,960 / 2,917	175 / 140	1.95 / 49.5	2,410 / 3,586	159 / 164
3 × 1 AWG	2 × 5 AWG	115 / 110	1.71 / 43.4	2,310 / 3,438	175 / 140	2.03 / 51.6	2,780 / 4,137	184 / 187
3 × 1/0 AWG	2 × 4 AWG	115 / 110	1.80 / 45.7	2,745 / 4,085	175 / 140	2.12 / 53.8	3,230 / 4,807	211 / 215
3 × 2/0 AWG	2 × 3 AWG	115 / 140	1.95 / 49.5	3,260 / 4,851	175 / 140	2.22 / 56.4	3,690 / 5,491	243 / 246
3 × 4/0 AWG	2 × 1 AWG	115 / 140	2.18 / 55.4	4,430 / 6,593	175 / 140	2.46 / 62.5	4,920 / 7,322	321 / 325
3 × 250 kcmil	2 × 1/0	115 / 140	2.28 / 57.9	5,090 / 7,575	175 / 140	2.57 / 65.3	5,610 / 8,349	355 / 359
3 × 350 kcmil	2 × 2/0	115 / 140	2.50 / 63.5	6,390 / 9,509	175 / 170	2.84 / 72.1	7,120 / 10,596	435 / 439
3 × 500 kcmil	2 × 4/0	115 / 170	2.83 / 71.9	8,890 / 13,230	175 / 170	3.11 / 79.0	9,480 / 14,108	536 / 540

100% vs. 133% Insulation Level Note: Per ICEA S-75-381, a 90 mil dielectric wall corresponds to 5 kV (100% grounded/monitored system), 115 mil corresponds to 8 kV (100%) or 5 kV (133%), and 175 mil corresponds to 15 kV (100%) or 13.8 kV mine ring-bus distribution. Armored borehole/shaft wire-armored MP-GC builds are also available on request.