

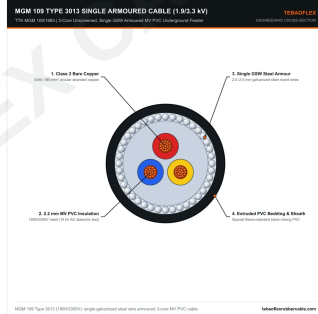
MGM 109 Type 3013 Unscreened Single-Armoured MV Mining Cable (1900/3300V)

MGM 109 Type 3013 is a 1900/3300 V single galvanized steel wire armoured (SWA) 3-core PVC power cable conforming to Turkish standard TTK MGM 109/1983, engineered for fixed medium-voltage trunk distribution along horizontal mine roadways, underground pump stations, and surface coal-preparation plants.

1. CABLE CONSTRUCTION

1. Phase Conductor	Electrolytic circular stranded bare copper wire conforming to IEC 60228 Class 2 (50, 70, 95, 120, 150, and 185 mm ²).
2. Core Insulation	Medium-voltage PVC dielectric compound (2.2 mm nominal radial wall) laid up in trefoil contact.
3. Inner Bedding	Extruded PVC-based bedding compound (1.8 mm wall for 50–95 mm ² ; 2.2 mm wall for 120–185 mm ²) with optional galvanized steel separator tape.
4. Single GSW Armour (SWA)	Single helical layer of heavy galvanized steel round wires (2.0 mm diameter for 50–95 mm ² ; 2.5 mm diameter for 120–185 mm ²).
5. Outer Sheath	Black special flame-retardant PVC outer jacket (2.1 mm to 2.6 mm radial thickness) resistant to mine water, oils, and abrasion.

Cross-Section Anatomy



MGM 109 Type 3013 Cross-Section: Three Class 2 bare copper conductors with 2.2 mm MV PVC insulation, PVC inner bedding, single-layer 2.0–2.5 mm GSW wire armour, and special PVC sheath.

2. ELECTRICAL, MECHANICAL & STANDARD DATA

Reference Standard	Turkish Hard Coal Enterprises TTK MGM 109/1983 & IEC 60228 Class 2
Rated Voltage (Uo/U)	1900 / 3300 V
Routine AC Test Voltage	10 kV AC
Standard Cross-Sections	3x50, 3x70, 3x95, 3x120, 3x150, 3x185 mm ² (16–35 mm ² & 240–400 mm ² on request)
Continuous Current (25°C)	168 A (3x50 mm ²) to 382 A (3x185 mm ²)
Minimum Bending Radius	9 x maximum overall cable diameter (378 mm to 567 mm)
Armour DC Resistance	0.645 Ω/km (3x50 mm ²) down to 0.165 Ω/km (3x185 mm ²) at 20°C
Installation Environment	Fixed roadway brackets, cable trenches, underground substations, and surface plant

3. DIMENSIONAL, ARMOUR & ELECTRICAL SPECIFICATIONS

MGM 109 Type 3013 (1900/3300V) — Unscreened Single-Armoured Schedule (3x50 to 3x185 mm²)													
Cable Type	Insul. (mm)	Inner Sheath (mm)	Inner Dia. (mm)	SWA Wire (mm)	Outer Sheath (mm)	Min. OD (mm)	Max. OD (mm)	Min. Bend (mm)	Current 25°C (A)	Cond. R (Ω/km)	Armour R (Ω/km)	Cu Wt. (kg/km)	Cable Wt. (kg/km)
3x50	2.2	1.8	31.2	1.0 x 2.0	2.1	38.0	42.0	378	168	0.387	0.645	1600	4100
3x70	2.2	1.8	34.7	1.0 x 2.0	2.2	41.5	45.5	410	207	0.268	0.447	2300	5150
3x95	2.2	1.8	38.5	1.0 x 2.0	2.3	45.7	49.7	448	250	0.193	0.322	3200	6150
3x120	2.2	2.2	42.5	1.0 x 2.5	2.4	50.7	54.7	493	292	0.153	0.255	4000	7750
3x150	2.2	2.2	46.6	1.0 x 2.5	2.5	55.0	59.0	531	335	0.124	0.207	5000	9000
3x185	2.2	2.2	50.5	1.0 x 2.5	2.6	58.9	62.9	567	382	0.0991	0.165	6230	10500

Extended Sizes: Additional cross-sections (3x16–3x35 mm² and 3x240–3x400 mm²) can be engineered to MGM 109 Type 3013 upon request.