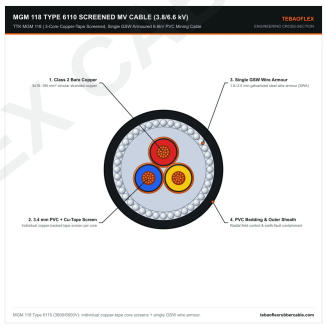
MGM 118 Type 6110 Copper-Tape Screened Single-Armoured MV Mining Cable (3800/6600V)

MGM 118 Type 6110 is a 3800/6600 V individually screened, single galvanized steel wire armoured (SWA) power cable compliant with Turkish TTK MGM 118, featuring copper-backed metallic tape screens over each 3.4 mm MV PVC phase core to eliminate phase-to-phase faults in gassy coal mines.

1. CABLE CONSTRUCTION

1. Conductor	Electrolytic circular stranded bare copper wire per IEC 60228 Class 2 (4.90 mm to 17.00 mm nominal conductor diameter across 16–185 mm²).
2. MV Insulation	3.4 mm nominal medium-voltage PVC dielectric compound applied concentrically over each phase conductor.
3. Individual Core Screen	Semiconductive stress-control layer wrapped helically with copper-backed metallic screening tape on each individual phase core to confine the 3.8/6.6 kV electric field radially.
4. Inner Bedding	Extruded PVC-based inner sheath (1.4 mm to 2.6 mm radial wall; 31.0 mm to 57.9 mm bedding diameter) over the three laid-up screened cores.
5. Single GSW Armour (SWA)	One concentric layer of galvanized steel round wires (1.6 mm wire on 3x16; 2.0 mm wire on 3x25–70; 2.5 mm wire on 3x95–185 mm²).
6. Outer Sheath	Special flame-retardant mining-grade PVC outer jacket (2.0 mm to 2.8 mm radial wall) resistant to mine water, oils, and rock abrasion.

Cross-Section Anatomy



MGM 118 Type 6110 Cross-Section: Three Class 2 bare copper conductors, 3.4 mm MV PVC insulation, semiconductive separator + individual copper-backed screening tape on each core, PVC bedding, single GSW armour (SWA), and special PVC sheath.

2. ELECTRICAL, MECHANICAL & STANDARD DATA

Reference Standard	Turkish Hard Coal Enterprises TTK MGM 118 & IEC 60228 Class 2
Rated Voltage (Uo/U)	3800 / 6600 V (3.8/6.6 kV AC Screened Medium-Voltage Systems)
Routine Dielectric Test	10,000 V (10 kV) AC between each phase conductor and grounded core screen
Cross-Section Range	3 x 16, 25, 35, 50, 70, 95, 120, 150, and 185 mm²
MV Insulation & Screen	3.4 mm MV PVC + Semiconductive Separator + Copper-Backed Tape Screen
Continuous Current (25°C)	94 A (3x16 mm²) up to 390 A (3x185 mm²) at 25°C ambient
Minimum Bending Radius	10 x maximum overall cable diameter (390 mm to 715 mm)
Armour DC Resistance (20°C)	1.92 Ω/km (3x16 mm²) down to 0.165 Ω/km (3x185 mm²)

TEBAOFLEX CABLE

3. DIMENSIONAL, ARMOUR & ELECTRICAL SPECIFICATIONS

MGM 118 Type 6110 (3800/6600V) — Copper-Tape Screened Single GSW Armoured (SWA) Schedule

Cable Size	Cond. Dia. (mm)	MV PVC Wall (mm)	Inner Sheath (mm)	Inner Dia. (mm)	SWA Wire Dia. (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)
3x16	4.90	3.4	1.4	31.0	1 x 1.6	2.0	35.0	39.0	390	94	1.15	1.92	631	2950
3x25	6.10	3.4	1.8	35.0	1 x 2.0	2.1	39.5	43.5	435	125	0.727	1.21	900	3860
3x35	7.10	3.4	1.8	37.5	1 x 2.0	2.2	43.0	47.0	470	150	0.524	0.873	1208	4450
3x50	8.40	3.4	1.8	38.9	1 x 2.0	2.2	44.0	48.0	480	175	0.387	0.645	1750	5450
3x70	10.00	3.4	1.8	41.7	1 x 2.0	2.3	47.5	51.5	515	220	0.268	0.447	2466	6850
3x95	11.80	3.4	2.2	45.7	1 x 2.5	2.5	53.5	57.5	575	265	0.193	0.322	3336	8900
3x120	13.30	3.4	2.2	49.6	1 x 2.5	2.6	57.0	61.0	610	305	0.153	0.255	4226	10380
3x150	15.20	3.4	2.2	53.7	1 x 2.5	2.6	61.0	65.0	650	345	0.124	0.207	5270	12150
3x185	17.00	3.4	2.6	57.9	1 x 2.5	2.8	67.5	71.5	715	390	0.0991	0.165	6498	14700

Copper Mass Verification: Notice the higher nominal copper weight on Type 6110 (e.g., $631\ kg/km$ vs. $461\ kg/km$ on $3x16\ mm^2$), reflecting the individual copper-backed metallic screening tapes applied over all three cores.

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