

Type W Flat 2/C & 4/C (600–2000 V) Parallel Shuttle-Car Mining Cable

Type W Flat 600 V to 2,000 V trailing cable is the workhorse unshielded flat reel cable for underground coal, trona, salt, and hard-rock mining machines where level-wind drums demand compact minor-axis bending and anti-crossover layer stacking. Available in two-conductor builds for DC shuttle cars and roof bolters, and four-conductor builds for three-phase AC shuttle cars, mobile pumps, drills, and extensible face conveyors.

1. CABLE CONSTRUCTION

1. Power Conductors (2× or 4×)	Flexible rope-lay stranded annealed tinned copper conductors (133/7×19 up to 532/19×28 stranding, 8 AWG to 4/0 AWG) per ASTM B172 and ASTM B33.
2. 90°C EPR Insulation	Heat-, moisture-, and ozone-resistant Ethylene Propylene Rubber (EPR): 0.060 in (1.52 mm) wall for 8–2 AWG; 0.080 in (2.03 mm) wall for 1–4/0 AWG.
3. Core Identification	2-Conductor Flat: Black, White 4-Conductor Flat: Black, White, Red, Green arranged parallel in a single plane.
4. Parallel Web & Reinforcement	Insulated conductors laid parallel with integral rubber web bridging and synthetic yarn reinforcement between jacket layers for high tensile tear strength.
5. Flat Mold-Cured CPE Jacket	Extra-heavy-duty black mold-cured Chlorinated Polyethylene (CPE) outer sheath (optional CSP, PCP/Neoprene, NBR, or PVC compounds on request).

Cross-Section Reference



Type W Flat 600–2000V cross-sections: (A) 2-Conductor Black & White DC shuttle-car profile and (B) 4-Conductor Black/White/Red/Green AC profile inside yarn-reinforced flat CPE.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated Voltage	600 V to 2,000 V AC / DC continuous underground & surface mining service
Configurations	Flat 2-Conductor (2/C) and Flat 4-Conductor (4/C), unshielded without bare grounds
Maximum Conductor Temperature	+90°C continuous operation +250°C short-circuit limit
Minimum Bending Radius	6 × minor flat cable height (H) across reel drums and guide rollers
Environmental Resistance	Heavy impact, rib abrasion, cutting, mineral oil, mud, moisture, ozone, and sunlight
Standards Reference	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 W Flat 2-Conductor (2/C) — 600–2000 V Shuttle-Car Cable (8 AWG to 4/0 AWG)							
Construction	Area (mm²)	Rope Strands	EPR Wall (in / mm)	Nominal H × W (in)	Nominal H × W (mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
2 × 8 AWG	8.37	133 (7×19)	0.060 / 1.52	0.51 × 0.84	13.0 × 21.3	340 / 506	72
2 × 6 AWG	13.30	133 (7×19)	0.060 / 1.52	0.56 × 0.93	14.2 × 23.6	440 / 655	95
2 × 4 AWG	21.15	259 (7×37)	0.060 / 1.52	0.61 × 1.05	15.5 × 26.7	580 / 863	127
2 × 2 AWG	33.62	259 (7×37)	0.060 / 1.52	0.73 × 1.24	18.5 × 31.5	850 / 1,265	167
2 × 1 AWG	42.41	259 (7×37)	0.080 / 2.03	0.81 × 1.40	20.6 × 35.6	1,070 / 1,592	191
2 × 1/0 AWG	53.49	259 (7×37)	0.080 / 2.03	0.93 × 1.51	23.6 × 38.4	1,310 / 1,949	217
2 × 2/0 AWG	67.43	329 (7×47)	0.080 / 2.03	0.99 × 1.63	25.1 × 41.4	1,600 / 2,381	250
2 × 3/0 AWG	85.01	418 (19×22)	0.080 / 2.03	1.03 × 1.77	26.2 × 45.0	1,930 / 2,872	287
2 × 4/0 AWG	107.2	532 (19×28)	0.080 / 2.03	1.10 × 1.89	27.9 × 48.0	2,300 / 3,423	328

Table 2: Type W Flat 4-Conductor (4/C) — 600–2000 V Underground Mining Cable (6 AWG to 4/0 AWG)							
Construction	Area (mm²)	Rope Strands	EPR Wall (in / mm)	Nominal H × W (in)	Nominal H × W (mm)	Weight (lb/kft / kg/km)	Ampacity 40°C (A)
4 × 6 AWG	13.30	133 (7×19)	0.060 / 1.52	0.67 × 1.69	17.0 × 42.9	895 / 1,332	72
4 × 4 AWG	21.15	259 (7×37)	0.060 / 1.52	0.75 × 1.89	19.1 × 48.0	1,185 / 1,764	93
4 × 2 AWG	33.62	259 (7×37)	0.060 / 1.52	0.84 × 2.23	21.3 × 56.6	1,620 / 2,411	122
4 × 1 AWG	42.41	259 (7×37)	0.080 / 2.03	0.97 × 2.60	24.6 × 66.0	2,100 / 3,125	143
4 × 1/0 AWG	53.49	259 (7×37)	0.080 / 2.03	1.01 × 2.73	25.7 × 69.3	2,500 / 3,720	165
4 × 2/0 AWG	67.43	329 (7×47)	0.080 / 2.03	1.10 × 2.96	27.9 × 75.2	2,900 / 4,316	192
4 × 3/0 AWG	85.01	413 (7×59)	0.080 / 2.03	1.18 × 3.25	30.0 × 82.6	3,500 / 5,209	221
4 × 4/0 AWG	107.2	532 (19×28)	0.080 / 2.03	1.29 × 3.46	32.8 × 87.9	4,225 / 6,287	255

Reel Layer Derating: Ampacity values apply to single free-air runs at +90°C conductor / +40°C ambient. For multi-layer shuttle-car reels, multiply base ampacity by 0.85 (1 layer), 0.65 (2 layers), 0.45 (3 layers), or 0.35 (4+ layers) per ICEA S-75-381.