

## Cost, Weight And Resistance Comparison - Stranded-wire Aluminum And Copper For EV Charging

Feature	Cable-1	Cable-1 Aluminum Equivalent	Cable-1 25%-Oversized Aluminum	Cable-2	Cable-2 Aluminum Equivalent	Cable-2 25%-Oversized Aluminum	Cable-3	Cable-3 Aluminum Equivalent	Cable-3 25%-Oversized Aluminum
Cable Size And Material	95 mm <sup>2</sup> Of Copper, 4 Meters Long	142.5 mm <sup>2</sup> Of Aluminum, 4 Meters Long	178 mm <sup>2</sup> Of Aluminum, 4 Meters Long	95 mm <sup>2</sup> Of Copper, 1 Meter Long	142.5 mm <sup>2</sup> Of Aluminum, 1 Meters Long	178 mm <sup>2</sup> Of Aluminum, 1 Meters Long	50 mm <sup>2</sup> Of Copper, 2 Meters Long	75 mm <sup>2</sup> Of Aluminum, 2 Meters Long	94 mm <sup>2</sup> Of Aluminum, 2 Meters Long
Current To Be Carried (Amp)	300	300	300	300	300	300	100	100	100
Metal Weight (Kg)	3.38	1.54	1.92	0.85	0.38	0.48	0.89	0.405	0.5076
Metal Weight (Pounds)	7.45	3.39	4.24	1.86	0.85	1.06	1.96	0.89	1.12
Metal Cost @ \$9/Kg For Copper And \$2.4/Kg For Aluminum	\$ 30.44	\$ 3.69	\$ 4.61	\$ 7.61	\$ 0.92	\$ 1.15	\$ 8.01	\$ 0.97	\$ 1.22
Cable Resistance (milli Ohms)	0.720	0.744	0.5955	0.180	0.186	0.149	0.684	0.706	0.564
Estimated Joint Resistance for Soldered Copper connectors (milli ohms)	0.015			0.015			0.029		
Welded connector joint resistances (estimated milli ohms)		0.001	0.001		0.001	0.001		0.001	0.001
Cost Savings \$		\$ 26.74	\$ 25.82		\$ 6.69	\$ 6.46		\$ 7.04	\$ 6.79
Resistance Reduction (milli ohms)		-0.010	0.139		0.008	0.045		0.006	0.148
Weight Savings (KG)		1.84	1.46		1.02	0.80		1.07	0.84





